# APPENDIX H

# TRAFFIC AND PARKING IMPACT ANALYSIS

# PlumpJack Squaw Valley Inn Expansion Traffic and Parking Impact Analysis

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# *PlumpJack Squaw Valley Inn Expansion*

# *Traffic and Parking Impact Analysis*

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# Table of Contents


| CHAPTER | | PAGE |
|---|---|---|
| 1 | Introduction | 1 |
| 2 | Existing Conditions | 4 |
| | Existing Transportation System | 4 |
| | Existing Traffic Volumes | 6 |
| | Level of Service | 6 |
| | Squaw Valley Ski Area Traffic Control and Parking Management | 11 |
| | Transit Services | 12 |
| | Bicycle and Pedestrian System | 12 |
| 3 | Trip Generation, Distribution and Assignment | 13 |
| | Project Trip Generation | 13 |
| | Traffic Distribution and Assignment | 15 |
| 4 | Cumulative Conditions | 17 |
| | Forecasted Year 2010 Traffic Volumes | 17 |
| | Future Cumulative Year 2010 Level of Service | 19 |
| 5 | Parking Analysis | 22 |
| | Proposed Parking Supply | 22 |
| | Proposed Parking Demand | 22 |
| | Parking Balance | 23 |
| 6 | Traffic and Parking Impact Analysis | 24 |
| | Level of Service Standards | 24 |
| | Existing Conditions | 24 |
| | Cumulative Conditions | 27 |
| | Significance | 29 |
| Bibliography | | 33 |

Appendix A:
Descriptions of Levels of Service

Appendix B:
Level of Service Calculations
Existing Conditions
Existing Plus Project
Future Cumulative Year 2010 (No Project)
Year 2010 Plus Project

# List of Tables


| TABLE | | PAGE |
|---|---|---|
| 1 | Historical Traffic Volumes on SR 89 | 7 |
| 2 | Existing Level of Service Summary | 10 |
| 3 | Trip Generation of the Squaw Valley Inn Expansion | 14 |
| 4 | Distribution | 15 |
| 5 | Trip Generation of the Village at Squaw Valley USA | 18 |
| 6 | Year 2010 Cumulative No-Project Level of Service Summary | 21 |
| 7 | Parking | 22 |
| 8 | Project Impacts on Level of Service | 26 |
| 9 | Evaluation of SR 89 Roadway Level of Service | 30 |


# List of Figures


| FIGURE | | PAGE |
|---|---|---|
| 1 | Site Location Map | 2 |
| 2 | Lane Configuration Map | 5 |
| 3 | Existing Peak-Hour Traffic Volumes | 8 |
| 4 | Project Generated Traffic Volumes | 16 |
| 5 | Year 2010 Cumulative Conditions Winter P.M. Peak-Hour Traffic Volumes | 20 |
| 6 | Existing Plus Project Traffic Volumes | 25 |
| 7 | Year 2010 Plus Project Traffic Volumes | 28 |

# Chapter 1
# Introduction

PlumpJack, Inc. is proposing to construct an addition to the existing Squaw Valley Inn at the base of the Squaw Valley USA ski area. The proposed project expands the existing Squaw Valley Inn by construction of a new structure which will include 34 condominium-type residential units with 28 lock-out units, underground and street level parking, plus a spa area, kitchen and lobby. Residential units include 13 two-bedroom flats, 15 three-bedroom flats, and 6 three-bedroom townhouse units. The majority of these units will include "lock-out" units that can be rented separately. However, there are not additional lofts, dens or studies proposed. The spa area will be for hotel and condominium guests only, and the kitchen will be for room service use only. All parking for the proposed addition would be located below ground. The proposed project would be located west of the existing Squaw Valley Inn and PlumpJack Restaurant, along Squaw Peak Road. Figure 1 presents a project site location map.

Peak use of the proposed addition is expected to occur during winter months, especially on holidays and weekends. In order to evaluate maximum potential parking and traffic impacts of the proposed project, P.M. peak-hour winter traffic conditions are evaluated in this analysis.

The purpose of this report is to present an analysis of the transportation and parking impacts associated with the proposed development. Initially, existing traffic volumes and the operating characteristics of existing roadways in the project vicinity are discussed. The proposed development is then assessed to determine the number of vehicle-trips which will be generated by the project. These vehicle-trips are then assigned to the nearby roadway system to identify the impact on roadway level of service for both existing and future cumulative conditions. A parking analysis based upon the Placer County parking standards is also presented.

Information contained in this traffic and parking impact analysis can be summarized by the following:

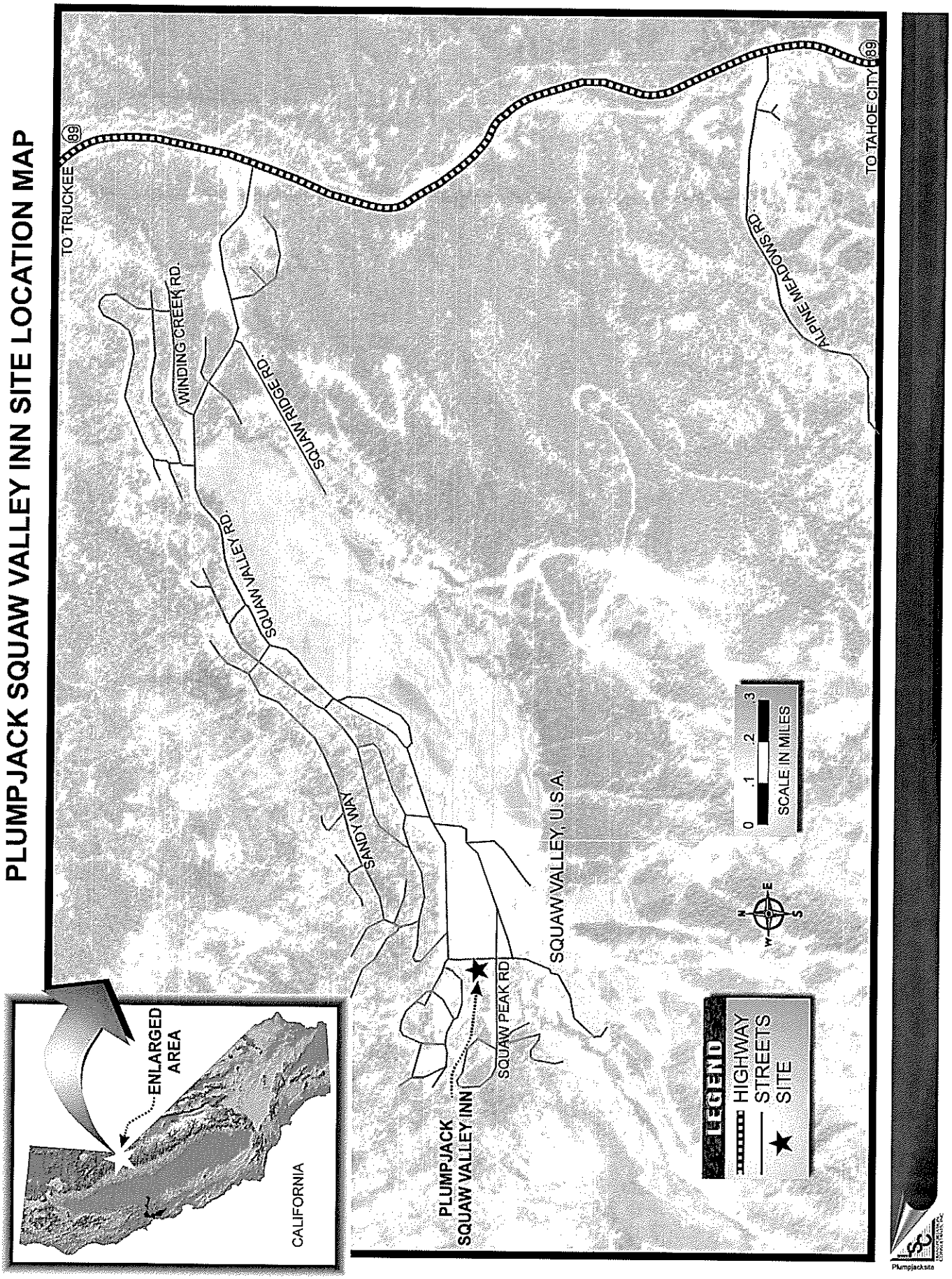
- **Existing Conditions Analysis** - Physical condition, traffic volumes, and operating characteristics of existing roadways in the project vicinity are evaluated for winter peak-hour conditions.

- **Trip Generation, Distribution and Assignment** - Proposed project land uses are identified, and resulting project-generated vehicular traffic volumes are calculated for winter peak demand periods. Project-generated vehicle-trips are distributed based on existing land use patterns and accessibility to transportation facilities. Vehicle-trips are then assigned to the existing roadway network and added to existing traffic volumes to calculate traffic volumes likely to occur with construction of the proposed project.

- **Cumulative Conditions** - An analysis of traffic operations under cumulative conditions is performed to determine if the addition of project traffic in combination with other traffic growth would cumulatively result in adverse impacts. Year 2010 represents cumulative conditions in the study area as per the *Placer County General Plan Update.*

FIGURE 1

# PLUMPJACK SQUAW VALLEY INN SITE LOCATION MAP



- **Parking Impact Analysis/Mitigation Measures** - Parking demand of the proposed project site is estimated based upon peak use characteristics. Parking demand of the proposed project is then compared to proposed parking supply to determine adequacy.

- **Traffic Impact Analysis/Mitigation Measures** - Traffic volumes and roadway operating conditions are compared both with and without project scenarios to determine specific adverse impacts created by the project through increased traffic. Impact on intersection Level of Service (LOS) and potential for increasing the duration of the P.M. peak traffic demand period is identified. Required mitigation measures to offset project impacts are then identified and presented.

# Chapter 2
# Existing Conditions

The proposed project site currently consists of a paved parking area with intermittent landscaping and a basketball court. The Squaw Valley Lodge and Squaw Valley USA ski area tram buildings are located immediately to the south of the proposed project site on the south side of Squaw Peak Road. The existing Squaw Valley Inn and PlumpJack Restaurant are located to the east of the proposed project site, and Squaw Creek is immediately adjacent to the northern edge of the project site. Access to the project site would be via a driveway from Squaw Peak Road providing access to a proposed underground parking structure, which would supply parking for the existing Squaw Valley Inn, as well as for the proposed expansion.

## EXISTING TRANSPORTATION SYSTEM

The private automobile is the primary mode of transportation in the study area. Major roadways providing access to the project site are illustrated in Figure 2, and consist of the following:

- **State Route 89** is a two-lane roadway connecting Truckee, California and the Interstate 80 corridor to Squaw Valley, Alpine Valley, and Tahoe City, California. State Route 89 currently intersects Squaw Valley Road at an actuated signalized intersection. Traffic volumes along State Route 89 exhibit strong seasonal variation, with congestion occurring during winter peak demand periods when adverse weather and ski area activity create reduced capacity and extremely peaked periods of traffic demand.

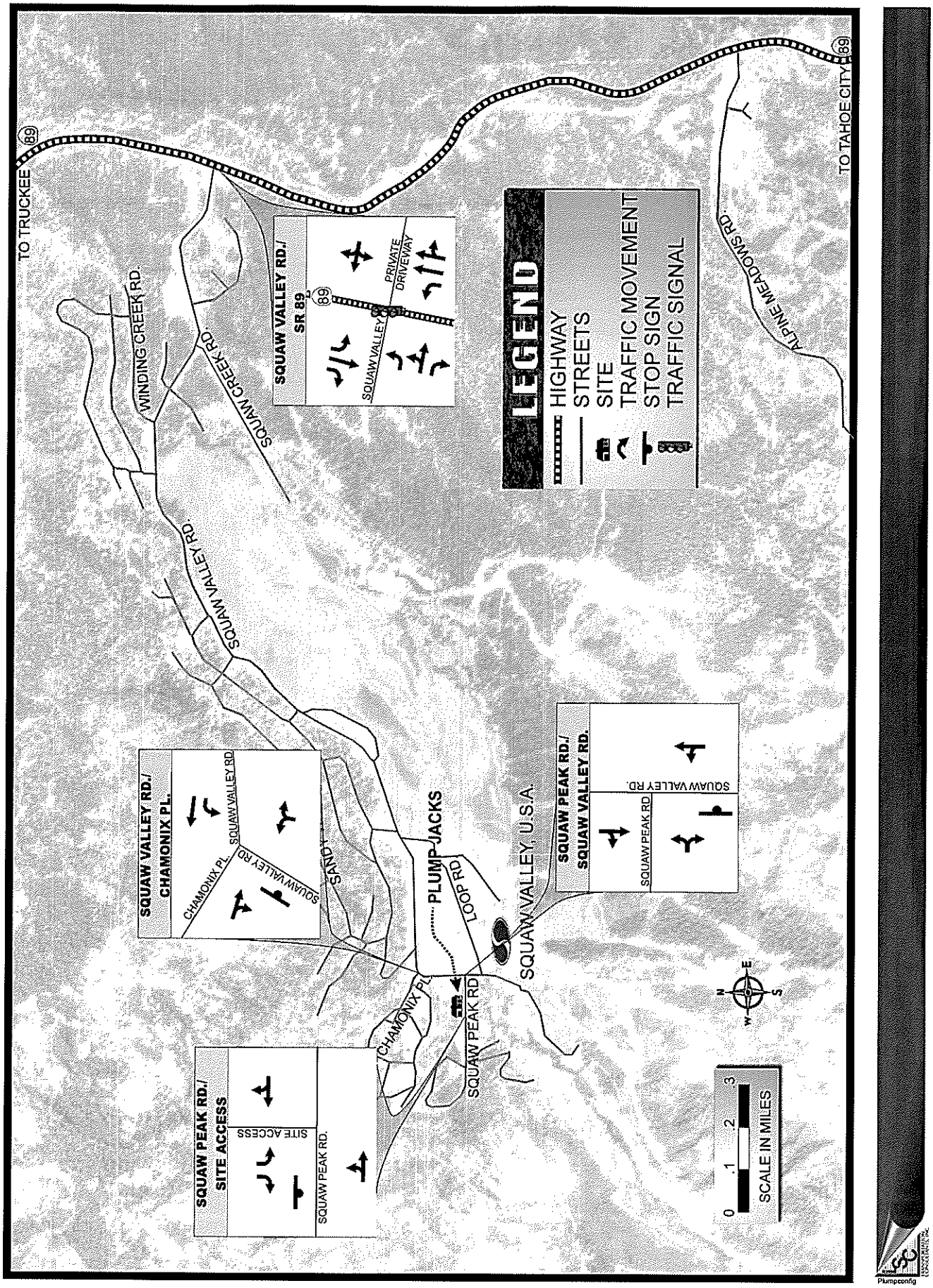
- **Squaw Valley Road** is a local roadway which provides access from State Route 89 westward to Olympic Valley and the Squaw Valley USA ski area. Squaw Valley Road consists of a two-lane cross section with four-foot wide striped bicycle lanes in each direction and roadway shoulders of four to ten feet in width. During winter months, this roadway is configured as a three-lane road through the use of traffic cones to expedite access to and from the Squaw Valley USA ski area during morning and evening weekend and holiday peak demand periods. The existing traffic management plans are discussed in detail below. Near the proposed project site, Squaw Valley Road curves from the east-west alignment to a north-south alignment, which provides access to the Squaw Valley USA ski area parking lot. Vehicles are permitted to turn into the parking lot at various locations along Squaw Valley Road.

- **Chamonix Place** is a local roadway which creates a "Y" intersection with Squaw Valley Road at the location where Squaw Valley Road changes alignment. Chamonix Place intersects Squaw Valley Road at a stop controlled "T" intersection which requires Chamonix Place traffic to yield to through movements on Squaw Valley Road.

- **Squaw Peak Road** provides access from Squaw Valley Road to residential and commercial land uses located near the base of the Squaw Valley USA ski area. Squaw Peak Road is a 24-foot wide local street with limited shoulder width. Squaw Peak Road intersects Squaw

FIGURE 2

## LANE CONFIGURATION MAP



Valley Road at a stop controlled "T" intersection which requires Squaw Peak Road traffic to yield to through movements on Squaw Valley Road. The Squaw Valley Ski Area parking lot is located on the eastern side of the Squaw Peak/Squaw Valley Road intersection.

## EXISTING TRAFFIC VOLUMES

### Historical Traffic Volumes

Historical traffic volumes are available in the annual *Traffic Volumes on California State Highways* publication (compiled by Caltrans). Table 1 presents the peak hour volume, peak month average daily traffic (ADT) and annual average daily traffic (AADT) on State Route 89 near Squaw Valley Road for 1995 through 2000. During 1999, SR 89 peak hour volumes were relatively balanced in either direction from Squaw Valley Road, ranging from 1,500 to 1,550, south and north of Squaw Valley Road, respectively. In Year 2000, peak hour traffic south of Squaw Valley Road increased to 1,850 (with traffic north of Squaw Valley increasing to 1,600). Average daily traffic during the peak month ranged from 14,100 (north of Squaw Valley) to 20,200 (south of Squaw Valley) vehicles during the 24-hour period. Annual average daily traffic ranged from 11,300 vehicles (north of Squaw Valley) to 15,500 vehicles (south of Squaw Valley). The corresponding percentage of annual change over the represented period and the average annual change is also presented. Overall traffic volumes on SR 89 near Squaw Valley have grown steadily, with a notable 10.1 percent annual change in peak hour volumes at the Truckee River Bridge just south of Squaw Valley Road.

Although August has the highest average monthly traffic on most roadways in the area, the highest peak-day and peak-hour traffic volumes typically occur in December, January and February. Daily traffic volumes tend to be highest on Saturdays during both winter and summer.

### Turning Movement Volumes

Planned use of the units would occur during both summer and winter months. It is expected that occupancy of the units would be highest during winter peak demand periods associated with ski area activity. For this reason, and because existing traffic conditions are substantially worse in the winter, the winter peak demand period has been identified as the critical time period for this analysis. To evaluate existing winter peak-hour traffic operations, turning movement data contained in the *Village at Squaw Valley USA Environmental Impact Report* (EIP Associates, April 1999) and *Squaw Valley Inn Expansion* (LSC, 1997) was obtained. Figure 3 presents existing Saturday peak-hour traffic volume estimates for peak winter conditions.

## LEVEL OF SERVICE

### Methodology

Level of Service (LOS) is a quantitative and qualitative measure of traffic conditions on isolated sections of roadway or intersections (as presented in detail in Appendix A). LOS is a reflection of several factors including operating speeds, freedom to maneuver, traffic interruptions, and

**TABLE 1: Historical Traffic Volumes on SR 89 Near Squaw Valley Road**

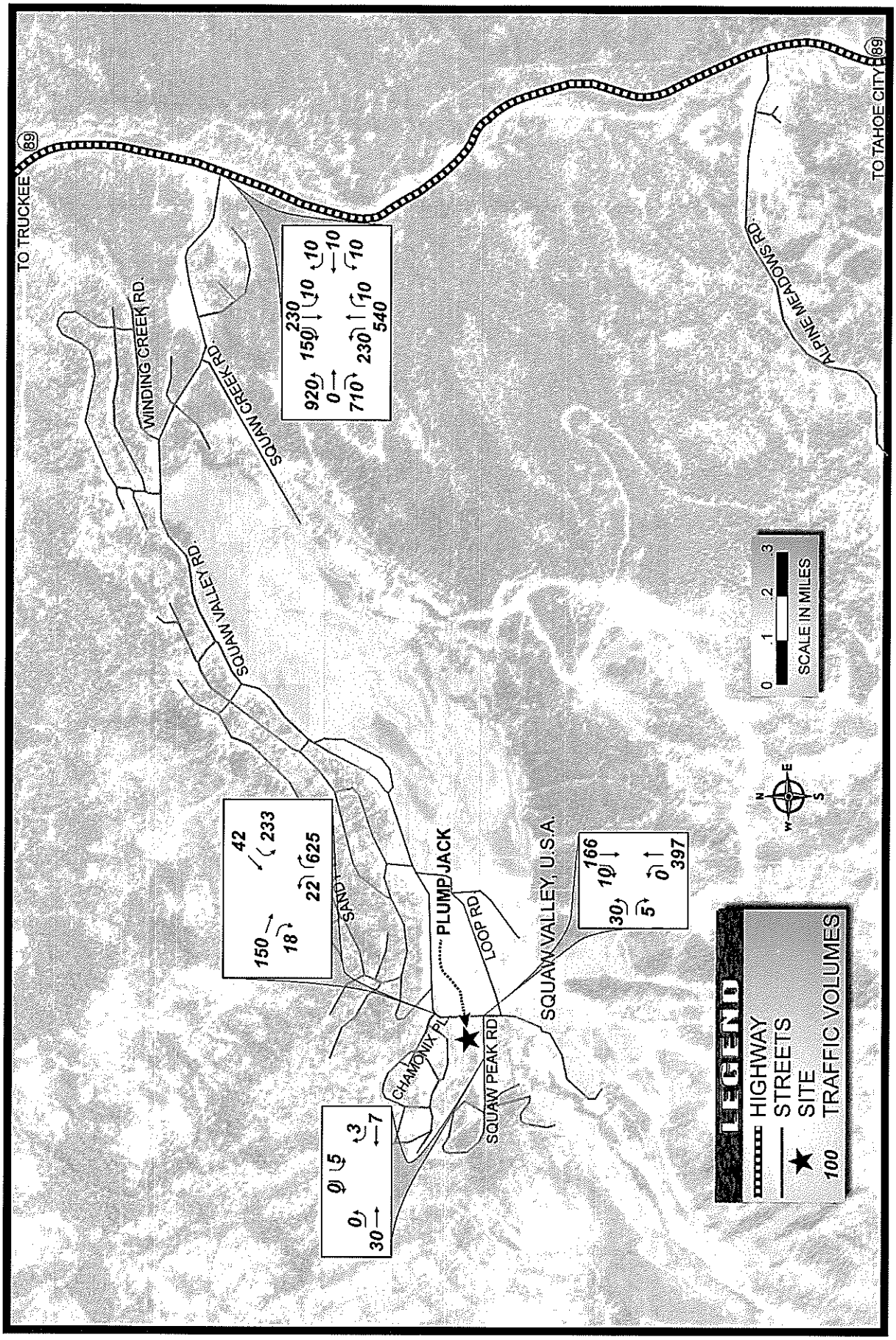
| | Year | | | | | | Annual Change | | | | | Average Annual Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 95-96 | 96-97 | 97-98 | 98-99 | 99-00 | |
| **Peak Hour Volume** | | | | | | | | | | | | |
| SR 89 South of Squaw Valley Road (Truckee River Bridge) | 1,200 | 1,600 | 1,500 | 1,450 | 1,500 | 1,850 | 33.3% | -6.3% | -3.3% | 3.4% | 23.3% | 10.1% |
| SR 89 North of Squaw Valley Road | 1,600 | 1,500 | 1,550 | 1,500 | 1,550 | 1,600 | -6.3% | 3.3% | -3.2% | 3.3% | 3.2% | 0.1% |
| **Peak Month ADT** | | | | | | | | | | | | |
| SR 89 South of Squaw Valley Road (Truckee River Bridge) | 18,300 | 19,500 | 19,500 | 21,100 | 21,400 | 20,200 | 6.6% | 0.0% | 8.2% | 1.4% | -5.6% | 2.1% |
| SR 89 North of Squaw Valley Road | 13,500 | 13,600 | 13,700 | 14,800 | 15,200 | 14,100 | 0.7% | 0.7% | 8.0% | 2.7% | -7.2% | 1.0% |
| **Annual ADT** | | | | | | | | | | | | |
| SR 89 South of Squaw Valley Road (Truckee River Bridge) | 13,400 | 14,900 | 14,900 | 15,800 | 15,300 | 15,500 | 11.2% | 0.0% | 6.0% | -3.2% | 1.3% | 3.1% |
| SR 89 North of Squaw Valley Road | 10,500 | 10,500 | 10,900 | 11,000 | 11,300 | 11,300 | 0.0% | 3.8% | 0.9% | 2.7% | 0.0% | 1.5% |

Source: 1995 through 1999 *Traffic Volumes on California State Highways* (Caltrans).

SV Traffic Volumes.wb3

FIGURE 3

# EXISTING PM PEAK-HOUR TRAFFIC VOLUMES



average delay for vehicles at intersections. LOS ranges from "A" (with no congestion) to "F (where the system fails with gridlock or stop-and-go conditions prevailing). The quantitative basis for determining LOS is the average delay of motorists, measured in seconds.

Intersection LOS was analyzed by utilizing the "Highway Capacity Software" package (HCS 2000 version 4.1), based upon the procedures presented in the *Highway Capacity Manual, Transportation Research Board, Special Report 209* (Federal Highways Administration, updated in 1997). The HCS output is shown in Appendix B for further reference.

**Existing Transportation Standards**

The proposed project is located in unincorporated Placer County. The *Placer County General Plan Update - Countywide General Plan Policy Document* (Placer County, August 1994) establishes standards for level of service. For signalized intersections along SR 89, the standard is to achieve LOS "E" or better during peak demand periods. The *Squaw Valley General Plan and Land Use Ordinance* (August 1983) identifies traffic congestion resulting from winter ski area peak demands as a problem. The plan further presents the following two policies on Page 44:

a.) *Present peak period congestion and delay shall not be worsened; levels of service on the area's road network shall not deteriorate within Squaw Valley, or at the Squaw Valley Road/State Highway 89 intersection, or at the State Highway 89/State Highway 28 Intersection.*

b.) *The duration and number of occurrences of such traffic problems shall not increase within Squaw Valley, or at the Squaw Valley Road/State Highway 89 intersection, or at the State Highway 89/State Highway 28 intersection."*

**Existing Level of Service**

Using the existing winter traffic volumes, it is possible to evaluate the LOS provided during peak periods. During winter months, peak demand periods occur during both morning and afternoon peak hours. However, afternoon peak hour traffic volumes are typically higher, with sustained periods of traffic congestion. It was therefore determined that any potentially significant traffic impacts which could occur in the morning would also occur during the afternoon peak demand period; therefore, only the P.M. peak-hour has been analyzed in detail. The lane configuration of the study intersections is illustrated in Figure 2 above. The results of the LOS analysis, as presented in Table 2, for the study area intersections can be summarized as follows:

- The intersection of **State Route 89 and Squaw Valley Road** is a signalized intersection. The eastbound approach has a separate left turn lane, plus an additional shared left/through lane, and a channelized right-turn lane. The westbound approach is a private driveway with a shared left/through/right lane. The northbound SR 89 approach has a separate left-turn lane, a through lane and a shared through/right lane. The southbound 89 approach has separate left, through and right-turn lanes. The signal is actuated with protected left-turn movements.

**TABLE 2: Existing Level of Service (LOS) Summary**

| Intersection/Approach (1) | Signalized/ Unsignalized | LOS | Intersection /Approach Delay |
|---|---|---|---|
| SR 89 / Squaw Valley Road | Signalized | C | 27.7 |
| Squaw Valley Road / Chamonix Place | Unsignalized | | |
| Eastbound Left/Right | | A | 7.3 |
| Westbound Left | | B | 10.2 |
| Southbound Through/Right | | F | * |
| Squaw Valley Road / Squaw Peak Road | Unsignalized | | |
| Northbound Left/Through | | A | 7.6 |
| Eastbound Left/Right | | B | 12.7 |
| Squaw Peak Road / Site Access Driveway | Unsignalized | | |
| Eastbound Left/Through | | A | 7.2 |
| Southbound Left | | A | 8.7 |
| Southbound Right | | A | 8.3 |

* Delay's over 180 seconds are generally not calculated accurately by analysis methodology.
Note 1: Existing HCS unsignalized intersection software does not calculate individual movement delay for shared lane approaches.
Source: Highway Capacity Software (McTrans HCS 2000 Version 4.1) SV Traffic Volumes.wb3

- During the winter peak-hour the intersection operates at LOS C with an average delay per vehicle of 27.7 seconds. This analysis assumes favorable weather conditions, with no reductions in roadway capacity due to the presence of snow and ice.

- The intersection of **Squaw Valley Road and Chamonix Place** is unsignalized with stop signs controlling the minor approach on Chamonix Place. All approaches have shared lanes with the exception of the south-westbound Squaw Valley Road approach, which has a separate left-turn lane. The uncontrolled Squaw Valley Road approaches operate at LOS A (eastbound) and LOS B (westbound), while the Chamonix Place south-eastbound approach operates at LOS F. The delay is over 180 seconds and is therefore generally not reported accurately by the software, as the movement is operating over capacity conditions.

  Note: Results differ from those presented in the *Village at Squaw Valley USA Environmental Impact Report* due to use of different intersection analysis software. LSC has employed a more detailed analysis technique, based upon revisions to the methodologies adopted subsequent to this previous traffic study. In the traffic study conducted for the *Village at Squaw Valley USA Environmental Impact Report,* this intersection reportedly operates at LOS A; however, separate LOS designations are not presented for the various turning movements.

- The **Squaw Valley Road and Squaw Peak Road** intersection is an unsignalized intersection with stop control on Squaw Peak Road. Squaw Valley Road runs in a north/south alignment

at this intersection, with the Squaw Valley USA ski area parking lot to the east. Access into and out of the parking lot can be made at various locations along Squaw Valley Road. Each approach contains one shared lane. The northbound approach operates at LOS A, while the eastbound approach operates at LOS B.

- The **Squaw Peak Road/Site Access** intersection is an unsignalized "T" intersection with stop control on the site driveway. The Squaw Peak Road approaches have shared through/turn lanes while the site access driveway has separate left and right turn lanes. All approaches at this intersection operate at LOS A.

## SQUAW VALLEY SKI AREA TRAFFIC CONTROL AND PARKING MANAGEMENT

A 1998 agreement between Squaw Valley Ski Corp (SVSC) and Placer County defines the traffic control plans to be undertaken at Squaw Valley USA. Five basic traffic management measures are called for in the agreement, which is referred to as the "Squaw Valley Ski Area Traffic Control and Parking Management Program."

1. *Metering of the traffic from Squaw Valley parking lots to maintain an adequate LOS on the area's road network. Two metering stations are called for: one at the east exit "Y" intersection from the Squaw Valley parking lot to Squaw Valley Road and one at the SR 89/Squaw Valley Road intersection.*

2. *Providing preferential parking to transit vehicles and other vehicles carrying four or more people.*

3. *Installing remote advisory signing to indicate the status of parking availability at the ski area. Such signs are to be installed on SR 89, both north and south of Squaw Valley Road. When appropriate, the signs are to indicate that parking is not available at Squaw Valley and that tickets will not be sold except to transit riders and drop-offs.*

4. *Improving transit service for skiers at Squaw Valley.*

5. *Providing a parking enforcement patrol officer to insure that parking regulations pertinent to snow removal operations and public safety are obeyed. According to the agreement, parking patrols are to be deployed on all County roads, with enforcement focused on peak ski weekends and "snow days."*

As part of the Squaw Valley Ski Area Traffic Control and Parking Management Program, Squaw Valley Road is configured as a three-lane road though the use of traffic cones during peak winter conditions. During the morning, when westbound (i.e., inbound) traffic is heaviest, two lanes are provided in that direction. In the afternoon, as skiers depart, the road's operation is reversed and two eastbound lanes are provided. Three-lane coning is usually done every weekend from Christmas through the end of the season.

SVSC staff are responsible for all metering and traffic management activities on Squaw Valley Road and at the parking lot. SVSC has staff members providing manual traffic control at four

locations (Wayne Road, Victor Road, Winding Creek Road and Squaw Creek Road) along Squaw Valley Road during the periods of three-lane traffic. Depending upon traffic levels, manual traffic operations usually are in effect from 8:30 to 10:30 A.M. and from 3:30 to 6:00 P.M. The California Highway Patrol (CHP) provides manual control of the SR 89/Squaw Valley Road intersection. Manual control at the SR 89/Squaw Valley Road intersection is typically required on weekends and is usually limited to the afternoon peak period when skiers are leaving the ski area.

## TRANSIT SERVICES

Public transit service to Squaw Valley is provided by the Tahoe Area Regional Transit (TART) bus system, which has been operated by Placer County since 1975. TART currently provides service to the north and west shores of Lake Tahoe, as well the Town of Truckee. Schedules run seven days a week from 6:30 A.M. until 6:00 P.M. with ten trips per day into Squaw Valley (ten round trips along SR 89 between Truckee and Tahoe City). Fares on the TART system are $1.25 for the general public, with discount fares offered for commuters, young children and senior citizens.

TART service between Truckee and Tahoe City is known as "The Bus" and starts at the Truckee Transit Depot in downtown Truckee, travels westward on Donner Pass Road to SR 89, and south to the Tahoe City "Y" area, where transfers can be made to other TART routes. Ridership for "The Bus" has increased since its inception in December 1991 and is estimated to reach up to 135 riders per day, with Squaw Valley riders representing approximately 15 percent of the total ridership (*Village at Squaw Valley USA Environmental Impact Report, 1999*).

## BICYCLE AND PEDESTRIAN SYSTEM

Regional bicycle facilities experience heavy recreational use during the spring, summer and fall seasons. Bicycle routes are classified as follows:

Class I - Bicycle path on separate right-of-way designated for exclusive use of bicycles. No interaction with traffic.

Class II - Bicycle lane on restricted right-of-way on roadways for exclusive or semi-exclusive use by bicyclists, separated from traffic only by shoulder striping.

Class III - Bicycle route on shared right-of-way, usually designated by signs or pavement markings. No separation from traffic; high potential of interaction/accidents.

An extensive system of Class I (separated paved trail) and Class II (un-striped, signed bicycle route) bikeways extend the length of Squaw Valley Road. Class II bike lanes exist from SR 89 to Squaw Creek Road, while a Class I bike path extends on the south side of Squaw Valley Road from Squaw Creek Road to just east of Squaw Loop Road. Recently, the Class I bike path along the Truckee River to Tahoe City was extended to Squaw Valley. From Tahoe City, the Class I bike path continues south down the west shore to Tahoma.

# Chapter 3
# Trip Generation, Distribution and Assignment

The assessment of transportation-related impacts must begin with the development of trip generation estimates for the project. Once trip generation data is available, then impacts to local roadways and intersections can be assessed.

## PROJECT TRIP GENERATION

Trip generation is the evaluation of the number of one-way vehicle-trips that will either have an origin or destination at the project site. Daily vehicle-trip ends (DVTE) and peak-hour traffic generation need to be determined in order to analyze potential impacts of the proposed project on traffic flow in the study area. In order to represent the worse case scenario, all additional units including lock-out units are included in the analysis (for a total of 62 additional units). The analysis of trip generation is summarized in Table 3.

Average daily trip generation rates for the project were determined based upon the Institute of Transportation Engineers' *Trip Generation* (Sixth Edition) referred to as the *ITE Trip Generation Manual.* It was assumed that the proposed project would exhibit similar trip generation characteristics to a resort hotel, since it will be used primarily as vacation residences. According to ITE, the resort hotel is similar to a hotel in that they provide sleeping accommodations, restaurants, cocktail lounges, retail shops, and guest services. This trip rate represents the worse case scenario and was chosen in order to be conservative. Under the resort hotel land use category, the ITE Trip Generation Manual presents the following trip generation rates for trip generation on a Saturday:

13.43 Daily trips per occupied room;

1.23 Peak hour trips (assumed to occur during the afternoon peak hour).

The *Squaw Valley General Plan* identifies that if the management of new hotel and condominium units is consistent with that of a destination resort, then the combined effect of such management practices will result in a 50 percent reduction in peak hour traffic generation. (In large part, this reduction reflects the proximity of the Squaw Valley Inn site to the adjacent ski and commercial activity centers, which will greatly encourage pedestrian travel by hotel guests for trips other than their arrival and departure from the area.) It is also assumed that this 50 percent reduction would apply to total daily traffic generation.

Based upon this information, the trip generation rates identified above were multiplied by 50 percent to account for internal and pedestrian trips. This adjustment reflects the fact that some portion of the trips generated by the project would be captured trips. These trips represent skiers or others already at Squaw Valley that choose to eat, shop or visit nearby commercial uses. These trips would not require the use of a vehicle and are therefore not included in the net estimate of external vehicle trips. It should also be mentioned that no adjustments to the trip generation estimate were made for pass-by or diverted trips.

**TABLE 3: Trip Generation of the Squaw Valley Inn Expansion**

| Land Use | Quantity | | Unit | Saturday Daily Trip Rate (1) | Saturday Peak Hour Trip Rate (1) | Gross Daily Trips | Reduction for Internal and Pedestrian Trips | Net Daily External Trips (2) | Saturday PM Peak-Hour Trips | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Net Pk-Hr Trips (2) | Inbound (3) | Outbound (3) |
| Resort Hotel | 34 | Addt'l Units | occupied units | 13.43 | 1.23 | 457 | 50% | 229 | 21 | 6 | 15 |
| Resort Hotel | 28 | Lock-Outs | occupied units | 13.43 | 1.23 | 376 | 50% | 188 | 17 | 5 | 12 |
| *Total* | *62* | – | – | – | – | – | – | *417* | *38* | *11* | *27* |

Note 1: Based on *ITE Trip Generation, 6th Edition.* Commercial and retail space is included in trip generation rate for Resort Hotel.
Note 2: Reduced by 50 percent to reflect pedestrian activity.
Note 3: Assumes 70 percent outbound and 30 percent inbound during the PM peak-hour as used in the *Village at Squaw Valley USA Draft Environmental Impact Report (EIP Associates, April 1999).*

SV Traffic Volumes.wb3

It is estimated that 30 percent of the peak hour traffic would be entering the proposed project, with the remaining 70 percent exiting the proposed project site during the P.M. peak hour (as used in the *Village at Squaw Valley USA Environmental Impact Report* based on survey data contained in the *Traffic Study for Deer Valley Residential Expansion and Bonanza Flats,* Centennial Engineers, Inc., January 1995). Based upon these distribution assumptions, the proposed addition to the PlumpJack Squaw Valley Inn would generate an additional 11 inbound and 27 outbound trips during the P.M. peak hour, and a total of 417 one-way vehicle-trips over a day.

## TRAFFIC DISTRIBUTION AND ASSIGNMENT

The distribution of traffic arriving and departing the project site is mainly dependent upon the site's location relative to surrounding tourist oriented uses. Since the project is intended to primarily serve destination skiers, it is assumed that distribution patterns of traffic accessing the proposed project will be consistent with the tourist-oriented traffic distribution in the Squaw Valley Area. The *Village at Squaw Valley USA Environmental Impact Report* indicates that on a typical winter Saturday, approximately 37 percent of traffic which exits Squaw Valley is destined for points south on Highway 89, 61 percent is destined for points north on Highway 89, and the remaining 2 percent remain within Squaw Valley.

The distribution percentages presented in Table 4 were multiplied by the total inbound and outbound vehicle trips to determine inbound and outbound vehicle trips by geographic area for the winter P.M. peak demand period. Table 4 also presents total peak hour inbound and outbound trips by geographic area for the proposed project site. The project trips were manually assigned to the roadway network in the project area. The resulting project generated traffic volumes are presented in Figure 4.

***TABLE 4: Traffic Distribution***

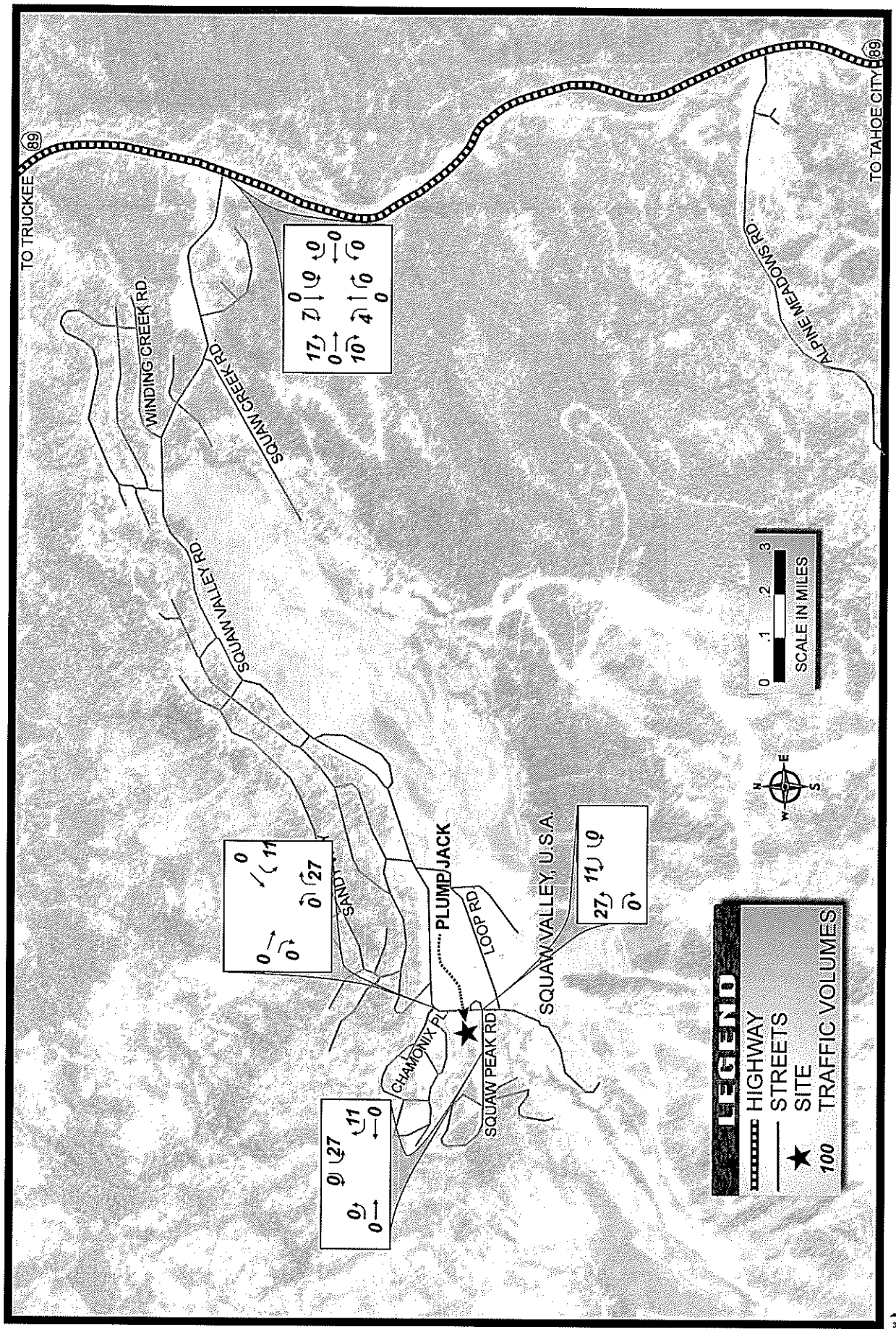
| | | Peak Hour Trips | | |
|---|---|---|---|---|
| | Percent (1) | Total | Inbound | Outbound |
| Internal Squaw Valley Road (North) | 1% | 0 | 0 | 0 |
| Internal Squaw Valley Road (Squaw Creek Road) | 1% | 0 | 0 | 0 |
| North on SR 89 to Truckee | 61% | 24 | 7 | 17 |
| South on SR 89 to Tahoe City | 37% | 14 | 4 | 10 |
| *Total* | | *38* | *11* | *27* |

Note 1: Based on peak winter weekend traffic distribution used in *Village at Squaw Valley USA Draft Environmental Impact Report* (EIP Associates, April 1999)

SV Traffic Volumes.wb3

FIGURE 4

## PROJECT GENERATED TRAFFIC VOLUMES



# Chapter 4
# Cumulative Conditions

An analysis of traffic operations under cumulative conditions has been performed to determine if the addition of project traffic in combination with other traffic growth would cumulatively result in adverse impacts. The Year 2010 conditions represent cupmulative conditions in the study area, per the *Placer County General Plan Update.*

## FORECASTED YEAR 2010 TRAFFIC VOLUMES

Cumulative conditions represent future year traffic volumes assuming buildout of existing approved and planned developments in and around the Squaw Valley, Truckee, and Tahoe Basin areas. Specifically, cumulative conditions includes buildout of the Intrawest Village at Squaw Valley USA, and associated shifts in ski area traffic resulting from the relocation of existing ski parking areas. The portion of the existing ski parking lot east of the Squaw Valley Inn will be the site of the Village at Squaw Valley, with the parking relocated to a new parking structure to be built to the southeast of the Village. A one-way northbound traffic circulation circle will be constructed immediately east of the Squaw Valley Inn, with an entrance off of Squaw Valley road opposite existing Squaw Peak Road, and an exit opposite the northern portion of the Squaw Valley Inn property. In addition to providing access to a portion of the underground parking for the Village (including the valet parking area), this circle will serve as a drop-off/pick-up zone for the ski area. As a result, the existing Squaw Valley Road will terminate at the existing Squaw Peak Road intersection as the base of a T intersection, allowing a right turn onto Squaw Peak Road or a left turn into the Village at Squaw Valley circulation circle.

To the degree possible, the *Village at Squaw Valley USA Environmental Impact Report* was used as a source of cumulative traffic conditions. However, as this document (and associated technical appendices) do not present future traffic volume estimates for the Squaw Valley Road/Chamonix and Squaw Valley Road/Squaw Peak Road intersections, it is necessary to conduct additional analysis.

Background traffic forecasts for cumulative (2010) conditions were developed by estimated average annual growth rates using historical traffic counts and previously developed traffic volume projects plus project conditions, as developed in the *Village at Squaw Valley USA Environmental Impact Report* (Figure 4.7-14: Cumulative Plus Project Peak Winter Conditions on a Saturday) for the SR 89/Squaw Valley Road intersection. In addition, traffic volumes at the Village pickup/drop-off area on Squaw Valley Road (Circulation Circle) to be constructed as part of the Village at Squaw Valley across from the existing Squaw Valley Inn were estimated based on the trip generation data shown in Table 5.

Traffic generation is based upon the portion of the Village project that is accessible by the Circulation Circle: Building A1, Building A2, and valet parking. In addition, estimates are included for TART and courtesy van vehicle-trips. Trip generation estimates show that approximately 130 inbound vehicle trips will occur at the intersection of Squaw Valley Road

**TABLE 5: Trip Generation of the The Village at Squaw Valley**

| Land Use | Quantity | Unit | Daily Trip Rate (1) | Gross Daily Trips | Commercial Trips | Captured Trips (2) | Daily Net External Trips | PM Peak Hour Percent of Daily Net External Trips | Saturday PM Pk-Hr Trips Total Trips | Inbound | Outbound |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **The Village** | | | | | | | | | | | |
| Resort Hotel | 640 | occupied units | 13.43 | 8,600 | 64% | 50% | 5,850 | 17% | 990 | 300 | 690 |
| **Portion Accessible By Circulation Circle (3)** | | | | | | | | | | | |
| Building A1 | 26 | occupied units | 13.43 | 300 | 64% | 50% | 200 | 17% | 30 | 10 | 20 |
| Building A2 | 53 | occupied units | 13.43 | 700 | 64% | 50% | 480 | 17% | 80 | 20 | 60 |
| Valet Parking (3) | 200 | parking spaces | – | – | – | – | – | – | 100 | 50 | 50 |
| Dropoff/Pickup Activity (4) | | – | – | – | – | – | – | – | 100 | 50 | 50 |
| Subtotal | – | – | – | 1,000 | – | – | 680 | – | 310 | 130 | 180 |
| *Percent of Total Trip Generation* | | | – | – | – | – | *11.6%* | – | *31.3%* | *43.3%* | *26.1%* |

Note 1: Commercial and retail space is included in trip generation rate for Resort Hotel.

Note 2: Only applies to commercial trips. This split used in the *Village at Squaw Valley USA Draft Environmental Impact Report* (EIP Associates, April 1999).

Note 3: A total of approximately 200 valet parking spaces would be available to residents and day users under Phase III (*Village at Squaw Valley USA Draft Environmental Impact Report*, EIP Associates, April 1999). It is estimated that 25 percent of the vehicles spaces will turn over during the PM peak hour.

Note 4: Dropoff and pickup activity is expected at the Circulation Circle (including TART prior to the completion of Phase II, courtesy vans, etc.). It is estimated that 50 inbound and 50 outbound vehicle trips will occur during the PM peak-hour.

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and Squaw Peak Road during the P.M. peak hour. It was further assumed that the project access driveway intersection with Squaw Peak Road and the remaining turn movements at the Squaw Peak Road/Squaw Valley Road intersections would maintain peak hour traffic volumes similar to existing conditions. This assumption is based upon the fact that peak traffic flows occur when the Squaw Valley ski area is exiting in the afternoon peak demand period. Under existing conditions, these peak flows saturate all of the available capacity of the circulation aisles in the parking lot, which effectively limits the peak volumes that can be delivered to these two intersections to be similar to existing volumes.

Figure 5 presents background cumulative (future year 2010) winter peak hour turning movement volumes at each of the study area intersections.

## FUTURE CUMULATIVE YEAR 2010 LEVEL OF SERVICE

Table 6 presents the level of service at the study area intersections during winter P.M. peak hour conditions under background cumulative Year 2010 conditions. As shown the following conditions are expected to exist at the study area intersections:

- The intersection of **State Route 89 and Squaw Valley Road** is expected to operate at LOS E during the winter P.M. peak hour in Year 2010. The average delay per vehicle is estimated to be 55.7 seconds. Buildout of the Village at Squaw Valley USA increases the total traffic at this intersection, resulting in episodic queuing along Squaw Valley Road caused by a combination of high traffic demand exiting the Squaw Valley USA ski area and limited roadway capacity at the merge points on the Highway 89 northbound and southbound departure legs of the Squaw Valley Road/Highway 89 intersection.

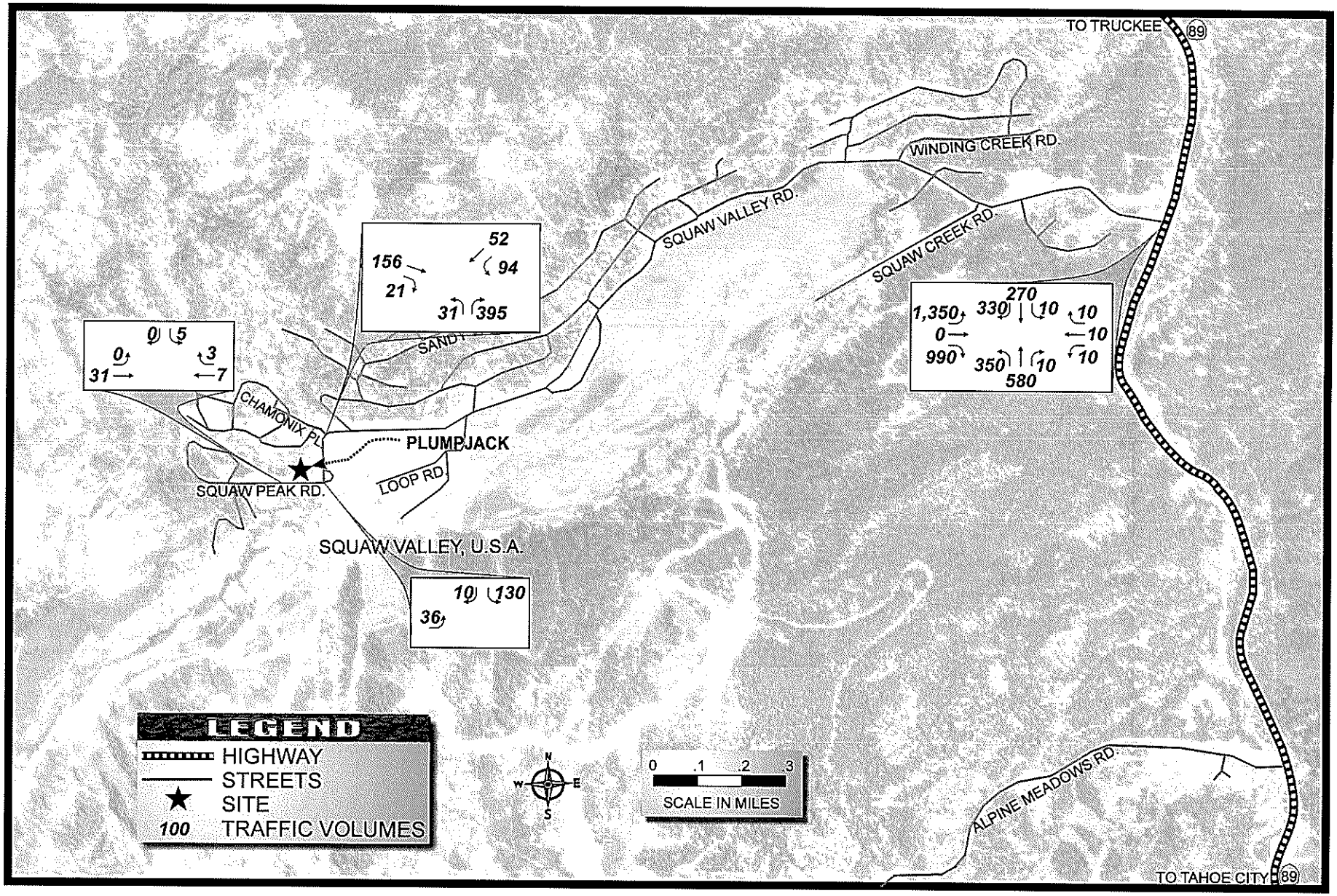
- The LOS of the intersection of **Squaw Valley Road and Chamonix Place** actually improves, due to the relocation of day skier parking associated with the buildout of the Village at Squaw Valley USA, which diverts traffic off of Squaw Valley Road to the east of the intersection with Chamonix Place. The uncontrolled Squaw Valley Road approaches continue to operate at LOS A (eastbound) and LOS B (westbound), while the Chamonix Place southbound approach improves from LOS F to LOS D.

- The **Squaw Valley Road and Squaw Peak Road** intersection improves slightly in terms of delay per vehicle, although LOS designations remain the same. The decrease in average delay is due to the relocation of day skier parking associated with the buildout of the Village at Squaw Valley USA, which diverts traffic off of Squaw Valley Road to the north of Squaw Peak Road. The southbound approach operates at LOS A, while the eastbound approach operates at LOS B.

- The **Squaw Peak Road/Site Access** intersection continues to operate with all approaches at LOS A.

FIGURE 5

# YEAR 2010 CUMULATIVE WINTER PM PEAK-HOUR TRAFFIC VOLUMES



## *TABLE 6: Year 2010 Cumulative No-Project Level of Service (LOS)*

| Intersection/Approach (1) | Signalized/ Unsignalized | LOS | Intersection /Approach Delay |
|---|---|---|---|
| SR 89 / Squaw Valley Road | Signalized | E | 55.7 |
| Squaw Valley Road / Chamonix Place | Unsignalized | | |
| Eastbound Left/Right | | A | 7.3 |
| Westbound Left | | B | 8.4 |
| Southbound Through/Right | | D | 27.5 |
| Squaw Valley Road / Squaw Peak Road | Unsignalized | | |
| Southbound Left/Through/Right | | A | 7.4 |
| Eastbound Left/Right | | B | 10.7 |
| Squaw Peak Road / Site Access Driveway | Unsignalized | | |
| Eastbound Left/Through | | A | 7.2 |
| Southbound Left | | A | 8.7 |
| Southbound Right | | A | 8.3 |

Note 1: Existing HCS unsignalized intersection software does not calculate individual movement delay for shared lane approaches.
Source: Highway Capacity Software (McTrans HCS 2000 Version 4.1)

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## PROPOSED PARKING SUPPLY

The proposed project would construct a net increase of 89 parking spaces over the existing parking supply. This increase would be realized by relocating existing at-grade parking to a below grade facility. As shown in Table 7, the total proposed parking supply would equal 160 parking spaces, including 13 parking spaces in the northern lot and 147 spaces in the parking garage.

***TABLE 7: PlumpJack Squaw Valley Inn Parking***

| | Square Footage | Units | Bedrooms | Required Parking Based on Squaw Valley General Plan (1) | Reduction for Uses Associated with Hotel Use | Parking Spaces (1) |
|---|---|---|---|---|---|---|
| **Parking Supply** | | | | | | |
| Existing Parking Supply | – | – | – | – | – | 71 |
| Proposed Parking Supply | – | – | – | – | – | – |
| North Parking Lot | – | – | – | – | – | 13 |
| Parking Garage | – | – | – | – | – | 147 |
| *Total Proposed Parking Supply* | – | – | – | – | – | *160* |
| **Parking Demand** | | | | | | |
| 61 Existing Hotel Rooms | – | 61 | – | 1 space per hotel room | – | 61 |
| 34 Additional Proposed Units: | – | 34 | – | – | – | – |
| 14 Two-Bedroom Flats | – | – | 28 | 3/4 space per bedroom | – | 21 |
| 14 Three-Bedroom Flats | – | – | 42 | 3/4 space per bedroom | – | 32 |
| 6 Three-Bedroom Townhouses | – | – | 18 | 3/4 space per bedroom | – | 14 |
| Subtotal | – | – | 88 | 3/4 space per bedroom | – | 66 |
| Lockout Units (2) | – | 28 | – | 1 space per hotel room (2) | – | 7 |
| Office | 1,284 | – | – | 1 space per 300 sf gfa | – | 4 |
| Restaurant | 912 | – | – | 1 space per 300 sf gfa | 50% | 2 |
| Ski Shop | 1,100 | – | – | 1 space per 300 sf gfa | 50% | 2 |
| Multi-purpose Room | 5,300 | – | – | 1 space per 300 sf gfa | 50% | 9 |
| *Total Parking Demand* | – | – | – | – | – | *151* |
| **Parking Balance** | | | | | | |
| *Surplus Parking* | – | – | – | – | – | *9* |

Note 1: Based on requirements set forth in the *Squaw Valley General Plan* (1983).
Note 2: Incremental increase of 0.25 parking spaces per lock-out unit due to the increase in parking requirements.

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## PROPOSED PARKING DEMAND

The *1983 Squaw Valley General Plan* identifies parking generation rates of 1 parking space per hotel room, or 3/4 parking spaces per bedroom for other residential uses. The 61 existing hotel rooms require 61 parking spaces. To calculate additional parking demand for the proposed

addition, the number of bedrooms of each type of unit was identified in Table 7. As shown, a total of 88 additional bedrooms would be developed generating parking demand for an additional 66 parking spaces. Additionally, the parking requirement for the lock-out units would be 1 parking space per unit. In order to count the incremental difference in parking demand, an additional 0.25 parking spaces per lock-out unit is included to represent the total potential parking demand. Parking demand associated with the restaurant, ski shop and multi-purpose room is also included, however, because these uses are associated with the hotel, the calculation is 50 percent of the normal parking required for the uses. Total parking demand at the Squaw Valley Inn is therefore 151 spaces.

## PARKING BALANCE

The addition of 89 parking spaces will be more than adequate to meet parking requirements as outlined in the *Squaw Valley General Plan*. In fact, parking supply would exceed required parking spaces by 9 parking spaces.

# Chapter 6
# Traffic and Parking Impact Analysis

## LEVEL OF SERVICE STANDARDS

Placer County's level of service standards for the State highway system indicates that LOS shall be no worse than those adopted in the Placer County Congestion Management Program (CMP), which require maintaining a Level of Service E or better on all arterials (unless operating at LOS F at the time of adoption of the first CMP, which is not the case in this instance). Under future cumulative conditions, the SR 89/Squaw Valley Road is expected to operate at LOS E.

In addition, the *Squaw Valley General Plan and Land Use Ordinance* (August 1983) identifies traffic congestion resulting from winter ski area peak demands as a problem. The following standards of significance relate to this impact:

a.) *Present peak period congestion and delay shall not be worsened; levels of service on the area's road network shall not deteriorate within Squaw Valley, or at the Squaw Valley Road/State Highway 89 intersection, or at the State Highway 89/State Highway 28 Intersection.*

b.) *The duration and number of occurrences of such traffic problems shall not increase within Squaw Valley, or at the Squaw Valley Road/State Highway 89 intersection, or at the State Highway 89/State Highway 28 intersection.*

## EXISTING CONDITIONS

### Traffic Impacts

The impacts of the proposed project were assigned to the roadway network in the project area to determine project generated turning movements at each of the project study area intersections for winter peak demand periods. Figure 6 presents existing conditions plus project generated traffic at the proposed project driveway intersection, the Squaw Peak/Squaw Valley Road intersection, the Squaw Valley Road/Chamonix Place intersection, and at the State Route 89/Squaw Valley Road intersection.

### Existing Plus Project Level of Service Impacts

As summarized in Table 8, the Level of Service (LOS) designations at nearby intersections do not change due to the addition of project related traffic. The average delay experienced by drivers does not increase by more than one second, except for at the southbound minor street approach from Chamonix Place onto Squaw Valley Road, where this movement is already operating at capacity conditions due to the volume of traffic on Squaw Valley Road. No additional traffic is added to this southbound movement as a result of the Squaw Valley Inn expansion, although the increase in through volumes causes a subsequent increase in vehicle

FIGURE 6

# EXISTING PLUS PROJECT TRAFFIC VOLUMES

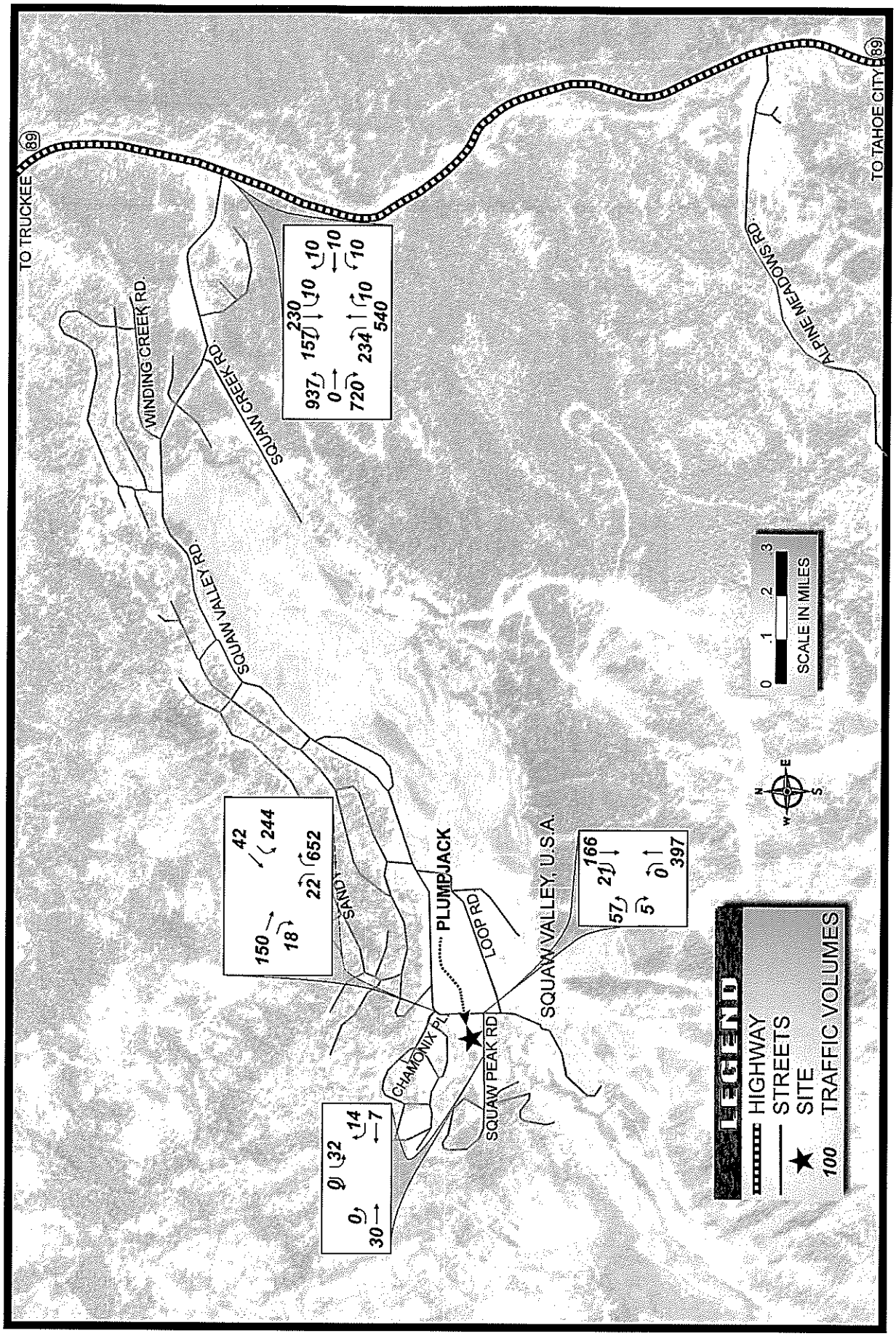


**TABLE 8: Project Impacts on Level of Service (LOS)**

| Intersection/Approach (1) | Signalized/ Unsignalized | Existing LOS | Existing Intersection /Approach Delay | Existing Plus Project LOS | Existing Plus Project Intersection /Approach Delay | Cumulative Year 2010 No Project LOS | Cumulative Year 2010 No Project Intersection /Approach Delay | Cumulative Year 2010 Plus Project LOS | Cumulative Year 2010 Plus Project Intersection /Approach Delay |
|---|---|---|---|---|---|---|---|---|---|
| SR 89 / Squaw Valley Road | Signalized | C | 27.7 | C | 28.2 | E | 55.7 | E | 57.5 |
| With Metered Eastbound Right Turn | Signalized | D | 44.9 | D | 51.8 | F | 96.5 | F | 114.1 |
| Squaw Valley Road / Chamonix Place | Unsignalized | | | | | | | | |
| Eastbound Left/Right | | A | 7.3 | A | 7.3 | A | 7.3 | A | 7.3 |
| Westbound Left | | B | 10.2 | B | 10.4 | B | 8.4 | B | 8.5 |
| Southbound Through/Right | | F | * | F | * | D | 27.5 | D | 31.6 |
| Squaw Valley Road / Squaw Peak Road | Unsignalized | | | | | | | | |
| Northbound Left/Through | | A | 7.6 | A | 7.6 | n/a | n/a | n/a | n/a |
| Southbound | | A | 0.0 | A | 0.0 | A | 7.4 | A | 7.4 |
| Eastbound Left/Right | | B | 12.7 | B | 13.6 | B | 10.7 | B | 11.1 |
| Squaw Peak Road / Site Access Driveway | Unsignalized | | | | | | | | |
| Eastbound Left/Through | | A | 7.2 | A | 7.2 | A | 7.2 | A | 7.2 |
| Southbound Left | | A | 8.7 | A | 8.8 | A | 8.7 | A | 8.8 |
| Southbound Right | | A | 8.3 | A | 8.4 | A | 8.3 | A | 8.4 |

* Delay's over 180 seconds are generally not reported accurately by software as the movement is operating over capacity conditions.
Note 1: Existing HCS unsignalized intersection software does not calculate individual movement delay for shared lane approaches.
Source: Highway Capacity Software (McTrans HCS 2000 Version 4.1)

SV Traffic Volumes.wb3

delay. Vehicle delay over 180 seconds is generally not considered to be calculated accurately by the available *Highway Capacity Manual* methodologies. The addition of project traffic would increase the daily winter traffic volume at this intersection by approximately 2 percent.

## CUMULATIVE CONDITIONS

### Traffic Operations and Impacts

Figure 7 presents cumulative Year 2010 plus project winter peak-hour turning movement volumes. For the cumulative conditions analysis, physical and geometric configuration changes are assumed based on the Village at Squaw Valley USA site drawings. This includes three vehicular entrances to the Village at Squaw Valley USA and the Squaw Valley USA ski area, which divert traffic into the relocated parking areas prior to the Squaw Valley Road/Chamonix Place intersection. According to the *Village at Squaw Valley USA Environmental Impact Report*, visitors arriving to ski for the day would be guided to the proposed parking areas via Far East and Village East Roads. Visitors wishing to use valet parking would be guided to the Circulation Circle across from the Squaw Valley Inn, where they can drop off their cars. The Circulation Circle is also the location of the TART bus stop until Phase II is complete and the bus stop is relocated.

### Cumulative Conditions Plus Project Intersection Level of Service Impact

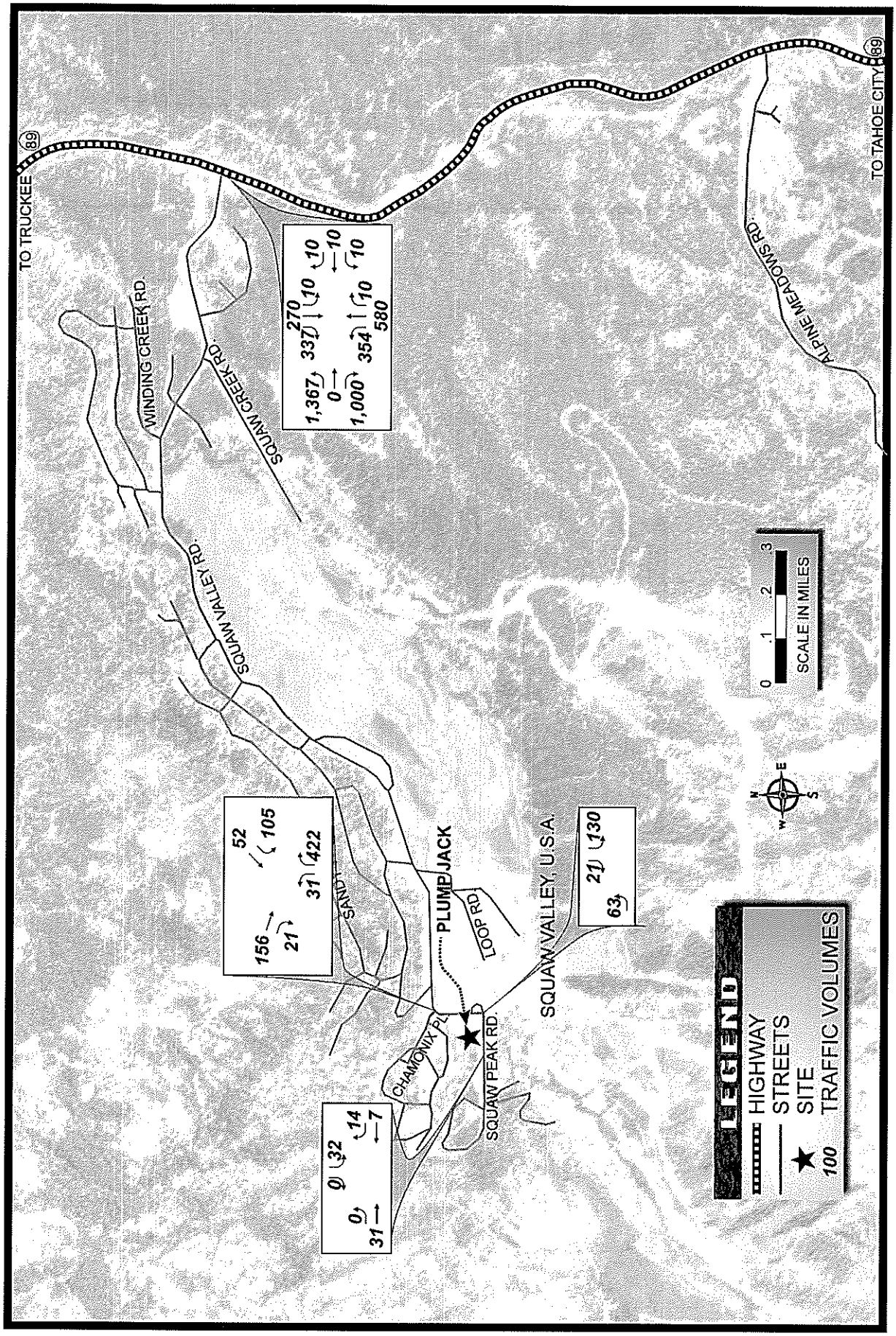
Level of Service analysis of cumulative plus project conditions indicate no change in LOS designations from cumulative conditions without the proposed project. Even with the addition of the project-generated traffic, improvements over existing conditions are expected at the study area intersections nearest the project site, as shown in Table 8, due to the shifting of traffic on Squaw Valley Road to Far East and Village East Roads (associated with the Village at Squaw Valley development). The following impacts should be noted:

- At the intersection Chamonix Place and Squaw Valley Road, the southbound movements improve from LOS F under existing conditions to LOS D under future cumulative plus project conditions.

- Although the intersection of SR 89 and Squaw Valley Road is expected to move from LOS C (existing conditions) to LOS E under future no-project cumulative conditions, no change in LOS designation is expected due to the addition of the proposed expansion to PlumpJack Squaw Valley Inn. The average delay per vehicle at the intersection is expected to increase by 1.8 seconds, or 3.2 percent. It should be noted that the proposed project would increase traffic at the Squaw Valley Road/State Route 89 intersection by 38 vehicles per hour during the peak hour. More importantly, the proposed project would increase critical movements at the Squaw Valley Road/State Route 89 intersection by 27 vehicles per hour in the eastbound direction. While this represents only 1.0 percent increase over background Year 2010 traffic volumes, this nominal increase will still contribute to *"peak period congestion and delay"* and the *"duration and number of occurrences of... traffic problems"* at the Squaw Valley Road/State Route 89 intersection. Since the proposed project would add traffic to the SR 89/

FIGURE 7

## YEAR 2010 PLUS PROJECT TRAFFIC VOLUMES

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Squaw Valley Road intersection, this exacerbation of delay could be considered a significant impact of the proposed project. This impact would occur approximately 40 hours per year on approximately 15 individual days when Squaw Valley Ski Area activity is at a maximum.

Additionally, during peak winter ski periods inadequate capacity on the northbound and southbound SR 89 departure legs of the intersection cause queuing along Squaw Valley Road. Therefore, any project generated traffic which is exiting Squaw Valley during P.M. peak demand periods on peak winter days would increase traffic congestion along Squaw Valley Road, as this traffic would be added to the existing traffic queue along Squaw Valley Road. Assuming an average roadway space per vehicle of 30 feet and that queuing conditions exist for one hour, it is estimated that the queue length would be extended an additional 810 feet as a result of the 27 additional vehicles that would be in the traffic queue.

**State Route 89 Roadway Segment Level of Service Impact**

The segment of State Route 89 south of the Squaw Valley entrance is analyzed during the winter P.M. peak hour, as shown in Table 9. Placer County's level of service standards for the State highway system indicates that LOS shall be no worse than those adopted in the Placer County Congestion Management Program (CMP), which require maintaining a Level of Service E or better on all arterials (unless operating at LOS F at the time of adoption of the first CMP, which is not the case in this instance), measured on a daily traffic basis. According to the Placer County General Plan Background Report, the maximum daily traffic volume per lane for a rural two-lane highway with level terrain operating at LOS E or better is 12,500. As shown, the segment of SR 89 north of Squaw Valley Road is not expected to meet Placer County LOS standards in future cumulative conditions (both with and without project).

During periods of peak exiting ski traffic, LOS F conditions presently occur on SR 89 both north of and south of Squaw Valley Road, created by traffic exiting Squaw Valley Road as well as through traffic on SR 89. For the last couple of years, Squaw Valley Ski Corporation has contracted with the California Highway Patrol to meter the eastbound right-turning traffic exiting the valley at peak times. The metering has improved the southbound highway movement through the SR 89/Squaw Valley Road intersection. However, the SR 89 through movements still operate at LOS F. As shown above in Table 8, requiring the eastbound right-turn movement to wait for a green phase reduces the level of service at the intersection.

## SIGNIFICANCE

Based upon the standards and impacts discussed above, the following conclusions can be drawn regarding the significance of transportation impact:

- Impact at the Squaw Valley Road/Squaw Peak Road intersection is *less than significant.*
- Impact at the Squaw Peak Road/Site Access Driveway is *less than significant.*
- Traffic conditions at the Squaw Valley Road/Chamonix Place intersection do not currently meet applicable standards during peak traffic periods; the proposed project would

**TABLE 9: Evaluation of SR 89 Roadway Level of Service**

| Scenario | Peak Hour Volumes: North-bound Volume | Peak Hour Volumes: South-bound Volume | Peak Hour Volumes: Total Two-Way Volume | Project Generated Impact on ADT (External) | Estimated ADT (1) | Capacity | LOS (2) | Meets LOS Standards (2) |
|---|---|---|---|---|---|---|---|---|
| SR 89 North of Squaw Valley Road | | | | | | | | |
| Existing | 1,470 | 390 | 1,860 | – | 20,268 | 25,000 | E | Yes |
| Existing Plus Project | 1,479 | 394 | 1,873 | 417 | 20,684 | 25,000 | E | Yes |
| Cumulative | 1,940 | 610 | 2,550 | – | 27,786 | 25,000 | F | No |
| Cumulative Plus Project | 1,949 | 614 | 2,563 | 417 | 28,203 | 25,000 | F | No |
| SR 89 South of Squaw Valley Road | | | | | | | | |
| Existing | 780 | 950 | 1,730 | – | 18,851 | 25,000 | E | Yes |
| Existing Plus Project | 782 | 956 | 1,738 | 417 | 19,268 | 25,000 | E | Yes |
| Cumulative | 940 | 1,270 | 2,210 | – | 24,081 | 25,000 | E | Yes |
| Cumulative Plus Project | 942 | 1,276 | 2,218 | 417 | 24,499 | 25,000 | E | Yes |

Note 1: Based on ratio of peak-hour to ADT (factor 10.9) from *1998 Caltrans Traffic Volumes on California State Highways.* Total project generated impact on ADT added to estimated background ADT.
Note 2: The standard for roadway segments is LOS E on all arterials based on the *Placer County Congestion Management Program.*

SR 89 Roadway Segment LOS Analysis.wb3

exacerbate these conditions. As the shift in skier traffic associated with the Village at Squaw Valley project will improve conditions to levels that attain applicable standards (both with and without the Squaw Valley Inn project), and as this shift can be expected to occur prior to completion of the proposed project, it can be concluded that this impact is *less than significant.*

- Impact at the Squaw Valley Road/SR 89 under existing conditions is *less than significant.* However, under 2010 cumulative conditions the proposed project will exacerbate conditions that exceed adopted standards (assuming that plans for metering eastbound right-turn traffic are implemented). This impact is considered *cumulatively significant.*

- The capacity of SR 89 both north of and south of Squaw Valley Road is currently exceeded by existing traffic levels during peak ski periods; these conditions are expected to further degrade with future traffic growth. Though the proposed project is forecast to increase 2010 PM peak-hour traffic volumes by only 0.9 percent in the northbound direction and 0.8 percent in the southbound direction, under the standards identified by both the *County General Plan* and the *Squaw Valley General Plan and Land Use Ordinance* impacts on SR 89 must be considered to be *significant.*

In light of the significance findings, measures should be taken to minimize the impact of the project. The project applicant shall take actions to reduce peak hour travel on Squaw Valley Road and SR 89. Specific actions that should be considered include, but are not limited to, the following:

- **Schedule Guest Activities that do not conflict with peak traffic demand periods.** This element of the program would schedule activities such as guest arrivals/departures and recreational trips outside of Squaw Valley to times other than the P.M. peak demand period. Additionally, providing an information/education program in conjunction with this measure that informs of the potential delays and congestion during peak traffic periods would also tend to discourage automobile trips during this period.

- **Provide Employee Shift Changes Outside of the Peak Hour Periods.** This element of the program would schedule employee shift begin and end times so as not to coincide with peak entering or exiting time periods at the Squaw Valley Ski Area during peak demand periods.

- **Provide Transit and Ridesharing Alternatives for Employees.** This could consist of promoting rideshare programs that match employees who could carpool with the same work shift times to make carpooling a more viable option. This could also consist of employer reimbursement of transit fares for any employees who use the TART system and Squaw Valley shuttles to access the work site.

- **Provide Transit Alternatives for Guests.** This could consist of providing promotional literature to guests regarding availability of public transit service, providing private shuttle services in Squaw Valley and the Lake Tahoe and Truckee areas and offering transit fare reimbursement to guests who use these services.

Implementation of these mitigation measures would reduce the magnitude of the impacts. However, an increase in exiting traffic during the PM peak-hour on peak ski days will remain. As there are no adopted plans or funding identified for roadway or intersection improvements that would increase the capacity of SR 89 or the SR 89/Squaw Valley Road intersection, there is no available measure that would reduce this impact to a less than significant level. The impacts identified above as significant would therefore remain *significant and unavoidable.*

**Parking**

The creation of an additional 89 striped parking spaces at the project site will provide adequate parking for the proposed project. An overall surplus of 9 parking spaces is expected.

**Site Access**

Current site plans (K.B. Foster Civil Engineering, Inc. dated December, 2000) show separate two-way entrances for the two parking areas. Each driveway is 25-feet in width and should provide adequate circulation. The proposed project driveway access to Squaw Peak Road would operate acceptably under existing plus project and cumulative plus project conditions.

**Traffic Impact Fees**

As mitigation for regional traffic impacts associated with the proposed project, the project proponents are required to pay the appropriate Placer County traffic impact fees as prescribed by the Placer County Road Network Traffic Limitation Zone and Traffic Fee Program (fee program is being updated in conjunction with the Capital Improvement Program for the Tahoe Resort Districts). The current traffic fee rate is $2,656 per DUE for the Tahoe Resort Benefit District. The estimated fee for the proposed project is calculated as follows:

Traffic Fee= 38 peak-hour trips x 5 miles per trip x $2,656 per DUE / 5.05 VMT per DUE
= $99,929.

As indicated, the current traffic fee is $99,929; however, the actual fee paid will be that in effect at the time payment occurs. This fee is payable prior to the issuance of any Building Permit on any portion of the project.

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*Highway Capacity Manual, Transportation Research Board, Special Report 209*, Federal Highways Administration, 1997.

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*Squaw Valley Inn Expansion Traffic and Parking Impact Analysis*, LSC Transportation Consultants, Inc., July 29, 1997.

*Traffic Volumes on California State Highways*, Caltrans, 1995 through 1999.

*Village at Squaw Valley USA Environmental Impact Report*, EIP Associates, April 1999.

# Appendix A

# Level of Service

The concept of *level of service* is defined as a qualitative measure describing operational conditions within a traffic stream, and the perception by motorists and/or passengers. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst.

**Level of Service Definitions**

In general, the various levels of service are defined as follows for uninterrupted flow facilities:

- *Level-of-service A* represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.

- *Level-of-service B* is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

- *Level-of-service C* is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

- *Level-of-service D* represents high-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

- *Level-of-service E* represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

- *Level-of-service F* is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level-of-service F is used to describe the operating conditions within the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow which causes the queue to form, and level-of-service F is an appropriate designation for such points.

# Appendix B

# Existing Conditions

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Existing
Project ID: PlumpJack Squaw Valley Inn Expansion LSC 007380
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 2001
N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 920 | 1 | 710 | 10 | 10 | 10 | 230 | 540 | 10 | 10 | 230 | 150 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | A | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | A | A | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 45.0 | 4.0 | | | | | 4.0 | 20.0 | 21.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 110.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 644 | 1583 | 0.83 | 0.41 | 38.0 | D | | |
| LT | 646 | 1588 | 0.68 | 0.41 | 29.7 | C | 24.1 | C |
| R | 1038 | 1417 | 0.72 | 0.73 | 10.8 | B | | |
| Westbound | | | | | | | | |
| LTR | 58 | 1597 | 0.57 | 0.04 | 65.1 | E | 65.1 | E |
| Northbound | | | | | | | | |
| L | 344 | 1583 | 0.70 | 0.22 | 46.4 | D | | |
| TR | 1293 | 3158 | 0.45 | 0.41 | 23.9 | C | 30.5 | C |
| Southbound | | | | | | | | |
| L | 57 | 1583 | 0.19 | 0.04 | 53.4 | D | | |
| T | 317 | 1667 | 0.76 | 0.19 | 53.0 | D | 34.7 | C |
| R | 1003 | 1417 | 0.16 | 0.71 | 5.4 | A | | |

Intersection Delay = 27.7 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: Existing
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 2001
Project ID: PlumpJack Squaw Valley Inn Expansion LSC 007380

East/West Street: Squaw Valley Road
North/South Street: SR 89

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Existing PM Peak Hour Metered
Project ID: 007380
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 2001

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 920 | 1 | 710 | 10 | 10 | 10 | 230 | 540 | 10 | 10 | 230 | 150 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 64.0 | 4.0 | | | | | 4.0 | 20.0 | 21.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 129.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 782 | 1583 | 0.65 | 0.49 | 26.3 | C | | |
| LT | 784 | 1587 | 0.53 | 0.49 | 23.2 | C | 44.7 | D |
| R | 700 | 1417 | 1.01 | 0.49 | 70.4 | E | | |
| Westbound | | | | | | | | |
| LTR | 49 | 1597 | 0.61 | 0.03 | 82.5 | F | 82.5 | F |
| Northbound | | | | | | | | |
| L | 293 | 1583 | 0.78 | 0.19 | 63.5 | E | | |
| TR | 1104 | 3158 | 0.50 | 0.35 | 33.6 | C | 42.4 | D |
| Southbound | | | | | | | | |
| L | 49 | 1583 | 0.20 | 0.03 | 63.3 | E | | |
| T | 270 | 1667 | 0.85 | 0.16 | 74.9 | E | 47.6 | D |
| R | 1064 | 1417 | 0.14 | 0.75 | 4.6 | A | | |

Intersection Delay = 44.9 (sec/veh) Intersection LOS = D

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: Existing PM Peak Hour Metered
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 2001
Project ID: 007380

East/West Street: Squaw Valley Road
North/South Street: SR 89

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Road/Chamonix Pl. |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007830 |
| Analysis Time Period | Exist PM Peak Hour | Project ID | |

| | |
|---|---|
| East/West Street: Squaw Valley Road | North/South Street: Chamonix |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 22 | 0 | 625 | 233 | 42 | 0 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 |
| Hourly Flow Rate, HFR | 23 | 0 | 657 | 245 | 44 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration | LTR | | | L | T | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 0 | 150 | 18 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 0 | 157 | 18 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | | TR |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | L | | | | | | TR |
| v (vph) | 23 | 245 | | | | | | 175 |
| C (m) (vph) | 1577 | 940 | | | | | | 141 |
| v/c | 0.01 | 0.26 | | | | | | 1.24 |
| 95% queue length | 0.04 | 1.04 | | | | | | 10.50 |
| Control Delay | 7.3 | 10.2 | | | | | | 215.9 |
| LOS | A | B | | | | | | F |
| Approach Delay | -- | -- | | | | 215.9 | | |
| Approach LOS | -- | -- | | | | F | | |

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# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Rd/Squaw Peak Rd |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007380 |
| Analysis Time Period | Exist PM Peak Hour | | |

| | |
|---|---|
| Project Description | PlumpJack |
| East/West Street: Squaw Peak Road | North/South Street: Squaw Valley Road |
| Intersection Orientation: North-South | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 397 | 0 | 0 | 166 | 10 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 417 | 0 | 0 | 174 | 10 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 30 | 0 | 5 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 31 | 0 | 5 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (vph) | 0 | | | | | | 36 | |
| C (m) (vph) | 1403 | | | | | | 502 | |
| v/c | 0.00 | | | | | | 0.07 | |
| 95% queue length | 0.00 | | | | | | 0.23 | |
| Control Delay | 7.6 | | | | | | 12.7 | |
| LOS | A | | | | | | B | |
| Approach Delay | -- | -- | | | | 12.7 | | |
| Approach LOS | -- | -- | | | | B | | |

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Version 4.1d

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Peak Rd/Plumpjacks |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007380 |
| Analysis Time Period | Exist PM Peak Hour | Project ID | |

| | |
|---|---|
| East/West Street: Squaw Peak Road | North/South Street: Site Access |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 30 | 0 | 0 | 7 | 3 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 31 | 0 | 0 | 7 | 3 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 5 | 0 | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 5 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration | | | | L | | R |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | L | | R |
| v (vph) | 0 | | | | | 5 | | 0 |
| C (m) (vph) | 1623 | | | | | 978 | | 1080 |
| v/c | 0.00 | | | | | 0.01 | | 0.00 |
| 95% queue length | 0.00 | | | | | 0.02 | | 0.00 |
| Control Delay | 7.2 | | | | | 8.7 | | 8.3 |
| LOS | A | | | | | A | | A |
| Approach Delay | -- | -- | | | | 8.7 | | |
| Approach LOS | -- | -- | | | | A | | |

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# Existing Plus Project

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Existing Plus Project
Project ID:
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 007380

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 937 | 1 | 720 | 10 | 10 | 10 | 234 | 540 | 10 | 10 | 230 | 157 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | A | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | A | A | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 45.0 | 4.0 | | | | | 4.0 | 20.0 | 21.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 110.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 644 | 1583 | 0.84 | 0.41 | 39.4 | D | | |
| LT | 646 | 1588 | 0.69 | 0.41 | 30.1 | C | 24.8 | C |
| R | 1038 | 1417 | 0.73 | 0.73 | 11.2 | B | | |
| Westbound | | | | | | | | |
| LTR | 58 | 1597 | 0.57 | 0.04 | 65.1 | E | 65.1 | E |
| Northbound | | | | | | | | |
| L | 344 | 1583 | 0.72 | 0.22 | 47.1 | D | | |
| TR | 1293 | 3158 | 0.45 | 0.41 | 23.9 | C | 30.8 | C |
| Southbound | | | | | | | | |
| L | 57 | 1583 | 0.19 | 0.04 | 53.4 | D | | |
| T | 317 | 1667 | 0.76 | 0.19 | 53.0 | D | 34.2 | C |
| R | 1003 | 1417 | 0.16 | 0.71 | 5.4 | A | | |

Intersection Delay = 28.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: Existing Plus Project
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 007380
Project ID:

East/West Street: Squaw Valley Road
North/South Street: SR 89

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Existing Plus Project Metered
Project ID:
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 007380

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 937 | 1 | 720 | 10 | 10 | 10 | 234 | 540 | 10 | 10 | 230 | 157 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 64.0 | 4.0 | | | | | 4.0 | 20.0 | 21.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 129.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 782 | 1583 | 0.69 | 0.49 | 27.9 | C | | |
| LT | 784 | 1588 | 0.57 | 0.49 | 24.0 | C | 54.5 | D |
| R | 700 | 1417 | 1.08 | 0.49 | 91.5 | F | | |
| Westbound | | | | | | | | |
| LTR | 49 | 1597 | 0.67 | 0.03 | 92.9 | F | 92.9 | F |
| Northbound | | | | | | | | |
| L | 293 | 1583 | 0.84 | 0.19 | 70.0 | E | | |
| TR | 1104 | 3158 | 0.52 | 0.35 | 34.0 | C | 44.8 | D |
| Southbound | | | | | | | | |
| L | 49 | 1583 | 0.22 | 0.03 | 63.6 | E | | |
| T | 270 | 1667 | 0.90 | 0.16 | 82.8 | F | 51.4 | D |
| R | 1064 | 1417 | 0.16 | 0.75 | 4.6 | A | | |

Intersection Delay = 51.8 (sec/veh) Intersection LOS = D

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OPERATIONAL ANALYSIS

| | |
|---|---|
| Analyst: | HS |
| Agency/Co.: | LSC Transportation Consultants |
| Date Performed: | 7/3/01 |
| Analysis Time Period: | Existing Plus Project Metered |
| Intersection: | SR 89/Squaw Valley Road |
| Area Type: | All other areas |
| Jurisdiction: | Placer County |
| Analysis Year: | 007380 |
| Project ID: | |

| East/West Street | North/South Street |
|---|---|
| Squaw Valley Road | SR 89 |

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Road/Chamonix Pl. |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | Placer County |
| Date Performed | 7/3/01 | Analysis Year | 007830 |
| Analysis Time Period | Exist + Project | Project ID | PlumpJacks |

| | |
|---|---|
| East/West Street: Squaw Valley Road | North/South Street: Chamonix |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 22 | 0 | 652 | 244 | 42 | 0 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 |
| Hourly Flow Rate, HFR | 23 | 0 | 686 | 256 | 44 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration | LTR | | | L | T | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 0 | 150 | 18 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 0 | 157 | 18 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | | TR |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | L | | | | | | TR |
| v (vph) | 23 | 256 | | | | | | 175 |
| C (m) (vph) | 1577 | 917 | | | | | | 128 |
| v/c | 0.01 | 0.28 | | | | | | 1.37 |
| 95% queue length | 0.04 | 1.15 | | | | | | 11.55 |
| Control Delay | 7.3 | 10.4 | | | | | | 271.1 |
| LOS | A | B | | | | | | F |
| Approach Delay | -- | -- | | | | 271.1 | | |
| Approach LOS | -- | -- | | | | F | | |

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# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Rd/Squaw Peak Rd |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007380 |
| Analysis Time Period | Exist + Project | | |

Project Description

| | |
|---|---|
| East/West Street: Squaw Peak Road | North/South Street: Squaw Valley Road |
| Intersection Orientation: North-South | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 397 | 0 | 0 | 166 | 21 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 417 | 0 | 0 | 174 | 22 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 57 | 0 | 5 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 60 | 0 | 5 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (vph) | 0 | | | | | | 65 | |
| C (m) (vph) | 1389 | | | | | | 483 | |
| v/c | 0.00 | | | | | | 0.13 | |
| 95% queue length | 0.00 | | | | | | 0.46 | |
| Control Delay | 7.6 | | | | | | 13.6 | |
| LOS | A | | | | | | B | |
| Approach Delay | -- | -- | | | | 13.6 | | |
| Approach LOS | -- | -- | | | | B | | |

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Version 4.1d

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Peak Rd/Plumpjacks |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 5/31/01 | Analysis Year | 007380 |
| Analysis Time Period | Exist + Project | Project ID | PlumpJack |

| | |
|---|---|
| East/West Street: Squaw Peak Road | North/South Street: Site Access |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 30 | 0 | 0 | 7 | 14 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 31 | 0 | 0 | 7 | 14 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 32 | 0 | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 33 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration | | | | L | | R |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | L | | R |
| v (vph) | 0 | | | | | 33 | | 0 |
| C (m) (vph) | 1608 | | | | | 970 | | 1072 |
| v/c | 0.00 | | | | | 0.03 | | 0.00 |
| 95% queue length | 0.00 | | | | | 0.11 | | 0.00 |
| Control Delay | 7.2 | | | | | 8.8 | | 8.4 |
| LOS | A | | | | | A | | A |
| Approach Delay | -- | -- | | | | 8.8 | | |
| Approach LOS | -- | -- | | | | A | | |

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# Future Cumulative Year 2010

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Cumulative 2010 Background PM
Project ID: 007380 PlumpJack Squaw Valley Inn Expansion
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 2010
N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 1350 | 1 | 990 | 10 | 10 | 10 | 350 | 580 | 10 | 10 | 270 | 330 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | A | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | A | A | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 56.0 | 4.0 | | | | | 4.0 | 20.0 | 17.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 117.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 754 | 1583 | 1.04 | 0.48 | 73.6 | E | | |
| LT | 756 | 1587 | 0.85 | 0.48 | 35.9 | D | 43.4 | D |
| R | 1109 | 1417 | 0.94 | 0.78 | 25.3 | C | | |
| Westbound | | | | | | | | |
| LTR | 54 | 1597 | 0.61 | 0.03 | 74.7 | E | 74.7 | E |
| Northbound | | | | | | | | |
| L | 323 | 1583 | 1.14 | 0.20 | 140.1 | F | | |
| TR | 1109 | 3158 | 0.56 | 0.35 | 31.5 | C | 71.9 | E |
| Southbound | | | | | | | | |
| L | 54 | 1583 | 0.20 | 0.03 | 57.1 | E | | |
| T | 241 | 1667 | 1.18 | 0.14 | 165.1 | F | 77.3 | E |
| R | 1028 | 1417 | 0.34 | 0.73 | 6.1 | A | | |

Intersection Delay = 55.7 (sec/veh) Intersection LOS = E

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: Cumulative 2010 Background PM
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 2010
Project ID: 007380 PlumpJack Squaw Valley Inn Expansion

East/West Street: Squaw Valley Road
North/South Street: SR 89

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: 2010 Cumulative Metered EBR
Project ID: 007380
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 2010

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 1350 | 1 | 990 | 10 | 10 | 10 | 350 | 580 | 10 | 10 | 270 | 330 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 65.0 | 4.0 | | | | | 4.0 | 20.0 | 17.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 126.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 813 | 1583 | 0.91 | 0.51 | 43.0 | D | | |
| LT | 815 | 1587 | 0.75 | 0.51 | 28.1 | C | 106.2 | F |
| R | 728 | 1417 | 1.36 | 0.51 | 201.6 | F | | |
| Westbound | | | | | | | | |
| LTR | 50 | 1597 | 0.60 | 0.03 | 78.9 | E | 78.9 | E |
| Northbound | | | | | | | | |
| L | 300 | 1583 | 1.17 | 0.19 | 156.3 | F | | |
| TR | 1031 | 3159 | 0.57 | 0.33 | 36.1 | D | 80.9 | F |
| Southbound | | | | | | | | |
| L | 50 | 1583 | 0.20 | 0.03 | 61.7 | E | | |
| T | 224 | 1667 | 1.21 | 0.13 | 181.6 | F | 84.4 | F |
| R | 1055 | 1417 | 0.31 | 0.74 | 5.5 | A | | |

Intersection Delay = 96.5 (sec/veh) Intersection LOS = F

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: 2010 Cumulative Metered EBR
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 2010
Project ID: 007380

East/West Street: Squaw Valley Road
North/South Street: SR 89

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | HS |
| Agency/Co. | LSC Transportation Consultants |
| Date Performed | 7/3/01 |
| Analysis Time Period | 2010 Background PM Peak Hour |

## Site Information

| | |
|---|---|
| Intersection | Squaw Valley Road/Chamonix Pl. |
| Jurisdiction | |
| Analysis Year | 007830 |
| Project ID | PlumpJack |

| | |
|---|---|
| East/West Street: Squaw Valley Road | North/South Street: Chamonix |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 31 | 0 | 395 | 94 | 52 | 0 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 |
| Hourly Flow Rate, HFR | 32 | 0 | 415 | 98 | 54 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration | LTR | | | L | T | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 0 | 156 | 21 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 0 | 164 | 22 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | | TR |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | L | | | | | | TR |
| v (vph) | 32 | 98 | | | | | | 186 |
| C (m) (vph) | 1564 | 1155 | | | | | | 341 |
| v/c | 0.02 | 0.08 | | | | | | 0.55 |
| 95% queue length | 0.06 | 0.28 | | | | | | 3.10 |
| Control Delay | 7.3 | 8.4 | | | | | | 27.5 |
| LOS | A | A | | | | | | D |
| Approach Delay | -- | -- | | | | 27.5 | | |
| Approach LOS | -- | -- | | | | D | | |

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Rd/Squaw Peak Rd |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007380 |
| Analysis Time Period | 2010 Background PM Peak Hour | | |

Project Description

| | |
|---|---|
| East/West Street: Squaw Peak Road | North/South Street: Squaw Valley Road |
| Intersection Orientation: North-South | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 130 | 0 | 10 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 130 | 0 | 10 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 36 | 0 | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 37 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LTR | | | | | LR | |
| v (vph) | | 130 | | | | | 37 | |
| C (m) (vph) | | 1636 | | | | | 670 | |
| v/c | | 0.08 | | | | | 0.06 | |
| 95% queue length | | 0.26 | | | | | 0.17 | |
| Control Delay | | 7.4 | | | | | 10.7 | |
| LOS | | A | | | | | B | |
| Approach Delay | -- | -- | | | | 10.7 | | |
| Approach LOS | -- | -- | | | | B | | |


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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | HS |
| Agency/Co. | LSC Transportation Consultants |
| Date Performed | 7/3/01 |
| Analysis Time Period | 2010 Background PM Peak Hour |

## Site Information

| | |
|---|---|
| Intersection | Squaw Peak Rd/Plumpjacks |
| Jurisdiction | |
| Analysis Year | 007380 |
| Project ID | |

East/West Street: *Squaw Peak Road*

North/South Street: *Site Access*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 31 | 0 | 0 | 7 | 3 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 32 | 0 | 0 | 7 | 3 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 5 | 0 | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 5 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration | | | | L | | R |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | L | | R |
| v (vph) | 0 | | | | | 5 | | 0 |
| C (m) (vph) | 1623 | | | | | 977 | | 1080 |
| v/c | 0.00 | | | | | 0.01 | | 0.00 |
| 95% queue length | 0.00 | | | | | 0.02 | | 0.00 |
| Control Delay | 7.2 | | | | | 8.7 | | 8.3 |
| LOS | A | | | | | A | | A |
| Approach Delay | -- | -- | | | | 8.7 | | |
| Approach LOS | -- | -- | | | | A | | |

# Year 2010 Plus Project

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Cumulative Plus Project
Project ID:
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 007380

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 1367 | 1 | 1000 | 10 | 10 | 10 | 354 | 580 | 10 | 10 | 270 | 337 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | A | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | A | A | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 56.0 | 4.0 | | | | | 4.0 | 20.0 | 17.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 117.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 754 | 1583 | 1.05 | 0.48 | 77.2 | E | | |
| LT | 756 | 1587 | 0.86 | 0.48 | 37.0 | D | 45.6 | D |
| R | 1109 | 1417 | 0.95 | 0.78 | 27.2 | C | | |
| Westbound | | | | | | | | |
| LTR | 54 | 1597 | 0.61 | 0.03 | 74.7 | E | 74.7 | E |
| Northbound | | | | | | | | |
| L | 323 | 1583 | 1.15 | 0.20 | 145.7 | F | | |
| TR | 1109 | 3158 | 0.56 | 0.35 | 31.5 | C | 74.3 | E |
| Southbound | | | | | | | | |
| L | 54 | 1583 | 0.20 | 0.03 | 57.1 | E | | |
| T | 241 | 1667 | 1.18 | 0.14 | 165.1 | F | 76.4 | E |
| R | 1028 | 1417 | 0.35 | 0.73 | 6.1 | A | | |

Intersection Delay = 57.5 (sec/veh) Intersection LOS = E

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OPERATIONAL ANALYSIS

Analyst: HS
Agency/Co.: LSC Transportation Consultants
Date Performed: 7/3/01
Analysis Time Period: Cumulative Plus Project
Intersection: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisdiction: Placer County
Analysis Year: 007380
Project ID:

| East/West Street | North/South Street |
|---|---|
| Squaw Valley Road | SR 89 |

# HCS2000: Signalized Intersections Release 4.1

Analyst: HS
Agency: LSC Transportation Consultants
Date: 7/3/01
Period: Cumulative Plus Project Meterd
Project ID:
E/W St: Squaw Valley Road

Inter.: SR 89/Squaw Valley Road
Area Type: All other areas
Jurisd: Placer County
Year : 007380

N/S St: SR 89

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 1 | 1 |
| LGConfig | L | LT | R | | LTR | | L | TR | | L | T | R |
| Volume | 1367 | 1 | 1000 | 10 | 10 | 10 | 354 | 580 | 10 | 10 | 270 | 337 |
| Lane Width | 12.0 | 12.0 | 12.0 | | 12.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: All other areas

## Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | A | | | | NB | Left | A | A | | |
| | Thru | A | | | | | Thru | | A | A | |
| | Right | A | | | | | Right | | A | A | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | A | | | SB | Left | A | | | |
| | Thru | | A | | | | Thru | | | A | |
| | Right | | A | | | | Right | | | A | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | A | A | | | WB | Right | | | | |
| Green | | 64.0 | 4.0 | | | | | 4.0 | 20.0 | 17.0 | |
| Yellow | | 3.0 | 3.0 | | | | | 0.0 | 3.3 | 3.3 | |
| All Red | | 1.0 | 1.0 | | | | | 0.0 | 1.0 | 1.0 | |

Cycle Length: 125.6 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| L | 807 | 1583 | 0.98 | 0.51 | 56.9 | E | | |
| LT | 809 | 1587 | 0.80 | 0.51 | 31.4 | C | 129.6 | F |
| R | 722 | 1417 | 1.46 | 0.51 | 244.7 | F | | |
| Westbound | | | | | | | | |
| LTR | 51 | 1597 | 0.65 | 0.03 | 85.2 | F | 85.2 | F |
| Northbound | | | | | | | | |
| L | 302 | 1583 | 1.24 | 0.19 | 181.9 | F | | |
| TR | 1038 | 3158 | 0.60 | 0.33 | 36.2 | D | 90.8 | F |
| Southbound | | | | | | | | |
| L | 50 | 1583 | 0.22 | 0.03 | 61.5 | E | | |
| T | 226 | 1667 | 1.26 | 0.14 | 200.6 | F | 91.8 | F |
| R | 1053 | 1417 | 0.34 | 0.74 | 5.7 | A | | |

Intersection Delay = 114.1 (sec/veh) Intersection LOS = F

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E-Mail: info@lsctahoe.com

OPERATIONAL ANALYSIS

| | |
|---|---|
| Analyst: | HS |
| Agency/Co.: | LSC Transportation Consultants |
| Date Performed: | 7/3/01 |
| Analysis Time Period: | Cumulative Plus Project Meterd |
| Intersection: | SR 89/Squaw Valley Road |
| Area Type: | All other areas |
| Jurisdiction: | Placer County |
| Analysis Year: | 007380 |
| Project ID: | |

| East/West Street | North/South Street |
|---|---|
| Squaw Valley Road | SR 89 |

# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Valley Road/Chamonix Pl. |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | |
| Date Performed | 7/3/01 | Analysis Year | 007830 |
| Analysis Time Period | 2010 + Project | Project ID | PlumpJack |

| | |
|---|---|
| East/West Street: Squaw Valley Road | North/South Street: Chamonix |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 31 | 0 | 422 | 105 | 52 | 0 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 |
| Hourly Flow Rate, HFR | 32 | 0 | 444 | 110 | 54 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration | LTR | | | L | T | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 0 | 156 | 21 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 0 | 164 | 22 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | | | | TR |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | L | | | | | | TR |
| v (vph) | 32 | 110 | | | | | | 186 |
| C (m) (vph) | 1564 | 1127 | | | | | | 315 |
| v/c | 0.02 | 0.10 | | | | | | 0.59 |
| 95% queue length | 0.06 | 0.32 | | | | | | 3.55 |
| Control Delay | 7.3 | 8.5 | | | | | | 31.6 |
| LOS | A | A | | | | | | D |
| Approach Delay | -- | -- | | | | 31.6 | | |
| Approach LOS | -- | -- | | | | D | | |

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# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *HS* | Intersection | *Squaw Valley Rd/Squaw Peak Rd* |
| Agency/Co. | *LSC Transportation Consultants* | Jurisdiction | |
| Date Performed | *7/3/01* | Analysis Year | *007380* |
| Analysis Time Period | *2010 + Project* | | |

| | |
|---|---|
| Project Description *PlumpJack* | |
| East/West Street: *Squaw Peak Road* | North/South Street: *Squaw Valley Road* |
| Intersection Orientation: *North-South* | Study Period (hrs): *0.25* |

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | *0* | *0* | *0* | *130* | *0* | *21* |
| Peak-Hour Factor, PHF | *0.95* | *0.95* | *1.00* | *0.95* | *0.95* | *0.95* |
| Hourly Flow Rate, HFR | *0* | *0* | *0* | *136* | *0* | *22* |
| Percent Heavy Vehicles | *0* | -- | -- | *0* | -- | -- |
| Median Type | *Undivided* | | | | | |
| RT Channelized | | | *0* | | | *0* |
| Lanes | *0* | *0* | *0* | *0* | *1* | *0* |
| Configuration | | | | *LTR* | | |
| Upstream Signal | | *0* | | | *0* | |

| Minor Street | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | *0* | *0* | *0* | *63* | *0* | *0* |
| Peak-Hour Factor, PHF | *1.00* | *1.00* | *1.00* | *0.95* | *1.00* | *0.95* |
| Hourly Flow Rate, HFR | *0* | *0* | *0* | *66* | *0* | *0* |
| Percent Heavy Vehicles | *0* | *0* | *0* | *0* | *0* | *0* |
| Percent Grade (%) | | *0* | | | *0* | |
| Flared Approach | | *N* | | | *N* | |
| Storage | | *0* | | | *0* | |
| RT Channelized | | | *0* | | | *0* |
| Lanes | *0* | *0* | *0* | *0* | *0* | *0* |
| Configuration | | | | | *LR* | |

## Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | *LTR* | | | | | *LR* | |
| v (vph) | | *136* | | | | | *66* | |
| C (m) (vph) | | *1636* | | | | | *652* | |
| v/c | | *0.08* | | | | | *0.10* | |
| 95% queue length | | *0.27* | | | | | *0.34* | |
| Control Delay | | *7.4* | | | | | *11.1* | |
| LOS | | *A* | | | | | *B* | |
| Approach Delay | -- | -- | | | | *11.1* | | |
| Approach LOS | -- | -- | | | | *B* | | |

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# TWO-WAY STOP CONTROL SUMMARY

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | HS | Intersection | Squaw Peak Rd/Plumpjacks |
| Agency/Co. | LSC Transportation Consultants | Jurisdiction | Placer County |
| Date Performed | 7/3/01 | Analysis Year | 007380 |
| Analysis Time Period | 2010 + Project | Project ID | PlumpJack |

| | |
|---|---|
| East/West Street: Squaw Peak Road | North/South Street: Site Access |
| Intersection Orientation: East-West | Study Period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 0 | 31 | 0 | 0 | 7 | 14 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 32 | 0 | 0 | 7 | 14 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 0 | 0 | 0 | 32 | 0 | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| Hourly Flow Rate, HFR | 0 | 0 | 0 | 33 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration | | | | L | | R |

## Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | L | | R |
| v (vph) | 0 | | | | | 33 | | 0 |
| C (m) (vph) | 1608 | | | | | 969 | | 1072 |
| v/c | 0.00 | | | | | 0.03 | | 0.00 |
| 95% queue length | 0.00 | | | | | 0.11 | | 0.00 |
| Control Delay | 7.2 | | | | | 8.8 | | 8.4 |
| LOS | A | | | | | A | | A |
| Approach Delay | -- | -- | | | | 8.8 | | |
| Approach LOS | -- | -- | | | | A | | |

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