9 TRANSPORTATION AND CIRCULATION

This chapter analyzes the potential impacts of the proposed project on the surrounding transportation system including roadways, bicycle/pedestrian facilities, and transit facilities/services. This chapter identifies the significant impacts of the proposed project and recommends mitigation measures to lessen their significance. All technical calculations can be found in Appendix G, as well as the parking analysis.

9.1 ENVIRONMENTAL SETTING

This section describes existing regional and local environmental conditions relevant to transportation and circulation.

9.1.1 Study Area Roadways and Intersections

Study intersections and roadways were selected for analysis in consultation with Placer County staff and based on the project's expected travel characteristics (i.e., project location and amount of project trips) as well as facilities susceptible to being affected by the project, and comments raised in response to the Notice of Preparation. In addition, a scoping meeting was held with California Department of Transportation (Caltrans) staff on February 27, 2012 to confirm study periods, locations, and analysis methods, as well as roadways that did not require study (such as the mainline for Interstate 80) because of the project size, peaking characteristics, and expected distribution. The following 13 intersections and nine study roadway segments were selected for study. Exhibit 9-1 displays the study intersections included in the transportation analysis, which encompass the "study area" for the project's transportation and circulation analysis.

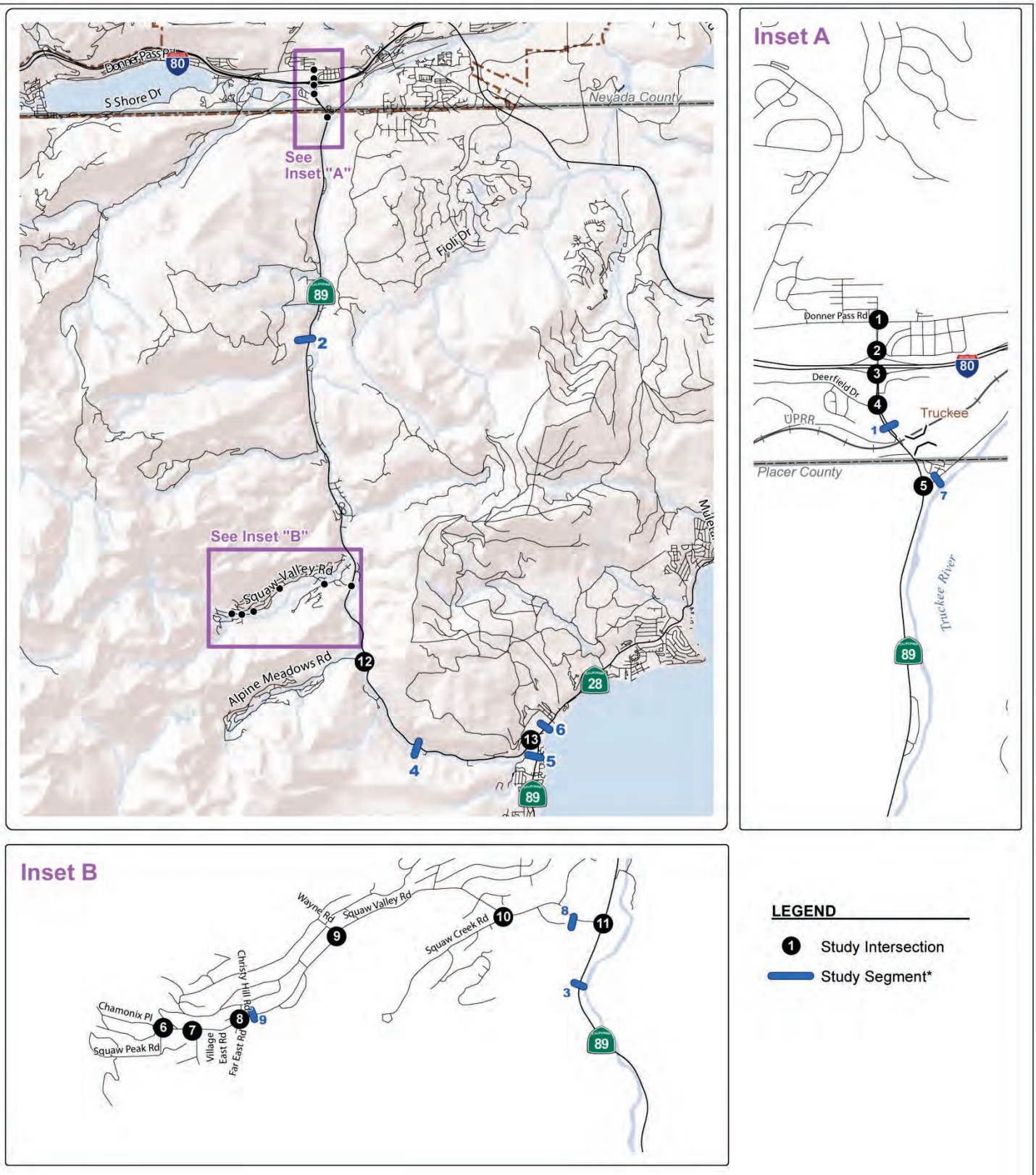
Intersections

1. State Route (SR) 89/Donner Pass Road/Frates Lane
2. SR 89/Interstate 80 (I-80) westbound (WB) Ramps
3. SR 89/I-80 eastbound (EB) Ramps
4. SR 89/Deerfield Drive
5. SR 89/West River Street
6. Squaw Valley Road/Chamonix Place
7. Squaw Valley Road/Village East Road
8. Squaw Valley Road/Far East Road/Christy Hill Road
9. Squaw Valley Road/Wayne Road
10. Squaw Valley Road/Squaw Creek Road
11. SR 89/Squaw Valley Road
12. SR 89/Alpine Meadows Road
13. SR 89/SR 28

Roadways

1. SR 89 between Deerfield Drive and West River Street
2. SR 89 between West River Street and Squaw Valley Road
3. SR 89 between Squaw Valley Road and Alpine Meadows Road
4. SR 89 between Alpine Meadows Road and SR 28
5. SR 89 south of SR 28
6. SR 28 east of SR 89
7. West River Street east of SR 89
8. Squaw Valley Road between SR 89 and Squaw Creek Road
9. Squaw Valley Road between Far East Road and Squaw Creek Road

Exhibit 9-1 shows that all study intersections are located along either SR 89 or Squaw Valley Road, which provide regional and local access to the project site.



Source: Received from Fehr and Peers in 2015

FEHR PEERS

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Exhibit 9-1

Study Area

ASCENT ENVIRONMENTAL

State Route 89 is a north-south state highway that extends throughout the study area from the Town of Truckee to Tahoe City and beyond. SR 89 has two lanes in each direction between Donner Pass Road and I-80. It continues south of I-80 as a four-lane highway, narrowing to a two-lane undivided highway south of Deerfield Drive. It continues as a two-lane highway to its junction with SR 28 in Tahoe City. Traffic signals exist on SR 89 at Donner Pass Road, Deerfield Drive, West River Street, Squaw Valley Road, and SR 28. The I-80/SR 89 interchange has multi-lane (i.e., two circulating lanes) roundabouts at each ramp terminal intersection. SR 89 has a posted speed limit of 40 miles per hour (mph) south of I-80, increasing to 45 mph south of the Union Pacific Railroad (UPRR) tunnel (i.e., "Mousehole"), and 55 mph south of West River Street. South of Squaw Valley Road, it has a posted speed limit of 45 mph, decreasing to 35 mph approaching Tahoe City. Seven distinct passing zones are provided on SR 89 between West River Street and Squaw Valley Road. Passing is not permitted south of Squaw Valley Road.

Squaw Valley Road extends westerly from SR 89 through Olympic Valley, terminating at the Squaw Valley Ski Resort (i.e., the existing Village area). Eastbound, beginning at Squaw Creek Road, Squaw Valley Road widens into two lanes which, at SR 89, is separated by a two-way left-turn lane. Eastbound drivers have the option to turn right toward Tahoe City via one right-turn lane, which merges onto SR 89. Westbound, entering the Valley, it is one lane until terminating at the Squaw Valley Ski Resort. From west of Squaw Creek Road to directly east of Christy Hill Road/Far East Road, it is a two-lane undivided roadway. This section includes shoulders on both sides of the road that enable the roadway to be operated as a three-lane roadway (via cones and traffic control personnel) during peak ski days. Between Christy Hill Road and Village East Road, it has one lane in each direction separated by a two-way left-turn lane or dedicated turn pocket. It continues westerly to Chamonix Place as a two-lane undivided road. All intersections along Squaw Valley Road feature minor street (stop sign) stop-control. Squaw Valley Road has a posted speed limit of 35 mph and passing is not permitted.

9.1.2 Study Periods

This DEIR analyzes project impacts during both summer and winter conditions. Several issues are considered, and one is a focus on congestion. As a general note, congestion addresses traveler convenience; how long should a motorist sit in their automobile when traveling from one point to another. When traffic volumes are large relative to roadway's capacity, congestion occurs, slowing traffic and requiring greater travel time. This is a social/economic issue, and communities must balance between many factors when addressing congestion, including vehicle speeds, the cost to build and maintain wider roads, environmental impacts from road improvements, etc. In striking a balance, agencies tend to focus on 'typical' traffic congestion issues, such as considering frequent conditions (e.g., peak hour trips, typical peak periods) when determining existing conditions and project impacts. Agencies typically shy away from evaluating impacts based on occasional conditions so that impacts, and measures to mitigate impacts, don't result in over-building roads—along with the resulting economic and environmental consequences—to address those infrequent conditions. For example, when commercial/retail facilities are evaluated, the busiest shopping days of the year (day after Thanksgiving, day before and after Christmas) are not studied so that roads are not designed for these several days, while being substantially underutilized the remainder of the year. This issue is unique to traffic, because of the social and economic nature of the impact.[1]

For this DEIR, the summer condition represents a Friday afternoon peak hour in August. The use of this day is supported by traffic monitoring data collected by the Tahoe Regional Planning Agency ([TRPA] 2010:22), which shows that August is the busiest summer month of the year. Further, Friday afternoon conditions typically represent peak conditions resulting from various recreational activities and overnight visitor travel to seasonal residences, rentals, or other lodging accommodations.

For winter conditions, both peak hour and daily conditions are analyzed (i.e., summer daily conditions are not analyzed because the winter daily volume is much higher). The following approach was chosen, in

[1] To further illustrate this point, Senate Bill 743, passed in 2013, requires the California Governor's Office of Planning and Research to develop new CEQA guidelines that address traffic metrics under CEQA (PRC Section 21099). As stated in the Legislation, upon adoption of the new guidelines, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any." The guidelines are currently in draft form and, pending their finalization, will be applicable statewide beginning on January 1, 2016.

consultation with Placer County staff, to identify the appropriate design hour volumes for use in the winter conditions analysis:

- Traffic volumes should represent peak average winter ski conditions. They should not represent the busiest day or two of the year, nor should they represent a "snow event" in which chain controls are in effect, although these events do occur and are ongoing. Such events, while they do occur on occasion, are atypical and should not be used to establish the existing setting (or baseline).
- The winter a.m. peak hour analysis represents conditions on a Saturday morning when the most skiers use the mountain.
- During the February 27, 2012 CEQA scoping meeting, Caltrans requested that winter p.m. peak hour conditions represent the busier of either a Saturday or Sunday afternoon condition. As is discussed later in this chapter, data shows that a Sunday afternoon represents the busier (i.e., more conservative) of these periods and was therefore used in the analysis.

The 30th highest hour is often cited in transportation literature and is used by public agencies to establish the "design hourly volume." It corresponds to the 30th busiest hour of the 8,760 hours of a year, which is the 99.65 percentile. This same percentile can also be applied to a portion of a year. As an example, the 2011-2012 ski season contained 85 days of traffic counts (i.e., 2,040 hours of traffic data) on Squaw Valley Road. Applying the 99.65 percentile, this data yields an "equivalent 30th highest hour" that corresponds to the 7th busiest hour of the winter season. As is described later in this chapter, the winter traffic volumes used in this DEIR range from as high as the 3rd busiest hour to as low as the 9th busiest hour depending on the specific peak hour (a.m. vs. p.m.) segment location, and whether the reported volume is uni-directional versus bi-directional. Thus, winter conditions analyzed in this DEIR are generally representative of about the 5th to 7th busiest hour of the winter season. The following section describes how the winter a.m. and p.m. peak hour and daily traffic volumes were developed.

9.1.3 Process Used to Select Winter Season

Visitor levels in the study area during the winter season are dependent on weather and snow conditions. During the 2013-2014 ski season, the lack of snow contributed to fewer skiers in the Tahoe Basin (and surrounding communities that offer winter recreational amenities) and less travel when compared to previous seasons. Table 9-1 shows total skier visits at the Squaw Valley Ski Resort for the 2010-2011 through 2013-2014 seasons. This data reveals the following:

- The 2010-2011 season had the greatest overall level of skier visits.
- The 2011-2012 season had the greatest number of skiers during the five busiest days of the year. This may have occurred as a result of the less-than-ideal conditions during much of the year (which contributed to a relative low overall total), but excellent snow and weather conditions during several weekends.

Table 9-1 Comparison of Skier Visits to Squaw Valley Ski Resort

Year	Total Skier Visits	Skier Attendance		
		Busiest Day	5th Busiest Day	10th Busiest Day
2013-2014 (thru end of March 2014)	389,395	10,012	9,244	6,989
2012-2013	650,390	11,915	10,738	10,015
2011-2012	560,258	14,625	11,367	9,162
2010-2011	713,393	12,601	11,103	9,697

Source: Data provided by Squaw Valley Ski Resort in 2012-2014

Traffic data from the 2011-2012 ski season was chosen as the most appropriate winter season data set for establishing the existing setting for the following reasons:

1. Its 5th busiest ski day saw greater skier attendance than the other three ski season 5th busiest days, which results in a reasonably conservative analysis.

2. It generally matched the original release date of the project's first notice of preparation (NOP) (October 2012), consistent with CEQA Guidelines Section 15125(a), which influences the baseline condition upon which project-specific impacts are evaluated.

3. It represented conditions after the Squaw Valley and Alpine Meadows Ski Resorts merged operations.

9.1.4 Traffic Data Collection

The following traffic, parking, and visitation data was collected by the project applicant team (and independently reviewed by Fehr & Peers) during the 2011-2012 ski season:

- Hourly traffic volume data (by direction) on Squaw Valley Road throughout the ski season;
- Peak period turning movement counts at all study intersections on selected days as identified below;
- Number of daily skiers/boarders (classified as either employee, season pass, complementary, or paid);
- Peak parking demand at Squaw Valley Ski Resort throughout the ski season;
- In-person surveys of skiers/boarders, employees, overnight guests, and restaurant/retail patrons;
- Vehicle occupancy surveys at Squaw Valley Ski Resort on selected days; and
- Hourly traffic counts on SR 89 between Truckee and Tahoe City.

After reviewing the 2011-2012 season traffic and skier visitation data, the following time periods were selected to represent winter Saturday a.m. peak hour, winter Sunday p.m. peak hour, and winter average daily conditions. These selections are accompanied by supporting technical data in the tables that follow.

- Winter Saturday a.m. peak hour – Saturday, February 18, 2012 from 8 to 9 a.m.

  As shown in Table 9-2, westbound Squaw Valley Road (west of Squaw Creek Road) carried 1,074 vehicles during this hour, which represents the 3rd busiest a.m. travel hour on a Saturday during the 2011-2012 season.

Table 9-2 Saturday Morning Peak Period Traffic Volumes on Westbound Squaw Valley Road during 2011–2012 Ski Season

Ranking	Date	Traffic Volume on Westbound Squaw Valley Road			
		Daily	7-8 a.m.	8-9 a.m.	9-10 a.m.
1	Sat, 3/3/12	7,968	770	1,450	1,358
2	Sat, 3/24/12	6,650	433	1,030	920
3	Sat, 2/18/12	6,644	741	**1,074**	885
4	Sat, 1/28/12	6,609	422	960	914
5	Sat, 3/10/12	6,249	521	1,016	908
6	Sat, 2/25/12	6,227	365	808	810
7	Sat, 3/17/12	6,136	436	912	756

Notes: Ranking based on westbound daily volume. Volume measured on Squaw Valley Road west of Squaw Creek Road.
Bolded value represents existing design hourly peak volume for analysis purposes.
Source: Traffic count data supplied by Squaw Valley Real Estate, LLC in 2013 and independently reviewed by Fehr & Peers

- Winter Sunday p.m. peak hour – Sunday, January 29, 2012 from 3 to 4 p.m.

  As shown in Table 9-3, eastbound Squaw Valley Road carried 1,085 vehicles during this hour, which represents the 7th busiest travel hour on a Sunday during the 2011-2012 season.

Table 9-3 Sunday Afternoon Peak Period Traffic Volumes on Eastbound Squaw Valley Road during 2011–2012 Season

Ranking	Date	Traffic Volume on Eastbound Squaw Valley Road				
		Daily	2-3 p.m.	3-4 p.m.	4-5 p.m.	5-6 p.m.
1	Sun, 3/4/12	7,648	980	1,161	1,170	790
2	Sun, 2/19/12	6,873	725	1,147	1,273	752
3	Sun, 4/1/12	6,864	792	1,145	1,269	919
4	Sun, 3/18/12	6,269	748	888	905	765
5	Sun, 1/29/12	6,267	899	**1,085**	953	502
6	Sun, 2/12/12	5,787	918	1,076	952	455
7	Sun, 3/25/12	5,534	704	915	913	426

Notes: Ranking based on eastbound daily volume. Volume measured on Squaw Valley Road west of Squaw Creek Road.
Bolded value represents existing design hourly peak volume for analysis purposes.
Source: Traffic count data supplied by Squaw Valley Real Estate, LLC in 2013 and independently reviewed by Fehr & Peers

- Winter Average Daily – Saturday, February 18, 2012.

As shown in Table 9-4, Squaw Valley Road west of Eric Road carried 12,900 vehicles (sum of both directions) during this day, ranking it the 7th busiest travel day of the 2011-2012 ski season. This day also ranked as the 9th busiest travel day on SR 89 north of Squaw Valley Road during the 2011-2012 ski season. This day ranked as the 5th busiest ski day (in terms of skiers/boarders) at the Squaw Valley Ski Resort during the 2011-2012 ski season.

Table 9-4 Top 15 Busiest Travel Days During the 2011–2012 Ski Season

Ranking	Date	ADT on Squaw Valley Road	ADT on SR 89 north of Squaw Valley Road
1	Sat, 3/3/12	16,100	16,777
2	Fri, 3/2/12	15,552	18,066
3	Sun, 3/4/12	14,644	18,182
4	Sun, 2/19/12	13,895	15,544
5	Sat, 3/24/12	12,992	13,307
6	Sun, 4/1/12	12,988	15,322
7	Sat, 2/18/12	**12,906**	14,972
8	Sat, 3/10/12	12,236	13,448
9	Sat, 2/25/12	12,132	13,070
10	Sat, 3/17/12	12,067	12,006
11	Sun, 1/29/12	11,940	15,017
12	Mon, 2/20/12	11,774	16,380
13	Sun, 3/18/12	11,701	14,471
14	Fri, 2/24/12	11,468	14,692
15	Fri, 2/17/12	11,069	16,063

Notes: ADT = average daily traffic.
Rankings based on ADT (both directions) on Squaw Valley Road. Volume measured on Squaw Valley Road west of Eric Road.
Bolded value represents existing design average daily volume for analysis purposes.
Source: Traffic count data supplied by Squaw Valley Real Estate, LLC in 2013 and independently reviewed by Fehr & Peers

The use of Saturday, February 18, 2012 data for the winter Saturday a.m. peak hour analysis enables direct use (i.e., no adjustments, factoring, etc.) of intersection turning movement counts at six study intersections. Minor volume balancing adjustments were necessary at the remaining seven study intersections, in which counts were collected during other weekend days during the 2011-2012 season or during the 2010-2011 season.

To develop the winter Sunday p.m. peak hour volumes, minor adjustments to turning movement counts collected during the 2011-2012 ski season were made to match the link volumes (see Table 9-3) on Squaw Valley Road and SR 89.

Exhibit 9-2 displays the existing turning movement volumes at the study intersections for winter Saturday a.m., winter Sunday p.m., and summer Friday p.m. peak hour conditions. The majority of the summer Friday p.m. peak hour counts were collected on a Friday in August 2012, with the remainder counted in August 2011. The numbers shown in Exhibit 9-2 (and all traffic volume exhibits herein) represent the total volume making each individual turn movement (and not the volume of traffic in each individual lane).

9.1.5 Parking

The *Village at Squaw Valley Parking Analysis* (LSC Transportation Consultants 2014) describes the parking needs associated with the proposed project (included in Appendix G). The study begins by estimating the peak winter parking demand of the project's proposed land uses. The project is anticipated to cause a net parking demand increase of 1,263 parking spaces. The parking demand for the East Parcel is estimated to be 183 spaces. This study describes in detail the methodology used to estimate the project's parking demand.

This study also estimates the "Squaw Valley Design Day Skier Parking Demand" for the 5th busiest ski day from an average of the five-year period from the 2008-2009 season through the 2012-2013 season. Using data related to total skiers (10,663 during 5th busiest day), mode split (18 percent transit, walk or drop-off), vehicle occupancy (2.2 persons per vehicle), and parking turnover (78 percent of total demand present at peak); this value is estimated to be 3,100 day skier vehicles. Refer to Table 5 on page 12 of the *Village at Squaw Valley Parking Analysis* (LSC Transportation Consultants 2014) for more details. Existing ski area employees are estimated to generate an additional 373 spaces of demand. Including 10 spaces for ski area operational vehicles, the total existing ski area parking demand at peak times for the 5th busiest day is 3,483 spaces.

The study also describes the additional parking demand associated with various ancillary land uses (e.g., medical clinic, operational vehicles, etc.), other existing land uses with joint/overlapping parking, and several land uses to be removed. Table 9 of the report indicates that the existing demand for parking at Squaw Valley for the 5th busiest day is 3,660 spaces. With project implementation, this parking demand would increase to 5,110 spaces (3,660 existing demand+1,267 project spaces+183 employee spaces at the East Parcel). The last component of this study includes a comparison of the parking demand methodology to actual parking observations to determine the reasonableness of this method. Page 18 concludes that "…the methodology overall calibrates well against the observed parking counts."

According to information provided by the project applicant, project buildout would result in approximately 5,100 parking spaces including structured parking on Lots 11 and 12, existing surface parking, preferred parking, Intrawest parking, parking on the East Parcel, and new hotel/condo podium parking. On-street parking along Squaw Valley Road is not counted toward this parking supply total. Thus, the proposed project's supply of parking is expected to meet the projected demand for parking for the 5th busiest ski day.

9.1.6 Traffic Management

A December 15, 1998 agreement between the Squaw Valley Development Company and Placer County describes the traffic management program that Squaw Valley must undertake to "mitigate traffic impacts sufficiently to allow necessary findings described on page 49 of the Squaw Valley General Plan" (Squaw Valley Development Company and Placer County 1998). Each year, Squaw Valley obtains an encroachment

permit from Placer County to operate the traffic management program in accordance with the agreement. Key elements of the traffic management program include:

1. Squaw Valley shall operate a system for metering traffic flow from the main parking lots onto Squaw Valley Road.

2. Public residential streets along Squaw Valley Road will have adequate personnel to allow free movement of vehicles onto Squaw Valley Road.

3. Management should occur on weekends, during holiday periods, and on other days in which based on the County's judgment, significant traffic congestion would occur without such traffic control and parking enforcement.

4. Parking lot traffic shall be metered on days whenever there are more than 2,400 cars in the parking lot.

5. Squaw Valley shall be responsible for providing all personnel and equipment for the program.

The encroachment permit further specifies that encroachment is necessary primarily to meter traffic at select intersections and place cones in the roadway for the "three-lane coning program." Traffic management at the SR 89/Squaw Valley Road intersection, when necessary, is provided by California Highway Patrol (CHP) personnel. This includes metering of the eastbound to southbound free right turn.

The *Squaw Valley Road Transportation Improvement Analysis* (LSC Transportation Consultants 2014) discusses the "three-lane coning program" in detail. Key elements include:

1. It establishes two travel lanes in the peak direction of traffic and a single lane of travel in the off peak direction. The lanes are created using reflective cones.

2. The inbound three-lane program is typically scheduled to occur from 8 to 10 a.m., and the outbound three-lane program is typically scheduled to occur from 2:30 to 5 p.m.

3. During the 2013-2014 ski season, "three-laning" was never implemented in the morning. Reasons for not implementing it included:

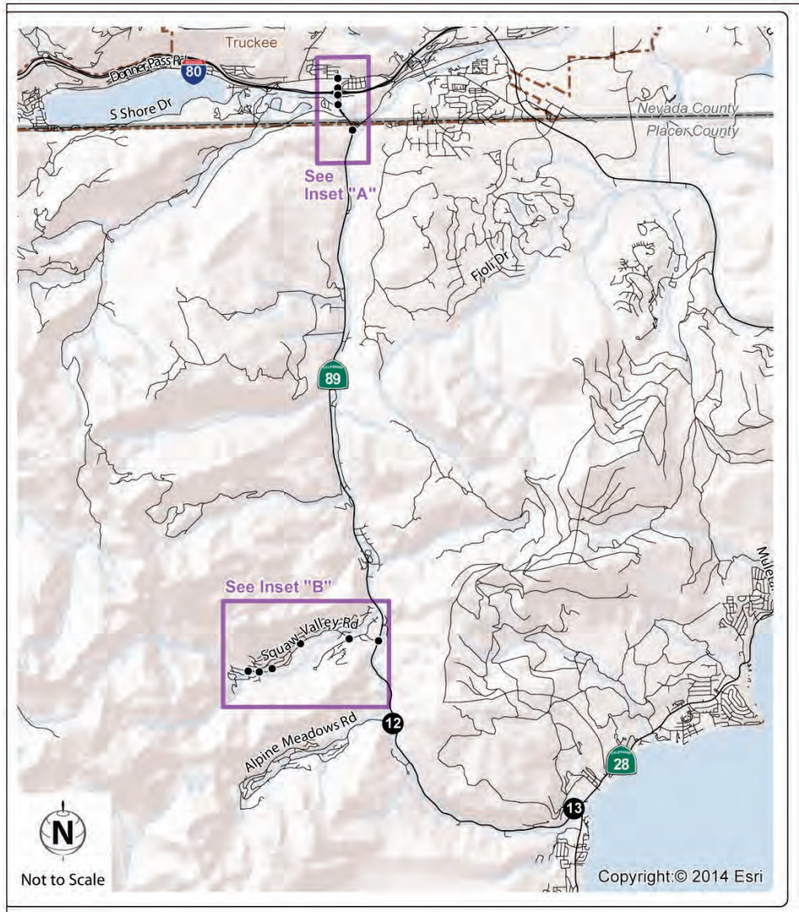
    a. This operation substantially increases the flow of traffic into parking lots, which can exceed the parking management program's capacity to direct/park vehicles.

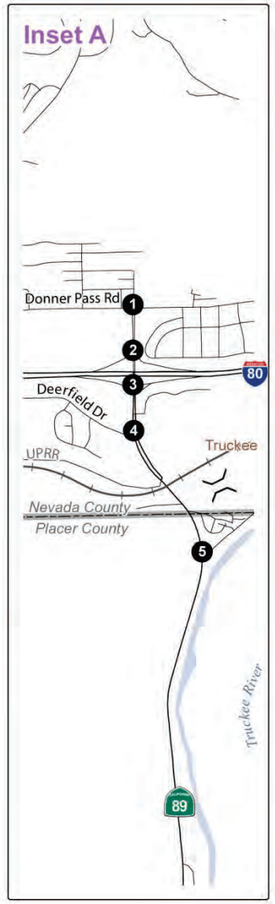
    b. Incomplete snow removal from the night prior can make continuous three-laning difficult or impossible.

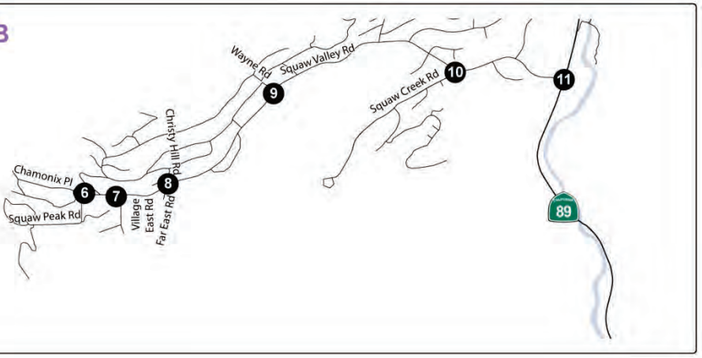
    c. Peak attendance days can be difficult to forecast as new (afternoon/overnight) snowfall can influence attendance. In contrast, staffing schedules are not as flexible. Further, staff is often needed during the morning to assist with snow removal and parking during busy days.

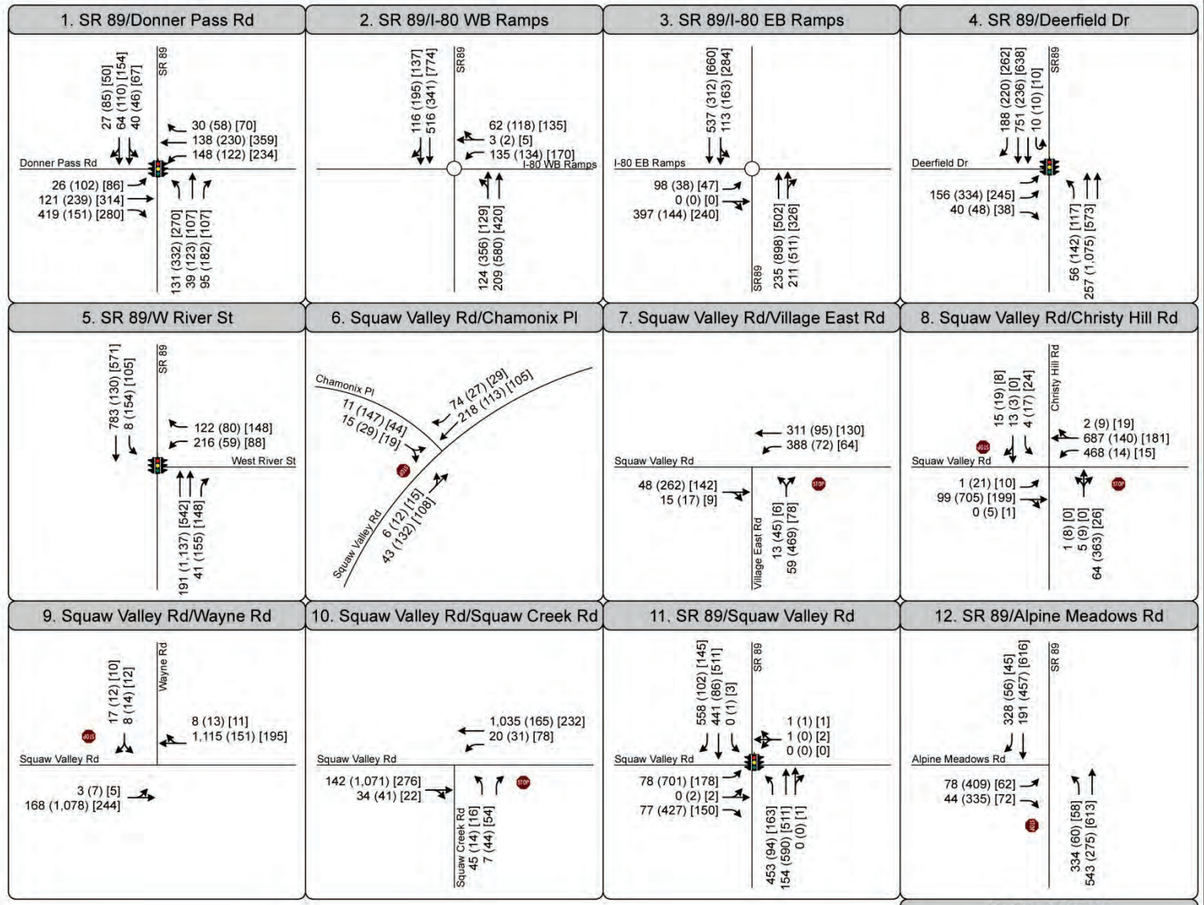
4. During the 2013-2014 ski season, a full three-lane program (i.e., extending from SR 89 to Far East Road) occurred twice during the afternoon. In addition, partial three-laning (i.e., cones extended to Queen of the Snows Church [1550 Squaw Valley Road] or Squaw Valley Stables [1525 Squaw Valley Road]) occurred during the afternoon on several other days.

5. Vehicle movements at cross streets are not restricted by the program. Flaggers are present at certain cross streets. They do not stop traffic on Squaw Valley Road; rather, their purpose is to make motorists on Squaw Valley Road aware of advancing side-street traffic (i.e., flaggers help slow traffic on Squaw Valley Road such that gaps in traffic are available for side-street traffic).









LEGEND

- Turn Lane
- XX — Winter Saturday AM Peak HourTraffic Volume
- (YY) — Winter Sunday PM Peak Hour Traffic Volume
- [ZZ] — Summer Friday PM Peak Hour Traffic Volume
- 1 — Study Intersection
- Traffic Signal
- Stop Sign
- Roundabout

Source: Received from Fehr and Peers in 2015

FEHR PEERS

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Exhibit 9-2

Existing a.m. and p.m. Peak Hour Traffic Volumes

ASCENT ENVIRONMENTAL

6. Informal "three-laning" also occurs on westbound Squaw Valley Road departing SR 89. Motorists from the northbound left-turn and southbound right-turn lanes travel in parallel despite the lack of a continuously striped travel lane until such time that the narrowing roadway width requires merging into a single lane of traffic (near Squaw Creek Road). This often occurs during peak periods, and particularly after the segment reaches capacity (i.e., these movements are occurring in stop-and-go or low speed conditions).

9.1.7 Levels of Service

The operational performance of the roadway network is commonly described with the term Level of Service (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free-flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the *Highway Capacity Manual* (HCM) (Transportation Research Board 2000, 2010) were used in this DEIR. The HCM methods for calculating LOS for intersections, roundabouts, and two-lane highways are also described below.

ANALYSIS METHODS

A signalized intersection's LOS is based on the weighted average control delay of all vehicles passing through the intersection. Delay is measured in seconds per vehicle, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 9-5 summarizes the relationship between the delay and LOS for signalized intersections. The following assumptions and inputs were used:

- Traffic signal timings provided by Caltrans were entered into the Synchro software program.
- The field-observed peak hour factor (PHF), a measure of variation or "peaking" of traffic within the peak hour, was entered into the Synchro software program.
- Heavy vehicles (using the HCM definition of any vehicle having more than four wheels on the ground) were two percent of traffic for all intersections during the winter peak hours (given the majority of vehicles on study roadways during this period are recreation-related). For the summer p.m. peak hour, heavy vehicles were assumed to consist of 7.4 percent of traffic at the I-80/SR 89 roundabouts and at major street approaches along SR 89. This percentage was derived from the most recent counts contained in the 2011 Caltrans *Annual Average Daily Truck Traffic on the California State Highway System* report (Caltrans 2012a). Heavy vehicles were assumed to consist of two percent of demand volume for all other intersection approaches during the summer p.m. peak hour.
- As part of the traffic counts, pedestrian and bicyclist activity were also measured. This data was entered into the Synchro software program.
- Based on field observations and as suggested by Caltrans at the scoping meeting, a lane utilization factor was entered into the Synchro software program for the two northbound SR 89 travel lanes at West River Street. This factor accounts for imbalanced usage of the inside versus outside lane due to the short downstream lane drop.
- The SR 89/Squaw Valley Road intersection was analyzed using the SimTraffic component of the Synchro software program. SimTraffic was necessary to properly model the effects of the northbound SR 89 downstream lane drop and the yield-controlled right-turn movements, which were observed to affect intersection operations. Per standard practice, ten runs were conducted for a given scenario with results averaged to yield the reported results.

Roundabouts were analyzed using the Sidra traffic analysis software. Table 9-5 shows the average delay range associated with each LOS category for roundabouts.

Table 9-5 LOS Criteria – Intersections

Level of Service	Description (for Signalized Intersections)	Average Delay (Seconds/Vehicle)	
		Signalized Intersections	Unsignalized Intersections and Roundabouts
A	Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	> 10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	> 15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	Operations with high delay values indicating poor progression, and long cycle lengths. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0	> 35.0 to 50.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0	> 50.0

Note: LOS = level of service; V/C ratio= volume-to-capacity ratio

LOS at signalized intersections and roundabouts based on average delay for all vehicles. LOS at unsignalized intersections is reported for entire intersection and for minor street movement with greatest delay.

Source: Transportation Research Board 2000, 2010

Table 9-5 also shows the average delay range associated with each LOS category for unsignalized intersections. For side-street control intersections, the delay and LOS is reported for the entire intersection and the minor street movement with the greatest delay. Table 9-5 shows that for a given LOS, a higher threshold of delay is provided at signalized intersections versus unsignalized intersections. This is based on driver expectation of having to wait less time at a stop sign versus a traffic signal. The following assumptions and inputs were used:

- The PHF, heavy vehicle percentage, and bicycle/pedestrian volumes were entered into the Synchro software program.
- None of the study intersections along Squaw Valley Road were operating with special traffic management or coning patterns at the time of the 2012 traffic counts. Accordingly, they were analyzed based on their existing lane configurations and traffic controls.

The study segments along SR 89 are two-lane undivided highways. They are analyzed based on the *Highway Capacity Manual* (Transportation Research Board 2010). The 2010 update to the HCM was revised and upgraded substantially from the 2000 HCM for highway operations to reflect recent research findings.

Table 9-6 shows the range of Percent Time Spent Following (PTSF) and average speed for each LOS category for two-lane undivided highways. As shown, LOS F operations occur when certain traffic volume thresholds (either a single direction or both directions) are exceeded. The analysis methodology reports a LOS for each direction of travel. Results are then reported for the worst-case travel direction.

The segment of SR 28 east of SR 89 is a two-lane highway with a two-way left-turn lane that traverses a developed area of Tahoe City. Accordingly, it is analyzed as an urban street facility. Exhibit 16-14 of the 2010 HCM presents a generalized set of traffic volume thresholds that correspond to a given LOS range. Unlike two-lane highways, results are reported for both directions combined. Table 9-7 shows the hourly traffic volume range for SR 28 that corresponds to each LOS grade for winter and summer peak hour

conditions. The summer peak hour condition has slightly greater capacities (for a given LOS) than winter conditions because volumes are more balanced in each direction.

Table 9-6 LOS Criteria – Two-Lane Undivided State Highways

Level of Service	Two-Lane Undivided Highways	
	Average Travel Speed (ATS)	Percent Time Spent Following (PTSF)
A	> 55 mph	≤ 35%
B	> 50.0 to 55.0 mph	> 35% to 50%
C	> 45.0 to 50.0 mph	> 50% to 65%
D	> 40.0 to 45.0 mph	> 65% to 80%
E	≤ 40 mph	> 80%
F	Traffic flow exceeds 1,700 pcph in one direction or 3,200 pcph in two directions	

Note: ATS = average travel speed; mph = miles per hour; PTSF = percent time spent following; pcph = passenger cars per hour

Study segments of SR 89 between I-80 and SR 28 are Class I two-lane highway facilities. Segment of SR 89 south of SR 28 is a Class II two-lane highway facility. For Class I facilities, the ATS and PTSF are used to determine LOS. For Class II facilities, only the PTSF is used to determine LOS. Highway class definitions based on descriptions from Transportation Research Board 2010.

Source: Transportation Research Board 2010

The *Placer County General Plan* (2013) categorizes Squaw Valley Road as a rural arterial. It can be further defined as having low access control given its posted speed limit and the frequency of driveways along it. A short portion of the segment of West River Street east of SR 89 is also within the jurisdiction of Placer County and is included as a study segment. This segment is classified as a moderate access control arterial. Table 9-7 shows the average daily traffic (ADT) range associated with each LOS grade for these categories of roadways based on the *Placer County General Plan* (2013).

Table 9-7 LOS Criteria – Urban State Highways and County Roadways

Facility Type	Applicable Study Roadway	Maximum Traffic Volume (Both Directions) to Achieve			
		LOS B	LOS C	LOS D	LOS E
Urban Street State Highway					
Two-Lane Median-Divided State Highway (winter Conditions)	SR 28 east of SR 89 in Tahoe City	N/A	480 vph	1,270 vph	1,640 vph
Two-Lane Median-Divided State Highway (summer Conditions)	SR 28 east of SR 89 in Tahoe City	N/A	530 vph	1,380 vph	1,790 vph
Placer County Roadways					
Two-Lane Low-Access Control Arterial	Squaw Valley Road west of Squaw Creek Road	10,500 ADT	12,000 ADT	13,740 ADT	15,000 ADT
Three-Lane Low-Access Control Arterial	Squaw Valley Road west of SR 89	15,750 ADT	18,000 ADT	20,610 ADT	22,500 ADT
Two-Lane Moderate-Access Control Arterial	West River Street	10,500 ADT	14,400 ADT	16,200 ADT	18,000 ADT

Note: ADT = average daily traffic; N/A = not applicable; vph = vehicles per hour

Two-lane highway values for a Class I facility. For SR 89, summer capacities are slightly greater (for a given LOS) than winter capacities because volumes are more balanced.

Source: Transportation Research Board 2010 (Exhibit 16-14) for a 30 mph posted speed limit and 0.10 k-factor, and Placer County 2013

ANALYSIS RESULTS

Existing traffic operations were analyzed at the 13 study intersections for the three study hours. Table 9-8 displays the results. Refer to Appendix G for technical calculations. This table reveals the following key conclusions regarding winter peak hour intersection operations under existing conditions:

- SR 89/Squaw Valley Road Intersection – operations at this signalized intersection are at LOS D during the winter Sunday p.m. peak hour due to the heavy eastbound traffic volume on Squaw Valley Road and downstream capacity constraints (i.e., lane drop) on northbound SR 89 north of Squaw Valley Road. Operations are at LOS C during the winter Saturday a.m. peak hour, as the heavy southbound right-turn movement (about 560 vehicles) incurs only modest delays.
- SR 89/Alpine Meadows Road Intersection – the side-street stop-controlled Alpine Meadows Road approach operates at LOS F during the winter Sunday p.m. peak hour due to the heavy eastbound traffic flow. Traffic control personnel are occasionally stationed at this intersection to manage traffic, but were not present during the 2012 traffic counts. This intersection features a receiving lane on northbound SR 89 for eastbound left-turns, which creates two-stage gap acceptance (i.e., cross southbound traffic into the receiving lane, and then merge with northbound traffic). Side-street delays at this intersection are in the LOS F range.
- Other SR 89 Study Intersections – Aside from the Squaw Valley Road and Alpine Meadows Road intersections, the other study intersections along SR 89 operate at LOS C or better. This is due primarily to their intersection geometrics such as additional (i.e., second) through lanes, multi-lane roundabouts, and channelized right-turn lanes, which increase the intersection's capacity.
- Squaw Valley Road Intersections – Most of the side-street stop-controlled study intersections along Squaw Valley Road experience LOS D to F conditions (for the minor street, worst-case movement) during the winter Saturday a.m. and Sunday p.m. peak hours. This is due to the heavy volume of through traffic, which causes a lack of available gaps for merging onto Squaw Valley Road.

During the summer Friday p.m. peak hour, all study intersections operate at LOS C or better with the exception of the SR 89/Donner Pass Road intersection (LOS D) and SR 89/Alpine Meadows Road (LOS F on side-street approach). Operations at the SR 89/SR 28 intersection are reported as LOS C during the summer Friday p.m. peak hour condition. This result is based on the observed traffic volumes, lane configurations, and signal timings present at the intersection. Field observations reveal greater levels of delay can occur during certain periods as a result of downstream lane drops (i.e., eastbound on SR 28) and scenic views (i.e., Fanny Bridge over Truckee River) that can contribute to reductions in capacity.

Table 9-8 Peak Hour Intersection Level of Service – Existing Conditions

Intersection	Control	Winter Saturday a.m. Peak Hour		Winter Sunday p.m. Peak Hour		Summer Friday p.m. Peak Hour	
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
SR 89/Donner Pass Road	Traffic Signal	21.8	C	33.6	C	39.4	D
SR 89/I-80 WB Ramps	Roundabout	7.0	A	9.3	A	9.8	A
SR 89/I-80 EB Ramps	Roundabout	9.8	A	17.6	C	10.7	B
SR 89/Deerfield Drive	Traffic Signal	12.4	B	14.1	B	13.5	B
SR 89/West River Street	Traffic Signal	15.5	B	18.8	B	11.8	B
Squaw Valley Road/Chamonix Place	Side-Street Stop	1.1 (10.1)	A (B)	5.5 (13.3)	A (B)	2.3 (11.0)	A (B)
Squaw Valley Road/Village East Road	Side-Street Stop	5.1 (14.5)	A (B)	22.2 (43.2)	C (E)	3.3 (10.3)	A (B)
Squaw Valley Road/Far East Rd./Christy Hill Road	Side-Street Stop	7.5 (157)	A (F)	38.7 (137.2)	E (F)	2.2 (15.5)	A (C)
Squaw Valley Road/Wayne Road	Side-Street Stop	0.8 (29.2)	A (D)	0.7 (24.0)	A (C)	0.9 (11.7)	A (B)

Table 9-8 Peak Hour Intersection Level of Service – Existing Conditions

Intersection	Control	Winter Saturday a.m. Peak Hour		Winter Sunday p.m. Peak Hour		Summer Friday p.m. Peak Hour	
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
Squaw Valley Road/Squaw Creek Road	Side-Street Stop	2.1 (44.1)	A (E)	2 (40.7)	A (E)	2.5 (18.4)	A (C)
SR 89/Squaw Valley Road	Traffic Signal	20.3	C	38.5	D	10.2	B
SR 89/Alpine Meadows Road	Side-Street Stop	12 (118.8)	B (F)	113 (> 180)[2]	F (F)	4.7 (66.7)	A (F)
SR 89/SR 28	Traffic Signal	16.2	B	18.2	B	21.4	C

Notes: LOS = level of service

[1] For signalized and all-way stop controlled intersections and roundabouts, average intersection delay is reported in seconds per vehicle for all approaches. For side-street stop controlled intersections, the delay and LOS is reported for the entire intersection and for the most-delayed individual movement (shown in parentheses).

[2] When side-street traffic volumes are near the boundary of the traffic software's input range, delay estimates can become imprecise. In such instances, average delay is shown as "> 180 seconds."

Source: Appendix G

Table 9-9 displays the 95th percentile vehicle queues during the winter Saturday a.m. and Sunday p.m. peak hours for the critical eastbound left-turn, northbound left-turn, and southbound right-turn movements at the SR 89/Squaw Valley Road intersection. The 95th percentile queue, which is an output from the SimTraffic model, represents the amount of queuing that has a statistical probability of being exceeded less than five percent of the time during the peak hour. Results are not reported for the summer Friday p.m. peak hour because this hour carries 17 percent less traffic than the winter Sunday p.m. peak hour and has lower demands on these critical movements. Results are also not reported for the eastbound right-turn because this channelized, yield-controlled movement has a lengthy acceleration lane on southbound SR 89. This table reveals the following key conclusions regarding vehicle queuing during winter peak hour conditions:

- During the winter Saturday a.m. peak hour, the heavily used southbound right-turn and northbound left-turn movements have 95th percentile vehicle queues that are close to or slightly exceeding their available storage. Southbound through traffic blocks access to the right-turn lane, thereby causing the reported right-turn queue value in Table 9-9.
- During the Sunday winter p.m. peak hour, the heavily traveled eastbound left-turn lanes extend a considerable distance westerly from SR 89, extending beyond the first driveway opening along Squaw Valley Road. Queuing in the inside left-turn lane spills into the two-way left-turn lane, while queuing in the outside left-turn lane occurs within the inside through lane on eastbound Squaw Valley Road.

Table 9-9 95th Percentile Queue Lengths at SR 89/Squaw Valley Road Intersection – Existing Conditions

Movement	Available Storage	95th Percentile Vehicle Queue [1]	
		Winter Saturday a.m. Peak Hour	Winter Sunday p.m. Peak Hour
Northbound Left-Turn	475 feet [2]	475 feet	125 feet
Eastbound Left-Turn	400 feet [3]	125 feet	450 feet
Eastbound Left/Through Lane	400 feet [3]	50 feet	625 feet
Southbound Right-Turn	250 feet [4]	300 feet	75 feet

Notes: Values rounded to the nearest 25 feet.

[1] Based on output from SimTraffic model. Results are not reported for the summer Friday p.m. peak hour because this hour has lower demands for these critical movements when compared to winter peak hour conditions.

[2] Measured from the limit line to the beginning of the transition taper.

[3] Measured from the limit line to the first driveway opening on the south side of Squaw Valley Road.

[4] Measured from the beginning of turn lane to the beginning of channelized triangular island.

Source: Appendix G

The 95th percentile queue lengths shown in Table 9-9 are based on the modeled conditions including existing traffic volumes that represent conditions during the 3rd to 7th busiest hours of the ski season. This DEIR acknowledges that queue spillbacks do occasionally occur on SR 89 beyond the levels shown in this table. These conditions may occur during the busiest day or two of the ski season, or during other atypical conditions (e.g., chain controls, accidents, special events, etc.). Given the infrequent nature of such events, it is not appropriate to use such conditions as a baseline conditions upon which project traffic would be added.

Traffic operations were analyzed at the six study roadway segments on the state highway system. All six facilities are two-lane highways. Table 9-10 displays the results. Refer to Appendix G for technical calculations. This table shows that all study segments of SR 89 currently operate at LOS E during the winter Saturday a.m. and Sunday p.m. peak hours. Between I-80 and Squaw Valley Road, the critical operating direction is southbound during the Saturday a.m. peak hour and northbound during the Sunday p.m. peak hour. Operations are at LOS D or E on SR 89 during the summer Friday p.m. peak hour.

Table 9-10 State Highway Segment Level of Service – Existing Conditions

Segment[1]	Winter Saturday a.m. Peak Hour					Winter Sunday p.m. Peak Hour					Summer Friday p.m. Peak Hour				
	Peak Direction	Volume (vph)	PTSF	Avg. Speed	LOS	Peak Direction	Volume (vph)	PTSF	Avg. Speed	LOS	Peak Direction	Volume (vph)	PTSF	Avg. Speed	LOS
SR 89 f between Deerfield Dr and West River Street	SB	791	85.5%	31.4	E	NB	1,217	99.0%	27.4	E	NB	690	81.0%	30.5	E
SR 89 between West River St and Squaw Valley Rd	SB	999	85.4%	46.1	E	NB	1,292	92.5%	43.2	E	NB	690	79.4%	46.4	D
SR 89 between Squaw Valley Rd and Alpine Meadows Rd	NB	607	79.2%	38.0	E	NB	684	81.9%	37.3	E	NB	675	81.0%	36.5	E
SR 89 between Alpine Meadows Rd and SR 28	NB	877	94.8%	36.4	E	SB	792	86.1%	35.4	E	SB	688	80.7%	35.1	E
SR 89 south of SR 28	NB	740	84.8%	N/A[2]	D	SB	547	78.2%	N/A[2]	D	SB	886	86.9%	N/A[2]	E
SR 28 east of SR 89[3]	Both	1,215	N/A	N/A	D	Both	1,226	N/A	N/A	D	Both	1,559	N/A	N/A	E

Notes: N/A = not applicable; LOS = level of service; NB = northbound; PTSF = percent time spent following; SB = southbound; vph = vehicles per hour

[1] Refer to Section 9.1.7, "Level of Service," for description of facility types and analysis methods.

[2] Average Travel speed not applicable for Class II two-lane highways.

[3] Segment analyzed using Chapter 16 (Urban Street Facilities) of the HCM (Transportation Research Board 2010) with LOS traffic volumes thresholds in DEIR Table 9-7.

Source: Appendix G

SR 28 east of Tahoe City and SR 89 south of Tahoe City operate at LOS D during the winter Saturday a.m. and Sunday p.m. peak hours, and LOS E during the summer Friday p.m. peak hour. These two segments carry more traffic during the summer Friday p.m. peak hour than either winter peak hour.

Traffic operations were also analyzed at the three non-State Route, Placer County study roadway segments. Table 9-11 displays the results. This table shows that the segment of Squaw Valley Road between Squaw Creek Road and the Village Area currently operates at LOS D during the winter (Saturday) daily condition. The segment of Squaw Valley Road between Squaw Creek Road and SR 89 carries a comparable level of traffic, but operates at LOS A due to its three-lane cross-section.

Table 9-11 Placer County Roadway Level of Service – Existing Conditions

Segment	Type	Winter Saturday Daily Conditions		
		Average Daily Traffic	V/C Ratio	LOS
West River Street east of SR 89	Two-Lane Moderate Access Control Arterial	3,800	0.21	A
Squaw Valley Road between SR 89 and Squaw Creek Road	Three-Lane Low Access Control Arterial	12,600	0.56	A
Squaw Valley Road between Squaw Creek Road and Village Area	Two-Lane Low Access Control Arterial	12,900	0.86	D

Note: LOS = level of service; V/C ratio = volume-to-capacity ratio
Values rounded to the nearest 100 vehicles.
Source: Appendix G

9.1.8 Winter Season/Summer Season Travel Behavior Characteristics

Several types of in-person surveys were conducted in 2011. The data is used to estimate the travel characteristics of the proposed project including travel mode, geographic trip distribution percentages, duration of stay, arrival/departure time, on-site travel activities, and other relevant information.

The following describes each type of survey:

- *On-Mountain Skier/Boarder Winter Weekend Surveys* (see Table 9-12): 293 skiers/boarders waiting at chair lifts or in mid-mountain locations were asked five questions relating to their travel mode, trip origin/destination, and other factors. The surveys were conducted from 10 a.m. to 2 p.m. on February 18, 19, 25, and 26, 2011.
- *Village at Squaw Valley Customer Winter Weekend Surveys* (see Table 9-13): 328 persons (non-employees) walking around the Village at Squaw Valley were asked seven questions relating to their travel mode, trip purpose, and other factors. The surveys were conducted from 10 a.m. to 5 p.m. on February 18, 19, 25, and 26, 2011.
- *Village at Squaw Valley Customer Summer Weekend Surveys* (see Table 9-14): 124 persons (non-employees) walking around the Village at Squaw Valley were asked seven questions relating to their travel mode, trip purpose, and other factors. The surveys were conducted during peak periods of August 5–7, 2011.
- *Squaw Valley Resort Winter and Summer Employee Surveys* (see Tables 9-12 and 9-14): A paper survey was distributed in winter and summer 2011 to all employees. A total of 106 responses from winter employees and 136 responses from summer employees were returned. The survey contained nine questions relating to work department, travel mode, work hours, residence, and other factors.
- *Village at Squaw Valley Overnight Guest Winter and Summer Weekend Surveys* (see Tables 9-12 and 9-15): As part of a larger survey, 49 winter guest responses and 205 summer guest responses were obtained from a web-based lodging survey instrument. Seven questions relating to their travel mode, trip origination/destination, and other factors were asked.

Table 9-12 Travel Characteristics of Skiers/Boarders and Winter Overnight Guests at Squaw Valley

Travel Characteristic		Skiers/Boarders[1]	Overnight Guests[1]
Arrival Travel Mode	Auto	82% [2]	82%
	Walk	5%	0%
	Charter Bus	3%	0%
	Lodging Van	2%	0%
	Squaw Valley Bus	2%	0%
	Public Bus (TART)	6%	0%
	Airplane & Rental Car	-	18%
Trip Origin	Truckee / Northstar	23%	0%
	Tahoe North Shore	21%	0%
	Squaw Valley	20%	0%
	Reno/Sparks	9%	10%
	Tahoe West/South Shore	9%	0%
	Sacramento/Central Valley	6%	13%
	Bay Area	6%	38%
	Airports	0%	10%
	Other	3%	29%
Travel Mode for Trips Originating within Olympic Valley [3]	Auto	59%	25%
	Walk	26%	68%
	Bus/Van	14%	7%
Overnight Guest Check-Out Times	Before 8 a.m.	-	8%
	8 a.m. to 9 a.m.	-	2%
	9 a.m. to Noon	-	32%
	Noon to 2 p.m.	-	17%
	2 to 3 p.m.	-	11%
	3 to 4 p.m.	-	6%
	After 4 p.m.	-	24%
Overnight Guest Trips Outside of Squaw Valley	Did not Leave Squaw Valley	-	57%
	1 to 2 trips	-	31%
	3 to 4 trips	-	10%
	5 to 6 trips	-	2%

Notes: TART = Tahoe Area Regional Transit

Responses may not sum to 100% due to rounding and/or omission of low percentage responses. "-" = survey topic was not asked to particular group.

[1] Refer to the text of Section 9.1.8, "Winter Season/Summer Season Travel Behavior Characteristics," in this DEIR for data collection source and methods.

[2] 4% of this 82% were reported as being dropped off.

[3] Mode choice for skiers/boarders refers to travel from origin to ski resort. Mode choice for overnight guests refers to primary travel mode during stay.

Source: Data provided by Squaw Valley Ski Resort in 2012-2013

Table 9-13 Travel Characteristics of Village at Squaw Valley Winter Visitors and Employees

Travel Characteristic		Visitors[1]	Employees[1]
Arrival Travel Mode	Auto	85%	82%
	Walk/Bike	4%	5%
	Charter Bus/Lodging Van	4%	1%
	Rode Ski Lift[2]	3%	0%
	Public Bus (TART)	2%	8%
Resident/Visitor Status	Overnight Visitor of Area	61%	-
	Resident of Area	20%	-
	Day-Use Visitor	19%	-
Overnight Stay Location (for Visitors)	Truckee/Northstar	26%	-
	Squaw Valley	40%	-
	Tahoe North Shore	22%	-
	Tahoe West/South Shore	9%	-
Trip Origin (Residents/Day Visitors, Employees)	Truckee/Northstar	24%	20%
	Reno/Sparks	20%	7%
	Squaw Valley	15%	12%
	Tahoe North Shore	13%	49%
	Tahoe West/South Shore	8%	7%
	Central Valley/Bay Area	20%	0%
Visitor Activities	Skiing/Boarding Only	35%	-
	Skiing/Boarding & Dining/Drinking	33%	-
	Skiing/Boarding & Dining/Drinking & Shopping	12%	-
	Dining/Drinking Only	5%	-
	Shopping Only	1%	-
Skiing/Boarding Visitor Additional Activities	None	38%	-
	Dining/Drinking, Shopping, and/or Other Activities	62%	-
Employee Shift Times	Arrive between 7:30 and 8:00 a.m.	-	67%
	Arrive between 8:00 and 9:00 a.m.		9%
	Leave between 3 and 4 p.m.		21%
	Leave between 4 and 5 p.m.	-	46%

Notes: TART = Tahoe Area Regional Transit

Responses may not sum to 100% due to rounding and/or omission of low percentage responses. "-" = survey topic was not asked to particular group.

[1] Visitors refer to individuals walking around the Village at Squaw Valley. Employees refer to Squaw Valley Ski Resort employees. Refer to the text of Section 9.1.8, "Winter Season/Summer Season Travel Behavior Characteristics," in this DEIR for data collection source and methods.

[2] Ski lift from Resort at Squaw Creek.

Source: Data provided by Squaw Valley Ski Resort in 2012-2013

Table 9-14 Travel Characteristics of Village at Squaw Valley Summer Visitors and Employees

Travel Characteristic		Visitors[1]	Employees[1]
Arrival Travel Mode	Auto	86%	82% [2]
	Walk/Bike	9%	12%
	Squaw Valley Shuttle	2%	0%
	Public Bus (TART)	3%	5%
Resident/Visitor Status	Overnight Visitor of Area	59%	-
	Resident of Area	30%	-
	Day-Use Visitor	12%	-
Overnight Stay Location (for Visitors)	Truckee/Northstar	14%	-
	Squaw Valley	46%	-
	Tahoe North Shore	16%	-
	Tahoe West/South Shore	11%	
	Reno/Sparks	8%	-
Trip Origin (Residents/Day Visitors, Employees)	Truckee/Northstar	24%	40%
	Reno/Sparks	9%	7%
	Squaw Valley	24%	11%
	Tahoe North Shore	27%	32%
	Tahoe West/South Shore	16%	7%
	Central Valley/Bay Area	0%	0%
Visitor Activities	Recreation	70%	-
	Dining	62%	-
	Shopping	53%	-
	Museum	16%	-
	Music/Special Event/Other	18%	-
Employee Shift Times	Leave between 4 and 5 p.m.	-	13%
	Leave between 5 and 6 p.m.	-	56%

Notes: TART = Tahoe Area Regional Transit

Responses may not sum to 100% due to rounding and/or omission of low percentage responses. "-" = survey topic was not asked to particular group.

[1] Visitors refer to individuals walking around the Village at Squaw Valley. Employees refer to Squaw Valley Ski Resort employees. Refer to the text of Section 9.1.8, "Winter Season/Summer Season Travel Behavior Characteristics," in this DEIR for data collection source and methods.

[2] 8% of this 82% were reported as being dropped off.

Source: Data provided by Squaw Valley Ski Resort in 2012-2013

Table 9-15 Travel Characteristics of Summer Overnight Guests

Travel Characteristic		Overnight Guests[1]
Arrival Travel Mode	Auto	85%
	Airplane & Rental Car/ Shuttle	15%
Trip Origin	Truckee / Northstar	0%
	Tahoe North Shore	0%
	Squaw Valley	0%
	Reno/Sparks	10%
	Tahoe West/South Shore	0%
	Sacramento / Central Valley	13%
	Bay Area	38%
	Airports	10%
	Other	29%
Travel Mode for Trips Originating within Olympic Valley [2]	Auto	35%
	Walk	56%
	Bus/Van	5%
Overnight Guest Trips Outside of Squaw Valley	Did not Leave Squaw Valley	22%
	1 to 2 trips	43%
	3 to 4 trips	27%
	5 to 6 trips	5%

Notes: Responses may not sum to 100% due to rounding and/or omission of low percentage responses. "-" = survey topic was not asked to particular group.

[1] Refer to the text of Section 9.1.8, "Winter Season/Summer Season Travel Behavior Characteristics," in this DEIR for data collection source and methods.

[2] Mode choice refers to primary travel mode during stay.

Source: Data provided by Squaw Valley Ski Resort in 2012-2013

The data in these tables reveals several meaningful conclusions for *winter overnight guests/visitors*. As described in Section 9.3.2, "Methods and Assumptions," this group is particularly important in evaluating the proposed project's travel characteristics.

- 100 percent arrived to/from the resort via auto (either private vehicle or rental car).
- Once within Squaw Valley, the majority of trips (68 percent) were made by walking. However, one-quarter of respondents reported using a vehicle.
- The majority (60 percent) of guests checked-out between 9 a.m. and 3 p.m.
- On average, overnight guest groups made 0.93 trips outside of Squaw Valley during their visit (calculated as the weighted average of the last row in Table 9-12). This suggests that 100 guest groups would generate 93 vehicle trips exiting Squaw Valley and 93 vehicle trips entering Squaw Valley during the course of their stay (and not including their primary vacation arrival/departure trip).

To better understand overnight guest/visitor travel patterns, room occupancy, and length of stay data from the Village at Squaw Valley was obtained. Data from the 2009-2010, 2010-2011, and 2011-2012 ski seasons was reviewed to identify several weekends with peak levels of room occupancy. For five peak occupancy, non-holiday weekends, a five-day (Wednesday – Sunday) pattern of room occupancy and length of stay data was prepared. This is shown in Table 9-16.

Table 9-16 Village at Squaw Valley Overnight Guest Lodging Patterns

Dates	Measure	Wed.	Thur.	Fri.	Sat.	Sun.
Wednesday, 2/24/2010 thru Sunday, 2/28/2010	Occupied Rooms (%) [1]	60 (32%)	111 (59%)	139 (74%)	148 (79%)	68 (36%)
	Average Length of Stay [3]	3.00	1.95	2.10	3.15	2.32
Wednesday, 3/3/2010 thru Sunday, 3/7/2010	Occupied Rooms (%) [1]	58 (31%)	167 (89%)	136 (72%)	146 (78%)	116 (62%)
	Average Length of Stay [3]	2.16	1.20	2.28	2.27	2.78
Wednesday, 2/9/2011 thru Sunday, 2/13/2011	Occupied Rooms (%) [2]	47 (25%)	66 (35%)	154 (83%)	158 (85%)	63 (34%)
	Average Length of Stay [3]	1.38	2.02	2.01	1.86	3.91
Wednesday, 3/23/2011 thru Sunday, 3/27/2011	Occupied Rooms (%) [2]	74 (40%)	116 (62%)	137 (74%)	146 (79%)	60 (32%)
	Average Length of Stay [3]	2.35	1.44	1.94	1.94	3.21
Wednesday, 2/8/2012 thru Sunday, 2/12/2012	Occupied Rooms (%) [2]	47 (25%)	40 (22%)	161 (87%)	161 (87%)	70 (38%)
	Average Length of Stay [3]	1.69	2.10	1.99	1.33	3.79

Notes:
[1] 188 total rooms.
[2] 186 total rooms.
[3] Average length of stay for guest checking in that specific day.
Source: Appendix G and data provided by the Squaw Valley Real Estate, LLC in 2012-2013

Results in Table 9-16 reveal the following important findings:

1. During each study period, occupancy rates steadily increased beginning on Wednesday, and reached their maximum on Saturday night. Occupancy then dropped off significantly on Sunday night.

2. Using length of stay data and occupied rooms, it was possible to determine check-in and check-out levels during each day. The following characteristics were observed:

    a. During each study period, the proportion of Friday overnight guests that departed on Saturday ranged from 30 to 48 percent, for an average of 39 percent.

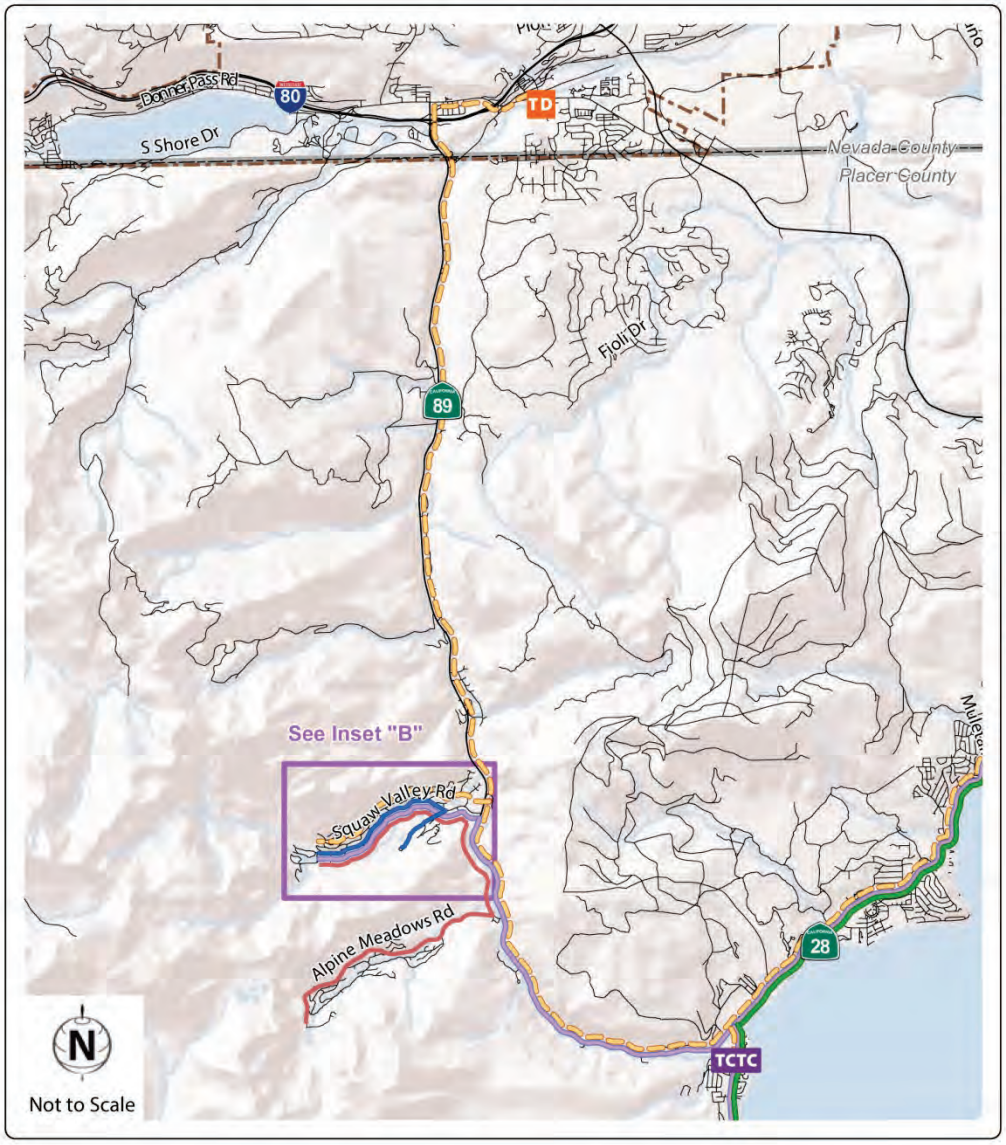
    b. During each study period, the proportion of Saturday overnight guests that arrived on Saturday (i.e., had not stayed Friday night) ranged from 32 to 51 percent, for an average of 42 percent.

    c. During each study period, the proportion of Saturday overnight guests that departed on Sunday ranged from 32 to 62 percent, for an average of 52 percent.

Additionally, a winter 2013 in-person survey of guests checking in at Village of Squaw Valley for Sunday overnight stays revealed that 19 percent arrived in Olympic Valley between 3 and 4 p.m. This is directly relevant to the arrival time of guests who would occupy units that were vacated after a Saturday night stay. As is described below, these overnight visitor travel characteristics are very important to understanding and estimating the proposed project's trip generation.

9.1.9 Existing Transit Service

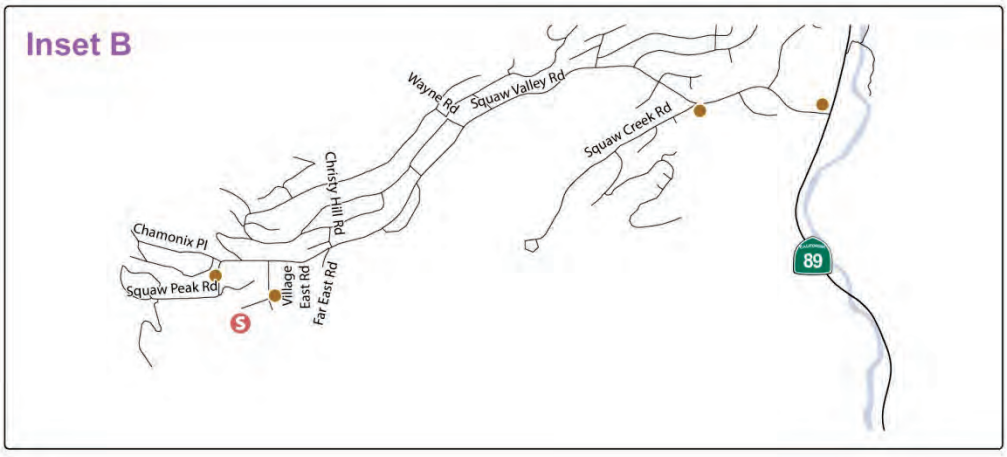
A variety of transit service options are available within the study area. This section describes those services including operating hours, stop locations, and costs. Refer to Exhibit 9-3 for map of transit routes and services.



LEGEND

- TCTC — Tahoe City Transit Center
- TD — Truckee Depot
- Bus Shelter within Olympic Valley *
- S — Squaw Valley - Alpine Meadows Shuttle Pickup Location
- Highway 89 Route - Tahoe City Transit Center to Truckee Depot
- Squaw Valley - Alpine Meadows Shuttle
- TNT-TMA Night Rider (Both Directions)
- TART Mainline
- Village at Squaw Creek Resort Shuttle

* Bus stops without shelters are also present along portions of Squaw Valley Road.



Source: Received from Fehr and Peers in 2015

FEHR PEERS

X11010091 03 068

Exhibit 9-3 **Transit Services and Routes**

ASCENT ENVIRONMENTAL

Tahoe Area Regional Transit (TART) – This service, which is operated by Placer County, connects Squaw Valley with Truckee and Tahoe City (TART 2014). The SR 89 route operates on a daily basis, year-round from approximately 6 a.m. to 6 p.m. The northbound route begins at Tahoe City and terminates at the Truckee Train Depot about 70 minutes later. The southbound route begins at the Truckee Train Depot and terminates at the Tahoe City Transit Center about 45 minutes later. The route has bus shelters within Olympic Valley at the SR 89/Squaw Valley Road intersection, Resort at Squaw Creek, Village at Squaw Valley (East), and Squaw Valley Clock Tower. Several other stops (but not shelters) are also present along Squaw Valley Road. The route operates on one-hour headways and costs $1.75 for a single ride, with discounts available for seniors, youth, disabled, and multi-ride passes. TART also provides other transit routes/services in the study area including the TART Mainline, which operates along SR 28 and SR 89 between Incline Village and Tahoma. This route offers connections with the Highway 89 route at the Tahoe City Transit Center. An additional bus is typically provided on the peak AM commute run on busy winter days to expand capacity.

Night Rider – This service, provided by the Truckee North Tahoe Transportation Management Association (TNT-TMA), provides evening service connecting Squaw Valley with the North Shore of Lake Tahoe in both summer and winter. The Night Rider operates daily from 7 p.m. to 2 a.m., connecting Squaw Valley, Tahoe City, Homewood, Kings Beach, Northstar, and Crystal Bay along SR 89, SR 28, and SR 267. It is free to riders and runs on one-hour headways.

North Tahoe-Truckee Free Ski Shuttle – This shuttle operates on weekends and holidays, serving the majority of ski resorts on the north shore of the Tahoe Basin. The service consists of pre-scheduled pick-up (at major lodging areas and key attractions) and resort drop-off locations.

Squaw Valley-Alpine Meadows Express Shuttle – This shuttle operates daily between the Squaw Valley and Alpine Meadows ski resorts. A lift ticket purchased at one resort is also valid at the other resort and includes use of the shuttle. It operates every 20 minutes from 8:30 a.m. to 4:45 p.m., and picks up at Squaw Valley Ski Resort near the terminus of Village East Road (near the Squaw Valley Members Locker Room).

Village at Squaw Creek Resort Shuttle –Complimentary shuttle service between the Resort at Squaw Creek and the Squaw Valley Ski Resort is provided to guests of both resorts. The shuttle drop-off location is at the terminus of Village East Road (near the Squaw Valley Members Locker Room). Shuttle times and frequency depend on weather, traffic, and resort occupancy.

North Lake Tahoe Water Shuttle – This boat/shuttle transports passengers across Lake Tahoe with stops at Tahoe City, Homewood, and Carnelian Bay. Cost is $10 per adult and $7 per child for a one-way ride. Service operates from June through September.

Shuttle service is also provided to other parts of the Lake Tahoe (via TART route connections and the North Lake Tahoe Water Shuttle), and the Reno Tahoe International Airport via the North Lake Tahoe Express Shuttle.

Ridership data was provided by Placer County for the TART SR 89 route for several winter days during the 2010-2011 ski season. This information is summarized in Table 9-17, and indicates that the majority of northbound morning ridership and southbound evening ridership is associated with drop-offs and pick-ups between Tahoe City and Squaw Valley. This table is based on available data from on-bus ridership surveys. Although this table does not show peak-hour, peak-direction ridership trends between Truckee and Squaw Valley; it is likely that similar travel patterns exist. In summary, peak-period, peak-direction TART buses appear to be close to capacity during peak winter ski days (e.g., the Saturday morning bus to Squaw Valley on February 26, 2011 required about one-third of riders to stand, and had a reserve capacity for only nine more riders).

Table 9-17 Highway 89 TART Bus Route – Existing Winter Ridership Levels

Date	Day	Travel Direction	Route Time	Passengers Boarding in Tahoe City	Passengers[1] Alighting at Squaw Valley	Passengers[1] Boarding at Squaw Valley	Passengers Alighting in Tahoe City
2/26/2011	Saturday	Northbound	6:30 to 7:10 a.m.[2]	63	62	-	-
2/11/2011	Friday	Northbound	6:30 to 7:10 a.m.[3]	46	46	-	-
3/1/2011	Tuesday	Southbound	4:30 to 5:15 p.m.[2]	-	-	39	44
3/3/2011	Tuesday	Southbound	5:30 to 6:28 p.m.[4]	-	-	28	28

Notes:

[1] Passengers boarded or alighted (exited) either at the Clocktower, Village at Squaw Valley, or Squaw Creek Resort

[2] Seated bus capacity is 42. Standing bus capacity is 71.

[3] Seated bus capacity is 35. Standing bus capacity is 60.

[4] Seated bus capacity is 45. Standing bus capacity is 77.

Source: Appendix G and data provided by Placer County Department of Public Works in 2012-2013

9.1.10 Existing Bicycle and Pedestrian Facilities

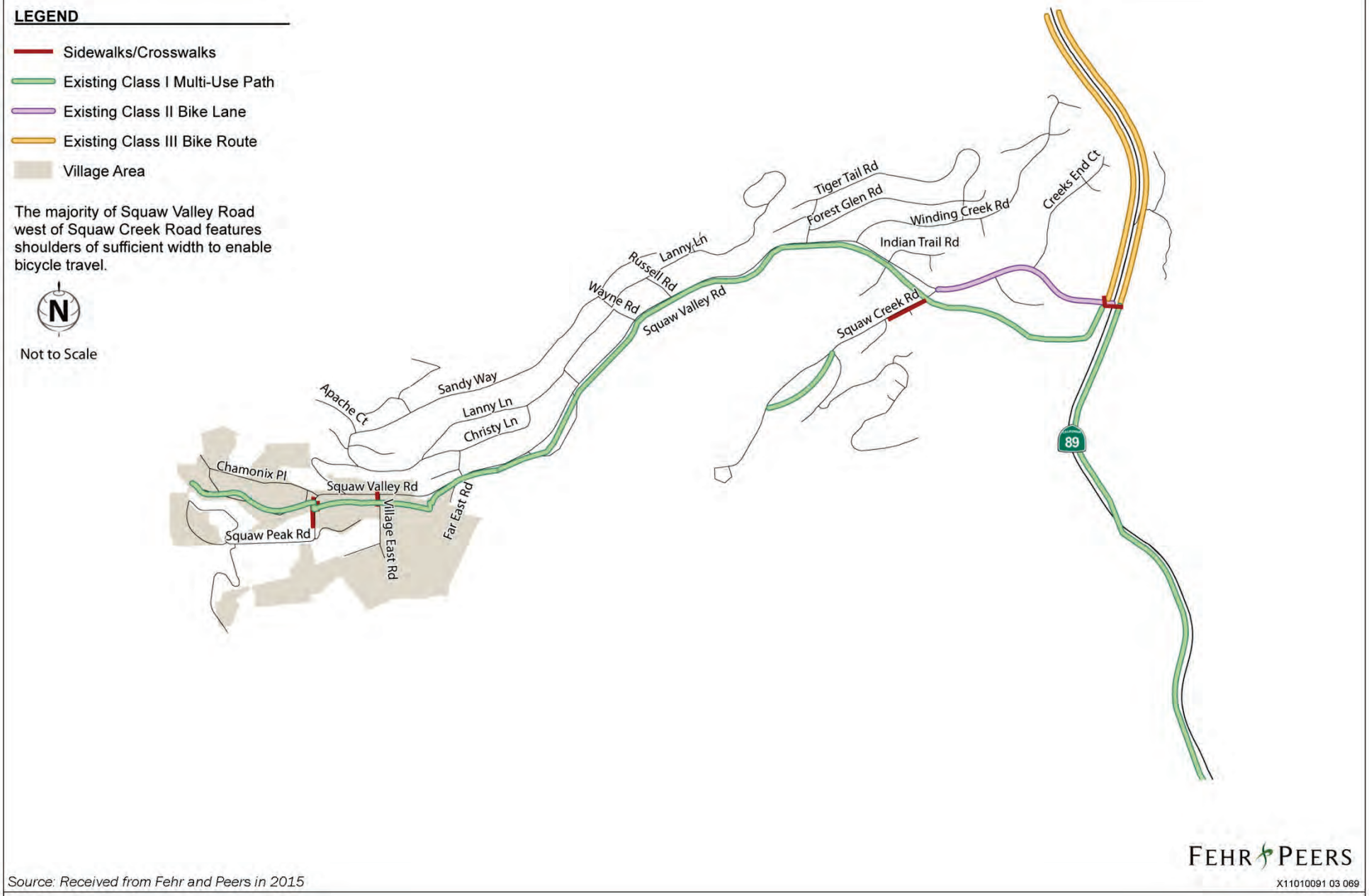
The following types of bicycle facilities exist within the study area:

- Multi-use paths (Class I) are paved trails that are separated from roadways, and allow for shared use by both cyclists and pedestrians.
- On-street bike lanes (Class II) are designated for use by bicycles by striping, pavement legends, and signs.
- On-street bike routes (Class III) are designated by signage for shared bicycle use with vehicles but do not include any additional pavement width.

Exhibit 9-4 displays existing bicycle facilities within the project vicinity. As shown, the Class I Squaw Valley Trail parallels Squaw Valley Road between the Squaw Valley Ski Resort and SR 89. Snow is cleared from this facility in winter. This trail then connects to the Truckee River multi-use trail, which extends southerly from Squaw Valley Road, paralleling the Truckee River into Tahoe City. A Class III bike route is designated on SR 89 north of Squaw Valley Road.

West of Squaw Creek Road, Squaw Valley Road has paved shoulders in each direction, which are of sufficient width to accommodate bicycle travel. However, because no signs designating a bike trail are included along this segment, it does not qualify as either a Class II or III facility.

The multi-use trails and several crosswalks/sidewalks comprise the pedestrian facilities in the study area. The narrow, two-lane undercrossing of the UPRR tracks on SR 89 just south of Truckee, known as the "Mousehole," includes a pedestrian-actuated, "Pedestrians in Tunnel When Flashing" indication. As is discussed below (in the description of the Transportation Corridor Concept Report, State Route 89), improvements are planned to the Mousehole in the near future to provide a dedicated bicycle/pedestrian path.



Source: Received from Fehr and Peers in 2015

Exhibit 9-4 **Existing Bike and Pedestrian Facilities**

ASCENT ENVIRONMENTAL

9.2 REGULATORY SETTING

9.2.1 Federal

There are no federal laws or regulations that are relevant to potential transportation impacts of the proposed project.

9.2.2 State

Caltrans owns, operates, and maintains most of the study area's major roadways including SR 89 and SR 28. As such, the following Caltrans (District 3) planning and policy documents provide guidance on expectations for these routes related to traffic operations relevant to this analysis and the potential effects of the proposed project.

DISTRICT SYSTEM MANAGEMENT PLAN

The *District System Management Plan* (Caltrans 2013a) sets forth the long-term (20-year) policy direction for Caltrans - District 3 related to system maintenance, system completion, and congestion relief. The plan emphasizes that much of the state highway system was built many years ago and is reaching the end of its expected useful life. SR 28 and SR 89 both have sections with major pavement distress within the study area. The plan does not include any major expansion or modification of the State highways in the study area for vehicles, transit, bicyclists or pedestrians. The plan does support complete streets development, but only includes performance expectations related to vehicle travel. In general, the plan establishes a LOS D threshold for rural areas noting that individual transportation corridor concept reports (TCCRs) for each State route set final thresholds. The document notes that once facilities worsen to LOS F, it becomes difficult to measure further degradation to any degree of accuracy. Therefore, other performance measures can be used to define thresholds for system planning and CEQA purposes. These include: vehicle travel time, vehicle hours of delay (VHD), travel reliability (i.e., the degree of variation in travel time due to congestion and non-recurring events), and lost productivity (i.e., ability of corridor to deliver travelers/good movement). The document mentions the need to develop thresholds of significance (but does not include any) to use these measures for defining significant impacts for facilities not operating at the concept LOS.

TRANSPORTATION CORRIDOR CONCEPT REPORT, STATE ROUTE 89

Within the study area, the *Transportation Corridor Concept Report, State Route 89* (Caltrans 2012b) establishes a LOS E concept level of service for the 13-mile segment between SR 28 and the Placer/Nevada County line. The TCCR acknowledges that expanding this segment is not feasible due to the environmental sensitivity of the area and topographic constraints. Thus, the existing two-lane conventional highway is not planned for any modifications, aside from pavement rehabilitation. For the 0.5-mile segment between the Placer/Nevada County line and I-80, the TCCR identifies a 20-year concept LOS E based on its widening to a four-lane conventional highway. It identifies a 20-year no build LOS F if no improvements are made. The segment of SR 89 south of Tahoe City also has a concept LOS E with widening not feasible due to the environmental sensitivity of the area and topographic constraints.

The Town of Truckee (as lead agency), Caltrans, and the Nevada County Transportation Commission are providing funding to develop a project to improve traffic flow and safety at the "Mousehole," which is the two-lane SR 89 undercrossing of the UPRR tracks located between West River Street and Deerfield Drive. A Class I path (12-foot-wide by 10-foot-high) concrete tunnel for pedestrian and bicycle use is planned to be constructed beneath the UPRR tracks east of the existing vehicle tunnel. This project is expected to break ground in spring 2015 (Town of Truckee 2014).

TRANSPORTATION CORRIDOR CONCEPT REPORT, STATE ROUTE 28

The *Transportation Corridor Concept Report, State Route 28* (Caltrans 2012c) establishes a LOS E threshold for the segment between SR 89 and Estates Drive in Tahoe Vista. The only planned modifications to the existing two-lane conventional highway are Class II bike lanes from Tahoe City to Kings Beach. The TCCR recognizes that LOS F conditions do occur during peak recreational seasons but expects LOS E conditions will be maintained during the 20-year planning period outside those conditions.

CALTRANS DISTRICT 3 STATE HIGHWAYS BICYCLE FACILITY PLAN

The *Caltrans District 3 State Highway Bicycle Facility Plan* (Caltrans 2013b) identifies the vision for bicycle use of State Highways as well as a detailed inventory of existing facilities and needed improvements. While facilities exist on portions of SR 28 and SR 89 in the study area as noted above, additional facilities are recommended in this plan as listed below.

- Class II bike lanes on SR 28 from SR 89 to SR 267, and
- Class II bike lanes on SR 89 between the Tahoe City "Y" to the Tahoe Basin boundary.

9.2.3 Local

The proposed project is located in unincorporated Placer County. However, the study area roadways extend outside Placer County to the jurisdictions of the Town of Truckee and TRPA. Specific regulatory conditions from these jurisdictions that would relate to the transportation impact analysis or the implementation of the proposed project are described below.

PLACER COUNTY GENERAL PLAN

The *Placer County General Plan* (Placer County 2013) provides long-range direction and policies for the use of land within Placer County. With regard to the transportation and circulation system serving the project, this document establishes an overall roadway system including a roadway functional classification system and designates a series of transit corridors. In addition, six modal goals are presented, each of which is supported by numerous policies and implementation programs. For the purposes of this DEIR, the goals and policies of this document were used in developing the impact significance criteria.

Placer County has established minimum acceptable LOS thresholds for roadways and intersections in the *Placer County General Plan*. Policy 3.A.7 establishes the following LOS thresholds.

- **Policy 3.A.7:** The County shall develop and maintain its roadway system to maintain the following minimum levels of service (LOS).

    a. LOS "C" on rural roadways, except within one-half mile of state highways where the standard shall be LOS "D."

    b. LOS "C" on urban/suburban roadways except within one-half mile of state highways where the standard shall be LOS "D."

The General Plan (2013) allows the County to grant exceptions to these LOS standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable based on established criteria. In allowing any exceptions to the standards, the County shall consider the following factors:

1. The number of hours per day that the intersection or roadway segment would operate at conditions worse than the standard.

2. The ability of the required improvement to significantly reduce peak hour delay and improve traffic operations.
3. The right-of-way needs and the physical impacts on surrounding properties.
4. The visual aesthetics of the required improvement and its impact on community identity and character.
5. Environmental impacts including air quality and noise impacts.
6. Construction and right-of-way acquisition costs.
7. The impacts on general safety.
8. The impacts of the required construction phasing and traffic maintenance.
9. The impacts on quality of life as perceived by residents.
10. Consideration of other environmental, social, or economic factors on which the County may base findings to allow an exceedance of the standards.

Exceptions to the standards will be allowed only after all feasible measures and options are explored, including alternative forms of transportation.

A recent amendment to the General Plan (Placer County Resolution 2005-149, June 28, 2005) allows an additional exception for community plans or specific plans. These plans can establish their own LOS thresholds within the plan boundaries, such as the proposed LOS policy contained in the VSVSP (see discussion of policy CP-1 below).

TOWN OF TRUCKEE 2025 GENERAL PLAN

The *Town of Truckee 2025 General Plan* (Town of Truckee 2009) guides the overall growth and development of the Town of Truckee, which is located north of the proposed project on SR 89. The plan's Circulation Element calls for expanding the SR 89 "mousehole" just north of the Placer/Nevada County line to better accommodate traffic flow and bicyclist/pedestrian safety. Also, the plan calls for local roadways to operate at LOS D or better outside of the Downtown Study Area, and LOS E or better within the Downtown Study Area during summer conditions. An operating goal is not provided for winter conditions.

LAKE TAHOE REGIONAL PLAN

The *Lake Tahoe Regional Plan* (TRPA 2012) was prepared to attain and maintain the environmental threshold carrying capacities established by TRPA in 1982, and all applicable federal, state, and local standards established for transportation and air quality. The Regional Plan is a regulatory framework that includes several initiatives and documents. The Plan is meant to be updated every four years, in conjunction with an environmental evaluation report, so that the plan can adapt to changing needs, circumstances and emerging threats. One of the plan elements is the *Mobility 2035: Lake Tahoe Regional Transportation Plan Update* (TRPA 2010). According to TRPA, "The Regional Transportation Plan (RTP) seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network." The RTP also includes a Sustainable Communities Strategy (SCS) covering the California portions of the Tahoe Basin in compliance with California Senate Bill (SB) 375. SB 375 calls for the establishment of greenhouse gas (GHG) reduction targets for each metropolitan planning organization in the State. The combination of the RTP and SCS identifies the land use and transportation strategies to achieve regional transportation goals within projected GHG reduction targets. Planned regional multi-modal transportation improvements are limited to projects that can be constructed within expected funding constraints. The financially constrained projects contained in the plan form the basis for the future planned transportation network within the Tahoe Basin included in the transportation cumulative impact analysis for this DEIR.

TRPA maintains several environmental carrying capacities pertaining to traffic, and in particular peak hour delays at intersections, daily traffic on certain key roadways, and vehicle miles travelled (VMT) for the entire basin. The TRPA standard that pertains directly to this project is their LOS policy that signalized intersections operate at LOS D or better, or not worse than LOS E for four hours per day or less.

PLACER COUNTY REGIONAL TRANSPORTATION PLAN 2010-2035

The *Placer County Regional Transportation Plan 2010-2035* (Placer County Transportation Planning Agency [PCTPA] 2010) contains the regional policy direction for transportation investment in Placer County outside the Tahoe Basin. The plan identifies short-term (10-year) and long-term (20-years and beyond) multi-modal regional transportation improvements within expected funding constraints. The financially constrained projects contained in the plan form the basis for the future planned Placer County transportation network outside the Tahoe Basin included in the transportation cumulative impact analysis for this DEIR.

BIKEWAY MASTER PLAN

In 2011, PCTPA updated its county-wide *Bikeway Master Plan* (PCTPA 2011). The plan includes a Class II bike lane on SR 89 north of Squaw Valley Road. It should also be noted that the June 20, 2013 Sacramento Area Council of Governments (SACOG) *Regional Bicycle, Pedestrian, and Trails Master Plan* now calls for a Class I Multi-Use Path along SR 89 from Squaw Valley Road and the Town of Truckee as part of a regional Class I loop that will connect Squaw Valley to Truckee, Northstar, Kings Beach, Tahoe City, and Alpine Meadows. It is expected that the Class I Loop will be added to the next update of the PCTPA Bikeway Master Plan for consistency with the SACOG plan.

NEVADA COUNTY REGIONAL TRANSPORTATION PLAN

The *Nevada County Regional Transportation Plan* (Nevada County Transportation Commission 2011) contains the regional policy direction for transportation investment in Nevada County. The plan identifies short-term (2010-2020) and long-term (2020-2030) multi-modal regional transportation improvements within expected funding constraints. The financially constrained projects contained in the plan form the basis for the future planned transportation network included in the transportation cumulative impact analysis for this DEIR.

The LOS policies of two agencies may overlap within a portion of the study area. In such instances, the more restrictive policy is used in this DEIR.

9.3 IMPACTS

9.3.1 Significance Criteria

Significance criteria were developed based on the applicable policies of Placer County (including the Placer County Department of Public Works' *Methodology of Assessment – Minimum LOS* (2011), Caltrans, and Truckee and example criteria provided in the CEQA Guidelines Appendix G. These criteria are used to assess project specific effects in this chapter, and are used as applicable in the evaluation of cumulative impacts provided in Section 18.1, "Cumulative Impacts." The proposed project would result in a significant impact related to transportation and circulation if it would:

Roadway System

Signalized Intersections and Roundabouts

1) Cause the LOS to worsen from acceptable to unacceptable levels according to the following:
    a. For signalized intersections on SR 89 at Squaw Valley Road and West River Street, LOS E or better is considered acceptable.
    b. For signalized intersections and roundabouts along SR 89 from north of West River Street to Donner Pass Road (including the I-80 interchange), LOS D or better is considered acceptable for summer Friday p.m. peak hour conditions. Since this segment has a concept LOS F, impacts during winter a.m. and p.m. peak hours may occur as a result of exacerbating an LOS F condition (see part (2) below).
    c. For the signalized SR 28/SR 89 intersection, the TRPA standard of a minimum LOS D or no more than 4 hours of LOS E applies.
2) Worsen unacceptable existing (or projected cumulative) operations by causing a four-second or more increase in delay.
3) Cause the vehicular queuing and deceleration requirements of a turn lane at a signalized intersection along SR 89 to exceed the applicable design standard.

Unsignalized (Side-Street Stop) Intersections

1) Worsen operations (for the highest delayed side-street movement) from acceptable to unacceptable levels according to the following:
    a. For the SR 89/Alpine Meadows intersection, LOS E or better is considered acceptable.
    b. For the Squaw Valley Road/Squaw Creek Road intersection, LOS D or better is considered acceptable.
    c. For the remaining side-street stop-controlled intersections along Squaw Valley Road, LOS C or better is considered acceptable.
2) Worsen unacceptable existing (or projected cumulative) operations by causing a 2.5-second or more increase in delay.

County Roadways

1) Cause the LOS to worsen from acceptable to unacceptable levels according to the following:
    a. For the study segments of Squaw Valley Road and West River Street located within ½-mile of SR 89, LOS D or better is considered acceptable.
    b. For the study segment of Squaw Valley Road west of Squaw Creek Road, LOS C or better is considered acceptable.
2) Worsen unacceptable existing (or projected cumulative) operations by causing a 0.05 or more increase in the volume-to-capacity (v/c) ratio.

State Highways

1) Cause the LOS to worsen from acceptable to unacceptable levels according to the following:
    a. For study segments of SR 89 south of West River Street, LOS E or better is considered acceptable.
    b. For the study segment of SR 89 north of West River Street, LOS D or better is considered acceptable for summer Friday p.m. peak hour conditions because it is within ½ mile of a

state highway. Since this segment has a concept LOS F, impacts during winter a.m. and p.m. peak hours may occur as a result of exacerbating an LOS F condition (see part (2) below).

c. For the study segment of SR 28 east of SR 89, the TRPA standard of LOS D or better for acceptable operations is applicable.

2) Worsen unacceptable existing (or projected cumulative) operations by causing by causing a 0.05 or more increase in the volume-to-capacity (v/c) ratio.

Bicycle/Pedestrian System

1) Disrupt or interfere with existing or planned bicycle/pedestrian facilities.
2) Result in unsafe conditions for pedestrians, including unsafe pedestrian/bicycle or pedestrian/vehicle conflicts.
3) Result in unsafe conditions for bicycles, including unsafe bicycle/pedestrian or bicycle/vehicle conflicts.
4) Create an inconsistency with policies related to bicycle or pedestrian systems set forth in a General Plan or other adopted policy document.

Transit System

1) Create demand for public transit service above that which is provided, or planned.
2) Disrupt existing public transit services or facilities.
3) Interfere with planned public transit services or facilities.

Construction-Related Activities

1) Create a temporary but prolonged impact due to lane closures, need for temporary signals, emergency vehicle access, traffic hazards to bikes/pedestrians, damage to roadbed, or truck traffic on roadways not designated as truck routes.

The use of a 5 percent v/c ratio threshold as the significance criteria for determining impacts to facilities that already operate unacceptably was derived from the Placer County Department of Public Works *Methodology of Assessment – Minimum LOS* (2011). The use of this threshold is supported by substantial evidence indicating that a 5 percent degradation is significant because it would be noticeable to the average driver, whereas an increase below this level would be within normal daily fluctuations in traffic volumes and therefore not noticeable.

9.3.2 Methods and Assumptions

This section begins by describing the policies of the proposed project that are relevant to the analysis of transportation and circulation effects. It presents the project's trip generating land uses, circulation improvements, and transportation management strategies. It then describes the methods used to analyze expected transportation conditions associated with implementation of the proposed project.

POLICIES PROPOSED IN THE SPECIFIC PLAN THAT COULD AFFECT PROJECT IMPACTS

The following policies from *The Village at Squaw Valley Specific Plan* (Squaw Valley Real Estate, LLC 2015) are applicable to the evaluation of transportation and circulation effects:

Open Space

- **Policy OS-1**: Provide a system of landscaped pedestrian pathways and corridors (streets, plazas, courtyards, recreation and event venues, outdoor dining areas, etc.) for all-season safe and functional passages and community gathering spots throughout the Village.
- **Policy OS-2**: Provide a system of pedestrian corridors as the unifying network that provides strong links to all Village areas, activity nodes, adjacent recreational areas, and to the existing Granite Chief and Shirley Canyon trailheads.

Circulation and Parking

- **Policy CP-1:** Design and construct roadways and associated facilities that generally meet applicable County standards and roadway levels of service. During peak periods, LOS F is acceptable within the Plan Area for the following reasons:
  - resort areas have atypical traffic conditions, with moderate traffic levels during most of the year, and more congestion during high peak periods;
  - peak periods at Squaw Valley occur for limited periods of time and during a relatively small number of days per year;
  - the primary improvement that would result in acceptable LOS during peak periods is the widening of Squaw Valley Road to four lanes, which is not feasible for economic and environmental reasons;
  - other measures are available to manage the peak traffic flows, such as three-lane operation with cones, signage, and traffic personnel; and
  - improvements necessary to achieve the adopted LOS would create capacity that was unneeded during the majority of the year.
- **Policy CP-2:** Enhance and supplement public transit systems and alternative means of mass transportation within the Village and Olympic Valley to reduce vehicle trips and emissions.
- **Policy CP-3:** Accommodate regional transit access at a Village Transit Center that encourages mass transit use by providing convenient and efficient transit routing, minimizes congestion between mass transit vehicles and other traffic, provides convenient walking access to ski portals, and enhances the environment for passengers waiting at the Transit Center.
- **Policy CP-4:** Encourage use of regional transit services (including services from commercial airports) and participate as appropriate in expansion of regional transit services through financial support, such as subsidies and/or funding programs.
- **Policy CP-6:** Extend the existing Class 1 multi-purpose biking/walking trail along Squaw Valley Road to the west (it currently terminates northeast of the Village at the Squaw Valley Meadows condos). Construct new trails and recreational areas north and west of the Plan Area by the end of Phase I, with flexibility to augment them to accommodate Phase II development.
- **Policy CP-7:** Provide a robust pedestrian network that connects to multiple destinations within the Plan Area and to the regional trail network.
- **Policy CP-8:** In order to reinforce the pedestrian environment, vehicular travel lanes shall be the minimum width necessary to provide for safe pedestrian, bicycle and vehicular travel.
- **Policy CP-10:** Provide adequate parking to accommodate day skiers within Squaw Valley on all but the four busiest ski days.
- **Policy CP-11:** Prepare a Peak Day Parking and Transportation Management Plan that addresses parking and circulation for day skiers and others on peak use days.

- **Policy CP-12:** Design the circulation system so that emergency vehicles can gain access quickly and safely, and in compliance with Squaw Valley Fire Department standards.
- **Policy CP-13:** All phases of development shall provide day skier/visitor parking for 10,663 day skiers, 3,100 spaces in valley, in addition to the parking supply required to serve each phase of development.

PROPOSED LAND USES

The proposed project would consist of trip-generating land uses in the Village Area, as well as the East Parcel. A maximum of 1,493 bedrooms (within up to 850 units) could be developed in the Village Area, along with commercial and other uses. Employee housing on the East Parcel would accommodate a maximum of 300 employees.

Main Village

- 850 total units with a total of 1,493 bedrooms for residents and guests. Because a majority of the units will be configured as condo/hotel units, they will also include lobby and other "back-room" commercial space. The traffic analysis assumes the following bedroom configurations:
  - 819 condo/hotel units[2] configured with between 1 and 3 bedrooms each. They would be designed such that each unit can be divided to create 1, 2, or 3 bedroom hotel-like accommodations. It is expected that these 819 units will yield 1,118 1-bedroom, 129 2-bedroom, and 8 3-bedroom accommodations after lock-offs are assumed (1,255 total accommodations with 1,400 total bedrooms). These facilities would be served by 462 employees during peak winter conditions.
  - 31 fractional cabins (which would not have lock-off capability) consisting of 3-bedroom units (93 total bedrooms).
- Net increase of 29,530 square feet of restaurant and 27,700 square feet of retail uses (including 5,000 square feet of retail on the East Parcel). These uses are anticipated to employ 245 persons during peak winter conditions.
- Mountain Adventure Camp (MAC) would offer activities such as indoor rock climbing, water-based recreation, and rides in an extensive indoor/outdoor pool system, and additional entertainment options such as a bowling alley and arcade. The MAC could accommodate up to 1,200 guests and require 44 employees during peak winter conditions. The vast majority of customers are expected to be persons already staying on site or extending the length of a day skier visit. Thus, any external trips generated by the MAC will occur primarily as a result of employee trips and the occasional customer traveling into Squaw Valley for the sole purpose of using the MAC.

East Parcel

The project would include construction of employee housing on the East Parcel, which is located on Squaw Valley Road near Squaw Creek Road. The employee housing would accommodate up to a maximum of 300 individuals, with space for 99 individuals allocated to existing employee housing in the Village Area that would be displaced by Specific Plan development. According to the project applicant (and in consideration that some units will accommodate couples housing), the East Parcel is expected to accommodate about 200 of the 751 new, peak winter employees (462 hotel/condo employees plus 245 restaurant/retail employees plus 44 MAC employees). This implies that about 27 percent of new employees would reside on the East Parcel, with the remainder expected to reside elsewhere within or outside of Olympic Valley. (Note that the total number of employees expected is higher than the full time equivalent [FTE] number of employees; this accounts for part-time as well as full-time employees. Consideration of the total number of part- and full-time

[2] Condo hotels are typically defined as a hotel with for-sale condominium units that are privately owned. When owners are not using the unit, they can leverage the marketing and management available through the hotel chain to rent and manage the condo unit as it were a hotel room. These facilities often have a front desk, daily cleaning, and various on-site amenities and services. Hotel condo units may be "locked off." This means that for units consisting of two or more bedrooms, an owner may occupy one of the rooms, with the other(s) being locked off and used by overnight guests similar to a hotel room. This analysis conservatively assumes that 75 percent of units are locked off.

employees, rather than the smaller FTE, is relevant to the traffic analysis.) The East Parcel would also include approximately 15,000 square feet of shipping and receiving and, as noted above, 5,000 square feet of retail.

PROPOSED CIRCULATION IMPROVEMENTS

According to the *Village at Squaw Valley Specific Plan*, the proposed project would enhance circulation for all modes of travel within the Village Area with implementation of the following improvements:

- The existing Class 1 bike/pedestrian trail located on the south side of Squaw Valley Road would be extended westerly from Far East Road through the Village Area along the north side of the restored Squaw Creek corridor to Chamonix Place. Multiple pedestrian and bicycle connections would be provided into the Village, with links to the Granite Chief and Shirley Canyon trailheads. Bike racks would be provided at main locations throughout the Village, as well as at the Shirley Canyon and Granite Chief Trailheads, and at all major lodging properties.

- Sidewalks and/or separated pedestrian paths would be provided along vehicular roadways and in parking lots. Crosswalks would be situated at intervals to ensure pedestrians can safely traverse across the entire plan area. Appropriate lighting and safety signage, such as yield signs, stop signs, and pedestrian crossing signs, would be installed in conjunction with the crosswalks. Designated avenues for pedestrian crossings would be provided every 200 to 300 feet. Traffic calming measures and traffic management techniques would be employed to maintain a safe environment for all travelers. The material used for the bicycle and pedestrian trails/paths will be suitable for snow removal/plowing, making them accessible during the winter.

- A transit center would be constructed within the Village Area to provide a convenient transit hub for both public and private transit services traveling within, to, and from the Village Area. It would be designed as a drop-off/pick-up facility with the capacity to accommodate two buses at a time. It would be centrally located within the Village Core, and accessed from the most westerly bridge across Squaw Creek.

- Emergency Vehicle Access (EVA) routes within the plan area would provide secondary access to structures or land uses when needed. EVAs would be a minimum of 24 feet wide.

- Parking facilities would be managed flexibly in response to changes in parking demands, and in order to accommodate all project parking needs on all but the busiest four days of the ski season. Parking would be provided as follows:

  - Overnight Guests: Parking structures would be provided beneath the majority of lodging and resort-residential buildings. Operational vehicles and employees would be accommodated on a space-available basis.

  - Day-Use Skiers and Visitors: The majority of parking would be provided by two new parking structures located directly north of the Village Core. Additional parking (see Exhibit 3-8 in Chapter 3, "Project Description") would be provided in other Village Area locations and off-site, if necessary for peak conditions, at the East Parcel. A shuttle would transport visitors between the East Parcel and the Village Area.

  - Employees: The majority of the project's employees would park off-site at the East Parcel and be shuttled to/from the Village Area during peak winter conditions. However, some employees (estimated at 10 percent or less) would need their vehicles during their shift, and park within the Village Area.

  On-site day skier parking supply would be provided to accommodate all but the four busiest ski days per year. A review of skier counts for the most recent five years indicates an average (on the 5th busiest day of each year) of 10,663 day skiers (note that in many cases there would be multiple skiers in a single vehicle). The overall parking supply would be developed to accommodate at least this

level of day skiers in any ski season through all stages of development. Resort parking attendants would direct parking on peak days to help accommodate the large number of vehicles and ensure adequate clearance, emergency vehicle access, and pedestrian and vehicular safety standards are maintained.

Various existing roadways and intersections within the Village Area would include pedestrian/bicycle enhancements. However, no material changes in their capacity would be made.

PROPOSED TRANSPORTATION MANAGEMENT

The proposed project would implement a Transportation Management Plan (TMP), which would consist of the following elements:

- On-Going Traffic Management – Traffic management programs along Squaw Valley Road would be continued and modified over time as warranted, to respond to changes in transportation patterns.
- Preferred Parking for Carpoolers – Convenient parking spaces would be designated for vehicles arriving with four or more occupants. This is intended to encourage higher occupancy rates in arriving vehicles. If the project is approved, this would be monitored as part of the Mitigation Monitoring and Reporting Program (MMRP).
- Transit Center and Services – The Transit Center would be centrally located to provide a convenient transit hub for both public and private transit services traveling within, to, and from the Village Area. Low-emission vehicle shuttle service would be provided within the Village, as warranted, to provide mobility for visitors, guests, and employees. Transit service would be operated between the Village Area and the other key lodging and residential areas within the Olympic Valley (e.g., Resort at Squaw Creek). The goal of this service is to provide a viable alternative to the private automobile for residents and guests in the Olympic Valley traveling to and from the Village Area. As demand dictates during the peak ski season, transit service provided by TART and other providers to the Truckee/North Tahoe region would also be provided, promoted, and/or supported.
- Year-Round Bicycle and Pedestrian Trail Network – A comprehensive network of multiuse paths and sidewalks would be provided throughout the Village Area and maintained year-round by providing snow removal.
- Establish a Transportation Coordinator Position – A Squaw Valley Resort employee would be designated as Transportation Coordinator, with responsibility to provide employees (in particular newly-hired employees) with information on the various commute options. The Transportation Coordinator would also cooperate/coordinate with TART and the Truckee/North Tahoe Transportation Management Association.
- Provide Bicycle Parking Facilities – These facilities would be provided at all major lodging/resort-residential facilities, as well as at other major activity centers.
- Other Strategies to Encourage Alternative Transportation Options – Strategies, such as these below, will be considered and implemented, where feasible, to reduce private automobile use and expand mobility options:
  - Offer Activities to Extend Day Skier Stays – Activities such as night skiing, the Mountain Adventure Camp, and ice skating could be promoted to reduce the proportion of day skiers exiting during the peak afternoon traffic period. On days forecast to have particularly high levels of skier activity, events (concerts, live performances, etc.) would be held to encourage day skiers to linger in the Village area until after exiting traffic volumes recede.
  - Provide access to bicycles for visitors and guests to encourage cycling within Olympic Valley and beyond.

- Real-time Traffic Communication Systems – Subject to support and cooperation from Caltrans, install and operate real-time traffic communication systems within the Village to advise guests of existing travel conditions and approximate travel times out of the area.
- Provide continuous Class I Multi-Purpose Path linkage between the East Parcel (employee housing) and the Village.

TRIP GENERATION (WINTER CONDITIONS)

Based on the project description, the following distinct land uses are considered "trip generators." For each trip generator, a description of the analysis tools used to estimate the project's trip generation is provided.

- *Hotel/Condo and Fractional Cabin Guests* – trip generation was estimated based on: new parking supply for guests only[3], average duration of stay at the Village at Squaw Valley hotel[4], surveys of guests at Village at Squaw Valley hotel regarding arrival/departure times, and winter overnight visitor surveys regarding travel patterns, mode split, etc.
- *Hotel/Condo and Fractional Cabin Employees* – trip generation was estimated based on: anticipated number of employees and shift times and winter employee surveys regarding travel patterns, mode split, vehicle occupancy, etc.
- *Restaurant/Retail Customers* – trip generation was estimated based on: trip rates from *Trip Generation Manual, 9th Edition* (Institute of Transportation Engineers 2012) with various adjustments, and winter day-user survey results regarding internal trips, etc.
- *Restaurant/Retail Employees* – trip generation was estimated based on: anticipated number of employees and shift times and winter employee surveys regarding travel patterns, mode split, vehicle occupancy, etc.
- *Mountain Adventure Camp (MAC)* – trip generation was estimated based on: anticipated number of guests and employees, expected shift times, and winter overnight guest and employee surveys regarding travel patterns, mode split, vehicle occupancy, internal trips, etc.
- *Miscellaneous* –includes new vehicle trips otherwise not considered by the above trip generators. This may include delivery trucks, emergency/utility service vehicles, transit, taxi, and employee pick-up/drop-offs to the Specific Plan area.

The majority of new employees (both residing on the East Parcel and outside of Olympic Valley) would be transported between the East Parcel and the Village Area by shuttle during peak winter conditions. However, some employees (estimated at 10 percent of hospitality staff) are expected to drive to the project site due to the need to have a car during their work shift.

The trip generation estimates include the following explicit assumptions based on input from the project applicant team:

- The proposed project would not be expected to affect the number of day-use skiers[5], or any of their travel behaviors (i.e., vehicle occupancy, parking location, etc.). According to the *Village at Squaw Valley*

[3] The Specific Plan indicates the following parking supply would be provided for guest parking: 0.75 space per 1-bedroom unit, 1.00 space per 2-bedroom unit, and 1.25 spaces per 3-bedroom unit. Because parking will be provided in primarily reserved, podium-style configurations, these totals provide an upper bound of the number of hotel/condo guest vehicles that could enter Olympic Valley for purposes of staying overnight. Although it is possible that additional vehicles could be parked overnight in day-use skier areas, this would effectively reduce the number of day-use skier vehicles due to overall parking supply limitations.

[4] Based on this data, at peak occupancy, it is estimated that 95% of all units will be occupied on Friday nights, and 100 percent of units will be occupied on Saturday nights. It is expected that 39 percent of units occupied on Friday nights will check-out on Saturday (i.e., be replaced by new guests). It is expected that 52 percent of units occupied on Saturday nights will check-out on Sunday.

[5] Traffic associated with day-use skiers (as well as overnight guests in Olympic Valley) are reflected in the existing peak winter traffic volumes and operational results. Proposed project trips would be "layered" on top of existing volumes/conditions, meaning there is no reduction in day-use skier activity.

Parking Analysis (LSC Transportation Consultants 2014), the East Parcel is anticipated to be used by employees and/or some day-use skiers on the 5th busiest ski day of the year. However, the impact analysis conservatively assumes that all day-use skiers continue to drive to/from the Village area versus parking in the East Parcel and being shuttled. The vast majority of new employees are assumed to park at the East Parcel and be shuttled to/from the Village area.

- The proposed project would not alter the number of employees required for existing on-mountain operations (i.e., ticketing, ski patrol, ski school, administrative, etc.).

Due to the variety of different trip generators (and their different trip origins/destinations, and trip distribution patterns); it was necessary to develop a series of interim trip generation tables for each trip generator. Appendix G shows that 21 separate tables were developed. This appendix also includes a color-coded legend that shows the relevant data input (i.e., counts, surveys, etc.) used in the calculation.

Table 9-18 displays the number of new vehicle trips generated by each use for winter Saturday daily and a.m. peak hour, and Sunday p.m. peak hour conditions. At buildout, the project would generate about 2,820 new daily vehicle trips that would enter or exit the Olympic Valley (i.e., pass through the SR 89/Squaw Valley Road intersection) during a winter Saturday. During the Saturday a.m. peak hour, about 150 new trips would be generated, 62 percent of which would be inbound. During the Sunday p.m. peak hour, about 200 new trips would be generated, 79 percent of which would be outbound.

The project would add 2,440 new daily trips to Squaw Valley Road between the East Parcel and the Village Area. This estimate is somewhat lower than the project's external (i.e., entering/exiting Olympic Valley) trip generation of 2,820 trips due to employee housing on the East Parcel and employee shuttle service to/from the Village Area.

Table 9-18 Proposed Project Trip Generation – Peak Winter Conditions

Land Use	Maximum Amount	Saturday Daily			Saturday a.m. Peak Hour			Sunday p.m. Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Condo Hotel (Guests)	1,255 units after lock-off & 31 fractional cabins & 462 employees	957	909	1,866	40	36	76	24	76	100
Fractional Cabin (Guests)		46	43	89	2	2	4	1	4	5
Condo Hotel & Fractional Cabin (Employees)[1]		165	165	330	16	5	21	0	41	41
Restaurants & Retail (Employees)[1]	29.53 ksf Rest., 27.7 ksf Retail & 245 employees	87	87	174	13	0	13	2	13	15
Restaurants & Retail (Guests)[2]		83	83	166	6	2	8	8	8	16
Mountain Adventure Camp (Guests)	1,200 guests & 44 employees	29	29	58	3	1	4	2	4	6
Mountain Adventure Camp (Employees)[1]		19	19	38	2	1	3	1	3	4
Miscellaneous[3]	-	50	50	100	10	10	20	5	10	15
Total External Vehicle Trips[4]		1,436	1,385	2,821	92	57	149	43	159	202
Employee Vehicle Trips on Squaw Valley Road[5]		29	29	58	3	0	3	0	7	7
Shuttle trips on Squaw Valley Road[6]		50	50	100	3	3	6	6	6	12
Total Vehicle Trips on Squaw Valley Road[7]		1,244	1,193	2,437	67	54	121	46	115	161

Notes: ksf = thousand square feet

[1] Vast majority (i.e., 90%) of employee vehicle trips begin/end at East Parcel west of SR 89/Squaw Valley Road intersection. Employees are then shuttled into Village Area. However, 10% of hospitality employees are assumed to need a vehicle for work, and therefore drive to project site.

[2] These are trips made by guests not staying overnight or not otherwise already at the resort to ski/board.

[3] Includes delivery trucks, emergency/utility service vehicles, transit, taxi, and other (e.g., pick-up/drop-offs) trips.

[4] This number of trips is added to SR 89 and passes through the SR 89/Squaw Valley Road intersection.

[5] 10 percent of employee vehicle trips expected to begin/end at project site due to need for car during work.

[6] Shuttle buses transport employees between Specific Plan area and East Parcel.

[7] This number of trips is added to Squaw Valley Road between Village Area and East Parcel. It consists of: hotel/condo/fractional guests, restaurant/retail customers, MAC guests, miscellaneous trips, and shuttle trips.

Source: Appendix G

The 5,000 square-foot retail pad on the East Parcel would serve local, convenience shopping needs of project employees who reside in the East Parcel. The retail pad would also attract "pass-by" trips from Squaw Valley Road. A pass-by trip into a retail site is made by a motorist already on an adjacent roadway who is in route to a different primary destination. The retail pad may also be visited by residents both within and outside of Olympic Valley for convenience shopping purposes. The trip generation estimates consider these various trip-making characteristics. Vehicle trips associated with the shipping and receiving facility included in the East Parcel are included in the "Miscellaneous" trips category identified above (e.g., delivery trucks).

TRIP GENERATION (SUMMER CONDITIONS)

The winter Saturday and Sunday peak hour trip generation estimates were derived from a variety of sources including surveys of day-use visitors, overnight guests, and employees, traffic counts, length of stay information from the Village at Squaw Valley, and other references. However, data regarding summer guest travel patterns was more limited. The following data limitations help explain why the analysis methodology used for winter conditions was not used for summer conditions:

1. *Arrival and Departure Times for Overnight Guests* – For winter conditions, overnight guests that checked in/out of the Village at Squaw Valley were surveyed. No such data was available for summer conditions.

2. *Parking Supply Considerations* – The hotel/condo and fractional cabins have proposed parking supplies that effectively limit the number of vehicles that would stay at a given building during peak winter conditions. In contrast, summer conditions do not have the same restriction because ample parking in the day-use skier lots would be available during the summer.

3. *Length of Overnight Stay Data* – Overnight visitor data from the Village at Squaw Valley for winter conditions showed a consistent and generally reasonable pattern in which room occupancies increased from mid-week to weekend conditions. In contrast, length of stay data for summer conditions (from July and August of 2010 and 2011) showed wide ranges (33 to 95 percent) of Thursday and Friday night occupancy levels, with little to no consistent patterns of occupancies.

4. *Non-Primary Trips Made by summer Overnight Guests* – Surveys (see Table 9-15) at the Village at Squaw Valley indicated that summer overnight guests made an average of two round trips per group outside of Olympic Valley during their stay. However, data regarding the time-of-day for these trips was not available.

A survey of Squaw Valley summer employees was conducted in summer 2011 (see Table 9-14). This data is used in the trip generation estimates as described below. Isolation of employee (versus guest) trips is important due to their different trip distribution characteristics. It is also noted that winter conditions have special employee parking provisions (on the East Parcel), whereas summer conditions do not need to rely on the East Parcel because of the availability of day skier parking in the Village Area.

As noted previously, the lack of stated preference data for summer conditions necessitated that a different approach be identified for analyzing the project's summer travel characteristics as compared to the methodology used for winter conditions.

Data from the *Trip Generation Manual*, *9th Edition* (Institute of Transportation Engineers 2012) was reviewed for applicability to this DEIR. This document contains trip generation rates for a variety of land uses based on empirical measurements. Most of the observation sites used to develop trip rates were collected in suburban settings, which often feature limited transit service, and may not have nearby destinations within close walking/biking distance. Therefore, adjustments to trip rates may be warranted if supported by evidence as to why the adjustment is needed. This is described in detail below.

The following land use categories in the *Trip Generation Manual* were considered for use in this DEIR. Each land use category is described along with an assessment of its strengths and weaknesses for this particular application:

- *Residential Condominium/Townhouse (Category 230)* – defined as ownership units that have at least one other owned unit within the same building structure.

  Strengths: Data set consists of 62 studies whose average size is 205 units and maximum size is about 1,250 units.

  Weaknesses: A component of its trip generation (particularly during the p.m. peak hour) includes travel for work and school purposes. Also, these uses typically do not feature on-site employees. This is in contrast to the proposed condo/hotel units which would be used almost exclusively for vacation/recreation purposes and have a variety of on-site employees.

- *Recreational Homes (Category 260)* – usually located in a resort containing local services and complete recreational facilities. These dwellings are often second homes used by the owner periodically or rented on a seasonal basis.

  Strengths: Land use description generally matches hotel/condo description.

  Weaknesses: Data set limited to 2 studies (consisting of 700 and 1,500 homes). This data includes the following warning: "*Caution, Use Carefully, Small Sample Size*."

- *Timeshare (Category 265)* – developments where multiple purchasers buy interests in the same property and each purchaser receives the right to use the facility for a period of time each year. The shared property is commonly a vacation or recreational condominium.

  Strengths: Land use description generally matches hotel/condo description.

  Weaknesses: Data set limited to 12 studies with average size of 66 units and maximum size of 190 units. Specifics of the timeshare use (i.e., partial ownership, unit exchanges, etc.) were also not known.

- *Resort Hotel (Category 330)* – provide sleeping accommodations, restaurants, cocktail lounges, retail shops, and guest services. They also provide a wide variety of recreational facilities and programs, and are normally located in suburban or outlying areas.

  Strengths: Land use description generally matches the overall project. Average size of data set is 429 occupied rooms, with maximum size of 800 rooms (though only 10 data points are provided). Because this land use category also considers employees and supporting commercial, it may also be used to consider trips associated the commercial components of proposed project.

  Weaknesses: It is unknown how much supporting commercial and recreational amenities were present at the studied sites.

After reviewing each land use category, the following three land uses were removed from further consideration for reasons stated below:

- *Residential Condominium/Townhouse (Category 230*) – its trip generation includes a travel for work purposes component, whereas the proposed project does not.

- *Recreational Homes (Category 260)* – data set features only two observation points, and is therefore too limited to use.

- *Timeshare (Category 265)* – number of units associated with the data set is too small when compared to the project's size.

The Resort Hotel (Category 330) land use category from the *Trip Generation Manual* was determined to be the most applicable category for use in this DEIR because it best meets the expected function of the proposed project and consists of a robust data set from which trip rates were developed. However, one minor adjustment, which is explained below, to the trip rate is warranted based on the project's anticipated employee travel characteristics.

The Resort Hotel land use category has an average trip rate of 0.49 p.m. peak hour trips per occupied room during the p.m. peak hour of adjacent street traffic (a fitted curve equation is not provided). This trip generation rate considers the following types of traffic generators:

- Hotel guests trips;
- Hotel employee trips;
- On-site recreational/resort amenity external trips; and
- Delivery, service, taxi, and other miscellaneous trips.

The ITE Resort Hotel trip rate already accounts for internal trips between hotel guests and on-site amenities such as a golf course, aquatics park, restaurants, and retail. A 2011 survey of summer visitors at Squaw Valley indicated that 94 percent of those shopping and 97 percent of those visiting a restaurant or bar were also engaged in recreational activities, or other on-site leisure. Thus, it is expected that the proposed project's retail and restaurant space would have high levels of trip internalization. And to the extent that external trips would be made, they are reflected in the ITE Resort Hotel trip rate. Therefore, no additional vehicle-trips need to be added specifically for retail and restaurant space in the hotel properties.

For analysis purposes, all hotel/condo units are presumed to be fully occupied during the summer Friday analysis period. Accordingly, 462 employees (same value as assumed for peak winter condition) are assumed in the analysis. According to data provided by the project applicant, condo/hotel employees would work in the following three shifts.

- *Day Shift*: About 65 percent of all employees would work during the busiest "day shift," which would occur from 8 a.m. to 5 p.m. Front desk, hospitality, and facilities employee shifts end at 3 p.m., while management and housekeeping employee shifts end at 5 p.m.

- *Afternoon/Evening Shift*: This shift would occur from 3 p.m. to 11 p.m. All employees during this shift would begin work at 3 p.m.

- *Overnight Shift*: This shift would occur from 11 p.m. to 7 a.m. or from 6 p.m. to 2 a.m.

A 2011 survey of summer Squaw Valley employees found that 13 percent departed between 4 and 5 p.m., and 56 percent departed between 5 and 6 p.m. Of the 462 hotel/condo employees, 65 percent (300 employees) are expected to work during the 8 a.m. to 5 p.m. day shift. Of this total, 56 percent (168 employees) are assumed to depart during the p.m. peak hour. A limited number of employee-related trips are expected to occur during the p.m. peak hour. These could include employees who arrive early for their evening shift (to shop or eat), or employees that are picked up after their shift.

It was necessary for analysis purposes to disaggregate the Resort Hotel trip rate into separate trip rates (guests/deliveries versus employees) for two reasons. First, employees would have a greater propensity to use a non-auto mode and carpool together (based on summer Squaw Valley employee travel behavior), when compared to typical ITE rates for this category. Second, employees would have different trip distribution patterns than guests. The following describes the disaggregation process.

- Typical transportation industry estimates for hospitality employees in suburban locations (in which the Resort Hotel land uses were collected) may include a 95 percent auto mode split, 10 percent drop-off/pick-up, and an average vehicle occupancy (AVO) of about 1.1. Based on the 168 employees expected to depart the project during the p.m. peak hour, this would equate to 145 outbound trips and 17 inbound trips. The project's unadjusted trip generation would be 630 p.m. peak hour trips (1,286 lock-off units multiplied by 0.49 trips per unit). Of this total, 162 trips (about 25 percent) would be employee-related, with the remaining 75 percent being primarily guest trips (or occasional delivery type trips). Therefore, the Resort Hotel p.m. peak hour trip rate is disaggregated as:

  - 0.37 guest vehicle-trips per unit (unadjusted), and
  - 0.12 employee vehicle-trips per unit (unadjusted).

- *Adjustments to Employee Component of Trip Rate*: Based on the 2011 summer Squaw Valley employee survey results, it is expected that 82 percent of project employees would arrive to work by automobile

and have an AVO of 1.38. So, for 100 hypothetical employees, typical industry estimates would yield 86 trips, while the specific conditions at Squaw Valley would result in 59 trips, a 31 percent decrease. Since this decrease is based on empirical evidence of existing Squaw Valley employee travel characteristics, it is reasonable and justified to reduce the employee component of the trip rate by 31 percent. Consequently, the employee trip rate per unit was decreased from 0.12 to 0.08.

- *Adjustments to Guest Component of Trip Rate*: The description of the Resort Hotel specifically states that some of the surveyed properties had airport shuttles and limousine services, which are reflected in the trip rates. Therefore, although 2.9 percent of overnight summer guests surveyed in 2011 arrived via airport shuttle, it is reasonable to assume that the Resort Hotel trip rate also accounts for this condition. Accordingly, no adjustments were made to the 0.37 trip rate that represents the guest component of travel.

The Resort Hotel land use category estimates that p.m. peak hour trips would be 43 percent inbound and 57 percent outbound. To confirm the reasonableness of this estimate, summer Friday p.m. peak hour inbound and outbound traffic volumes were collected at the following generally comparable locations in the Tahoe Region:

- Olympic Valley (including the Squaw Valley Resort, Resort at Squaw Creek, other on-site lodging, retail/restaurants, and other recreational opportunities): 310 inbound trips and 330 outbound trips (48 percent inbound and 52 percent outbound).
- Alpine Meadows Ski Area (primarily residential, but with limited amount of retail/office along Alpine Meadows Road): 103 inbound trips and 134 outbound trips (44 percent inbound and 56 percent outbound).
- Northstar at Tahoe (including on-site lodging, retail, and numerous recreational opportunities): 180 inbound trips and 233 outbound trips (44 percent inbound and 56 percent outbound).

Based on the (trip) weighted average from these sites, a split of 46 percent inbound trips and 54 percent outbound trips was selected for use for the summer Friday p.m. peak hour analysis.

Because the Resort Hotel trip rate is "per occupied room," it is reasonable and justified to apply this rate to the total number of locked-off one, two, and three bedroom units, which total 1,286 units (including fractional cabins). The number of locked-off units is based on a maximum 75 percent lock-off rate consistent with the parking analysis and winter trip generation estimates. Table 9-19 displays the number of new vehicle trips generated by the proposed project during the summer Friday p.m. peak hour. As shown, the project would generate approximately 590 trips during this peak hour.

The East Parcel would consist of dormitory-style housing units accommodating a maximum of 300 employees plus a 5,000-square-foot retail pad. For summer Friday p.m. peak hour conditions, the vast majority of employees residing on the East Parcel would work the day shift or afternoon/evening shift based on the staffing distribution charts provided by the project applicant team. However, some employees who work the overnight shift could be traveling between the East Parcel and outside destinations during the summer Friday p.m. peak hour. In addition, the 5,000-square-foot retail pad would generate both new trips and pass-by/diverted-link trips. Pass-by trips are made by motorists already on Squaw Valley Road. Diverted-link trips are made by motorists on SR 89 who divert off the highway to visit the retail pad. Table 9-19 displays the number of new vehicle trips generated by the East Parcel during the summer Friday p.m. peak hour. Vehicle trips associated with the shipping and receiving facility included in the East Parcel are included in the "(Guests/Deliveries)" element of the Hotel/Condo/Fractional Cabin category identified in Table 9-19. Also, ITE trip generation rates for various categories incorporate trips associated with deliveries of materials to these uses. The shipping and receiving facility does not generate demand for deliveries, but provides a location that consolidates the shipping and receiving activity generated by other land uses.

Table 9-19 Proposed Project Trip Generation – Peak Summer Friday p.m. Peak Hour Conditions

Land Use	Maximum Quantity	Trip Rate [1,2,3]			Trips		
		In	Out	Total	In	Out	Total
Village Area Land Uses							
Hotel/Condo/Fractional Cabin Units (Guests/Deliveries)	1,286 units after maximum lock-offs	0.187	0.183	0.37	240	236	476
Hotel/Condo/Fractional Cabin Units (Employees)		0.02	0.06	0.08	26	77	103
Mountain Adventure Camp (Guests) [4]	1,200 guests & 44 employees	N/A			2	4	6
Mountain Adventure Camp (Employees) [4]		N/A			1	3	4
Total External Vehicle Trips [5]					**269**	**320**	**589**
East Parcel Land Uses							
Retail	5 ksf	1.78	1.93	3.71	9	10	19
Dormitory Style Housing	Up to 300 employees	N/A			5	5	10
Pass-By/Diverted Link Trips [6]					-3	-3	-6
Total External Vehicle Trips					**11**	**12**	**23**

Notes: ksf= thousand square feet; N/A = Not Applicable

[1] Trip rate for hotel/condo units based on Resort Hotel (LU Category 330) from the *Trip Generation Manual* (Institute of Transportation Engineers 2012) with adjustments made as described above. Trip rate accounts for trips made by guests, employees, and deliveries. Since Resort Hotel category also considers on-site amenities (shopping, recreation, etc.), external trips associated with proposed retail and restaurant uses are included in this rate.

[2] Trip rate for retail use based on Shopping Center (LU Category 820) from the *Trip Generation Manual* (Institute of Transportation Engineers 2012).

[3] Trips generated by dormitory style housing employees not working the day or afternoon/evening shift. Trips based on 5% of the 300 employees residing on East Parcel working overnight shift with 33 percent of those conservatively making an external trip during the summer Friday p.m. peak hour.

[4] Size and uniqueness of Mountain Adventure Camp warrants that its trips be considered separately from other on-site amenities, which are covered by Resort Hotel trip rate. External trips generated by this use are expected to be similar to the winter Sunday p.m. peak hour trip estimates.

[5] The vast majority of external vehicle trips travel between locations outside of Olympic Valley and the project site. The only exception is a portion (27 percent) of employee trips that begin/end at employee housing on the East Parcel.

[6] 34% of retail trips are assumed to be pass-by (i.e., from Squaw Valley Road) or diverted-link (i.e., from SR 89) based on the *Trip Generation Handbook* (Institute of Transportation Engineers 2004).

Source: Appendix G

According to the above table, the hotel/condo units, fractional cabin units, and on-site restaurants and retail would generate about 590 new summer Friday p.m. peak hour trips. This equates to 0.45 trip per locked-off unit assuming all units are occupied. The reasonableness of this rate was checked as follows:

- *Land Uses Served by Squaw Creek Road* – This street provides access to the Resort at Squaw Creek and 64 detached/attached residential units. The Resort at Squaw Creek offers hotel condominium (238 units) ownership units and includes a variety of on-site shopping, dining, and recreational amenities.

  Calculation: On Friday, August 12, 2011, these uses were observed to generate 170 external vehicle trips (i.e., to/from Squaw Valley Road) during the p.m. peak hour. Assuming the condo units have a similar ratio of lock-offs as the proposed project, these land uses would consist of 365 locked-off units and 64 attached/detached units, which results in a trip rate of 0.40 trips per unit (170 trips ÷ 429 units). Specific occupancy levels for these units on the count day are not known. However, the Village at Squaw Valley lodging was 74 percent full on this day. According to a local real estate company, annual occupancy at the Resort at Squaw Creek is among the highest of any property in the entire North Tahoe/Truckee area (Resort Realty Services at Olympic Village Inn 2014). It would be reasonable to assume the units served by Squaw Creek Road were 90 percent occupied during the count day (i.e., slightly higher than at the Village at Squaw Valley). If they were assumed to be 100 percent occupied (necessary for comparison with proposed project trip rate), they would yield a rate of about 0.44 trips per unit during the p.m. peak hour. This is very close to the trip rate of 0.45 used in this DEIR, which was also based on all units being occupied.

- *Aspen, Colorado Lodging* – On Friday, June 20, 2013, Fehr & Peers conducted traffic counts at the Limelight Lodge (99 occupied rooms) and St. Moritz Lodge (38 occupied rooms) during the p.m. peak hour. The two lodges generated 0.43 and 0.37 trip per occupied room, respectively, during this peak hour. Because these observed rates are slightly lower than the trip rate of 0.45 trip per room used in this DEIR, the DEIR analysis is considered to be reasonably conservative.

TRIP DISTRIBUTION/ASSIGNMENT (WINTER CONDITIONS)

The distribution of new vehicle trips is expected to differ depending on whether the trip is made by a guest or an employee. Additionally, hotel/condo guest trip directionality will vary depending on whether it is a primary trip (i.e., travel between the Specific Plan area and residence, airport, etc.) or a non-primary trip (i.e., a discretionary, shopping/recreational, etc. trip that departs/returns to the Specific Plan area during a guest's stay).

The following three trip distribution figures apply to external vehicle trips made by the project's various trip generators:

- The trip distribution percentages on Exhibit 9-5 apply to primary and non-primary trips (as defined in the figure) made by hotel/condo and fractional cabin guests. These percentages are based on winter overnight guest surveys conducted in 2011.
- The trip distribution percentages on Exhibit 9-6 apply to employees who reside outside of the Olympic Valley. These percentages are based on winter employee surveys conducted in 2013.
- The trip distribution percentages on Exhibit 9-7 apply to customers of the retail, restaurant, and MAC who are not staying overnight in Olympic Valley. These percentages also apply to miscellaneous trips.

Table 9-18 shows that the hotel condo and fractional cabin guests would generate 1,955 new -trips during the Saturday daily analysis period. Of this total, 1,144 daily trips would be made for non-primary (i.e., shopping, recreational, etc.) travel purposes, with the remaining 811 daily trips made for primary travel purposes. Exhibit 9-5 indicates that different sets of trip distribution percentages are applied to primary and non-primary trips due to their differing purposes and trip origin/destination characteristics.

Project trips were assigned into the village area access points based on the proposed location of hotel/condo and fractional cabin buildings and retail and restaurant space (and their supporting parking). Based on the building and parking area allocations shown in Exhibit 3-5 in Chapter 3, "Project Description," the following assignment percentages were used:

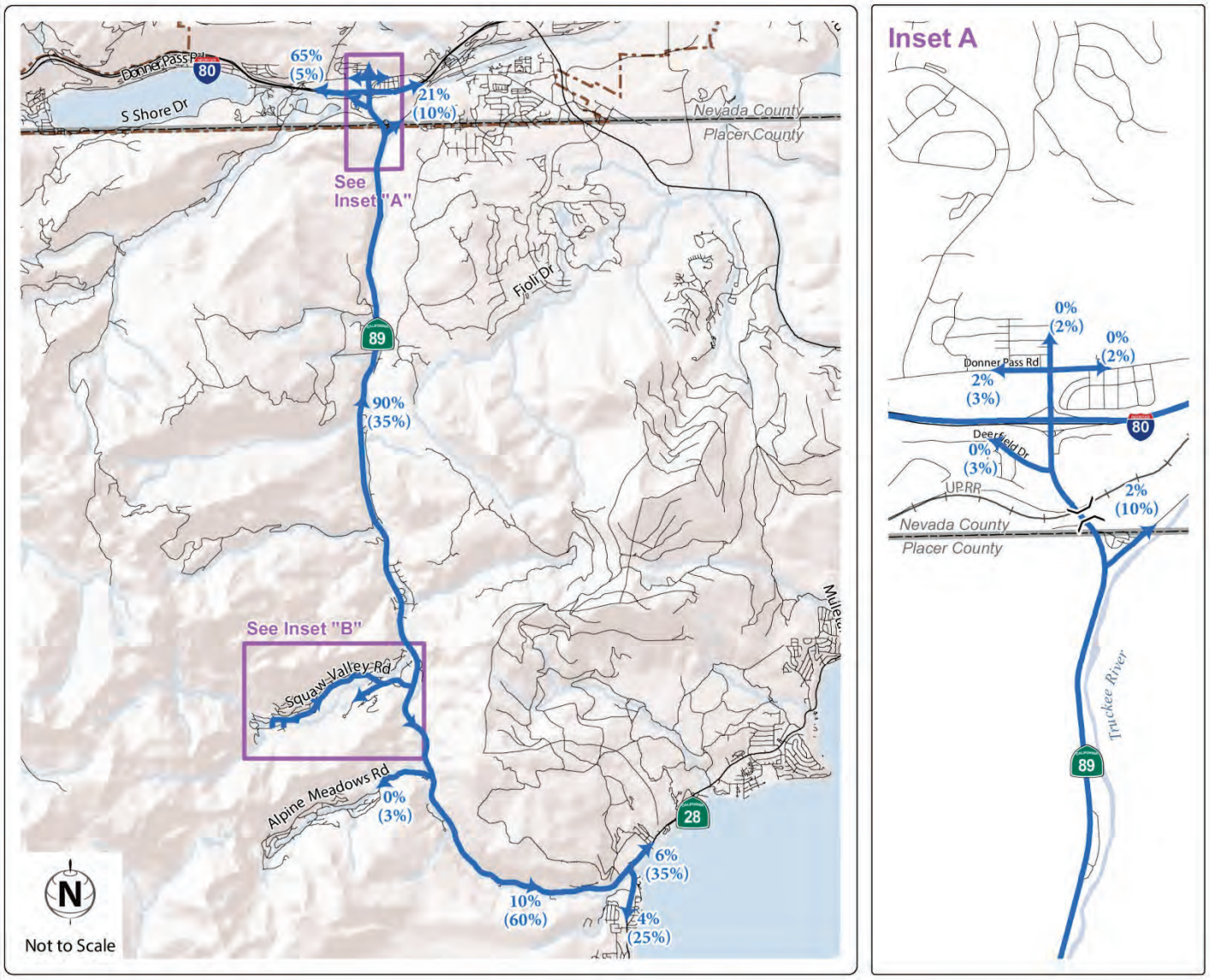
Chamonix Place:	35 percent
Village East Road:	15 percent
Far East Road:	50 percent

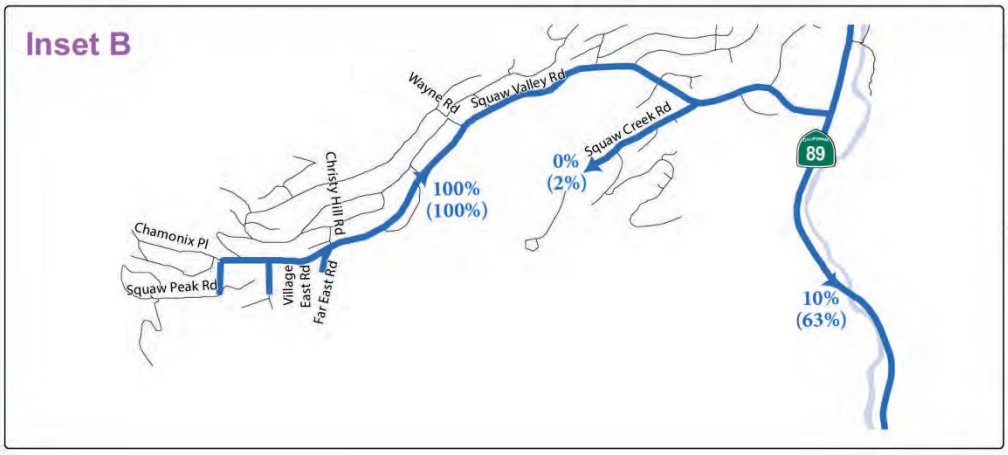
Access to the East Parcel is assumed to be provided by one or more driveways located on Squaw Valley Road between SR 89 and Squaw Creek Road. All external trips generated by the MAC would use Far East Road.

TRIP DISTRIBUTION/ASSIGNMENT (SUMMER CONDITIONS)

The distribution of new vehicle trips is expected to differ depending on whether the trip is made by a guest or an employee. The following two trip distribution figures were used to distribute vehicle trips for each type of traffic generator:

- The trip distribution percentages on Exhibit 9-8 apply to guest trips. The percentages consider that some trips would be associated with the primary travel to/from the project, whereas others would be non-primary, discretionary type travel. These percentages are based, in part, on survey results of the distribution of winter overnight guest residence locations. However, they also reflect specific locations of recreational attractions and activities available during summer months.





LEGEND

10%	Primary Arrival and Departure Trip Percentage
(10%)	Non-Primary Trip Percentage In/Out of Olympic Valley
→	Trip Distribution

Note: "Primary Trip" refers to a party's initial travel to the project or final travel exiting the project.

FEHR PEERS

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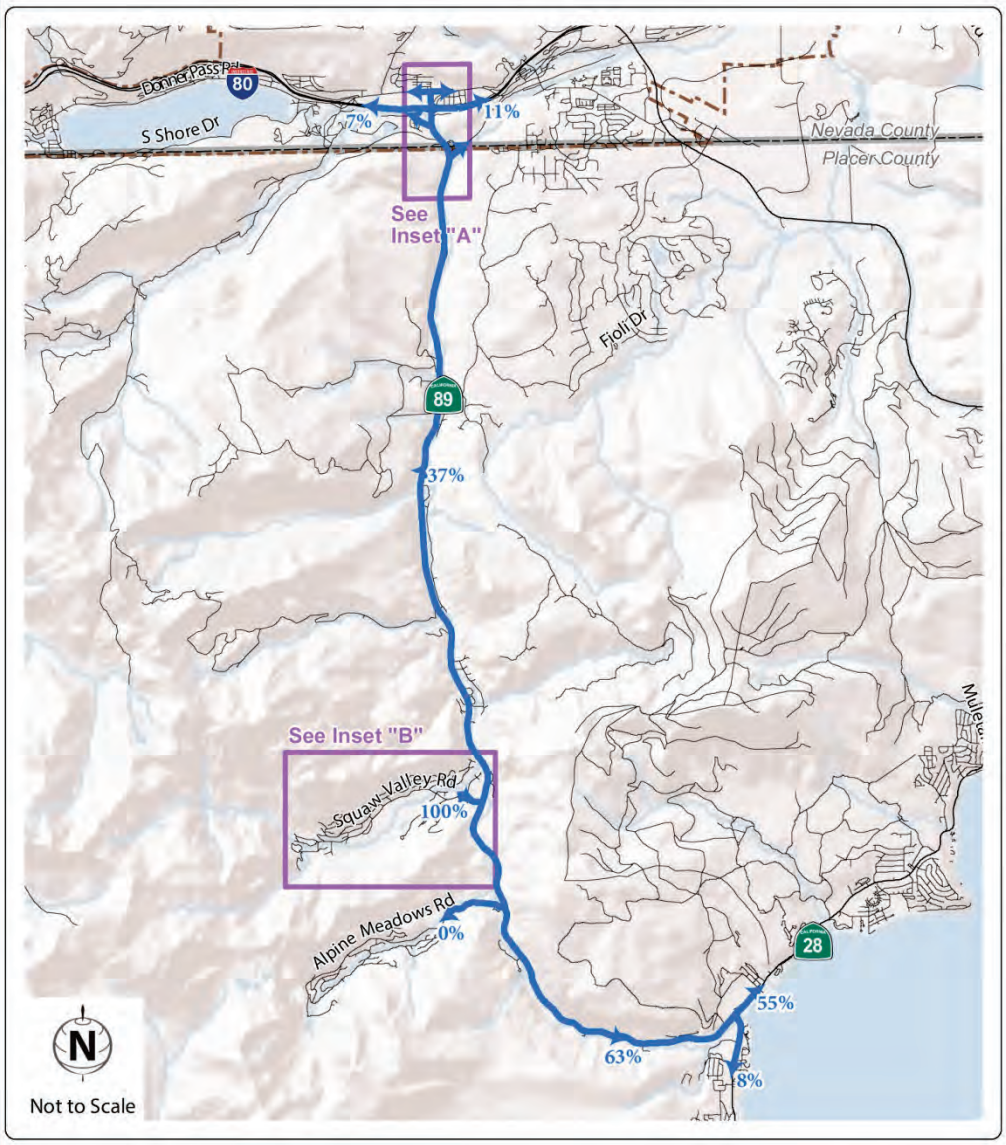
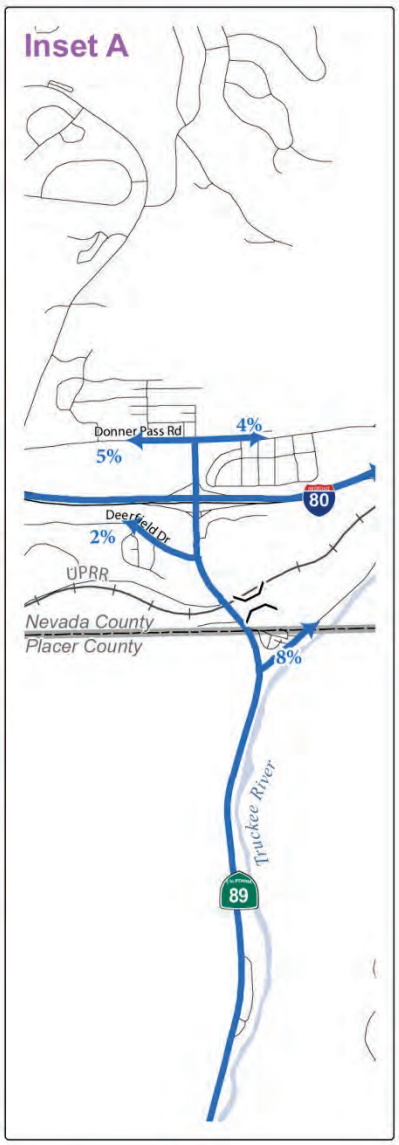
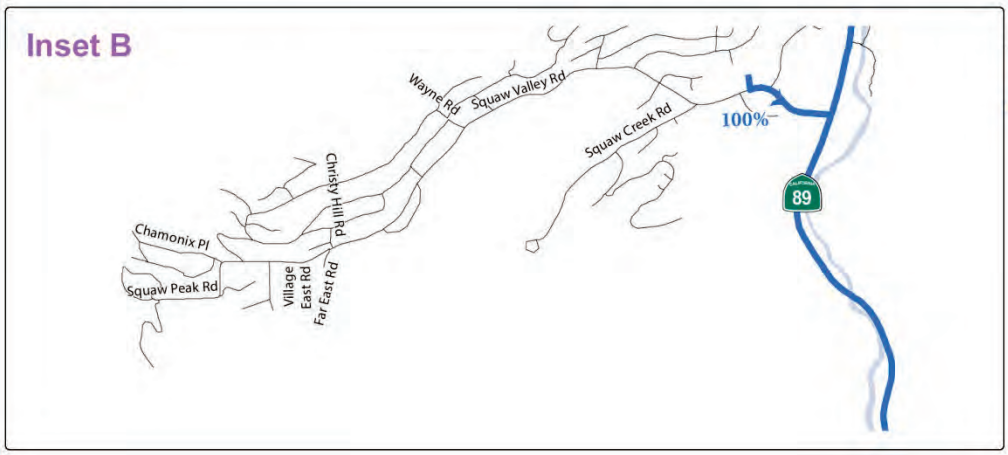
Source: Received from Fehr and Peers in 2014

Exhibit 9-5 **Winter Guest Primary and Non-Primary Trip Distribution**

ASCENT ENVIRONMENTAL







LEGEND

10% Trip Distribution Percentage

Note: Employees not residing in Olympic Valley will park in East Parcel and be shuttled to/from Specific Plan Area.

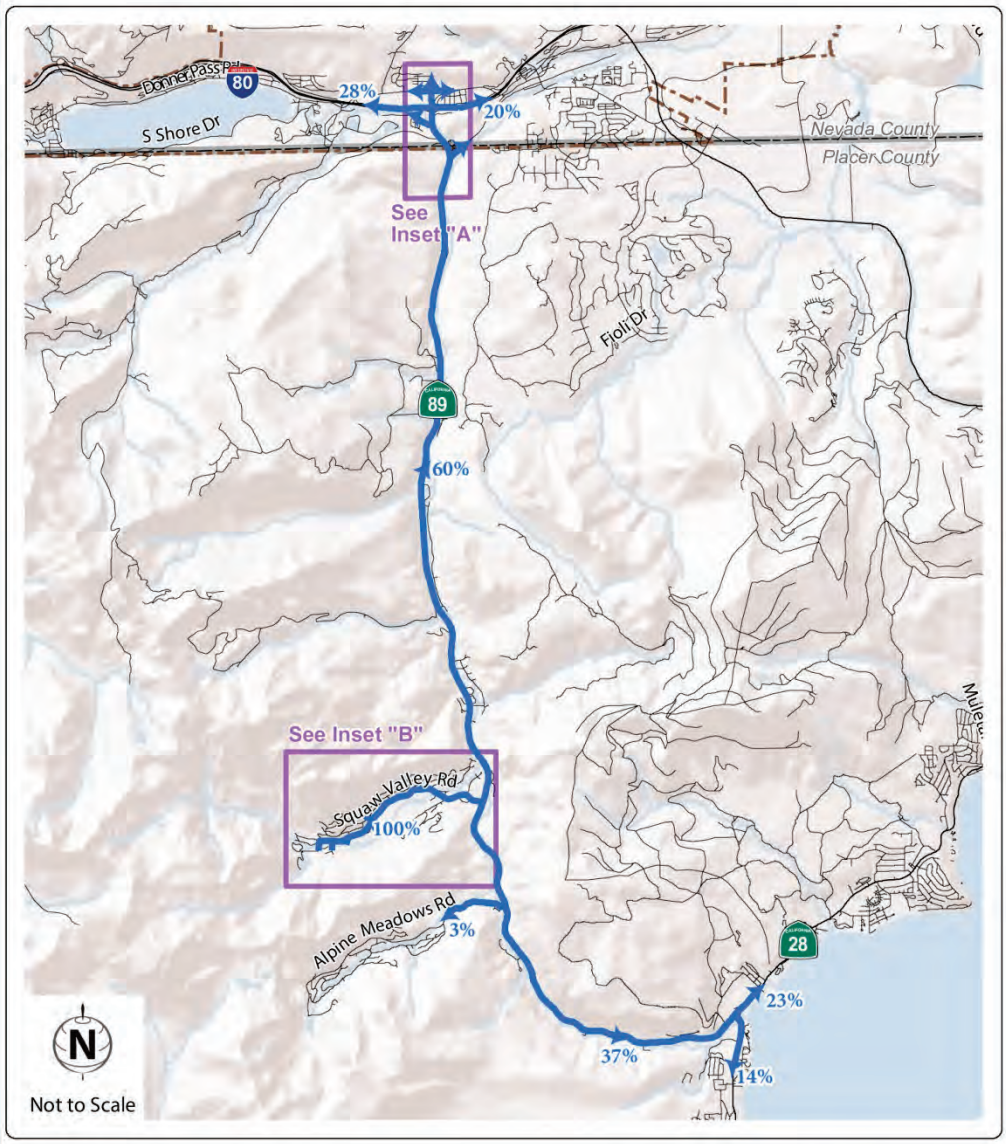
Source: Received from Fehr and Peers in 2014

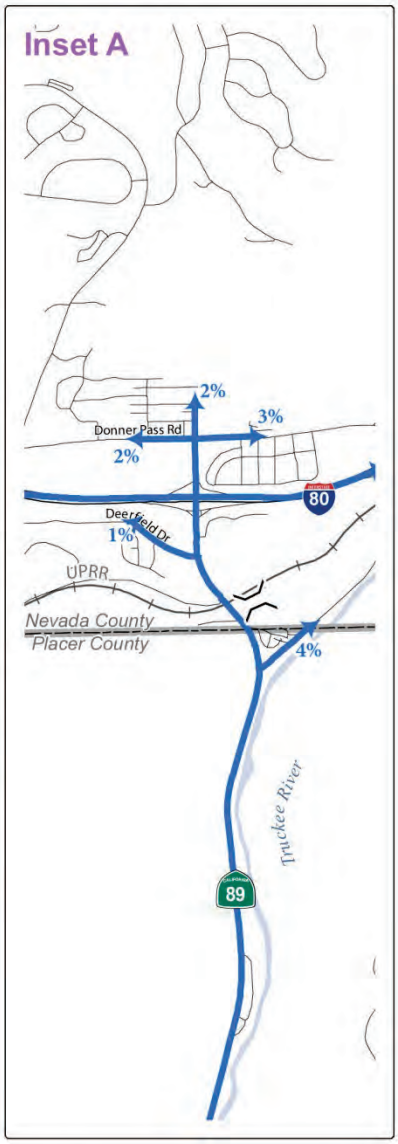
FEHR PEERS

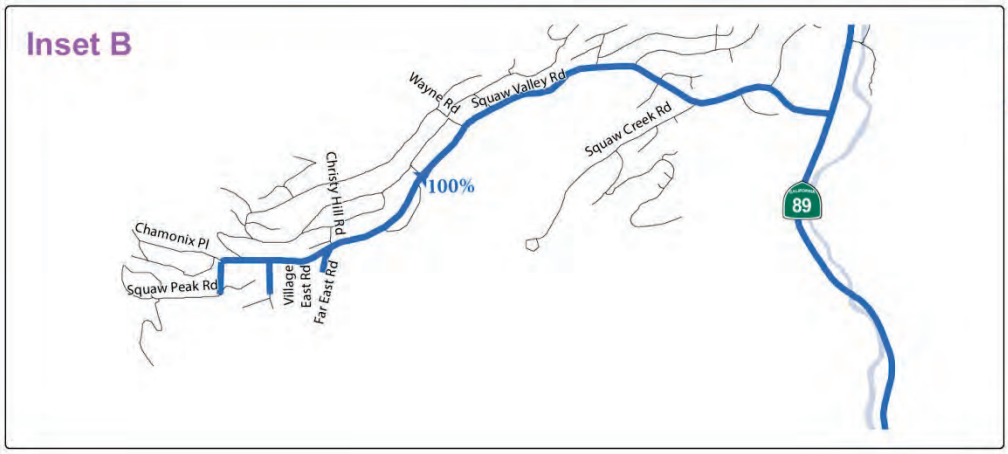
X11010091 03 071

Exhibit 9-6 **Winter Employee Trip Distribution**

ASCENT ENVIRONMENTAL







LEGEND

10% Trip Distribution Percentage

Note: "Other Land Uses" includes customers to the retail, restaurants, and MAC who are not staying overnight in Olympic Valley.

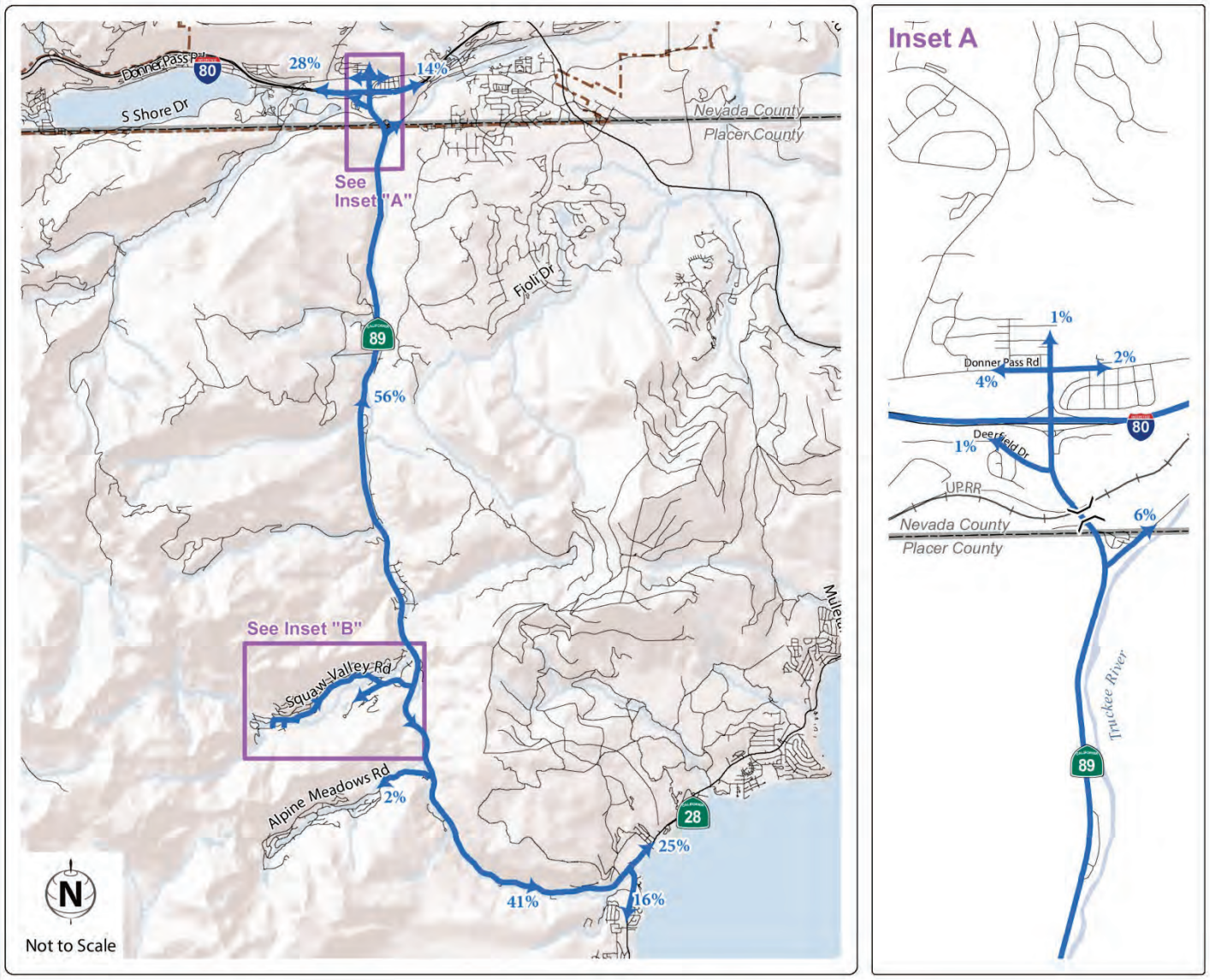
Source: Received from Fehr and Peers in 2014

FEHR PEERS

X11010091 03 072

Exhibit 9-7 **Winter Other Trip Distribution**

ASCENT ENVIRONMENTAL



Source: Received from Fehr and Peers in 2014

FEHR PEERS

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Exhibit 9-8 **Summer Guest Trip Distribution**

ASCENT ENVIRONMENTAL

- The trip distribution percentages on Exhibit 9-9 apply to employees who reside outside of Olympic Valley. These percentages are based on summer Squaw Valley employee surveys conducted in 2011.

The trip distribution percentages on Exhibit 9-8 also apply to the employee component of external vehicle trips generated by the land uses on the East Parcel because those percentages incorporate both primary and non-primary (i.e., discretionary) travel, which employees would make. The trip distribution percentages on Exhibit 9-9 apply to the retail component of external vehicle trips generated by the land uses on the East Parcel because those percentages are a reflection of the spatial distribution of residences in the area (from which retail trips would be drawn).

Project trips were assigned into the Village Area based on the proposed location of hotel/condo and fractional cabin buildings. All external trips generated by the MAC would use Far East Road. All external trips generated by the East Parcel would originate/terminate at that site. The following assignment percentages were used for hotel/condo and fractional cabin trips:

Chamonix Place:	35 percent
Village East Road:	15 percent
Far East Road:	50 percent

EXISTING PLUS PROJECT TRAFFIC FORECASTS

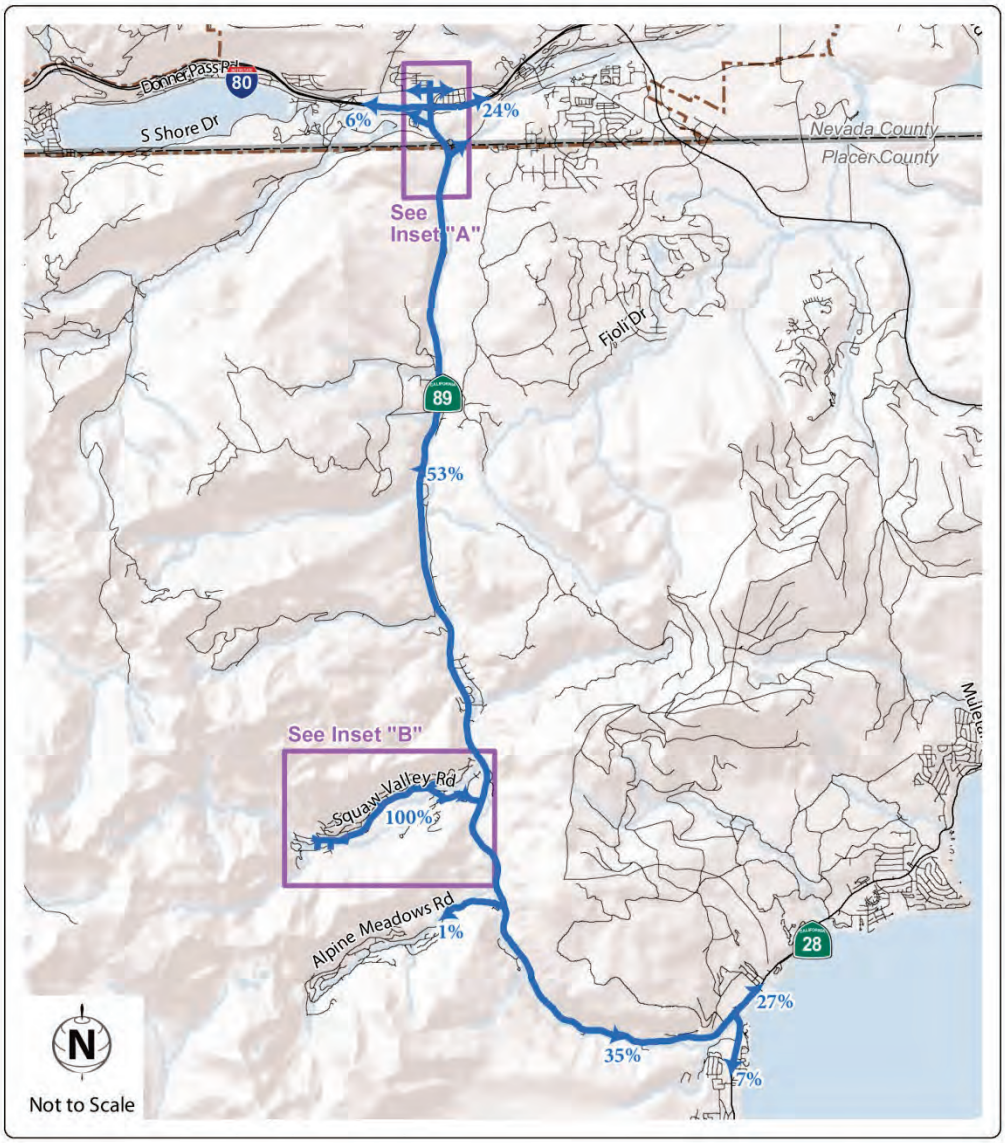
Project trips were assigned to the study facilities in accordance with the trip generation, distribution, and assignment procedures described above. Exhibit 9-10 displays project-only trips at each study intersection for the winter Saturday a.m. and Sunday p.m. peak hours, and for the summer Friday p.m. peak hour. These trips were added to the existing volumes to yield the "existing plus project" forecasts, which are shown on Exhibit 9-11. By layering project trips on top of the existing volumes, this process does not assume any changes in existing trip-making. In other words, this portion of the analysis does not assume any new trip generating development in other locations, changes to traffic infrastructure, or decreases in day skiers at the existing Squaw Valley Ski Resort.

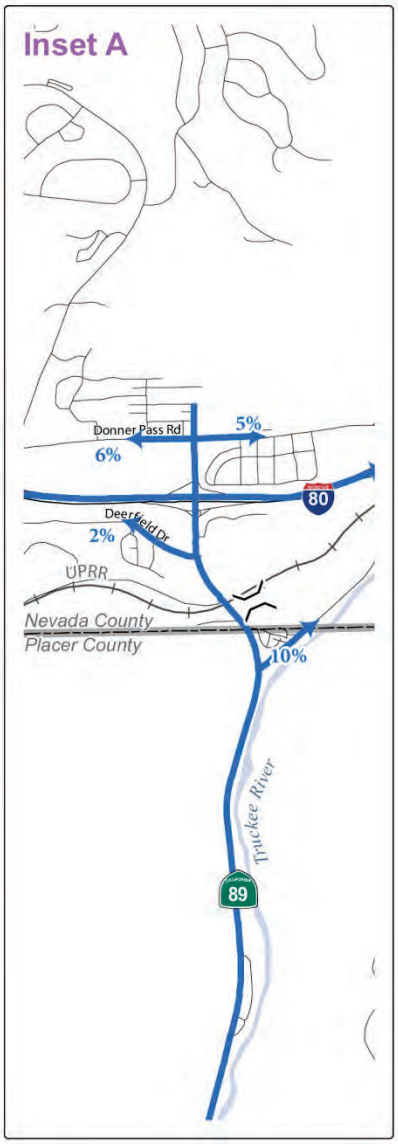
Table 9-20 displays the ADT on the three Placer County study roadway segments.

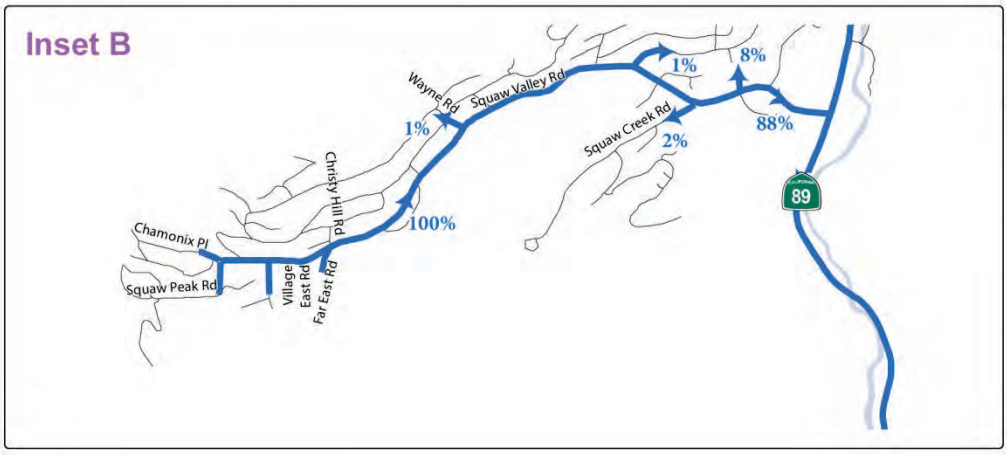
Table 9-20 Placer County Roadway Level of Service – Existing Plus Project Conditions

Segment	Type	LOS Standard	Winter Saturday Daily Conditions					
			Existing Conditions			Existing Plus Project Conditions		
			ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS
West River Street east of SR 89	Two-Lane Moderate Access Control Arterial	D	3,800	0.21	A	4,000	0.22	A
Squaw Valley Road between SR 89 and Squaw Creek Road	Three-Lane Low Access Control Arterial	D	12,600	0.56	A	15,400	0.68	A
Squaw Valley Road between Squaw Creek Road and village area	Two-Lane Low Access Control Arterial	C	12,900	0.86	D	15,300	1.02	F

Note: ADT = average daily traffic; LOS = level of service; V/C ratio = volume to capacity ratio
Values rounded to the nearest 100 vehicles.
Source: Appendix G







LEGEND

10% Trip Distribution Percentage

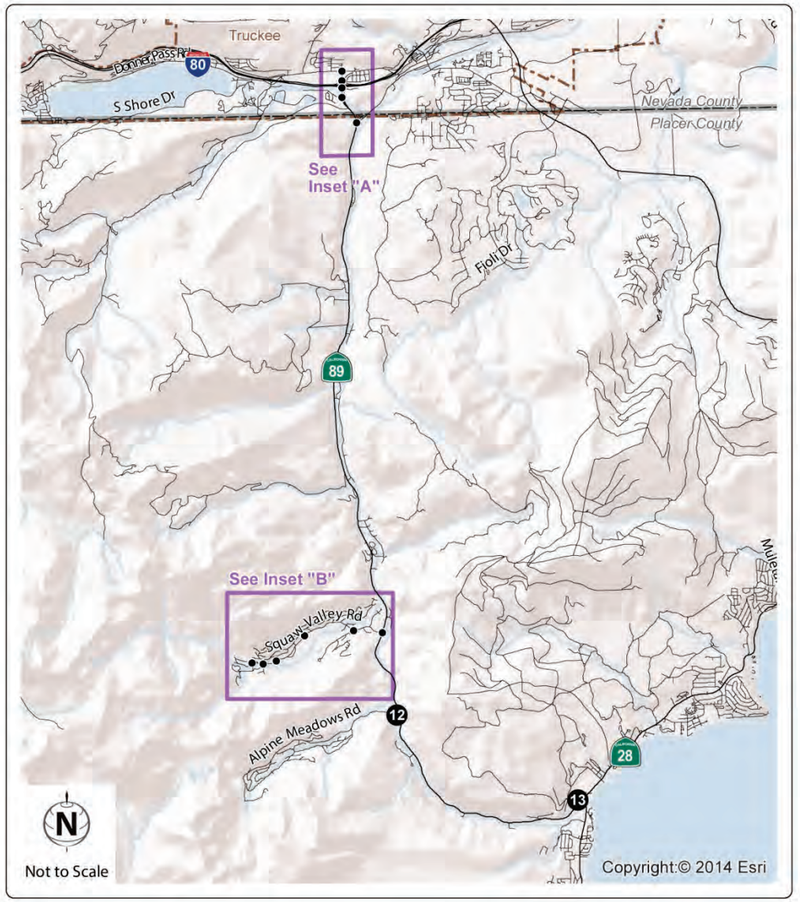
FEHR PEERS

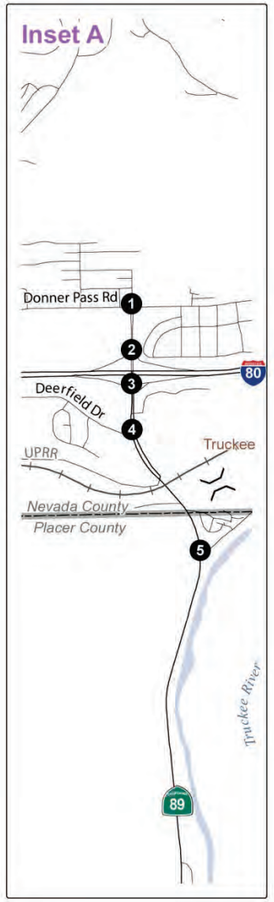
X11010091 03 074

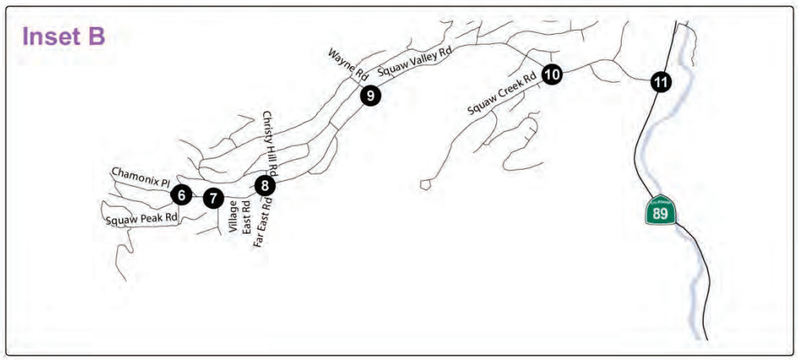
Source: Received from Fehr and Peers in 2014

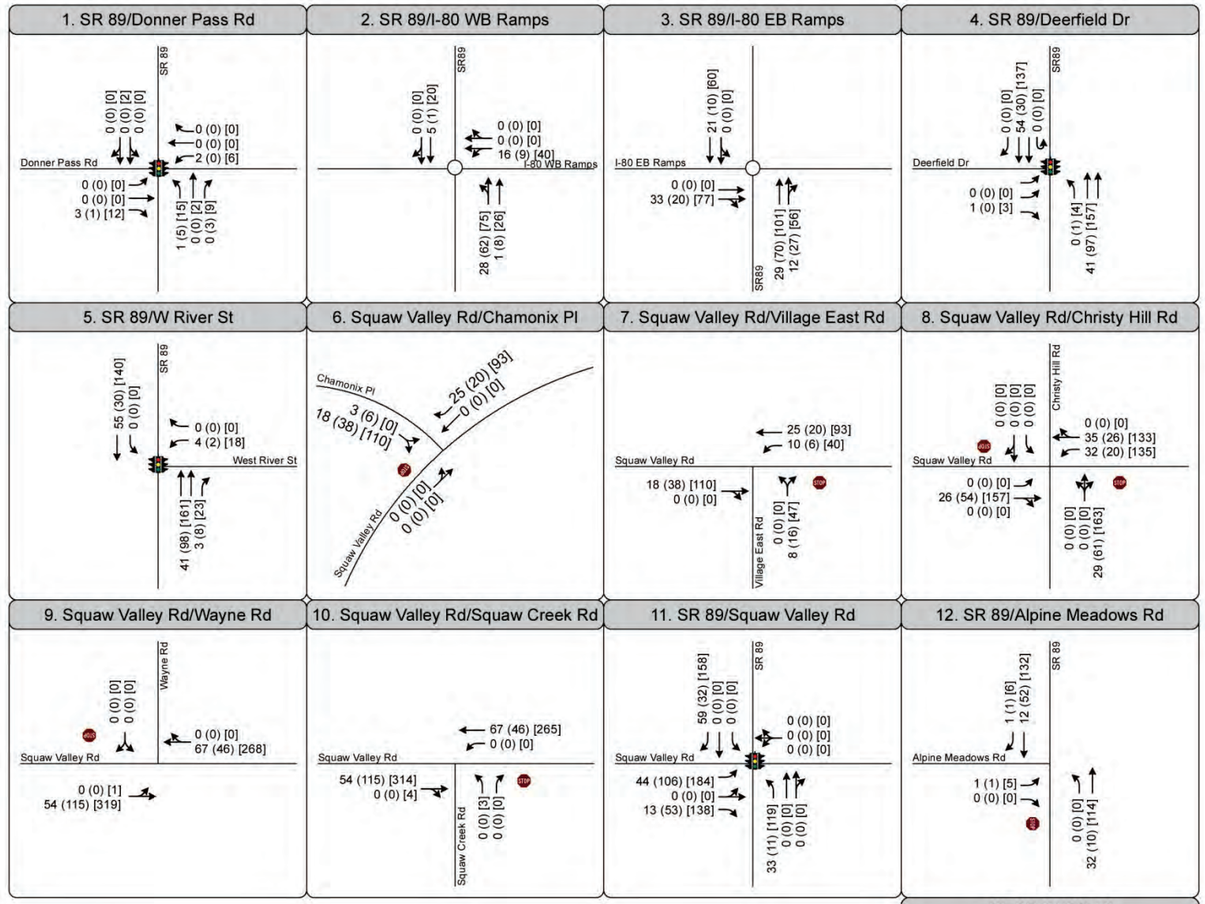
Exhibit 9-9 **Summer Employee Trip Distribution**

ASCENT ENVIRONMENTAL









LEGEND

- Turn Lane
- XX — Winter Saturday AM Peak HourTraffic Volume
- (YY) — Winter Sunday PM Peak Hour Traffic Volume
- [ZZ] — Summer Friday PM Peak Hour Traffic Volume
- 1 — Study Intersection
- Traffic Signal
- Stop Sign
- Roundabout

Source: Received from Fehr and Peers in 2014

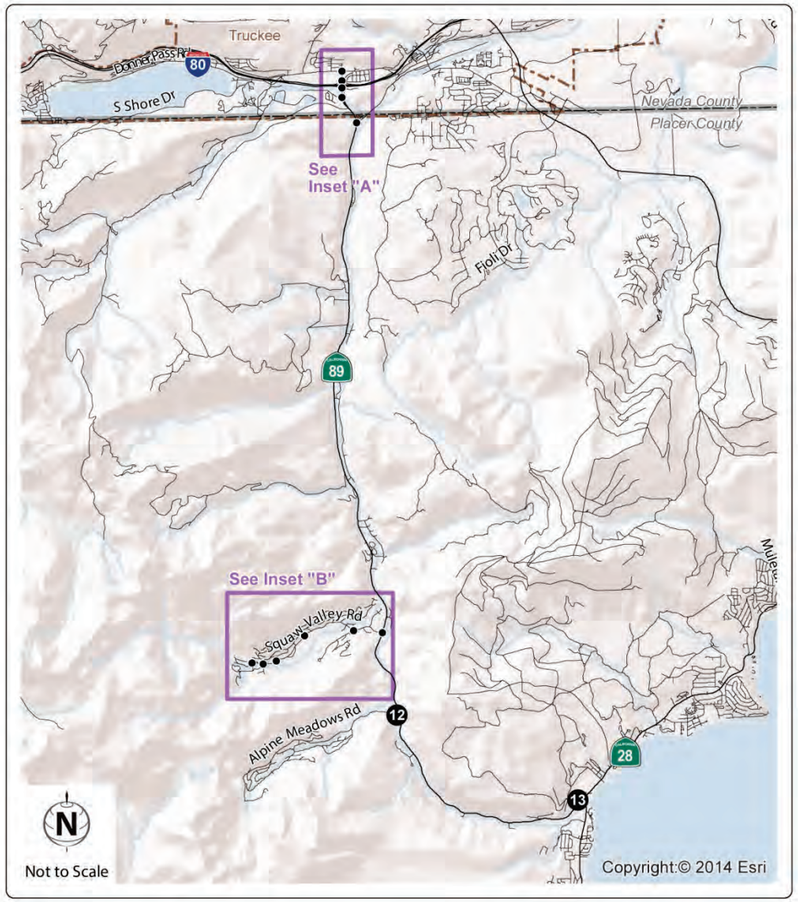
FEHR & PEERS

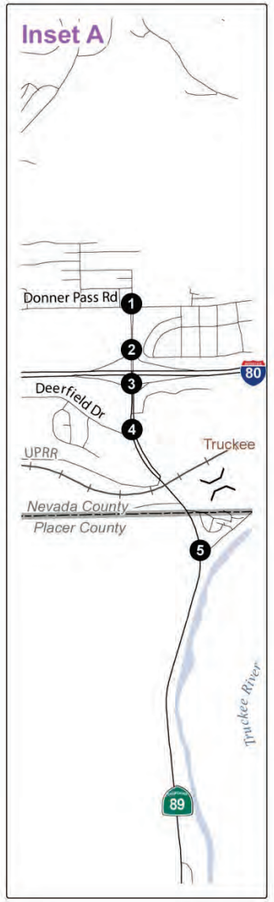
X11010091 03 075

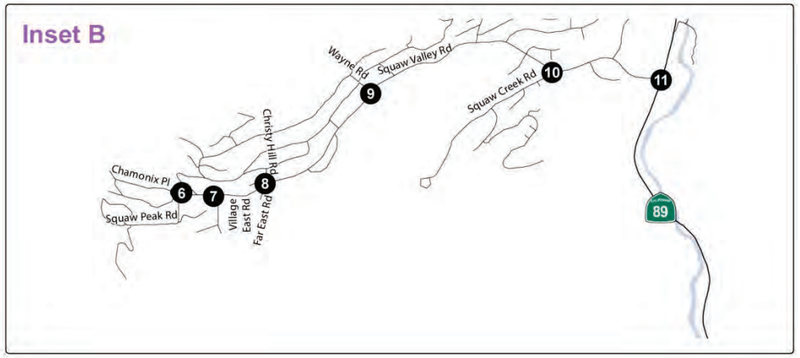
Exhibit 9-10

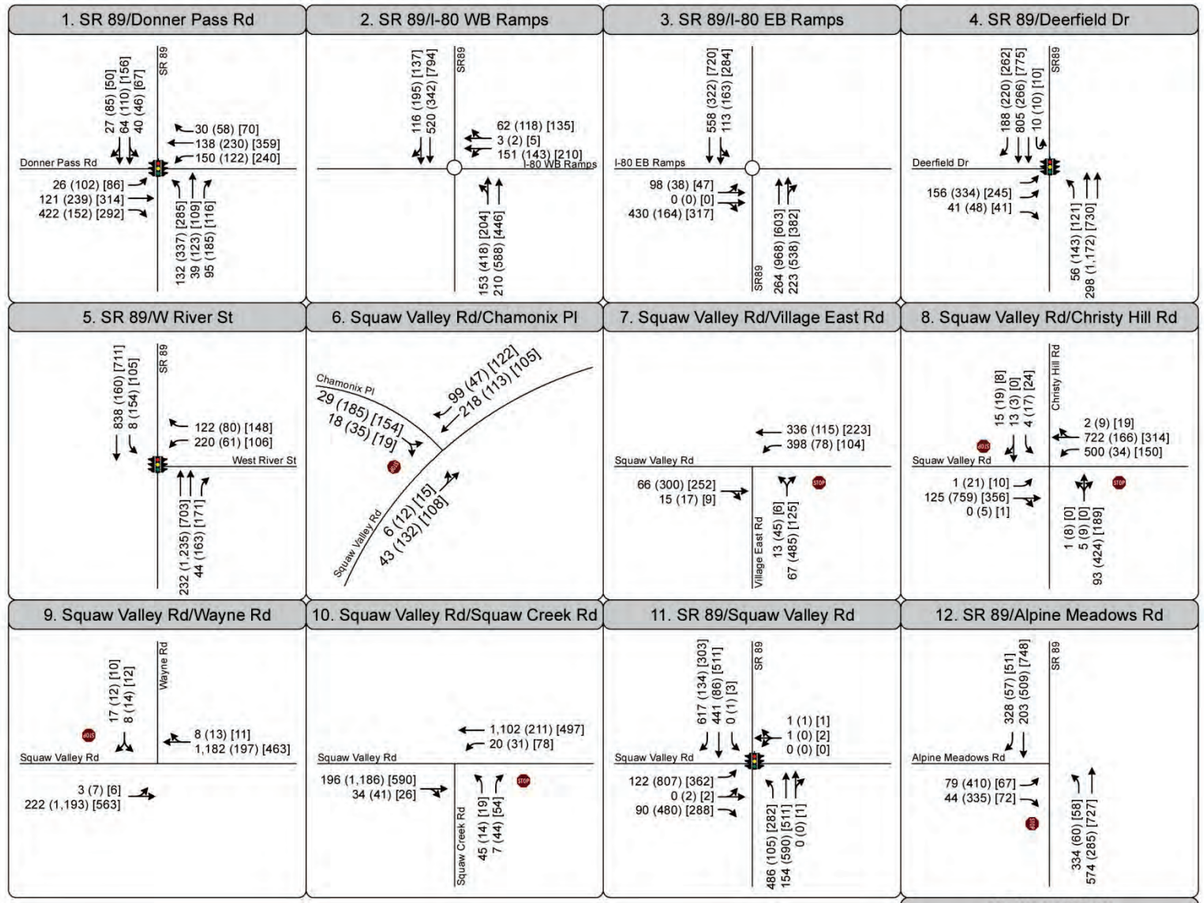
Project-Only Trips

ASCENT ENVIRONMENTAL









LEGEND

- Turn Lane
- XX — Winter Saturday AM Peak HourTraffic Volume
- (YY) — Winter Sunday PM Peak Hour Traffic Volume
- [ZZ] — Summer Friday PM Peak Hour Traffic Volume
- 1 — Study Intersection
- Traffic Signal
- Stop Sign
- Roundabout

Source: Received from Fehr and Peers in 2014

FEHR PEERS

X11010091 03 076

Exhibit 9-11

Existing Plus Project Volumes

ASCENT ENVIRONMENTAL

The following illustrates how project-added trips (i.e., on Squaw Valley Road between the Village Area and the East Parcel) compare to existing volumes for each peak hour analysis period:

Scenario	winter Saturday a.m. Peak Hour	winter Sunday p.m. Peak Hour	summer Friday p.m. Peak Hour
Existing Conditions	1,074 vehicles on WB Squaw Valley Rd.	1,085 vehicles on EB Squaw Valley Rd.	450 vehicles in both directions of Squaw Valley Rd.
Existing Plus Project Conditions	1,141 vehicles on WB Squaw Valley Rd. (6.2% increase)	1,200 vehicles on EB Squaw Valley Rd. (10.6% increase)	1,040 vehicles in both directions of Squaw Valley Rd. (131% increase)

9.3.3 Issues or Potential Impacts Not Discussed Further

Effects associated with parking are not considered a significant criterion under CEQA. The project would provide a supply of parking that accommodates overnight guests and day-user skier parking demand for all but the busiest four ski days of the year. During those days, a variety of strategies would be implemented to ensure sufficient parking, including temporary use of out-of-valley parking lots and special transit services, such as shuttles between out-of-valley parking facilities and Olympic Valley, additional shuttles between the East Parcel and the Village for employees and day skiers, in-Village electric shuttles, and an in-Valley shuttle. To manage parking during peak ski days, resort attendants will direct motorists to appropriate lots/garages in an efficient and safe manner. Because parking conditions associated with the busiest four days of the ski season are atypical, they are not analyzed in this DEIR.

The project would include an extensive EVA system. EVA routes would be provided across Squaw Creek at each of the three bridge crossings as well as Chamonix Way (see Exhibit 3-9 in Chapter 3, "Project Description"). Several EVA routes would traverse the Village Core and Village Neighborhoods. EVAs would be a minimum of 16 feet wide. In summary, the project provides an adequate system of EVA routes to connect with Squaw Valley Road. Refer to Chapter 15, "Hazardous Materials and Hazards," for additional information regarding hazards and emergency access.

9.3.4 Impact Analysis

The following impact analysis addresses the effects of the proposed project on existing traffic conditions (i.e., the Existing Plus Project Condition). The transportation effects of the proposed project in the context of future development conditions (i.e., Cumulative Plus Project Condition) are addressed in Section 18.1, "Cumulative Impacts."

Impact 9-1: Impacts to Placer County roadways.

Vehicle trips generated by the proposed project would worsen traffic conditions along the segment of Squaw Valley Road between Squaw Creek Road and the Village Area from LOS D to F during the Saturday winter daily condition. This would be a **significant** impact.

As indicated in Table 9-20, the proposed project would add 200 daily trips during the Saturday winter condition to West River Street east of SR 89 and 2,800 daily trips to the segment of Squaw Valley Road between SR 89 and Squaw Creek Road. Both these roadway segments currently operate at LOS A and would continue to do so with the addition of project trips. Therefore, the addition of project trips would not have a significant adverse effect on the operation of these two Placer County roadway segments.

The proposed project would add 2,400 daily trips during the Saturday winter condition to the segment of Squaw Valley Road between Squaw Creek Road and the Village Area. This would cause this two-lane segment to worsen from LOS D to F. Because Placer County maintains an LOS C standard for facilities located beyond ½ mile of a state highway, this impact would be **significant**.

Mitigation Measure 9-1a: Conduct traffic management along Squaw Valley Road between SR 89 and the Village area.

Prior to recordation of the first Small Lot Final Map, the project applicant shall prepare a traffic management plan (TMP) to the satisfaction of the Placer County Department of Public Works and the Engineering and Surveying Division. The TMP shall include but not be limited to:

- Prediction of days when traffic management is needed: The project applicant shall work with the County to develop a predictive model for identifying when the 13,500 ADT threshold is expected to be reached so that staff and equipment can be available to execute traffic management measures on the morning of ski days where the threshold is expected to be crossed. The predictive model may take into account factors such as snow conditions; weather conditions; on-line lift ticket sales; hotel/condo reservations at Squaw Valley; available data on projected lodging occupancy in Truckee, Tahoe City, and other areas; previous day(s) traffic conditions; year-over-year data comparisons; holidays; and local/regional special events.

- Traffic management programs and implementation: The project applicant shall operate traffic management (i.e., three-lane operation with cones, signage, and traffic control personnel) along Squaw Valley Road between SR 89 and the Village Area during all ski days (including the morning peak period) in which the expected amount of daily traffic on Squaw Valley Road would reach or exceed 13,500 ADT unless, otherwise directed by the Placer County Department of Public Works that such activities are not necessary.

- A monitoring mechanism that demonstrates implementation when needed: Use of the predictive model will include a monitoring and adaptive management component to refine the accuracy of the model over time.

The use of a 13,500 ADT threshold represents a five percent increase in traffic over the existing 12,900 ADT. During the 2011-2012 ski season, the volumes on Squaw Valley Road exceeded 13,500 ADT on four days (see Table 9-4). Given the increase in traffic due to the proposed project, it is expected that this threshold could be exceeded 10 to 15 days per year.

The affected segment of Squaw Valley Road has a "per lane" capacity of 7,500 vehicles per day according to Table 9-7 (derived from the Placer County General Plan). The addition of a third lane as part of Mitigation Measure 9-1a would increase the roadway's capacity. However, the added capacity would not represent a full 50 percent increase because the three-lane operation would not be present throughout the entire day and the use of cones with limited shoulders and medians would act to reduce capacity to some degree. For these reasons, the third lane is conservatively assumed to provide only 25 percent of the capacity (1,875 ADT) of a typical lane for the purposes of this calculation. Accordingly, this segment of Squaw Valley Road would improve to LOS D with a v/c ratio of 0.89 (15,300 ÷ 16,875 ADT). Thus, with this mitigation in place, the LOS on this segment would be restored to pre-project levels and the v/c ratio increase would be less than 0.05.

Mitigation Measure 9-1b: Develop and distribute real-time information regarding Village area parking and average travel speeds on Squaw Valley Road.

Prior to recordation of the first Small Lot Final Map, the project applicant shall prepare a "real time" information system to the satisfaction of the Placer County Department of Public Works and the Engineering and Surveying Division. The system shall provide information for parking and roadway conditions, to be operated by the project applicant, which can be accessed via the internet and a smartphone app, or the equivalent in terms of access to information. The system shall be designed to display areas of available parking spaces in lots/garages in the Village Area and average travel speeds on Squaw Valley Road.

Real-time data regarding available parking and travel speeds will be made available to day-use skiers via the information system and would enable day-use skiers to make more informed decisions regarding which ski resort they would prefer to visit. Many skiers/boarders have passes that provide access to multiple resorts. Other skiers/boarders may have the flexibility to make a last-minute decision to visit one resort over another, or to select alternative modes of transportation if continuing to Squaw Valley, if such information is available. These technologies are available and in use at other ski resorts (e.g., Vail, Colorado).

Significance after Mitigation

Implementation of Mitigation Measures 9-1a and 9-1b would reduce this impact to a **less-than-significant** level as a result of the added roadway capacity and improved traveler information. These mitigation measures are considered feasible because they are within the project applicant's control and have been shown to improve traffic conditions.

Impact 9-2: Impacts to Placer County intersections.

The proposed project would worsen operations to unacceptable levels or exacerbate already unacceptable operations at the Squaw Valley Road/Village East Road, Squaw Valley Road/Far East Road/Christy Hill Road, Squaw Valley Road/Wayne Road, and Squaw Valley Road/Squaw Creek Road intersections during one or more analysis peak hours. This would be a **significant** impact.

As shown in Table 9-21, vehicle trips generated by the proposed project would cause the following degradations in operations at intersections along Squaw Valley Road, which are under the jurisdiction of Placer County:

- Squaw Valley Road/Village East Road – operations would worsen as follows:
  - winter Sunday p.m. peak hour: LOS E to F (24 second increase in delay)
- Squaw Valley Road/Far East Road/Christy Hill Road – operations would worsen as follows:
  - winter Saturday a.m. peak hour: LOS F operations exacerbated (101 second increase in delay)
  - winter Sunday p.m. peak hour: LOS F operations exacerbated (127 second increase in delay)
  - summer Friday p.m. peak hour: LOS C to F operations
- Squaw Valley Road/Wayne Road – operations would worsen as follows:
  - winter Saturday a.m. peak hour: LOS D operations exacerbated (5 second increase in delay)
  - winter Sunday p.m. peak hour: LOS C to D operations
- Squaw Valley Road/Squaw Creek Road – operations would worsen as follows:
  - winter Saturday a.m. peak hour: LOS E to F (17 second increase in delay)
  - winter Sunday p.m. peak hour: LOS E to F (14 second increase in delay)
  - summer Friday p.m. peak hour: LOS C to F operations

Currently, each of these intersections has a LOS C standard with the exception of the Squaw Valley Road/Squaw Creek Road intersection, which has a standard of LOS D because it is located within ½ mile of a state highway. Policy CP-1 within the VSVSP would allow for an LOS F standard for intersections within the plan area during peak ski/occupancy days. As indicated above, the two study intersections within the Specific Plan area (Squaw Valley Road/Village East Road and Squaw Valley Road/Far East Road/Christy Hill Road) currently operate at LOS E or F during at least one peak hour period. If Policy CP-1 is adopted as part of the VSVSP, the applicable standard at the intersections of Squaw Valley Road/Village East Road and Squaw Valley Road/Far East Road/Christy Hill Road would be LOS F during peak periods. Consequently, the impact at these intersections would be less than significant with project approval. However, because the policy has not yet been approved, the current standard of LOS C is used at these intersections.

At each of these four study intersections, operations are already at unacceptable levels, based on existing LOS standards, during one or more peak hours. The project would add trips to each intersection, causing a greater than 2.5-second increase in delay. Therefore, this impact would be **significant**.

Mitigation Measure 9-2a: Restrict and redirect northbound movements on Far East Road.

For all ski days in which the projected amount of daily traffic on Squaw Valley Road would reach or exceed 13,500 ADT (per results of predictive model described in Mitigation Measure 9-1a), the project applicant shall restrict northbound movements on Far East Road to right-turns only during the afternoon peak period, and direct those movements (via signage and coning) into the beginning of the outside of the two eastbound travel lanes (three-lane coning program from Mitigation Measure 9-1a).

Information provided by the project applicant team suggests that the configuration may already be in existence when traffic management is implemented. This mitigation measure formalizes the need for this configuration to be employed during traffic management. In addition, temporary signs would need to be placed in Lot 11 (within the Village Core) at Far East Road to advise motorists that this route only directs motorists to eastbound Squaw Valley Road.

Mitigation Measure 9-2b: Conduct traffic management at either the Squaw Valley Road/Wayne Road or Squaw Valley Road/Eric Road intersections.

For all ski days in which the projected amount of daily traffic on Squaw Valley Road would reach or exceed 13,500 ADT (per results of predictive model described in Mitigation Measure 9-1a), the project applicant shall situate traffic control personnel at either the Squaw Valley Road/Wayne Road or Squaw Valley Road/Eric Road intersection during the morning and afternoon peak periods to direct traffic. Traffic control personnel shall actively control traffic by stopping motorists on Squaw Valley Road to give the right-of-way to side-street traffic. The project applicant shall publicize this traffic control plan on the internet, with temporary signage, etc. such that residents know when traffic management would occur and are aware of the preferred access to/from the areas north of Squaw Valley Road.

Residents in the area north of Squaw Valley Road who currently use Christy Hill Road, Eric Road, Wayne Road, and Russell Road to access Squaw Valley Road would be informed by the project applicant that a traffic management controlled intersection (either at Eric Road or Wayne Road) would be available on peak ski days. Traffic control personnel shall emphasize the need to balance delays for Squaw Valley Road through traffic and side-street traffic, while not causing excessive queuing along Squaw Valley Road.

Mitigation Measure 9-2c: Conduct traffic management at the Squaw Valley Road/Squaw Creek Road intersection (ski season).

For all ski days in which the projected amount of daily traffic on Squaw Valley Road would reach or exceed 13,500 ADT (per results of predictive model described in Mitigation Measure 9-1a), the project applicant shall situate traffic control personnel at the Squaw Valley Road/Squaw Creek Road intersection during the morning and afternoon peak periods to direct traffic. Traffic control personnel shall actively control traffic by stopping motorists on Squaw Valley Road to give the right-of-way to side-street traffic.

Mitigation Measure 9-2d: Monitor and when warranted, conduct traffic management at the Squaw Valley Road/Squaw Creek Road intersection (summer season).

Based on the analysis results, operations on the Squaw Creek Road approach are expected to degrade to LOS E upon development of approximately 50 percent of the project. The project applicant shall conduct annual summer season (for peak conditions) monitoring of delays on the Squaw Creek Road approach at such time that project buildout reaches 30 percent. Once operations are found to degrade to LOS E conditions, the project applicant shall situate traffic control personnel at the Squaw Valley Road/Squaw Creek Road intersection to direct traffic. Traffic control personnel shall actively control traffic (i.e., stop motorists on Squaw Valley Road to give the right-of-way to side-street traffic).

Significance after Mitigation

Implementation of Mitigation Measure 9-2a through 9-2d would reduce this impact to a **less-than-significant** level for all intersections within the plan area, except the Squaw Valley Road/Village East Road intersection, because these measures would restore operations to acceptable levels.

The traffic management procedures described above at the Squaw Valley Road/Far East Road/Christy Hill Road, Squaw Valley Road/Wayne Road, and Squaw Valley Road/Squaw Creek Road intersections were analyzed to determine how the level of service would change. With the use of traffic management personnel, the Squaw Valley Road/Wayne Road and Squaw Valley Road/Squaw Creek Road intersections would operate similar to a two-phased signalized intersection. Based on the existing plus project traffic volumes and anticipated right-of-way allocations, these intersections would operate at LOS C or better with traffic management.

However, after implementation of the mitigation measures provided above, the Squaw Valley Road/Village East Road intersection would continue to experience increases in delays in excess of 2.5 seconds. As discussed above, adoption of Policy CP-1 within the VSVSP would allow for an LOS F standard for intersections within the plan area during peak ski/occupancy days and would therefore make peak hour/day traffic conditions at the Squaw Valley Road/Village East Road intersection acceptable. However, this impact would be considered **significant and unavoidable** for the Squaw Valley Road/Village East Road intersection unless and until Policy CP-1 is adopted.

Impact 9-3: Impacts to Caltrans intersections.

The proposed project would exacerbate unacceptable operations at the SR 89/Alpine Meadows Road intersection during all three analysis peak hours. This would be a **significant** impact.

As shown in Table 9-21, the proposed project would add vehicle trips to various Caltrans-maintained intersections along SR 89; however, operations would remain at an acceptable LOS D or better at each location. This applies to the following intersections:

- SR 89/Donner Pass Road
- SR 89/I-80 WB Ramps
- SR 89/I-80 EB Ramps
- SR 89/Deerfield Drive
- SR 89/West River Street
- SR 89/Squaw Valley Road
- SR 89/SR 28

Therefore, under the Existing Plus Project condition, the proposed project would not generate a significant adverse effect at these intersections related to changes in LOS or delays.

Table 9-21 shows that vehicle trips generated by the proposed project would add traffic to the SR 89/Alpine Meadows Road intersection, which currently operates at LOS F during the winter Saturday a.m., winter Sunday p.m., and summer Friday p.m. peak hours. The project would cause the delay to increase by 96 seconds or more for each of these peak hours. Because these increases are greater than the 2.5-second increase threshold, these degradations would be **significant**.

Mitigation Measure 9-3: Construct the planned traffic signal at the SR 89/Alpine Meadows intersection.

Placer County has been working with Caltrans to construct a traffic signal at this intersection. Squaw Valley does not have a role in construction of this traffic signal. Although the precise timing of the signal's installation is not known at this time, the plans and specifications have been approved by the Placer County Board of Supervisors and the contract for construction has been awarded as of April 2015. It is anticipated to be constructed by the County and Caltrans in 2015 and be completed in one construction season. Once this traffic signal is in place, operations would improve to an acceptable LOS D or better during all three analysis periods, and no mitigation would be required of the project.

Table 9-21 Peak Hour Intersection Level of Service – Existing Plus Project Conditions

Intersection	LOS Standard	Control	Existing Conditions						Existing Plus Project Conditions					
			Winter Saturday a.m. Peak Hour		Winter Sunday p.m. Peak Hour		Summer Friday p.m. Peak Hour		Winter Saturday a.m. Peak Hour		Winter Sunday p.m. Peak Hour		Summer Friday p.m. Peak Hour	
			Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
SR 89/Donner Pass Road	F / D [2]	Traffic Signal	21.8	C	33.6	C	39.4	D	21.9	C	33.7	C	40.4	D
SR 89/I-80 WB Ramps	F / D [2]	Roundabout	7.0	A	9.3	A	9.8	A	7.3	A	10.0	B	11.6	B
SR 89/I-80 EB Ramps	F / D [2]	Roundabout	9.8	A	17.6	C	10.7	B	11.0	B	21.6	C	13.6	B
SR 89/Deerfield Drive	F / D [2]	Traffic Signal	12.4	B	14.1	B	13.5	B	12.2	B	13.9	B	13.8	B
SR 89/West River Street	E	Traffic Signal	15.5	B	18.8	B	11.8	B	15.6	B	20.2	C	13.8	B
Squaw Valley Road/Chamonix Place	C	Side-Street Stop	1.1 (10.1)	A (B)	5.5 (13.3)	A (B)	2.3 (11.0)	A (B)	1.7 (10.5)	A (B)	6.7 (14.7)	A (B)	4.2 (13.4)	A (B)
Squaw Valley Road/Village East Road	C	Side-Street Stop	5.1 (14.5)	A (B)	22.2 (43.2)	C (E)	3.3 (10.3)	A (B)	5.1 (15.1)	A (B)	**32.2 (66.9)**	**E (F)**	3.5 (12.3)	A (B)
Squaw Valley Road/Far East Rd./Christy Hill Road	C	Side-Street Stop	7.5 (157)	A (F)	38.7 (137.2)	E (F)	2.2 (15.5)	A (C)	**9.5 (257.7)**	**A (F)**	**77.0 (264.5)**	**F (F)**	**8.9 (143.3)**	**A (F)**
Squaw Valley Road/Wayne Road	C	Side-Street Stop	0.8 (29.2)	A (D)	0.7 (24.0)	A (C)	0.9 (11.7)	A (B)	**0.9 (34.3)**	**A (D)**	**0.8 (31.0)**	**A (D)**	0.7 (20.5)	A (C)
Squaw Valley Road/Squaw Creek Rd.	D	Side-Street Stop	2.1 (44.1)	A (E)	2 (40.7)	A (E)	2.5 (18.4)	A (C)	**2.6 (60.8)**	**A (F)**	**2.2 (54.2)**	**A (F)**	**2.3 (53.3)**	**A (F)**
SR 89/Squaw Valley Road	E	Traffic Signal	20.3	C	38.5	D	10.2	B	24.3	C	47.4	D	15.5	B
SR 89/Alpine Meadows Road	E	Side-Street Stop	12 (118.8)	B (F)	113 (> 180)[3]	F (F)	4.7 (66.7)	A (F)	**13.7 (214.3)**	**B (F)**	**132.2 (-)**	**F (F)**	**9.2 (168.5)**	**A (F)**
SR 89/SR 28	D	Traffic Signal	16.2	B	18.2	B	21.4	C	16.4	B	18.6	B	22.7	C

Notes: LOS = level of service. **Bolded** cells represent significant impacts.

[1] For signalized intersections and roundabouts, average intersection delay is reported in seconds per vehicle for all approaches. For side-street stop controlled intersections, the delay and LOS for the most-delayed individual movement is shown in parentheses, and delay/LOS for the entire intersection is shown without parentheses.

[2] LOS F applies as the LOS standard for winter conditions, while LOS D applies as LOS standard for summer Friday conditions.

[3] When side-street traffic volumes are near the boundary of the traffic software's input range, delay estimates can become imprecise. In such instances, average delay is shown as "> 180 seconds."

Source: Appendix G

Significance after Mitigation

Impact 9-3 would be considered **significant and unavoidable** in the short-term if the planned traffic signal at the SR 89/Alpine Measures intersection is not constructed prior to the proposed project generating sufficient vehicle trips to generate an increase in intersection delay of more than 2.5 seconds. However, once the signal is operational, the effect of added vehicle trips from the proposed project would be **less than significant**.

Impact 9-4: Impacts caused by vehicular queuing at Caltrans intersections.

The proposed project would cause an adverse vehicular queuing condition at the SR 89/Squaw Valley Road intersection during the winter Saturday a.m. peak hour that would not meet applicable design standards. This would be a **significant** impact.

Table 9-22 shows the 95th percentile vehicle queues at the SR 89/Squaw Valley Road intersection during each winter peak hour. The following describes the key changes in vehicle queuing that would result from the proposed project:

- Northbound Left-Turn Lane: project-added trips during the winter Saturday a.m. peak hour would cause the 95th percentile queue to increase from 475 to 525 feet, which would exceed the storage within the 475-foot left-turn pocket.
- Southbound Right-Turn Lane: project-added trips during the winter Saturday a.m. peak hour would cause the 95th percentile queue to increase from 300 to 325 feet, which exceeds the 250-foot right-turn pocket. However, the southbound through movement would have a 95th percentile queue length of 675 feet, which implies that right-turning motorists may not be able to access the turn pocket even if it was lengthened to accommodate the 325-foot right-turn lane queue.
- Eastbound Left and Left/Through Lanes: project-added trips during the winter Sunday p.m. peak hour would cause substantially longer vehicle queues than currently exists. Under existing conditions, the two turn lanes have a combined 95th percentile queue of 1,075 feet (43 vehicles). Under existing plus project conditions, the two turn lanes would have a combined 95th percentile queue of 1,625 feet (65 vehicles). The queue would extend to approximately the Tavern Way intersection (but would not extend to the Squaw Valley Fire Station). Motorists on the eastbound approach would experience more delays, with the average delay increasing from 55 to 73 seconds.

The *Highway Design Manual* (Caltrans 2013c) indicates that turn lanes at signalized intersections on state facilities should provide both adequate storage for queued vehicles and deceleration for vehicles that are entering the turn lane. Deceleration requirements are based on the design speed of the roadway. The *Highway Design Manual* specifies that under certain conditions, a portion of the deceleration requirement may occur within the through lane (i.e., prior to entering the turn bay). Caltrans District 3 Traffic Operations staff (Brake, pers. comm., 2015a) indicated that for this particular left-turn lane, it would be permissible to assume that a vehicle must decelerate to a stop from a speed of 30 mph just prior to the beginning of the bay taper. Table 405.2B of the *Highway Design Manual* indicates that 235 feet is required to decelerate to a stop from a 30 mph speed. Deceleration is permitted to occur within the approximate 90-foot long bay taper.

According to Table 9-22 and the aforementioned requirements, the northbound left-turn lane would need to provide 525 feet of vehicle storage and 235 feet of deceleration. Hence, the combined length of the turn lane and bay taper would need to be 760 feet. Because the existing turn lane is 565 feet (including taper), the applicable design standard would not be met. Therefore, this would be a **significant** impact for the northbound left-turn lane.

Table 9-22 95th Percentile Queue Lengths at SR 89/Squaw Valley Road Intersection – Existing Plus Project Conditions

Movement	Available Storage	95th Percentile Vehicle Queue [1]			
		Existing Conditions		Existing Plus Project Conditions	
		Winter Saturday a.m. Peak Hour	Winter Sunday p.m. Peak Hour	Winter Saturday a.m. Peak Hour	Winter Sunday p.m. Peak Hour
Northbound Left-Turn	475 ft. [2]	475 ft.	125 ft.	525 ft.	275 ft.
Eastbound Left-Turn	400 ft. [3]	125 ft.	450 ft.	175 ft.	800 ft.
Eastbound Left/Through Lane	400 ft. [3]	50 ft.	625 ft.	125 ft.	825 ft.
Southbound Right-Turn	250 ft. [4]	300 ft.	75 ft.	325 ft.	75 ft.

Notes: Values rounded to the nearest 25 feet.

[1] Based on output from SimTraffic model. Results are not reported for the summer Friday p.m. peak hour because this hour has lower demands for these critical movements when compared to winter peak hour conditions.

[2] Measured from the limit line to the beginning of the transition taper.

[3] Measured from the limit line to the first driveway opening on the south side of Squaw Valley Road.

[4] Measured from the beginning of turn lane to the beginning of channelized triangular island.

Source: Appendix G

The additional queuing in the southbound right-turn lane at the SR 89/Squaw Valley Road intersection is considered **less than significant** because it is not the result of excess vehicles in the turn lane, but rather blockages of the lane by through traffic. That is, the mainline traffic affects the right-turn queue, but the right turn queue does not affect the mainline traffic; therefore, applicable design standards are not affected. The additional queuing in the eastbound left and left/through lanes is considered **less than significant** as these queues are the "front" of a continuous queue extending down Squaw Valley Road as visitors exit Squaw Valley during this peak traffic condition; the lengths of these turn queues do not adversely affect deceleration needs, vehicle safety, or otherwise conflict with applicable design standards.

Mitigation Measure 9-4: Lengthen northbound left-turn lane and modify the traffic signal timing at the SR 89/Squaw Valley Road intersection.

Currently during the winter Saturday a.m. peak hour, the northbound left-turn phase at the SR 89/Squaw Valley Road intersection is given a maximum green time of 45 seconds per cycle. As long as vehicle demand exists, the left-turn arrow remains green for up to 45 seconds. If the maximum green time for this time period were to be increased from 45 to 55 seconds (and the maximum green time for the southbound through movement was decreased by ten seconds), the 95th percentile vehicle queue under existing plus project conditions would be reduced to 375 feet. This signal timing adjustment would not adversely affect overall delay at the intersection. To meet the applicable design standard, the turn lane (and taper) would need to have a combined length, including bay taper, of 610 feet (375 feet + 235 feet). Because the existing turn lane is 565 feet, the applicable design standard would be met by lengthening the turn lane 50 feet and implementing this (or another equally effective) signal timing modification. As evidenced by the existing condition, turn pockets on state highways do not always provide the deceleration and storage prescribed in the *Highway Design Manual*.

Significance after Mitigation

The concept of using signal timing adjustments as a mitigation strategy was discussed with Caltrans Traffic Operations staff (Brake, pers. comm., 2015b) who indicated they support the idea of modifying traffic signal timings in response to changes in travel demand. However, lengthening the turn pocket by 50 feet may be infeasible due to environmental conditions. The east side of the highway includes a bike path and forestry resources as well as the banks of the Truckee River. Encroachment into this area would require relocation of a portion of the bike path, tree removal, and possible encroachment on the river. The west side of the highway is also constrained by a downslope, a bikepath, and parking for Squaw Valley Park. Thus, widening of the road may not be acceptable to Caltrans and may be infeasible. Furthermore, Placer County cannot

ensure these improvements are implemented in a reasonable period since they are subject to approval from Caltrans. For these reasons, Impact 9-4 is considered **significant and unavoidable**.

Impact 9-5: Impacts to Caltrans highways.

The proposed project would exacerbate already unacceptable operations on the segments of SR 89 between Deerfield Drive and West River Street, and SR 28 east of SR 89 in Tahoe City during the summer Friday p.m. peak hour. This would be a **significant** impact.

As shown in Table 9-23, the proposed project would add trips during the winter Saturday a.m. and Sunday p.m. peak hours to four Caltrans highway segments but operations would either remain acceptable, or the exacerbation of unacceptable operations would not result in a 0.05 v/c ratio or greater. This applies to the following highway segments:

- SR 89 between Deerfield Drive and West River Street,
- SR 89 between Squaw Valley Road and Alpine Meadows Road,
- SR 89 between Alpine Meadows Road and SR 28, and
- SR 28 east of SR 89.

Therefore, under the Existing Plus Project condition, the proposed project would not generate a significant adverse effect at these highway segments related to changes in LOS or v/c ratio.

As also shown in Table 9-23, the proposed project would add 161 vehicles in the critical northbound direction of SR 89 between West River Street and Deerfield Drive during the summer Friday p.m. peak hour, which currently operates at an unacceptable LOS E. The project would cause the v/c ratio to increase by 0.11. Because this increase is greater than the 0.05 v/c ratio increase threshold, this degradation would be **significant**.

It is also identified in Table 9-23 that the proposed project would add 160 vehicles (both directions combined) during the summer Friday p.m. peak hour to the segment of SR 28 east of SR 89, which currently operates at an unacceptable LOS E. The project would cause the v/c ratio to increase by 0.09. Because this increase is greater than the 0.05 v/c ratio increase threshold, this degradation would be **significant**.

Mitigation Measure 9-5: Improve operations on select segments of SR 89 and SR 28.

The *State Route 89 Transportation Corridor Concept Report* (Caltrans 2012b) identifies the segment of SR 89 between Deerfield Drive and West River Street as a concept four-lane conventional highway. The document lists a conceptual widening from two to four lanes. However, such a widening project is not currently included in any adopted planning documents or fee programs.

No capacity-increasing improvements are proposed for the segment of SR 28 east of SR 89 according to the *State Route 28 Transportation Corridor Concept Report* (Caltrans 2012c).

Significance after Mitigation

Because there are no available mechanisms to provide an acceptable LOS on the SR 28 and SR 89 segments in question, this impact would be **significant and unavoidable**.

Table 9-23 State Highway Segment Level of Service – Existing Plus Project Conditions

Segment [1]	LOS Standard	Existing Conditions									Existing Plus Project Conditions								
		Winter Saturday a.m. Peak Hour			Winter Sunday p.m. Peak Hour			Summer Friday p.m. Peak Hour			Winter Saturday a.m. Peak Hour			Winter Sunday p.m. Peak Hour			Summer Friday p.m. Peak Hour		
		Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS	Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS	Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS	Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS	Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS	Peak Direction & Volume (veh/hr)	V/C/ Avg. Speed	LOS
SR 89 between West River St and Deerfield Dr	F / D [2]	SB 791	0.50 / 31.4	E	NB 1,217	0.80/ 27.4	E	NB 690	0.45/ 30.5	E	SB 845	0.53/ 30.9	E	NB 1,315	0.87/ 26.5	E	**NB 851**	**0.56/ 28.2**	**E**
SR 89 between West River St and Squaw Valley Rd	E	SB 999	0.64 / 46.1	E	NB 1,292	0.86/ 43.2	E	NB 690	0.47/ 46.4	D	SB 1,058	0.67/ 45.5	E	NB 1,398	0.93/ 42.2	E	NB 874	0.58/ 43.9	E
SR 89 between Squaw Valley Rd and Alpine Meadows Rd	E	NB 607	0.41 / 38.0	E	NB 684	0.46/ 37.3	E	NB 675	0.46/ 36.5	E	NB 640	0.43/ 37.7	E	NB 695	0.47 / 37	E	SB 799	0.53/ 34.8	E
SR 89 between Alpine Meadows Rd and SR 28	E	NB 877	0.58 / 36.4	E	SB 792	0.54/ 35.4	E	SB 688	0.46/ 35.1	E	NB 908	0.60/ 36.1	E	SB 844	0.57/ 34.9	E	SB 820	0.53/ 33.5	E
SR 89 south of SR 28	E	NB 740	0.50/ N/A[3]	D	SB 547	0.40/ N/A[3]	D	SB 886	0.60/ N/A[3]	E	NB 747	0.51/ N/A	D	SB 561	0.41/ N/A	D	SB 931	0.63/ 23.8	D
SR 28 east of SR 89 [4]	D	Both 1,215	0.74 / N/A	D	Both 1,226	0.74 / N/A	D	Both 1,559	0.87 / N/A	E	Both 1,248	0.76 / N/A	D	Both 1,270	0.77 / N/A	D	**Both 1,719**	**0.96 / N/A**	**E**

Notes: LOS = level of service; NB = northbound; SB = southbound. This table replaces percent time spent following (PTSF) in favor of V/C (Volume to Capacity) ratio for purposes of impact identification. **Bolded** cells represent significant impacts.

[1] Refer to Section 9.1.7, "Level of Service," for description of facility types and analysis methods.

[2] LOS F applies as the LOS standard for winter conditions, while LOS D applies as LOS standard for summer Friday conditions.

[3] Average travel speed not applicable for Class II two-lane highways.

[4] Segment analyzed using Chapter 16 (Urban Street Facilities) of the HCM (Transportation Research Board 2010) with LOS traffic volume thresholds in DEIR Table 9-7.

Source: Appendix G

Impact 9-6: Impacts to bicycle and pedestrian facilities.

The proposed project would not disrupt or interfere with existing or planned bicycle/pedestrian facilities, nor would it result in unsafe conditions for bicyclists or pedestrians. Further, the project would not create an inconsistency with any adopted policies related to bicycle or pedestrian systems. This would be a **less-than-significant** impact.

The proposed project would enhance the existing bicycle system by extending the Class I path along Squaw Valley Road from its current terminus (east of Far East Road) westerly along the north side of Squaw Creek into the village. Exhibit 3-10 in Chapter 3, "Project Description," displays the Class I bike path and Class II bike lanes that would be provided within the Village Area along with proposed bike parking locations. The typical cross-sections for various roadways within the Specific Plan include walkways on one or both sides of the street (including the three bridges over Squaw Creek). The material used for the bicycle and pedestrian trails/paths will be suitable for plowing/snow removal, making them accessible during the winter.

The proposed project would include crosswalks at appropriate intervals to ensure pedestrians can safely traverse across the entire plan area. Appropriate lighting and safety signage, such as yield signs, stop signs, and pedestrian crossing signs, would be installed in conjunction with the crosswalks. Parking lots and structures would be situated in convenient locations near the Village area entry points such that traffic volumes on internal streets within the village are reduced. Transit service would be provided within and outside the Village Area to provide alternative choices to automobile use. This decreases the potential for conflicts between bicyclists, pedestrians, and vehicles. The proposed project would not conflict with any adopted policies from Placer County, PCTPA, or Caltrans relating to bicycle or pedestrian facilities. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 9-7: Impacts to transit.

The proposed Specific Plan describes several planned transit service expansions, some of which are listed as policies in the Specific Plan. However, the policies and service expansions do not explicitly require that the project applicant ensure that an adequate supply of public transit service be available to meet the anticipated demand. This would be a **significant** impact.

The project would not add structures, roadways, or other elements that would disrupt or interfere with any existing or planned transit services or facilities. The proposed project would include a transit center constructed within the Village Area to provide a convenient transit hub for both public and private transit services traveling within, to, and from the Village Area. The project will also include low-emission vehicle shuttle service within the Village, as warranted, to provide mobility for visitors, guests, and employees. Policy CP-4 of the Specific Plan states the following: Encourage use of regional transit services (including services from commercial airports) and participate as appropriate in expansion of regional transit services through financial support, such as subsidies and/or funding programs.

During peak winter conditions, up to 550 project-related employees may be expected to work in the Village Area and reside outside of Olympic Valley. About two-thirds of these employees are expected to work the day shift (i.e., 8 a.m. to 5 p.m.). During the winter season, about 8 percent of existing Squaw Valley employees use TART to commute to work. This suggests that the project could add approximately 30 riders to the morning inbound TART service to Squaw Valley. Table 9-17 indicates that weekend morning TART buses between Tahoe City and Squaw Valley are approaching capacity during peak winter conditions. Accordingly, this suggests that the project could cause a demand for public transit that exceeds what is currently provided unless expanded service is implemented, resulting in a **significant** impact.

Mitigation Measure 9-7: Contribute fair share or create a Community Service Area (CSA) or a Community Facilities District (CFD) to cover increased transit service.

The project applicant shall commit to providing fair share funding to TART or forming a Community Service Area (CSA) or a Community Facilities District (CFD) to fund the costs of increased transit services prior to the recordation of the Initial Large Lot Final Map. The provisions for monitoring (discussed below), and determining the appropriate fair share or the steps for forming a CSA or CFD shall be determined at this time in consultation with, and to the satisfaction of TART and County staff.

Prior to recordation of the Initial Small Lot Final Map, the project applicant shall work with TART to conduct winter and summer season monitoring of ridership on bus routes to/from, and within Olympic Valley. Written evidence of this monitoring, its results, and any comments from TART shall be provided to Placer County ESD and DPW. When ridership approaches capacity, and based on the previously agreed upon provisions, the project applicant shall make a fair share contribution to TART to support transit service, or create a CSA or a CFD to fund the costs of increased transit services. If and when a CSA or CFD is formed, the project applicant shall no longer be responsible for making fair share payments to TART, and TART shall be fully responsible for adjusting bus service.

This mitigation measure meets the intent of Specific Plan Policies CP-2 through CP-4, and clarifies how the project would contribute to enhanced transit operations. Increased service may consist of more frequent headways, longer hours of operations, and/or different routes. The fee calculations shall consider both capital expenses and on-going operations and maintenance expenses.

Significance after Mitigation

Implementation of Mitigation Measure 9-7 would reduce this impact to a **less-than-significant** level because the creation of the CSA/CFD to provide additional funding would ensure that increased TART service would be supported

Impact 9-8: Construction impacts.

Project construction would generate employee and truck trips, which would use segments of SR 89 and Squaw Valley Road. These activities could cause lane closures, damage to roadways, and increased conflicts with bicyclists and pedestrians. This would be a **significant** impact.

As detailed in Chapter 3, "Project Description," the Specific Plan would be developed over an estimated 25-year buildout period, with some construction proposed to begin as early as spring of 2016. The sequence and pace for constructing various land uses and facilities would be market driven; therefore, a specific construction schedule has not been developed. It is anticipated that during the single most active possible construction year, no more than 20 percent of the total Specific Plan construction could occur. Construction activities are anticipated to require up to an estimated total of 136 construction workers during this most intense year of construction.

Project construction would include demolition of existing buildings and parking lots, and construction of a variety of buildings, landscaping, parking structures, and other site amenities. These activities would generate a substantial amount of truck and employee trips, which would use SR 89 and Squaw Valley Road to access the Village Area. It is anticipated that the majority of these activities would occur during summer and fall, which typically have lower traffic levels on Squaw Valley Road when compared to winter conditions. Further details of the construction activity are not known at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, project impacts during construction would be **significant**.

Mitigation Measure 9-8: Develop a Construction Traffic Management Plan.

Prior to recordation of the first Small Lot Final Map, the project applicant shall prepare a Construction Traffic Management Plan (CTMP) to the satisfaction of the Placer County Department of Public Works and the Engineering and Surveying Division. The plan shall include (but not be limited to) items such as:

- guidance on the number and size of trucks per day entering and leaving the project site;
- identification of arrival/departure times that would minimize traffic impacts;
- approved truck circulation patterns;
- locations of staging areas;
- locations of employee parking and methods to encourage carpooling and use of alternative transportation;
- methods for partial/complete street closures (e.g., timing, signage, location and duration restrictions);
- criteria for use of flaggers and other traffic controls;
- preservation of safe and convenient passage for bicyclists and pedestrians through/around construction areas;
- monitoring for roadbed damage and timing for completing repairs;
- limitations on construction activity during peak/holiday weekends and special events;
- preservation of emergency vehicle access;
- coordinate with applicants of other projects under construction concurrently in Olympic Valley to minimize potential additive construction traffic disruptions, avoid duplicative efforts (e.g., multiple occurrences if similar signage), and maximize effectiveness of traffic mitigation measures (e.g., joint employee alternative transportation programs);
- removing traffic obstructions during emergency evacuation events; and
- providing a point of contact for Olympic Valley residents and guest to obtain construction information, have questions answered, and convey complaints.

The CTMP should be developed such that the following minimum set of performance standards is achieved throughout project construction. It is anticipated that additional performance standards will be developed once details of more project construction are better known.

1) Delivery trucks do not idle/stage on Squaw Valley Road.
2) Squaw Valley Road does not feature any construction-related lane closures on peak activity days.
3) All construction employees shall park in designated lots owned or leased by Squaw Valley Resort.
4) Roadways, sidewalks, crosswalks, and bicycle facilities shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.

Significance after Mitigation

Implementation of Mitigation Measure 9-8 would reduce this impact to a **less-than-significant** level because the potential adverse effects of project construction on local vehicle, bicycle, and pedestrian travel would be substantially reduced.

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