

5

TRANSPORTATION AND CIRCULATION

5.1 INTRODUCTION

The Transportation and Circulation chapter of the EIR discusses the existing transportation and circulation facilities within the project vicinity, as well as applicable policies and guidelines used to evaluate operation of such facilities. Where development of the proposed project would conflict with applicable policies or guidelines, mitigation measures are identified. The information contained within this chapter is primarily based on the Traffic Impact Analysis prepared for the proposed project by KD Anderson & Associates, Inc. (see Appendix E),¹ as well as the Placer County General Plan,² the Placer County General Plan EIR,³ and the Granite Bay Community Plan.⁴

5.2 EXISTING ENVIRONMENTAL SETTING

The section below describes the physical and operational characteristics of the existing transportation system within the project area, including the surrounding roadway network, transit, bicycle, and pedestrian facilities.

Existing Roadways and Intersections

The following sections provide a summary of the existing roadways and intersections within the project area.

Douglas Boulevard

Douglas Boulevard is a major east-west arterial roadway extending from Vernon Street in Roseville, across Interstate 80 (I-80) through Roseville, and into Placer County to Folsom Lake. Douglas Boulevard is a six-lane facility from I-80 east to Sierra College Boulevard through the City of Roseville. Douglas Boulevard transitions to a four-lane divided roadway with left-turn channelization east of Sierra College Boulevard into the unincorporated community of Granite Bay. The four-lane section extends past the project site east to Auburn-Folsom Road. East of Auburn-Folsom Road, Douglas Boulevard continues as a two-lane undivided roadway to the Folsom Lake recreational area. Douglas Boulevard is designated as a “Scenic” Roadway in the Granite Bay Community Plan Circulation Element.

¹ KD Anderson & Associates, Inc. *Traffic Impact Analysis for Quarry Ridge Professional Office Park*. January 17, 2019.

² Placer County. *Countywide General Plan Policy Document*. August 1994 (updated May 2013).

³ Placer County. *Countywide General Plan EIR*. July 1994.

⁴ Placer County. *Granite Bay Community Plan*. Adopted February 28, 2012.

A 20-foot-wide, landscaped median exists on Douglas Boulevard in the vicinity of the project site. Eastbound and westbound left-turn lanes are provided at the Berg Street intersection, but a raised median prohibits left turns or through traffic across Douglas Boulevard. The posted speed limit on Douglas Boulevard is 55 mph. Daily traffic volume counts conducted in May 2017 indicate that the volume of traffic on Douglas Boulevard varies along the length of the roadway. Immediately east of the Douglas Boulevard/Sierra College Boulevard intersection, Douglas Boulevard carries approximately 47,564 vehicles per day. The volume decreases to 40,789 vehicles per day east of Joe Rodgers Road.

Sierra College Boulevard

Sierra College Boulevard is a major north-south arterial roadway that links the Granite Bay area with Sacramento County to the south and with the Roseville/Rocklin area to the north. Within the project vicinity, Sierra College Boulevard is a six-lane facility that reduces to four lanes in the area north of Olympus Drive.

Douglas Boulevard/Sierra College Boulevard Intersection

The Douglas Boulevard/Sierra College Boulevard intersection is controlled by a traffic signal. Each roadway has three through-travel lanes in each direction, along with dual left-turn lanes. Separate right-turn lanes exist on the south, east, and west legs of the intersection.

Woodgrove Way and Quail Oaks Drive

Woodgrove Way and Quail Oaks Drive are local/collector streets that intersect Douglas Boulevard west of the project site. Quail Oaks Drive provides access to an existing residential neighborhood north of Douglas Boulevard. Woodgrove Way extends south from Douglas Boulevard to Greyhawk Drive which, in turn, extends south to an intersection on Eureka Boulevard. The Woodgrove Way-Greyhawk Drive route is the only link between Douglas Boulevard and Eureka Road in the area from Sierra College Boulevard to Barton Road. The posted speed limit is 25 mph.

Douglas Boulevard/Quail Oaks Drive/Woodgrove Way Intersection

The Douglas Boulevard/Quail Oaks Drive/Woodgrove Way intersection is controlled by stop signs on the Quail Oaks Drive and Woodgrove Way approaches. Douglas Boulevard has two through lanes in each direction at the intersection. A separate right-turn lane is provided on the eastbound Douglas Boulevard approach. The Douglas Boulevard approaches have separate left-turn lanes that are approximately 160 to 180 feet long. The Quail Oaks Drive and Woodgrove Way approaches are striped as single lanes, although the Woodgrove Way approach is relatively wide (i.e., 30 feet). Crosswalks are striped across the south leg of the intersection.

Seeno Avenue

Seeno Avenue is a two-lane local collector street that extends north from Douglas Boulevard to provide access to the Olive Ranch community in Granite Bay. In addition, Seeno Avenue provides a route to Greenhills Elementary School. The posted speed limit on Seeno Avenue is 25 mph.

Douglas Boulevard/Seeno Avenue Intersection

The Douglas Boulevard/Seeno Avenue intersection is controlled by an actuated traffic signal. Douglas Boulevard has two through lanes in each direction at the intersection. Separate left-turn/U-turn lanes have been created on eastbound Douglas Boulevard (150 feet long) and on westbound Douglas Boulevard (80 feet long). The southbound Seeno Avenue approach is a single lane. Striped crosswalks are not provided at the intersection.

Granite Estates Drive

Granite Estates Drive is a local street that extends south from Douglas Boulevard to provide access to a developing office park. Within the project area, Granite Estates Drive is roughly 24 feet wide (edge of pavement to edge of pavement). The Granite Estates Drive approach to Douglas Boulevard has been improved to satisfy Placer County's Plate 116 standard approach configuration for the design speed of Douglas Boulevard serving a rural estate (i.e., 45-foot radius returns and a 175-foot-long approach taper).

Douglas Boulevard/Granite Estates Drive Intersection

The Douglas Boulevard/Granite Estates Drive intersection is currently controlled by a stop sign on the northbound Granite Estates Drive approach. The median is opened to allow partial access. While a westbound left-turn lane is provided at the Granite Estates Drive intersection, the raised median prohibits left turns or through traffic across Douglas Boulevard. Douglas Boulevard is wide enough to accommodate westbound to eastbound U-turns. Crosswalks are not provided at the intersection.

Berg Street

Berg Street is a two-lane collector street that extends for approximately 0.5-mile to link Douglas Boulevard with Olive Ranch Road. The width of Berg Street varies along its length. While the two travel lanes are approximately 24 feet wide, paved shoulders and intersection approach tapers extend the pavement width in many locations. The speed limit on Berg Street is 35 mph.

The Granite Bay Community Plan indicates that Berg Street carried 700 vehicles per day in 2001. The recent intersection counts conducted as part of the Traffic Impact Analysis indicated that during peak traffic hours, Berg Street carried approximately 111 to 126 vehicles per hour in the area north of Douglas Boulevard, or roughly 1,200 vehicles per day.

Douglas Boulevard/Berg Street Intersection

The Douglas Boulevard/Berg Street intersection is currently controlled by stop signs on the southbound Berg Street approach and the northbound approach from the existing specialty retail center. Both aforementioned approaches are limited to right turns only. Left-turn lanes exist on Douglas Boulevard approaching the intersection, and Douglas Boulevard is wide enough to accommodate U-turns. Crosswalks are not provided at the intersection.

Macargo Road

Macargo Road is a two-lane local street that links Berg Street and Barton Road in the area north of Douglas Boulevard.

Barton Road

Barton Road is a two-lane north-south arterial street that intersects Douglas Boulevard approximately 0.5-mile east of Berg Street. Barton Road extends northerly to the Town of Loomis and southerly through Granite Bay to the Sacramento County line. The speed limit on Barton Road is 35 mph in the area north of Douglas Boulevard.

Douglas Boulevard/Barton Road Intersection

The Douglas Boulevard/Barton Road intersection is controlled by an actuated traffic signal that operates with “split” phases on Barton Road. The northbound Barton Road approach has three lanes that are configured as left-turn, through/left-turn, and separate right-turn lanes. The southbound approach has two lanes that are striped as through/left-turn and separate right-turn lanes. Separate left-turn lanes are provided on the Douglas Boulevard approaches. In addition, a right-turn lane is provided on the westbound approach. Crosswalks are striped across the Barton Road legs and the eastern Douglas Boulevard leg of the intersection.

Auburn-Folsom Road

Auburn-Folsom Road is a north-south arterial street that extends from Folsom northerly through Granite Bay to Auburn. Auburn-Folsom Road from Folsom to Douglas Boulevard has been widened to four lanes, as has the short segment north of Douglas Boulevard along the existing retail frontage.

Douglas Boulevard/Auburn-Folsom Road Intersection

The Douglas Boulevard/Auburn-Folsom Road intersection is controlled by a traffic signal. The Auburn-Folsom Road approach operates with split phases. The four-lane northbound approach is configured with a left-turn, combined left/through lane, through lane and right-turn lane. Each approach on Douglas Boulevard has two through lanes and separate left-turn and right-turn lanes. The eastbound right-turn lane is separated from the traffic signal control. Crosswalks are striped across each leg of the intersection.

Barton Road/Eureka Road Intersection

The Barton Road/Eureka Road intersection is controlled by an all-way stop. The southbound approach has a separate right-turn lane, while the remaining three approaches are limited to single lanes.

Common Traffic Analysis Terms

Level of Service (LOS) is a qualitative measure of traffic operating conditions, whereby a letter grade, from A to F is assigned, based on quantitative measurements of delay per vehicle. The grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions. Table 5-1 summarizes the general characteristics associated with each LOS grade, with average delay presented in seconds per vehicle (sec/veh). At unsignalized intersections, LOS is supplemented by consideration of the need for traffic signals based on the Traffic Signal Warrant criteria published in the *California Manual of Uniform Traffic Control Devices* (MUTCD). Peak-hour traffic volume warrants are used to identify needed improvements and/or confirm the significance of impacts at unsignalized intersections.

LOS	Signalized Intersections	Unsignalized Intersections	Roadway Segments
A	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10 sec/veh	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
B	Uncongested operations, all queues clear in a single cycle. Delay > 10 sec/veh and ≤ 20 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. Delay > 20 sec/veh 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. Long queues are not formed. Delay > 35 sec/veh 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). Delay > 55 sec 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. Delay > 80 sec/veh	Intersection often blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Source: KD Anderson & Associates, Inc., 2018.

The quality of traffic flow on Placer County roadway segments is determined based on the daily traffic volumes and generalized LOS thresholds. The Placer County General Plan EIR includes daily traffic volume thresholds that may be used to identify general operating LOS on County streets and highways. The Placer County volume thresholds are summarized in Table 5-2 below.

Table 5-2 Placer County Evaluation Criteria for Roadway Segment LOS					
Roadway Capacity Class	Maximum Daily Traffic Volume Per Lane				
	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway – Level Terrain	6,300	10,620	13,680	17,740	18,000
Freeway – Rolling Terrain	5,290	8,920	11,650	14,070	15,120
Freeway – Mountainous Terrain	3,400	5,740	7,490	9,040	9,720
Arterial – High Access Control	6,000	7,000	8,000	9,000	10,000
Arterial – Moderate Access Control	5,400	6,300	7,200	8,100	9,000
Arterial – Low Access Control	4,500	5,250	6,000	6,870	7,500
Rural Two-lane Highway – Level Terrain	1,500	2,950	4,800	7,750	12,500
Rural Two-lane highway – Rolling Terrain	800	2,100	3,800	5,700	10,500
Rural Two-lane highway – Mountainous Terrain	400	1,200	2,100	3,400	7,000

Source: KD Anderson & Associates, Inc., 2018.

Study Intersections

The following study intersections are analyzed in the Traffic Impact Analysis:

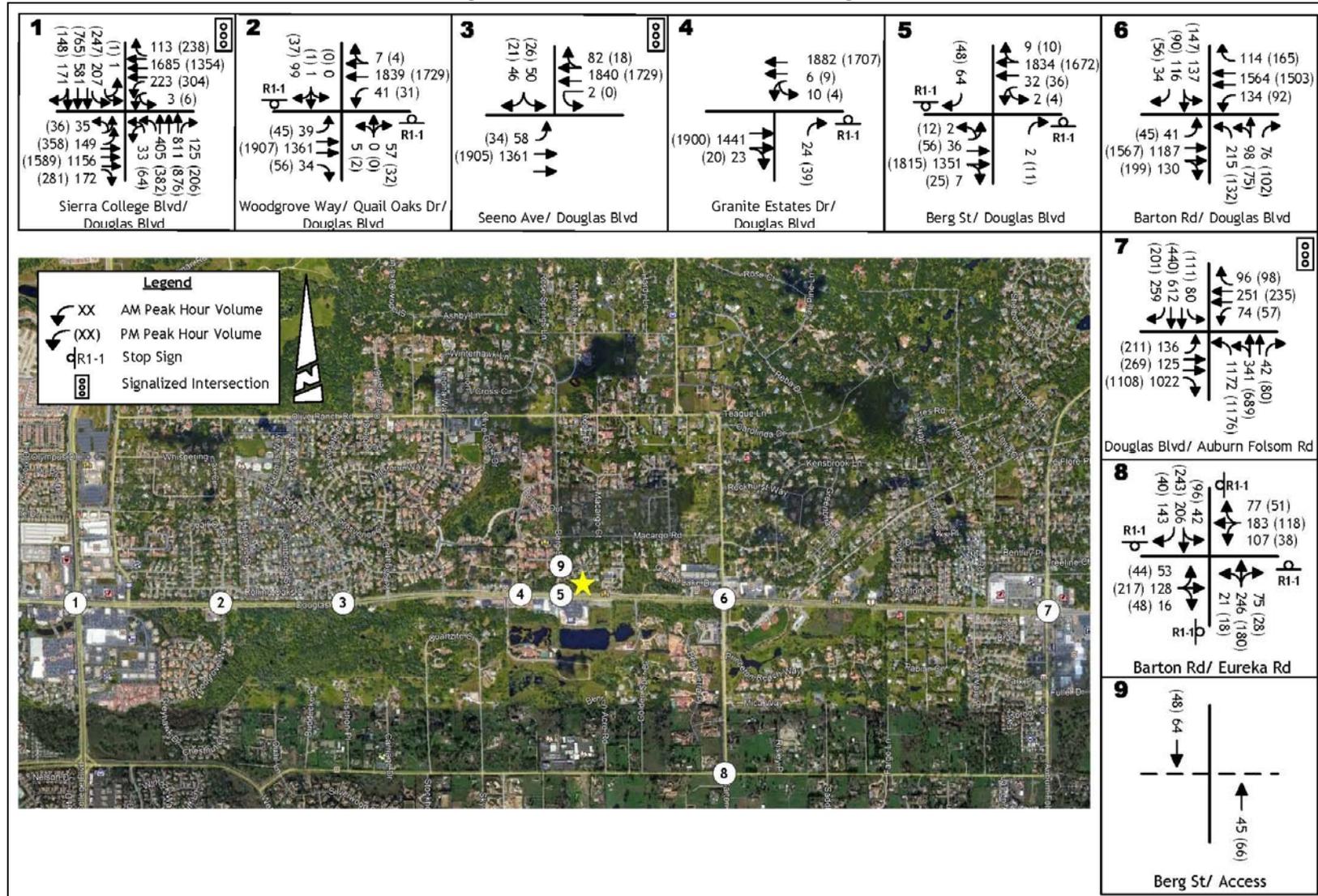
1. Douglas Boulevard/Sierra College Boulevard;
2. Douglas Boulevard/Woodgrove Way/Quail Oaks Drive;
3. Douglas Boulevard/Seeno Avenue;
4. Douglas Boulevard/Granite Estates Drive;
5. Douglas Boulevard/Berg Street;
6. Douglas Boulevard/Barton Road;
7. Douglas Boulevard/Auburn-Folsom Road;
8. Barton Road/Eureka Road; and
9. Berg Street/New Project Access.

Figure 5-1 displays existing AM and PM peak hour traffic volumes at study area intersections identified through traffic counts conducted on May 18, 2017 at all study intersections, with the exception of counts at the Douglas Boulevard/Granite Estates Drive intersection, which were conducted on February 1, 2018. Table 5-3 below provides a summary of the existing delay and LOS at the study intersections for weekday AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak hour conditions, with delay rounded to the nearest 0.5-second.

As shown in the table, all study intersections currently operate acceptably, with the exception of the following intersections:

2. The Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection operates at LOS F during both the AM and PM peak hours, which exceeds the County’s LOS standard of E for this intersection. The intersection carries traffic volumes that satisfy MUTCD peak hour warrants in the AM peak hour.
8. The Barton Road/Eureka Road intersection operates at LOS F in the AM peak hour, which exceeds the County’s LOS standard of C for this intersection. The intersection carries traffic volumes that satisfy MUTCD peak hour warrants in the AM peak hour.

Figure 5-1
Existing Traffic Volumes and Lane Configurations



Source: KD Anderson & Associates, Inc., 2018.

Table 5-3					
Study Intersection LOS – Existing Condition					
Intersection	Control	AM Peak Hour		PM Peak Hour	
		LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)
1. Douglas Blvd/Sierra College Blvd	Signal	D	43.0	E	60.0
2. Douglas Blvd/Woodgrove Way/Quail Oaks Dr (overall) Eastbound left turn Westbound left turn Northbound left/thru/right turn Southbound left/thru/right turn	NB/SB Stop	(F) C B F E	(63.0)* 20.0 14.5 155.5 42.5	(F) C C F F	(120.5) 18.0 20.5 315.5 149.5
3. Douglas Blvd/Seeno Ave	Signal	A	6.5	A	7.0
4. Douglas Blvd/Granite Estates Dr (overall) Westbound left turn Northbound right turn	NB Stop	(C) B C	(16.0) 14.5 17.0	(C) C C	(23.5) 19.5 24.5
5. Douglas Blvd/Berg St (overall) Eastbound left turn Westbound left turn Northbound right turn Southbound right turn	NB/SB Stop	(C) C B B C	(20.0) 20.0 13.0 14.5 23.5	(C) C C C C	(19.0) 18.0 19.0 20.0 20.0
6. Douglas Blvd/Barton Rd	Signal	D	39.0	D	42.5
7. Douglas Blvd/Auburn-Folsom Rd	Signal	D	39.0	D	36.0
8. Barton Rd/Eureka Rd	AWS	F	52.5*	C	24.0
Notes: <ul style="list-style-type: none"> • Bold indicates applicable LOS threshold exceeded. • AWS = all-way stop. • (*) indicates AM peak hour volumes satisfy the Traffic Signal Warrant criteria published in the MUTCD. 					
<i>Source: KD Anderson & Associates, Inc., 2018.</i>					

It should be noted that per the Granite Bay Community Plan, two new traffic signals may eventually be needed on Douglas Boulevard based on projected traffic volumes; however, the community has expressed a desire to avoid signalization. The identified signals are at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive and Douglas Boulevard/Berg Street intersections. Signalization of the intersections would impede the free-flow of traffic, potentially resulting in through traffic diverting from Douglas Boulevard to other less desirable through routes (i.e., any additional delays along Douglas Boulevard may cause through traffic to divert to parallel routes). By keeping Douglas Boulevard in a free-flowing state, through traffic is less likely to divert to other roadways on which through traffic is to be discouraged. The Granite Bay Community Plan further states that signalization of the intersections should be implemented only to correct identified safety or traffic operational problems and only after other measures have been explored and either implemented or rejected.

In response to current traffic volumes and Community Plan goals and policies, Placer County installed raised medians through the Berg Street intersection that eliminated left turns onto Douglas Boulevard, as well as cross traffic between Berg Street and the business on the south side of the street. With such restrictions, current traffic volumes at the Berg Street intersection do not reach the level that would satisfy peak hour traffic signal warrants.

Study Roadway Segments

The following study roadway segments are analyzed in the Traffic Impact Analysis:

1. Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road;
2. Douglas Boulevard: Cavitt Stallman Road to Seeno Avenue;
3. Douglas Boulevard: Seeno Avenue to Barton Road;
4. Douglas Boulevard: Barton Road to Auburn-Folsom Road; and
5. Berg Street: Olive Ranch Road to Douglas Boulevard.

Current daily traffic volumes, in the form of average daily traffic (ADT), were used to identify study roadway segment LOS based on applicable Placer County thresholds (see Table 5-4). As shown in the table, the four-lane segments of Douglas Boulevard from Sierra College Boulevard to Auburn-Folsom Road carry traffic volumes that are indicative of LOS F conditions, which exceed the County’s applicable LOS E threshold for the Douglas Boulevard roadway segments. The Berg Street segment operates acceptably.

Roadway	Segment	Classification	Lanes	ADT	LOS
Douglas Blvd	Sierra College Blvd to Cavitt Stallman Rd	Arterial High	4 to 6	47,570	F
	Cavitt Stallman Rd to Seeno Ave	Arterial High	4	46,830	F
	Seeno Ave to Barton Rd	Arterial High	4	44,800	F
	Barton Rd to Auburn-Folsom Rd	Arterial High	4	42,630	F
Berg St	Olive Ranch Rd to Douglas Blvd	Arterial Low	2	1,200	A

Source: KD Anderson & Associates, Inc., 2018.

Transit System

Limited transit services are provided within Granite Bay. Currently, two adjacent jurisdictions provide transit services, which influence travel patterns within the project area. The nearest transit stops are located approximately 1.6 miles west of the proposed project site near the intersection of Douglas Boulevard and Sierra College Boulevard within the City of Roseville. These transit stops are served by Roseville Transit.

Granite Bay does not include any established transit routes. Rather, the community is currently served by a demand responsive public transit system operated by the Western Placer Consolidated Transportation Services Agency (CTSA) under contract with Placer County Transit (PCT). Per the Placer County Transportation Planning Agency (PCTPA), the Western Placer CTSA has been designated to serve western Placer County, which includes the Granite Bay community. The

service, which operates Monday through Friday, transports patrons to the Sierra Gardens Transfer Center in the City of Roseville, where linkages to established PCT routes and to Roseville Transit are available.

As defined by California law, a CTSA is an agency that coordinates and/or provides transportation services for a particular region, including services for the elderly and individuals with disabilities who cannot use conventional transit services. Since June 2008, the CTSA has developed a public/private partnership (Transit Operator Working Group, Seniors First, and key partners) to run three pilot programs that are intended to serve elderly persons and persons with disabilities who are unable to use conventional public transit services.

Bicycle Facilities

Trails and bikeways within the Granite Bay Community Plan are classified as follows:

- Class I Bikeways (Bike Path) provide a completely separated facility designed for the exclusive use of cycles and pedestrians with minimal crossflows by motorists. Motorized vehicles are not allowed on Class I Bike Paths. Class I Bikeways should have a minimum eight-foot width of hard surfaced pavement with two-foot graded shoulders on either side. Class I Bike Paths that are regional in nature should have a minimum 10-foot paved width. In some cases, a wider shoulder or separated native earth pathway would provide adjacent use for equestrians and those who prefer a native trail surface. Class I Bike Paths must be at least five feet from the edge of a paved roadway.
- Class II Bikeways (Bike Lane) provide a restricted right-of-way designated for the exclusive or semi-exclusive use of cycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted. Class II Bike Lanes generally require a six-foot bike lane, between a right-turn lane and a through lane, where posted speeds are greater than 40 mph with a six-inch white stripe separating the roadway from the bike lane. A five-foot bike lane is required when adjacent to a curb and gutter. Class II Bike Lanes are typically maintained as a part of the road system by the Department of Public Works.
- Class III Bikeways (Bike Route) provide a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists. Roadways designated as Class III Bike Routes should have sufficient width to accommodate motorists, bicyclists, and pedestrians. Other than a street sign, special markings are not required for a Class III Bike Route. Class III Bike Routes are typically maintained as a part of the road system by the Department of Public Works.
- Multiple-Use Trails are designed to support pedestrian, cycle, and equestrian traffic. Motorized vehicles are not allowed on Multiple-Use Trails. Such trails are generally six feet wide, but may be reduced in width to accommodate physical and easement restrictions. Depending on the stability of local soil conditions, Multiple-Use Trails are constructed of native graded soil, decomposed granite (or similarly graded imported aggregate), or native soil treated with a stabilizing agent.

The intent of the trail systems identified in the Granite Bay Community Plan are to implement an interconnected system of trails and paths suitable for safe recreation as well as transportation and circulation. Such goals would be accomplished by providing connections between and through future development, thereby providing the feeder system for the major trails and enhancing overall connectivity of the trail system. The local trails are intended to link to regional trails, as well as to major residential areas and areas of horse populations, employment centers, park and recreation areas, schools, creek corridors, and vista locations.

Within the project area, Class II Bike Lanes are planned on Douglas Boulevard from Sierra College Boulevard to Auburn-Folsom Road. A Class I Bike Path is planned along the south side of Douglas Boulevard. Currently, the project area does not include any dedicated trails. However, per the Granite Bay Community Plan, a Multiple-Use Trail is planned along Berg Street from Douglas Boulevard to Olive Ranch Road.

Pedestrian Facilities

Currently, continuous sidewalks exist along the north side of Douglas Boulevard from Auburn-Folsom Road to Roseville. However, gaps in sidewalk exist on the south side of Douglas Blvd where development has not occurred and sidewalks have not yet been installed. Designated pedestrian crossings on Douglas Boulevard are limited. Crosswalks exist at signalized intersections east of the project at Barton Road and west at Seeno Avenue; however, such locations are at least 0.5-mile from the project site. Under the California Vehicle Code, legal pedestrian crossings exist at public road intersections such as Douglas Boulevard/Berg Street even though the crossing is not marked. Sidewalks are not provided along the site's frontage on Berg Street.

5.3 REGULATORY CONTEXT

Existing transportation policies, laws, and regulations that would apply to the proposed project are summarized below and provide a context for the impact discussion related to the project's consistency with the applicable regulatory conditions. Federal and/or State plans, policies, regulations, or laws related to transportation and circulation are not directly applicable to the proposed project. Rather, the analysis presented herein focuses on local Placer County regulations, which govern the regulatory environment related to transportation and circulation at the project level.

Local Regulations

Local rules and regulations applicable to the proposed project are presented below.

Placer County General Plan

The following policies from the Placer County General Plan are applicable to the proposed project:

- Goal 3.A To provide for the long-range planning and development of the County's roadway system to ensure the safe and efficient movement of people and goods.

- Policy 3.A.1. The County shall plan, design, and regulate roadways in accordance with the functional classification system described in Part I of this Policy Document and reflected in the Circulation Plan Diagram.
- Policy 3.A.2. Streets and roads shall be dedicated, widened, and constructed according to the roadway design and access standards generally defined in Section I of this Policy Document and, more specifically in community plans, specific plans, and the County's Highway Deficiencies Report (SCR 93). Exceptions to these standards may be considered due to environmental, geographical, historical, or other similar limiting factors. An exception may be permitted only upon determination by the Public Works Director that safe and adequate public access and circulation are preserved.
- Policy 3.A.7. The County shall develop and manage its roadway system to maintain the following minimum levels of service (LOS), or as otherwise specified in a community or specific plan).
- a. LOS "C" on rural roadways, except within one-half mile of state highways where the standard shall be LOS "D".
 - b. LOS "C" on urban/suburban roadways except within one-half mile of state highways where the standard shall be LOS "D".
 - c. An LOS no worse than specified in the Placer County Congestion Management Program (CMP) for the state highway system.

Temporary slippage in LOS C may be acceptable at specific locations until adequate funding has been collected for the construction of programmed improvements.

The County may allow exceptions to the level of service standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable based on established criteria. In allowing any exception to the standards, the County shall consider the following factors:

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

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

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

Policy 3.A.13. The County shall assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

Goal 3.B To promote a safe and efficient mass transit system, including both rail and bus, to reduce congestion, improve the environment, and provide viable non-automotive means of transportation in and through Placer County.

Policy 3.B.1 The County shall work with transit providers to plan and implement additional transit services within and to the County that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand.

Policy 3.C.4. During the development review process, the County shall require that proposed projects meet adopted Trip Reduction Ordinance (TRO) requirements.

- Policy 3.D.5. The County shall continue to require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.
- Policy 3.D.8. The CDRA Engineering and Surveying Division and the Department of Public Works shall view all transportation improvements as opportunities to improve safety, access, and mobility for all travelers and recognize cycling, pedestrian, and transit modes as integral elements of the transportation system.

Granite Bay Community Plan

The following policies from the Circulation Element of the Granite Bay Community Plan are applicable to the proposed project:

- Goal 9.1.1 To provide a balanced system of roadways that ensure safe and efficient movement of local and through traffic, accommodate area growth, retain the area's rural and scenic qualities, and accommodate pedestrian and cycle traffic.
- Policy 9.1.2 The rights-of-way for roadways shall be wide enough to accommodate appropriate road paving, trails, paths and bikeways, drainage, public utility services, and substantial trees and shrubs.
- Policy 9.1.3 The level of service (LOS) on major roadways (i.e., arterial and collector routes) and intersections shall be at Level "C" or better during the A.M. and/or P.M. peak hour. The exceptions to this are intersections along Auburn-Folsom from Douglas Boulevard southerly, and along Douglas Boulevard from Auburn-Folsom Road westerly, where the level of service shall be LOS "E" or better during the A.M. and/or P.M. peak hour.
- Policy 9.1.4 The intersection of Douglas Boulevard and Sierra College Boulevard shall have a LOS goal of "E" or better. The County shall work towards providing LOS E at this location until all reasonable improvements (three through lanes, two left turn lanes and a separate right turn lane on all approaches) are made. It is recognized that after all reasonable improvements have been made that the LOS may become worse than LOS "E" during the A.M. and/or P.M. peak hour.
- Policy 9.1.5 Land development projects shall be approved only if LOS C (or the exception cited earlier) can be achieved on roads and

intersections after: a) traffic from approved projects has been added to the system, and b) improvements funded by the capital improvement program (CIP) have been constructed. This will result in temporary slippage of the LOS below the adopted standards until adequate funding has been collected for the construction of CIP improvements.

- Policy 9.1.7. "Through" traffic that must pass through the community shall be accommodated in a manner that will not encourage the use of residential or private roads. Through traffic shall be directed to Douglas Boulevard, Auburn-Folsom Road and Sierra College Boulevard. These routes provide access to Folsom Lake from all directions, and provide a through north-south route as well as a west-south route.
- Policy 9.1.9 Street lights, traffic signals and signs should be used only where essential or practical for safety purposes or for efficient traffic flow.
- Policy 9.1.10 Through trucks shall be limited to Auburn-Folsom Road, Douglas Boulevard and Sierra College Boulevard.
- Policy 9.1.13 Meandering paths, separated from the roadway, shall be used in lieu of sidewalks in all developments with a parcel size of 0.9 acres or more and shall be encouraged in developments with parcel sizes of 0.4 acres or more.
- Policy 9.1.14 Contouring and planting of cut-and-fill slopes shall be an integral part of the road design and construction process; effective planting of these slopes with trees, shrubs, and groundcover is necessary for erosion control and to restore the scenic quality of the road corridor.
- Policy 9.1.16 Roadway surfacing shall be performed in accordance with accepted pavement management strategies within the guidelines for Scenic and Country Roadways and the constraints of limited financial resources.
- Policy 9.1.18. Roads with two or more lanes in each direction shall have a raised landscaped median unless findings are made for not having the median on any given roadway.
- Policy 9.1.21. The community's desire to retain the character of the Country Roadways and the design guidelines for Country Roadways shall be earnestly considered when designing improvements to arterial or collector roads designated as

Country Roadways. The County shall strive for a balance between local community desires and engineering solutions and shall present proposed designs to the community for review prior to approval. Upgrades made to minor arterial and collector roads designated as Country Roadways should be limited to critical safety issues and sufficient shoulder for cyclists and pedestrians.

Policy 9.1.22. No new driveways should be added to any arterial roadway unless it is the only access available to a parcel. An exception to this requirement may be granted where there is a planned stop sign or traffic signal on the arterial adjacent to the parcel.

Policy 9.1.26. Ensure the provision of adequate and accessible road, transit, pedestrian and cycle links between Granite Bay and adjacent communities.

Policy 9.1.27. Roadway design should complement and enhance surrounding land use and community character.

Goal 9.1.2 Local and inter-area public and private transit shall be encouraged and transportation systems management strategies shall be applied to reduce peak-period traffic, total vehicle miles traveled, reduce impact on air quality, improve level of service, and improve safety.

Policy 9.1.2 Bus stop turnouts shall be required at appropriate locations as conditions of approval of development.

Policy 9.1.7 During the development review process, the County shall require that land development projects meet adopted trip reduction ordinance requirements.

Goal 9.1.3 A Capital Improvement Program (CIP) and other funding mechanisms shall be developed to provide for the transportation system.

Policy 9.1.3 Capital improvements shall be undertaken in response to development of the area.

Policy 9.1.4 On-site and "frontage" improvements of land development projects shall be required as conditions of approval for all land development projects.

Policy 9.1.5 Traffic mitigation fees to fund the CIP described in this Plan shall be required as a condition of approval for all land development projects within the Plan area.

- Policy 9.1.6 Improvements that enhance safety shall be given a high priority. After considering community recommendations, the Placer County Board of Supervisors shall determine priority and scheduling of projects from the CIP.
- Policy 9.1.7 All new traffic signals or modifications to existing traffic signals shall incorporate emergency vehicle preemption.
- Goal 9.1.4 Provide safe and comfortable routes for walking, cycling, and public transportation to encourage use of these modes of transportation, enable convenient and active travel as part of daily activities, reduce pollution, and meet the needs of all users of the streets.
- Policy 9.1.3 Consider the accessibility and accommodation of cycle and pedestrian traffic, where appropriate, on and across major thoroughfares.

Placer County Transportation Planning Agency (PCTPA)

The PCTPA is the State-designated Regional Transportation Planning Agency for Placer County and is responsible for making decisions about the County's transportation system. In addition to developing and adopting the regional transportation plans and strategies, the PCTPA also allocates the local transportation fund and has entered into a Memorandum of Understanding with Caltrans and Sacramento Area Council of Governments (SACOG) to govern federal transportation planning and programming in Placer County.

Planned Improvements/Funding Sources

The following provides a summary of the funding sources provided by the South Placer Regional Transportation Authority (SPRTA) and the County's CIP.

South Placer Regional Transportation Authority

Placer County and the cities of Lincoln, Rocklin, and Roseville have joined to form the SPRTA. SPRTA is a Joint Powers Authority (JPA) formed for the purpose of implementing a Regional Transportation and Air Quality Mitigation Fee to fund specified regional transportation projects.

SPRTA funding is directed towards projects such as Placer Parkway, Sierra College Boulevard widening, Lincoln Bypass, the I-80/Douglas Boulevard interchange, State Route (SR) 65 widening, the I-80/Rocklin Road interchange, Auburn-Folsom Road widening, and High Occupancy Vehicle (HOV) lanes on I-80 through Roseville.

Placer County Traffic Impact Fee Program and CIP

In April 1996, the Placer County Board of Supervisors adopted the Countywide Traffic Impact Fee Program, requiring new development within the County to mitigate impacts to the roadway

system by paying traffic impact fees. The fees collected through the Program, in addition to other funding sources, make it possible for the County to construct roads and other transportation facilities and improvements needed to accommodate new development. The fee was last updated by Placer County in July of 2016. The Countywide Traffic Impact Fee Program associated CIP is divided into eleven districts. The proposed project site is included in the Granite Bay Benefit District. The Granite Bay Benefit District includes funds for improvements to the Barton Road/Eureka Road intersection, where a traffic signal or roundabout is currently planned.

5.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to transportation and circulation.

Standards of Significance

According to CEQA Guidelines and the County's Initial Study Checklist, a significant impact would occur related to transportation and circulation if the proposed project would result in any of the following:

- An increase in traffic which may be substantial in relation to the existing and/or planned future year traffic load and capacity of the roadway system (i.e. result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceeding, either individually or cumulatively, an LOS standard established by the County General Plan and/or Community Plan for roads affected by project traffic;
- Increased impacts to vehicle safety due to roadway design features (i.e. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Inadequate emergency access or access to nearby uses;
- Hazards or barriers for pedestrians or bicyclists;
- Conflicts with adopted policies, plans, or programs supporting alternative transportation (i.e. bus turnouts, bicycle lanes, bicycle racks, public transit, pedestrian facilities, etc.) or otherwise decrease the performance or safety of such facilities; or
- Change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

Specific application of the general thresholds listed above is provided further below, based on guidance from Placer County.

Placer County Standards of Significance

Placer County has adopted methodologies for determining the significance of traffic impacts within the context of the LOS goals established by the General Plan and the Granite Bay Community Plan. Methodologies for evaluating intersections and roadway segments within the project area are described in the following sections.

Intersection Assessment Methodology

Minimum acceptable LOS standards within the project area are defined by the Granite Bay Community Plan. The Community Plan notes that the LOS on major roadways (i.e., arterial and collector routes) and intersections shall be C or better during the AM and PM peak hours. The exceptions to the LOS C standard are intersections along Auburn-Folsom Road from Douglas Boulevard southerly and along Douglas Boulevard from Auburn-Folsom Road westerly, where the LOS shall be LOS E or better during the AM and PM peak hours. Based on the Community Plan guidance, LOS E is the minimum allowable LOS at intersections on Douglas Boulevard in the project area, and LOS C is the minimum allowable LOS elsewhere.

Signalized Intersection Assessment Methodology

For signalized intersections, a project may be considered to exceed the established Placer County minimum LOS standard if:

- An intersection operating at or above the established Placer County LOS standard without the project would decrease to an unacceptable LOS with the project;
- An intersection currently operating below the established Placer County LOS standard would experience an increase in V/C (volume to capacity) ratio of 0.05 (5 percent) or greater; or
- An intersection currently operating below the established Placer County LOS standard would experience an increase in overall average intersection delay of 4.0 seconds or greater.

Unsignalized Intersection Assessment Methodology

For unsignalized intersections, a project may be considered to exceed the established Placer County minimum LOS standard if:

- An all-way stop or side-street stop (i.e., two-way stop) controlled intersection which currently operates at or above the established Placer County LOS standard without the project would deteriorate to an unacceptable LOS with the project and cause the intersection to meet MUTCD traffic signal warrant(s); or
- An all-way stop or side-street stop-controlled intersection which currently operates below the established Placer County LOS standard and meets MUTCD traffic signal warrant(s) would experience an overall increase of 2.5 seconds or more with the project.

Intersection delay for all-way stop-controlled intersections is defined as “overall intersection delay”. Intersection delay for side-street stop-controlled intersections is defined as the “overall weighted-average delay for movements yielding the right-of-way”. The applicable MUTCD signal warrants for the proposed project were determined in consultation with the Placer County Department of Public Works transportation staff.

Roadway Segment Assessment Methodology

A project may be considered to exceed the established Placer County minimum LOS standard if:

- A roadway segment operating at or above the established Placer County LOS standard without the project would decrease to an unacceptable LOS with the project;
- A roadway segment currently operating below the established Placer County LOS standard would experience an increase in V/C of 0.05 or greater; or
- A roadway segment currently operating below the established Placer County LOS standard experiences an increase in ADT of 100 or more project-generated vehicle trips per lane (vpl).

Further consideration is given in situations where the existing LOS is just above or at the approved minimum LOS and any increase in vehicle trips, or even daily fluctuations in traffic, would deteriorate the LOS to an unacceptable level. In such cases, the County may determine the second and third bullet points of the above exceptions are more applicable and should be used to analyze a project's impacts.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) determined that development of the proposed project would result in no impact or a less-than-significant impact related to the following:

- Inadequate emergency access or access to nearby uses;
- Hazards or barriers for pedestrians or bicyclists;
- Insufficient parking capacity on-site or off-site; and
- Change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

Accordingly, impacts related to the above are not further analyzed or discussed in this EIR chapter. It should be noted that, in addition to the above issues, the Initial Study concluded that issues related to vehicle safety due to roadway design features (i.e. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) would be less than significant. However, Placer County subsequently determined that additional analysis of issues related to queuing and deceleration speeds at select study intersections was necessary. Such analysis was included as part of the Traffic Impact Analysis, and the results are presented within this chapter.

Method of Analysis

The analysis methodology provided in the Traffic Impact Study prepared for the proposed project by KD Anderson & Associates, Inc. is discussed below.

Analysis Scenarios

The following analysis scenarios are included in this chapter:

- **Existing Condition:** LOS based on current (2017 and 2018) traffic counts, existing roadway geometry, and existing traffic control.
- **Existing Plus Project Condition:** Existing traffic volumes, roadway geometry, and traffic control plus trips from the proposed project.
- **Existing Plus Approved/Pending Projects (EPAP) Condition:** Traffic volumes associated with the Existing Condition plus traffic from additional approved and pending development projects in Granite Bay. The EPAP Condition does not include long-term regional traffic growth.
- **EPAP Plus Project Condition:** Traffic associated with the EPAP Condition plus traffic generated by the proposed project.
- **Cumulative No Project Condition:** Traffic volumes associated with cumulative (year 2036) buildout of the project region without traffic generated by the proposed project. The Cumulative No Project Condition includes reasonably certain projected changes to intersection geometry and roadway segments.
- **Cumulative Plus Project Condition:** Traffic associated with the Cumulative No Project Condition plus traffic generated by the proposed project.

Project Trip Generation

The number of automobile trips that would be generated by the proposed project was estimated through application of trip generation rates acceptable to Placer County. For operation of the project, applicable trip generation rates were obtained from the Institute of Transportation Engineer's (ITE) publication, *Trip Generation Ninth Edition, 2012*. Table 5-5 below identifies the trip generation applied to the proposed office uses.

Table 5-6 summarizes total regular weekday trip generation associated with development of the proposed project. As shown in the table, the currently proposed professional office and medical office uses would generate approximately 567 average daily trips, with 42 total AM peak hour trips and 64 total PM peak hour trips. However, in order to provide a conservative analysis of a worst-case development scenario, the Traffic Impact Analysis relied on AM and PM peak hour trip generation associated with development of professional office uses only, which would result in 43 total AM peak hour trips and 73 total PM peak hour trips.

Table 5-5 Project Trip Generation Rates									
Description	Land Use (ITE Code)	Unit	Trips Per Unit						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Typical Office Professional	710 General Office building < 50 ksf	ksf	18.31	88%	12%	2.53	17%	83%	4.27*
Medical/Dental Office	720 Medical Dental Office Building	ksf	36.13	79%	21%	2.39	28%	72%	3.57

Notes:

- ksf = 1,000 square feet
- (*) = from Placer County fee program

Source: KD Anderson & Associates, Inc., 2018.

Table 5-6 Project Trip Generation Forecasts									
Description	Quantity	Trips Per Unit							
		Daily	AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Proposed Project									
Professional Office	3.20 ksf	59	7	1	8	2	12	14	
Medical Offices	14.06 ksf	508	27	7	34	14	36	50	
Total	17.0 ksf	567	34	8	42	16	48	64	
Professional Office Uses Only									
Professional Office	17.0 ksf	311	38	5	43	12	61	73	

Note: Highlighted value used for impact analysis.

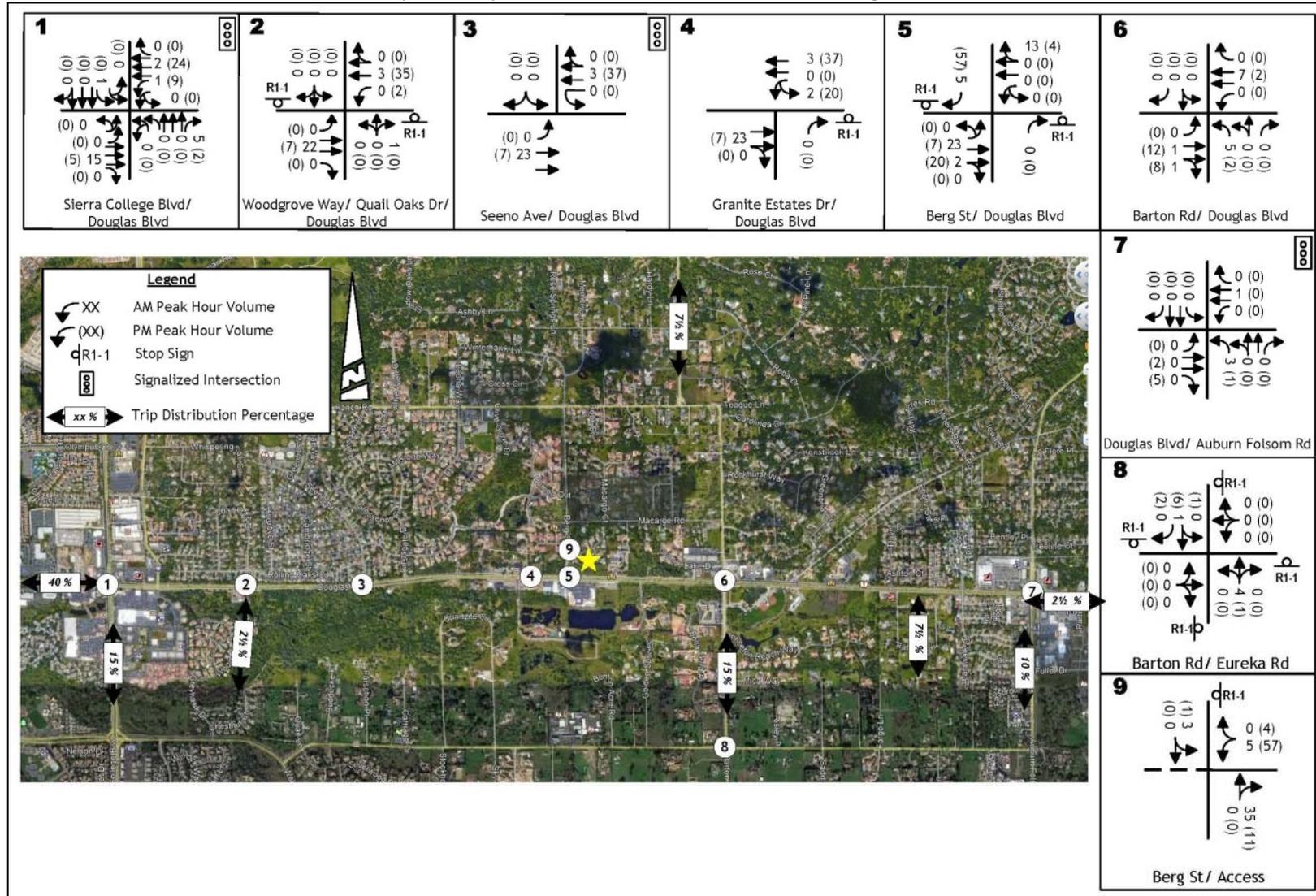
Source: KD Anderson & Associates, Inc., 2018.

Project Trip Distribution and Assignment

The distribution of trips to and from the project site was determined by reviewing current traffic patterns in the area, considering the demographics of the Granite Bay area, review of assumptions approved for previous traffic studies completed for projects along Douglas Boulevard, and review of regional traffic model results.

Medical office uses would primarily serve Granite Bay area residents; however, both medical and professional office uses are likely to generate commute trips that could be attracted from a relatively wide region. The Traffic Impact Analysis employed a distribution pattern that assumed the majority of the project’s trips would be oriented to the west, but with a significant share directed to the east into Granite Bay, as shown in Figure 5-2 and summarized in Table 5-7.

Figure 5-2
Project Only Traffic Volumes and Lane Configurations



Source: KD Anderson & Associates, Inc., 2018.

Table 5-7 Project Trip Distribution	
Direction/Route	Percent of Total New Trips
West on Douglas Blvd beyond Sierra College Blvd	40
East on Douglas Blvd between Barton Rd and Auburn-Folsom Rd	7.5
East on Douglas Blvd beyond Auburn-Folsom Rd	2.5
North on Barton Rd	7.5
South on Auburn-Folsom Rd	10
South on Barton Rd	15
South on Sierra College Blvd	15
South on Woodgrove Way	2.5
Total:	100
<i>Source: KD Anderson & Associates, Inc., 2018.</i>	

The assignment of project trips would reflect the access limitations that currently exist on Douglas Boulevard or are proposed with the project, as well as travel time along alternative routes.

Incoming motorists arriving from the east on Douglas Boulevard would be able to turn right onto Berg Street and then into the site at the new proposed driveway. Trips arriving from the west on Douglas Boulevard would turn left onto Berg Street and then use the new driveway. Trips from the north would turn left from Berg Street into the site. With regard to outgoing trips, vehicles headed west would turn from the driveway onto southbound Berg Street and then right on Douglas Boulevard.

Due to the existing median at Douglas Boulevard, vehicles destined for locations to the east would be required to turn right onto westbound Douglas Boulevard and make a U-turn at the next median opening. The Granite Estates Drive median opening is 800 feet from Berg Street, or roughly 1,000 feet from the project driveway. Alternatively, exiting traffic could turn right onto Berg Street and then use Macargo Road to reach Barton Road and return to Douglas Boulevard.

The choice for eastbound routes is likely to be based on travel time, as both routes would involve a similar distance of approximately 4,500 feet. Accounting for likely delays, the Douglas Boulevard to Barton Road route would take approximately 105 seconds. While the speed limits are lower, the Berg Street/Macargo Road route to the Douglas Boulevard/Barton Road intersection would take approximately the same amount of time. However, the times on each route become different upon reaching the Barton Road intersection, as eastbound traffic on the Douglas Boulevard route is more likely to catch a green indication or to face little delay when turning right onto southbound Barton Road. Conversely, traffic southbound on Barton Road rarely arrives when the traffic signal is green on Douglas Boulevard and extra delay is likely.

Based on the above, motorists headed east on Douglas Boulevard beyond Barton Road or south on Barton Road would likely be split between the two routes. In order to provide a worst-case assessment of impacts to the Douglas Boulevard/Berg Street intersection, all eastbound traffic is assumed to make a U-turn on Douglas Boulevard rather than choosing the Macargo Road route. The resulting assignment of trips is shown in Figure 5-2.

EPAP Condition Assumptions

In developing the EPAP Condition, Placer County staff identified a list of 33 pending and approved projects within Granite Bay. Combined, the 33 pending and approved projects would generate approximately 11,360 daily trips, with 898 AM peak hour trips and 1,312 PM peak hour trips. A complete list of the pending and approved projects analyzed, along with the trip generation for each individual project, is included in Table 16 of the Traffic Impact Analysis (see Appendix E). The trips associated with the identified project list were assigned to the Granite Bay circulation network based on distribution assumptions derived from review of other traffic studies, assessment of current traffic patterns, relative travel times, and review of regional traffic model forecasts. The trip assignment was performed manually using a TRAFFIX local area assignment model to provide adequate detail for assessment of specific intersections. To provide a worst-case assessment, no attempt was made to match trip ends between productions and attractions, as would be the case using a regional model and would reduce the overall amount of new traffic on area streets.

Identified approved projects are conditioned to install improvements to study area intersections or will make access improvements. The Ventura at Eureka subdivision will add a westbound left-turn lane at the Eureka Road/Barton Road intersection. At the Douglas Boulevard/Seeno Avenue intersection, the pending but unapproved Whitehawk II project would construct the south leg of the intersection as the access to the Whitehawk II project site. At the proposed project access on Berg Street, the neighboring Granite Bay Medical Offices development will construct a new access on the west side of the intersection. Such improvements are included in the EPAP Condition.

Cumulative Condition Assumptions

Placer County is currently updating the Granite Bay Community Plan Circulation Element. As part of the update, a new regional travel demand forecasting model was created by Fehr & Peers in coordination with the County. Baseline Year 2016 and Future Year 2036 daily and peak hour model traffic volume forecasts were provided by Placer County for use in the Quarry Ridge Traffic Impact Analysis. Because the proposed project has been included in the Year 2036 land use assumptions, the long-term traffic volume forecasts comprise the Cumulative Plus Project Condition. The Cumulative No Project Condition was identified by manually subtracting the proposed project's trips.

An incremental approach was taken to create the traffic volumes presented in the Quarry Ridge Traffic Impact Analysis. Year 2016 model and Year 2036 model results were compared at intersections and on roadway segments and the incremental difference was identified. Such incremental differences were then added to the current intersection or segment traffic volumes to create the adjusted future condition. It should be noted that the future forecasts were manually adjusted at the Douglas Boulevard/Granite Estate Drive and Douglas Boulevard/Berg Street intersections to account for the local access limitations, including left-turn prohibition and resulting U-turns.

As noted previously, Placer County administers a Countywide Traffic Mitigation Fee Program that requires new development to contribute to the cost of circulation system improvements. The Placer County roadway facilities analyzed in this chapter are addressed in the CIP, and the full list of

projects included in the Granite Bay CIP is included in Table 19 of the Traffic Impact Analysis (see Appendix E). The Cumulative No Project and Cumulative Plus Project Conditions assume implementation of the various improvement projects currently planned per the County's CIP. In addition, the Cumulative No Project and Cumulative Plus Project Conditions assume addition of a southbound right-turn lane at the Douglas Boulevard/Sierra College Boulevard intersection, which is currently anticipated by the City of Roseville.

Impact Assessment Methodology

The Traffic Impact Analysis is intended to describe the traffic impacts of the project and to identify any circulation/roadway improvements needed to reduce project impacts to a less-than-significant level. Existing traffic conditions have been evaluated through observation of current weekday AM and PM peak hour traffic volumes and through review of daily traffic count information provided by Placer County. Project impacts have been quantified and assessed in a manner that is consistent with Placer County policy.

To assess the quality of existing traffic conditions and provide a basis for evaluating project impacts, LOS was calculated for study area intersections. Current operations at intersections and at project driveways were assessed using the procedures contained in the *Highway Capacity Manual, 6th Edition*. The traffic impacts associated with the proposed project have been determined based on the projected change in operating LOS accompanying the project. Project impacts have been quantified by estimating the number and directional distribution of project trips, superimposing such trips onto volumes without the project, and recalculating LOS.

Project Impacts and Mitigation Measures

The proposed project impacts on the transportation system are evaluated in this section based on the thresholds of significance and methodology described above. Each impact is followed by recommended mitigation to reduce the identified impacts, if needed.

5-1 Traffic related to construction activities. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction of the proposed project, including site preparation, grading, construction, and material delivery activities, would generate vehicle trips on local roadways, including heavy-duty haul truck trips. In addition, the proposed project would include grading improvements along Douglas Boulevard at the project frontage to allow for the future construction of a separated right-turn lane along Douglas Boulevard onto Berg Street, a Class II Bike Lane, and new curb, gutter, and sidewalk. With respect to Berg Street along the project frontage, the project includes widening of the existing roadway, ranging from 0 to 12 feet, with new curb, gutter, and a six-foot sidewalk. Such activities could temporarily impede traffic and cause temporary lane closures in the project vicinity, resulting in disruptions to the transportation network near the project site.

Nonetheless, construction workers typically arrive before the morning peak hour and leave before the evening peak hours of the traditional commute time periods. Deliveries of

building material (lumber, concrete, asphalt, etc.) would also normally occur outside of the traditional commute time periods. However, without proper planning of construction activities, construction traffic and potential street closures could interfere with existing roadway operations during the construction phase. Therefore, project traffic related to construction activities could result in a *significant* impact.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

5-1 *The Improvement Plans shall include a striping and signing plan and shall include all on- and off-site traffic control devices. Prior to the commencement of construction, a construction signing and traffic control plan shall be provided to the Engineering and Surveying Division for review and approval. The construction signing and traffic control plan shall include (but not be limited to) items such as:*

- *Guidance on the number and size of trucks per day entering and leaving the project site;*
- *Identification of arrival/departure times that would minimize traffic impacts;*
- *Approved truck circulation patterns;*
- *Locations of staging areas;*
- *Methods for partial/complete street closures (e.g., timing, signage, location and duration restrictions);*
- *Criteria for use of flaggers and other traffic controls;*
- *Preservation of safe and convenient passage for bicyclists and pedestrians through/around construction areas;*
- *Monitoring for roadbed damage and timing for completing repairs;*
- *Limitations on construction activity during peak/holiday weekends and special events;*
- *Preservation of emergency vehicle access;*
- *Coordination of construction activities with construction of other projects that occur concurrently in Granite Bay to minimize potential additive construction traffic disruptions, avoid duplicative efforts (e.g., multiple occurrences if similar signage), and maximize effectiveness of traffic mitigation measures (e.g., joint employee alternative transportation programs);*
- *Removing traffic obstructions during emergency evacuation events; and*
- *Providing a point of contact for Granite Bay residents and guests to obtain construction information, have questions answered, and convey complaints.*

5-2 Study intersections under the Existing Plus Project Condition. Based on the analysis below, impacts to all study intersections under the Existing Plus Project Condition would be less than significant, with the exception of the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection. With implementation of mitigation, the impact to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection is *less than significant*.

As noted previously, development of the proposed project would result in an increase of approximately 567 ADT on local roadways. Figure 5-3 displays the Existing Plus Project Condition traffic volumes at each study intersection in both AM and PM peak hours.

Table 5-8 below summarizes operations at each of the study intersections under the Existing and Existing Plus Project Conditions during AM and PM peak hours, with average delay presented in seconds per vehicle. As shown in the table, all study intersections operate acceptably under the Existing Condition without the addition of project traffic, with the exception of the following intersections:

2. Douglas Boulevard/Woodgrove Way/Quail Oaks Drive (AM and PM peak hours);
and
8. Barton Road/Eureka Road (AM peak hour).

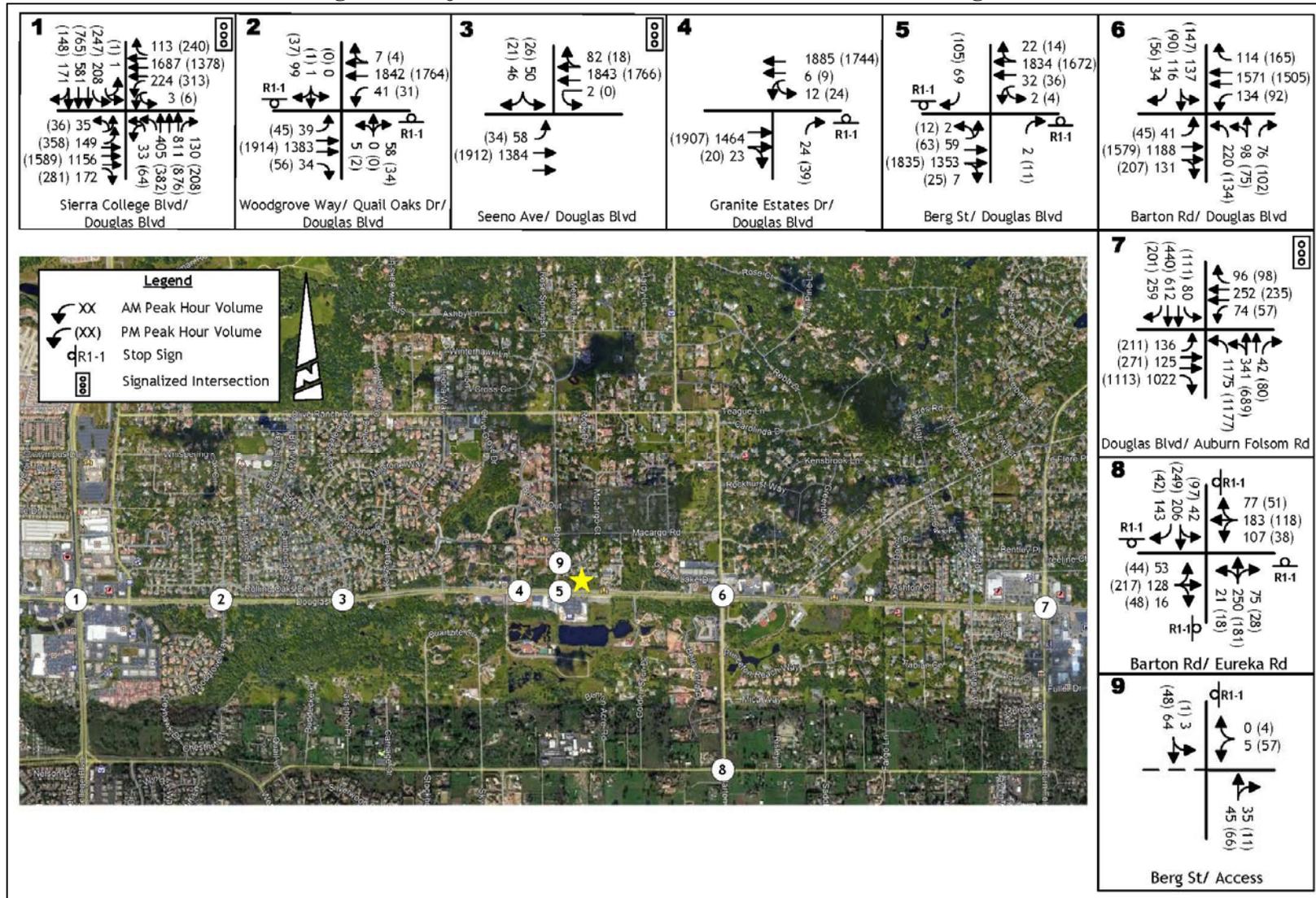
The proposed project would not result in degradation of any intersection from an acceptable LOS to an unacceptable LOS under the Existing Plus Project Condition. Because the intersections listed above are already deficient under the Existing Condition, the project's impact is determined based on the incremental change in overall delay and the satisfaction of traffic signal warrants. The following sections provide an analysis of potential impacts related to operations at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive and Barton Road/Eureka Road intersections.

Douglas Boulevard/Woodgrove Way/Quail Oaks Drive

The addition of project traffic to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would increase average vehicle delay by 1.5 seconds during the AM peak hour and 3.5 seconds during the PM peak hour, which exceeds the County's 2.5-second increase threshold. In addition, the traffic signal warrant is already met under the Existing Condition and would continue to be met under the Existing Plus Project Condition.

Given that the increase in delay during the PM peak hour would exceed the County's 2.5-second increase threshold and the intersection would meet traffic signal warrants, a significant impact to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would occur under the Existing Plus Project Condition. It should be noted that most traffic at the intersection turns right; thus, a traffic signal might be judged to be unjustified at the intersection.

Figure 5-3
Existing Plus Project Condition Traffic Volumes and Lane Configurations



Source: KD Anderson & Associates, Inc., 2018.

**Table 5-8
 Study Intersection LOS – Existing Plus Project Condition**

Intersection	Control	AM Peak Hour				PM Peak Hour			
		Existing		Existing Plus Project		Existing		Existing Plus Project	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. Douglas Blvd/Sierra College Blvd	Signal	D	43.0	D	43.0	E	60.0	E	60.0
2. Douglas Blvd/Woodgrove Way/Quail Oaks Dr (overall)	NB/S B Stop	(F)	(63.0)*	(F)	(64.5)*	(F)	(120.5)	(F)	(123.5)
Eastbound left turn		C	20.0	C	20.0	C	18.0	C	18.5
Westbound left turn		B	14.5	B	14.5	C	20.5	C	20.5
Northbound left/thru/right turn		F	155.5	F	153.5	F	315.5	F	315.5
Southbound left/thru/right turn		E	42.5	E	46.5	F	149.5	F	150.0
3. Douglas Blvd/Seeno Ave	Signal	A	6.5	A	6.5	A	7.0	A	7.0
4. Douglas Blvd/Granite Estates Dr (overall)	NB Stop	(C)	(16.0)	(C)	(16.0)	(C)	(23.5)	(C)	(23.0)
Westbound left turn		B	14.5	B	14.5	C	19.5	C	21.0
Northbound right turn		C	17.0	C	17.0	C	24.5	C	25.0
5. Douglas Blvd/Berg St (overall)	NB/S B Stop	(C)	(20.0)	(C)	(20.5)	(C)	(19.0)	(C)	(21.5)
Eastbound left turn		C	20.0	C	20.0	C	18.0	C	18.0
Westbound left turn		B	13.0	B	13.0	C	19.0	C	19.0
Northbound right turn		B	14.5	B	14.5	C	20.0	C	20.0
Southbound right turn		C	23.5	C	24.5	C	20.0	C	25.0
6. Douglas Blvd/Barton Rd	Signal	D	39.0	D	39.5	D	42.5	D	45.0
7. Douglas Blvd/Auburn-Folsom Rd	Signal	D	39.0	D	39.0	D	36.0	D	36.0
8. Barton Rd/Eureka Rd	AWS	F	52.5*	F	51.5*	C	24.0	C	25.0
9. Berg St/Access (overall)	EB/WB Stop	-	-	(A)	(8.5)	-	-	(A)	(9.5)
Southbound left turn		-	-	A	7.5	-	-	A	7.5
Westbound left/right turn		-	-	A	9.5	-	-	A	9.5

Notes:

- **Bold** indicates applicable LOS threshold exceeded; **Highlight** indicates a potentially significant impact; AWS = all-way stop.
- (*) indicates AM peak hour volumes satisfy the MUTCD Traffic Signal Warrant criteria

Source: KD Anderson & Associates, Inc., 2018.

Barton Road/Eureka Road

The Barton Road/Eureka Road intersection operates at LOS F in the AM peak hour with and without the addition of project traffic and satisfies peak hour traffic signal warrants under both scenarios. Thus, the change in overall delay caused by the proposed project is the applicable significance criteria. Because the project would add traffic to approaches that experience lower individual delay, the overall delay at the intersection would be reduced. Because the AM peak hour delay would not increase by more than the 2.5-second increment permitted by the County, the project's impact is not significant and a less-than-significant impact to the Barton Road/Eureka Road intersection would occur under the Existing Plus Project Condition.

Conclusion

Based on the above, the proposed project would have a less-than-significant impact to the Barton Road/Eureka Road intersection. However, the addition of project traffic to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would cause an increase in delay in excess of the County's 2.5-second increase threshold during the PM peak hour, and the intersection would continue to meet traffic signal warrants. Thus, a *significant* impact to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection could occur under the Existing Plus Project Condition.

Mitigation Measure(s)

Per the Traffic Impact Analysis, signalization of the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would not provide the most effective means of mitigating the identified impact. Specifically, a relatively minimal amount of traffic currently turns left onto Douglas Boulevard, and the effects of a new signal on the overall flow of traffic on Douglas Boulevard would likely be contrary to the goals of the Granite Bay Community Plan. Rather, prohibiting left turns onto Douglas Boulevard and cross traffic would provide the most reasonable means to improve intersection operations. Installing a raised median on Douglas Boulevard to eliminate cross traffic while permitting eastbound and westbound left turns from Douglas Boulevard onto Quail Oaks Drive and onto Woodgrove Way would result in the intersection operating with an overall LOS C, which satisfies the minimum LOS E requirements established in the Granite Bay Community Plan and improves the current intersection operations.

It should be noted that installation of a raised median would have the effect of diverting cross traffic and left turns to other locations. In the AM peak hour, five northbound vehicles on Woodgrove Way and one southbound vehicle on Quail Oaks Drive would be affected.

Per the Traffic Impact Analysis, northbound traffic might logically elect to turn right and make a legal U-turn at the signalized Douglas Boulevard/Seeno Avenue intersection. The southbound through vehicles which currently cross the street to go south on Woodgrove Way may instead turn right and make a U-turn at the Sierra College Boulevard or Cavitt Stallman Road signals or use Rolling Hills Drive to access Douglas Boulevard at the Seeno Avenue signal. Currently, westbound U-turns at the Douglas Boulevard/Cavitt Stallman

Road are not permitted in order to accommodate that traffic signal's existing northbound right-turn-overlap phase, and the signal would need to be modified if it were necessary to allow U-turns at the intersection. However, the volume of traffic diverted at all aforementioned locations would be too small to have an appreciable effect on the operation of the intersections.

The extent to which the Douglas Boulevard/Seeno Avenue intersection can accommodate any increased queuing in the eastbound left turn lane caused by installation of a raised median was evaluated in the Traffic Impact Analysis. Per KD Anderson & Associates, Inc., the existing lane provides 280 feet of storage, and with the existing 150-foot-long bay taper, the area available for deceleration and storage is 430 feet. The longest queue occurs in the AM peak hour when the 95th percentile queue is forecast to be 100 feet. The resulting space between the queue and beginning of bay taper (i.e., 330 feet), accommodates deceleration to a stop from 40 to 45 mph, which satisfies Highway Design Manual (HDM) guidelines for a 55-mph design.

Based on the above, installation of a raised median at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would not result in any substantial adverse effects related to diverted traffic and the intersection would operate at an overall LOS C. Therefore, implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

- 5-2 *The Improvement Plans for the initial development phase shall show the construction of a raised median at the existing intersection of Douglas Blvd. / Woodgrove Way / Quail Oaks Drive that will prohibit northbound and southbound left turn movements onto Douglas Blvd. from Woodgrove Way and Quail Oaks Drive. In addition, the raised median shall allow for eastbound and westbound left turn movements onto Quail Oaks Drive and Woodgrove Way from Douglas Blvd. The construction of the new raised median shall also require the reconstruction of the existing landscaped median to a narrower, stamped, colored, concrete median that will provide a 12-foot-wide eastbound left turn lane along Douglas Blvd. The design shall be to the satisfaction of the Department of Public Works and Facilities and shall conform to any applicable criteria specified in the latest version of the Caltrans Highway Design Manual for a design speed of 55 miles per hour (mph), unless an alternative is approved by the Department of Public Works and Facilities. (ESD)*

5-3 Study roadway segments under the Existing Plus Project Condition. Based on the analysis below, the impact is *less than significant*.

Table 5-9 below summarizes operations at each of the study roadway segments under the Existing and Existing Plus Project Conditions. As shown in the table, while the addition of project traffic would not degrade operations at any of the roadway segments, the project

would increase traffic volumes on multiple roadways that currently operate unacceptably per Placer County thresholds. Thus, as discussed in the Standards of Significance section of this chapter, the significance of the project's impact is based on the project's increase in roadway V/C, as well increases in the average vpl.

The addition of project traffic to the impacted Douglas Boulevard roadway segments would result in V/C increases ranging from 0.003 to 0.009. Such increases are less than the 0.050 increment permitted under Placer County standards of significance.

In addition, the project would add between 28 and 85 vpl at various locations on Douglas Boulevard, which is below the 100 vpl threshold permitted under Placer County significance criteria. Therefore, impacts to study roadway segments under the Existing Plus Project Condition would be *less than significant*.

Mitigation Measure(s)

None required.

5-4 Study intersections under the EPAP Plus Project Condition. Based on the analysis below, the impact is *less than significant*.

As noted previously, the EPAP Condition includes vehicle trip generation associated with a total of 33 pending and approved projects within Granite Bay. Traffic generated by the proposed project was added to the EPAP Condition volumes at area roadway facilities in order to create the EPAP Plus Project Condition. Figure 5-4 displays the EPAP Plus Project Condition traffic volumes at each study intersection in both AM and PM peak hours.

Table 5-10 below summarizes operations at each of the study intersections under EPAP and EPAP Plus Project Conditions during AM and PM peak hours, with average delay presented in seconds per vehicle.

As shown in the table, all study intersections would operate acceptably under EPAP Conditions without the addition of project traffic, with the exception of the following intersections:

2. Douglas Boulevard/Woodgrove Way/Quail Oaks Drive (AM and PM peak hours);
4. Douglas Boulevard/Granite Estates Drive (PM peak hour); and
8. Barton Road/Eureka Road (AM and PM peak hours).

The proposed project would not result in degradation of any intersection from an acceptable LOS to an unacceptable LOS under the EPAP Plus Project Condition. Because the intersections listed above are already deficient under the EPAP Condition, the project's impact is determined based on the incremental change in overall delay and the satisfaction of traffic signal warrants. The following sections provide an analysis of potential impacts related to operations at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive, Douglas Boulevard/Granite Estates Drive, and Barton Road/Eureka Road intersections.

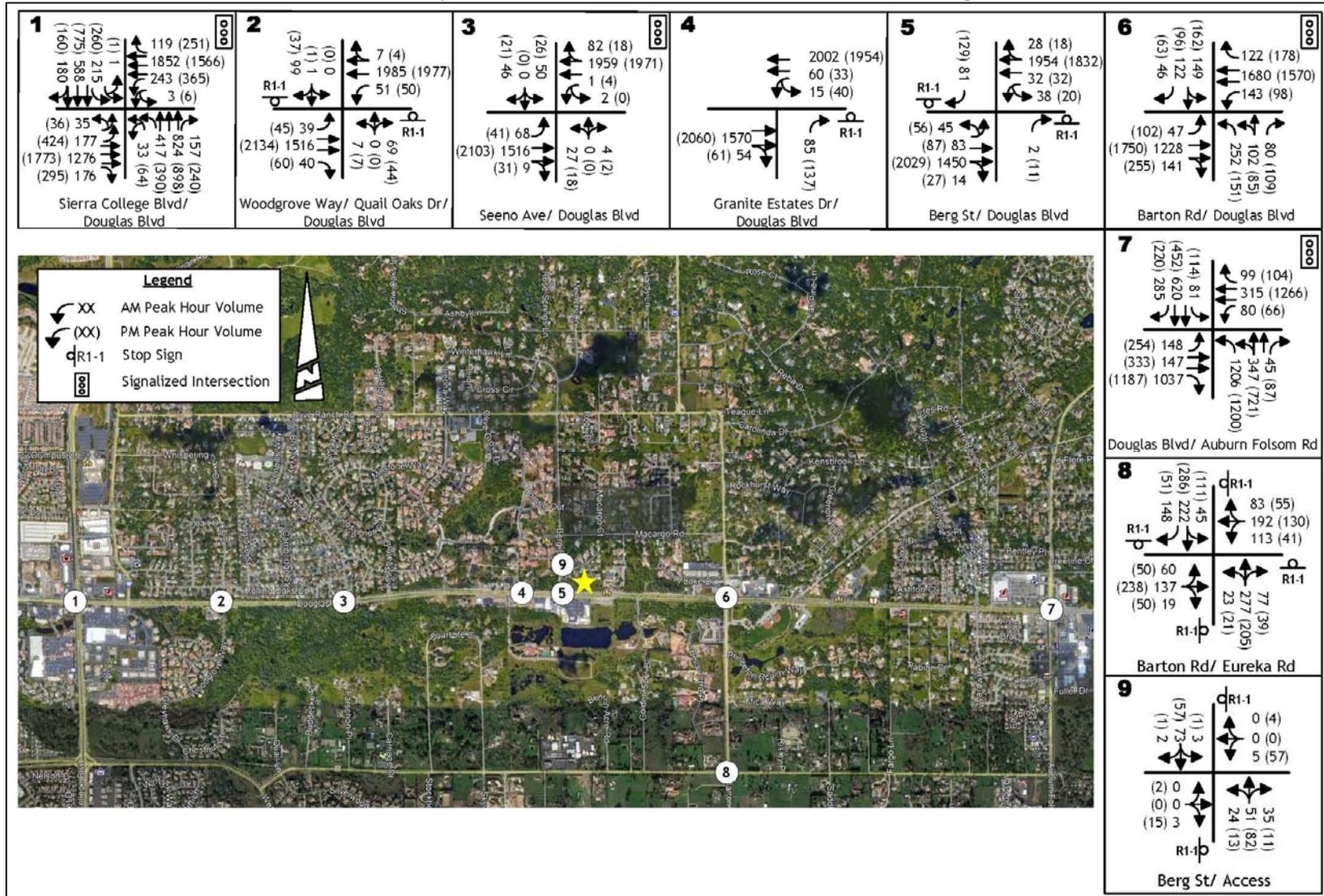
**Table 5-9
 Study Roadway Segment LOS – Existing Plus Project Condition**

Roadway	Segment	Classification	Lanes	Existing		Existing Plus Project			
				ADT	LOS	ADT		LOS	Change in V/C
						Project Only	Total		
Douglas Blvd	Sierra College Blvd to Cavitt Stallman Rd	Arterial High	4	47,570	F	320	47,890	F	0.008
	Cavitt Stallman Rd to Seeno Ave	Arterial High	4	46,830	F	320	47,150	F	0.008
	Seeno Ave to Barton Rd	Arterial High	4	44,800	F	340	45,140	F	0.009
	Berg St to Barton Rd	Arterial High	4	44,800	F	190	44,990	F	0.005
	Barton Rd to Auburn-Folsom Rd	Arterial High	4	42,630	F	110	42,740	F	0.003
Berg St	Olive Ranch Rd to Project	Arterial Low	2	1,200	A	40	1,240	A	0.003
	Project to Douglas Blvd	Arterial Low	2	1,200	A	530	1,730	A	0.035

Note: **Bold** indicates applicable LOS threshold exceeded.

Source: KD Anderson & Associates, Inc., 2018.

Figure 5-4
EPAP Plus Project Condition Traffic Volumes and Lane Configurations



Source: KD Anderson & Associates, Inc., 2018.

Table 5-10
Study Intersection LOS – EPAP Plus Project Condition

Intersection	Control	AM Peak Hour				PM Peak Hour			
		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. Douglas Blvd/Sierra College Blvd	Signal	D	46.5	D	48.0	E	61.5	E	70.0
2. Douglas Blvd/Woodgrove Way/Quail Oaks Dr (overall)	NB/SB Stop	(F)	(148.0)	(F)	(148.0)	(F)	(243.5)	(F)	(241.5)
Eastbound left turn		C	23.0	C	23.0	C	21.5	C	22.0
Westbound left turn		C	16.0	C	16.0	C	27.5	C	27.5
Northbound left/thru/right turn		F	419.0	F	414.0	F	711.0	F	711.0
Southbound left/thru/right turn		F	61.5	F	61.5	F	153.0	F	153.5
3. Douglas Blvd/Seeno Ave	Signal	B	15.5	B	15.5	B	16.5	B	17.0
4. Douglas Blvd/Granite Estates Dr (overall)	NB Stop	(C)	(20.5)	(C)	(21.0)	(F)	(57.0)	(F)	(56.0)
Westbound left turn		C	18.0	B	18.5	D	27.5	D	31.0
Northbound right turn		C	23.0	C	23.0	F	68.5	F	69.5
5. Douglas Blvd/Berg St (overall)	NB/SB Stop	(C)	(23.5)	(D)	(25.0)	(D)	(25.5)	(D)	(30.0)
Eastbound left turn		D	26.5	C	29.0	D	27.0	D	28.5
Westbound left turn		B	15.0	B	15.0	C	23.0	C	23.5
Northbound right turn		C	15.5	B	15.5	C	22.5	C	22.5
Southbound right turn		D	28.0	C	29.0	D	25.0	D	34.5
6. Douglas Blvd/Barton Rd	Signal	E	57.5	E	59.0	E	73.5	E	76.5
7. Douglas Blvd/Auburn-Folsom Rd	Signal	D	46.5	D	47.0	D	46.0	D	46.0
8. Barton Rd/Eureka Rd	AWS	F	73.5	F	75.5	E	44.0	E	46.0
9. Berg St/Access (overall)	WB Stop	(A)	(7.5)	(A)	(8.0)	(A)	(8.0)	(A)	(9.5)
Northbound left turn		A	7.5	A	7.5	A	7.5	A	7.5
Southbound left turn		-	-	A	7.5	-	-	A	7.5
Eastbound left/right turn		A	8.5	A	8.5	A	9.0	A	9.0
Westbound left/right turn		-	-	B	10.0	-	-	B	10.5

Note: **Bold** indicates applicable LOS threshold exceeded; AWS = all-way stop.

Source: KD Anderson & Associates, Inc., 2018.

Douglas Boulevard/Woodgrove Way/Quail Oaks Drive

The proposed project would add vehicles to intersection movements that would experience lower delay times than the overall delay of the intersection under the EPAP Condition. Thus, the overall delay would remain unchanged during the AM peak hour and would decrease by 2.0 seconds during the PM peak hour. Given that the project would not increase delay at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection such that the County's 2.5-second increase threshold would be exceeded during either peak hour, a less-than-significant impact to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would occur under the EPAP Plus Project Condition.

Douglas Boulevard/Granite Estates Drive

Similar to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection, the project would add traffic to intersection movements at the Douglas Boulevard/Granite Estates Drive, which would experience lower delay times than the overall delay of the intersection under the EPAP Condition. Thus, the overall delay would not increase. Given that the project would not increase delay at the intersection such that the County's 2.5-second increase threshold would be exceeded during either peak hour, a less-than-significant impact to the Douglas Boulevard/Granite Estates Drive intersection would occur under the EPAP Plus Project Condition.

Barton Road/Eureka Road

The addition of project traffic to the Barton Road/Eureka Road intersection would increase average vehicle delay but not alter the LOS. Given that the increase in delay during the AM and PM peak hours would not exceed the County's 2.5-second increase threshold, a less-than-significant impact to the Barton Road/Eureka Road intersection would occur under the EPAP Plus Project Condition.

Conclusion

Based on the above, project impacts to study intersections under the EPAP Plus Project Condition would be *less than significant*.

Mitigation Measure(s)

None required.

5-5 Study roadway segments under the EPAP Plus Project Condition. Based on the analysis below, the impact is *less than significant*.

Table 5-11 below summarizes operations at each of the study roadway segments under the EPAP and EPAP Plus Project Conditions.

**Table 5-11
 Study Roadway Segment LOS – EPAP Plus Project Condition**

Roadway	Segment	Classification	Lanes	EPAP		EPAP Plus Project			
				ADT	LOS	ADT		LOS	Change in V/C
						Project Only	Total		
Douglas Blvd	Sierra College Blvd to Cavitt Stallman Rd	Arterial High	4 to 6	51,320	F	320	51,640	F	0.008
	Cavitt Stallman Rd to Seeno Ave	Arterial High	4	50,160	F	320	50,480	F	0.008
	Seeno Ave to Barton Rd	Arterial High	4	47,610	F	340	47,950	F	0.009
	Berg St to Barton Rd	Arterial High	4	45,480	F	190	45,670	F	0.005
	Barton Rd to Auburn-Folsom Rd	Arterial High	4	44,690	F	110	44,800	F	0.003
Berg St	Olive Ranch Rd to Project	Arterial Low	2	1,460	A	40	1,500	A	0.003
	Project to Douglas Blvd	Arterial Low	2	1,990	A	530	2,520	A	0.035

Note: **Bold** indicates applicable LOS threshold exceeded.

Source: KD Anderson & Associates, Inc., 2018.

As shown in the table, while the addition of project traffic would not degrade operations at any of the roadway segments, the project would increase traffic volumes on multiple roadways that are anticipated to operate unacceptably under the EPAP Condition. Thus, as discussed in the Standards of Significance section of this chapter, the significance of the project's impact is based on the project's increase in roadway V/C, as well increases in the average vpl for the segment.

The addition of project traffic to the impacted Douglas Boulevard roadway segments would result in V/C increases ranging from 0.003 to 0.009. Such increases are less than the 0.050 increment permitted under Placer County standards of significance. In addition, the proposed project would add between 30 and 85 vpl at various locations on Douglas Boulevard, which is below the 100 vpl threshold permitted under Placer County.

Therefore, impacts to study roadway segments under the EPAP Plus Project Condition would be *less than significant*.

Mitigation Measure(s)

None required.

5-6 Increased impacts to vehicle safety due to roadway design features (i.e. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

The Traffic Impact Analysis evaluated potential vehicle safety issues associated with the proposed roadway improvements. Issues evaluated included adequacy of the proposed project access at Berg Street, outgoing project traffic weaving across Douglas Boulevard to make U-turns at the Douglas Boulevard/Granite Estates Drive median break located west of the site, and queuing and room for deceleration in left-turn/U-turn lanes in the project area.

Berg Street Access

Per the Traffic Impact Analysis, the proposed project access at Berg Street would allow for adequate site distances, and creation of a new southbound left-turn lane on Berg Street to allow vehicles to enter the project site would not be necessary. Based on the speed of vehicles turning from Douglas Boulevard onto northbound Berg Street, the stopping sight distance at the Berg Street access looking south would be approximately 220 feet, which satisfies the County's minimum stopping sight distance requirement of 150 feet. Similarly, the stopping sight distance looking north from the Berg Street access would satisfy the County's 250-foot minimum stopping sight distance requirement based on the 35 mph design speed for the roadway.

The potential need for addition of a left-turn lane at the proposed Berg Street access was evaluated based on the anticipated traffic volumes occurring during the AM peak hour when the volume of inbound traffic is highest. Under the Cumulative Plus Project

Condition, a total of five vehicles would make left turns into the project site. For the volume of northbound traffic (i.e., 105 vehicles per hour), the advancing volume would need to be in the range of 600 to 700 vehicles per hour at 40 mph design to justify a separate left turn lane at the access. The anticipated volume (i.e., 80 vehicles per hour) falls well outside that range. Therefore, a left-turn lane would not be needed at the project access.

Based on the above, the project access at Berg Street would not create any vehicle safety issues.

Weaving Across Douglas Boulevard

Given that left turns would be prohibited for project traffic approaching the Douglas Boulevard/Berg Street intersection, motorists leaving the site would be required to make a right turn onto Douglas Boulevard and make a U-turn at the Douglas Boulevard/Granite Estates Drive intersection. The Berg Street intersection is located roughly 840 feet from the Granite Estates Drive median break. To use the opening for U-turns, exiting motorists would initially accelerate and then decelerate into the turn pocket.

The adequacy of the existing street layout to accommodate the required weaving is based on the relative difference in speed between weaving and through traffic, as well as the characteristics of traffic flow. Placer County has accepted guidance from the Caltrans HDM Section 4, which describes the permitted speed differential between decelerating and through traffic at turn lanes. The HDM notes that a differential of up to 20 mph can be accepted. In addition, Placer County considers the relative availability of gaps in through traffic created by up-stream traffic signals.

Based on the distance from the Douglas Boulevard/Granite Estates Drive median break to the Douglas Boulevard/Berg Street intersection, as well as the speed differential,⁵ outgoing project traffic would be capable of making a right turn onto Douglas Boulevard and decelerating into the Granite Estates Drive left-turn lane west of the site without creating any substantial traffic safety issues.

Vehicle Queuing in Left-Turn Lanes

Existing, approved, and proposed businesses along Douglas Boulevard take access by way of median openings that are preceded by left-turn/U-turn lanes. The adequacy of such lanes is related to two factors: 1) storage for waiting vehicles; and 2) room for deceleration outside of the flow of through traffic on Douglas Boulevard. It should be noted that currently, the length of every un-signalized left turn pocket on Douglas Boulevard falls

⁵ According to the Traffic Impact Analysis, if there was no queue in the eastbound left-turn lane at Douglas Boulevard/Granite Estates Drive, then an exiting motorist could accelerate to 44 to 45 mph on eastbound Douglas Boulevard before slowing to stop in the empty turn lane at Granite Estates Drive. If another vehicle was waiting to turn, then the total length would be reduced by 25 feet and the maximum speed would be reduced slightly (i.e., 43 to 44 mph). In comparison, the design speed on Douglas Boulevard is 55 mph; thus, the speed differential is 11 to 12 mph.

below the design threshold for full deceleration from 55 mph to a stop (i.e., 485 feet), and some slowing in the adjoining travel lanes on Douglas Boulevard is required.

As part of the Traffic Impact Analysis, queuing capacity was evaluated for the left-turn lanes at the Douglas Boulevard/Berg Street and Douglas Boulevard/Granite Estates Drive intersections.

Douglas Boulevard/Berg Street Left-Turn Lane Deceleration and Storage

Per the Traffic Impact Analysis, the existing 300-foot long eastbound left-turn lane at the Douglas Boulevard/Berg Street intersection provides storage for 12 waiting vehicles and is preceded by a 125-foot-long taper. According to the Traffic Impact Analysis, the lane would provide adequate storage distance for queues anticipated for the Existing Plus Project, EPAP Plus Project, and Cumulative Plus Project Conditions.

Under the Cumulative Plus Project Condition, a six-vehicle queue is expected, and the distance between beginning of the bay taper and waiting cars would be 275 feet. This distance accommodates deceleration from 35 mph, and the difference between this speed and the 55-mph speed limit on Douglas Boulevard would be 20 mph, which would not exceed the HDM maximum. As such, the existing eastbound left-turn lane at the Douglas Boulevard/Berg Street intersection would provide adequate queuing capacity to accommodate the proposed project.

Douglas Boulevard/Granite Estates Drive Left-Turn Lane Deceleration and Storage

The existing 230-foot long westbound left-turn lane at the Douglas Boulevard/Granite Estates Drive intersection provides storage for up to nine waiting vehicles and is preceded by a 120-foot-long taper. According to the Traffic Impact Analysis, the lane would provide adequate storage distance for queues anticipated for the Existing Plus Project, EPAP Plus Project, and Cumulative Plus Project Conditions.

Under Existing and Existing Plus Project Conditions, vehicles queued in the left-turn lane at the Douglas Boulevard/Granite Estates Drive intersection would leave sufficient space in the lane for deceleration. Specifically, the differential between the 55-mph design speed of Douglas Boulevard and the entry speed of the left-turn lane would not exceed 20 mph maximum differential established by the Caltrans HDM.

However, under EPAP Plus Project and Cumulative Plus Project Conditions, vehicles queued in the left-turn lane (estimated to be four vehicles) would limit the remaining space in the lane available for deceleration; a total of 250 feet would be available for deceleration from the beginning of the bay taper to the waiting vehicle. Vehicles entering the lane from through lanes would not have sufficient space to decelerate outside of the flow of traffic on Douglas Boulevard. Specifically, the differential between the 55-mph design speed of Douglas Boulevard and the entry speed of the left-turn lane would be 23 mph, which exceeds the 20 mph HDM maximum. Therefore, a significant impact related to vehicle

queuing could occur at the Douglas Boulevard/Granite Estates Drive intersection during these scenarios.

Conclusion

Based on the above, the proposed project would not result in any substantial vehicle safety issues associated with the proposed project access at Berg Street, project vehicles weaving across Douglas Boulevard to make U-turns at the Douglas Boulevard/Granite Estates Drive median break, and eastbound left turn lane deceleration and storage at the Douglas Boulevard/Berg Street intersection. However, under EPAP Plus Project and Cumulative Plus Project Conditions, the differential between the 55-mph design speed of Douglas Boulevard and the entry speed of the left-turn lane at Granite Estates Drive would be 23 mph, which exceeds the 20 mph HDM maximum. Therefore, the proposed project could result in a *significant* impact related to vehicle safety due to roadway design features (i.e. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Mitigation Measure(s)

Per the Traffic Impact Analysis, elimination of the landscaped median approaching the Douglas Boulevard/Granite Estates Drive intersection would allow for construction of back-to-back turn lanes in the median area. Another 100 feet could be added to the westbound left-turn lane, or the 100-foot distance could be split between the back-to-back turn lanes approaching Granite Estates Drive and Berg Street. Adding 50 feet to each lane would increase the deceleration area behind anticipated queues and increase the permissible entry speed by 5 mph. Under the worst-case Cumulative Plus Project Condition, adding 50 feet to the westbound left turn lane at Granite Estates Drive would yield 300 feet of lane/bay taper behind the queue. Such a distance would accommodate deceleration from 38 mph. The incremental difference between speed limit and entry speed would be 18 mph, which would satisfy HDM guidance. Adding the entire 100 feet to the lane would yield 350 feet of deceleration, an entry speed of 43 mph, and an incremental difference of 12 mph, which would also satisfy the applicable HDM guidance. Therefore, implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

5-6

The Improvement Plans shall show the construction of an increase in existing turn lane pocket length of a total of approximately 100 combined feet for the existing left turn lane approaching Berg Street (eastbound) and the existing left turn lane approaching Granite Estates Drive (westbound) along Douglas Blvd. The minimum increase in length for the existing left turn lane approaching Granite Estates Drive shall be 50 feet. The design shall be to the satisfaction of the Department of Public Works and Facilities and shall conform to any applicable criteria specified in the latest version of the Caltrans Highway Design Manual for a design speed of 55 miles per hour (mph), unless an alternative is approved by the Department of Public Works and Facilities.

5-7 Conflict with adopted policies, plans, or programs supporting alternative transportation (i.e. bus turnouts, bicycle lanes, bicycle racks, public transit, pedestrian facilities, etc.) or otherwise decrease the performance or safety of such facilities. Based on the analysis below, the impact is *less than significant*.

The following impact discussion evaluates whether the proposed project would result in impacts to existing and planned transit networks, bicycle facilities, and pedestrian facilities within the project vicinity.

Transit

As noted previously, established transit routes do not currently exist within the project vicinity. The nearest transit stops are located approximately 1.6 miles west of the site near the intersection of Douglas Boulevard and Sierra College Boulevard within the City of Roseville. Such transit stops are served by Roseville Transit.

Given the considerable distance to the nearest bus stop, use of Roseville Transit by future project employees and patrons would be relatively limited. The project site is located outside of the Roseville Transit service area and, thus, designated Roseville Transit bus stops or other improvements are not anticipated to be developed within the project vicinity. Therefore, the proposed project would not conflict with Roseville Transit planning efforts or otherwise affect operation of the existing transit system. It should be noted that in addition to the existing Roseville Transit system, future employees and patrons could use PCT's demand-responsive public transit system; however, given the scope and scale of the proposed development, any increase in demand for the system would be relatively minor and would not be anticipated to affect performance.

Therefore, the proposed project would not conflict with public transit planning efforts or decrease the performance of existing public transit systems.

Bicycle Facilities

Within the project area, Class II Bike Lanes are planned on Douglas Boulevard from Sierra College Boulevard to Auburn-Folsom Road. A Class I Bike Path is planned along the south side of Douglas Boulevard. As part of the proposed project, the slope to the north of the existing sidewalk along the project frontage at Douglas Boulevard would be graded to allow for the future construction of a separated right-turn lane along Douglas Boulevard onto Berg Street, a Class II Bike Lane, and new curb, gutter, and sidewalk. Thus, the proposed project would not conflict with planned bicycle facilities identified in adopted plans or decrease the performance of existing bicycle infrastructure in the project area.

Pedestrian Facilities

The proposed project would include on-site pedestrian walkways that would connect to the existing sidewalk along Douglas Boulevard. In addition, the project includes widening of the existing Berg Street roadway, ranging from 0 to 12 feet, with new curb, gutter, a six-

foot sidewalk, and consistent with Placer County's Plate 116 standard approach configuration. The proposed sidewalks would provide pedestrian connectivity within the project site and to existing off-site pedestrian facilities. Therefore, the proposed project would not conflict with regional planning for pedestrian facilities or decrease the performance of existing facilities.

Conclusion

Based on the above, the proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation (i.e., bus turnouts, bicycle lanes, bicycle racks, public transit, pedestrian facilities, etc.) or otherwise decrease the performance or safety of such facilities. Thus, a *less-than-significant* impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

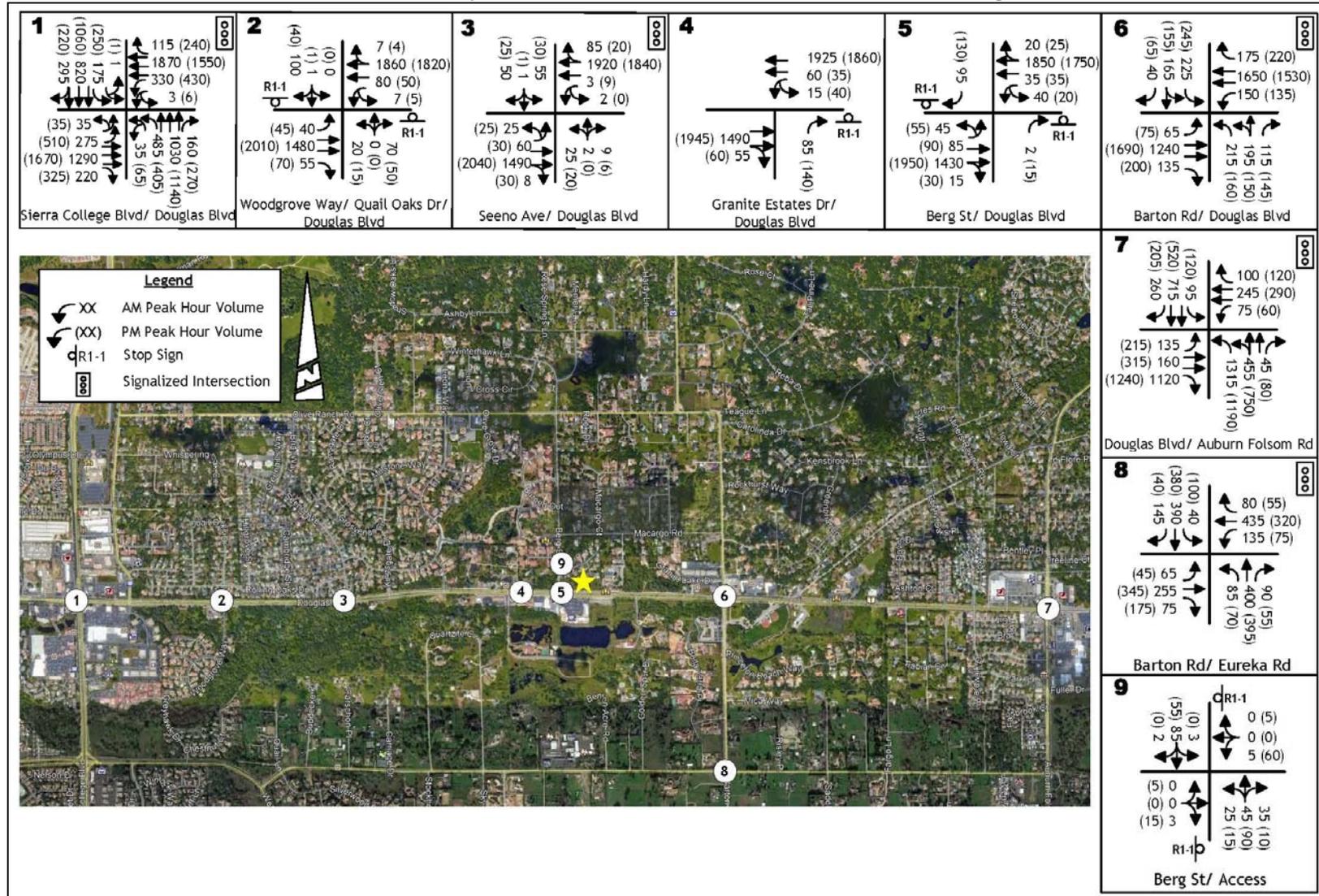
Cumulative impacts associated with study intersections and roadway segments are discussed in detail below. As noted previously, the cumulative analysis scenarios assume that the improvements included in the Placer County CIP are in place, as reasonable certainty exists that funding and programming for such improvements will be available.

5-8 Study intersections under the Cumulative Plus Project Condition. Based on the analysis below and with implementation of mitigation, the project's incremental contribution to the significant cumulative impact to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection is *less than cumulatively considerable*.

Figure 5-5 displays the 2036 Cumulative Plus Project Condition traffic volumes at each study intersection in both AM and PM peak hours. Table 5-12 below summarizes operations at each of the study intersections under the Cumulative No Project and Cumulative Plus Project Conditions with average delay presented in seconds per vehicle.

As shown in the table, the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection would operate unacceptably (LOS F) during both AM and PM peak hours under the Cumulative No Project Condition. All other study intersections would operate acceptably. Thus, the proposed project, in combination with cumulative development, would have a significant cumulative impact at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection.

Figure 5-5
Cumulative Plus Project Condition Traffic Volumes and Lane Configurations



Source: KD Anderson & Associates, Inc., 2018.

Table 5-12									
Study Intersection LOS – Cumulative Plus Project Condition									
Intersection	Control	AM Peak Hour				PM Peak Hour			
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. Douglas Blvd/Sierra College Blvd	Signal	E	63.0	E	64.5	E	71.5	E	73.0
2. Douglas Blvd/Woodgrove Way/Quail Oaks Dr (overall)	NB/SB Stop	(F)	(517.0)	(F)	(519.0)	(F)	(784.5)	(F)	(773.5)
Eastbound left turn		C	20.5	C	20.5	C	18.5	C	19.0
Westbound left turn		C	17.0	C	17.5	C	24.5	C	25.0
Northbound left/thru/right turn		F	>999	F	>999	F	>999	F	>999
Southbound left/thru/right turn		C	55.5	C	56.0	F	141.0	F	141.5
3. Douglas Blvd/Seeno Ave	Signal	B	15.0	B	15.5	B	14.5	B	14.5
4. Douglas Blvd/Granite Estates Dr (overall)	NB Stop	(C)	(19.0)	(C)	(19.5)	(E)	(47.0)	(E)	(47.0)
Westbound left turn		C	16.5	C	17.0	C	24.5	D	27.5
Northbound right turn		C	21.0	C	21.5	F	56.0	F	57.5
5. Douglas Blvd/Berg St (overall)	NB/SB Stop	(C)	(22.0)	(C)	(24.0)	(C)	(23.5)	(D)	(27.0)
Eastbound left turn		D	23.5	D	26.5	C	25.0	D	25.5
Westbound left turn		B	15.0	B	14.5	C	22.0	C	22.5
Northbound right turn		C	15.0	C	15.0	C	21.5	C	22.0
Southbound right turn		D	27.0	D	28.0	C	23.5	D	31.5
6. Douglas Blvd/Barton Rd	Signal	C	34.5	C	35.0	C	33.5	C	34.0
7. Douglas Blvd/Auburn-Folsom Rd	Signal	D	51.5	D	52.0	D	49.0	D	49.0
8. Barton Rd/Eureka Rd	Signal	C	30.0	C	30.5	C	21.5	C	21.5
	Roundabout	C	16.5	C	17.5	B	11.5	B	11.5

(Continued on next page)

Table 5-12									
Study Intersection LOS – Cumulative Plus Project Condition									
Intersection	Control	AM Peak Hour				PM Peak Hour			
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
9. Berg St/Access (overall)	EB/WB Stop	(A)	(7.5)	(A)	(8.0)	(A)	(8.5)	(A)	(9.5)
Northbound left turn		A	7.5	A	7.5	A	7.5	A	7.5
Southbound left turn		-	-	A	7.5	-	-	-	-
Eastbound left/right turn		A	8.5	A	8.5	A	9.0	A	9.0
Westbound left/right turn		-	-	B	10.0	-	-	B	10.5
Note: Bold indicates applicable LOS threshold exceeded.									
Source: KD Anderson & Associates, Inc., 2018.									

The addition of project traffic would not result in any new intersections being degraded to an unacceptable LOS. Because the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection is already deficient under the Cumulative No Project Condition, the project's impact is determined based on whether the project's incremental contribution of traffic would cause the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection to experience increases in delay and satisfy traffic signal warrants. The proposed project would cause the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection to experience increases in delay or satisfaction of traffic signal warrants. The proposed project would cause average vehicle delay to increase by 2.0 seconds during the AM peak hour and decrease by 11.0 seconds during the PM peak hour.

Given that the proposed project would not increase delay at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection such that the County's 2.5-second increase threshold would be exceeded during either peak hour, the project's incremental contribution to cumulative impacts to the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection under the Cumulative Plus Project Condition would not be cumulatively considerable. However, without payment of applicable traffic impact fees to fund necessary roadway improvements included in the County's CIP, the proposed project's incremental contribution to cumulative impacts could be *cumulatively considerable*.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less than cumulatively considerable* level.

5-8 *Prior to issuance of any Building Permits, this project shall be subject to the payment of traffic impact fees that are in effect in this area (Granite Bay), pursuant to applicable Ordinances and Resolutions. The applicant is notified that the following traffic mitigation fee(s) shall be required and shall be paid to Placer County DPWF:*

- A. *County Wide Traffic Limitation Zone: Article 15.28.010, Placer County Code*
- B. *South Placer Regional Transportation Authority (SPRTA)*

The current total combined estimated fee is \$504,715.52 (based on \$7,426 per DUE and 17,000 square feet of office use) The fees were calculated using the information supplied. If either the use or the square footage changes, then the fees will change. The fees to be paid shall be based on the fee program in effect at the time the application is deemed complete.

5-9 Study roadway segments under the Cumulative Plus Project Condition. Based on the analysis below, the project's incremental contribution to the significant cumulative impact is *less than cumulatively considerable*.

Table 5-13 below summarizes operations at each of the study roadway segments under the Cumulative No Project and Cumulative Plus Project Conditions. As shown in the table, the proposed project, in combination with cumulative development, would have a significant cumulative impact at each of the study roadway segments along Douglas Boulevard. While the addition of project traffic would not degrade operations at any of the roadway segments, the project would increase traffic volumes on multiple roadways that are anticipated to operate unacceptably under the Cumulative No Project Condition per Placer County thresholds. Thus, as discussed in the Standards of Significance section of this chapter, the significance of the project's impact is based on the project's increase in roadway V/C, as well increases in the average vpl.

The addition of project traffic to the impacted Douglas Boulevard roadway segments would result in V/C increases ranging from 0.003 to 0.009. Such increases are less than the 0.050 increment permitted under Placer County standards of significance. In addition, the project would add between 28 and 85 vpl at various locations on Douglas Boulevard, which is below the 100 vpl threshold permitted under Placer County. Therefore, the project's incremental contribution to cumulative impacts at study roadway segments under the Cumulative Plus Project Condition would be *less than cumulatively considerable*.

Mitigation Measure(s)

None required.

**Table 5-13
 Study Roadway Segment LOS – Cumulative Plus Project Condition**

Roadway	Segment	Classification	Lanes	Cumulative No Project		Cumulative Plus Project			
				ADT	LOS	ADT		LOS	Change in V/C
						Project Only	Total		
Douglas Blvd	Sierra College Blvd to Cavitt Stallman Rd	Arterial Moderate	4	54,380	F	323	54,700	F	0.008
	Cavitt Stallman Rd to Woodgrove Way	Arterial High	4	51,980	F	323	52,300	F	0.008
	Woodgrove Way to Seeno Ave	Arterial High	4	50,510	F	340	50,850	F	0.009
	Seeno Ave to Barton Rd	Arterial High	4	50,160	F	340	50,500	F	0.009
	Berg St to Barton Rd	Arterial High	4	47,560	F	188	47,750	F	0.005
	Barton Rd to Auburn-Folsom Rd	Arterial High	4	48,340	F	112	48,450	F	0.003
Berg St	Olive Ranch Rd to Project	Arterial Low	2	1,460	A	40	1,500	A	0.003
	Project to Douglas Blvd	Arterial Low	2	1,420	A	528	1,950	A	0.035

Note: **Bold** indicates applicable LOS threshold exceeded.

Source: KD Anderson & Associates, Inc., 2018.