14 TRANSPORTATION AND CIRCULATION

14.1 INTRODUCTION

The Transportation and Circulation chapter of the EIR discusses the existing transportation and circulation facilities within the vicinity of the projects, as well as applicable policies and guidelines used to evaluate operation of such facilities. Where development of the Whitehawk I (WHI) or Whitehawk II (WHII) project would conflict with applicable policies or guidelines, mitigation measures are identified. The information contained within this chapter is primarily based on the Transportation Impact Study prepared for the proposed projects by Fehr & Peers (see Appendix M),[1] as well as the Placer County General Plan,[2] the Placer County General Plan EIR,[3] and the Granite Bay Community Plan (GBCP).[4]

14.2 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 Roadway Network

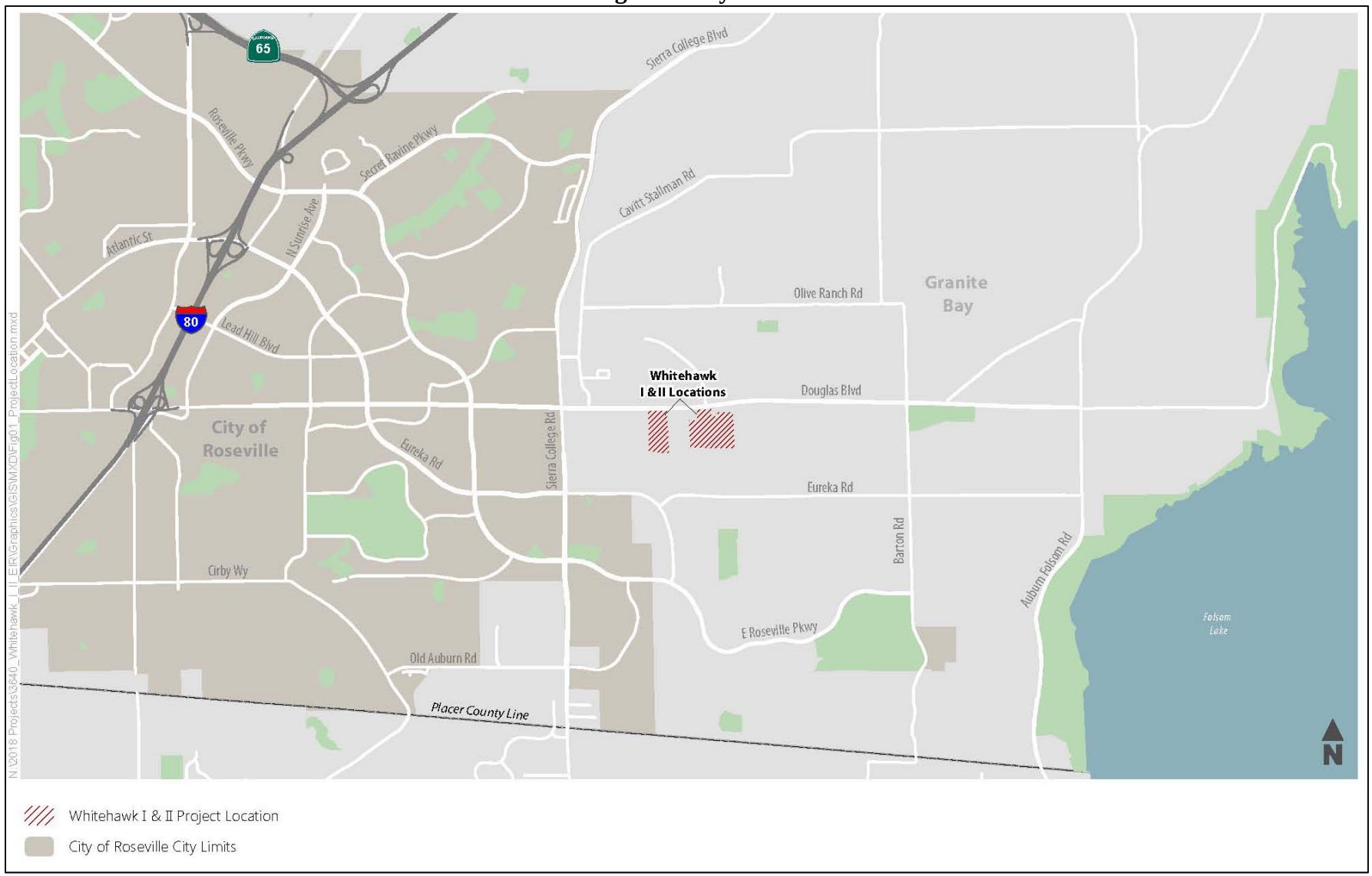
The following sections provide a summary of the existing roadway network within the project area (see Figure 14-1).

Douglas Boulevard

Douglas Boulevard is an east-west arterial that forms the northern edge of the proposed project sites. Douglas Boulevard is a four-lane major arterial with a posted speed limit of 50 to 55 miles per hour (mph) from just west of Cavitt Stallman Road South to Auburn Folsom Road. As Douglas Boulevard approaches Sierra College Boulevard and enters the City of Roseville to the west of the project sites, the roadway widens to a six-lane arterial and reduces to a posted speed limit of 45 mph. To the west of the project sites, Douglas Boulevard has an interchange at Interstate 80 (I-80) and ultimately ends at Riverside Avenue near Downtown Roseville. East of Auburn Folsom Road, Douglas Boulevard narrows to a two-lane minor arterial with a posted speed limit of 40 mph and terminates at the Folsom Lake State Recreation Area.

1 Fehr & Peers. *Final Transportation Impact Study for Whitehawk I & II.* September 2018.
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.

Figure 14-1
Existing Roadway Network



Sierra College Boulevard

Sierra College Boulevard is a north-south arterial that generally forms the western boundary of the GBCP area and runs along the Roseville City Limits from Eureka Road to Scarborough Drive. Sierra College Boulevard is a six-lane major arterial with a posted speed limit of 45 mph from just south of the Renaissance Creek Shopping Center/Granite Bay Business Park traffic signal to Olympus Drive. North of Olympus Drive and south of the Renaissance Creek shopping center, Sierra College Boulevard narrows to a four-lane major arterial. To the north, Sierra College Boulevard travels into Rocklin and features an interchange with I-80 before ultimately reaching State Route (SR) 193. To the south, Sierra College Boulevard becomes Hazel Avenue as the roadway crosses into Sacramento County. Hazel Avenue ultimately travels southerly to Folsom Boulevard with an interchange at US-50.

Auburn Folsom Road

Auburn Folsom Road is a north-south arterial that is the primary north-south roadway in the eastern portion of the GBCP. South of Douglas Boulevard, Auburn Folsom Road is a four-lane major arterial with a posted speed limit of 45 mph. South of Eureka Road, the posted speed limit increases to 55 mph as Auburn Folsom Road travels towards the City of Folsom. North of Douglas Boulevard, Auburn Folsom Road narrows to a two-lane minor arterial with a posted speed limit of 45 mph as the roadway travels towards Horseshoe Bar, Newcastle, and Auburn.

Eureka Road

Eureka Road is an east-west minor arterial that is located approximately 1/3-mile south of the project sites. East of Sierra College Boulevard, Eureka Road has a posted speed limit of 35 mph and is a four-lane roadway to Wellington Way. East of Wellington Way, the roadway narrows to two lanes and becomes more rural in character. West of Sierra College Boulevard, Eureka Road features a raised landscaped median and has a posted speed limit of 40 mph as the roadway travels into the City of Roseville. West of the study area, Eureka Road has an interchange at I-80 where it becomes Atlantic Street. Atlantic Street travels westerly into Downtown Roseville.

Seeno Avenue

Seeno Avenue is a two-lane collector roadway with a posted speed limit of 25 mph that travels north from Douglas Boulevard into a residential neighborhood. Seeno Avenue ends approximately 1/2-mile north of Douglas Boulevard near Greenhills Elementary School.

Woodgrove Way and Greyhawk Drive

Woodgrove Way and Greyhawk Drive are two-lane local roadways with a posted speed limit of 25 mph that travel primarily through single-family residential neighborhoods. Woodgrove Way travels south from Douglas Boulevard for approximately 1/2-mile before intersecting Greyhawk Drive. Greyhawk Drive travels north from Eureka Road for approximately 0.25-mile before intersecting Woodgrove Way. Together, the two streets create a north-south travel route between

Eureka Road and Douglas Boulevard for local residents. The roadways are also used as a travel route between the neighborhoods along Douglas Boulevard and Granite Bay High School.

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, as well as speed, travel time, traffic interruptions, and freedom to maneuver. In general, LOS A represents the least congested traffic conditions and LOS F represents the most congested traffic conditions.

Intersections

Table 14-1 and Table 14-2 summarize the relationship between delay and LOS for signalized and unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections. At unsignalized intersections, LOS is supplemented by consideration of the need for traffic signals based on the Traffic Signal Warrant criteria published in Section 4C.04 of 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.

Table 14-1
Signalized Intersection LOS Definitions

LOS	Description of Operations	Average Control Delay[1]
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short. Most vehicles arrive during the green phase and travel through the intersection without stopping.	≤ 10
B	Volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	> 10 to 20
C	Progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	> 20 to 35
D	Volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	> 35 to 55
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	> 55 to 80
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80

Notes:
[1] Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A)

Source: Fehr & Peers, 2018.

Table 14-2 Unsignalized Intersection LOS Definitions	
LOS	**Control Delay[1]**
A	≤ 10
B	> 10 to 15
C	> 15 to 25
D	> 25 to 35
E	> 35 to 50
F	> 50

Notes:
1. Control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A)

Source: Fehr & Peers, 2018.

Roadway Segments

The Placer County General Plan EIR establishes daily 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 14-3 below.

Table 14-3 Placer County Evaluation Criteria for Roadway Segment LOS					
	Maximum Daily Traffic Volume Per Lane				
Roadway Capacity Class	**LOS A**	**LOS B**	**LOS C**	**LOS D**	**LOS E**
4-lane Arterial – High Access Control	24,000	28,000	32,000	36,000	40,000
6-lane Arterial – High Access Control	36,000	42,000	48,000	54,000	60,000
4-lane Arterial – Moderate Access Control	21,600	25,200	28,800	32,400	36,000
6-lane Arterial – Moderate Access Control	32,400	37,800	43,200	48,600	54,000

Notes:
- High access controlled arterials are defined in the Countywide General Plan Final EIR as roadways with one to two stops per mile, limited driveway access, and speeds of 35 to 50 mph.
- Moderate access controlled arterials are defined in the Countywide General Plan Final EIR as roadways with two to four stops per mile, moderate driveway access, and speeds of 30 to 35 mph.

Source: Fehr & Peers, 2018.

Study Intersections

The following study intersections are analyzed in the Transportation Impact Study and presented in Table 14-4 below, along with the jurisdiction and applicable LOS standard for each intersection. Figure 14-2 provides an overview of the study intersection locations.

Intersection turning movement counts were collected at study intersections on Thursday, May 18, 2017 during the morning (7:00 AM to 9:00 PM) and evening (4:00 PM to 6:00 PM) peak periods. Figure 14-3 presents the intersection turning lane geometrics, traffic control, and existing AM and PM peak hour traffic volumes for the 12 study intersections.

Figure 14-2
Study Intersections

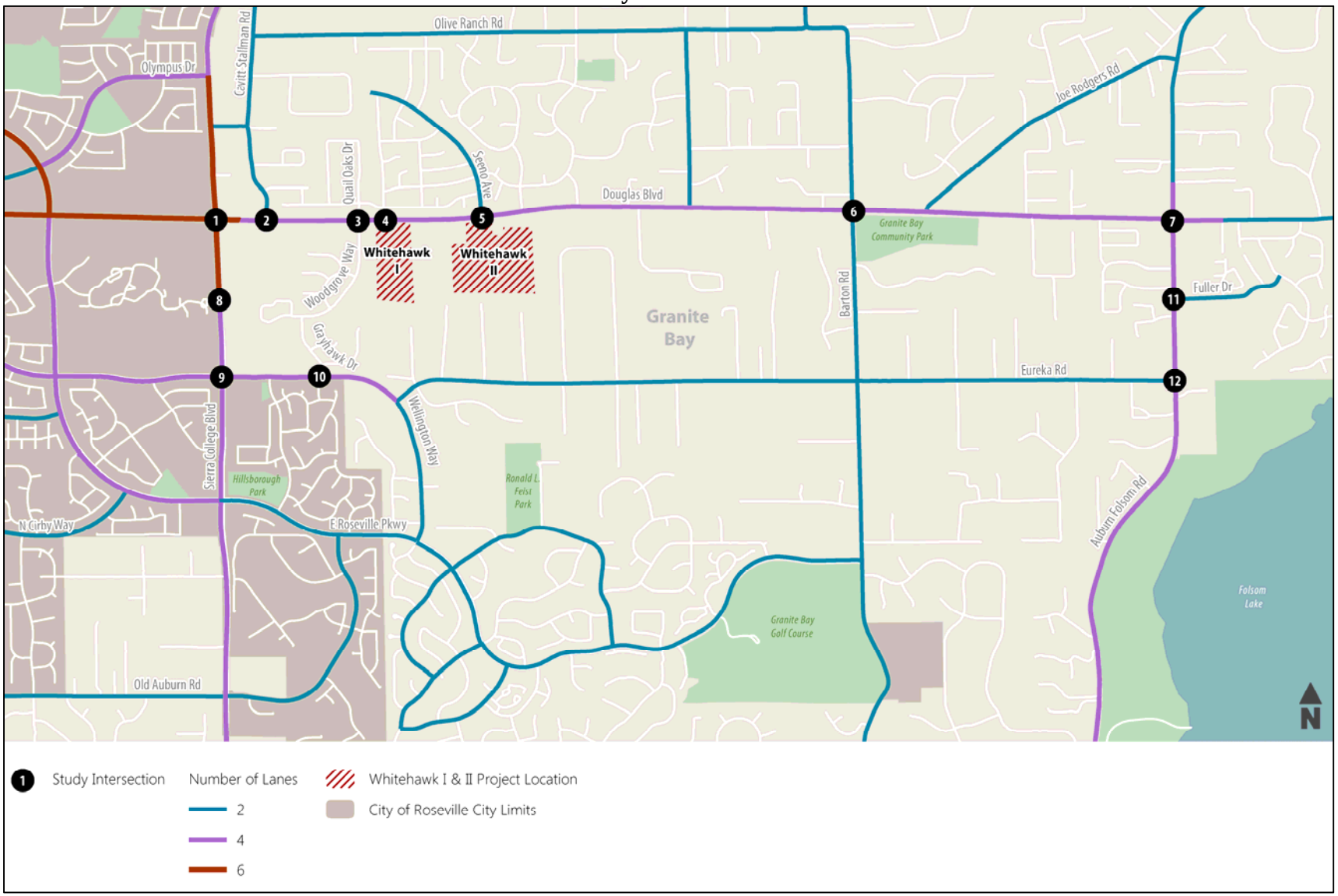
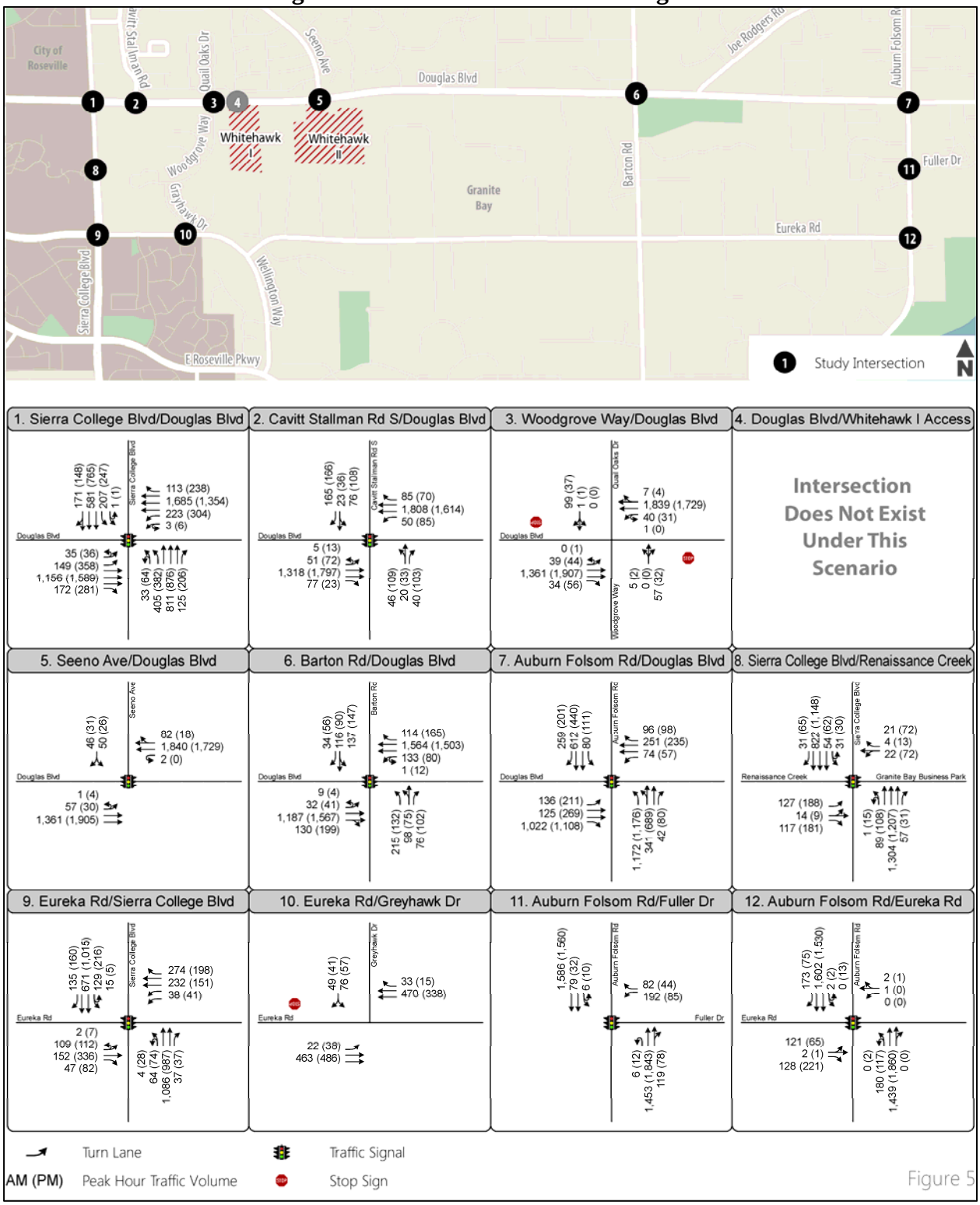


Figure 14-3
Existing Traffic Volumes and Lane Configurations



Source: Fehr & Peers, 2018.

Table 14-4
Study Intersections

Intersection	Jurisdiction[1]	LOS Standard	Source
1. Sierra College Blvd./Douglas Blvd.	City of Roseville/Placer County	C[2]	Roseville 2035 General Plan LOS policy
2. Cavitt Stallman Rd. South/Douglas Blvd.	Placer County	E	GBCP Element Policy 1.3[4]
3. Woodgrove Way/Quail Oaks Dr./Douglas Blvd.	Placer County	E	
4. WHI Access/Douglas Blvd.[3]	Placer County	E	
5. Seeno Ave./Douglas Blvd.	Placer County	E	
6. Barton Rd./Douglas Blvd.	Placer County	E	
7. Auburn Folsom Rd./Douglas Blvd.	Placer County	E	
8. Sierra College Blvd./Renaissance Creek/Granite Bay Business Park	City of Roseville/Placer County	C	Roseville 2035 General Plan LOS policy
9. Sierra College Blvd./Eureka Rd.	City of Roseville/Placer County	C	
10. Grayhawk Dr./Eureka Rd.	Placer County	C	Placer County General Plan Policy 3.A.7
11. Auburn Folsom Rd./Fuller Dr.	Placer County	E	GBCP Circulation Element Policy 1.3[4]
12. Auburn Folsom Rd./Eureka Rd.	Placer County	E	

Notes:
1. For intersections that are along the City of Roseville city limits, the City of Roseville's LOS standard is applied.
2. GBCP Circulation Element Policy 1.4 establishes an LOS E goal for Sierra College Boulevard/Douglas Boulevard. However, the City of Roseville LOS C standard is a stricter standard. Therefore, this analysis uses LOS C as the applicable LOS standard at the intersection.
3. The WH I Access would be constructed with development of the WHI project.
4. Per GBCP Circulation Element Policy 1.3, intersections along Auburn Folsom Road south of Douglas Boulevard and along Douglas Boulevard west of Auburn Folsom Road have an LOS E standard during the AM and PM peak hours. All other roadways and intersections in Granite Bay have an LOS C standard.

Source: Fehr & Peers, 2018.

The AM peak hour is defined as the one-hour of peak traffic flow (which is the highest total volume count over four consecutive 15-minute count periods) counted between 7:00 AM and 9:00 AM on a typical weekday. The PM peak hour is defined as the one-hour of peak traffic flow counted between 4:00 PM and 6:00 PM on a typical weekday. Table 14-5 presents the existing weekday AM and PM peak hour traffic operations analysis results at the 12 study intersections. As shown, all study intersections operate at an acceptable LOS under existing conditions with the exception of the following three intersections:

- Sierra College Boulevard/Douglas Boulevard (Intersection #1) – LOS D during the AM peak hour and LOS E during the PM peak hour;
- Woodgrove Way/Quail Oaks Drive/Douglas Boulevard (Intersection #3) – LOS F during the AM and PM peak hours; and

- Sierra College Boulevard/Eureka Road (Intersection #9) – LOS D during the AM peak hour and LOS E during the PM peak hour.

Table 14-5
Study Intersection LOS – Existing Conditions

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions	
			Delay[2]	LOS[3]
1. Sierra College Blvd./Douglas Blvd.	Signal	AM	**43.0**	**D**
		PM	**60.0**	**E**
2. Cavitt Stallman Rd. South/Douglas Blvd.	Signal	AM	13.9	B
		PM	20.8	C
3. Woodgrove Way/Quail Oaks Dr./Douglas Blvd.	SSC	AM	**63.0**	**F**
		PM	**120.6**	**F**
4. WHI Access/Douglas Blvd.[4]	N/A	AM	--	--
		PM	--	--
5. Seeno Ave./Douglas Blvd.	Signal	AM	7.3	A
		PM	4.5	A
6. Barton Rd./Douglas Blvd.	Signal	AM	38.9	D
		PM	42.7	D
7. Auburn Folsom Rd./Douglas Blvd.	Signal	AM	39.0	D
		PM	36.1	D
8. Sierra College Blvd./Renaissance Creek/Granite Bay Business Park	Signal	AM	25.0	C
		PM	28.7	C
9. Sierra College Blvd./Eureka Rd.	Signal	AM	**41.4**	**D**
		PM	**64.7**	**E**
10. Grayhawk Dr./Eureka Rd.	SSSC	AM	22.8	C
		PM	13.9	B
11. Auburn Folsom Rd./Fuller Dr.	Signal	AM	13.4	B
		PM	9.0	A
12. Auburn Folsom Rd./Eureka Rd.	Signal	AM	15.4	B
		PM	9.1	A

Notes:
1. Signal = traffic signal-controlled intersection; SSSC = side-street stop-controlled intersection.
2. Average control delay for signalized intersections is the weighted average for all movements. Average control delay at SSSC intersections is the "overall weighted average delay for movements yielding the right-of-way."
3. LOS is calculated based on methodologies contained in the Highway Capacity Manual (HCM) 6th Edition.
4. The WHI Access does not existing under Existing conditions.

Bold text indicates unacceptable operations.

Source: Fehr & Peers, 2018.

Both the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection and the Greyhawk Drive/Eureka Road intersection meet the peak hour signal warrant (Warrant 3B) under existing conditions during the AM peak hour, but not during the PM peak hour.

Study Roadway Segments

The following study roadway segments are analyzed in the Transportation Impact Study:

1. Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road South;
2. Douglas Boulevard: Cavitt Stallman Road South to Woodgrove Way/Quail Oaks Drive;
3. Douglas Boulevard: Woodgrove Way/Quail Oaks Drive to Seeno Avenue;
4. Douglas Boulevard: Seeno Avenue to Barton Road;
5. Douglas Boulevard: Barton Road to Auburn Folsom Road;
6. Sierra College Boulevard: Olympus Drive to Douglas Boulevard;
7. Sierra College Boulevard: Douglas Boulevard to Renaissance Creek/Granite Bay Business Park;
8. Sierra College Boulevard: Renaissance Creek/Granite Bay Business Park to Eureka Road; and
9. Auburn Folsom Road: Douglas Boulevard to Eureka Road.

Table 14-6 presents the existing roadway classification, average daily traffic (ADT) volumes, volume-to-capacity (V/C) ratio, and LOS for the nine study roadway segments. With the exception of Sierra College Boulevard, which is located within the jurisdiction of the City of Roseville, the study roadway segments analyzed in this chapter are located within unincorporated Placer County. For the roadway segment analysis, the GBCP LOS C standard for roadway segments (see Policy 9.1.3) is applied to all study roadway segments, as the City of Roseville does not have an adopted LOS standard for roadway segments.

Table 14-6
Study Roadway Segment LOS – Existing Condition

Segment	Classification	ADT	V/C	LOS
1. Douglas Blvd.: Sierra College Blvd. to Cavitt Stallman Rd. South	4-lane Arterial – MAC	47,560	1.32	**F**
2. Douglas Blvd.: Cavitt Stallman Rd. South to Woodgrove Way	4-lane Arterial – HAC	46,830	1.17	**F**
3. Douglas Blvd.: Woodgrove Way/Quail Oaks Drive to Seeno Ave.	4-lane Arterial – HAC	45,230	1.13	**F**
4. Douglas Blvd.: Seeno Ave. to Barton Rd.	4-lane Arterial – HAC	44,800	1.12	**F**
5. Douglas Blvd.: Barton Rd. to Auburn Folsom Rd.	4-lane Arterial – HAC	42,620	1.07	**F**
6. Sierra College Blvd.: Olympus Dr. to Douglas Blvd.	6-lane Arterial – MAC	26,950	0.50	A
7. Sierra College Blvd.: Douglas Blvd. to Renaissance Creek	6-lane Arterial – MAC	34,450	0.64	B
8. Sierra College Blvd.: Renaissance Creek to Eureka Rd.	4-lane Arterial – MAC	32,330	0.90	**D**
9. Auburn Folsom Rd.: Douglas Blvd. to Eureka Rd.	4-lane Arterial – MAC	39,670	1.10	**F**

Notes:
- MAC = moderate access control; HAC = high access control.
- ADT values are rounded to the nearest 10 vehicles.
- **Bold** text indicates unacceptable operations.

Source: Fehr & Peers, 2018.

The ADT volumes are based on daily traffic counts collected on Thursday, May 18, 2017. As shown in the table, seven of the nine study segments currently operate unacceptably (LOS D or worse).

Douglas Boulevard – Diverted Traffic Evaluation

In response to public comments, this study evaluates travel speeds on Douglas Boulevard between Seeno Avenue and Cavitt Stallman Road South to determine the relative attractiveness for through traffic to divert off Douglas Boulevard and use parallel local roadways such as Rolling Oaks Drive and Wood Thrush Way through the Quail Oaks neighborhood. Fehr & Peers conducted travel time runs along Douglas Boulevard on Tuesday, May 23, 2017 during the AM and PM peak hours to evaluate travel speeds in the study area. Figure 14-4 and Figure 14-5 present the average travel speeds during the AM and PM peak hour, respectively, based on these travel time runs.

As shown, the average travel speed on westbound Douglas Boulevard from Seeno Avenue to Cavitt Stallman Road South is 39 mph during both the AM and PM peak hours. Given the prima facie 25 mph speed limit on local residential roadways (per Section 22352(b)(1) of the California Vehicle Code), the 39 mph travel speed indicates that Douglas Boulevard is faster than diverting through the Quail Oaks neighborhood. Similarly, the average travel speed on eastbound Douglas Boulevard from Cavitt Stallman Road South to Seeno Avenue is greater than 55 mph during both peak hours. This indicates that most motorists would stay on Douglas Boulevard, and that infrequent vehicles that divert off Douglas Boulevard through the Quail Oaks neighborhood would not have a travel time benefit in using this route.

In addition to the observed travel speeds, this study uses the HCS7 software urban streets module to model travel speeds on Douglas Boulevard. Table 14-7 presents the HCS calculated weekday AM and PM peak hour travel speeds on Douglas Boulevard and compares these travel speeds to the observed travel speeds.

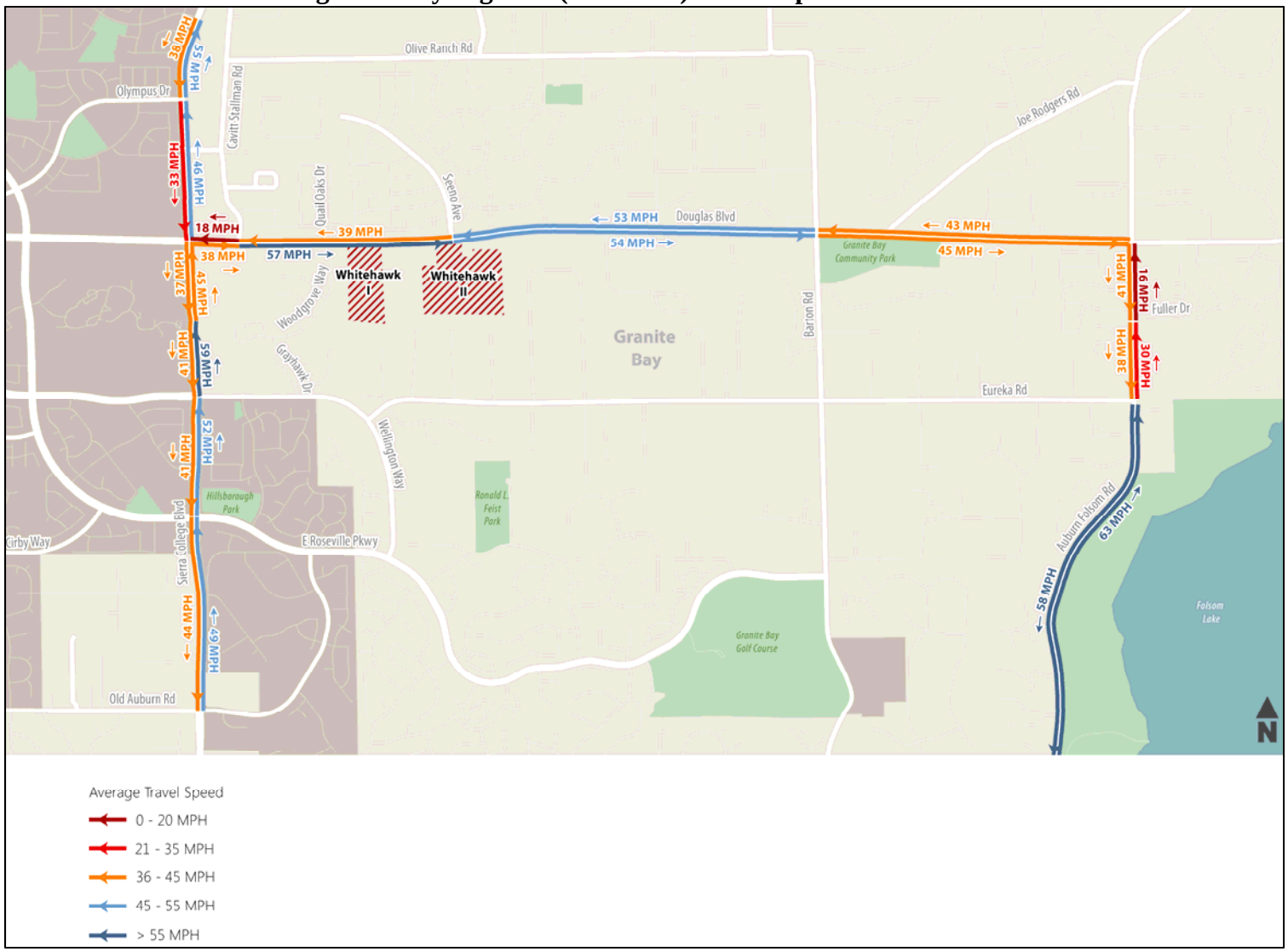
Table 14-7
Douglas Boulevard Peak Hour Travel Speed – Existing Conditions

Roadway Segment	Direction	HCS7 Calculation		Field Observation	
		Travel Speed[1]	% BFFS[2]	Travel Speed[1]	% BFFS[2]
Douglas Boulevard – AM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	51	83%	57	93%
	Westbound	46	74%	39	63%
Douglas Boulevard – PM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	52	84%	60	97%
	Westbound	41	67%	39	63%

Notes:
[1] Travel speed calculated based on methodologies contained in the HCM, 6th Edition.
[2] Percent of base free-flow speed (BFFS) as calculated by HCS.

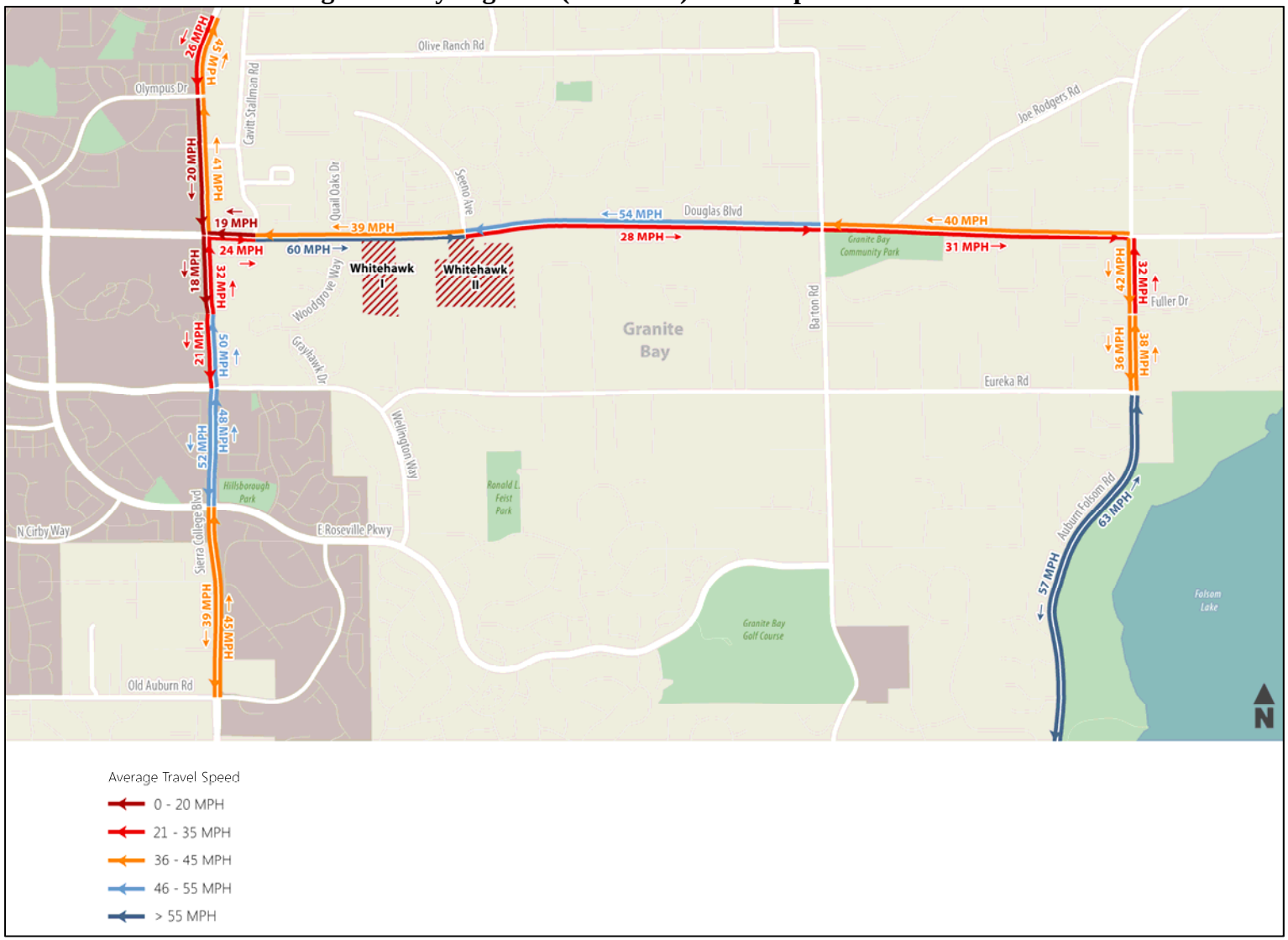
Source: Fehr & Peers, 2018.

Figure 14-4
Existing Roadway Segment (Observed) Travel Speed – AM Peak Hour



Source: Fehr & Peers, 2018.

Figure 14-5
Existing Roadway Segment (Observed) Travel Speed – PM Peak Hour



Source: Fehr & Peers, 2018.

As shown in Table 14-7, the HCS calculated travel speed is generally consistent with the observed travel speeds on the segment of Douglas Boulevard between Cavitt Stallman Road South and Seeno Avenue. The HCS calculated travel speed is slightly low in the eastbound direction and slightly high in the westbound direction compared to the travel time runs.

Bicycle Facilities

The California Highway Design Manual identifies four primary types of bicycle facilities, as follows:

- Class I (Bike Path): A facility with exclusive right-of-way with cross flows by vehicles minimized. Motor vehicles are prohibited from bike paths. Unless adjacent to an adequate pedestrian facility, Class I facilities are for the exclusive use of bicycles and pedestrians.

- Class II (Bike Lane): A dedicated facility for bicyclists adjacent to motor vehicle traffic on streets. They are identified with striping, pavement markings, and signage. The striping on Class II bike lanes are intended to delineate the right of way assigned to bicyclists and motorist and to provide for more predictable movements by each.

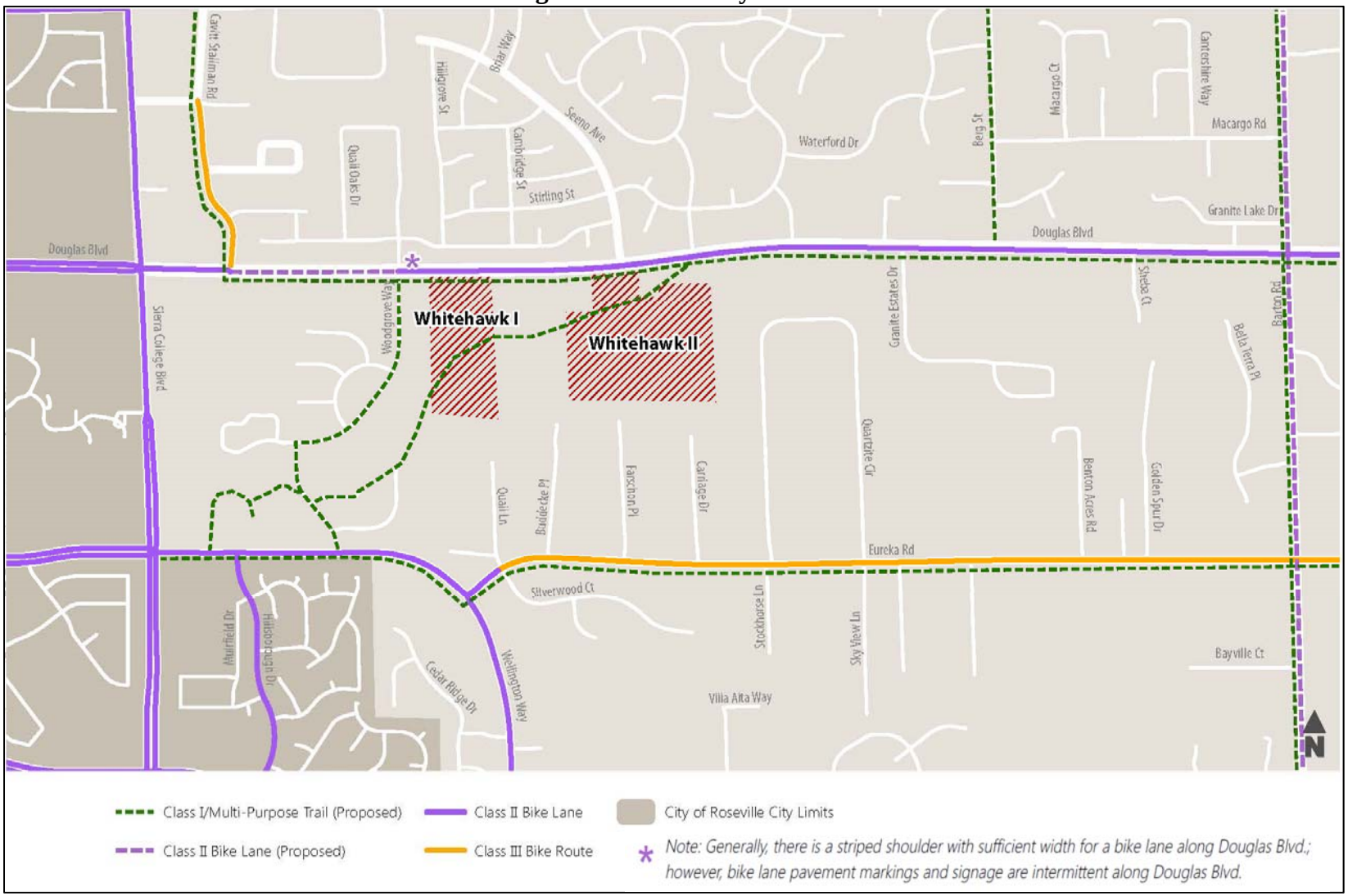
- Class III (Bike Route): On-street bicycle routes where bicycles and motor vehicles share the road. They are identified with signage and may be also indicated with pavement markings (e.g., sharrows). Class III facilities are intended to provide continuity to other bicycle facilities (usually Class II bikeways) or designate preferred routes through high demand corridors; they are typically assigned to low-volume and/or low-speed streets.

- Class IV (Separated Bikeway): A facility for the exclusive use of bicycles that is separated from adjacent vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible barriers, or on-street parking. Class IV facilities are also referred to as protected bicycle lanes or cycle tracks.

Figure 14-6 shows the existing bicycle facilities near the project site. As shown, Class II bike lanes are present on Sierra College Boulevard and Eureka Road west of Quail Lane. A striped shoulder is present on Douglas Boulevard, but bike lane pavement markings and signage are intermittent. As a result, there is sufficient width along Douglas Boulevard to provide a Class II bike lane. However, bike lanes do not currently exist on all segments of Douglas Boulevard. Eureka Road east of Quail Lane and Cavitt Stallman Road South are designated as Class III bike routes.

Figure 14-6 also shows proposed Class II bike lanes on Barton Road and proposed Class I shared-use paths and multi-use trails throughout the study area, as identified in the GBCP.

Figure 14-6
Existing and Planned Bicycle Facilities



Source: Fehr & Peers, 2018.

Pedestrian Facilities

Figure 14-7 shows the existing pedestrian facilities near the project sites. As shown, sidewalks exist on both sides of many roadways in the project area, including Douglas Boulevard west of the WHI I site, Sierra College Boulevard, Woodgrove Way, Eureka Road/Wellington Way from west of Greyhawk Drive to East Roseville Parkway, and the residential streets in the Quail Oaks and Greyhawk neighborhoods to the north and west of the proposed projects, respectively.

In some locations, sidewalks are only present on one side of the street, including Douglas Boulevard from the WHI site east to Granite Estates Drive, Greyhawk Drive from Woodgrove Way to Streamside Court, and along many local roadways north of Douglas Boulevard, notably on Seeno Avenue adjacent to Greenhills Elementary School and the Grosvenor Downs and Douglas Ranch neighborhoods. Sidewalks are not provided along Seeno Avenue from Douglas Boulevard to Greenhills Way, on neighborhood streets south and east of Greenhills Elementary School, and along rural residential streets south of the proposed project sites.

Crosswalks exist at major intersections within the project area, but are not provided at Seeno Avenue and Quail Oaks Drive at Douglas Boulevard. However, pedestrian push buttons and pedestrian signal faces currently exist on the east side of the intersection of Douglas Boulevard and Seeno Avenue; therefore, pedestrian crossing is allowed at this intersection.

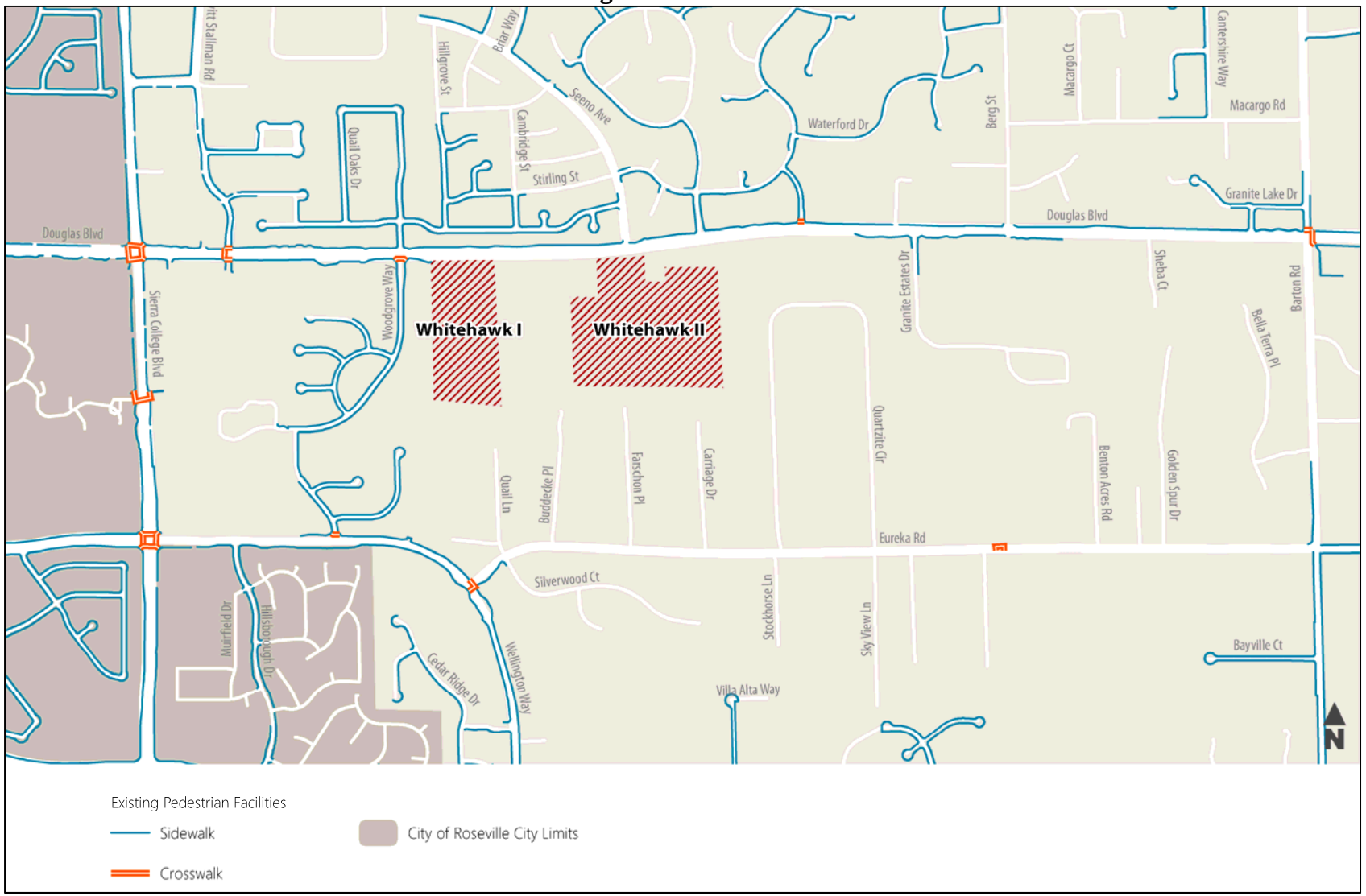
Along the southern end of the WHI site, a five-foot trail would extend east south of Unit 24 to connect to the existing trail that currently ends at the western property line. This trail would connect to the existing trail within the Greyhawk subdivision that is located on the south side of Strap Ravine with connections to Streamside and Chestnut courts. The existing trail is planned to extend to Eureka Road and Sierra College Boulevard. The five-foot wide trail within the site would be maintained by the Homeowners Association and would consist of a surface constructed of native materials such as compacted, decomposed granite or rock in an alignment cleared of brush and vegetation.

A five-foot wide, 0.7-mile long public trail within the WHII site would provide residents with a passive recreation amenity for walking and provide access among residential units, open space, and the park site (see Figure 14-8). From the east-west sidewalk/bike trail along Douglas Boulevard, the five-foot trail would extend south of the gated entryway, over Strap Ravine, and around the looped roadway. Segments of the five-foot trail would extend south along the courts to an east-west segment of five-foot trail along the southern boundary of the site. A future trail segment between Units 1 and 2 would link to the vacant parcel to the west if/when that property is developed. If constructed, the trail would connect to the WHI project.

Transit System

The nearest fixed-route transit service to the project sites is located approximately 0.5-mile west of the WHI site at Sierra College Boulevard. Figure 14-9 shows the three fixed-route bus lines that run along Sierra College Boulevard north of Eureka Road and Douglas Boulevard west of Sierra College Boulevard. As shown in the figure, all three fixed-route service lines are part of Roseville Transit. The City of Roseville operates fixed- route bus service throughout much of Roseville.

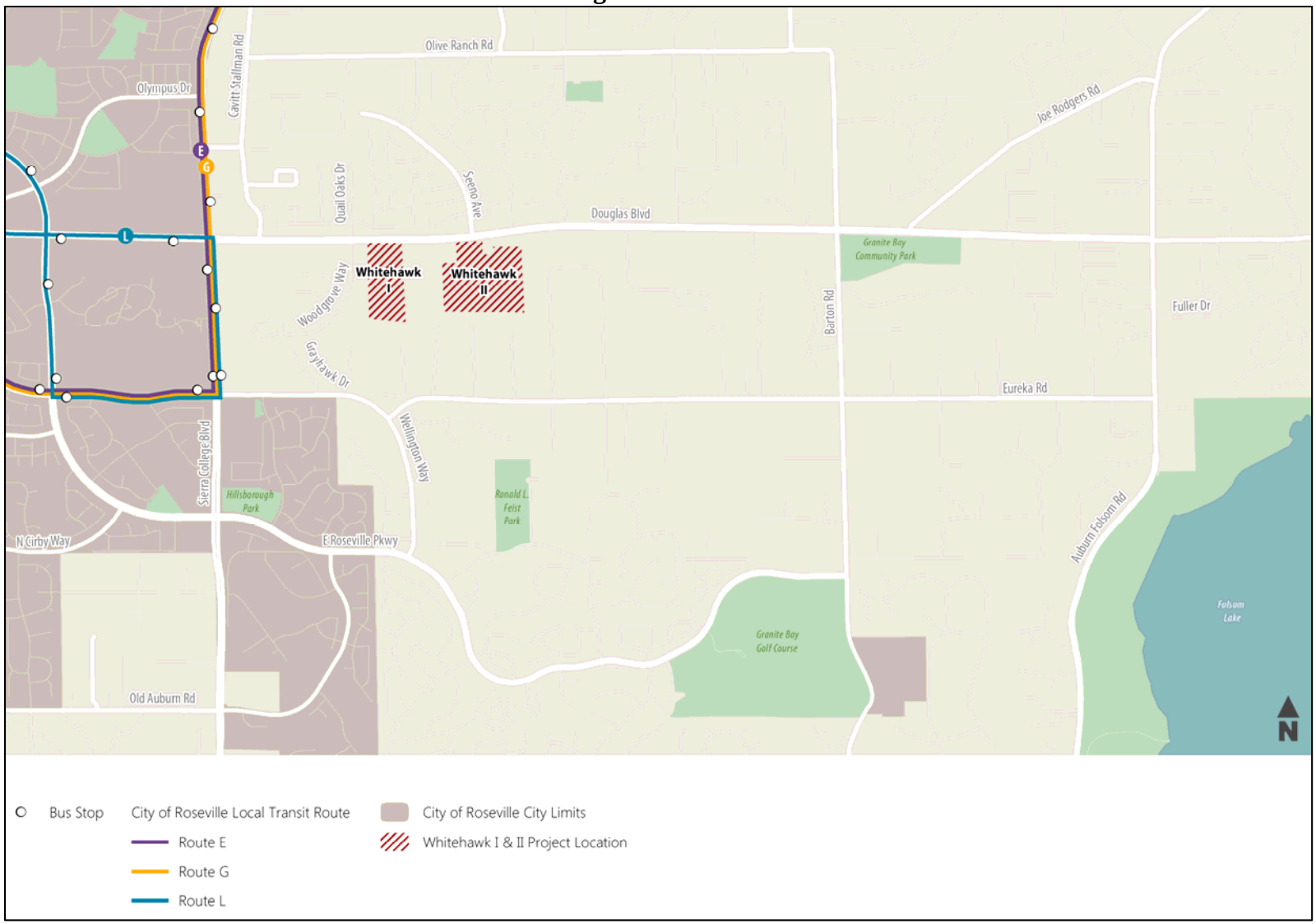
Figure 14-7
Existing Pedestrian Facilities



Source: Fehr & Peers, 2018.

Figure 14-8
Proposed Trail Systems: WHI and WHII

Figure 14-9
Existing Transit Facilities



Source: Fehr & Peers, 2018.

Route E and G are weekday service routes that operate Monday through Friday every other hour (i.e., every two hours). Route E operates from 7:53 AM to 6:30 PM and generally runs in a clockwise loop along Sierra College Boulevard, Eureka Road, Douglas Boulevard, I-80, and Rocklin Road; while Route G operates from 6:53 AM to 5:30 PM on a counter-clockwise loop using the same general roadways. The aforementioned routes connect East Roseville to the Sierra Gardens Transfer Point and Sierra College campus in Rocklin.

Route L is a six-day per week service that operates hourly on Monday through Friday from 6:25 AM to 6:15 PM and on Saturday from 8:25 AM to 5:02 PM. Route L generally serves the Douglas Boulevard corridor from the Civic Center Transfer Point in Downtown Roseville in the west to the Renaissance Creek Shopping Center at Sierra College Boulevard in the east. In addition, Route L stops at the Sierra Gardens Transfer Point and provides access to retail centers along Douglas Boulevard as well as the Kaiser Roseville Medical Center.

In addition to fixed-route service, Placer County Transit provides dial-a-ride service in the Granite Bay area on weekday mornings (9:00 AM to 11:00 AM) and afternoons (2:00 PM to 4:00 PM). Dial-a-ride is a shared-ride service that operates on a demand-response basis (i.e., individuals make requests in advance for pick-up and drop-off).

14.3 Regulatory Context

Existing transportation policies, laws, and regulations that would apply to the proposed projects are summarized below and provide a context for the impact discussion related to the projects' 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 projects. 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 projects are presented below.

Placer County General Plan

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

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 GBCP are applicable to the proposed projects:

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 AM and/or PM 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 AM and/or PM 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 AM and/or PM 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 9.1.8 The County shall work with neighboring jurisdictions and the Regional Transportation Planning Agencies to develop alternative routes for through traffic, as this through traffic has significant impacts on roads in the Granite Bay community.

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 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 Capital Improvement Program (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, 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 2018.[5] 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.

14.4 Impacts and Mitigation Measures

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

[5] Placer County. *Countywide Capital Improvement Programs*. July 23, 2018.

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 a 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;
- Insufficient parking capacity on-site or off-site? (see Chapter 16, Effects not Found to be Significant);
- 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. (see Chapter 16, Effects not Found to be Significant)

As noted above, impacts related to insufficient parking and changes in air traffic patterns are discussed in Chapter 16, Effects Not Found to be Significant, of this EIR.

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

Placer County Standards of Significance

As noted above, Policy 3.A.7 in the Placer County General Plan establishes a minimum LOS C standard for County roadways and intersections, except within one-half mile of state highways where the standard shall be LOS D. Policy 3.A.7 also acknowledges that a community or specific plan may specify a different minimum LOS standard. To that end, the GBCP LOS policy establishes an LOS C standard for major roadways and intersections during the AM and PM peak hours, with the exception of intersections along Auburn Folsom Road south of Douglas Boulevard and along Douglas Boulevard west of Auburn Folsom Road, where an LOS E or better standard is applied during the AM and PM peak hours.

The Placer County Department of Public Works 2015 *Impact Analysis Methodology of Assessment* memorandum identifies the use of a 0.05 increase in the volume-to-capacity (V/C) ratio or an increase in ADT of 100 or more project-generated trips per lane as the significance criteria for

determining impacts to roadway segments that already operate unacceptably. Similarly, the *Impact Analysis Methodology of Assessment* memorandum identifies a 4.0-second threshold for signalized intersections, and a 2.5-second threshold for unsignalized intersections, as the significance criteria for determining impacts to intersections that already operate unacceptably. Based on the above, a project may be considered to result in a significant impact if the project would result in any of the following at a roadway facility within Placer County:

- Cause a signalized intersection or roadway in Placer County to worsen from an acceptable LOS to an unacceptable LOS during the AM or PM peak hours;
- Cause an unsignalized intersection in Placer County to worsen from an acceptable LOS to an unacceptable LOS during the AM or PM peak hours and cause the intersection to meet the MUTCD peak hour traffic signal warrant;
- Increase the ADT by 100 or more project generated trips per lane on a roadway segment in Placer County that is currently (or projected to be) operating at an unacceptable LOS;
- Cause a signalized intersection in Placer County that is currently (or projected to be) operating at an unacceptable LOS during the AM or PM peak hours to experience an increase in the overall average intersection delay of 4 seconds or greater; or
- Cause an unsignalized intersection in Placer County that is currently (or projected to be) operating at an unacceptable LOS during the AM or PM peak hours and meets the MUTCD peak hour traffic signal warrant to experience a 2.5-second or greater increase in delay.

City of Roseville Standards of Significance

The City of Roseville 2035 General Plan identifies an LOS policy that calls for maintaining LOS C or better operations at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the AM and PM peak hours. Exceptions to the LOS C standard may be considered for intersections where the City finds that the required improvements are unacceptable based on established criteria identified in the implementation measures. In addition, Pedestrian Districts may be exempted from the LOS standard. Based on the above, a project may be considered to result in a significant impact if the project would result in the following at a roadway facility within the City of Roseville during the AM or PM peak hours:

- For intersections currently operating at LOS C or better: worsen operations to LOS D or worse.
- For intersections that currently operate at less than LOS C: cause operations to further worsen by one or more service levels (e.g., LOS D to LOS E).
- For intersections that currently operate at LOS F: cause intersection delay to worsen by 12.5 seconds or greater.

Method of Analysis

The analysis methodology provided in the Transportation Impact Study prepared for the proposed project by Fehr & Peers is discussed below.

Analysis Scenarios

The following analysis scenarios are included in this chapter:

- **Existing Conditions:** LOS based on current traffic counts, existing roadway geometry, and existing traffic control.
- **Existing Plus WHI:** Existing traffic volumes, roadway geometry, and traffic control plus trips from the WHI project.
- **Existing Plus WHII:** Existing traffic volumes, roadway geometry, and traffic control plus trips from the WHII project.
- **Existing Plus WHI and WHII:** Existing traffic volumes, roadway geometry, and traffic control plus trips from both the WHI and WHII projects.
- **Cumulative No Project:** Traffic volumes associated with cumulative (year 2036) buildout of the project region, including reasonably foreseeable land development projects and transportation projects. Specific building assumptions include land development consistent with known reasonably foreseeable projects in the GBCP area, land development potential in Granite Bay based on underlying zoning and General Plan land use designations, and the projections for the region contained in the Sacramento Area Council of Governments (SACOG) *2016 Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS).
- **Cumulative Plus WHI:** Traffic associated with Cumulative No Project conditions plus traffic generated by the WHI project.
- **Cumulative Plus WHII:** Traffic associated with Cumulative No Project conditions plus traffic generated by the WHII project.
- **Cumulative Plus WHI and WHII:** Traffic associated with Cumulative No Project conditions plus traffic generated by both the WHI and WHII projects.

Characteristics of the WHI and WHII Projects

Primary access to both proposed projects would be from gated entries off Douglas Boulevard at the north end of each site. The WHI site would be accessed from a new private, gated road that extends south from Douglas Boulevard approximately 500 feet east of Woodgrove Way. Due to the existing raised median on Douglas Boulevard at this location, access at this new private, gated road would be restricted to right-in/right-out movements. Outbound traffic to the west would travel east to the Seeno Avenue traffic signal and make a U-turn onto westbound Douglas Boulevard. Inbound traffic from the east would travel past the WHI access to Woodgrove Way and make a U-turn onto eastbound Douglas Boulevard to backtrack to the project access.

The WHII site would be accessed from a new private, gated road that extends south from the existing Douglas Boulevard/Seeno Avenue intersection. Because the Douglas Boulevard/Seeno Avenue intersection is already signalized, full access to and from the project would be provided at this intersection without the need for U-turns or backtracking that is necessary for the WHI project site.

An emergency vehicle access (EVA) would be provided at the southwest boundary of the WHI site, connecting to the existing sewer easement and paved access road extending northeast from Chestnut Court in the existing Greyhawk subdivision to the west. In addition, an EVA is planned for the east side of WHII, south of Lot 45. The 20-foot access road would extend within a 25-foot, off-site easement for approximately 500 feet east to Quartzite Circle, a privately-maintained public road southeast of the site. Tube gates would be used where the EVA meets the adjacent property lines. The EVA would be used for emergency vehicle access only. The WHI EVA is coincident with the extension of a Community Plan-designated trail system, but the WHII EVA would include signage to demonstrate that the EVA to Quartzite Circle is not intended for public ingress/egress or private/public trail connection.

From each of the entries on Douglas Boulevard, private roadways would extend south and provide access to the sites. The two-lane roadway sections would be 26 feet in width from back of curb to back of curb, with mountable AC dike curbs providing two 13-foot travel lanes. The roadways would be privately-owned and maintained by Homeowner's Associations (HOAs). CON/SPAN-style bridges are planned over Strap Ravine. North of Lot 1 in WHI and between Lots 1 and 2 in WHII, 26-foot-wide access easements would be provided to the property lines of the Mac Bride property located between the WHI and WHII sites to accommodate potential future roadway connections.

It should be noted as a matter of clarification that although the NOP identified an off-site improvement to install a partial median closure at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection, County staff has indicated this improvement is not funded nor finalized as part of the plans for the proposed projects. Therefore, this analysis assumes that the intersection retains the current configuration, allowing all side-street movements from Woodgrove Way/Quail Oaks Drive with implementation of the proposed projects. This provides a conservative analysis of operations at the intersection because through and left-turn movements from the side-street incur the most delay.

Project Trip Generation

The vehicle trip generation associated with the WHI and WHII projects was calculated using trip generation data contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*. Table 14-8 below identifies the trip generation applied to the proposed residential uses.

Table 14-8
Project Trip Generation Rates

Project	Dwelling Units	Trips Per Unit						
			AM Peak Hour			PM Peak Hour		
		Daily	Total	In	Out	Total	In	Out
WHI Only	24	283	27	7	20	29	18	11
WHII Only	55	606	48	12	36	61	38	23
WHI and WHII Combined	79	889	75	19	56	90	56	34

Note: Vehicle trip generation estimate calculated using fitted curve equations obtained from the ITE *Trip Generation Manual, 9th Edition* for single-family detached housing (land use code 210).

Source: Fehr & Peers, 2018.

Fehr & Peers consulted with County staff regarding the use of the ITE recently published *Trip Generation Manual*, *10th Edition*, as well as trip generation data collected at existing residential neighborhoods throughout Granite Bay. In reviewing such options, the *Trip Generation Manual, 9th Edition* was selected for the following reasons:

- Placer County uses the trip generation rates in the 9th Edition for its current traffic impact fee program; and does not have a timeline established for changing over to the 10th Edition.
- While the trip generation estimates had minimal variation among the three sources, the *Trip Generation Manual, 9th Edition* data produced the highest trip generation estimate.
- By using the *Trip Generation Manual, 9th Edition* data, this analysis is consistent with the County's adopted fee program and provides a worst-case estimate of project trip generation.

Project Trip Distribution and Assignment

Vehicle trip distribution associated with the proposed projects was based on a review of existing traffic counts, Eureka Union School District boundaries for school trips, and a select zone analysis of the Granite Bay travel forecasting model. The select zone analysis isolates and tracks the trips generated by the proposed WHI and WHII projects. Because the proposed projects are located in close proximity to each other and consist of similar single-family residences, this analysis uses the same vehicle trip distribution for both projects.

Due to differences in trip activity and trip purposes between the AM and PM peak hour (i.e., AM peak hour trips to/from Greenhills Elementary School, Ridgeview Elementary School, and Granite Bay High School, higher frequency of commercial/shopping trips during the PM peak hour, etc.), Fehr & Peers used one trip distribution for the AM peak hour and another for the PM peak hour. Figure 14-10 presents the AM peak hour vehicle trip distribution for the WHI and WHII projects, while Figure 14-11 presents the PM peak hour vehicle trip distribution.

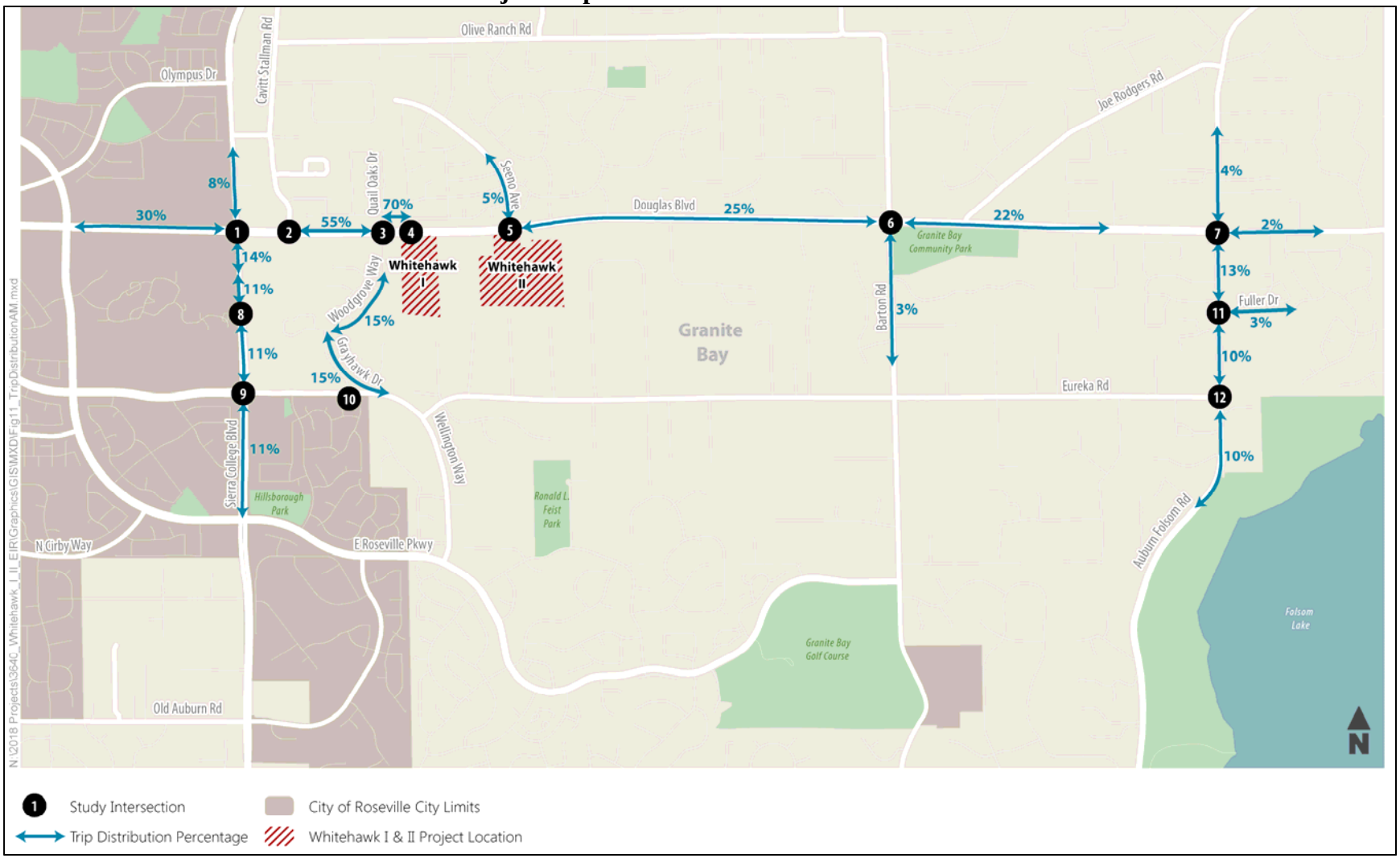
Vehicle trips generated by the proposed WHI and WHII projects are assigned to the roadway network based on the vehicle trip generation estimates in Table 14-8 and vehicle trip distribution shown in Figure 14-10 and Figure 14-11. The project trips were added to existing traffic counts to forecast Existing Plus WHI, Existing Plus WHI, and Existing Plus WHI and WHII traffic volumes. Figure 14-12 through Figure 14-14 present the resulting weekday AM and PM peak hour turning movement forecasts at the study intersections under the Existing Plus WHI, Existing Plus WHII, and Existing Plus WHI and WHII conditions.

Intersection LOS Assessment Methodology

Signalized Intersections

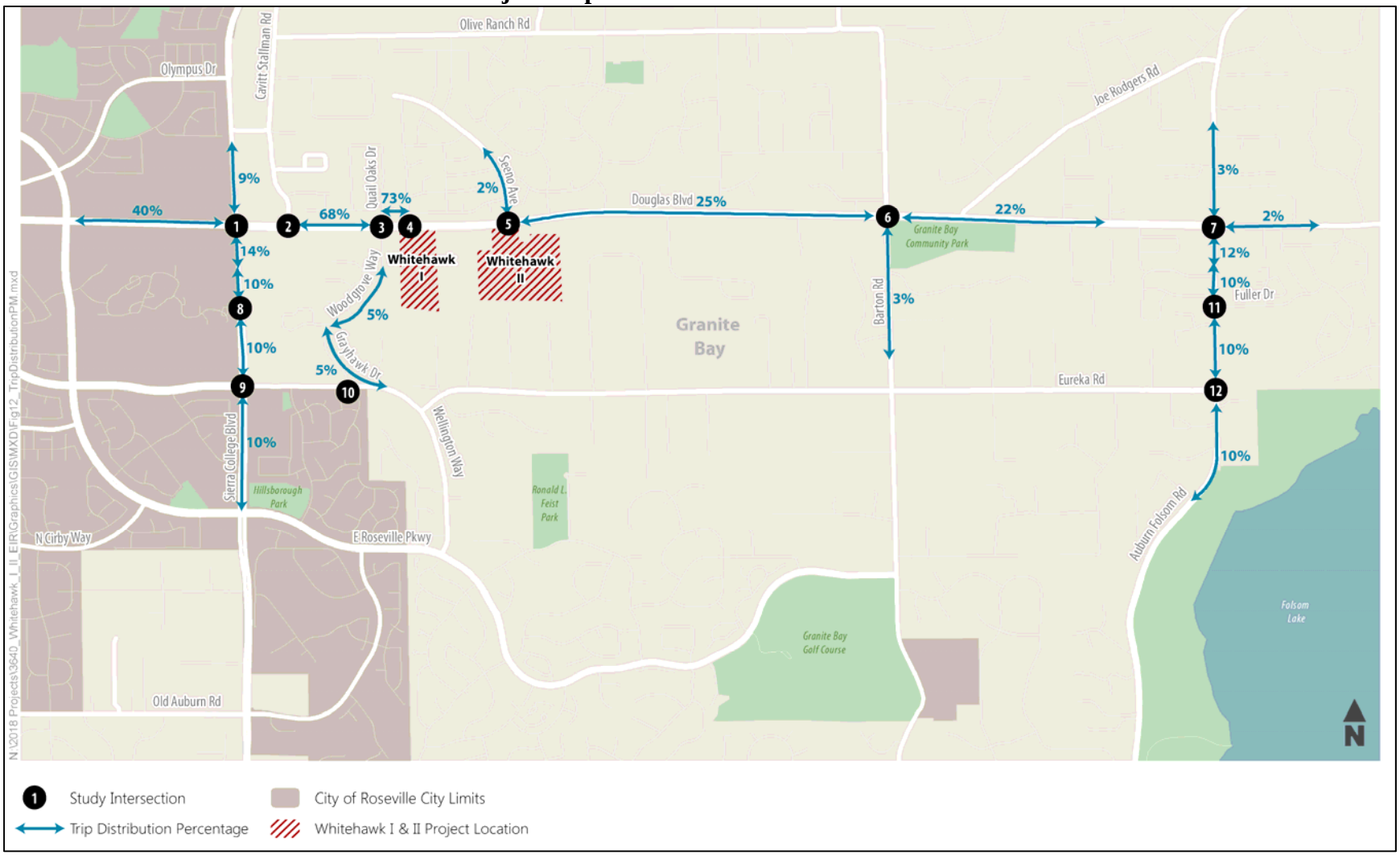
For signalized intersections, traffic operations were evaluated using the procedures described in Chapter 19 of the HCM, 6th Edition. Signalized intersection LOS is based on the weighted average control delay measured in seconds per vehicle for the overall intersection. Control delay includes

Figure 14-10
Project Trip Distribution – AM Peak Hour



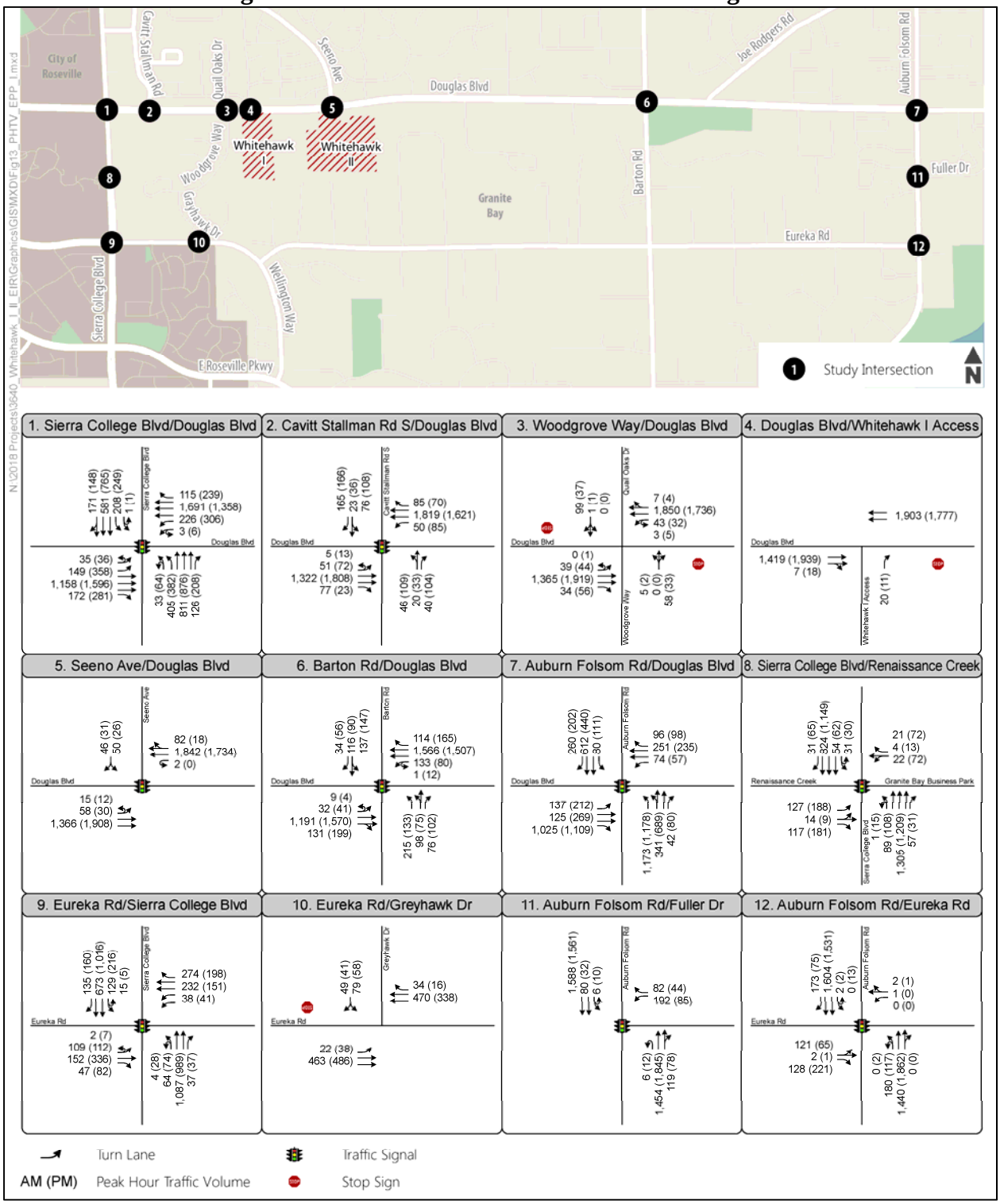
Source: Fehr & Peers, 2018.

Figure 14-11
Project Trip Distribution – PM Peak Hour



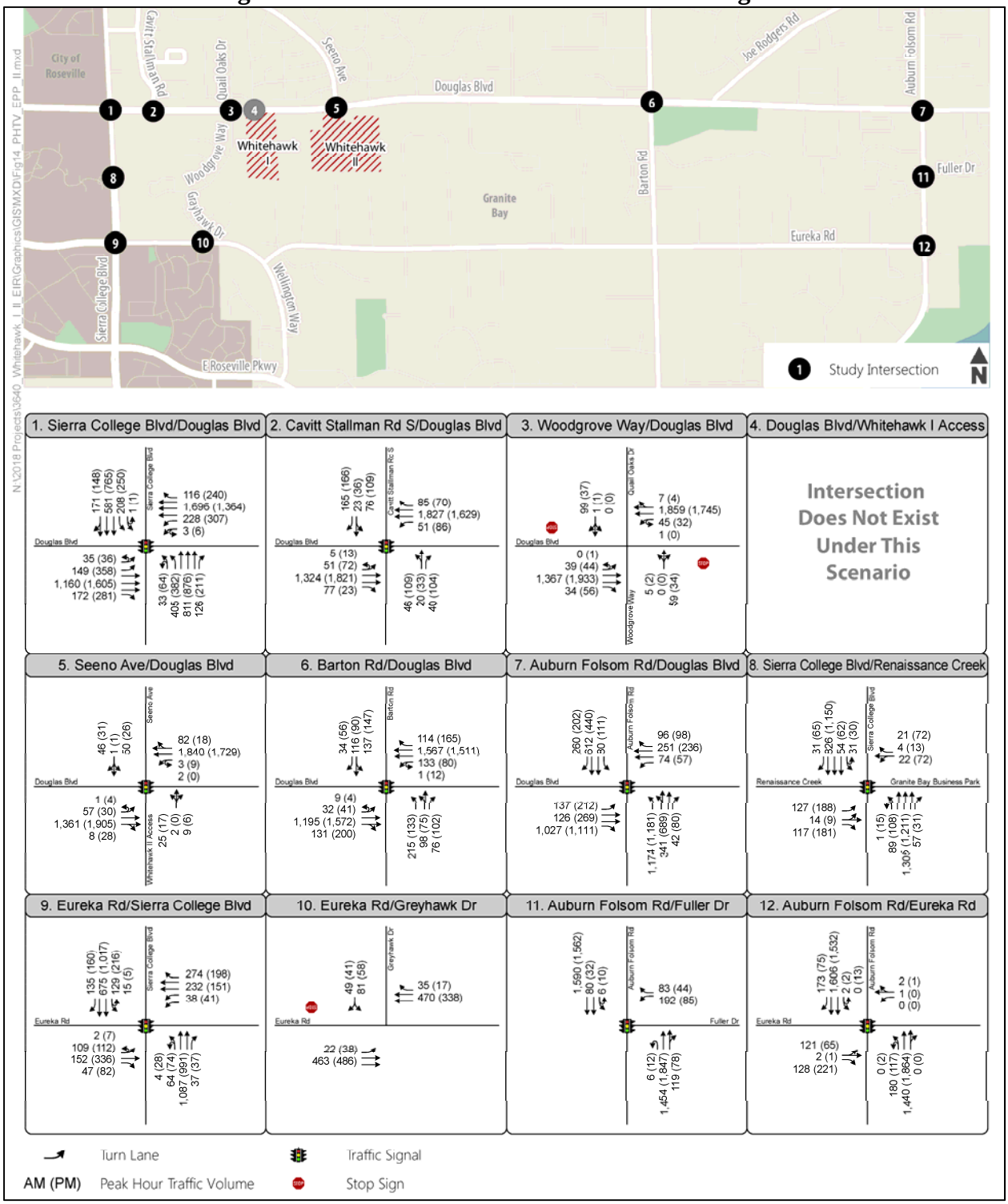
Source: Fehr & Peers, 2018.

Figure 14-12
Existing Plus WHI Traffic Volumes and Lane Configurations



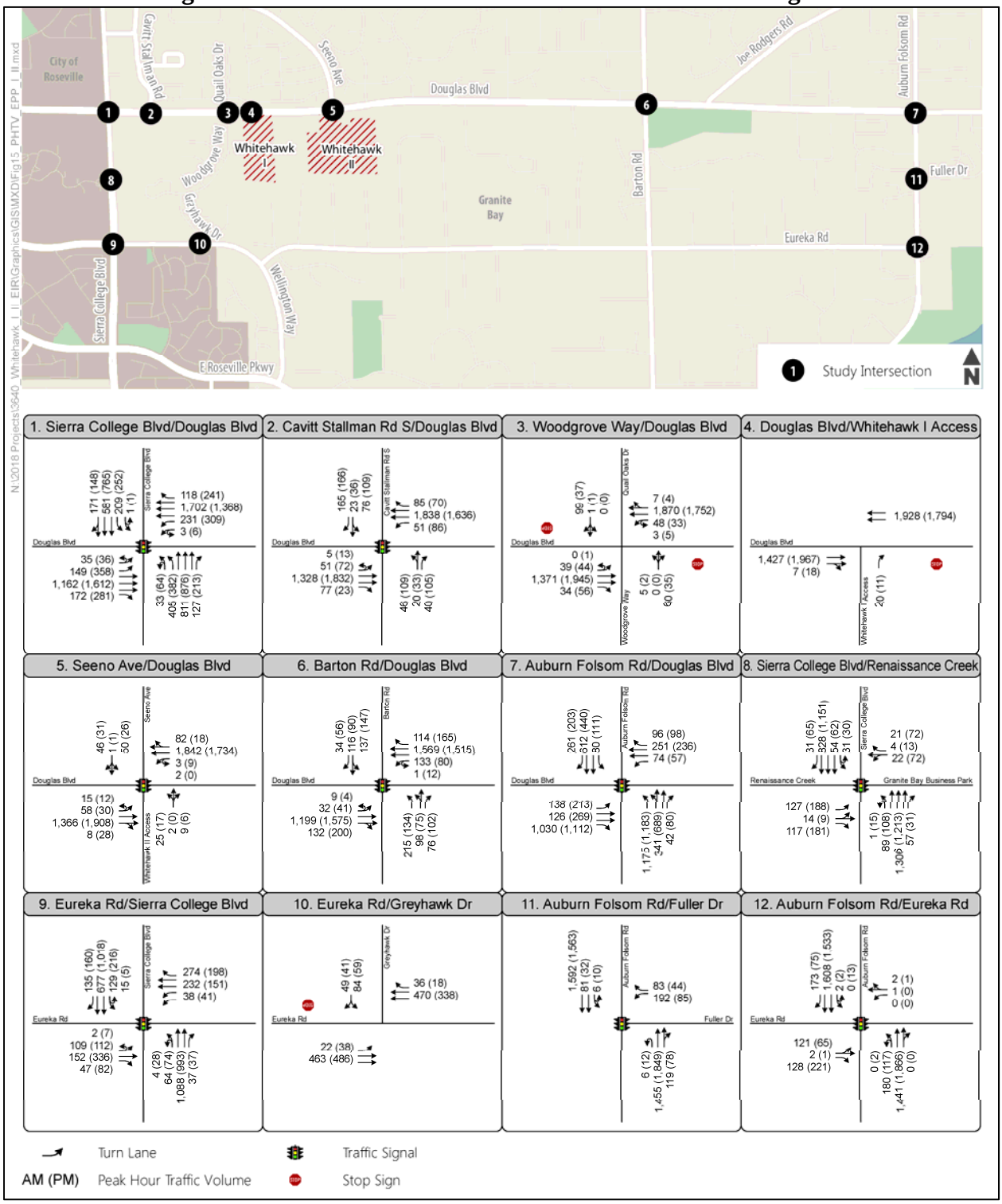
Source: Fehr & Peers, 2018.

Figure 14-13
Existing Plus WHII Traffic Volumes and Lane Configurations



Source: Fehr & Peers, 2018.

Figure 14-14
Existing Plus WHI and WHII Traffic Volumes and Lane Configurations



Source: Fehr & Peers, 2018.

initial deceleration delay, queue move-up time, stopped delay, and final acceleration. If an intersection experiences a V/C that exceeds 1.0, operations have failed (i.e., LOS F) from a capacity perspective regardless of the delay at the intersection.

Unsignalized Intersections

For unsignalized intersections, traffic operations were evaluated using the procedures described in Chapters 20, 21, and 22 of HCM 6th Edition. Similar to signalized intersections, the HCM methodology for unsignalized intersections reports the LOS based on the control delay experienced by motorists traveling through the intersection.

For roundabout and all-way stop-controlled intersections, the Transportation Impact Study reported the weighted average control delay for all motorists traveling through the intersections, as prescribed by the HCM 6th Edition. For side-street stop-controlled intersections, the Transportation Impact Study reported the weighted average control delay for movements that yield the right-of-way, as described in the Placer County Department of Public Works *Impact Analysis Methodology of Assessment* memorandum (2015).

This study analyzes signalized and stop-controlled intersections using the Synchro software program. Synchro applies the methodologies presented in the HCM 6th Edition. This program considers traffic volumes, lane configurations, signal timings, signal coordination, and other pertinent parameters of intersection operations.

Side-Street Stop Control Analysis

As noted above, traffic operations at side-street stop-controlled intersections is based on the weighted average control delay for movements that yield the right-of-way. "Free" movements on the major street, typically the through and right-turn movements, are able to pass through side-street stop-controlled intersections without delay, and therefore are not included in the calculation per the HCM methodology. The weighted average control delay calculation for side-street stop-controlled intersections is as follows:

$$\text{Weighted Average Control Delay} = \frac{\text{Major Street Left Turn Delay + Minor Street Movements Delay}}{\text{Major Street Left Turn Volume + Minor Street Movements Volume}}$$

The left-turn movements on the major street, which yield to on-coming through traffic on the major street, typically experiences less delay than stop-controlled movements from the side-street, particularly when the major street carries substantial traffic volumes. For example, at the Greyhawk Drive/Eureka Road intersection, the existing delay for the major street left turn on Eureka Road is 8.9 seconds, whereas the delay for the stop-controlled southbound movements on Greyhawk Drive is 25.3 seconds. If traffic increases on the major street left-turn, it is possible for the weighted average control delay for the intersection to decrease even if the delay for these movements increase. This is due to trips being added to a movement with higher volume and comparatively less delay, which causes the weighted average to decrease.

Woodgrove Way/Quail Oaks Drive/Douglas Boulevard

The Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection is a unique intersection where the HCM methodology calculates an extremely high delay for the side-street left-turn and through movements across all scenarios. This unrealistically high delay calculation is the result of high traffic volumes on Douglas Boulevard that make it difficult to cross the intersection. For example, under existing conditions during the AM peak hour, the HCM methodology calculates that the five northbound left-turn vehicles from Woodgrove Way are delayed an average of over 28 minutes (1731.9 seconds), and that the one southbound through vehicle on Quail Oaks Drive is delayed an average of over 18 minutes (1111.1 seconds). While the conflicting volumes on Douglas Boulevard make these side-street movements difficult, drivers would not wait an average of over 18 or 28 minutes to make these movements as these calculations would suggest, because five vehicles make the northbound left-turn during the AM peak hour (i.e., in 60 minutes). In reality, drivers would either more aggressively find a gap in traffic or find an alternate route after waiting several minutes. However, during some of the analysis scenarios the HCM methodology does not report a delay value for the northbound shared through/left-turn movement, because the delay exceeds the limits of the analysis model. For these scenarios, Fehr & Peers applied a delay of 5,000 seconds under the existing analysis scenarios and 10,000 seconds under cumulative analysis scenarios. This approach is consistent with other analysis conducted in the study area.

The traffic counts show that very few vehicles (less than five per hour) make these side-street through and left-turn movements. This indicates that drivers are either using an alternate route (such as Greyhawk Drive to Eureka Road, Rolling Oaks Drive to Seeno Avenue, or Rolling Oaks Drive to Cavitt Stallman Road South) or choosing to turn right onto Douglas Boulevard and make a U-turn at the first opportunity. Those that do make these through and left-turn movements from the side street are likely waiting five minutes or less, and are assisted in crossing Douglas Boulevard with gaps created by upstream signals at Cavitt Stallman Road South (for eastbound traffic) and Seeno Avenue (for westbound traffic).

However, the tables in this analysis report the delay and LOS results as calculated using the HCM calculated delay to maintain consistency with the HCM 6th Edition methodology. For informational purposes, this study also calculates and presents the weighted average control delay if the delay on the side street movements are capped at 600 seconds (i.e., 10 minutes), a conservative upper limit on how long a driver would wait on average.

The Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection is also a representative example of where trips added to the major street left-turn result in a decreased weighted average control delay. While the HCM calculates delays in excess of 1,000 seconds for the relatively few northbound left-turn and southbound through vehicles, the 41 existing westbound left-turn vehicles from Douglas Boulevard experience an average delay of 14.2 seconds during the AM peak hour. Similarly, the 57 existing northbound right-turning vehicles and 99 existing southbound right-turning vehicles from the side-street experience an average control delay of 17.1 seconds and 31.6 seconds, respectively. Even when the delays for these movements increase with the addition of trips from the proposed WHI and WHII projects, the overall effect of adding trips to these movements with substantially higher volume and less delay than the side-street left-turn and

through movements results in a decreased weighted average control delay under some analysis scenarios. These are reflected in the results presented herein.

Signal Warrant Analysis

As noted previously, at unsignalized intersections, LOS is supplemented by consideration of the need for traffic signals based on the Traffic Signal Warrant criteria published in Section 4C.04 of the MUTCD. Peak-hour traffic volume warrants are used to identify needed improvements and/or confirm the significance of impacts at unsignalized intersections.

The MUTCD criteria includes two peak hour warrant charts: a standard chart for use in most urban locations and a "70% Factor" chart that has a lower traffic volume threshold (i.e., more likely to show a traffic signal is warranted). The MUTCD states that the 70% Factor chart may be used in place of the standard chart if the posted speed limit or the 85th-percentile speed on the major street exceeds 40 mph. Because Douglas Boulevard has a posted speed limit of 55 mph at Woodgrove Way, the Transportation Impact Study used the 70% factor for the signal warrant analysis at the Douglas Boulevard/Woodgrove Way/Quail Oaks Drive intersection. The unsignalized intersection at Eureka Road/Greyhawk Drive is located along a segment of Eureka Road that has a posted speed limit of 35 mph. Therefore, the Transportation Impact Study used the standard chart for the signal warrant analysis at the Eureka Road/Greyhawk Drive intersection.

Douglas Boulevard - Diverted Traffic Analysis

The following project-level diverted traffic analysis for Douglas Boulevard has been provided by Fehr & Peers in response to concerns expressed during the NOP public review process. CEQA does not identify specific impact thresholds for traffic diversion; thus, this analysis is being presented here for informational purposes.

Existing Plus WHI

Table 14-9 presents the weekday AM and PM peak hour average travel speeds on Douglas Boulevard for the segment between Seeno Avenue to Cavitt Stallman Road South under existing plus WHI conditions. As shown, the average travel speed on westbound Douglas Boulevard from Seeno Avenue to Cavitt Stallman Road South would remain unchanged during both the AM and PM peak hours under existing plus WHI conditions. Given that these speeds remain relatively unchanged from existing conditions, the proposed WHI project would not increase the attractiveness for through traffic to divert off Douglas Boulevard through the Quail Oaks neighborhood.

Existing Plus WHII

Table 14-10 presents the weekday AM and PM peak hour average travel speeds on Douglas Boulevard for the segment between Seeno Avenue to Cavitt Stallman Road South under existing plus WHII conditions. As shown, the average travel speed on westbound Douglas Boulevard from Seeno Avenue to Cavitt Stallman Road South would remain unchanged during both the AM and PM peak hours under existing plus WHII conditions. Given that these speeds remain relatively unchanged from existing conditions, the proposed WHII project would not increase the attractiveness for through

traffic to divert off Douglas Boulevard through the Quail Oaks neighborhood. While the speeds on eastbound Douglas Boulevard are forecasted to decrease due to the additional leg and signal phase at the Seeno Avenue signal, the travel speed would still be significantly higher than diverting off Douglas Boulevard.

Table 14-9
Douglas Boulevard Peak Hour Travel Speed – Existing Plus WHI Conditions

Roadway Segment	Direction	Existing Conditions		Existing Plus WHI	
		Travel Speed[1]	% BFFS[2]	Travel Speed[1]	% BFFS[2]
Douglas Boulevard – AM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	51	83%	51	82%
	Westbound	46	74%	46	74%
Douglas Boulevard – PM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	52	84%	52	84%
	Westbound	41	67%	41	67%

Notes:
[1] Travel speed calculated based on methodologies contained in the Highway Capacity Manual (HCM) 6th Edition.
[2] Percent of base free-flow speed (BFFS) as calculated by HCS.

Source: Fehr & Peers, 2018.

Table 14-10
Douglas Boulevard Peak Hour Travel Speed – Existing Plus WHII Conditions

Roadway Segment	Direction	Existing Conditions		Existing Plus WHII	
		Travel Speed[1]	% BFFS[2]	Travel Speed[1]	% BFFS[2]
Douglas Boulevard – AM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	51	83%	47	76%
	Westbound	46	74%	46	74%
Douglas Boulevard – PM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	52	84%	46	73%
	Westbound	41	67%	41	67%

Notes:
[1] Travel speed calculated based on methodologies contained in the Highway Capacity Manual (HCM) 6th Edition.
[2] Percent of base free-flow speed (BFFS) as calculated by HCS.

Source: Fehr & Peers, 2018.

Existing Plus WHI and WHII

Table 14-11 presents the weekday AM and PM peak hour average travel speeds on Douglas Boulevard for the segment between Seeno Avenue to Cavitt Stallman Road South under existing plus WHI and II conditions. As shown, the average travel speed on westbound Douglas Boulevard from Seeno Avenue to Cavitt Stallman Road South would remain unchanged during both the AM and PM peak hours under existing plus WHI and II conditions. Given that these speeds remain relatively unchanged from existing conditions, the combined effect of the WHI and II projects would not increase the attractiveness for through traffic to divert off Douglas Boulevard through the Quail Oaks

neighborhood. While the speeds on eastbound Douglas Boulevard are forecasted to decrease due to the additional leg and signal phase at the Seeno Avenue signal, the travel speed would still be significantly higher than diverting off Douglas Boulevard.

Table 14-11
Douglas Boulevard Peak Hour Travel Speed – Existing Plus WHI and WHII Conditions

Roadway Segment	Direction	Existing Conditions		Existing Plus WHI and WHII	
		Travel Speed[1]	% BFFS[2]	Travel Speed[1]	% BFFS[2]
Douglas Boulevard – AM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	51	83%	47	76%
	Westbound	46	74%	46	74%
Douglas Boulevard – PM Peak Hour					
1. Cavitt Stallman Rd. South to Seeno Ave.	Eastbound	52	84%	46	73%
	Westbound	41	67%	41	67%

Notes:
[1] Travel speed calculated based on methodologies contained in the Highway Capacity Manual (HCM) 6th Edition.
[2] Percent of base free-flow speed (BFFS) as calculated by HCS.

Source: Fehr & Peers, 2018.

Project Impacts and Mitigation Measures

The proposed projects' 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.

14-1 Traffic related to construction activities. Based on the analysis below and with implementation of mitigation, the impact is *less than significant.*

WHI and WHII

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. Construction access to the proposed project sites would occur from Douglas Boulevard at the proposed access points – approximately 500 feet east of Woodgrove Way and at Seeno Avenue for WHI and WHII, respectively. Construction trips would include construction employee trips to and from the project sites as well as delivery trucks for materials and equipment.

In addition to construction activity on the project sites, certain construction activities would involve activity within the existing right-of-way on Douglas Boulevard. For example, the extension of the existing waterline on Douglas Boulevard and the improvements to the Douglas Boulevard/Seeno Avenue intersection for WHII would both require construction activity within the existing right-of-way of Douglas Boulevard. 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.

While construction workers typically arrive before the morning peak hour and leave before the evening peak hours of the traditional commute time periods, and deliveries of building material (lumber, concrete, asphalt, etc.) normally occur outside of the traditional commute time periods, the potential for project construction activities to increase delays on Douglas Boulevard would be considered a ***significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

WHI and WHII

14-1 *Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) shall be provided to the Placer County Department of Public Works and Facilities and the Engineering and Surveying Division for review and approval. The plan shall address all project construction activities, including on- and off-site improvements, and include (but not be limited to) items such as:*

- *Approved truck circulation routes/patterns;*
- *Monitoring for roadbed damage and timing for completing repairs;*
- *Preservation of safe and convenient passage for bicyclists and pedestrians through/around construction areas;*
- *Methods for partial (i.e., single lane)/complete street closures (e.g., timing, signage, location and duration restrictions), if necessary;*
- *Identification of detour routes for roadways subject to partial/complete street closures;*
- *Criteria for use of flaggers and other traffic controls; and*
- *Provide a point of contact for nearby residents to obtain construction information and have questions answered.*

The CTMP should be developed such that the following performance standards are achieved throughout project construction:

- *Construction traffic should be minimized during AM and PM peak periods in which the adjacent street traffic on Douglas Boulevard is at its highest;*
- *Any construction-related partial/complete closures of Douglas Boulevard east of Sierra College Boulevard (to accommodate the widening of Douglas Boulevard), east of Woodgrove Way (to accommodate the proposed waterline extension), or at Seeno Avenue (to accommodate improvements related to the proposed*

fourth-leg) shall occur during off-peak periods and be accompanied with appropriate construction signage including detour routing;

- *Detour routing should be limited to County-maintained collector and arterial roadways, such as Eureka Road and Olive Ranch Road, and should include measures to minimize traffic increases on local residential roadways. This may include signage and law enforcement presence during partial/complete closures of Douglas Boulevard to discourage through traffic use of local residential roadways; and*
- *Roadways, sidewalks, crosswalks, and bicycle facilities shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.*

14-2 Study intersections under Existing Plus Project conditions. Based on the analysis below, the findings are as follows:

- **Existing Plus WHI. Impact is *less than significant* for all study intersections.**
- **Existing Plus WHII. Impact is *less than significant* for all study intersections.**
- **Existing Plus WHI and WHII. Impacts to all study intersections would be *less than significant,* with the exception of the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection. With mitigation, the impact would be *less than significant*.**

Existing Plus WHI

Table 14-12 presents the average delay and LOS at the study intersections under Existing Plus WHI conditions during the weekday AM and PM peak hours. As shown in the table, all study intersections continue to operate at an acceptable LOS under Existing Plus WHI conditions with the exception of the following three intersections, which would operate at an unacceptable LOS:

- Sierra College Boulevard/Douglas Boulevard (Intersection #1) – LOS D during the AM peak hour and LOS E during the PM peak hour;
- Woodgrove Way/Quail Oaks Drive/Douglas Boulevard (Intersection #3) – LOS F during the AM and PM peak hours; and
- Sierra College Boulevard/Eureka Road (Intersection #9) – LOS D during the AM peak hour and LOS E during the PM peak hour.

The intersections listed above operate at an unacceptable LOS under existing conditions without the WHI project and would continue to operate at an unacceptable LOS under Existing Plus WHI conditions. However, the vehicle trips generated by the WHI project would not degrade the operations by a service level (i.e., LOS D to LOS E) at the City of Roseville intersections – Sierra College Boulevard/Douglas Boulevard and Sierra College Boulevard/Eureka Road. Furthermore, the addition of traffic from the WHI project would increase the weighted average control delay by less than one second at Woodgrove Way/Quail Oaks Drive/Douglas Boulevard during the AM peak hour and reduce the

average control delay during the PM peak hour. The one-second increase attributable to the WHI project during the AM peak hour is below the County's 2.5-second threshold for unsignalized intersections already operating unacceptably. Therefore, the WHI project would not conflict with the applicable Placer County and City of Roseville significance thresholds, and a less-than-significant impact would occur.

Table 14-12
Study Intersection LOS – Existing Plus WHI Conditions

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions		Existing Plus WHI	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Sierra College Blvd./Douglas Blvd.	Signal	AM	**43.0**	**D**	**43.1**	**D**
		PM	**60.0**	**E**	**60.2**	**E**
2. Cavitt Stallman Rd. South/Douglas Blvd.	Signal	AM	13.9	B	14.0	B
		PM	20.8	C	21.0	C
3. Woodgrove Way/Quail Oaks Dr./Douglas Blvd.	SSSC	AM	**63.0**	**F**	**63.7**	**F**
		PM	**120.6**	**F**	**116.7**	**F**
4. WHI Access/Douglas Blvd.[4]	SSSC	AM	--		16.3	C
		PM			21.6	C
5. Seeno Ave./Douglas Blvd.	Signal	AM	7.3	A	7.3	A
		PM	4.5	A	4.6	A
6. Barton Rd./Douglas Blvd.	Signal	AM	38.9	D	39.2	D
		PM	42.7	D	43.2	D
7. Auburn Folsom Rd./Douglas Blvd.	Signal	AM	39.0	D	39.1	D
		PM	36.1	D	36.2	D
8. Sierra College Blvd./Renaissance Creek/Granite Bay Business Park	Signal	AM	25.0	C	25.0	C
		PM	28.7	C	28.7	C
9. Sierra College Blvd./Eureka Rd.	Signal	AM	**41.4**	**D**	**41.5**	**D**
		PM	**64.7**	**E**	**65.0**	**E**
10. Grayhawk Dr./Eureka Rd.	SSSC	AM	22.8	C	23.5	C
		PM	13.9	B	14.1	B
11. Auburn Folsom Rd./Fuller Dr.	Signal	AM	13.4	B	13.5	B
		PM	9.0	A	9.1	A
12. Auburn Folsom Rd./Eureka Rd.	Signal	AM	15.4	B	15.4	B
		PM	9.1	A	9.1	A

Notes:
1. Signal = traffic signal-controlled intersection; SSSC = side-street stop-controlled intersection.
2. Average control delay for signalized intersections is the weighted average for all movements. Average control delay at SSSC intersections is the "overall weighted average delay for movements yielding the right-of-way."
3. LOS is calculated based on methodologies contained in the Highway Capacity Manual (HCM) 6th Edition.
4. The WHI Access does not existing under Existing conditions.

Bold text indicates unacceptable operations.

Source: Fehr & Peers, 2018.

Existing Plus WHII

Table 14-13 presents the average delay and LOS at the study intersections under Existing Plus WHII conditions during the weekday AM and PM peak hours.

Table 14-13
Study Intersection LOS – Existing Plus WHII Conditions

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions		Existing Plus WHII	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Sierra College Blvd./Douglas Blvd.	Signal	AM	**43.0**	**D**	**43.1**	**D**
		PM	**60.0**	**E**	**60.4**	**E**
2. Cavitt Stallman Rd. South/Douglas Blvd.	Signal	AM	13.9	B	13.7	B
		PM	20.8	C	21.2	C
3. Woodgrove Way/Quail Oaks Dr./Douglas Blvd.	SSSC	AM	**63.0**	**F**	**63.7**	**F**
		PM	**120.6**	**F**	**119.1**	**F**
4. WHI Access/Douglas Blvd.[4]	N/A	AM	--			
		PM				
5. Seeno Ave./Douglas Blvd.	Signal	AM	7.3	A	14.1	B
		PM	4.5	A	8.6	A
6. Barton Rd./Douglas Blvd.	Signal	AM	38.9	D	39.3	D
		PM	42.7	D	43.5	D
7. Auburn Folsom Rd./Douglas Blvd.	Signal	AM	39.0	D	39.1	D
		PM	36.1	D	36.3	D
8. Sierra College Blvd./Renaissance Creek/Granite Bay Business Park	Signal	AM	25.0	C	25.0	C
		PM	28.7	C	28.7	C
9. Sierra College Blvd./Eureka Rd.	Signal	AM	**41.4**	**D**	**41.5**	**D**
		PM	**64.7**	**E**	**65.2**	**E**
10. Grayhawk Dr./Eureka Rd.	SSSC	AM	22.8	C	24.0	C
		PM	13.9	B	14.1	B
11. Auburn Folsom Rd./Fuller Dr.	Signal	AM	13.4	B	13.5	B
		PM	9.0	A	9.1	A
12. Auburn Folsom Rd./Eureka Rd.	Signal	AM	15.4	B	15.4	B
		PM	9.1	A	9.1	A

Notes:

1. Signal = traffic signal-controlled intersection; SSSC = side-street stop-controlled intersection.
2. Average control delay for signalized intersections is the weighted average for all movements. Average control delay at SSSC intersections is the "overall weighted average delay for movements yielding the right-of-way."
3. LOS is calculated based on methodologies contained in the HCM, 6th Edition.
4. The WHI Access does not existing under Existing conditions.

Bold text indicates unacceptable operations.

Source: Fehr & Peers, 2018.

As shown in the table, all study intersections continue to operate at an acceptable LOS under Existing Plus WHII conditions with the exception of the following three intersections, which would operate at an unacceptable LOS:

- Sierra College Boulevard/Douglas Boulevard (Intersection #1) – LOS D during the AM peak hour and LOS E during the PM peak hour;
- Woodgrove Way/Quail Oaks Drive/Douglas Boulevard (Intersection #3) – LOS F during the AM and PM peak hours; and
- Sierra College Boulevard/Eureka Road (Intersection #9) – LOS D during the AM peak hour and LOS E during the PM peak hour.

The intersections listed above operate at an unacceptable LOS under existing conditions and would continue to operate at an unacceptable LOS under Existing Plus WHII conditions. However, the vehicle trips generated by the WHII project would not degrade the operations by a service level (i.e., LOS D to LOS E) at the City of Roseville intersections – Sierra College Boulevard/Douglas Boulevard and Sierra College Boulevard/Eureka Road. Furthermore, the addition of traffic from the WHII project would increase the weighted average control delay by 1.5 seconds at Woodgrove Way/Quail Oaks Drive/Douglas Boulevard during the AM peak hour and reduce the average control delay during the PM peak hour. The one-second increase attributable to the WHI project during the AM peak hour is below the County's 2.5-second threshold for unsignalized intersections already operating unacceptably. Therefore, the WHII project would not conflict with the applicable Placer County and City of Roseville significance thresholds, and a less-than-significant impact would occur.

Existing Plus WHI and WHII

Table 14-14 presents the average delay and LOS at the study intersections under Existing Plus WHI and WHII conditions during the weekday AM and PM peak hours. As shown in the table, all study intersections continue to operate at an acceptable LOS under Existing Plus WHI and WHII conditions, with the exception of the following three intersections, which would operate at an unacceptable LOS:

- Sierra College Boulevard/Douglas Boulevard (Intersection #1) – LOS D during the AM peak hour and LOS E during the PM peak hour;
- Woodgrove Way/Quail Oaks Drive/Douglas Boulevard (Intersection #3) – LOS F during the AM and PM peak hours; and
- Sierra College Boulevard/Eureka Road (Intersection #9) – LOS D during the AM peak hour and LOS E during the PM peak hour.

The intersections listed above operate at an unacceptable LOS under existing conditions and would continue to operate at an unacceptable LOS under Existing Plus WHI and WHII conditions. However, the vehicle trips generated by the WHI and WHII projects would not degrade the operations by a service level (i.e., LOS D to LOS E) at the City of Roseville intersections – Sierra College Boulevard/Douglas Boulevard and Sierra College Boulevard/Eureka Road.

Table 14-14
Study Intersection LOS – Existing Plus WHI and WHII Conditions

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions		Existing Plus WHI and WHII	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Sierra College Blvd./Douglas Blvd.		AM	**43.0**	**D**	**43.2**	**D**
		PM	**60.0**	**E**	**60.6**	**E**
2. Cavitt Stallman Rd. South/Douglas Blvd.		AM	13.9	B	14.2	B
		PM	20.8	C	21.3	C
3. Woodgrove Way/Quail Oaks Dr./Douglas Blvd.		AM	**63.0**	**F**	**75.8**	**F**
		PM	**120.6**	**F**	**115.0**	**F**
4. WHI Access/Douglas Blvd.[4]		AM	--		16.4	C
		PM			22.0	C
5. Seeno Ave./Douglas Blvd.		AM	7.3	A	14.7	C
		PM	4.5	A	10.7	B
6. Barton Rd./Douglas Blvd.		AM	38.9	D	39.7	D
		PM	42.7	D	43.9	D
7. Auburn Folsom Rd./Douglas Blvd.		AM	39.0	D	39.4	D
		PM	36.1	D	36.4	D
8. Sierra College Blvd./Renaissance Creek/Granite Bay Business Park		AM	25.0	C	25.0	C
		PM	28.7	C	28.7	C
9. Sierra College Blvd./Eureka Rd.		AM	**41.4**	**D**	**41.5**	**D**
		PM	**64.7**	**E**	**65.4**	**E**
10. Grayhawk Dr./Eureka Rd.		AM	22.8	C	24.7	C
		PM	13.9	B	14.2	B
11. Auburn Folsom Rd./Fuller Dr.		AM	13.4	B	13.6	B
		PM	9.0	A	9.1	A
12. Auburn Folsom Rd./Eureka Rd.		AM	15.4	B	15.5	B
		PM	9.1	A	9.1	A

Notes:

1. Signal = traffic signal-controlled intersection; SSSC = side-street stop-controlled intersection.
2. Average control delay for signalized intersections is the weighted average for all movements. Average control delay at SSSC intersections is the "overall weighted average delay for movements yielding the right-of-way."
3. LOS is calculated based on methodologies contained in the HCM, 6th Edition.
4. The WHI Access does not existing under Existing conditions.

Bold text indicates unacceptable operations. **Bold and highlighted text** indicates significant impact.

Source: Fehr & Peers, 2018.

While the addition of traffic from the WHI and WHII projects would reduce the average control delay at Woodgrove Way/Quail Oaks Drive/Douglas Boulevard during the PM peak hour by 5.6 seconds, average delay would increase by approximately 12.8 seconds during the AM peak hour. Therefore, combined development of the proposed projects could conflict with the applicable Placer County significance threshold at the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection during the AM peak hour, and a significant impact could occur.

Conclusion

Based on the above, under Existing Plus WHI only and Existing Plus WHII only conditions, the proposed projects would not result in any conflicts with applicable Placer County and City of Roseville significance thresholds. However, under Existing Plus WHI and WHII conditions, a ***significant*** impact could occur at the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection.

Mitigation Measure(s)

Existing Plus WHI: None required.

Existing Plus WHII: None required.

Existing Plus WHI and WHII: Implement Mitigation Measure 14-2.

Implementation of the following mitigation measure would eliminate the northbound and southbound left-turn and through movements at the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection, which would limit access to left-in and right-in/right-out movements only. Table 14-15 summarizes alternatives routes that can accommodate displaced turn movements. As shown in the table, the relatively low volume using the turn movements that would be displaced with implementation of the mitigation measure is an indication that alternative routes are available today for drivers that may want to use them, but currently avoid them due to high delay. Consequently, implementation of traffic signal control as a mitigation, although warranted, is not appropriate given the low volume using the intersection movements.

It is anticipated that the second of the two projects to be developed would be responsible for the construction of this improvement, as the impact is only triggered by the vehicle trips resulting from both the WHI and WHII projects. The below mitigation measure also recognizes that the need for this improvement may be triggered before the second Whitehawk project is completed. For example, a potential scenario could include the development of one of the Whitehawk projects, followed by the development of another pending/approved Granite Bay project before the second Whitehawk project is built. In such a scenario it is plausible that the intervening project could trigger the need for construction of a raised median at the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection, thus relieving the second Whitehawk project from having to construct the median.

Table 14-15
Alternative Access Routes: Woodgrove Way/Quail Oaks Drive/Douglas Boulevard

Displaced Movements				Alternative Routes	
		Peak Hour Volume			
Approach	Movement	AM	PM	Description	Out-of-Direction Travel
NB	Left	5	2	• NB right-turn at Woodgrove Way • EB U-turn at Seeno Avenue • WB Thru at Woodgrove Way	4,100 feet
	Through	0	0	• NB right-turn at Woodgrove Way • EB Left-turn at Seeno Avenue OR • NB Right-turn at Woodgrove Way • EB U-turn at Seeno Avenue • WB Right-turn at Quail Oaks Drive	Up to 4,100 feet
SB	Left	0	0	• Rolling Oaks Drive to Seeno Avenue • SB Left-turn at Seeno Avenue	No Change
	Through	1	1	• Rolling Oaks Drive to Seeno Avenue • SB Right-turn at Seeno Avenue • WB Left-turn at Woodgrove Way	Up to 4,100 feet

Source: Fehr & Peers, 2018.

With implementation of the mitigation measure, the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection would operate acceptably at LOS C during the AM peak hour. Therefore, the impact to the Woodgrove Way/Quail Oaks Drive/Douglas Boulevard intersection would be reduced to a *less-than-significant* level.

14-2 *The Improvement Plans shall show the construction of a raised median at the existing intersection of Woodgrove Way/Quail Oaks Drive/Douglas Boulevard that will prohibit northbound and southbound left-turn movements onto Douglas Boulevard 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 Boulevard. 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 Boulevard. 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. This improvement shall only be required with the development of the second Whitehawk project to be developed as determined by Placer County.*

14-3 Study roadway segments under Existing Plus Project conditions. Based on the analysis below, the findings are as follows:

- **<u>Existing Plus WHI.</u> Impact is *less than significant* for all roadway segments.**
- **<u>Existing Plus WHII.</u> Impacts to all study roadway segments would be *less than significant,* with the exception of Douglas Boulevard from Woodgrove Way to Seeno Avenue. Given the lack of feasible mitigation, the impact is considered *significant and unavoidable*.**
- **<u>Existing Plus WHI and WHII.</u> Impacts to all roadway segments would be *less than significant,* with the exception of Douglas Boulevard between Sierra College Boulevard and Seeno Avenue. The segment between Sierra College Boulevard and Cavitt Stallman Road South would be *less than significant* with mitigation. The remaining segment between Cavitt Stallman Road South and Seeno Avenue would be considered *significant and unavoidable* given the lack of feasible mitigation.**

<u>Existing Plus WHI</u>

Table 14-16 presents the ADT volumes, V/C, and LOS at the study roadway segments under Existing Plus WHI conditions during the weekday AM and PM peak hours. As shown in the table, the following roadway segments would operate at an unacceptable LOS D or worse under existing conditions without the project, and would continue to do so with WHI traffic:

- Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road South (Segment #1);
- Douglas Boulevard: Cavitt Stallman Road South to Woodgrove Way/Quail Oaks Drive (Segment #2);
- Douglas Boulevard: Woodgrove Way/Quail Oaks Drive to Seeno Avenue (Segment #3);
- Douglas Boulevard: Seeno Avenue to Barton Road (Segment #4);
- Douglas Boulevard: Barton Road to Auburn Folsom Road (Segment #5);
- Sierra College Boulevard: Renaissance Creek/Granite Bay Business Park to Eureka Road (Segment #8); and
- Auburn Folsom Road: Douglas Boulevard to Eureka Road (Segment #9).

None of the roadway segments listed above would experience a daily traffic volume increase of 100 or more project generated trips per lane. The largest increase in ADT on the above segments is on Douglas Boulevard from Woodgrove Way to Seeno Avenue, which would increase by 200 ADT, or approximately 50 ADT per lane (Douglas Boulevard is four lanes on this segment). Therefore, the WHI project would not conflict with the applicable Placer County and City of Roseville significance thresholds, and a less-than-significant impact would occur.

Table 14-16
Study Roadway Segment LOS – Existing Plus WHI Conditions

Segment	Classification	Existing Conditions			Existing Plus WHI		
		ADT	V/C	LOS	ADT	V/C	LOS
1. Douglas Blvd.: Sierra College Blvd. to Cavitt Stallman Rd. South	4-lane Arterial – MAC	47,560	1.32	**F**	47,730	1.33	**F**
2. Douglas Blvd.: Cavitt Stallman Rd. South to Woodgrove Way	4-lane Arterial – HAC	46,830	1.17	**F**	47,010	1.18	**F**
3. Douglas Blvd.: Woodgrove Way to Seeno Ave.	4-lane Arterial – HAC	45,230	1.13	**F**	45,430	1.14	**F**
4. Douglas Blvd.: Seeno Ave. to Barton Rd.	4-lane Arterial – HAC	44,800	1.12	**F**	44,870	1.12	**F**
5. Douglas Blvd.: Barton Rd. to Auburn Folsom Rd.	4-lane Arterial – HAC	42,620	1.07	**F**	42,690	1.07	**F**
6. Sierra College Blvd.: Olympus Dr. to Douglas Blvd.	6-lane Arterial – MAC	26,950	0.50	A	26,970	0.50	A
7. Sierra College Blvd.: Douglas Blvd. to Renaissance Creek	6-lane Arterial – MAC	34,450	0.64	B	34,490	0.64	B
8. Sierra College Blvd.: Renaissance Creek to Eureka Rd.	4-lane Arterial – MAC	32,330	0.90	**D**	32,360	0.90	**D**
9. Auburn Folsom Rd.: Douglas Blvd. to Eureka Rd.	4-lane Arterial – MAC	39,670	1.10	**F**	39,700	1.10	**F**

Notes:
- MAC = moderate access control; HAC = high access control.
- ADT values are rounded to the nearest 10 vehicles.
- **Bold** text indicates unacceptable operations.

Source: Fehr & Peers, 2018.

Existing Plus WHII

Table 14-17 presents the ADT volumes, V/C, and LOS at the study roadway segments under Existing Plus WHII conditions during the weekday AM and PM peak hours. As shown in the table, the following roadway segments would continue to operate at an unacceptable LOS D or worse under Existing Plus WHII conditions:

- Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road South (Segment #1);
- Douglas Boulevard: Cavitt Stallman Road South to Woodgrove Way/Quail Oaks Drive (Segment #2);
- Douglas Boulevard: Woodgrove Way/Quail Oaks Drive to Seeno Avenue (Segment #3);
- Douglas Boulevard: Seeno Avenue to Barton Road (Segment #4);
- Douglas Boulevard: Barton Road to Auburn Folsom Road (Segment #5);
- Sierra College Boulevard: Renaissance Creek/Granite Bay Business Park to Eureka Road (Segment #8); and
- Auburn Folsom Road: Douglas Boulevard to Eureka Road (Segment #9).

None of the roadway segments listed above would experience a daily traffic volume increase of 100 or more project generated trips per lane, with the exception of Douglas Boulevard from Woodgrove Way to Seeno Avenue, which would experience an increase of 440 ADT over four lanes. This is slightly more than the 400 ADT allowed (100 ADT per lane for this four-lane segment of Douglas Boulevard). All other segments that currently operate at an unacceptable LOS experience an increase of no more than 390 daily vehicle trips across at least four travel lanes, and are not significantly impacted.

Therefore, the WHII project would conflict with Placer County's established thresholds for roadway segments, specifically for the segment of Douglas Boulevard from Woodgrove Way to Seeno Avenue. This is considered a significant impact.

Existing Plus WHI and WHII

Table 14-18 presents the ADT volumes, V/C, and LOS at the study roadway segments under Existing Plus WHI and WHII conditions during the weekday AM and PM peak hours. As shown in the table, the following roadway segments would continue to operate at an unacceptable LOS D or worse under Existing Plus WHI and WHII conditions:

- Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road South (Segment #1);
- Douglas Boulevard: Cavitt Stallman Road South to Woodgrove Way/Quail Oaks Drive (Segment #2);
- Douglas Boulevard: Woodgrove Way/Quail Oaks Drive to Seeno Avenue (Segment #3);
- Douglas Boulevard: Seeno Avenue to Barton Road (Segment #4);

Table 14-17
Study Roadway Segment LOS – Existing Plus WHII Conditions

Segment	Classification	Existing Conditions			Existing Plus WHII		
		ADT	V/C	LOS	ADT	V/C	LOS
1. Douglas Blvd.: Sierra College Blvd. to Cavitt Stallman Rd. South	4-lane Arterial – MAC	47,560	1.32	**F**	47,930	1.33	**F**
2. Douglas Blvd.: Cavitt Stallman Rd. South to Woodgrove Way	4-lane Arterial – HAC	46,830	1.17	**F**	47,220	1.18	**F**
3. Douglas Blvd.: Woodgrove Way to Seeno Ave.	4-lane Arterial – HAC	45,230	1.13	**F**	45,670	1.14	**F**
4. Douglas Blvd.: Seeno Ave. to Barton Rd.	4-lane Arterial – HAC	44,800	1.12	**F**	44,950	1.12	**F**
5. Douglas Blvd.: Barton Rd. to Auburn Folsom Rd.	4-lane Arterial – HAC	42,620	1.07	**F**	42,760	1.07	**F**
6. Sierra College Blvd.: Olympus Dr. to Douglas Blvd.	6-lane Arterial – MAC	26,950	0.50	A	27,000	0.50	A
7. Sierra College Blvd.: Douglas Blvd. to Renaissance Creek	6-lane Arterial – MAC	34,450	0.64	B	34,540	0.64	B
8. Sierra College Blvd.: Renaissance Creek to Eureka Rd.	4-lane Arterial – MAC	32,330	0.90	**D**	32,390	0.90	**D**
9. Auburn Folsom Rd.: Douglas Blvd. to Eureka Rd.	4-lane Arterial – MAC	39,670	1.10	**F**	39,740	1.10	**F**

Notes:
- MAC = moderate access control; HAC = high access control.
- ADT values are rounded to the nearest 10 vehicles.
- **Bold** text indicates unacceptable operations. **Bold and highlighted text** indicates significant impacts.

Source: Fehr & Peers, 2018.

Table 14-18
Study Roadway Segment LOS – Existing Plus WHI and WHII Conditions

Segment	Classification	Existing Conditions			Existing Plus WHI and WHII		
		ADT	V/C	LOS	ADT	V/C	LOS
1. Douglas Blvd.: Sierra College Blvd. to Cavitt Stallman Rd. South	4-lane Arterial – MAC	47,560	1.32	**F**	48,100	1.33	**F**
2. Douglas Blvd.: Cavitt Stallman Rd. South to Woodgrove Way	4-lane Arterial – HAC	46,830	1.17	**F**	47,400	1.18	**F**
3. Douglas Blvd.: Woodgrove Way to Seeno Ave.	4-lane Arterial – HAC	45,230	1.13	**F**	45,870	1.14	**F**
4. Douglas Blvd.: Seeno Ave. to Barton Rd.	4-lane Arterial – HAC	44,800	1.12	**F**	45,020	1.12	**F**
5. Douglas Blvd.: Barton Rd. to Auburn Folsom Rd.	4-lane Arterial – HAC	42,620	1.07	**F**	42,820	1.07	**F**
6. Sierra College Blvd.: Olympus Dr. to Douglas Blvd.	6-lane Arterial – MAC	26,950	0.50	A	27,020	0.50	A
7. Sierra College Blvd.: Douglas Blvd. to Renaissance Creek	6-lane Arterial – MAC	34,450	0.64	B	34,580	0.64	B
8. Sierra College Blvd.: Renaissance Creek to Eureka Rd.	4-lane Arterial – MAC	32,330	0.90	**D**	32,420	0.90	**D**
9. Auburn Folsom Rd.: Douglas Blvd. to Eureka Rd.	4-lane Arterial – MAC	39,670	1.10	**F**	39,780	1.10	**F**

Notes:
- MAC = moderate access control; HAC = high access control.
- ADT values are rounded to the nearest 10 vehicles.
- **Bold** text indicates unacceptable operations. **Bold and highlighted text** indicates significant impacts.

Source: Fehr & Peers, 2018.

- Douglas Boulevard: Barton Road to Auburn Folsom Road (Segment #5);
- Sierra College Boulevard: Renaissance Creek/Granite Bay Business Park to Eureka Road (Segment #8); and
- Auburn Folsom Road: Douglas Boulevard to Eureka Road (Segment #9).

None of the roadway segments listed above would experience a daily traffic volume increase of 100 or more project-generated trips per lane, with the exception of the segments of Douglas Boulevard from Sierra College Boulevard to Seeno Avenue. Of the segments operating at an unacceptable LOS, the vehicle trips generated from both projects combined would add the greatest number of vehicle trips (640 daily trips) to the segment of Douglas Boulevard from Woodgrove Way/Quail Oaks Drive to Seeno Avenue. The vehicle trips generated from both projects combined would also add 540 to 570 daily vehicle trips to Douglas Boulevard from Sierra College Boulevard to Woodgrove Way/Quail Oaks Drive. Given that Douglas Boulevard is four lanes on these segments, the additional 540 to 640 daily vehicle trips would exceed the 100 or more daily vehicle trips per lane threshold (i.e., 400 vehicle trips for these segments) identified in Placer County's significance criteria.

Therefore, the proposed projects would conflict with Placer County's established thresholds for roadway segments, specifically the segments of Douglas Boulevard from Sierra College Boulevard to Seeno Avenue. This is considered a significant impact. The rest of the roadway segments would experience a daily traffic volume increase less than 250 vehicles.

Conclusion

Based on the above, impacts to study roadway segments under the Existing Plus WHI conditions would be less than significant. However, under the Existing Plus WHII conditions, the WHII project would conflict with Placer County's established thresholds for roadway segments, specifically for the segment of Douglas Boulevard from Woodgrove Way to Seeno Avenue. In addition, under the Existing Plus WHI and WHII condition, the proposed projects would conflict with Placer County's established thresholds for roadway segments for the segments of Douglas Boulevard from Sierra College Boulevard to Seeno Avenue. Thus, a ***significant*** impact would occur.

Mitigation Measure(s)

Existing Plus WHI: None required.

Existing Plus WHII: None feasible.

Widening Douglas Boulevard from four lanes to six lanes on the segment between Woodgrove Way/Quail Oaks Drive and Seeno Avenue would improve operations to acceptable levels (LOS C). However, the GBCP Circulation Element establishes that Douglas Boulevard should not include more than four lanes from Cavitt Stallman Road South to Auburn Folsom Road. In addition, the GBCP Circulation Element acknowledges that the local community overwhelmingly does not support further widening of Douglas

Boulevard. County staff has confirmed that widening of Douglas Boulevard to include more than four lanes is not currently under consideration. Therefore, in the absence of feasible mitigation, the impact would remain *significant and unavoidable*.

Existing Plus WHI and WHII: Implement Mitigation Measure 14-3 and none feasible.

The following sections provide a discussion of potential circulation system improvements available to address impacts to the segments of Douglas Boulevard from Sierra College Boulevard to Seeno Avenue.

Douglas Boulevard: Sierra College Boulevard to Cavitt Stallman Road South

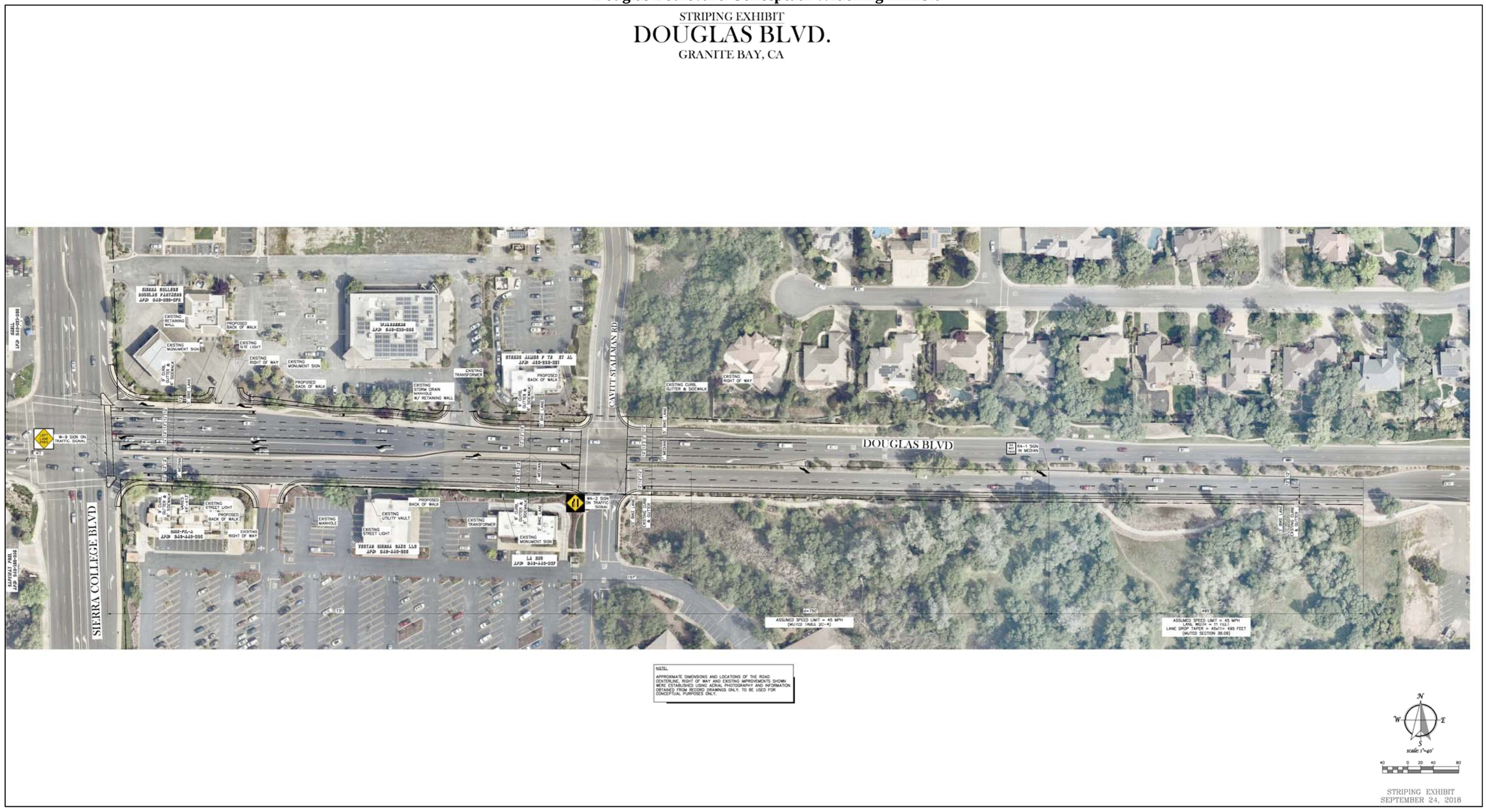
Mitigation Measure 14-3 below would extend the six lanes of Douglas Boulevard from where it currently transitions to four lanes east of Sierra College Boulevard to the Cavitt Stallman Road South intersection. The outside eastbound through lane would taper into the eastbound right turn lane at Cavitt Stallman Road South, and the third westbound through lane would be extended back to Cavitt Stallman Road South. Such an improvement would better balance lane utilization at the Sierra College Boulevard/Douglas Boulevard intersection.

The improvement is included in the Granite Bay Benefit District of the Placer County Countywide CIP (August 2017) and considered feasible. It is anticipated that the second of the two projects to be developed would be responsible for the construction of this Douglas Boulevard widening improvement, as the impact is only triggered by the vehicle trips resulting from both the WHI and WHII projects. Given that this improvement is included in the CIP, the constructing party shall be subject to fee credits for the applicable countywide traffic impact fees. The below mitigation measure also recognizes that the need for this improvement may be triggered before the second Whitehawk project is completed. For example, a potential scenario could include the development of one of the Whitehawk projects, followed by the development of another pending/approved Granite Bay project before the second Whitehawk project is built. In such a scenario it is plausible that the intervening project could trigger the need for the widening of Douglas Boulevard from Sierra College Boulevard to Cavitt Stallman Road South, thus relieving the second Whitehawk project from having to construct the widening project. Rather, the second Whitehawk project would be responsible for paying its fair share of the improvement through payment of its traffic impact fees.

Indirect Effects of Mitigation Related to Widening Douglas Boulevard from Sierra College Boulevard to Cavitt Stallman Road South

Notwithstanding the above, this EIR evaluates the potential physical environmental effects associated with widening Douglas Boulevard from Sierra College Boulevard to Cavitt Stallman Road South, as shown in Figure 14-15. Please refer to the Air Quality Chapter for an evaluation of the construction emissions projected to result from said widening.

Figure 14-15
Douglas Boulevard Conceptual Widening Exhibit



As can be seen in the figure, which reflects a conceptual layout of improvements, no sensitive habitats would be disturbed during the widening activities, thus avoiding the potential to adversely impact special-status species or jurisdictional habitats, such as wetlands. In addition, the proposed improvements would primarily consist of repaving and striping. Thus, the potential to adversely impact unknown cultural resources would be minimal. While the widening activities along the north side of Douglas Boulevard, between Sierra College Boulevard and Cavitt Stallman Road South, would necessitate some excavation and removal of the landscaped slope south of the gas station and Walgreens, this soil is not native and is associated with the development of the commercial center and associated landscaping. Thus, the potential to uncover cultural resources during this limited earthmoving activity is remote.

With respect to water quality, the overall disturbance area for the widening project is anticipated to exceed one acre. Thus, the widening activities would be subject to NPDES Construction General Permit requirements, including implementation of BMPs and preparation of a site-specific SWPPP. See Chapters 8 and 10 of this EIR for further discussion. The General Permit also requires that construction sites be inspected before and after storm events and every 24 hours during extended storm events. The purpose of the inspections is to identify maintenance requirements for the BMPs and to determine the effectiveness of the BMPs that are being implemented. The SWPPP is considered a "living document" that could be modified as construction activities progress. A Qualified SWPPP Practitioner (QSP) would ensure compliance with the SWPPP through regular monitoring and visual inspections during construction activities. The SWPPP would be amended and BMPs revised, as determined necessary through field inspections, to protect against substantial erosion or siltation on- or off-site.

With respect to temporary disruption of traffic on Douglas Boulevard, the widening activities would be subject to the Construction Traffic Management Plan (CTMP) required per Mitigation Measure 14-1 of this EIR. Among other items, this CTMP requires Douglas Boulevard widening to occur during off-peak periods and be accompanied with appropriate construction signage including detour routing.

Widening Douglas Boulevard from four lanes to six lanes on the segment between Sierra College Boulevard to Cavitt Stallman Road South would improve operations to LOS D, which remains unacceptable per Placer County policy. However, because vehicle traffic would be distributed over six lanes rather than the existing four lanes, the widening would increase the significance threshold to 600 daily vehicles based on the County's 100 vehicles per lane threshold. Given that the two projects together would increase the ADT by 540 vehicles on this segment, this would now be less than the County's significance threshold. Therefore, with implementation of the mitigation below, the impact to the segment of Douglas Boulevard between Sierra College Boulevard to Cavitt Stallman Road South would be reduced to a *less-than-significant* level under Existing Plus WHI and WHII Conditions.

Douglas Boulevard: Cavitt Stallman Road South to Seeno Avenue

As previously discussed, widening Douglas Boulevard from four lanes to six lanes between Cavitt Stallman Road South to Seeno Avenue would improve operations to acceptable levels (LOS C). However, as noted previously, widening of Douglas Boulevard east of Cavitt Stallman Road is not included in the GBCP Circulation Element and is not supported by the local community. Therefore, in the absence of feasible mitigation, the impact would remain *significant and unavoidable*.

14-3 *The Improvement Plans shall show the construction of the widening of Douglas Boulevard between Sierra College Boulevard and Cavitt Stallman South Road from a four-lane segment to a six-lane segment with appropriate lane transitions as shown in Figure 14-15 of the Whitehawk I & II Projects Draft EIR. Additional widening and/or reconstruction may be required to improve existing structural deficiencies, accommodate auxiliary lanes, intersection geometrics, signalization, bike lanes, or conformance to existing improvements. Traffic striping shall be done by the developer's contractor. The removal of existing striping and other pavement markings shall be completed by the developer's contractor. The design shall conform to 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. Rubberized asphalt consistent with any existing pavement along Douglas Boulevard is required, unless otherwise approved by the DPWF. The roadway structural section shall be designed for a Traffic Index of 10.0, but said section shall not be less than 3 inches Hot Mix Asphalt (HMA) over 8 inches Class 2 Aggregate Base (AB), unless otherwise approved by DPWF and ESD.*

This improvement shall be required with the development of the second Whitehawk project to be developed as determined by Placer County. If this improvement has been previously constructed as determined by Placer County, then the project's obligation for construction of this improvement will be considered satisfied. ***(ESD)***

14-4 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.*

WHI

Fehr & Peers reviewed the WHI traffic analysis previously prepared by KD Anderson[6] specifically to independently verify the adequacy of the following analyses:

[6] KD Anderson & Associates, Inc. *Traffic Impact Analysis for Whitehawk I Subdivision.* Updated October 28, 2016.

- Queuing in the left-turn pockets along Douglas Boulevard;
- Evaluation of the gated access points, including gate operations, forecasted queuing, and an evaluation of the storage distance;
- Deceleration for vehicles accessing WHI from eastbound Douglas Boulevard; and
- Lane changes across eastbound Douglas Boulevard from WHI to make a U-turn at the Seeno Avenue signal.

Fehr & Peers determined that the results of these evaluations are still relevant and do not need to be re-evaluated.[7] The results are summarized in the following section for the four issues evaluated with regard to the project's access on Douglas Boulevard and the operation of the intersections on Douglas Boulevard east and west of that access.

Eastbound Deceleration Approaching Access

Eastbound traffic turning into the WHI project will need to slow from the 55 mph design speed on Douglas Boulevard. Placer County standards require that a deceleration taper be provided that satisfies the County's Plate 116 standard. The standard is a taper that is 250 feet long, and often this improvement is consolidated with a wide shoulder. This treatment provides adequate room for deceleration by the limited number of vehicles entering the site and minimizes disruption to through traffic.

Lane Changes Across Douglas Boulevard

The WHI access is located within the roughly 2,000-foot long stretch of Douglas Boulevard from the Quails Oaks Drive/Woodgrove Way intersection to the Seeno Avenue intersection. The access is roughly 400 feet from Quail Oaks Drive/Woodgrove Way and 1,600 feet from Seeno Avenue. To make a U-turn at Seeno Avenue, exiting eastbound motorists would initially accelerate and then decelerate as they enter the eastbound left-turn lane and approach the end of the left-turn lane. Westbound motorists headed to WHI would make a U-turn onto eastbound Douglas Boulevard, begin to accelerate, and then slow to turn into the site.

The distance traveled and speed achieved during acceleration and deceleration has been determined from American Association of State Highway and Transportation Officials (AASHTO) guidelines to determine whether appreciable conflicts with through traffic are likely. It was determined that an exiting motorist could accelerate to 55 mph on Douglas Boulevard before slowing to stop in the turn lane. Because the speed achieved will be similar to or the same as that of through traffic, weaving across the lanes should not create a safety hazard.

Lane changes across eastbound Douglas Boulevard would also occur when westbound motorists make a U-turn at the Quail Oaks Drive/Woodgrove Way intersection. To make U-turns, motorists would initially accelerate and then quickly decelerate as noted above. A motorist making the U-turn would leave the intersection traveling at about 15 mph and

[7] Fehr & Peers. *Final Transportation Impact Study for Whitehawk I & II.* September 2018, pg. 1.

accelerate to 32-33 mph on Douglas Boulevard before slowing to about 15 mph to turn into WHI. The maneuver would take roughly 10 seconds. In comparison the design speed on Douglas Boulevard is 55 mph.

To make turns at any intersection safely waiting motorists need to identify a gap in approaching traffic that is sufficient to cross the street or to accelerate in advance of an arriving automobile. In this case, the gap needed to make the U-turn is only slightly longer than the gap needed to make the normal left turn (i.e., 7.5 seconds). Because sight distance looking west is unlimited, motorists wishing to turn into WHI would be able to see an adequate gap and make the U-turn safely. Because the number of U-turns is relatively minor, this activity would not appreciably interfere with the flow of traffic on Douglas Boulevard.

Queuing in Left Turn Lanes

Existing and future uses along Douglas Boulevard take access via median openings that are preceded by left/U-turn lanes. The adequacy of these 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.

The following locations were analyzed:

- Westbound left turn lane at Woodgrove Way/Quail Oaks Drive;
- Eastbound left turn lane at Seeno Avenue; and
- Westbound left turn lane at Cavitt Stallman Road.

For both the westbound left turn at Woodgrove Way/Quail Oaks Drive and westbound left turn at Cavitt Stallman Road, the length of the peak period queues would not increase as a result of WHI vehicle trips. With respect to the eastbound left turn lane at Seeno Avenue, the queue could increase by one vehicle, but the design remains adequate and no changes are needed.

It is noted that the WHI project would not contribute vehicle trips to the westbound left turn at Douglas Boulevard/Seeno Avenue. This is in contrast to the WHII project, which does contribute additional vehicles to the queue and would result in a significant impact. Refer to the WHII discussion below.

Gated Access

The site plan shows that the access gate itself would be roughly 110 feet from Douglas Boulevard. Assuming 25 feet per vehicle, this distance could handle four waiting vehicles. The median island in the entrance would be the push button location, and assuming the button is on the south side of the island the distance to Douglas Boulevard is roughly 60 feet, which would accommodate two vehicles. The entrance is wide enough to permit residents to bypass waiting visitor vehicles and travel directly to the gate. It should be noted

that only visitors would be required to use the bush button; project residents would use a remote mechanism that would allow for faster entry.

Because all arriving traffic would turn right from Douglas Boulevard, entering vehicles would generally arrive randomly. Under this condition, the number of vehicles queuing behind the proposed gate can be based on the overall inbound traffic demand, the overall capacity flow rate through the gate and the passage time for subsequent vehicles following the first vehicle. For a combination of resident vehicles and an occasional visitor vehicle (i.e., 10% visitors), the average time needed for the system to detect a vehicle and fully open the gate would be no more than 20 seconds, which implies a capacity for 180 openings per hour. The probability of a queue of any length can be determined using standard queue theory, and in this case the length of queue occurring at the 95th percentile level is the determining factor.

The PM peak hour inbound traffic forecast is 15 vehicles. Statistically, there is a 92% probability that a queue will not exist behind the gate at any time during the peak hour, and a 99% probability of a queue of 1 vehicle or less. Thus the 95th percentile queue is less than 1 vehicle.

As a practical matter, there may be random occasions when multiple vehicles arrive at the same time. Based on regular observation of a similar sized gated community, queues of 3-4 vehicles can occur when the visitors fail to operate the gate code system during peak hours. Because the plan can accommodate a queue of 4 vehicles behind the gate, the presence of the gate on the access for a project of this size does not pose an appreciable safety problem.

WHII

Fehr & Peers reviewed the WHII traffic analysis previously prepared by KD Anderson[8] specifically to independently verify the adequacy of the following analyses:

- Eastbound deceleration approaching access;
- Queuing in the left-turn pockets along Douglas Boulevard; and
- Evaluation of the gated access points, including gate operations, forecasted queuing, and an evaluation of the storage distance.

Fehr & Peers determined that the results of these evaluations are still relevant and do not need to be re-evaluated.[9] The results are summarized in the following section.

Eastbound Deceleration Approaching Access

Eastbound traffic turning into the project would need to slow from the 55 mph design speed on Douglas Boulevard. Placer County standards require that a deceleration taper be

[8] KD Anderson & Associates, Inc. *Traffic Impact Analysis for Whitehawk II Subdivision.* Updated October 28, 2016.
[9] Fehr & Peers. *Final Transportation Impact Study for Whitehawk I & II.* September 2018, pg. 1.

provided that satisfies the County's Plate 116 standard. The standard is a taper that is 250 feet long, and often this improvement is consolidated with a wide shoulder. This treatment provides adequate room for deceleration by the limited number of vehicles entering the site and minimizes disruption to through traffic.

Queuing in Left Turn Lanes

Existing and future uses along Douglas Boulevard take access via median openings that are preceded by left / U-turn lanes. The adequacy of these 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.

The following locations were analyzed:

- Westbound left turn lane at Woodgrove Way/Quail Oaks Drive
- Eastbound left turn lane at Seeno Avenue
- Westbound left turn lane at Seeno Avenue
- Westbound left turn lane at Cavitt Stallman Road

For the westbound left turn at Woodgrove Way/Quail Oaks Drive and westbound left turn at Cavitt Stallman Road, the length of the peak period queues would not increase as a result of WHII vehicle trips. With respect to the eastbound left turn lane at Seeno Avenue, the queue could increase by one vehicle, but the design remains adequate and no changes are needed.

With respect to the westbound left turn lane at Douglas Boulevard and Seeno Avenue, it is first noted that the Caltrans Highway Design Manual allows for partial deceleration in the adjacent through lanes (prior to the bay taper) in developed areas, with a reduction of up to 20 mph in design speed is allowed. Assuming a design speed of 35 mph (55 mph – 20 mph), a deceleration lane length of 275 feet should be provided. The westbound left turn lane at the Douglas Boulevard/Seeno Avenue intersection provides 220 feet. Assuming a queue of 25 feet (i.e., about 1 vehicle), the westbound left turn lane should provide 300 feet of deceleration length (275 feet + 25 feet). Therefore, the length of the existing turn lane should be increased to provide this standard. Development of Whitehawk II would add trips to the westbound left turn lane at the Douglas Boulevard/Seeno Avenue intersection.

The feasibility of lengthening the turn pocket has been considered. Kingsgate Drive intersects Douglas Boulevard roughly 660 feet east of Seeno Avenue (centerline to centerline). The eastbound left turn lane approaching Kingsgate Drive is 150 feet long and is preceded by a 145-foot long bay taper. A landscaped median lies between the two intersections. Thus, it is possible to lengthen the westbound left turn lane approaching Seeno Avenue if a portion of the landscaped median is removed.

Gated Access

The site plan shows that the access gate itself would be roughly 110 feet from Douglas Boulevard. Assuming 25 feet per vehicle, this distance could handle four waiting vehicles. The median island in the entrance would be the push button location, and assuming the button is on the south side of the island the distance to Douglas Boulevard is roughly 60 feet, which would accommodate two vehicles. The entrance is wide enough to permit residents to bypass waiting visitor vehicles and travel directly to the gate. Similar to the WHI project, only visitors would be required to use the bush button; project residents would use a remote mechanism that would allow for faster entry.

Because all arriving traffic would turn right from Douglas Boulevard, entering vehicles would generally arrive randomly. Under this condition the number of vehicles queuing behind proposed gate can be based on the overall inbound traffic demand, the overall capacity flow rate through the gate and the passage time for subsequent vehicles following the first vehicle. For a combination of resident vehicles and an occasional visitor vehicle (i.e., 10% visitors), the average time needed for the system to detect a vehicle and fully open the gate would be no more than 20 seconds, which implies a capacity for 180 openings per hour. The probability of a queue of any length can be determined using standard queue theory, and in this case the length of queue occurring at the 95th percentile level is the determining factor.

The PM peak hour inbound traffic forecast is 36 vehicles. Statistically, there is an 82% probability that a queue will not exist behind the gate at any time during the peak hour, and a 97% probability of a queue of 1 vehicle or less. Thus the 95th percentile queue is less than 1 vehicle.

As a practical matter, there may be random occasions when multiple vehicles arrive at the same time. Based on regular observation of a similar sized gated community, queues of 3-4 vehicles can occur when the visitors fail to operate the gate code system during peak hours. Because the plan can accommodate a queue of 4 vehicles behind the gate, the presence of the gate on the access for a project of this size does not pose an appreciable safety problem.

<u>WHI and WHII</u>

According to Fehr & Peers, implementation of both WHI and WHII would not result in changes to the above individual analyses and conclusions related to left-turn queues, gated access, or deceleration. Similar to individual development of the WHI and WHII projects, combined development of both WHI and WHII would add vehicle trips to the westbound left-turn lane at the Seeno Avenue/Douglas Boulevard intersection, which currently does not provide sufficient deceleration distance. Thus, this would be considered an impact.

Conclusion

Based on the above, impacts related to vehicle safety due to roadway design features (i.e. sharp curves or dangerous intersections) or incompatible uses would not occur as a result of the WHI and WHII projects, with the exception of the potential left-turn queue effects resulting from the WHII project alone, and WHI and WHII combined, to the westbound left-turn lane at the Douglas Boulevard/Seeno Avenue intersection. The left-turn lane currently does not provide adequate deceleration distance for westbound vehicles on Douglas Boulevard. Given that the WHII project alone, and WHI and WHII combined, would add additional vehicles to the left-turn lane, this is considered a ***significant*** impact.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the WHII impact to a *less-than-significant* level.

WHI: None required.

WHII: Implement Mitigation Measure 14-4.

WHI and WHII: This scenario assumes concurrent development of WHI and WHII. Additional mitigation beyond Mitigation Measure 14-4 would not be required under this scenario.

14-4 *The Improvement Plans shall show the construction of an increase in existing turn lane pocket length for the existing westbound left turn lane on Douglas Boulevard approaching Seeno Avenue by approximately 80 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.* ***(ESD)***

14-5 Inadequate emergency access or access to nearby uses. Based on the analysis below, the impact is *less than significant*.

WHI and WHII

As noted previously, the proposed projects would include EVA points in addition to the proposed full access points on Douglas Boulevard. For the WHI project, the EVA route would be provided between the internal project roadway network and the existing sewer maintenance road/trail from Chestnut Court in the Greyhawk subdivision southwest of the WHI site. For the WHII project, a new EVA route would be constructed from the internal project roadway network to Quartzite Circle to the east of the WHII site. Thus, the proposed projects would both provide for adequate emergency vehicle access. In addition, as discussed throughout this chapter, the WHI and WHII projects would not substantially

increase delay for vehicles at study intersections in the area. Therefore, emergency vehicle travel times would not be substantially affected.

Based on the above, emergency vehicles would have adequate emergency access to the project sites, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

14-6 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 and with implementation of mitigation, the impact is *less than significant.*

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

Bicycle Facilities

WHI and WHII

Per the Transportation Impact Study, the proposed projects would not interfere with the existing bike lane facilities on Douglas Boulevard located along the site frontages. It should be noted that the recently adopted Placer County Regional Bikeway Plan shows buffered bike lanes for the segment of Douglas Boulevard along the project frontages. The projects would not preclude the County from installing such facilities along Douglas Boulevard in the future.

In addition, the proposed projects would be consistent with applicable Placer County General Plan policies related to bicycle travel. Thus, the proposed projects 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

WHI

The proposed WHI project would connect to and extend the existing eight-foot wide sidewalk/bike trail along the south side of Douglas Boulevard along the project frontage. An internal trail network of five-foot wide trails would provide pedestrian facilities within the WHI site and connect to the existing public sidewalk/bike trail within the Greyhawk subdivision to the west. Therefore, the WHI project would provide a safe and comfortable route for walking to existing pedestrian facilities, consistent with Policy 3.D.12 in the Placer County General Plan. Furthermore, by connecting to existing facilities and allowing

for future connections to planned pedestrian facilities, the WHI project would not interfere with existing pedestrian facilities on Douglas Boulevard, nor would the WHI project preclude the implementation of future pedestrian facilities.

WHII

The proposed WHII project would provide an eight-foot wide sidewalk/bike trail along the south side of Douglas Boulevard along the project frontage, which would eventually connect to future sidewalk/trail segments immediately west and east of the WHII site. In addition, the proposed internal public trail network on the WHII site would allow for future connections to the Mac Bride property to the west. Therefore, the WHII project would not interfere with existing pedestrian facilities and would not preclude the implementation of future pedestrian facilities.

The proposed internal trail network of five-foot wide trails within WHII would provide pedestrian facilities within the project site and connect to the proposed sidewalk/bike trail along the WHII frontage on the south side of Douglas Boulevard. However, because the frontages immediately east and west of the project site along Douglas Boulevard do not currently include sidewalks or trails, the proposed WHII trail system would not provide continuous connectivity with existing pedestrian facilities in the project area. Such connectivity could be provided by striping the north-south crosswalk at the Douglas Boulevard/Seeno Avenue intersection. This is required by Mitigation Measure 14-6.

WHI and WHII

Combined development of the WHI and WHII projects would not result in any unique environmental effects beyond those discussed above for each individual project.

Conclusion

Based on the above, the WHI project would not create hazards or barriers for pedestrians, nor conflicts with adopted policies, plans, or programs supporting alternative transportation, or otherwise decrease the performance or safety of such facilities. With respect to the WHII project, due to the lack of existing pedestrian facilities along the south side of Douglas Boulevard immediately west and east of the WHII site, development of the WHII project, either individually or combined with WHI, could result in a ***significant*** impact related to pedestrian facilities.

Transit

WHI and WHII

As noted previously, the nearest fixed-route transit service to the WHI and WHII sites is located at Sierra College Boulevard approximately 0.5-mile west of the WHI site. Future transit service is not planned for the immediate project area along Douglas Boulevard. Given the relatively small size and density of the WHI and WHII projects, the proposed

projects would generate a limited demand for transit travel. The existing fixed-route service on City of Roseville Routes E, G, and L have limited ridership and, therefore, extra capacity would be available to handle the few transit trips that could be generated by the proposed projects. Furthermore, the WHI and WHII projects would not result in any individual or combined impacts to roadway or intersection operations along Sierra College Boulevard where existing transit service is provided. Therefore, the proposed projects would not adversely affect existing transit operations, travel times, or circulation, and a less-than-significant impact would occur.

Conclusion

Based on the above, the proposed projects 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 existing facilities. However, due to the lack of existing pedestrian facilities along the south side of Douglas Boulevard immediately east of the WHII site, pedestrian connectivity between the proposed on-site pedestrian trails and the existing pedestrian network in the project area would be limited. Thus, a ***significant*** impact could occur.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

WHI: None required.

WHII: Implement Mitigation Measure 14-6.

WHI and WHII: This scenario assumes concurrent development of WHI and WHII. Additional mitigation beyond Mitigation Measure 14-6 would not be required under this scenario.

14-6 *The Improvement Plans shall show the installation of a north-south crosswalk across Douglas Boulevard at the existing Douglas Boulevard/Seeno Avenue signalized intersection. The traffic signal currently provides a pedestrian phase; however, if necessary, the phase shall be modified at the County's discretion. The final crosswalk design and signal improvements shall be subject to review and approval by the Engineering and Surveying Division and Department of Public Works and Facilities.*