

# TRAFFIC IMPACT ANALYSIS

FOR

## 4588 BARTON ROAD SUBDIVISION

Rocklin, California

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**INTRODUCTION**

This report documents **KD Anderson & Associates'** analysis of the traffic impacts associated with developing the **4588 Barton Road Subdivision** project in the City of Rocklin, California. This assessment of traffic impacts has been required by the City of Rocklin, and per City staff direction addresses project impacts within the context of all transportation modes. The analysis addresses both current and future background conditions at key intersections providing access to the site and assesses traffic impacts based on adopted General Plan standards for significance. The analysis also describes the project's impact to pedestrian, bicycle and transit facilities.

**Project Description**

The 4588 Barton Road Subdivision project is a single family residential development that will be located in eastern Rocklin near the I-80 / Sierra College Blvd interchange, as noted in Figure 1 (vicinity Map). The 25.5 acre site is currently zoned PD-2.5 and designated Low Density Residential in the Rocklin General Plan. The proposed project would create 63 single family residential lots.

The site lies immediately west of Barton Road, but regular access to that road is not proposed. As shown in Figure 2 access to the project is via Lakepointe Drive, a local street that connects to Sierra College Blvd via Schriber Way and Bass Pro Drive.





## **EXISTING SETTING**

This report section describes the facilities that are available today serving vehicular, pedestrian and bicycle traffic and transit users in Rocklin, as well as General Plan policies that guide consideration of traffic impacts.

### **Study Area Circulation System - Roads**

Regionally, the 4588 Barton Road Subdivision will be served by major city streets that link the site with important state highways. Interstate 80 (I-80) connects Rocklin with the balance of Placer County and the Sacramento Metropolitan area. In the area of the proposed project, access to state highways occurs at a grade separated interchange on Sierra College Blvd directly north of the project. Community-wide circulation is provided via Sierra College Blvd, which extends north to Taylor Road & Pacific Street and south from its interchange on I-80 to Rocklin Road and the City of Roseville.

The text which follows provides additional detail regarding the streets included in the study area.

**Interstate 80 (I-80)** is the main east-west transportation corridor across western Placer County and the Sacramento Metropolitan area. In the area of the project I-80 is a six lane freeway. The most recent daily traffic volume information published by Caltrans indicates that in 2014 I-80 carried an *Annual Average Daily Traffic (AADT)* volume of 96,000 vehicles per day west of the Sierra College Blvd interchange and 94,000 east of the interchange. Trucks comprise 7% of the daily traffic on this portion of I-80.

**Sierra College Boulevard** is a major north-south Arterial connecting Placer County with Sacramento County. The roadway intersects with Rocklin Road, I-80, and Pacific Street/Taylor Road and continues north to State Route 193 near Lincoln. To the south, the roadway extends through Roseville to the Sacramento County line. In Sacramento County, it becomes Hazel Avenue and continues south to U.S. 50. Sierra College Blvd is a four-lane or six-lane roadway in the area of the project, with plans for eventual widening to six lanes south of Interstate 80 under a program administered by the South Placer Regional Transportation Authority (SPRTA). The speed limit on Sierra College Blvd is 50 mph in the area of the project and 40 mph over Interstate 80.

**Rocklin Road** is an east- west arterial street that originates near Pacific Street and extends east across I-80 to Sierra College Blvd into the Town of Loomis and to its eastern terminus on Barton Road. Rocklin Road is a four lane facility through and west of Sierra College Blvd and narrows to two lanes through Loomis.

**Schriber Way** is a two-lane commercial street that provides access to the south end of Rocklin Commons Shopping Center and extends east from Sierra College Blvd to provide access to two existing subdivisions and additional planned residential development, including the proposed project.

**Dominguez Road / Bass Pro Drive** is an east-west road that links Sierra College Blvd with the Rocklin Crossings development to the east and extends west to provide access to Lifehouse Baptist Church. Across Interstate 80, Dominguez Road connects Granite Drive with Pacific Street. The Rocklin General Plan designates Dominguez Road as a Collector street and notes that eventually the road will be extended across Interstate 80 to its current terminus on Granite Drive. In the area of the proposed project Dominguez Road is 62 feet wide (curb to curb) four lane road.

**Granite Drive** is a four lane east-west street that runs parallel to Interstate 80 through Rocklin and links Rocklin Road in the west with Sierra College Blvd in the east. The Rocklin General Plan Circulation Element classifies Granite Drive as an Arterial street. Granite Drive is configured with a continuous two-way left turn lane or raised median with left turn lanes. On-street parking is not permitted, and the speed limit on Granite Drive is posted at 40 mph from Sierra College Blvd to Sierra Meadows Drive and 30 mph from Sierra Meadows Drive to Rocklin Road.

### **Study Area Circulation System - Intersections**

The quality of traffic flow in urban areas is often governed by the operation of key intersections. The following seven (7) intersections have been identified for evaluation in this study in consultation with City of Rocklin staff.

The **Sierra College Blvd / Granite Drive intersection** is controlled by a traffic signal. The intersection has been widened to accommodate future development. Today the northbound and southbound Sierra College Blvd approaches have two through lanes and separate left turn and right turn lanes. The westbound Granite Drive approach provides three lanes that are striped as separate left turn, through, and right turn lanes. The eastbound Granite Drive approach provides four lanes that are striped as separate left turn, through, and dual right turn lanes. Crosswalks are striped across each leg of the intersection.

The **Sierra College Blvd / Westbound I-80 ramps / Rocklin Commons Drive intersection** is controlled by a traffic signal and the intersection has several auxiliary lanes. The westbound off-ramp approach features dual left turns, a combined through+right turn lane and a separate right turn lane. The two-lane eastbound exit from Rocklin Commons is striped as separate left and right turn lanes. There are three through lanes on each Sierra College Blvd approach. The northbound approach also has a separate left turn lane and a free right turn lane onto westbound I-80. The southbound approach has an auxiliary right turn lane into Rocklin Commons, and the #3 through lane continues onto the westbound I-80 on-ramp. Crosswalks are striped across the north, west and east legs of the intersection.

The **Sierra College Blvd / Eastbound I-80 ramps / Rocklin Crossings Drive intersection** is also controlled by a traffic signal. The eastbound I-80 off-ramp has five approach lanes configured as dual left turns, two through lanes and right turn lane. The three lane westbound exit from Rocklin Crossings has a separate left turn lane, a right turn lane onto northbound Sierra

College Blvd and a “free” right turn lane onto eastbound I-80 that does not pass through the traffic signal. The five-lane northbound Sierra College Blvd approach is configured as three through lanes that continue over I-80, a through lane that continues onto the eastbound on-ramp and a separate right turn lane into Rocklin Crossings. The five-lane southbound Sierra College Blvd approach has dual left turns into Rocklin Crossings, two through lanes and a free right turn lane onto eastbound I-80. Crosswalks are striped on the south, east and west legs of the intersection.

The **Sierra College Blvd / Schriber Way intersection** is a “tee” controlled by a stop sign on the westbound Schriber Way approach. The four lane northbound Sierra College Blvd approach is striped as three through lanes and a combined through+right turn lane. There are two southbound through lanes on Sierra College Blvd. Left turns are prohibited at the intersection, and this control is enforced by a striped median. The westbound Schriber Way approach is “right turns only”.

The **Sierra College Blvd / Dominguez Road / Bass Pro Drive intersection** is controlled by an actuated traffic signal. The northbound Sierra College Blvd approach has a left turn lane, three through lanes and a short right turn pocket. The southbound Sierra College Blvd approach has two through lanes and separate left turn and right turn lanes. The two-lane eastbound Dominguez Road approach has a separate left turn lane and a combined through+right turn lane. The four-lane Bass Pro Drive approach has dual left turn lanes, a through lane and a right turn lane. Crosswalks are striped across the north and east legs of the intersection.

The **Sierra College Blvd / Rocklin Road intersection** is controlled by a traffic signal. Today the northbound Sierra College Blvd approach has two through lanes and dual left turn lanes. The southbound approach has three through lanes and separate left turn and right turn lanes. The westbound Rocklin Road approaches provide a left turn lane, through lane and through+right turn lane. The eastbound approach also has a left turn lane, two through lanes and a separate right turn lane. Crosswalks are striped across the west and south legs of the intersection.

The **Granite Drive / Dominguez Road intersection** would provide a route to the project site when Dominguez Road is extended over I-80 in the future. Today this is a “tee” intersection controlled by a stop sign on the southbound Dominguez Road approach. Granite Drive has two through lanes in each direction and a separate eastbound left turn lane.

### **Standards of Significance: Levels of Service - Methodology**

Levels of Service were calculated at study area intersections in order to assess the quality of existing traffic conditions and to provide a basis for analyzing project impacts. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening operating conditions, is assigned to an intersection or roadway segment.

**Analysis Methodology for Intersections.** The City of Rocklin utilizes a modified version of the *Interim Materials on Highway Capacity – Circular 212* (Transportation Research Board, 1980) critical movement method to determine Levels of Service at signalized intersections. Modified capacities which are approximately 5 percent higher than the published Circular 212 capacities are employed. The City of Rocklin utilizes the same modified Saturation Flow rates as the City of Roseville (i.e., 1600 for 2 phases, 1500 for 3 phases and 1450 for 4 or more phases). This methodology determines the Level of Service by comparing the volume-to-capacity (v/c) ratio of critical intersection movements to the thresholds shown in Table 1.

Caltrans traffic study guidelines suggest an alternative approach for analysis of state facilities. The methodology described in the *2010 Highway Capacity Manual* (HCM) has been used to evaluate the operation of I-80 ramp intersections on Sierra College Blvd. Current Caltrans traffic signal timing plans have been employed to identify current Level of Service.

At un-signalized intersections HCM techniques base the Level of Service on the length of delays experienced by motorists waiting at stop signs. Delay values can be reported as an average value for the overall operation of the intersection in the case of all-way stop controls or for each movement where motorists are required to yield the right of way to other traffic, in the case of side street stops. The City of Rocklin bases evaluation of un-signalized LOS on the overall average delay.

Table 1 presents general characteristics associated with each Level of Service grade.

At intersections, Level of Service calculations can reflect average conditions occurring over the breadth of the hour or can be indicative of conditions occurring during the highest volume 15 minute period within that hour. The choice of perspective is made by local agencies as part of their development of standards of significance. Based on the methodology used for the General Plan EIR, this analysis addresses average conditions occurring over the breadth of the peak hour at intersections on Rocklin streets. Current peak hour factors are assumed for short term analysis of Caltrans intersections.

**TABLE 1  
LEVEL OF SERVICE DEFINITIONS**

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. V/C < 0.60 or Average Delay ≤ 10 sec/veh	Little or no delay. Average Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. V/C > 0.60 and ≤ 0.70 or Average Delay < 10 and ≤ 25 sec/veh	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. V/C > 0.70 and ≤ 0.80 or Average Delay < 25 and ≤ 35 sec/veh	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. V/C > 0.80 and ≤ 0.90 or Average Delay < 35 and ≤ 55 sec/veh	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). V/C > 0.90 and ≤ 1.00 or Average Delay < 55 and ≤ 80 sec/veh	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. V/C > 1.00 or Average Delay > 80 sec/veh	Intersection often blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: 2010 Highway Capacity Manual, and Transportation Research Board (TRB) Special Report 209.

**Traffic Signal Warrants.** The extent to which a traffic signal may be justified is determined based on many factors. From the standpoint of traffic impact analysis, signal warrant criteria contained in the *California Manual of Uniform Traffic Control Devices (CMUTCD)* are employed in order to assess the relative impact of the additional traffic accompanying a development proposal. For this analysis, Warrant 3 (Peak Hour Traffic) has been employed. Variation in warrant requirements occurs based on the design speed of the road (i.e., > 40 mph) and on the location of the intersection (i.e., rural versus urban locations). In this case, urban

criteria have been employed. It is important to note that other warrants addressing factors such as pedestrian activity and collision history should be considered before a decision is made to install a traffic signal.

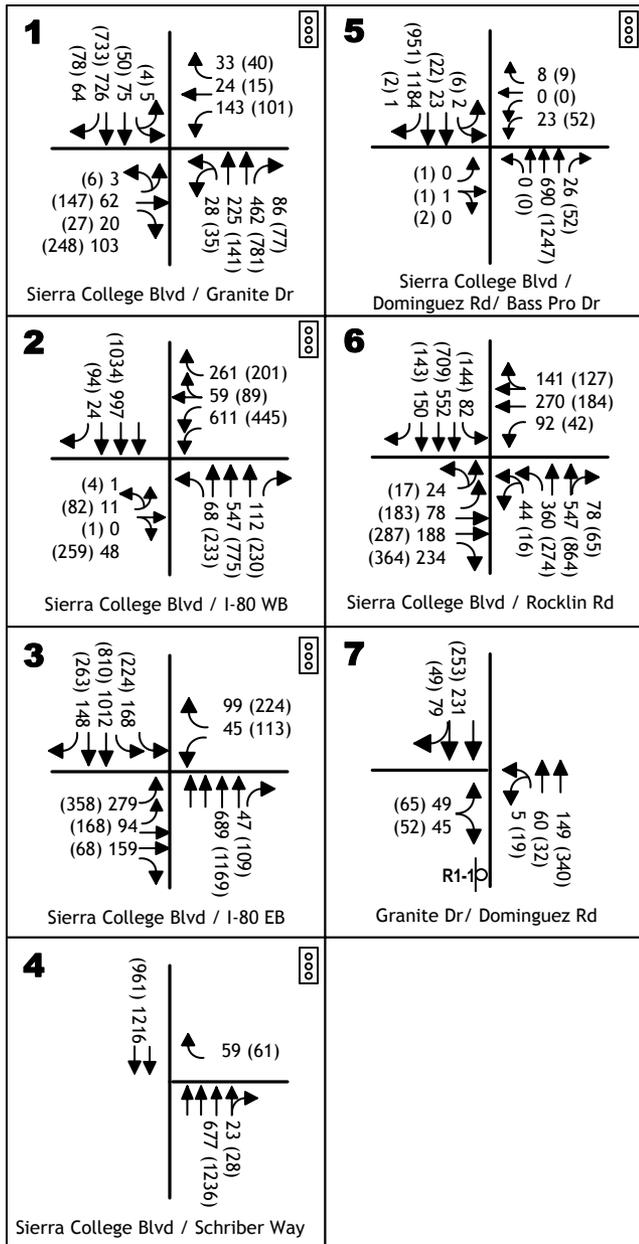
**Standards of Significance.** Local jurisdictions adopt Standards of Significance for determining environmental impacts relating to traffic, and in this study area the standards of the City of Rocklin apply. As indicated in the REGULATORY Setting section, the General Plan notes that Level of Service C is the minimum standard but a reduced Level of Service may be accepted during peak periods under identified circumstances.

Based on the City's significance threshold, if an intersection is already operating at an unsatisfactory Level of Service, an increase of 5 percent (i.e., an addition of 0.05) to the v/c ratio at a signalized intersection would be considered a measureable worsening of intersection operations and therefore would constitute a significant project impact. At signalized intersections evaluated based on the HCM, a 5 second increase in delay is deemed significant. If an unsignalized intersection is already operating at an unsatisfactory Level of Service (i.e., LOS D), then the addition of traffic exceeding more than 5% of the total traffic at an intersection would be a significant project impact.

### **Existing Traffic Volumes / Levels of Service**

**Traffic Volume Counts.** Peak hour intersection traffic counts were conducted for the City of Rocklin's pending Circulation Element Update in April 2016, and these traffic counts were employed for this study. The counts were conducted on a day when Rocklin schools were in session. Intersection turning movement counts were made at study intersections during the periods of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. The highest hourly traffic volume period within each two hour window was identified as the peak hour.

Figure 3 illustrates the intersection turning movement count data recorded for each count period. This figure also notes the existing geometric layout of each intersection and the location of traffic controls. This data has been used to determine the operating Level of Service at each intersection.



**Legend**

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊠ R1-1 Stop Sign
- ⊠ Signalized Intersection

EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

**Intersection Level of Service.** Table 2 identifies current intersection Levels of Service at the study locations. Signalized intersections under Caltrans jurisdiction are reported in terms of average delay, while signalized intersections on City streets are based on v/c ratio. As shown, the overall Level of Service at each location is LOS A, B or C, which meets the City’s LOS C goal.

**TABLE 2  
EXISTING INTERSECTION LEVEL OF SERVICE**

Intersection	Control	Time Period					
		AM Peak Hour (7:00 to 9:00 a.m.)			PM Peak Hour (4:00 to 6:00 p.m.)		
		LOS	Volume / Capacity	Average Delay (sec/veh)	LOS	Volume / Capacity	Average Delay (sec/veh)
Granite Drive / Dominguez Road (overall) Southbound left + right turn	SB Stop	(A)	-	(2.6)	(A)	-	(2.4)
		B		11.6	B		12.9
Sierra College Blvd / Granite Drive	Signal	A	0.594		B	0.615	
Sierra College Blvd / WB I-80 / Commons Dr	Signal	B	-	14.5	C	-	20.5
Sierra College Blvd/ EB I-80 / Crossings Dr	Signal	B	-	15.4	B	-	17.2
Sierra College Blvd / Schriber Way (overall) Westbound right turn	EB Stop	(A)	-	(0.3)	(A)	-	(0.3)
		A		9.7	B		10.9
Sierra College Blvd / Dominguez Rd / Bass Pro Drive	Signal	A	0.418	-	A	0.350	-
Sierra College Blvd / Rocklin Road	Signal	A	0.530		B	0.700	

**Bold** indicates conditions in excess of adopted minimum LOS standard

**Traffic Signal Warrants.** The peak hour traffic volumes at neither the Granite Drive / Dominguez Road nor the Sierra College Blvd / Schriber Way intersection satisfy MUTCD Warrant 3 (peak hour volume).

**Off ramp Queues.** The adequacy of Interstate 80 ramps has been evaluated based on comparison of peak period queue lengths and available storage. Where multiple lanes are available the reported queue is the total of both lanes. Available storage and 95<sup>th</sup> percentile queues were identified as a byproduct of Synchro LOS analysis, and the results are noted in Table 3. As shown, current peak period queues are accommodated by the existing storage lanes.

**TABLE 3  
EXISTING OFF RAMP QUEUES**

Intersection	Lane	Storage (feet)	Time Period			
			AM Peak Hour (7:00 to 9:00 a.m.)		PM Peak Hour (4:00 to 6:00 p.m.)	
			Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)
Westbound off ramp	Left (2)	950 (2)	611	410	445	350
	Through + right turn	725*	59	120	89	165
	Right turn	210	261	55	201	60
Eastbound off ramp	Left (2)	560**	279	160	358	300
	Through (2)	1,580**	94	90	168	200
	Right turn	210	59	50	68	40

(2) dual lanes  
 (\*) another 580 feet of off ramp exists prior to ramp gore  
 (\*\*\*) another 510 feet of ramp exists prior to ramp gore

**Mainline Interstate 80 Level of Service.** Conditions on mainline I-80 have been evaluated based on current Annual Average Daily Traffic (AADT) volumes and the Level of Service volume thresholds contained in the Rocklin General Plan EIR. As noted in Table 4, mainline I-80 operates at LOS D today. However, peak conditions occurring on Friday afternoons strain the capacity of the overall highway network, and bottlenecks created by the operation of downstream locations can create congestion and stop-and-go conditions through the study area.

**TABLE 4  
INTERSTATE 80 MAINLINE LEVEL OF SERVICE**

From	To	Lanes	Capacity (VPD)	Daily Volume (AADT)	V/C	Level of Service
Rocklin Road	Sierra College Blvd	6	108,000	96,000	0.889	D
Sierra College Blvd	Horseshoe Bar Road	6	108,000	94,000	0.870	D

**Transit Facilities**

**Bus Service.** Rocklin is generally served by four **Placer County Transit (PCT)** bus routes: the Auburn to Light Rail Express route, the Lincoln / Rocklin / Sierra College route, the Taylor Road shuttle, and the Placer Commuter Express. PCT is a fixed-route scheduled transit system

operated by Placer County. PCT principally serves the I-80 corridor area between Alta and Roseville, the State Route 65 corridor area into Lincoln, and the Highway 49 corridor. Some of the routes are “deviated.” A deviated route means that the buses generally travel on a main route (e.g., I-80) but can deviate from that route up to a certain distance (three-quarters of a mile in the case of PCT) to serve the specific needs of transit patrons.

There are currently 15 bus runs a day in each direction on PCT’s Auburn-Light Rail Express route between Auburn and Sacramento Regional Transit’s Watt/I-80 light rail station. This route provides service to Sierra College and the Roseville Galleria shopping center. It connects with Roseville Transit and RT buses at Auburn Boulevard near I-80.

PCT’s Lincoln / Rocklin / Sierra College route has 14 runs a day in each direction. This route has numerous stops within the City of Rocklin. The Taylor Road shuttle is a deviated route that connects Auburn and Sierra College with seven runs a day in each direction, although service frequency on this route may be increasing. Placer Commuter Express is a commuter bus service traveling from Rocklin Road and Bush Street in central Rocklin to downtown Sacramento with three morning and three afternoon trips.

In addition to regular bus service, PCT also provides paratransit services for patrons with more challenging transportation needs. Such services include a dial-a-ride program in the Rocklin/Loomis area and in Granite Bay. Dial-a-ride also serves the portion of Roseville along the State Route 65 corridor adjacent to Rocklin.

**Rail Service.** The Capitol Corridor Intercity Train Service provides passenger rail service between Auburn and San Jose. There are three stations in Placer County: Auburn, Rocklin, and Roseville. There are currently nine runs per day in each direction, but only one run in each direction from Auburn to Oakland that serves Rocklin. There are four runs in each direction from Sacramento to Oakland and four runs in each direction from Sacramento to San Jose. Amtrak provides bus connections from Rocklin to the Sacramento Amtrak Station to connect to these additional Capitol Corridor runs. The Rocklin Multimodal Train Station is a permanent building for rail users located along the Union Pacific Railroad track at the Rocklin Road crossing.

### **Pedestrian Facilities**

Sidewalks are available along streets throughout Rocklin, including those in the immediate vicinity of the proposed project. Sidewalks exist on both sides of Sierra College Blvd in the area north of Dominguez Road to Granite Drive. Sidewalks are in place on Bass Pro Drive and on the local streets that link the project site with Sierra College Blvd.

### **Bicycle Facilities**

Bikeways are defined by the State of California Street and Highways Code as follows:

- Class I bikeways provide a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with cross-flows by motorists minimized (also called a bike path or trail).
- Class II bikeways provide a restricted right-of-way designated for exclusive or semiexclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted (also called a bike lane).
- Class III bikeways provide a right-of-way designated by signs or permanent markings and shared with pedestrians or motorists (also called a bike route).

The City of Rocklin's General Plan includes a Bikeway Diagram, which specifies a number of existing and proposed bike lanes and bike routes. Class II on-street bike lanes already exist on Sierra College Blvd, on Bass Pro Drive and on Schriber Way.

## **REGULATORY SETTING**

### **City of Rocklin General Plan Circulation Element**

The Circulation Element of the City of Rocklin's General Plan has, as its key goal, "To create a balanced and coordinated transportation system which utilizes all transportation modes efficiently and promotes sound land use". A complete list of the General Plan goals and policies can be found in the Circulation Element of the General Plan, and specific policies that are relevant to this project are noted below. Policy C-34 deals with the Dominguez Overcrossing on Interstate 80 that will link Granite Drive with Sierra College Blvd.

### **Policies for Transportation System**

C-1 Provide for a circulation pattern for regional, community, and neighborhood traffic needs.

C-2 Coordinate land use and transportation planning to support transit services, NEV facilities and non-motorized transportation.

### **Policies for City and Regional Street System**

C-7 Monitor traffic on City streets to determine improvements needed to maintain an acceptable Level of Service.

C-8 Update the Capital Improvement Program (CIP) and traffic impact fees at least every five years, or as determined necessary with the approval of major new developments or major general plan amendments not considered in the adopted Capital Improvement Program.

C-9 Provide for an annual inflationary adjustment to the City's traffic impact fee to ensure that the fee is adequate for the future construction of roads.

C-10 A. Maintain a minimum traffic Level of Service "C" for all signalized intersections during the p.m. peak hour on an average weekday, except in the circumstances described in C-10.B and C. below.

B. Recognizing that some signalized intersections within the City serve and are impacted by development located in adjacent jurisdictions, and that these impacts are outside the control of the City, a development project which is determined to result in a Level of Service worse than "C" may be approved, if the approving body finds (1) the diminished level of service is an interim situation which will be alleviated by the implementation of planned improvements or (2) based on the specific circumstances described in Section C. below, there are no feasible street improvements that will improve the Level of Service to "C" or better as set forward in the Action Plan for the Circulation Element.

C. All development in another jurisdiction outside of Rocklin's control which creates traffic impacts in Rocklin should be required to construct all mitigation necessary in

order to maintain a LOS C in Rocklin unless the mitigation is determined to be infeasible by the Rocklin City Council. The standard for determining the feasibility of the mitigation would be whether or not the improvements create unusual economic, legal, social, technological, physical or other similar burdens and considerations.

C-11 Continue to participate with adjacent jurisdictions toward the completion and improvement of streets that extend into other communities through individual cooperation and/or use of the Placer County Transportation Planning Agency (PCTPA), joint powers authorities, and similar entities.

C-12 Encourage improvements to the existing Federal Interstate and State highway system, and the addition of new routes that would benefit the City of Rocklin.

C-13 Consider a variety of funding mechanisms, either independently or with other government agencies, to fund needed regional improvements.

C-14 Prohibit residential driveways along collector or arterial streets within newly developing residential areas. This policy does not apply to multi-family residential uses, or where past decisions have created existing lots with residential frontages on collector or arterial streets.

C-15 Reduce the potential for the use of local residential streets as shortcuts for through traffic on streets that are not improved to full City standards.

C-16 Provide each new elementary school site with a minimum of two full street frontages.

C-17 Keep truck traffic away from residential areas and streets not structurally designed for truck traffic by designating truck routes.

C-18 Designate truck routes that can be used for the hauling of hazardous materials.

C-19 Maintain existing streets in a safe condition and require that new streets be built to City standards.

C-20 Maintain street design standards for arterials, collectors and local streets.

C-21 Apply appropriate street design standards for private streets.

C-22 Interconnect traffic signals and/or consider the use of roundabouts where financially feasible and warranted to provide flexibility in controlling traffic movements at intersections.

C-23 Require street designs where appropriate to connect neighborhoods. These connections allow for vehicular and pedestrian use and for the efficient movement of service and emergency vehicles.

C-24 Require landscaping and tree planting along major new streets, properties abutting highways/freeways and along existing streets as appropriate.

C-25 Minimize the impact of road construction on the natural terrain and the character of existing neighborhoods.

C-26 Minimize the impact of road construction on creek corridors and related floodplain and riparian areas.

C-27 Design and phase construction of road improvements to minimize disruption to local residents and traffic, to the extent feasible.

C-28 Design new street alignments to minimize the number of creek crossings and adverse impacts to existing wildlife habitats.

C-29 Conduct a comprehensive inventory of the vegetative structure of riparian corridors prior to specific siting of new road alignments and creek crossings. This inventory will be used as a factor in the selection of an alignment which minimizes impacts to mature riparian vegetation, while still meeting the alignment or access and engineering requirements of siting the alignment or crossing.

C-30 Restore streambed and bank contours as near as possible to pre-project conditions following construction of creek crossings.

C-31 Design road improvements and new road alignments to avoid or minimize disturbance to identified cultural resources, where feasible.

### **Special Street Improvement Policies**

C-32 Restrict vehicular access to emergency vehicles only from the Clover Valley Community Area onto the existing portions of Clover Valley Road and Rawhide Road within the Mission Hills-Clover Valley Community Area to minimize traffic volume increases on Midas Avenue.

C-33 Seek improvement to existing railroad crossings and construction of new grade separated crossings or undercrossings where appropriate and feasible.

C-34 Provide for the extension of Dominguez Road over I-80 as a future improvement to relieve the Sierra College Boulevard/I-80 and Rocklin Road/I-80 interchanges and create access to the southeast quadrant of the Sierra College Boulevard/I-80 interchange.

C-35 Increase traffic capacity at Rocklin Road and I-80, as traffic conditions require, by widening, overcrossings, or other design features, to allow for more efficient traffic movement and pedestrian and bike facilities.

C-36 Develop a new east/west road connection between State Route 65 and Sierra College Boulevard. The road shall traverse the Northwest Rocklin area, connect to Park Drive in the northern portion of Whitney Oaks, and extend from Park Drive through Clover Valley to intersect with Sierra College Boulevard.

C-37 Develop a new north/south road connection between Sunset Boulevard and the new east/west road connection described in Policy C-36.

C-38 Provide primary vehicular access to future development within the Parcel K planning area of the North West Rocklin General Development Plan by at least two points of access. The access points shall consist of one street that intersects with Wyckford Boulevard and

another that connects to the extension of Kali Place. These facilities shall be open non-gated public streets.

C-39 Prohibit extension of Wyckford Boulevard north of Parcel K into the Whitney Ranch / Sunset Ranchos Planning Area.

C-40 Provide for the connection of Woodside Drive and Ruhkala Road in the Civic Center area.

C-41 Create a Civic Center street/drive network south of Rocklin Road that provides access to Pacific Street and South Grove Street.

C-42 Improve and extend Railroad Avenue between Farron Street and Midas Avenue to provide an alternative north/south route to Pacific Street.

C-43 Minimize the need to sever existing developed parcels for new roads designed to serve the Southeast Rocklin area.

C-44 Prohibit an easterly extension of Greenbrae Road that would connect with Southside Ranch Road.

C-45 Extend Monument Springs Drive southerly across Secret Ravine Creek to developing areas south of Greenbrae Road.

C-46 Sever Aguilar Road at a time specified by the City of Rocklin. The severing shall occur at or near the Aguilar tributary crossing to preclude through traffic.

C-47 Design road improvements and new alignments to avoid or minimize encroachments into existing yards on Aguilar Road, Greenbrae Road and Foothills Road by minimizing the use of standard curb, gutter and sidewalks, where appropriate.

C-48 Acknowledge that new taxes, fees, or assessments to finance the severing of Aguilar Road and the Monument Springs Bridge/extension identified in the policies above shall not be levied upon fully developed parcels that cannot be further subdivided.

C-49 Encourage use of a free span bridge design over Secret Ravine Creek as the environmentally preferred option whenever feasible, to minimize the fragmenting effects of any bridge crossing on riparian habitat. Pre-cast concrete bridge joists should be used, whenever possible, to avoid prolonged construction and reduce construction disturbances in riparian corridors.

### **City of Rocklin Capital Improvement Program**

The City's Capital Improvement Program (CIP) identifies roadway and intersection improvements for City-based monitoring of traffic conditions in Rocklin and maintenance of the City's existing LOS standard. The current CIP was updated in 2007 and has a horizon year of 2025.

## PROJECT IMPACTS

The proposed project is a 63 unit single family residential subdivision. The proposed use would be consistent with the current PD-2.5 zoning.

### Project Characteristics

The characteristics of the project are described in terms of its *Trip Generation* and its *Trip Distribution*.

**Trip Generation.** The amount of new traffic associated with development projects is typically forecast using information developed from recognized national sources. The Institute of Transportation Engineers (ITE) publication *Trip Generation, 9<sup>th</sup> Edition* is a source recognized by the City of Rocklin and Caltrans, and applicable average trip generation rates for single family residential development are presented in Table 5.

As shown, the proposed 4588 Barton Road Subdivision could generate 600 daily trip ends (½ inbound and ½ outbound), with 47 trips occurring in the a.m. peak hour and 63 trips generated in the p.m. peak hour

**TABLE 5  
TRIP GENERATION RATES**

Description	ITE Code	Unit/ Quantity	Trips per Unit						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<i>Proposed Project</i>									
Detached Single Family	210	Dwelling	9.52	25%	75%	0.75	64%	36%	1.00
		63 du's	600	12	35	47	40	23	63

**Vehicle Trip Distribution.** Having determined the number of vehicle trips that are expected to be generated by the project, it is necessary to identify the directional distribution of project-generated traffic. For residences, the general location of employment, shopping, social services and entertainment are the primary indicators of the regional trip distribution. These factors affect the distribution of trips generated by existing residential development in this area of Rocklin, and current travel patterns can be used to identify the project's trip distribution. In addition, the City of Rocklin regional travel demand forecasting model's "select link" utility can be employed to identify the origins-destinations of trips generated by residences in the study area. However, because the trips from existing residential areas near the project tend to be mingled with Rocklin Crossings trips, the City's regional model select link results were employed. Figure 4 and Table 6 identifies the local area assumptions made for the project.

**TABLE 6  
REGIONAL TRIP DISTRIBUTION ASSUMPTIONS – SHORT TERM**

Direction	Route	Residential			
		Percent of Total	Trips		
			Daily	AM Peak Hour	PM Peak Hour
North	Sierra College Blvd beyond Granite Drive	18%	108	9	11
	Rocklin Commons	3%	18	2	2
East	Granite Drive east of Sierra College Blvd	2%	12	1	1
	Interstate 80 east of Sierra College Blvd	7%	42	3	5
	Rocklin Road east of Sierra College Blvd	5%	30	2	3
South	Sierra College Blvd beyond Rocklin Road	14%	84	7	9
West	Granite Drive west of Sierra College	2%	12	1	1
	Interstate 80 west of Sierra College Blvd	35%	210	16	22
	Rocklin Crossings	7%	42	3	4
	Rocklin Road west of Sierra College Blvd	7%	42	3	5
Residential Total		100%	600	47	63

**Trip Assignment.** Project trips were assigned to the local street system based on the regional distribution assumptions identified above and the relative travel time via the available routes to Sierra College Blvd. Figure 4 identifies the assignment of project trips through the study intersections.

As shown, project trips have been assigned to public streets. It is recognized that some project traffic may filter through the adjoining Rocklin Crossings Shopping Center circulation system, but to provide a “worst case” assessment of project traffic impacts to Rocklin’s public streets travel on these private routes have not been assumed.

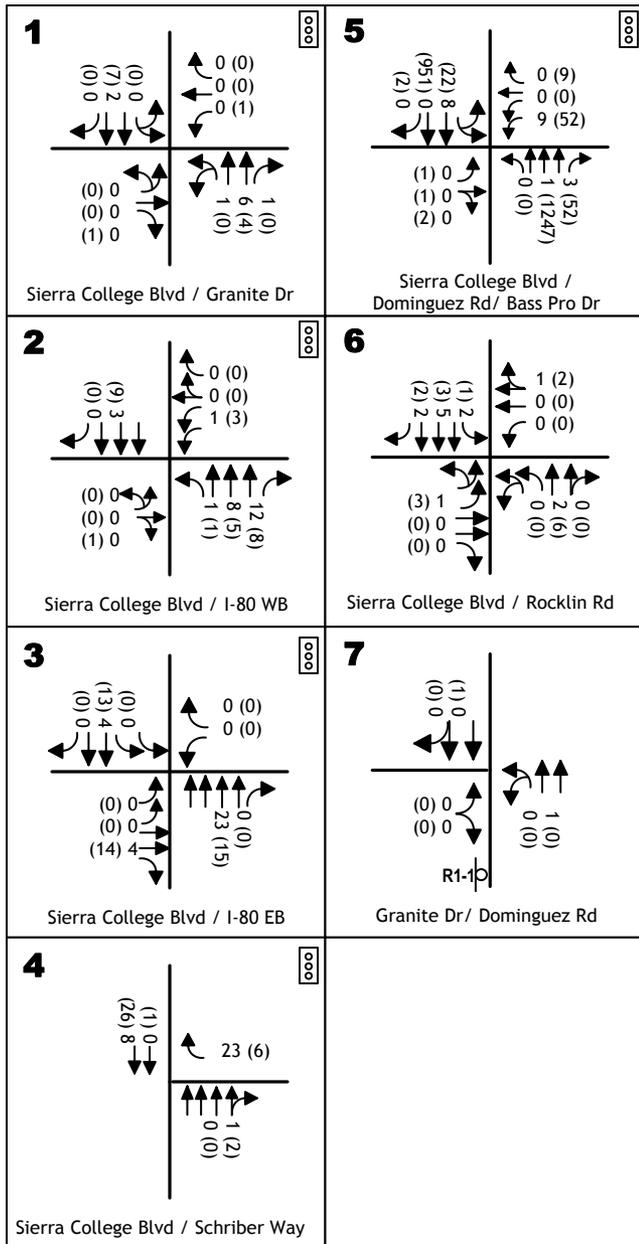
**Existing Plus Project Traffic Conditions and Levels of Service**

Figure 5 superimposes project trips onto the current background traffic volumes to create the “Existing plus Project” condition. Subsequent tables compare the “Existing” and “Existing plus Project” Levels of Service.

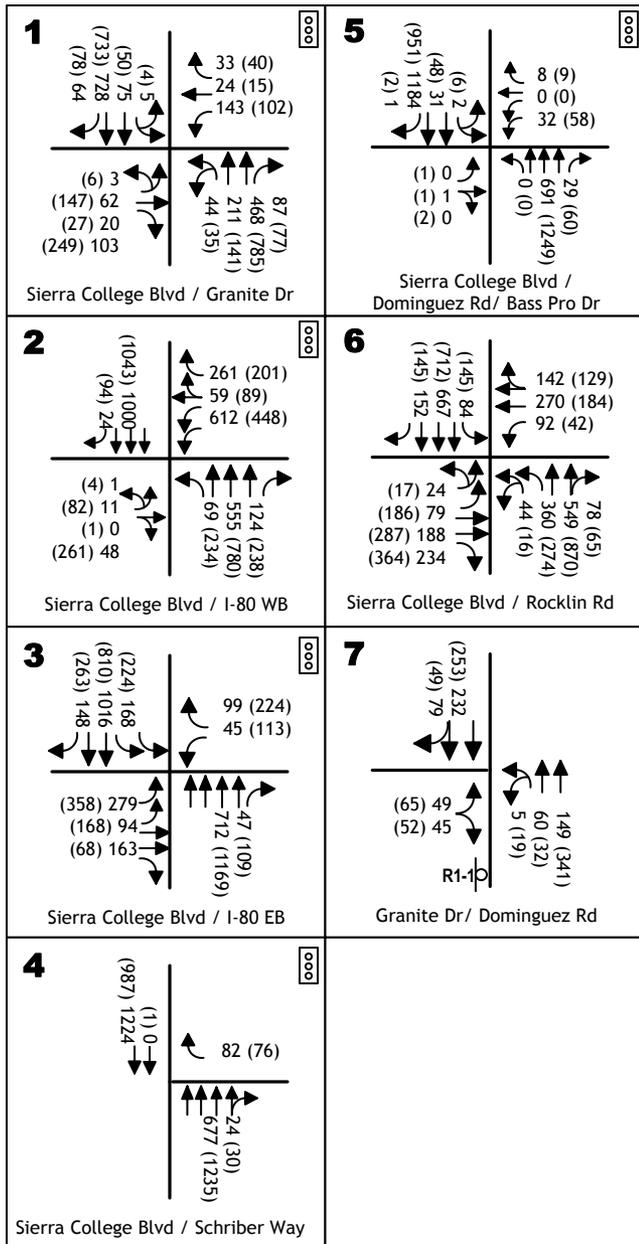
**Project Traffic Impacts to Level of Service at Intersections.** As shown in Table 7, because the amount of traffic associated with the project is relatively small, the addition of project traffic would not appreciably increase the length of delays occurring at study intersections, and the project does not result in any change to the peak hour Level of Service at any location. A minor improvement in average delay is projected to occur with the project at the Sierra College Blvd / EB I-80 ramps intersection because the project adds trips to movements with individual delays that are shorter than the average.

Levels of Service at each intersection will remain LOS A, B or C, all of which are within the adopted minimum standard (i.e., LOS D or better). Thus the project's impact isn't significant measured in terms of intersection Level of Service.

**Traffic Signal Warrants.** The addition of project trips does not result in peak hour volumes which satisfy Warrant 3 at the Sierra College Blvd / Schriber Way intersection.



PROJECT ONLY TRAFFIC VOLUMES  
AND LANE CONFIGURATIONS



**Legend**

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊠ R1-1 Stop Sign
- ⊠ Signalized Intersection

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

**TABLE 7  
EXISTING PLUS PROJECT PEAK HOUR  
INTERSECTION LEVELS OF SERVICE**

Intersection	Control	Time Period											
		AM Peak Hour (7:00 to 9:00 a.m.)						PM Peak Hour (4:00 to 6:00 p.m.)					
		Existing			Existing Plus Project			Existing			Existing Plus Project		
		LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)
Granite Drive / Dominguez Road (overall) Southbound left+right turn	SB Stop	(A)	-	(2.6)	(A)	-	(2.6)	(A)	-	(2.4)	(A)	-	(2.4)
		B		11.8	B		11.8	B		12.9	B		12.9
Sierra College Blvd / Granite Drive	Signal	A	0.594		A	0.596		B	0.615		B	0.619	
Sierra College Blvd / WB I-80 / Commons Dr	Signal	B	-	14.5	B	-	14.5	C	-	20.5	C	-	20.5
Sierra College Blvd/ EB I-80 / Crossings Dr	Signal	B	-	15.4	B	-	15.5	B	-	17.2	B	-	16.9
Sierra College Blvd / Schriber Way (overall) Westbound right turn	EB Stop	(A)	-	(0.3)	(A)	-	(0.4)	(A)	-	(0.3)	(A)	-	(0.4)
		A		9.7	A		9.8	B		10.9	B		11.0
Sierra College Blvd / Dominguez Rd / Bass Pro Drive	Signal	A	0.418	-	A	0.421	-	A	0.350	-	A	0.352	-
Sierra College Blvd / Rocklin Road	Signal	A	0.530	-	A	0.531		B	0.700		C	0.702	

**Bold** indicates conditions in excess of adopted minimum LOS standard

**Off-ramp Queues.** The relative impacts of project trips on Interstate 80 ramps has been evaluated based on comparison of peak period queue lengths and available storage. The volume of traffic added by the project and resulting 95<sup>th</sup> percentile queues were identified as a byproduct of Synchro LOS analysis, and the results are noted in Table 8. As shown, resulting queues can still be accommodated by existing storage.

**Mainline Interstate 80 Level of Service.** Conditions on mainline I-80 have been evaluated based on current Annual Average Daily Traffic (AADT) volumes and the Level of Service volume thresholds contained in the Rocklin General Plan EIR. As noted in Table 9, mainline I-80 operates at LOS D today. However, peak conditions occurring on Friday afternoons strain the capacity of the overall highway network, and bottlenecks created by the operation of downstream locations can create congestion and stop-and-go conditions through the study area.

**TABLE 8  
EXISTING PLUS PROJECT OFF RAMP QUEUES**

Intersection	Lane	Storage (feet)	Time Period									
			AM Peak Hour (7:00 to 9:00 a.m.)					PM Peak Hour (4:00 to 6:00 p.m.)				
			Existing		EX Plus Project			Existing		EX Plus Project		
			Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)
		Project	Total			Project	Total					
Westbound off ramp	Left (2)	950 (2)	611	410	2	613	415	445	350	5	450	355
	Through + right turn	725*	59	120	0	59	120	89	165	0	89	165
	Right turn	210	261	55	0	261	55	201	60	0	201	60
Eastbound off ramp	Left (2)	560**	279	160	0	279	160	358	300	0	358	300
	Through (2)	1,580**	94	90	0	94	90	168	200	0	168	200
	Right turn	210	59	50	8	67	50	68	40	25	93	40

(2) dual lanes  
 (\*) another 580 feet of off ramp exists prior to ramp gore. (\*\*) another 510 feet of ramp exists prior to ramp gore

**TABLE 9  
INTERSTATE 80 MAINLINE LEVEL OF SERVICE**

From	To	Lanes	Capacity (VPD)	Existing			EX Plus Project			
				Daily Volume (AADT)	V/C	Level of Service	Daily Volume (AADT)		V/C	Level of Service
							Project	Total		
Rocklin Road	Sierra College Blvd	6	108,000	96,000	0.889	D	185	96,185	0.891	D
Sierra College Blvd	Horseshoe Bar Road	6	108,000	94,000	0.870	D	35	94,035	0.871	D

## **Project Impacts to Alternative Transportation Modes**

Development of the 4588 Barton Road Subdivision project may incrementally contribute to the demand for facilities to serve pedestrians, cyclists and transit riders in this area of Rocklin.

**Pedestrian Impacts.** Some of the project's residents may elect to walk to and from the site to attractions within a reasonable distance of the site, including commercial areas along Sierra College Blvd. As noted earlier, sidewalks already exist on the local streets near the project and along the east side of Sierra College Blvd north of Dominguez Road. The project will install frontage improvements along the local streets that are part of the project, and the new streets constructed in the project will have sidewalks. Because sidewalks already exist to connect the project with probable attractions and will be provided in the project, and because the project does not interfere with any planned pedestrian facilities, the project's impact to pedestrian travel is not significant, and no additional improvements are required.

**Bicycle Impacts.** As with any residential and retail development, the project may generate bicyclists who elect to use that transportation mode to reach area schools and retail or social destinations. As noted earlier, Class II bike lanes already exist on Sierra College Blvd, Bass Pro Drive and Schriber Way.

While cycling may be a choice of some residents, due to the limited size of the project (i.e., 63 units) the number of cyclists associated with this project is not likely to create an appreciable safety impact on the streets that provide access to the project. Those residents who may choose to ride to the site would be expected to make use of designated bike lanes and would safely share the right of way with other vehicular traffic on Sierra College Blvd. Because adequate facilities are available and the project does not interfere with any planned bicycle facilities, the project's impact to bicycle circulation is not significant and no additional improvements are required.

**Transit Impacts.** Some project residents may take advantage of the regular Placer Transit bus service and Amtrak Capital Corridor trains that are already available in Rocklin. Because the number of additional riders created by this project is not appreciable, the project's impact is not significant and no additional transit improvements are needed.

**Construction Traffic.** Construction automobile and truck traffic will be generated as the subdivision itself is constructed and as homes are built. Because the amount of construction traffic is typically less than the trip generation with full occupancy, the impacts of construction traffic would be less than or similar to those associated with the project itself and would be temporary. Some of this traffic will involve heavy trucks. Due to weight limitations on Lakepointe Drive, construction traffic will need to access the site from Barton Road.

## **EXISTING PLUS APPROVED PROJECTS - BASELINE IMPACTS**

The traffic impacts of the 4588 Barton Road Subdivision project have also been considered within the context of future traffic conditions in this area of Rocklin assuming occupancy of other approved but as yet unconstructed projects under an “Existing Plus Approved Projects” (EPAP) condition.

### **Existing Plus Approved Projects (EPAP) Conditions**

**Land Use Assumptions.** The City of Rocklin maintains a list of development proposals and tracks their completion status. This list of development proposals is updated periodically by the City of Rocklin to reflect both ongoing development activity as well as proposed changes to previously approved projects. Projects are periodically removed from the City’s list if development proposals where approved entitlements have lapsed or have been withdrawn.

For purposes of this analysis and to ensure that the baseline for traffic analysis purposes includes existing and approved development at the study date, in February 2016 City of Rocklin staff evaluated recent development history in the project area to identify any additional approved development that should be assumed to be completed, to quantify the level of development that has occurred where projects have proceeded in phases (such as the Rocklin Crossings and Rocklin Commons projects) and to identify those previously approved projects that have lapsed or have been withdrawn by the project proponent. This information was updated to reflect the current occupancy of Rocklin Commons and Rocklin Crossings, as well as the number of dwellings occupied in the Crowne Pointe (Croftwood) subdivisions at the time the current traffic counts were completed in April 2016.

Table 10 presents the list of approved but not constructed projects in the vicinity of the eastern portion of the project, as well as their estimated a.m. and p.m. peak hour trip generation. As shown, the number of new a.m. peak hour trips anticipated from approved/pending development totals 2,093 while 3,121 trips are forecast in the p.m. peak hour. The p.m. forecast is greater since many of the identified projects are retail uses that are often closed during the a.m. peak hour.

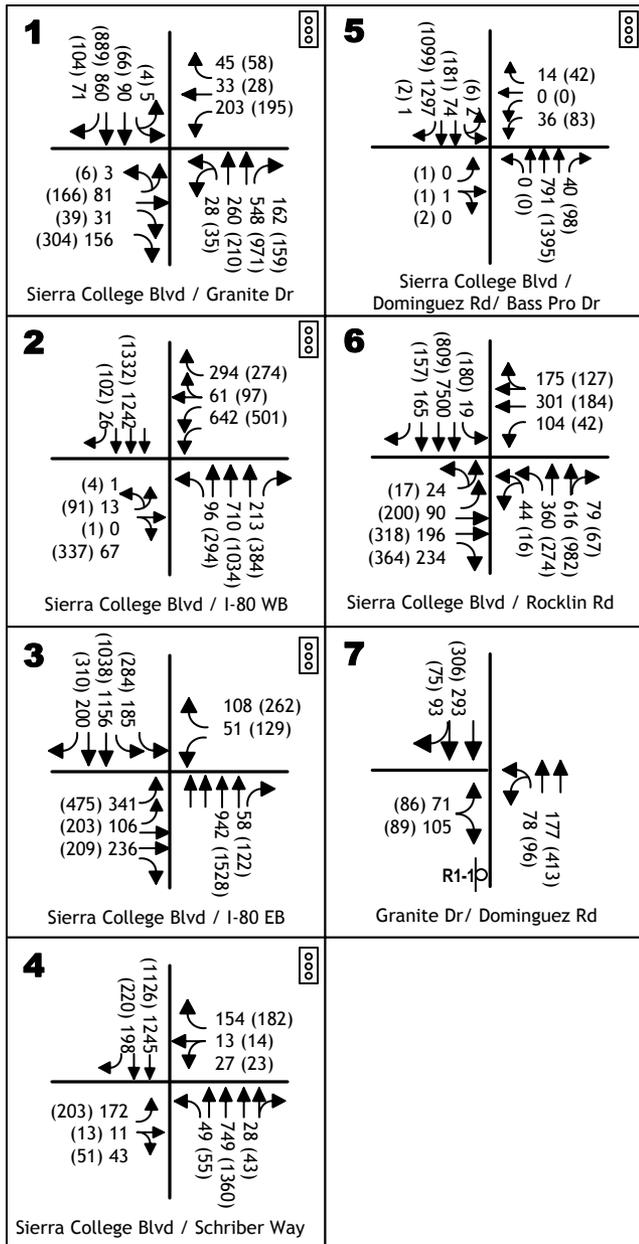
**Background Traffic Volume Forecasts.** Not every approved project will add traffic to the study intersections, and the contribution to study locations was identified. For this analysis the incremental change in traffic resulting from approved projects was added to the existing volumes, and Figure 6 presents resulting EPAP traffic volumes of the study area. Figure 7 presents EPAP with the proposed project.

**EPAP Intersection Levels of Service.** Table 11 compares Existing Plus Approved Projects (EPAP) Levels of Service with and without the 4588 Barton Road project. As shown, projected Levels of Service will be LOS C or better at each intersection without the project, and the City of Rocklin’s minimum LOS C standard will be maintained at all study intersections. If the project is built, Levels of Service will still fall within the LOS C minimum, and the project’s traffic impacts are not significant based on operating Level of Service.

**Traffic Signal Warrants.** The volume of traffic occurring at the Granite Drive / Dominguez Road intersection under EPAP and EPAP plus Project conditions does not reach the level that satisfies traffic signal warrants.

**TABLE 10  
APPROVED / PENDING PROJECTS AND THEIR TRIP GENERATION**

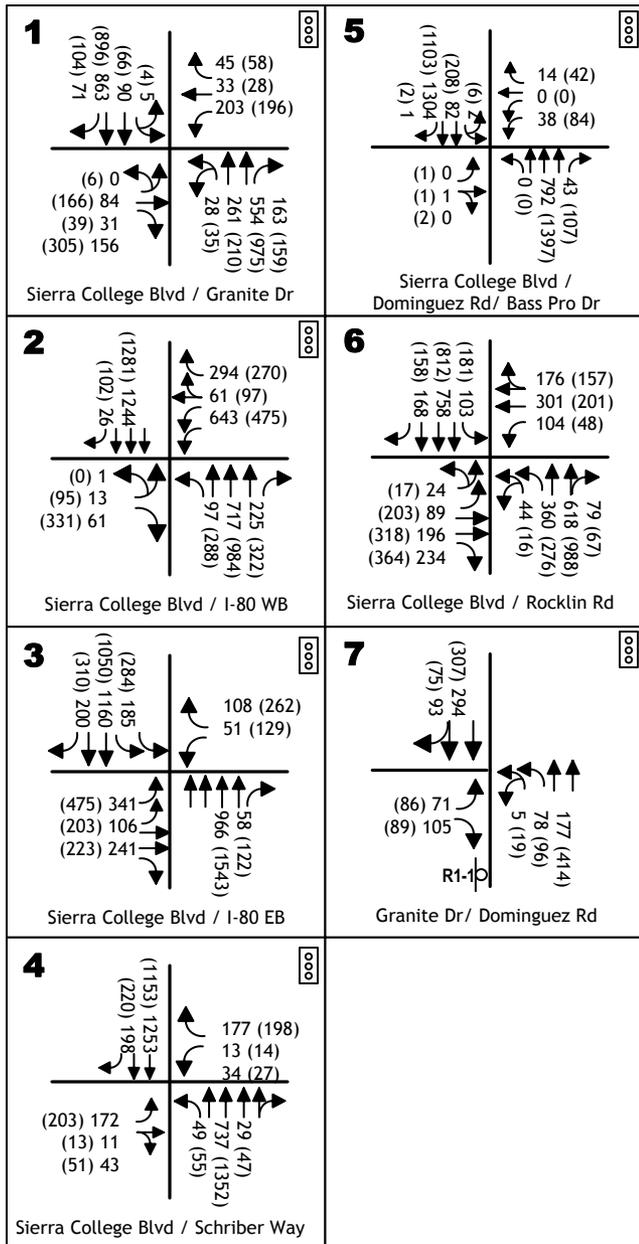
Description	Land Use	Size		AM Peak Hour			PM Peak Hour Trips		
		Quantity	Unit	In	Out	Total	In	Out	Total
Quarry Row Subdivision	Single Family Housing	64	du	12	36	48	41	23	64
Avalon Subdivision <sup>(1)</sup>	Single Family Housing	79	du	15	44	59	50	29	79
Brighton Subdivision <sup>(1)</sup>	Single Family Housing	75	du	14	42	56	47	28	75
Garnet Creek	Single Family Housing & Multiple Family Housing	340	du	41	152	193	155	86	241
Granite Dominguez Subdivision	Single Family Housing	71	du	13	40	53	45	26	71
Los Cerros Subdivision	Single Family Housing	115	du	22	64	86	74	41	115
Grove Street Subdivision	Single Family Housing	7	du	1	4	5	4	3	7
Croftwood, Unit 1 / Rocklin 60	Single Family Housing	156 <sup>(5)</sup>	du	30	87	117	101	59	160
Granite Terrace	Single Family	42	du	8	24	32	27	15	42
Rocklin Gateway Apartments	Multi-Family Residential	204	du	21	83	104	45	81	126
Granite Marketplace (Lowes)	Home Improvement	138	ksf	105	80	185	115	130	245
Rocklin Crossings <sup>(2)</sup>	Home Improvement, Discount Superstore	97.8	ksf	46	29	75	175	182	357
Rocklin Commons <sup>(3)</sup>	Discount Superstore	49.3	ksf	24	15	39	82	88	170
The Center at Secret Ravine <sup>(4)</sup>	Retail Commercial	18.6	ksf	12	6	18	22	28	50
Parklands Subdivision <sup>(1)</sup>	Single Family Housing	142	du	27	80	107	94	63	157
Clover Valley	Residential	558	du	106	313	419	377	186	563
Winding Lane Estates	Single Family Residential	27	du	5	15	20	18	9	27
Rocklin Audi	Auto Dealership	34	ksf	49	16	65	35	53	89
Rocklin Station	Retail Commercial	32.6	ksf	144	122	266	154	145	299
Park Vista Subdivision	Single family Residential	63	du	12	35	47	40	23	63
Sierra Gateway Apartments	Multiple Family Residential	195	du	39	60	99	78	42	121
Total				746	1,347	2,093	1,779	1,340	3,121
<sup>(1)</sup> Under Construction and partially occupied <sup>(2)</sup> 543,500 sf approved, in April 2016 a total of 97,800 sf remained to be occupied <sup>(3)</sup> 410,942 sf approved, in April 2016 a total of 47,300 sf remained to be occupied <sup>(4)</sup> 26,600 sf approved, in April 2016 4,000 sf occupied (Shell Station) <sup>(5)</sup> 156 du vacant or under construction in February 2016									



**Legend**

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊠ R1-1 Stop Sign
- 300 Signalized Intersection

EXISTING PLUS APPROVED PROJECTS  
TRAFFIC VOLUMES AND LANE CONFIGURATIONS



## EPAP PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

**TABLE 11  
EXISTING PLUS APPROVED PROJECTS PLUS 4588 BARTON ROAD SUBDIVISION PROJECT  
PEAK HOUR INTERSECTION LEVELS OF SERVICE**

Intersection	Control	Time Period											
		AM Peak Hour (7:00 to 9:00 a.m.)						PM Peak Hour (4:00 to 6:00 p.m.)					
		Existing Plus Approved – Pending Projects			EPAP Plus Project			Existing Plus Approved – Pending Projects			EPAP Plus Project		
		LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)
Granite Drive / Dominguez Road (overall) SB left+right turn	SB Stop	(A)	-	(3.7)	(A)	-	(3.7)	(A)	-	(3.8)	(A)	-	(3.8)
		B		13.8	B		13.8	C		18.0	C		18.0
Sierra College Blvd / Granite Drive	Signal	B	0.694		B	0.696		C	0.725		C	0.729	-
Sierra College Blvd / WB I-80 / Commons Dr	Signal	B	-	16.8	B	-	16.8	C	-	30.0	C	-	30.2
Sierra College Blvd/ EB I-80 / Crossings Dr	Signal	B	-	18.8	B	-	19.0	C	-	24.1	C	-	24.8
Sierra College Blvd / Schriber Way	Signal	B	0.688			0.707		B	0.692	-	C	0.712	
Sierra College Blvd / Dominguez Rd / Bass Pro Drive	Signal	A	0.462	-	A	0.465	-	A	0.483	-	A	0.503	-
Sierra College Blvd / Rocklin Road	Signal	A	0.569		A	0.571		C	0.770		C	0.773	-
<b>Bold</b> indicates conditions in excess of adopted minimum LOS standard													

**Off-ramp Queues.** The relative impacts of project trips on Interstate 80 ramps has been evaluated based on comparison of peak period queue lengths and available storage. The volume of traffic added by the project and resulting 95<sup>th</sup> percentile queues were identified as a byproduct of Synchro LOS analysis, and the results are noted in Table 12. As shown, these short term future queues can be accommodated by existing storage.

**Mainline Interstate 80 Level of Service.** Conditions on mainline I-80 have been evaluated based on current Annual Average Daily Traffic (AADT) volumes and the Level of Service volume thresholds contained in the Rocklin General Plan EIR. As noted in Table 13, mainline I-80 operates at LOS D today. However, peak conditions occurring on Friday afternoons strain the capacity of the overall highway network, and bottlenecks created by the operation of downstream locations can create congestion and stop-and go conditions through the study area.

**TABLE 12  
EXISTING PLUS APPROVED PROJECTS OFF RAMP QUEUES**

Intersection	Lane	Storage (feet)	Time Period									
			AM Peak Hour (7:00 to 9:00 a.m.)					PM Peak Hour (4:00 to 6:00 p.m.)				
			Existing Plus Approved Projects		EPAP Plus Project			Existing Plus Approved Projects		EPAP Plus Project		
			Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)
Project	Total	Project			Total							
Westbound off ramp	Left (2)	950 (2)	642	395	1	643	395	501	395	3	504	395
	Through + right turn	725*	61	95	0	61	95	97	180	0	97	180
	Right turn	210	294	70	0	294	65	274	130	0	274	130
Eastbound off ramp	Left (2)	560**	341	205	0	341	205	475	290	0	475	285
	Through (2)	1,580**	106	90	0	106	90	203	160	0	203	160
	Right turn	210	236	125	5	241	130	209	105	14	223	125

(2) dual lanes  
 (\*) another 580 feet of off ramp exists prior to ramp gore. (\*\*) another 510 feet of ramp exists prior to ramp gore

**TABLE 13  
EXISTING PLUS APPROVED PROJECTS INTERSTATE 80 MAINLINE LEVEL OF SERVICE**

From	To	Lanes	Capacity (VPD)	Existing Plus Approved Projects			EPAP Plus Project			
				Daily Volume (AADT)	V/C	Level of Service	Daily Volume (AADT)		V/C	Level of Service
							Project	Total		
Rocklin Road	Sierra College Blvd	6	108,000	99,730	0.0.923	E	105	99,835	0.924	E
Sierra College Blvd	Horseshoe Bar Road	6	108,000	95,585	0.0.885	D	20	95,605	0.885	D

## LONG TERM CUMULATIVE CONDITIONS / IMPACTS

This report section addresses long term traffic conditions based on the City of Rocklin's General Plan EIR traffic model with modifications to reflect development decisions made since the GPU was prepared.

### Basis for Long Term Projections

The travel demand forecasting model used for the City of Rocklin General Plan Update EIR and Year 2025 CIP is the basis for the long term cumulative traffic volume forecasts used for this analysis, and the technical approach employed to use model results to create intersection turning movements for study area intersections mimics the approach used for the GPU EIR.

**Land Use.** Locally the General Plan traffic model was refined to better reflect the location of the commercial development near the I-80 / Sierra College Blvd interchange. The large Traffic Analysis Zone (TAZ) on the west side of Sierra College Blvd that extended from Rocklin Road to I-80 was disaggregated to isolate the retail uses adjoining the Dominguez Overcrossing. The model roadway link network was modified to reflect access to Dominguez Road for these properties. For this analysis the retail uses identified in this area in the General Plan model were identified and divided based on acreage between the area north of Dominguez Road (141 ksf) and south of Dominguez Road (186 ksf). These parcels are assumed to generate trips at the rates incorporated into the City traffic model for retail development (i.e., 35.0 daily trips per ksf).

The City of Rocklin is currently updating its General Plan Circulation Element, and various citywide improvements are being evaluated. The Dominguez Road Overcrossing is included in the current General Plan and has been assumed to be in place for this cumulative analysis.

**Methodology.** The City traffic model's Year 2030 a.m. and p.m. segment forecasts were compared to forecasts from the model's baseline Year 2008 model that had been adjusted to include current development at the I-80 / Sierra College Blvd intersection. The net difference in volume forecasts was determined. These net changes were then added to the current peak hour segment approach volumes observed in 2016 to create the adjusted cumulative Year 2030 approach volumes.

Existing and adjusted cumulative traffic volumes were then compared to identify equivalent growth rates for intersection approaches for use in creating intersection turning movement volumes. To finalize peak hour intersection turning movements, the segment growth factors were applied to observed peak hour volumes and the results were balanced to best approximate conditions on each leg using the methodologies contained in the Transportation Research Board's (TRB's) NCHRP Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design*. This approach reflects the fact that the development of various land uses may affect current travel patterns while adding new traffic, while new roadways may provide alternative routes for existing traffic.

The regional traffic model results were then reviewed and manual adjustments were made to reflect access to the approved Rocklin Station project. Cumulative Minus 4588 Barton Road Project traffic volumes were also created by identifying the trip distribution pattern with the Dominguez Road Overcrossing and manually subtracting the trips associated with proposed project from the turning movement forecasts. The long term distribution of 4588 Barton Road was identified by applying select link analysis to the Year 2030 forecasts to identify the distribution patterns expected in the Year 2030 as well as the effects of the Dominguez Road crossing on local trip assignment.

**Circulation System Assumptions.** The traffic volume forecasts made for this analysis include those City-wide circulation system improvements incorporated into the General Plan traffic model. Changes to the existing configuration of existing study area intersections have been assumed.

- At the Granite Drive / Dominguez Road intersection, the construction of the Dominguez Road extension is assumed to be accompanied by a traffic signal and auxiliary turn lanes noted in the GPU EIR.
- The retail parcels south of Dominguez Road have been assumed to have full access to Dominguez Road and right-turn-only access to Sierra College Blvd directly opposite the existing Schriber Way intersection.

### **Traffic Conditions**

**Traffic Volume Forecasts.** Figure 8 presents the background Cumulative No Project volumes, while Figure 9 presents the Cumulative Plus 4588 Barton Road Subdivision project forecasts. These figures also note assumed intersection geometry and traffic controls.

**Cumulative Year 2030 Level of Service without Project.** Table 14 compares cumulative a.m. and p.m. peak hour Levels of Service at study intersections with and without the proposed project. This analysis assumes that standard frontage improvements are made along southbound Sierra College Blvd (i.e., third southbound lane and separate right turn lane).

As indicated in Table 14, three locations will fail to satisfy the minimum LOS C standard with and without the project.

- The **Sierra College Blvd / Granite Drive** intersection is shown to operate at LOS D in the a.m. peak hour and LOS D in the p.m. peak hour. Improvements anticipated in the City of Rocklin General Plan and addressed by the SPRTA fee program or normally required of fronting development will deliver LOS C, including:
  - a. Widen / reconfigure Sierra College Blvd to provide a third through lane in each direction.

- The **Sierra College Blvd / Schriber Way** intersection is projected to operate at LOS D in the a.m. peak hour and LOS E in the p.m. peak hour. Improvements anticipated in the City of Rocklin General Plan and addressed by the SPRTA fee program or normally required of fronting development will deliver LOS C, including:
  - a. Widen southbound Sierra College Blvd to provide a third through lane.
- The **Sierra College Blvd / Dominguez Road / Bass Pro Drive** intersection is projected to operate at LOS F in the a.m. peak hour and LOS F in the p.m. peak hour. Improvements anticipated in the City of Rocklin General Plan and addressed by the SPRTA fee program or normally required of fronting development will deliver LOS C, including:
  - a. Widen southbound Sierra College Blvd to provide a third through lane and separate right turn lane.
  - b. Widen the eastbound Dominguez Road approach to provide a left turn lane, a combined through+right turn lane and two separate right turn lanes with overlap phasing (NB left-EB right concurrent).

Additionally, it will be necessary to:

- a. Widen northbound Sierra College Blvd to provide dual left turn lanes.
- Without improvements the **Sierra College Blvd / Rocklin Road** intersection is projected to operate at LOS D in the a.m. peak hour and LOS F in the p.m. peak hour. Improvements anticipated in the City of Rocklin General Plan and addressed by the SPRTA fee program or normally required of fronting development will deliver LOS C, including:
  - a. Widen northbound Sierra College Blvd to provide a third through lane and a separate right turn lane.
  - b. Widen southbound Sierra College Blvd to provide dual left turn lanes.
  - b. Widen westbound Rocklin Road to provide a separate right turn lane.
  - c. Reconfigure the eastbound approach to create an overlap phase for the right turn lane (NB left EB right concurrent).

**Cumulative Plus Project Impacts.** Table 14 compares cumulative traffic conditions with and without the 4588 Barton Road project. As shown the addition of project trips does not result in any additional locations with Level of Service in excess of LOS C, and the same four intersections that were deficient without the project will continue to operate with Level of Service in excess of LOS C.

Under City of Rocklin guidelines, if an intersection is already operating at an unsatisfactory Level of Service, an increase of 5 percent (i.e., an addition of 0.05) to the v/c ratio at a signalized intersection would be considered a measureable worsening of intersection operations and

therefore would constitute a significant project impact. At signalized intersections evaluated based on the HCM, a 5.0 second increase in delay is deemed significant.

Table 17 identifies the incremental change in v/c ratio resulting from the project at deficient intersections at intersections on City streets. As shown, the changes range from 0.001 to 0.014. At no location does the change exceed the 0.050 increment allowed under City guidelines, and as a result the project's cumulative impact is not significant.

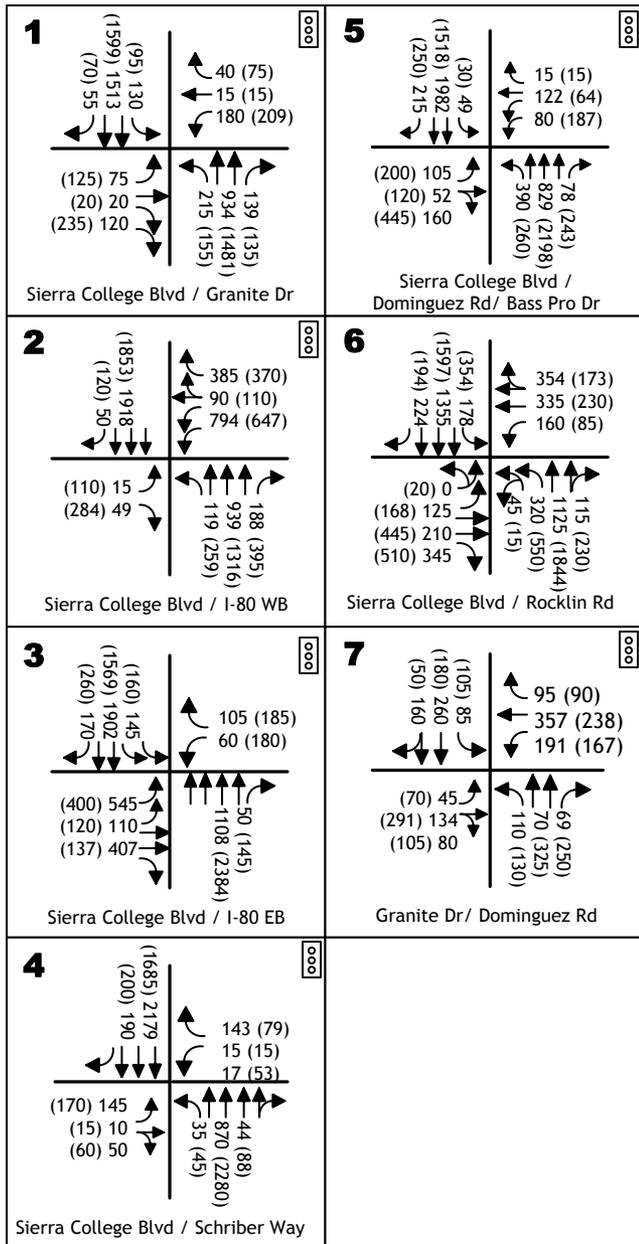
**Off ramp Queues.** The relative impacts of project trips on Interstate 80 ramps has been evaluated based on comparison of peak period queue lengths and available storage. The volume of traffic added by the project and resulting 95<sup>th</sup> percentile queues were identified as a byproduct of Synchro LOS analysis, and the results are noted in Table 15. As shown, with one exception these cumulative long term future queues can be accommodated by existing storage. The exception is the right turn lane on the eastbound I-80 off ramp where the morning peak hour queue may exceed the 210 foot long turn lane with and without the proposed project. The project does not, however, appreciably increase the length of queue, and as a result the project's incremental impact is not significant.

**Mainline Interstate 80 Level of Service.** Conditions on mainline I-80 have been evaluated based on current Annual Average Daily Traffic (AADT) volumes and the Level of Service volume thresholds contained in the Rocklin General Plan EIR. As noted in Table 16, mainline I-80 is projected to operate at LOS F in 2030 if no improvements are made.

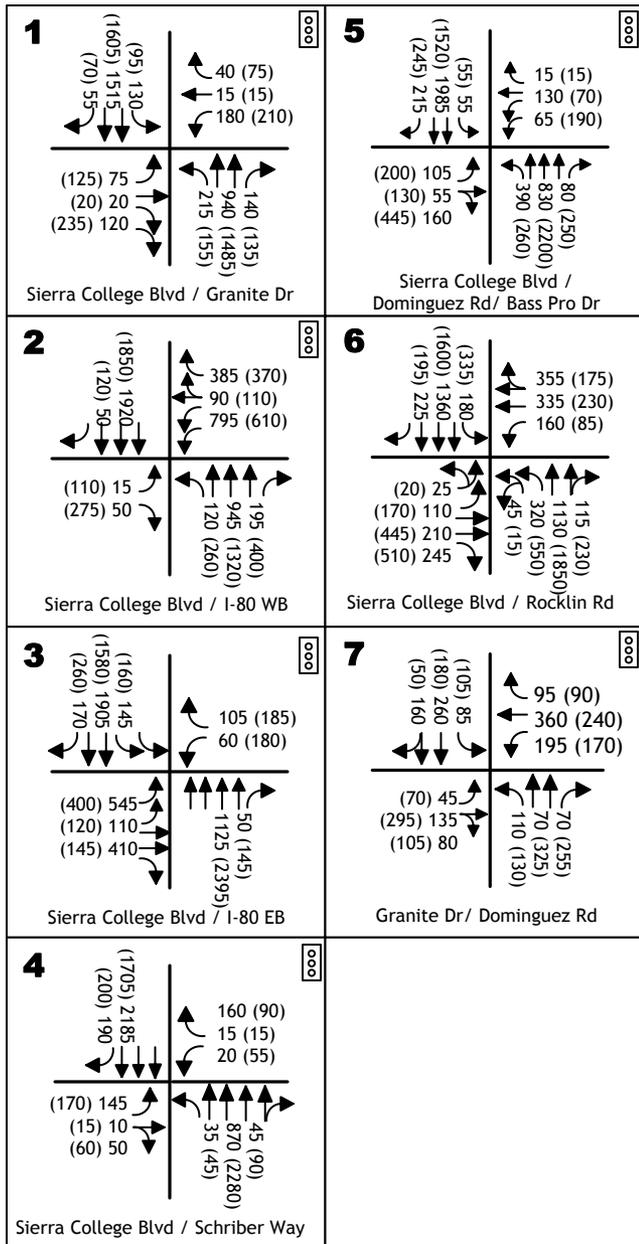
The **Transportation Corridor Concept Report (TCCR)** is Caltrans long range (20 year) planning document for each State Highway route. The purpose and need of each TCCR are to identify existing route conditions and future needs, including existing and forecasted travel data, a concept Level of Service (LOS) standard, and the facility needed to maintain the concept LOS and address mobility needs over the next 20 years.

The Interstate 80 TCCR provides data for the portion of Interstate 80 from the Sierra College Blvd interchange to the Nevada state line. Interstate 80 west of Sierra College Blvd is in segment 9. While the area from Sierra College Blvd easterly through the Town of Loomis to Auburn is in segment 9. The TCCR suggests that Interstate 80 will carry 137,000 AADT in the year 2035 which is generally consistent with the forecasts made in this report. The TCCR notes that the concept LOS for segment 8 is LOS E assuming implementation of Bus/carpool lanes are planned. Similarly, bus / carpool lanes are planned on segment 9, and the concept Level of Service for this area is also LOS E. These improvements are also noted in the 2016 Placer County Regional Transportation Plan (2016 RTP), although that documents notes that this work is only in the Project Development stage, is not expected to be completed until after 2036 and funding is not secure (i.e., Tier II project).

Because the proposed project is consistent with adopted General Plan land use plan for the City of Rocklin, this use is recognized in regional planning efforts. The project itself is too small to have an individually considerable contribution to the cumulative conditions on Interstate 80.



2030 NO PROJECT  
TRAFFIC VOLUMES AND LANE CONFIGURATIONS



2030 PLUS PROJECT  
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

**TABLE 14  
CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE**

Intersection	Control	Time Period											
		AM Peak Hour (7:00 to 9:00 a.m.)						PM Peak Hour (4:00 to 6:00 p.m.)					
		Cumulative			Cumulative Plus Project			Cumulative			Cumulative Plus Project		
		LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)	LOS	V / C	Average Delay (sec/veh)
Granite Drive / Dominguez Rd	Signal	A	0.500	-	A	0.503	-	B	0.633	-	B	0.641	-
Sierra College Blvd / Granite Drive	Signal	<b>D</b>	<b>0.840</b>	-	<b>D</b>	<b>0.840</b>	-	<b>D</b>	<b>0.892</b>	-	<b>D</b>	<b>0.894</b>	-
	Improved	B	0.678	-	B	0.679	-	C	0.724	-	C	0.726	-
Sierra College Blvd / WB I-80 / Commons Dr	Signal	B	-	21.9	C	-	21.9	C	-	32.8	C	-	32.9
Sierra College Blvd/ EB I-80 / Crossings Dr	Signal	C	-	30.7	C	-	30.9	C	-	28.7	C	-	29.1
Sierra College Blvd / Schriber Way	Signal	<b>E</b>	<b>0.974</b>	-	<b>E</b>	<b>0.988</b>	-	C	0.784	-	C	0.798	-
	Improved	C	0.724	-	C	0.737	-	B	0.590	-	B	0.602	-
Sierra College Blvd / Dominguez Rd / Bass Pro Drive	Signal	<b>F</b>	<b>1.129</b>	-	<b>F</b>	<b>1.134</b>	-	<b>F</b>	<b>1.163</b>	-	<b>F</b>	<b>1.172</b>	-
	Improved	C	0.739	-	C	0.753	-	C	0.714	-	C	0.733	-
Sierra College Blvd / Rocklin Rd	Signal	<b>D</b>	<b>0.889</b>	-	<b>D</b>	<b>0.891</b>	-	<b>F</b>	<b>1.370</b>	-	<b>F</b>	<b>1.372</b>	-
	Improved	C	0.744	-	C	0.747	-	C	0.794	-	C	0.794	-

**Bold** indicates conditions in excess of adopted minimum LOS standard

**TABLE 15  
CUMULATIVE PLUS PROJECT OFF RAMP QUEUES**

Intersection	Lane	Storage (feet)	Time Period									
			AM Peak Hour (7:00 to 9:00 a.m.)					PM Peak Hour (4:00 to 6:00 p.m.)				
			Year 2030		Year 2030 Plus Project			Year 2030		Year 2030 Plus Project		
			Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)	95 <sup>th</sup> Percentile Queue (feet)	Volume (vph)		95 <sup>th</sup> Percentile Queue (feet)
Project	Total	Project			Total							
Westbound off ramp	Left (2)	950 (2)	793	540	2	795	540	645	580	5	650	585
	Through + right turn	725*	90	165	0	90	165	110	260	0	110	260
	Right turn	210	385	125	0	385	125	370	210	0	370	210
Eastbound off ramp	Left (2)	560**	545	305	0	545	305	400	265	0	400	265
	Through (2)	1,580**	110	90	0	110	90	120	110	0	120	110
	Right turn	210	<b>406</b>	<b>280</b>	<b>4</b>	<b>410</b>	<b>285</b>	130	35	15	145	45

(2) dual lanes  
 (\*) another 580 feet of off ramp exists prior to ramp gore. (\*\*) another 510 feet of ramp exists prior to ramp gore

**TABLE 16  
CUMULATIVE INTERSTATE 80 MAINLINE LEVEL OF SERVICE**

From	To	Lanes	Capacity (VPD)	Year 2030			Year 2030 Plus Project			
				Daily Volume (AADT)	V/C	Level of Service	Daily Volume (AADT)		V/C	Level of Service
							Project	Total		
Rocklin Road	Sierra College Blvd	6	108,000	133,845	1.239	F	125	133,970	1.241	F
Sierra College Blvd	Horseshoe Bar Road	6	108,000	132,645	1.228	F	45	132,690	1.229	F

**TABLE 17  
CUMULATIVE PLUS PROJECT IMPACT SIGNIFICANCE**

Intersection	Control	Time Period									
		AM Peak Hour (7:00 to 9:00 a.m.)					PM Peak Hour (4:00 to 6:00 p.m.)				
		Cumulative		Cumulative Plus Project			Cumulative		Cumulative Plus Project		
		LOS	V / C or delay	LOS	V / C or delay	Difference	LOS	V / C or delay	LOS	V / C or delay	Difference
Sierra College Blvd / Granite Drive	Signal	<b>D</b>	<b>0.840</b>	<b>D</b>	<b>0.840</b>	0.000	<b>D</b>	<b>0.892</b>	<b>D</b>	<b>0.894</b>	0.002
Sierra College Blvd / Schriber Way	Signal	<b>E</b>	<b>0.974</b>	<b>E</b>	<b>0.988</b>	0.014	C	0.784	C	0.798	0.014
Sierra College Blvd / Dominguez Rd / Bass Pro Drive	Signal	<b>F</b>	<b>1.129</b>	<b>F</b>	<b>1.234</b>	0.005	<b>F</b>	<b>1.163</b>	<b>F</b>	<b>1.172</b>	0.009
Sierra College Blvd / Rocklin Road	Signal	<b>D</b>	<b>0.889</b>	<b>D</b>	<b>0.891</b>	0.002	<b>F</b>	<b>1.370</b>	<b>F</b>	<b>1.372</b>	0.002

**Bold** indicates conditions in excess of adopted minimum LOS standard

### **Vehicle Miles Traveled (VMT)**

The travel associated with the proposed project can be further characterized in terms of Vehicle Mile of Travel (VMT). Vehicle Mile Traveled is intended to become an evaluation criteria under CEQA but as yet no specific significance criteria to evaluate VMT forecasts has been adopted.

For this analysis a project VMT forecast was created using the City of Rocklin travel demand forecasting model that was the basis for the cumulative traffic impact evaluation. A specific traffic analysis zone (TAZ) was created for the project and its travel was isolated from that associated with the land issues in the remainder of the Sacramento Metropolitan Area.

Under cumulative conditions with the circulation system improvements anticipated by the City of Rocklin, the proposed project is forecast to 3,592 weekday daily VMT.

## APPENDIX

Level of Service Analysis Worksheets (under separate cover)

### **Vehicle Miles Traveled (VMT)**

The travel associated with the proposed project can be further characterized in terms of Vehicles Mile of Travel (VMT). Vehicles Mile Traveled is intended to become an evaluation criteria under CEQA, but as yet no specific significance criteria to evaluate VMT forecasts have been adopted.

For this analysis a project VMT forecast was created using the City of Rocklin travel demand forecasting model that was the basis for the cumulative traffic impact evaluation. A specific traffic analysis zone (TAZ) was created for the project and its travel was isolated from that associated with the land issues in the remainder of the Sacramento Metropolitan Area.

Under cumulative conditions with the circulation system improvements anticipated by the City of Rocklin but without the Dominguez Road Overcrossing, the proposed project is forecast to 3,724 weekday daily VMT, which exceeds the forecast of 3,592 with the Overcrossing in place.