

4.12. TRANSPORTATION

4.12.1 INTRODUCTION

This Transportation chapter of the EIR discusses the existing transportation and circulation facilities within the project vicinity, as well as applicable policies and guidelines used to evaluate the operations of the proposed project. Where development of the proposed project would conflict with applicable policies or guidelines, mitigation measures are identified herein. The information contained within this chapter is primarily based on the Traffic Impact Analysis prepared for the proposed project by KDAnderson & Associates, Inc. (see Appendix O),¹ as well as information drawn from the Nevada County General Plan,² and the Nevada County General Plan EIR.³ All technical calculations are included as an appendix to the Traffic Impact Analysis.

TJKM was retained by Raney to perform an independent third-party peer review of the Traffic Impact Analysis.⁴

4.12.2 EXISTING ENVIRONMENTAL SETTING

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

Study Area

The Traffic Impact Analysis prepared for the proposed project addressed traffic conditions at 24 intersections and six roadway segments (see Figure 4.12-1). The limits of the study area were reviewed and approved by Nevada County and the City of Grass Valley staff. The quality of traffic flow is typically governed by the operation of major intersections and the daily volume of traffic along the roadways. The physical characteristics of the study intersections and roadways are described in further detail below. Intersections associated with State Route (SR) 49/SR 20 are referred to throughout the remainder of this chapter as SR 49. The entirety of SR 49 proceeds in a northbound/southbound direction and is identified as such.

Study Intersections

The following sections provide a summary of the intersections within the study area.

1. Neal Street/Tinloy Street

The Neal Street/Tinloy Street intersection is a signal-controlled intersection providing access to downtown Grass Valley and SR 49. Southwest-bound Tinloy Street is a two-lane one-way street with left-through and through-right lanes. Neal Street is a two-way street with one eastbound and one westbound lane along Neal Street. Crosswalks are present across both legs of Tinloy Street. Bike lanes are not present at the intersection.

¹ KD Anderson & Associates, Inc. *Traffic Impact Analysis for the Idaho-Maryland Mine Project, Nevada County, CA.* May 26, 2021.

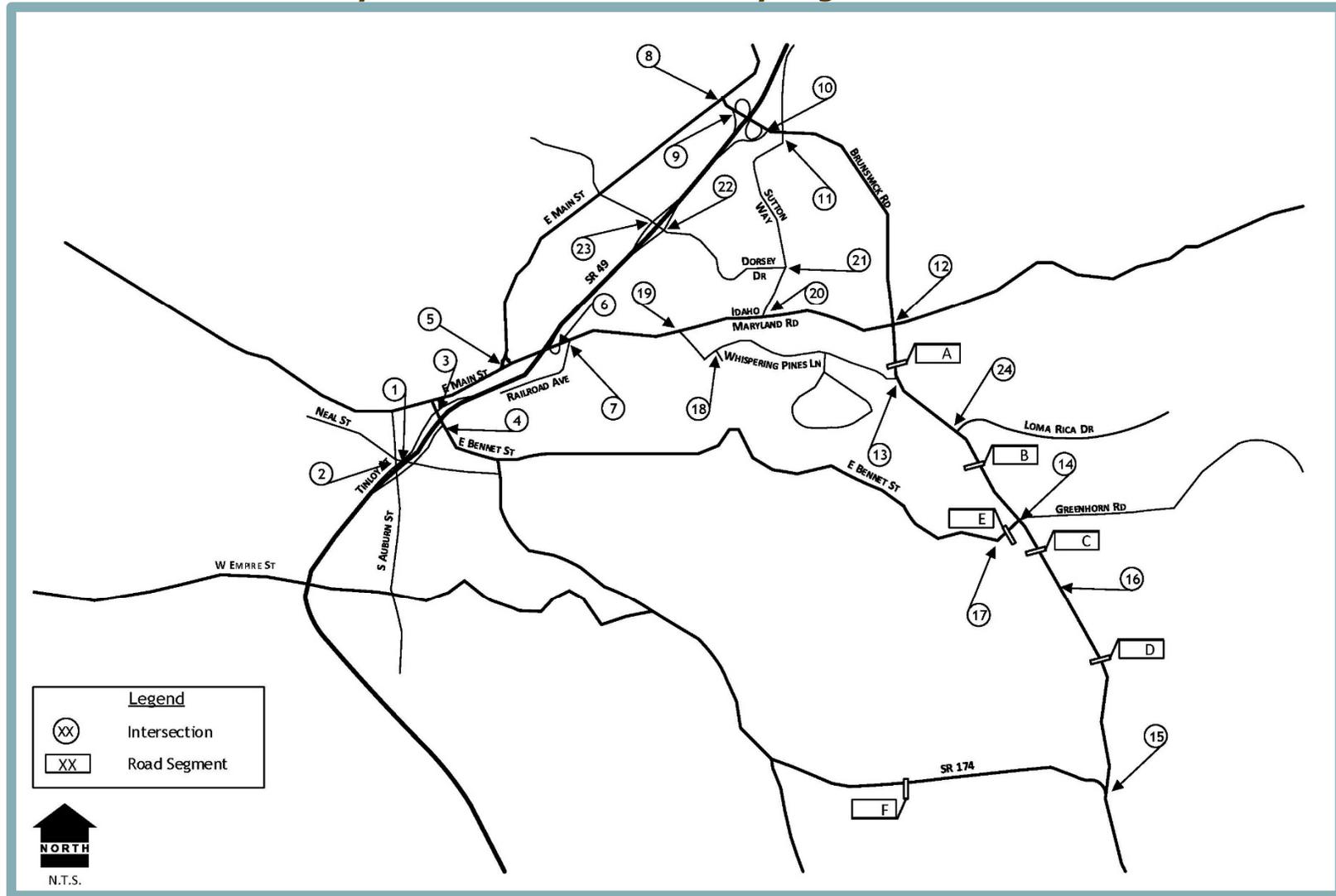
² Nevada County. *Nevada County General Plan.* Updated 2014.

³ Nevada County. *Nevada County General Plan, Final Environmental Impact Report.* March 1995.

⁴ TJKM. *Peer Review of Traffic Impact Analysis for the Idaho-Maryland Mine Project.* July 2, 2020.



Figure 4.12-1
Study Intersection and Roadway Segment Locations



Source: KDAnderson & Associates, Inc., 2021.



2. S. Auburn Street/Tinloy Street
The S. Auburn Street/Tinloy Street intersection is a signal-controlled intersection providing access to downtown Grass Valley and SR 49. Southwest-bound Tinloy Street is a two-lane, one-way street with through-left and through-right lanes. S. Auburn Street is a two-way street with one southbound lane and two northbound lanes, one left-through and one through lane. Crosswalks are present across both legs of S. Auburn Street. Bike lanes are not present in the intersection.
3. E. Bennett Road/Tinloy Street - SR 49 Westbound Off-Ramp
The E. Bennett Road/Tinloy Street - SR 49 Westbound (WB) Off-Ramp intersection is a four-way, stop-controlled intersection. The SR 49 WB ramp is stop controlled and includes through-left and through-right lanes. Southbound E. Bennett Road includes a single uncontrolled lane while northbound E. Bennett Road includes a left lane and a through lane which are stop controlled. Crosswalks are present across the SR 49 ramp and E. Bennett Road approaches. Bike lanes are not present along any of these roads.
4. E. Bennett Road/Hansen Way – SR 49 EB On-Ramp
The E. Bennett Road/Hansen Way – SR 49 Eastbound (EB) On-Ramp intersection is a four-way, all-way stop-controlled intersection. Hansen Way is a one-way northbound roadway consisting of through-left and through-right lanes on the approach leg. The eastbound E. Bennett Road approach includes a left turn lane and a through lane while westbound E. Bennett Road includes a through-right lane. Crosswalks are present along across both sides of Hansen Way and bike lanes are not present along any of the roadways.
5. East Main Street/Idaho Maryland Road/SR 49 Westbound Ramps
The East Main Street/Idaho Maryland Road/SR 49 WB Ramps intersection is a modified one-lane roundabout. The Main Street approaches are along the southbound and eastbound approaches. The westbound Idaho Maryland Road approach includes two entry lanes: one for u- and left-turning vehicles and one for through and right-turning vehicles. The southbound Main Street approach includes a free right-turn movement onto westbound Main Street and a single lane for through, left- and u-turns. The eastbound Main Street and SR 49 WB ramps approaches include a single lane for right-, through-, left- and u-turns. Crosswalks are present along all the north, east and west approaches. Bike lanes are not present along any of the approaches.
6. Idaho Maryland Road/SR 49 Eastbound Ramps
The Idaho Maryland Road/SR 49 EB Ramps intersection is an all-way stop, tee intersection. The center of the intersection is approximately 175 feet west of the center of the Idaho Maryland/Railroad Avenue intersection, also all-way stop controlled. The eastbound Idaho Maryland Road approach includes a single through-right lane, while the westbound approach includes a through-left lane and a through lane. The SR 49 EB off-ramp includes left- and right-lane turn lanes. Crosswalks are present across the west and south legs.
7. Idaho Maryland Road/Railroad Avenue
The Idaho Maryland Road/Railroad Avenue intersection is an all-way stop, tee intersection located just east of the northbound SR 49 ramps as described above. The eastbound Idaho Maryland Road approach includes a through lane and a through-right



lane, while the westbound approach includes a through-left lane and a through lane. Northbound Railroad Avenue includes a single approach lane. A crosswalk is present across the Railroad Avenue leg.

8. East Main Street/Brunswick Road/W. Olympia Drive

The East Main Street/Brunswick Road/W. Olympia Drive intersection is a split phase, signal-controlled, four-leg intersection. The northbound East Main Street approach includes left, through and right lanes, while the southbound approach includes dual left-turn lanes and a through-right lane. The westbound approach includes a left-turn lane, a through-left lane and a right-turn lane. The westbound right turn includes an overlap with the southbound left-turn phase. The eastbound approach, W. Olympia Drive, is a single-lane approach. Crosswalks are present across the southbound and westbound approaches. Bicycle lanes or marked sharrows, shared lanes for automobiles and bicycles, are present along the Main Street and Brunswick Road approaches.

9. Brunswick Road/SR 49 Westbound Off-Ramp - Maltman Drive

The Brunswick Road/SR 49 WB Off-Ramp - Maltman Drive intersection is a signal-controlled, four-leg intersection. The intersection is split phased along the Maltman Drive and SR 49 WB off-ramp approaches. The eastbound Brunswick Road approach includes a through lane and a through-right lane while the westbound Brunswick Road approach includes a left-turn lane and two through lanes. The SR 49 WB off-ramp includes dual left-turn lanes, a through lane and a right-turn lane, while Maltman Drive includes a left-turn lane and a right-turn lane; the right-turn lane is overlapped with the westbound left-turn movement. A crosswalk is present across the Maltman Drive approach and bike lanes or sharrows are present along Brunswick Road.

10. Brunswick Road/SR 49 Eastbound Ramps

The Brunswick Road/SR 49 EB Ramps intersection is a signal-controlled intersection. Both approaches along Brunswick Road include a free right-turn onto SR 49 EB and two through lanes. The off-ramp approach includes left- and right-turn lanes. A crosswalk exists across the ramp approach and marked bike lanes are present along the west side of the intersection.

11. Brunswick Road/Sutton Way

The Brunswick Road/Sutton Way intersection is a four-way, signal-controlled intersection. The eastbound Brunswick Road approach includes dual left-turn lanes, two through lanes and a right-turn lane. The westbound approach includes a left-turn lane, a through lane, and a through-right lane. Northbound Sutton Way includes dual left-turn lanes and a through-right lane, while the southbound approach includes a left-turn lane, a through lane, and a right-turn lane. The southbound right-turn lane has separate signal control than the rest of this approach and provides right green arrows with southbound Sutton Way, when eastbound through or left-turn Brunswick Road movements are green and when northbound Sutton Way is green. Crosswalks exist across the north, south, and east approaches, while marked bike lanes are present along Brunswick Road, east of the intersection. A bike lane is also present along the departure leg of the intersection on the south side of Sutton Way, while a northbound bike terminates prior to the Brunswick Road intersection.



12. Brunswick Road/Idaho Maryland Road

The Brunswick Road/Idaho Maryland Road intersection is stop-controlled along the Idaho Maryland Road approaches of the intersection. Northbound Brunswick Road includes a left-turn lane and a through-right turn lane, while the southbound approach includes left-, through-, and right-turn lanes. The eastbound Idaho Maryland Road approach includes a right-turn only lane, while the westbound approach includes a left-turn lane and a right-turn lane. Vehicles were observed along the Idaho Maryland Road approaches making illegal left and through movements. Those volumes were moved into legal movements for this analysis. Crosswalks and bike facilities are not present at this intersection.

13. Brunswick Road/Whispering Pines Lane

The Brunswick Road/Whispering Pines Lane intersection is a signal-controlled, tee intersection. The northbound approach along Brunswick Road includes a left-turn lane and a through lane, while the southbound approach includes a through lane and a through-right lane; the outside lane merges into the through lane approximately 350 feet south of the intersection. The eastbound Whispering Pines Lane approach includes right- and left-turn lanes. Crosswalks and bike facilities are not present at the intersection.

14. Brunswick Road/E. Bennett Road/Greenhorn Road

The Brunswick Road/E. Bennett Road/Greenhorn Road intersection is an all-way, stop-controlled intersection. The Brunswick Road approaches include left-turn lanes and through-right lanes, while the E. Bennett Road and Greenhorn Road approach includes a single lane for all movements. Crosswalks and bike facilities are not present at this intersection.

15. Brunswick Road/SR 174

The Brunswick Road/SR 174 intersection is a tee intersection with stop control along Brunswick Road. The northbound SR 174 approach includes a single through-right lane with a slip ramp leading to northbound Brunswick Road. The southbound SR 174 approach includes a left-turn lane and a through lane. The Brunswick Road approach is stop controlled and includes left- and right-turn lanes. Crosswalks and bike facilities are not present at this intersection.

16. Brunswick Road/Project Driveway

The Brunswick Road/Project Driveway intersection is an existing tee intersection with stop-control at the project driveway. Brunswick Road includes single lanes in each direction with a two-way, left-turn lane at the project driveway. Bike facilities are not present at this intersection.

17. E. Bennett Road/Millsite Road (i.e., project access)

The E. Bennett Road/Millsite Road intersection is an existing tee intersection providing a secondary access to the Brunswick Industrial Site. The existing roadway along Millsite Road is unimproved. This driveway would provide right-turn only access to Brunswick Road for larger haul trucks. E. Bennett Road includes single lanes in each direction. Bike facilities are not present at this intersection.



18. Whispering Pines Lane/Centennial Industrial Site Driveway (Future Project Access Intersection)

The Whispering Pines Lane/Centennial Industrial Site Driveway intersection is a future driveway that would provide access to the Centennial Industrial Site. The driveway would be located approximately 180 feet east of Centennial Drive and would be used by employee and haul route truck traffic. Whispering Pines Lane is a two-lane, median-divided roadway going from Brunswick Road to just east of the project driveway where the median ends. Although not marked as a bike lane, the roadway includes a shoulder stripe to allow a bike lane.

19. Idaho Maryland Road/Centennial Drive

The Idaho Maryland Road/Centennial Drive intersection is a tee intersection with stop-control along Centennial Drive. Idaho Maryland Road includes a through lane and right-turn lane along the eastbound approach and a left-turn lane and through lane along the westbound approach. Centennial Drive is a single-lane approach. Crosswalks and bike facilities are not present at this intersection.

20. Idaho Maryland Road/Sutton Way

The Idaho Maryland Road/Sutton Way intersection is an all-way, stop-controlled, tee intersection. Idaho Maryland Road includes single lanes in each direction, while Sutton Way includes right- and left-turn lanes. Crosswalks and bike facilities are not present at this intersection.

21. Sutton Way/Dorsey Drive

The Sutton Way/Dorsey Drive intersection is an all-way, stop-controlled, tee intersection. Northbound Sutton Way includes a single lane for left and through movements, while the southbound approach includes a through lane and right-turn lane. The eastbound Dorsey Drive approach is a single lane, however, is wide enough to allow right turns past left turning vehicles. A crosswalk is present across the Dorsey Drive approach, while bike facilities are not present.

22. Dorsey Drive/SR 49 Eastbound Ramps

The Dorsey Drive/SR 49 EB Ramps intersection is one-half of a diamond interchange. The intersection is signal-controlled. The eastbound Dorsey Drive approach includes a left-turn lane and a through lane, while the westbound approach includes two through lanes and a through-right lane; the inside through lane is a trap left-turn lane for access onto WB SR 49. The SR 49 EB off-ramp includes a left-turn lane, a through-left lane, and a right-turn lane. Crosswalks are present along the SR 49 EB ramps and the westbound Dorsey Drive approach. Bike lanes are present along Dorsey Drive.

23. Dorsey Drive/SR 49 Westbound Ramps

The Dorsey Drive/SR 49 WB Ramps intersection is one-half of a diamond interchange. The intersection is signal-controlled. The eastbound Dorsey Drive approach includes two through lanes and a right-turn lane; the inside through lane is a trap left-turn lane for access onto eastbound SR 49. The westbound approach includes a left-turn lane and two through lanes. Crosswalks are present along the SR 49 WB ramps and the eastbound Dorsey Drive approach. Bike lanes are present along Dorsey Drive.



24. Brunswick Road/Loma Rica Drive

The Brunswick Road/Loma Rica Drive intersection is a three-way, signal-controlled intersection. The signal operates with a westbound to northbound overlap with the southbound left-turn phase. The southbound Brunswick Road approach includes a left turn lane and one through lane. The northbound approach includes a through lane and a right turn lane while westbound Loma Rica Drive includes left turn and right turn lanes. Crosswalks and bike lanes are not present at this intersection.

Study Roadway Segments

The following section provide a summary of the roadway segments within the study area.

A. Brunswick Road – SR 49 to Whispering Pines Lane

This segment is an approximately 1¼-mile segment. The segment varies from a four-lane section with turn lanes between SR 49 and west of Old Tunnel Road, to a two-lane road plus center turn lane between Old Tunnel Road and Bubbling Wells Road; this makes up approximately ½-mile of the segment. Between Bubbling Wells Road and Idaho-Maryland Road, the road is two lanes; this portion is approximately ⅔-mile. From Idaho-Maryland Road to Whispering Pines Lane, Brunswick Road has one northbound lane with a turn lane and two southbound lanes; this portion is approximately ⅓-mile. Each lane is approximately 12 feet wide. North of Bubbling Wells Road curb, gutter, and sidewalk is present, as the roadway displays more urbanized standards, while, to the south, the roadway has more rural characteristics with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway with rolling terrain. The roadway is posted as a 40-miles per hour (mph) road north of Bubbling Wells Road and a 50-mph road south of Bubbling Wells Road. Midweek traffic volumes are approximately 12,300 bi-directionally.

B. Brunswick Road – Whispering Pines Lane to E. Bennett Road

This ¾-mile segment is generally a two-lane roadway with turn lanes over rolling terrain. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 15,360 bi-directionally.

C. Brunswick Road – E. Bennett Road to Project Driveway

This ½-mile segment is generally a two-lane roadway. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway with approximately a five percent downhill grade from E. Bennett Road and is posted at 50 mph. Midweek traffic volumes are approximately 9,440 bi-directionally.

D. Brunswick Road – Project Driveway to SR 174

This ⅔-mile segment is a two-lane roadway over rolling terrain. Lanes are generally 12-feet wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 9,420 bi-directionally.

E. E. Bennett Road – Project Driveway to Brunswick Road

This 600-foot segment is a two-lane roadway over rolling terrain and part of a larger segment to Union Jack Street. Lanes are generally 12-feet wide with varying width paved



and unpaved shoulders. The roadway is classified as a Class III Highway with rolling terrain and is posted at 35 mph. Midweek traffic volumes are approximately 1,490 bi-directionally.

F. **SR 174 – Brunswick Road to Empire Street**

This approximately two-mile segment is generally a two-lane roadway with left-turn lanes at various intersections over rolling terrain. Lanes are generally 12-foot wide with varying width paved and unpaved shoulders. The roadway is classified as a Class I Highway and is posted at 50 mph. Midweek traffic volumes are approximately 8,300 bi-directionally.

Level of Service versus Vehicle Miles Traveled

Pursuant to the CEQA Guidelines Section 15064.3, vehicle miles traveled (VMT) is the primary metric used to identify transportation impacts under CEQA. VMT is a measure of the total amount of vehicle travel occurring on a given roadway system. However, because the County considers vehicle level of service (LOS) as a matter of General Plan policy consistency (specifically related to Nevada County General Plan Policy LU-4.1-1 and Policy LU-4.1.2), LOS at the study intersections and roadway facilities is presented and analyzed herein for determining General Plan consistency. Refer to Section 4.12.4 of this chapter for additional discussion regarding the approach to evaluating LOS for General Plan consistency purposes.

The operations of roadway facilities are described with the term LOS, a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated LOS F. Table 4.12-1 summarizes the general characteristics associated with each LOS grade.

Intersection Level of Service – Existing Conditions

New traffic counts were conducted by National Data and Surveying Services (NDS). Intersection turning movements were conducted for this analysis the weeks of August 26, 2019 and October 21, 2019 on Tuesdays, Wednesdays, or Thursdays while area schools were in session. Specific time periods were studied based on direction from Nevada County, which included the "standard" AM and PM peak hours and at the three time periods when project employee trips are expected to occur. Under the proposed work periods there is negligible traffic to and from the site during the AM and PM peak hours. The majority of project traffic occurs in the periods surrounding mining shift changes and the end of the administrative personnel work day as identified above; the end of the day for administrative personnel does occur during some peak periods, and this was reflected in the level of service analyses during the 3:30-4:30 PM analysis period. Based on these project-specific characteristics, the CEQA traffic analysis focuses on the three time periods when project employee trips would occur, as these time periods are expected to have the most project-related traffic impacts. The standard peak hour analysis is provided in the Traffic Impact Analysis for informational purposes (see Appendix O).

The three analysis periods include: 6:30 AM to 7:30 AM; 3:30 PM to 4:30 PM; and 6:30 PM to 7:30 PM. The 6:30 AM/PM to 7:30 AM/PM periods coincide with mining operation shift changes at 7:00 AM/PM, while the 3:30 PM to 4:30 PM period coincides with administrative personnel shift end at 3:30 PM; administrative personnel commence their workday at 7:00 AM.



**Table 4.12-1
Level of Service (LOS) Definitions**

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

Source: KDAnderson & Associates, Inc., 2021.

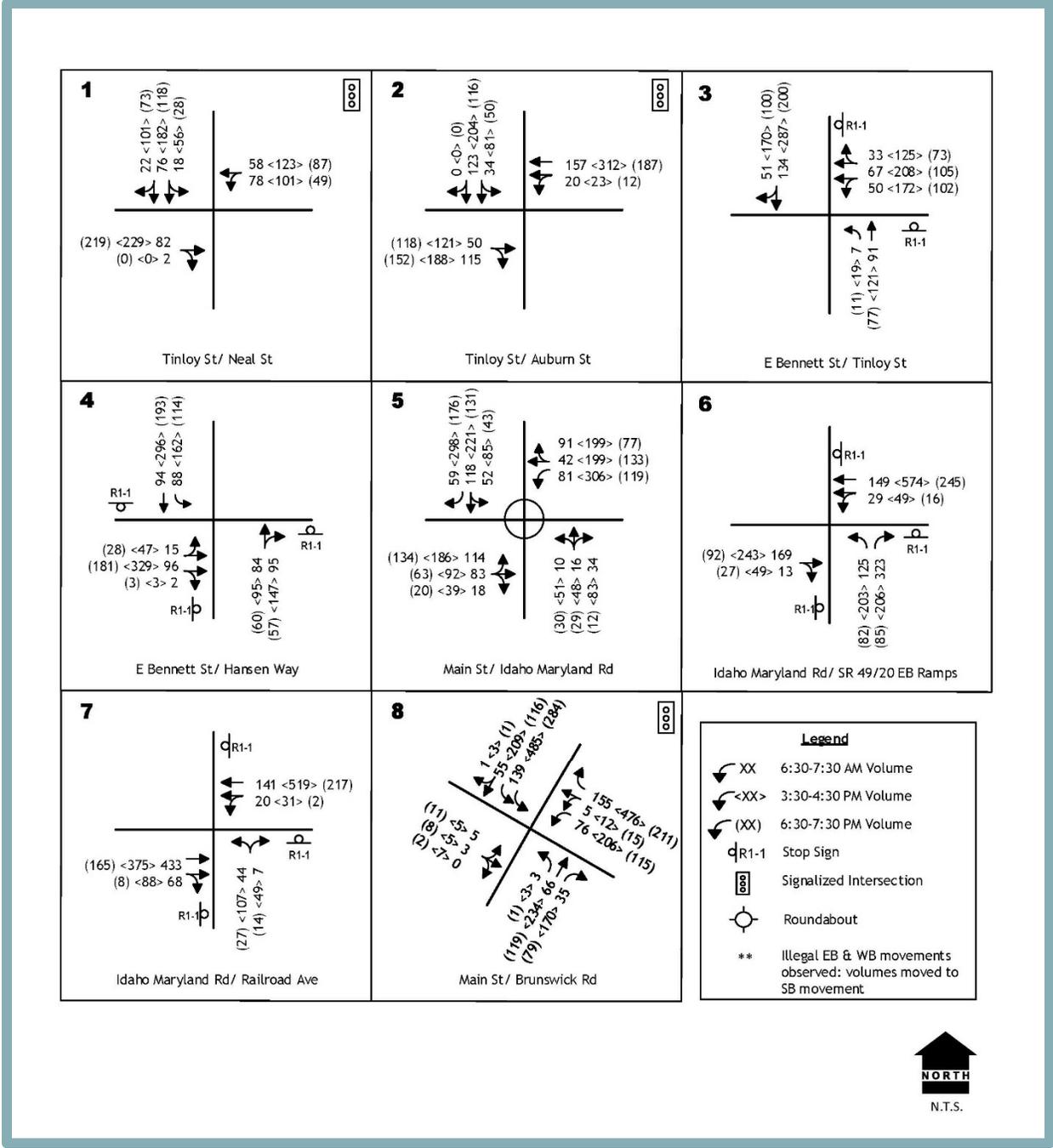
The aforementioned timeframes are referred to as “project traffic hours” throughout this chapter. Intersection turning movements are presented in Figure 4.12-2 through Figure 4.12-4.

Table 4.12-2 summarizes the existing operating LOS at the study intersections for each of the time periods described. As shown in the table, the following three intersections currently operate at unacceptable LOS E or F:

- 12. Brunswick Road/Idaho Maryland Road, where the westbound approach operates at LOS F;
- 15. Brunswick Road/SR 174, where the southbound approach operates at LOS E; and
- 19. Idaho Maryland Road/Centennial Drive, where the northbound approach operates at LOS F.



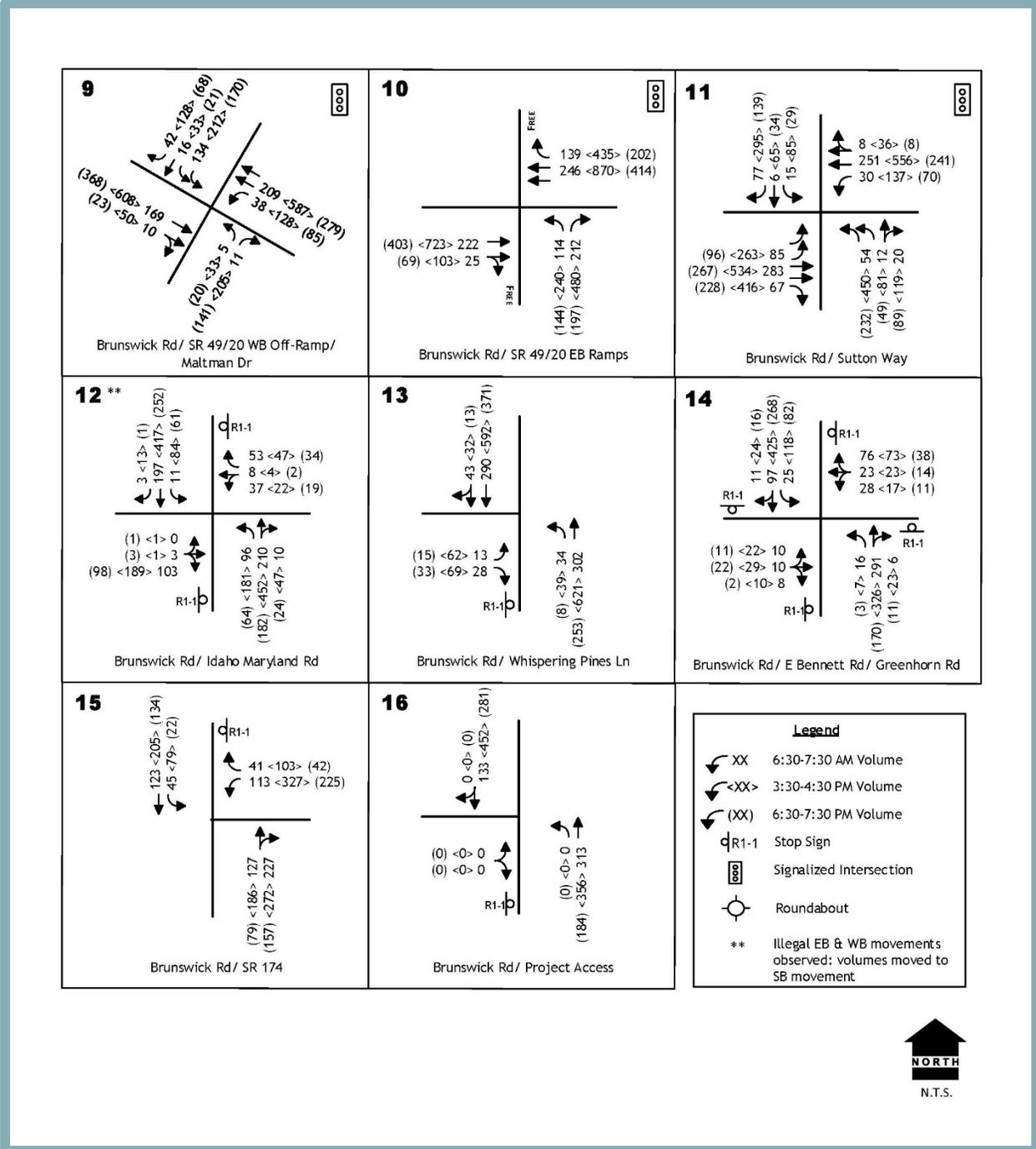
**Figure 4.12-2
 Project Traffic Hours Traffic Volumes and Lane Configurations –
 Existing Conditions (Intersections 1 through 8)**



Source: KDAnderson & Associates, Inc., 2021.



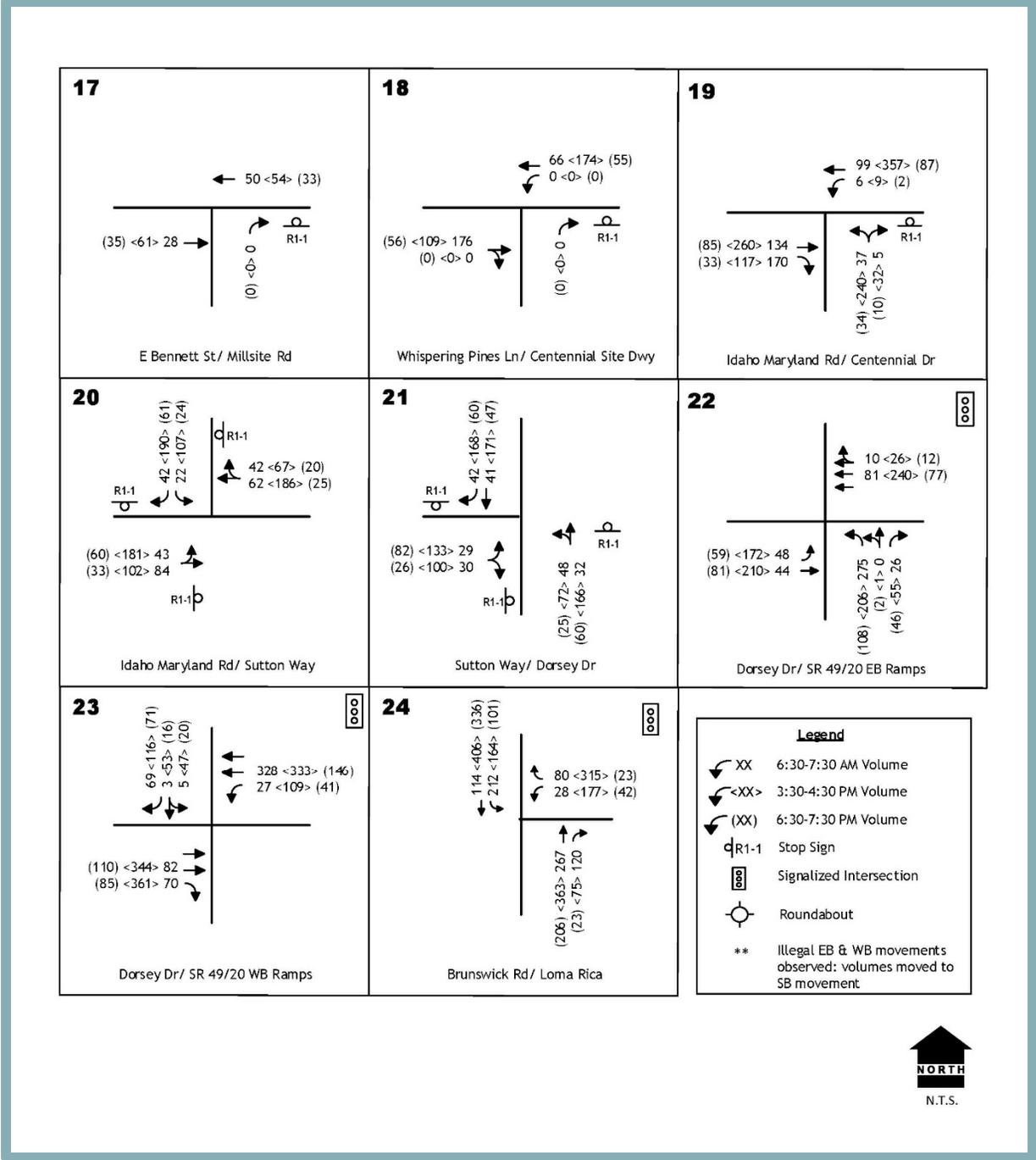
**Figure 4.12-3
Project Traffic Hours Traffic Volumes and Lane Configurations –
Existing Conditions (Intersections 9 through 16)**



Source: KDAnderson & Associates, Inc., 2021.



**Figure 4.12-4
 Project Traffic Hours Traffic Volumes and Lane Configurations –
 Existing Conditions (Intersections 17 through 24)**



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-2
Project Traffic Hours Intersection LOS – Existing Conditions**

Location - Jurisdiction	Control	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM		Meets Traffic Signal Warrant?
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	8.3	A	6.6	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.1	A	8.7	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.9	A	6.1	A	4.1	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.2	B	14.8	B	10.1	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.5	A	6.6	A	4.3	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	13.5	C	18.2	A	9.5	No
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	10.7	C	15.9	A	8.5	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	5.8	B	13.3	A	8.7	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	16.6	B	19.8	B	16.7	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.6	B	13.2	A	9.2	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	4.8	C	21.3	A	9.1	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A	8.0	A	9.0	A	8.0	Yes*
		A	7.8	A	8.8	A	7.8	
		B	10.3	B	13.7	B	10.6	
		C	17.1	F	70.7	B	14.6	
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A	8.4	A	9.0	A	8.3	Yes*
		B	10.8	B	14.1	B	10.5	
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.6	C	17.4	B	10.5	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B	12.5	E	35.1	B	12.5	Yes*
		A	7.6	A	7.8	A	7.4	
16. Brunswick Rd/Project Driveway †	EB Stop	Not Studied						
17. E. Bennett Rd/Millsite Rd †	NB Stop	Not Studied						

(Continued on next page)



**Table 4.12-2
 Project Traffic Hours Intersection LOS – Existing Conditions**

Location - Jurisdiction	Control	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM		Meets Traffic Signal Warrant?	
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)		
18. Whispering Pines Ln/Centennial Site Driveway ‡	NB Stop	Not Studied							
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B	11.3	F	59.1	B	10.1	No	
		A	8.2	A	8.3	A	7.6		
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	B	12.4	A	8.0	No	
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.0	B	11.8	A	8.2	No	
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	7.9	B	13.6	A	7.8	N/A	
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	3.7	A	9.1	A	5.3	N/A	
24. Brunswick Road/Loma Rica Dr †	Signal	B	11.8	B	13.9	A	8.0	N/A	

Notes:

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Bold** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: *KDAnderson & Associates, Inc., 2021.*



Five intersections currently meet the traffic signal warrant during the project traffic hours. The signal warrant is used to provide an informal analysis whether an intersection may be a candidate for signalization. This signal warrant is intended for use at locations where traffic conditions are such that for a minimum of one hour of an average day, the minor street traffic cannot cross or enter the major street without undue delay. The signal warrant considers intersection volumes and the stopped time delay along the higher volume leg of the minor approach. While the signal warrant is applied only in unusual circumstances such as access from an office complex, this warrant provides an indication as to whether an intersection may require further observation. An intersection may meet the minimum requirements but operate at acceptable levels of service. Prior to installation of a traffic signal, a full signal warrant analysis / engineering study should be undertaken to determine whether the intersection overall safety and/or operation will be improved. Those intersections meeting the signal warrant during project traffic hours include:

3. Bennett Road at Tinloy Street,
12. Brunswick Road at Idaho Maryland Road,
13. Brunswick Road at Whispering Pines Lane,
14. Brunswick Road at E. Bennett Road, and
15. Brunswick Road at SR 174.

Roadway Level of Service – Existing Conditions

New roadway segment counts were conducted over a three-day, midweek period from August 27 to August 29, 2019, while vehicle classification counts were conducted over a seven-day period from September 4 to September 10, 2019.

Table 4.12-3 summarizes the LOS based on the current traffic volumes on study area roads with the existing roadway configuration. As shown in the table, all segments along Brunswick Road and E. Bennett Road operate acceptably at LOS D or better, while the SR 174 segment operates at LOS E. The SR 174 segment exceeds the applicable LOS C threshold in both directions.

Existing Pedestrian, Bicycle, and Transit Facilities

The sections below describe the existing pedestrian, bicycle, and transit facilities located within the vicinity of the overall project site.

Existing Pedestrian and Bicycle Facilities

Designated bicycle facilities exist on various parts of County roadways and City of Grass Valley streets. Marked bicycle facilities do not exist near the Brunswick Industrial Site. Whispering Pines Lane, which would provide access to the Centennial Industrial Site, is a two-lane divided roadway with a wide shoulder that is not marked as a bike lane. Sidewalks are more prevalent within the City of Grass Valley than along Nevada County roadways; however, minimal sidewalks exist near the Brunswick Industrial Site and Centennial Industrial Site, with only a discontinuous sidewalk along the northern portion of Idaho Maryland Road near the Centennial Industrial Site being present.



**Table 4.12-3
Roadway Segment LOS – Existing Conditions**

Roadway	Location	Facility Classification	ATS/PTSF/LOS
			Existing PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.8 / 75.6 / D 31.7 / 76.3 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.4 / 67.0 / C 36.6 / 82.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.7 / 60.4 / C 35.7 / 76.9 / C
	Project Driveway to SR 174 NB SB	Class I Highway	34.1 / 66.4 / C 33.4 / 80.2 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.4 / 35.4 / B 36.3 / 50.3 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.6 / E 29.3 / 77.2 / E
Notes:			
<ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded 			
Source: KAnderson & Associates, Inc., 2020.			

Existing Public Transit System

The Transit Services Division of the Nevada County Public Works Department provides bus service throughout Nevada County. The nearest bus route to either the Brunswick Industrial Site or Centennial Industrial Site is Route #3, which passes directly by the Centennial Industrial Site.

The #3 Grass Valley Loma Rica Loop route operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport. The route operates Monday through Friday only, with departures from the Transit Center at 8:30 AM, 10:30 AM, 12:30 PM, 1:30 PM, 3:30 PM, and 5:30 PM. The loop takes approximately 30 minutes.

Existing Vehicle Miles Traveled

VMT is a metric that accounts for the number of vehicle trips generated and the length or distance of those trips. The available measures of VMT for Nevada County include the following:



- Total VMT – the sum of VMT for all vehicle trips and trip purposes.
- Residential VMT per capita – the sum of VMT for trips originating from home, divided by the number of residents.
- VMT per worker – the sum of VMT for trips from home to work, divided by the number of workers.

In July 2020, Fehr & Peers prepared Senate Bill 743, Vehicle Miles Traveled Implementation for the Nevada County Transportation Commission (NCTC). The NCTC in turn distributed the document to the various agencies within the County so each agency could develop their own significance threshold guidelines. Fehr & Peers recommends that VMT be expressed as a generation rate rather than a ratio. Because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee).

The subareas, based on similar travel characteristics and proximity, are recommended to be the following: the City of Grass Valley; the City of Nevada City; the Town of Truckee; Alta Sierra; Lake of the Pines; Lake Wildwood and Penn Valley; the remainder of western Nevada County; and the remainder of eastern Nevada County. Use of a subarea threshold acknowledges the differences in VMT generation in different parts of Nevada County.

Table 4.12-4 presents the results of the VMT measurement analysis from several data sources including the NCTC Travel Demand Model (TDM), the California State Travel Demand Model, and MXD+, a trip generation tool developed by Fehr & Peers. As noted in further detail in the Method of Analysis section below, the data in Table 4.12-4 was used to determine the significance threshold for the proposed project. The Grass Valley subarea was used as the basis due to the project’s proximity to the City.

Table 4.12-4 Home-Based VMT per Worker	
Location (SubArea)	NCTC TDM
Grass Valley	18.6
Nevada City	26.6
Truckee	N/A
Alta Sierra	27.8
Lake Wildwood	34.3
Penn Valley	18.6
Lake of the Pines	25.0
Unincorporated Nevada County	N/A
<i>Source: KDAnderson & Associates, Inc., 2021.</i>	

4.12.3 REGULATORY CONTEXT

Existing transportation policies, laws, and regulations that would apply to the proposed project are summarized below and provide a context for the impact discussion related to the project’s consistency with the applicable regulatory conditions. Federal plans, policies, regulations, or laws



related to transportation are not directly applicable to the proposed project. Rather, the analysis presented herein focuses on State and local regulations, which govern the regulatory environment related to transportation at the project level.

State Regulations

The following are the regulations pertinent to the proposed project at the State level.

Guide for the Preparation of Traffic Impact Studies

Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) provides guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities, which include freeway segments, on- or off-ramps, and signalized intersections.

Caltrans has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 49. Any improvements to such roadways require Caltrans approval.

Senate Bill 743

In 2013, Senate Bill (SB) 743 was passed to amend Sections 65088.1 and 65088.4 of the Government Code, amend Sections 21181, 21183, 21186, 21187, 21189.1, and 21189.3 of the Public Resources Code (PRC), add Section 21155.4 to the PRC, add Chapter 2.7 (commencing with Section 21099) to Division 13 of the PRC, add and repeal Section 21168.6.6 of the PRC, and repeal and add Section 21185 of the PRC, relating to environmental quality. In response to SB 743, the Office of Planning and Research (OPR) has updated the CEQA Guidelines to include new transportation-related evaluation metrics. Draft Guidelines were developed in August 2014, with final Guidelines published in November 2017 incorporating public comments from the August 2014 and January 2016 draft Guidelines. In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package along with an updated Technical Advisory related to Evaluating Transportation Impacts in CEQA. Full compliance with the Guidelines became required in July 2020. As a result of SB 743, and Section 15064.3 of the CEQA Guidelines, as discussed in further detail below, local jurisdictions may no longer rely on vehicle LOS or similar measures related to delay as the basis for determining the significance of transportation impacts under CEQA, and instead a VMT metric must be evaluated.

Local Regulations

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

Nevada County General Plan

The following goals and policies from the Nevada County General Plan are applicable to the proposed project:

Circulation Element

Goal LU-4.1 Coordinate existing and future circulation systems with existing and future land use patterns.



- Goal LU-4.2 In Rural Regions, establish and maintain a desired level of service that supports sustainable growth and development.
- Goal LU-4.3 In Community Regions, ensure a desired level of service that supports the current circulation system and provide for future circulation improvements.
- Goal LU-4.4 Maintain desired levels of service by balancing development of the circulation system with land use and development in the County.
- Goal LU-4.7 Provide local and regional road and street systems that are consistent and compatible with local land use patterns and street networks.
- Policy LU-4.1.1 The minimum level of service allowable in the Rural Regions of the County, as identified in the General Plan, shall be level of service (LOS) C, except where the existing LOS is less than C. In those situations, the LOS shall not be allowed to drop below the existing LOS. Level of service shall be based on the typical highest peak hour of weekday traffic. Special events may be permitted which temporarily exceed this minimum LOS.
- Policy LU-4.1.2 The minimum acceptable level of service (LOS) for areas identified as Community Regions in the General Plan shall be LOS D, except where the existing LOS is less than D. In those situations, the LOS shall not be allowed to drop below the existing LOS. Level of service shall be based on the typical highest peak hour of weekday traffic.
- Policy LU-4.1.4 Consistent with legal and funding constraints the following types of road improvement projects shall be emphasized in the County Capital Improvement Program:
- a. Projects needed to maximize the safety of the road system on high accident road segments and intersections, including, but not limited to additional road widths and turn lanes, realignments, shoulder improvements, bridge improvements, hazard elimination and hazard control devices;
 - b. Projects needed to improve rideability, including, but not limited to, pavement extension and rehabilitation;
 - c. Projects needed to improve capacity and travel speed, particularly in Community Regions, and including, but not limited to, interchange improvements, additional road lanes and/or widths, turn lanes, signalization, and bridge improvements;



- d. Projects needed to improve the use of other modes of transportation, including, but not limited to, public transportation facilities (transit facilities and stops), park and ride facilities, bikeways, non-motorized trails, and pedestrian facilities; and
- e. Improve local circulation to address safety and emergency service needs.

Policy LU-4.1.5

Where it is determined by the County that a County road, road segment or intersection no longer provides the desirable or acceptable level of service as defined in Policy LU-4.1.1 and Policy LU-4.1.2, the County shall take action to ensure compatibility between future growth and the road system. Solutions to local road system problems may include funding of transportation-related facilities, transportation management techniques, or development limitations or restrictions.

Policy LU-4.1.6

Relative to the State highway system, Nevada County recognizes the major funding limitations that exist within the State system and finds that as a matter of policy, additional growth and development may be allowed within the County, notwithstanding the adverse impacts which may result in the short term by this growth and development. Therefore, the County shall:

- a. Encourage the existing partnership between Nevada County and the State in working together to solve State Highway problems and funding limitations;
- b. Commit local moneys, when available, in the partial funding of critical State highway improvements. As a part of this commitment, the County shall continue to pursue the use of development fees from private development as a funding source;
- c. Acknowledge that short-term adverse impacts to the State highway system resulting from growth and development within the County will occur until adequate funding is made available and improvements made through projects identified in the adopted State Transportation Improvement Program; and
- d. Monitor State activities in responding to the needs of the State system within the County.
- e. Solutions to State road system problems shall include County review and input to the State Transportation Improvement Program, formal



County requests for specific improvements and/or facilities, and requests for inclusion of said improvements and/or facilities within the Nevada County Regional Transportation Improvement Program.

- f. Should critical State highway improvements not be identified in the adopted State Transportation Improvement Program, the County may review its policies to determine if additional growth and development should be curtailed in the impacted areas.

Policy LU-4.1.8 New roads not shown on the General Plan Land Use Maps as part of the regional and non-through access local road systems identified in the Nevada County Road Functional Classification Plan shall not be constructed at public expense, but shall be provided as site improvements for each development project as necessary to provide safe, appropriate access.

Policy LU-4.1.11 New roads built to serve discretionary projects shall be maintained through private maintenance agreements, homeowners associations, Permanent Road Divisions (PRDs), or Community Service Areas (CSAs).

Goal MV-4.1 Provide for the safe and efficient movement of people and goods in a manner that respects the rural character of Nevada County.

Goal MV-4.2 Provide for a transportation system design that facilitates the transportation of people, goods and services in support of the General Plan and the local economy.

Goal MV-4.3 Provide for alternative routes for efficient service and for emergency access.

Goal MV-4.4 Reduce accident rates on County maintained roadways.

Policy MV-4.2.5 In the review of all discretionary permits, the County shall consider the effect of the proposed development on the area-wide transportation network and the effect of the proposed development on the road network and other transportation facilities in the immediate vicinity of the project site.

Goal RD-4.1 Reduce dependence on the automobile.

Goal RD-4.2 Increase the availability of alternative modes of transportation.



Goal RD-4.3 Decrease vehicle miles traveled while encouraging increased transit ridership and vehicle occupancy.

Goal RD-4.4 Encourage land use patterns that reduce the need for new roadways and promote the use of alternative transportation modes.

Policy RD-4.3.1 All discretionary and ministerial non-residential projects shall consider the feasibility of providing transit alternatives to automobile transportation and ways to reduce the dependence on the automobile. For projects generating 50 or more employees, the applicant shall prepare an analysis documenting means to reduce automobile dependence. Wherever feasible, measures documented in the analysis shall be incorporated into the project. This process shall be coordinated with the applicable Transportation Management Association (TMA) or successor agencies.

Policy RD-4.3.4 Minimize the need to commute by:

- a. Providing for an adequate amount of residential, commercial, and industrial designations in proper balance, as shown on the General Plan Land Use Maps; and
- b. Encouraging Economic Development and Public Facility policies that support local employment opportunities.

Policy RD-4.3.5 Encourage the development of transit to serve Community Regions and Rural Centers by:

- a. Clustering growth to maximize the efficiency of the transit system; and
- b. Providing commuter-oriented transit to serve employment centers.

Policy RD-4.3.6 Sidewalks, walkways, bicycle facilities and paths should be provided where necessary, and on an equitable basis with roadway improvements.

Policy RD-4.3.7 Sidewalks or walkways are encouraged as frontage improvements for all discretionary permits within Community Regions, as shown on the General Plan Land Use Maps, including all non-residential projects and all residential projects with an overall density greater than one dwelling unit per gross acre. To the extent feasible, pedestrian use shall be included within the roadway prism.



Nevada County Land Use and Development Code

Nevada County LUDC Section L-II 4.1.9, Transportation Alternatives, identifies that methods should be considered to reduce automobile dependence travel throughout the County. Land use applications requiring a development permit or a use permit shall address alternative transportation opportunities for employees, residents, and/or customers served by the project. For projects that employ 50 or more persons, the project applicant shall submit a detailed analysis of transportation alternatives, documenting feasible measures for reducing auto dependence.

Nevada County Bicycle Master Plan

The Nevada County Transportation Commission's *Nevada County Bicycle Master Plan* (NCTC 2016) aims to provide safe, well-maintained bikeways and support facilities in order to improve the bicycling environment in Nevada County and promote alternative modes of transportation. This plan includes goals, policies, and objectives for guiding plan implementation; details of existing conditions in the County; a demand analysis; recommendations for bikeway improvements, including bicycle parking, and education, outreach and encouragement programs; and an implementation strategy including a project priority list, feasibility analysis, and cost estimates.

Nevada County Active Transportation Plan

NCTC also prepared an Active Transportation Plan (July 2019), which covers Nevada County and its three incorporated Cities: the City of Grass Valley, the City of Nevada City, and the Town of Truckee. The plan will help make each jurisdiction eligible for new funding to create new trails, sidewalks, bike lanes, and other improvements for bicycling and walking. The plan will support applications for funding from the statewide Active Transportation Program and other sources of funding. The Active Transportation Plan meets all requirements for active transportation plans as specified by the California Transportation Commission's 2019 Active Transportation Program Guidelines.

Nevada County Local Traffic Mitigation Fee

Nevada County established its current Traffic Impact Mitigation Program in 1997, with the adoption of a Local Traffic Mitigation Fee (LTMF). Under the program, development impact fees are collected to help fund construction for local improvements within unincorporated Nevada County. The current fee schedule is effective for the fiscal year 2020/2021. The LTMF is based on total thousand square feet of buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the LTMF. The current fee would be calculated as $126 \text{ TSF} \times \$442.44 = \$55,747.44$. The actual fee paid will depend on the mitigation fee in place at the time of construction.

City of Grass Valley General Plan

Several study intersections are located within the City of Grass Valley. As a result, the following implementation actions from the Grass Valley General Plan are included:

- 6-CI Monitor truck traffic. As conditions warrant, develop, enforce, evaluate and update a truck route system to ensure safe and efficient routes through the City.



7-CI

Continue to update the Capital Improvements Program to implement policy which strives to maintain LOS “D” at all locations during the weekday P.M. peak hour. Define “normally accepted maximum” improvements that are consistent with the character and terrain of Grass Valley. If forecast traffic volumes cannot maintain LOS “D”, the City Council may consider additional “extraordinary” improvements. The City Council may determine, on a case-by-case basis that “extraordinary” improvements are not feasible or desirable and may relax the LOS “D” standard for a particular intersection or roadway segment. In considering exceptions to the LOS “D” standard, the City shall consider the following factors:

- The number of hours per day that the intersection or roadway segment would operate at conditions worse than LOS “D”.
- The ability of the improvement to reduce peak hour delay and improve traffic operations.
- The impact on accessibility to surrounding properties.
- The right-of-way needs and the physical impact on surrounding properties.
- The visual aesthetics of the required improvements and its impact on community identity and character.
- Environmental impacts including air quality and noise impacts.
- Construction and right-of-way acquisition costs.
- Impacts on pedestrian and bicycle accessibility and safety.
- The impacts of the required construction phasing and traffic maintenance.

In no case should the City plan for worse than LOS “E” at any intersection or roadway segment during the afternoon peak hour.

Grass Valley Transportation Impact Fee (GVTIF) Program

The City of Grass Valley has an established Transportation Impact Fee Program (GVTIF) that collects fees to help fund construction for local improvements within the City of Grass Valley. Although the project is not located in the City of Grass Valley, the project will be required to pay the GVTIF as mitigation for impacts to intersections included in the GVTIF (see Impacts section of this chapter). The GVTIF is based on total thousand square feet of industrial buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the required GVTIF. The current fee would be calculated as $126 \text{ TSF} \times \$666.66 = \$83,999$, and an administration fee of 1% = \$839.99. The actual fee paid will depend on the mitigation fee in place at the time of construction.

Western Nevada County Regional Transportation Mitigation Fee Program

The NCTC, in partnership with Nevada County, Nevada City, and the City of Grass Valley, established the Regional Transportation Mitigation Fee (RTMF) program in 2001. Under the RTMF program, development impact fees are collected to help fund construction of the regional system of roads, streets, and highways needed to accommodate growth in western Nevada County. Nevada City and the City of Grass Valley also have adopted their own transportation mitigation fees to fund transportation improvements in each city. All three fee programs were



updated in 2008 and again in 2016 to reflect changes in demographic and economic assumptions and associated changes in transportation improvement needs and funding opportunities for these improvements.

The purpose of the RTMF is to establish a uniform, cooperative program to mitigate the cumulative indirect regional impacts of future developments on traffic conditions of regional roadways in Nevada County. The fees help fund improvements needed to maintain the target LOS in the face of the higher traffic volumes brought on by new developments.

The RTMF is based on total thousand square feet of industrial buildings. The project proposes 126,000 square feet of industrial buildings and will be required to pay the required RTMF. The current fee would be calculated as $126 \text{ TSF} \times 5.33 \times \$79.37 = \$53,303.30$. The actual fee paid will depend on the mitigation fee in place at the time of construction.

4.12.4 IMPACTS AND MITIGATION MEASURES

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

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the proposed project would be considered to result in a significant adverse impact on the environment in relation to transportation and circulation if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Specific application of the general thresholds is provided in the following section, based on guidance from Nevada County and the City of Grass Valley.

Level of Service Standards of Significance

The following thresholds of significance are used for the LOS analysis of study intersections and roadway segments for purposes of determining General Plan consistency. Before presenting the thresholds, it is important to emphasize that OPR has already provided guidance on why LOS standards should not be included within general plans. According to OPR:⁵

SB 743 “does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority.” (See Pub. Resources Code, § 21099(b)(4).) However,

⁵ Governor's Office of Planning and Research. *SB 743 Frequently Asked Questions*. Available at: <https://opr.ca.gov/ceqa/sb-743/faq.html>. Accessed March 21, 2021.



OPR has previously provided guidance on why LOS standards should not be included within general plans. (See OPR's General Plan Guidelines, Appendix B.)

Even if a general plan contains an LOS standard and a project is found to exceed that standard, that conflict should not be analyzed under CEQA. CEQA is focused on planning conflicts that lead to environmental impacts. (*The Highway 68 Coalition v. County of Monterey* (2017) 14 Cal.App.5th 883; see, e.g., Appendix G, IX(b) (sic) [asking whether the project will "Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?"].) Auto delay, on its own, is no longer an environmental impact under CEQA. (See Pub. Resources Code, § 21099(b)(2).)

The above-referenced General Plan Guidelines (Appendix B) focus on Transportation Safety. It is noted therein that, "*Lane width has a particularly discernable impact on safety. The traditional approach to sizing lanes opts for wider lanes to accommodate driver error and to attempt to increase throughput. However, research reveals that wider lanes hinder both of these objectives.*" The solution to LOS issues is oftentimes widening roadways and/or intersections to accommodate more traffic flow. Given the higher incidence of traffic safety conflicts this may pose, OPR's General Plan guidelines recommend that agencies focus on VMT rather than LOS, as reducing VMT has been shown to reduce collision exposure and improve safety.⁶

While not legally required to do so, the County of Nevada, in its discretion as the CEQA lead agency for the proposed project, has chosen to assign a level of significance to those cases where the project's traffic causes an intersection to be in conflict with an agency's General Plan LOS standard.

Nevada County

Nevada County identifies LOS D or better as the acceptable LOS at intersections and roadways in community regions, and LOS C or better as acceptable LOS at intersections and roadways in rural regions. All study intersections and roadways, except the Brunswick Road/SR 174 intersection and SR 174 east of Empire Street, are within the Grass Valley Community Region, as identified in the County's General Plan. The Brunswick Road/SR 174 intersection and SR 174 roadway segment, east of Empire Street, are a part of the State highway system.

For the proposed project, a LOS conflict would result if the project's traffic would cause an intersection or roadway segment operations to change from acceptable to unacceptable LOS or a project adds traffic to an intersection or roadway segment already operating at unacceptable LOS.

The Nevada County General Plan Policy LU-4.1.6 states "Relative to the State highway system, Nevada County recognizes the major funding limitations that exist within the State system and finds that as a matter of policy, additional growth and development may be allowed within the County, notwithstanding the adverse impacts which may result in the short term by this growth and development."

⁶ Governor's Office of Planning and Research. *Appendix B: Transportation Safety* [pg. 351]. 2020.



Grass Valley

The City of Grass Valley identifies LOS D or better as the acceptable LOS at intersections and roadways. For the proposed project, a LOS conflict would result if the project's traffic would cause an intersection or roadway segment operations to change from acceptable to unacceptable LOS or a project adds traffic to an intersection already operating at unacceptable LOS. The City allows LOS E conditions at the Bennett Road/Tinloy Street/SR 49 WB Off-Ramp intersection.

Caltrans

The Caltrans Guide for the Preparation of Traffic Impact Studies states that Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities. Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. Based on the recently approved Dorsey Marketplace traffic study in Grass Valley, the LOS D threshold was used as the acceptable LOS and will be used in this analysis for Caltrans facilities.

Intersection Queuing Standards of Significance

Nevada County Traffic Impact Analysis Guidelines state that queuing impacts are considered to be substantial if the queues:⁷

- 1) exceed the available storage capacity and extend through the adjacent street intersection;
- 2) extend through right- or left-turn pocket;
- 3) extend in the through lane blocking a right- or left-turn pocket; or
- 4) result in insufficient sight distance conditions.

The queues projected under "Plus Project" conditions were also compared to "No Project" conditions to determine the extent of queues where existing queues exceed the available storage. For this analysis, "Plus Project" queues exceeding the turn lane are only considered to have a significant impact if the "Plus Project" queue is greater than 25 feet of the "No Project" queue. This represents about one car length and is used by other agencies in assessing queuing impacts. The 25-foot length allows fluctuation in the results, especially in simulations where stochastic modeling results in some intersection queues increasing while others may decrease.

Vehicle Miles Traveled Standard of Significance

For the proposed project, a VMT impact may be considered less than significant if:

- The project's total weekday VMT per service population is equal to or less than 14.3 percent below the subarea mean under baseline conditions, or the project reduces the total VMT per service population for the subarea; and
- The project is consistent with the General Plan and the Nevada County Regional Transportation Plan.

As stated above, because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee). The data in Table 4.12-4 was used to determine the significance threshold for the

⁷ Nevada County. *Traffic Impact Analysis Guidelines*. Updated December 7, 2020.



proposed project. The Grass Valley subarea was used as the basis due to the project's proximity to the City. Therefore, the proposed project would be considered to result in a significant impact related to VMT if the project would result in a VMT per worker ratio that is less than 14.3 percent below the subarea mean for the Grass Valley subarea of 18.6.

Method of Analysis

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

Level of Service Analysis

As noted above, VMT is the primary metric used to identify transportation impacts under CEQA. However, because the County considers vehicle LOS as a matter of General Plan consistency, LOS at the study intersections and roadway facilities is presented and analyzed herein.

The vehicle LOS analysis is intended to identify the intersections and roadways that may be impacted by development of the proposed project based on Nevada County, City of Grass Valley, and Caltrans significance criteria and to suggest strategies for locations that are adversely affected by the proposed project.

Level of Service Analysis Scenarios

Based on consultation with Nevada County and the City of Grass Valley, the following scenarios were included in the LOS analysis for the proposed project:

- **Existing Condition:** LOS based on current traffic counts, existing roadway geometry, and existing traffic control.
- **Existing Plus Approved Projects (EPAP) Condition:** LOS based on the Existing Condition plus traffic and improvements from projects that are approved or are reasonably foreseeable in the next five years.
- **EPAP Plus Project Condition – Scenario #1:** LOS based on the EPAP Condition plus traffic from the proposed project, considering transport of engineered fill to the Centennial Industrial Site.
- **EPAP Plus Project Condition – Scenario #2:** LOS based on the EPAP Condition plus traffic from the proposed project, considering transport of engineered fill to construction sites accessible via SR 49.
- **Cumulative No Project Condition:** LOS based on traffic volumes associated with cumulative buildout of the Nevada County region projected to occur by 2035 without traffic generated by the proposed project. The Cumulative No Project Condition includes reasonably certain projected changes to intersection geometry and roadway segments.
- **Cumulative Plus Project Condition – Scenario #1:** LOS based on the Cumulative No Project Condition plus traffic from the proposed project, considering transport of engineered fill to the Centennial Industrial Site.
- **Cumulative Plus Project Condition – Scenario #2:** LOS based on the Cumulative No Project Condition plus traffic from the proposed project, considering transport of engineered fill to construction sites accessible via SR 49.



Intersection Level of Service Analysis

The analysis techniques presented in the Highway Capacity Manual 6th Edition were used to provide a basis for describing existing traffic conditions and evaluating the significance of the project's traffic impacts.

Various software programs have been developed to assist in calculating intersection LOS, and the level of sophistication of each program responds to factors that affect the overall flow of traffic. Three programs – (1) Synchro, (2) Synchro/Simtraffic, a simulation program, and (3) SIDRA, a roundabout intersection analysis program – were used for the analysis depending on the intersection characteristics.

The Synchro software was used at the following study intersections:

4. E. Bennett Road/Hansen Way
6. Idaho Maryland Road/SR 49 EB Ramps
7. Idaho Maryland Road/Railroad Avenue
12. Brunswick Road/Idaho Maryland Road
13. Brunswick Road/Whispering Pines Lane
14. Brunswick Road/E. Bennett Road/Greenhorn Road
15. Brunswick Road/SR 174
16. Brunswick Road/Project Driveway
17. E. Bennett Road/Millsite Road
18. Whispering Pines Lane/Centennial Industrial Site Driveway
19. Idaho Maryland Road/Centennial Drive
20. Idaho Maryland Road/Sutton Way
21. Sutton Way/Dorsey Drive
24. Brunswick Road/Loma Rica Drive

The City of Grass Valley has previously identified the Brunswick Road/SR 49 interchange to be analyzed using the Synchro/Simtraffic simulation software. Additional intersections were also simulated based on non-standard traffic control conditions that Synchro cannot analyze. The Synchro/Simtraffic simulation software was used for the following study intersections:

1. Neal Street/Tinloy Street
2. S. Auburn Street/Tinloy Street
3. E. Bennett Road/Tinloy Street/SR 49 WB Off-Ramp
8. Main Street/Brunswick Road/W. Olympia Drive
9. Brunswick Road/SR 49 WB Off-Ramp/Maltman Drive
10. Brunswick Road/SR 49 EB Ramps
11. Brunswick Road/Sutton Way
22. Dorsey Drive/SR 49 EB Ramps
23. Dorsey Drive/SR 49 WB Ramps

The SIDRA software was used at the following intersection:

5. Main Street/Idaho Maryland Road/SR 49 WB Ramps



Each of the intersections analyzed by Synchro/Simtraffic software are within the City of Grass Valley. As noted above, the City requires simulation of the Brunswick Road corridor. The remaining intersections were also simulated based on non-standard traffic control. The Synchro/Simtraffic software is a stochastic model (i.e., randomness is present when running the simulations). The results vary within each scenario and between scenarios. As a result, some intersections have lower delays in the “Plus Project” scenarios than in the “No Project” scenarios, which is a normal occurrence for stochastic models. Results showing that delays or queues could improve at one intersection while increasing at other intersections is not unexpected. The changes typically should be reasonable; a substantial reduction in delay is not anticipated.

Roundabout analyses were conducted using *SIDRA* Version 8 software.

Traffic Signal Warrant

The extent to which existing or projected traffic volumes may justify signalization at unsignalized intersections has been determined based on considerations of traffic signal warrants presented in the Manual of Uniform Traffic Control Devices, 2014. For this analysis, the volume thresholds associated with Warrant 3 (Peak Hour Volume) have been assessed. Because this analysis considered the peak hours of project traffic, the peak hour warrant was analyzed for each of the three time period segments. The meeting of a traffic signal warrant does not, in itself, require installation of a traffic signal but serves as a method to identify a location where further analysis is required.

Intersection Queuing

The quality of traffic flow can also be affected by queuing at signalized intersections. For this analysis, the lengths of peak period queues have been identified and compared to available storage in order to determine whether spillover from turn lanes can affect adjoining travel or extend through adjacent intersections. The 95th percentile queue lengths are reported as part of the Synchro, Synchro/Simtraffic, and *SIDRA* analyses. Those locations where the 95th percentile queue exceeds the available storage have also been noted.

Roadway Level of Service Analysis

Study roadway segments were analyzed using methods presented in the Highway Capacity Manual 2010 (HCM), which are similar to the methods used in 2010 and HCM 6th Edition. All of the study roadway segments are considered two-lane highway segments. A two-lane highway is an undivided roadway with one lane in each direction. Passing a slower vehicle requires use of the opposing lane as sight distance and gaps in the opposing traffic stream permit. As volumes and geometric restrictions increase, the ability to pass decreases and platoons form. Motorists in platoons are subject to delay because they are unable to pass. The HCM divides two-lane roadways into three types: Class I, Class II, and Class III. The three types are defined as follows:

- **Class I two-lane highways** are highways where motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national highway networks are generally assigned to Class I. These facilities serve mostly long-distance trips or provide the connections between facilities that serve long-distance trips.



- **Class II two-lane highways** are highways where motorists do not necessarily expect to travel at high speeds. Two-lane highways functioning as access routes to Class I facilities, serving as scenic or recreational routes (and not as primary arterials), or passing through rugged terrain (where high-speed operation would be impossible) are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning or ending portions of longer trips, or trips for which sightseeing plays a significant role.
- **Class III two-lane highways** are highways serving moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. On such segments, local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

Three measures of effectiveness are incorporated into the methodology to determine automobile LOS:

- Average Travel Speed (ATS) reflects mobility on a two-lane highway. It is defined as the highway segment length divided by the average travel time taken by vehicles to traverse it during a designated time interval.
- Percent Time Spent Following (PTSF) represents the freedom to maneuver and the comfort and convenience of travel. It is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Because this characteristic is difficult to measure in the field, a surrogate measure is the percentage of vehicles traveling at headways of less than 3.0 at a representative location within the highway segment. PTSF also represents the approximate percentage of vehicles traveling in platoons.
- Percent of free-flow speed (PFFS) represents the ability of vehicles to travel at or near the posted speed limit.

Speed and delay due to passing restrictions are both important to motorists on Class I two-lane highways; therefore, LOS is defined in terms of both ATS and PTSF. Travel speed is not a significant issue on Class II highways; therefore, LOS is defined only in terms of PTSF. High speeds are not expected on Class III highways and because the length of the Class III segments may be generally limited, passing restrictions are also not a major concern. In Class III segments, drivers are expected to want to travel at or near the speed limit. Therefore, PFFS is used to define LOS. The LOS criteria for two-lane highways are shown in Table 4.12-5.

Project Trip Generation

Trip generation is determined by identifying the type and size of the land use being developed. Recognized sources of trip generation data may then be used to calculate the total number of trip ends resulting from the day-to-day operation of the project.



**Table 4.12-5
Vehicle LOS for Two-Lane Highways**

LOS	Class I Highways		Class II Highways	Class III Highways
	ATS (mi/hr)	PTSF (%)	PTSF (%)	PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50-55	>35-50	>40-55	>83.3 – 91.7
C	>45-50	>50-65	>55-70	>75.0 – 83.3
D	>40-45	>65-80	>70-85	>66.7 – 75.0
E	≤40	>80	>85	≤66.7

Source: KDAnderson & Associates, Inc., 2021.

The Trip Generation Manual (Institute of Transportation Engineers (ITE), 10th Edition, 2017) is often used to calculate project trips for more common land use codes. However, the publication does not have trip generation data for mining operations. Consequently, the project trip generation was developed based on projected employment rates, projected truck trips for hauling engineered fill and mining concentrate off site, and projected material and supply deliveries.

During full mining operations, the proposed project would employ approximately 312 direct employees, as detailed in Table 4.12-6. At full operations, approximately 44 employees would work regular eight-hour days, five days per week, and approximately 268 employees would work 12-hour shifts, seven days on and seven days off. Shifts for 12-hour employees would be from 7:00 AM to 7:00 PM and 7:00 PM to 7:00 AM, while work shifts for eight-hour employees would be from 7:00 AM to 3:30 PM. The Brunswick Industrial Site would generate a maximum of 174 employee trips per day. The Centennial Industrial Site would generate a maximum of four employee trips per day.

**Table 4.12-6
Operations Workforce and Hours of Operation**

Workforce	Shift	Total Employees
Administrative Personnel: Management, technical, construction, administrative staff	8 hours a day, 5 days a week 7:00 AM to 3:30 PM	40
Mining Operations: Underground mining, mineral processing, engineered fill transport staff	12 hours a day, 7 days on, 7 days off 7:00 AM to 7:00 PM and 7:00 PM to 7:00 AM	268
Grading Operations: Centennial* or Brunswick Industrial Site – placement and compaction of engineered fill	8 hours a day, 5 days per week 7:00 AM to 3:30 PM	4
Total Workforce		312
* Staffing at the Centennial Industrial Site is projected to occur over an approximate five-year span within the analysis.		

Source: KDAnderson & Associates, Inc., 2021.



In addition to employee traffic, the proposed project would result in daily operational truck traffic, including but not limited to engineering fill trucking, concentrate trucking, materials and supplies deliveries, and ancillary vehicle traffic to support operations. The truck traffic, hours, and projected trip generation are detailed in Table 4.12-7. The total maximum number of two-way truck trips is 118 trucks, with 236 total daily trips made, one inbound and one outbound.

Table 4.12-7 Project Truck Traffic and Hours			
Truck Traffic	Hours	Maximum Daily Trips	Average Daily Trips
Brunswick Industrial Site			
Engineered Fill	6:00 AM to 10:00 PM 7 days a week	100	50
Concentrate	6:00 AM to 10:00 PM. 7 days a week	5	1
Materials/Supplies/Ancillary services	7:00 AM to 7:00 PM 7 days a week	12	6
Centennial Industrial Site			
Fuel Supplies	7:00 AM to 3:30 PM 5 days a week	1	0.3
Total			
Total Two-Way Trips (One-Way Trips)		118 (236)	57.3 [rounded 58] (114.6) [rounded 115]
Note: The traffic analysis studies the worst-case scenario of maximum daily trips and with hours of operation.			
Source: KDAnderson & Associates, Inc., 2021.			

As discussed previously, the three time periods analyzed are when project employee trips are expected to occur based on actual proposed work schedules. Table 4.12-8 presents the projected trip generation for the project during the three analysis periods.

As noted, the Centennial Industrial Site is expected to be an active site with delivery of engineered fill occurring for a period of approximately five years. The engineered fill is projected to be delivered to construction sites accessible from SR 49 for the remaining 15 years of the analysis. Which years would be used for each scenario is currently unknown; therefore, two scenarios were analyzed, with each scenario assumed to be active at buildout:

- **Scenario 1:** Transport of engineered fill to the Centennial Industrial Site.
- **Scenario 2:** Transport of engineered fill to construction sites accessible via SR 49.



**Table 4.12-8
 Project Trip Generation**

	Employee Trips (Hourly)					
	6:30 – 7:30 AM		3:30 – 4:30 PM		6:30 – 7:30 PM	
	In	Out	In	Out	In	Out
Brunswick Industrial Site						
7:00 AM Shift Change M-F	107*	67‡				
3:30 PM End of Administrative Day M-F			0	40†		
6:30 PM Shift change M-F					67‡	67‡
Centennial Industrial Site						
7:00 AM Shift Change M-F	4	0				
3:30 PM End of Administrative Day M-F			0	4		
6:30 PM Shift change M-F					0	0
Total Trips - Employee Traffic	111	67	0	44	67	67
Haul Traffic						
Brunswick Industrial Site						
Engineered Fill ◊	8	8	8	8	8	8
Concentrate □	1	1	1	1	1	1
Materials/Supplies △	2	2	2	2	2	2
Centennial Industrial Site						
Fuel Supplies Δ	1	1	1	1	1	1
Total Trips – Haul Traffic	12	12	12	12	12	12
Total						
Total Trips	123	79	12	56	79	79
Notes:						
<ul style="list-style-type: none"> • Trip generation assumes worst case scenario. Daily operations workforce and truck traffic are detailed in Table 4.12-6 and Table 4.12-7. • Brunswick Industrial Site operational on weekends and generates 67 inbound/outbound trips at shift change. • * = includes mining and administrative operations • ‡ = includes mining operations • † = includes administrative operations • □ = five round trips (10 one-way truck trips)/day averaged over eight-hour day (worst case) • Δ = 1 trip per day • △ = 12 roundtrips (24 one-way truck trips)/day averaged over eight-hour day • ◊ = 100 roundtrips (200 truck trips)/day averaged over 12-hour day (worst case) 						
Source: KDAAnderson & Associates, Inc., 2021.						



Project Trip Distribution and Assignment

The distribution of traffic was developed based on existing traffic patterns in the Grass Valley area and where employees may be expected to live. Engineered fill would be hauled to either the Centennial Industrial Site or to off-site construction sites, and mining concentrate would be shipped off-site via SR 49. Other trucks providing materials and supplies are expected to access the site from both SR 49 and SR 174. Trip distribution for the various trip elements are shown in Table 4.12-9. The trip distribution shown in Figure 4.12-5 considers hauling to the Centennial Industrial Site, while Figure 4.12-6 provides trip distribution considering hauling to construction sites accessible via SR 49. Project traffic volumes are shown in Figure 4.12-7 through Figure 4.12-9 with the Centennial Industrial Site used for engineered fill, and Figure 4.12-10 through Figure 4.12-12 with engineered fill hauled to off-site construction locations. The project distribution was reviewed by both Nevada County and Grass Valley staff.

Existing Plus Approved Projects Condition Assumptions

The analysis of the near-term cumulative condition is intended to consider the impact of projects that are approved or are reasonably foreseeable in the next five years. The near-term cumulative condition is referred to as the EPAP scenario. Nevada County and City of Grass Valley staff were contacted to identify any approved or pending projects in the project vicinity.

Where available, trip generation developed for a project was assigned to the study intersections. When unavailable, KDAAnderson & Associates, Inc. used the best available information for those projects, generated trips for each, and distributed and assigned trips to the study intersections. The Approved Projects traffic was then added to the existing volumes to develop the EPAP scenario. EPAP volumes are presented in Figure 4.12-13 through Figure 4.12-15.

The following 11 projects were identified for the EPAP scenario based on input from Nevada County and the City of Grass Valley.

- 1) **Guided Springs:** This project is located on Main Street west of Bennett Road and consists of division of a 6.96-acre parcel into 27 single-family residential lots;
- 2) **O-Reilly Auto Parts:** This project is located on Nevada City Highway north of Brunswick Road and includes 8,694 square feet of retail use;
- 3) **740 Maltman Drive:** This project is located south of Brunswick Road and includes replacement of an existing 2,000-square-foot building with a new 3,700-square-foot professional office building;
- 4) **500 Idaho Maryland Road:** This project includes construction of two manufacturing buildings, one of which has already been completed, consisting of 22,500 square feet. The site is located east of Railroad Avenue;
- 5) **River Valley Bank:** This project includes construction of two buildings, a 3,500-square-foot bank, which has already been completed, and a new 1,450-square-foot professional office building;
- 6) **634 Town Talk Road:** This project includes division of a 1.36-acre parcel into 11 lots in an R-3 zone. The project is located just east of Brunswick Road in the vicinity of the SR 49 interchange;



**Table 4.12-9
 Project Trip Distribution**

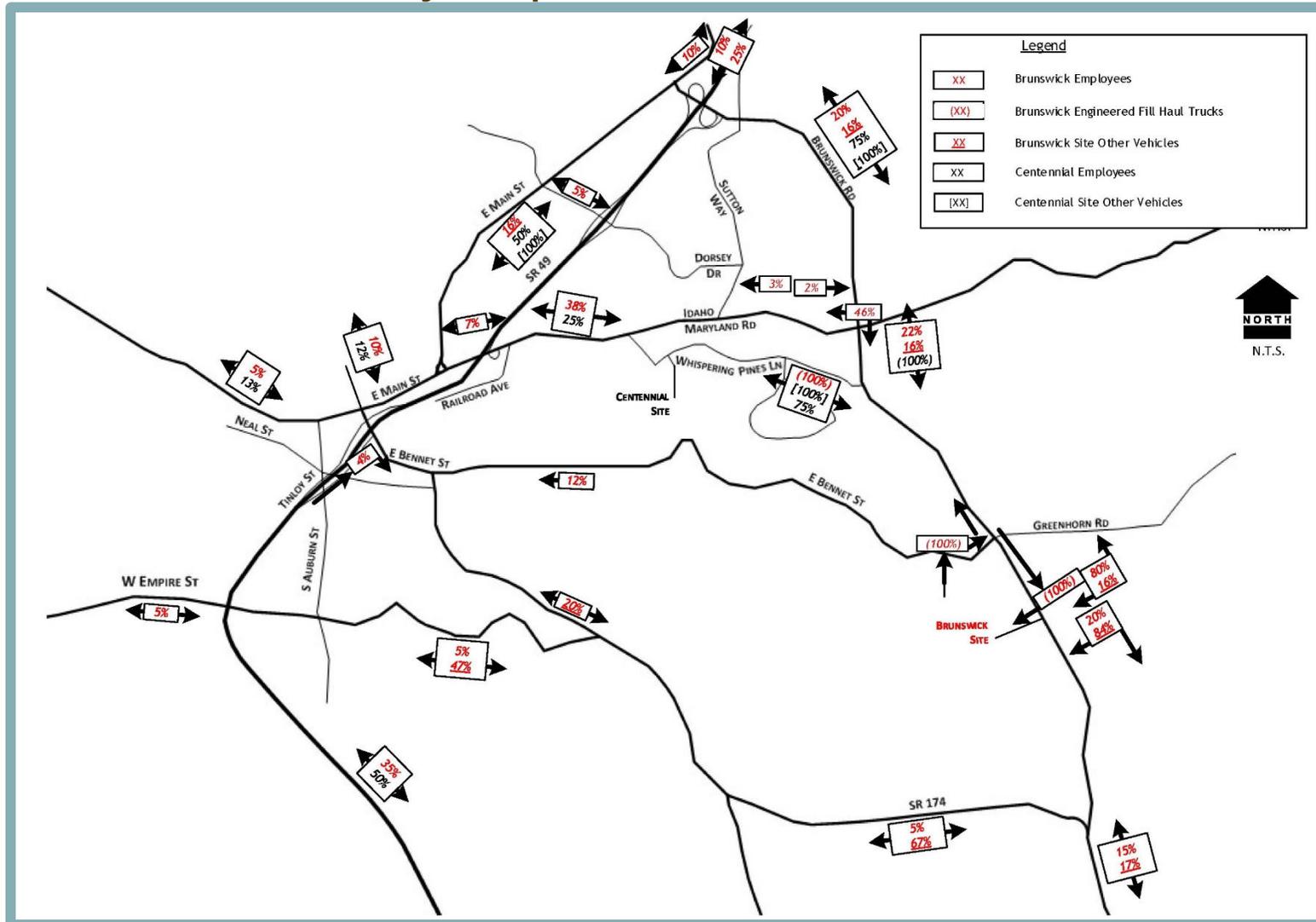
Route	Percent of Total Trips				
	Brunswick Industrial Site			Centennial Industrial Site	
	Employees	Engineered Fill Trucks	Other Vehicles	Employees	Other Vehicles
West to Grass Valley	15%	0%	0%	25%	0%
West on SR 174	5%	0%	67%	0%	0%
West on SR 49	0%	0%	16%	0%	0%
South to Auburn via SR 49	35%	0%	0%	0%	0%
South to Auburn via SR 174	15%	0%	17%	0%	0%
East on Nevada City Highway ¹	10%	0%	0%	25%	0%
East on SR 49	10%	0%	0%	0%	0%
North to Loma Rica	5%	0%	0%	0%	0%
North to Grass Valley via Dorsey	5%	0%	0%	0%	0%
West on SR 49 (Scenario #1)	0%	0%	0%	50%	100%
To Centennial Industrial Site (Scenario #1)	0%	100%	0%	0%	0%
East on SR 49 (Scenario #2)	0%	20%	0%	0%	0%
West on SR 49 (Scenario #2)	0%	80%	0%	0%	0%
Total	100%	100%	100%	100%	100%

Note:
¹ E. Main Street becomes Nevada City Highway through town.

Source: KDAnderson & Associates, Inc., 2020.



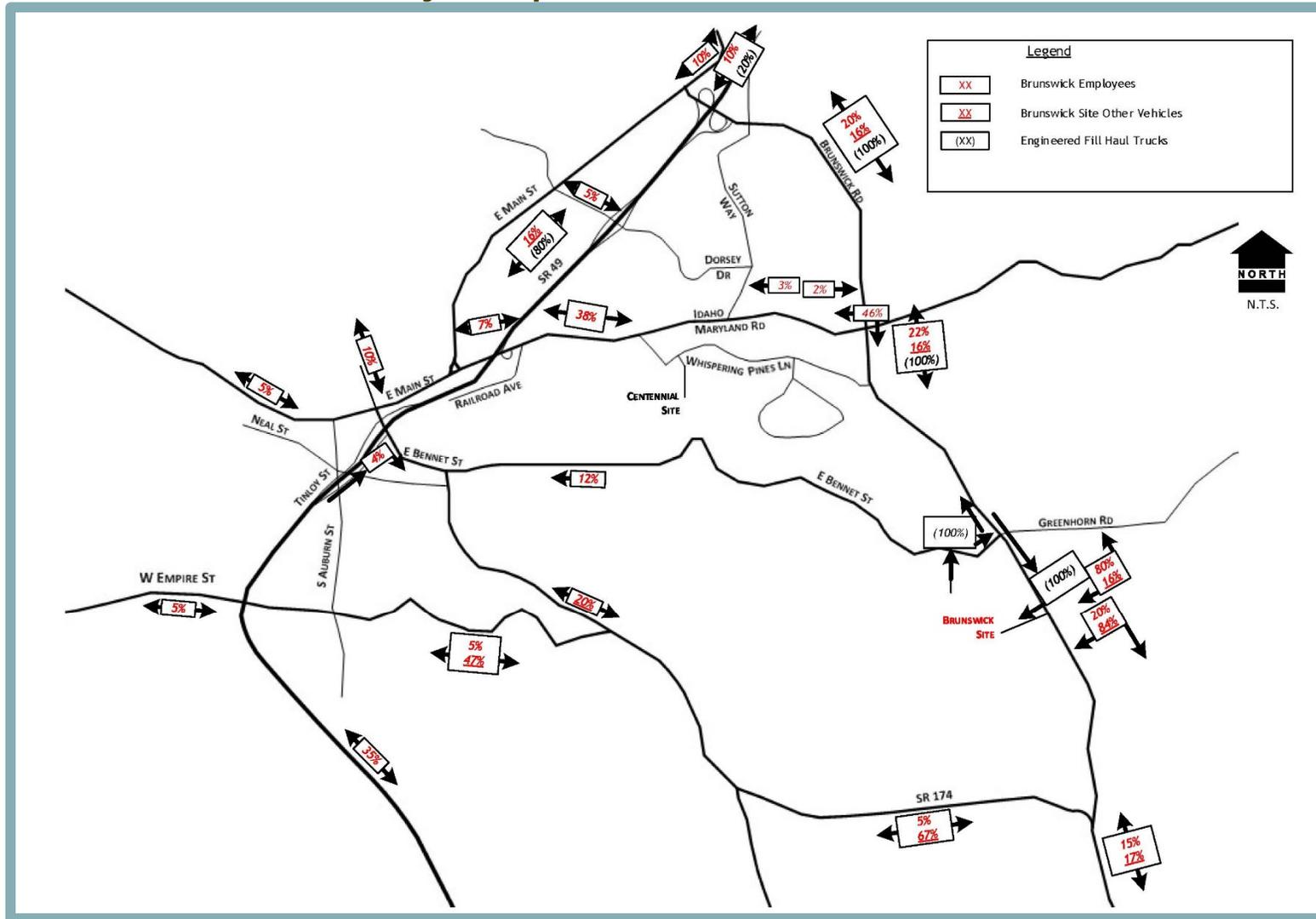
**Figure 4.12-5
 Project Trip Distribution – Scenario #1**



Source: KAnderson & Associates, Inc., 2021.



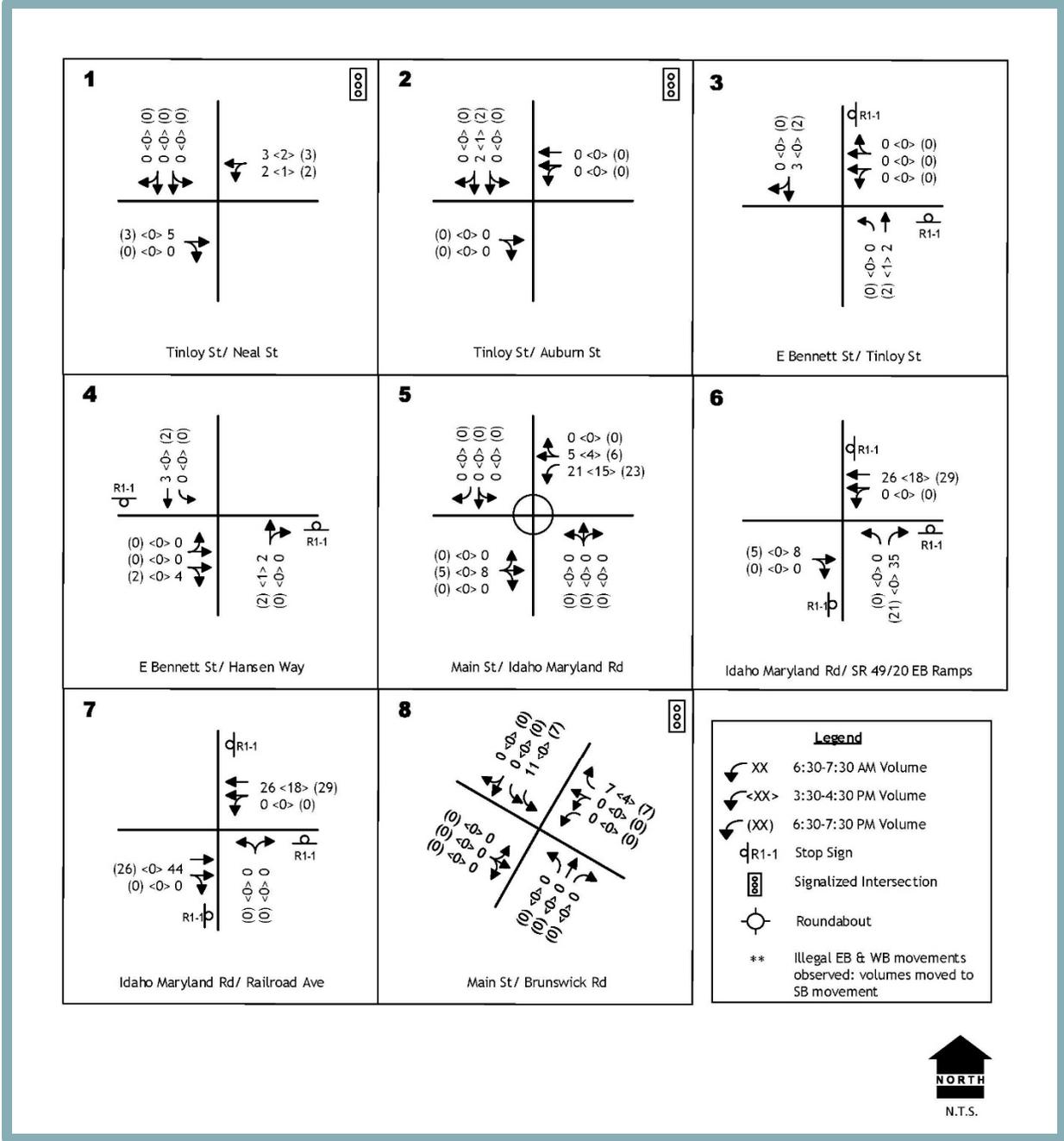
**Figure 4.12-6
 Project Trip Distribution – Scenario #2**



Source: KAnderson & Associates, Inc., 2020.



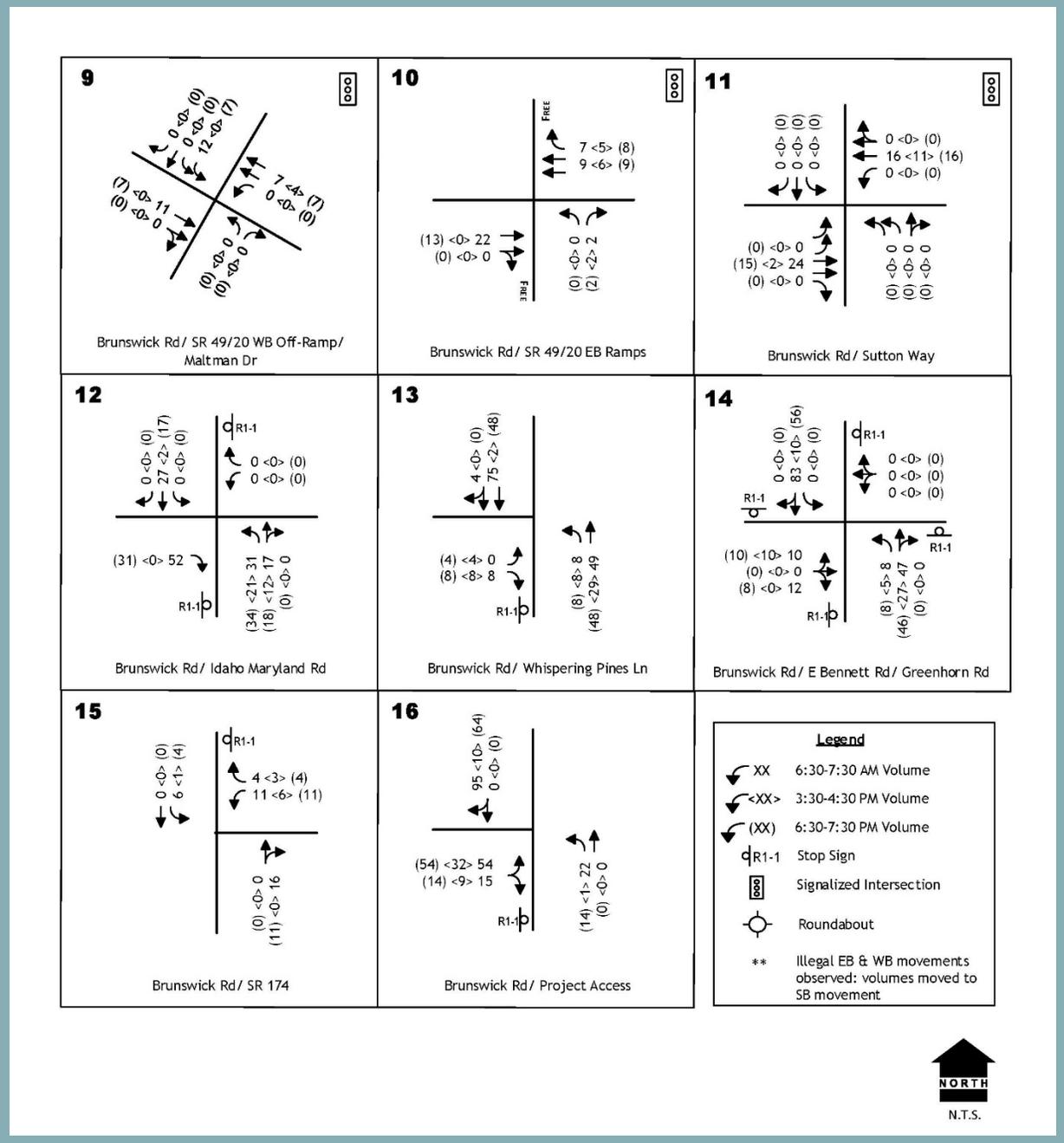
**Figure 4.12-7
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 1 through 8) – Scenario #1**



Source: KDAnderson & Associates, Inc., 2021.



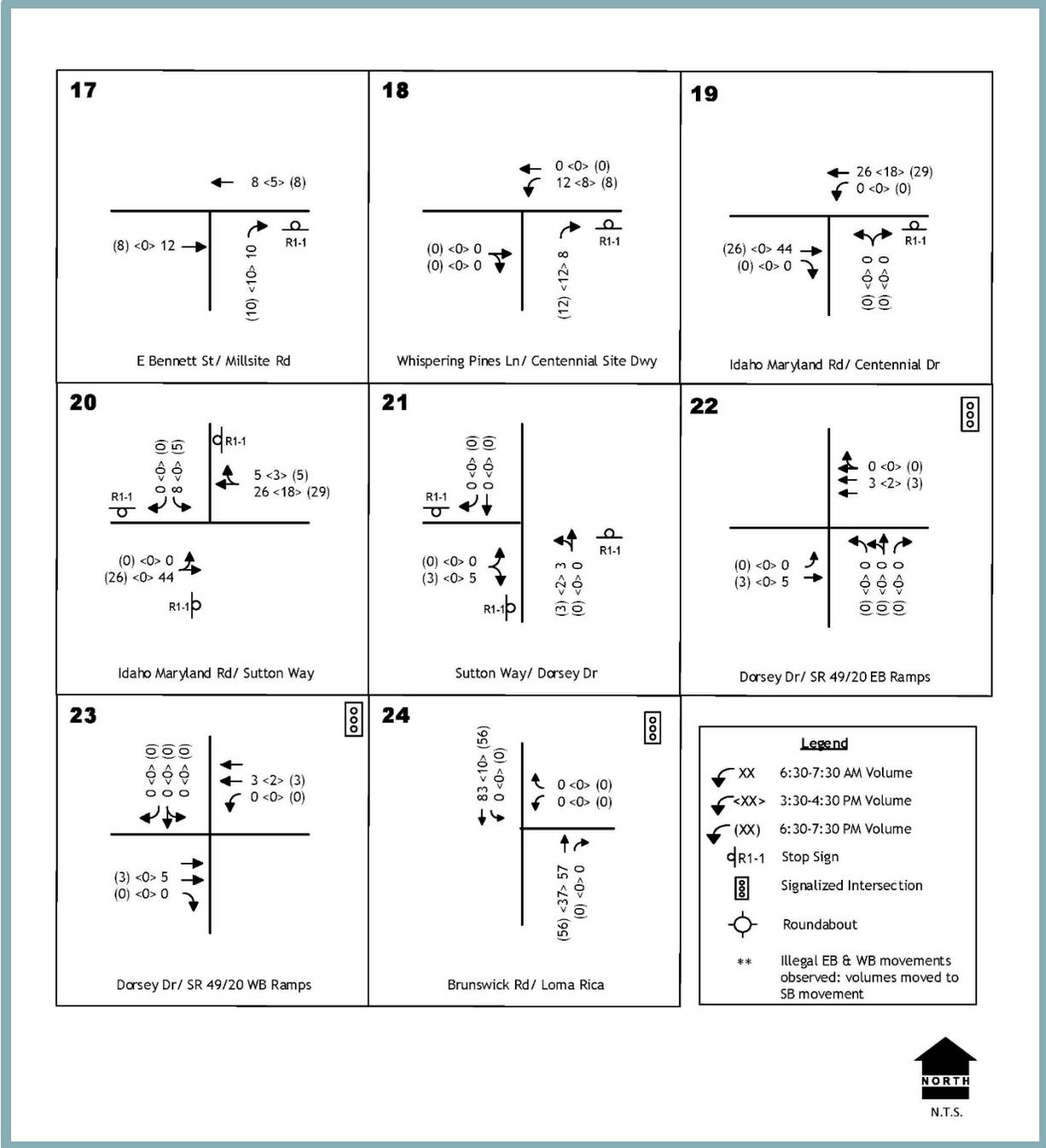
**Figure 4.12-8
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 9 through 16) – Scenario #1**



Source: KDAnderson & Associates, Inc., 2021.



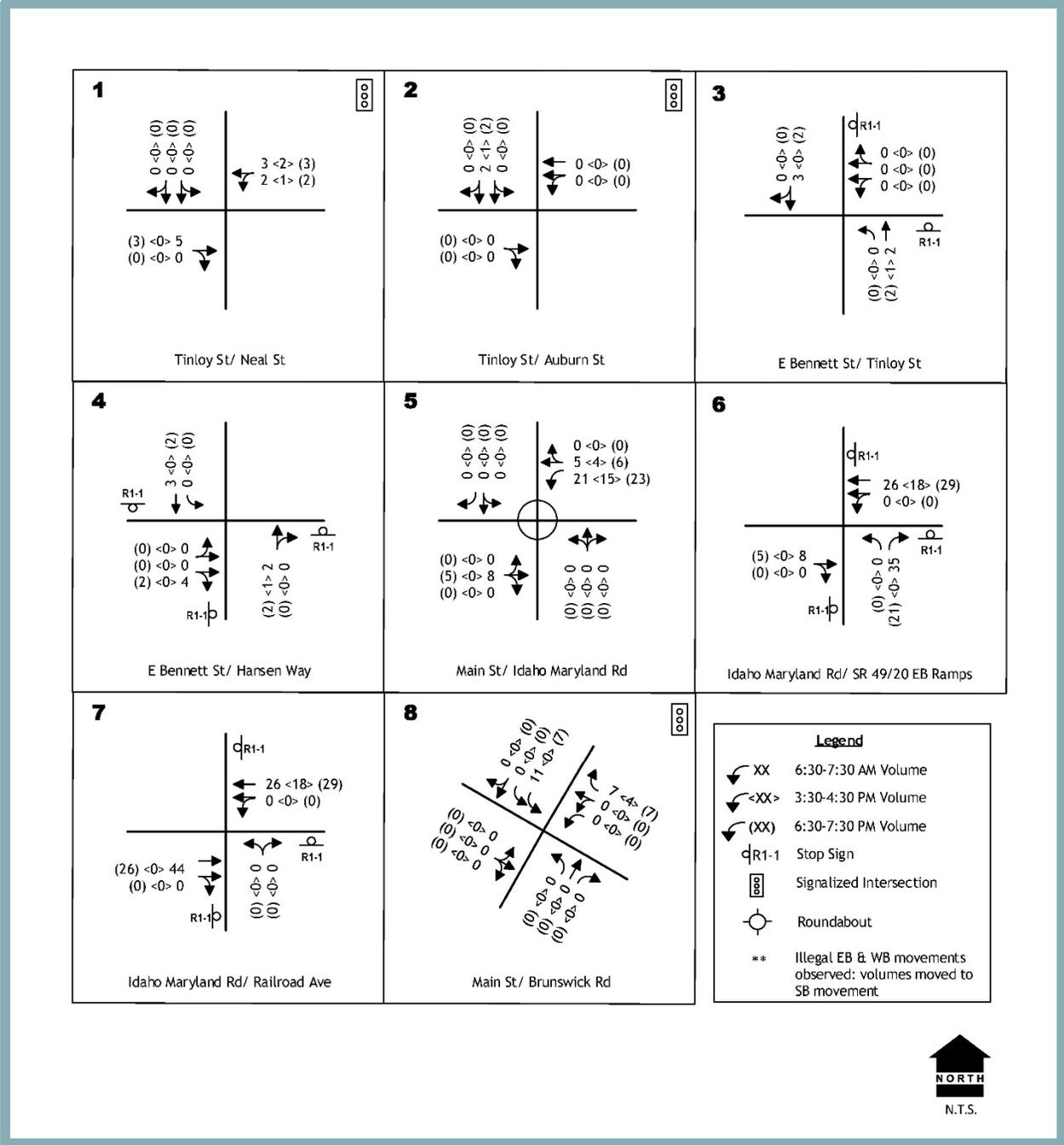
**Figure 4.12-9
 Project Traffic Hours Traffic Volumes and Lane Configurations
 (Intersections 17 through 24) – Scenario #1**



Source: KDAnderson & Associates, Inc., 2021.



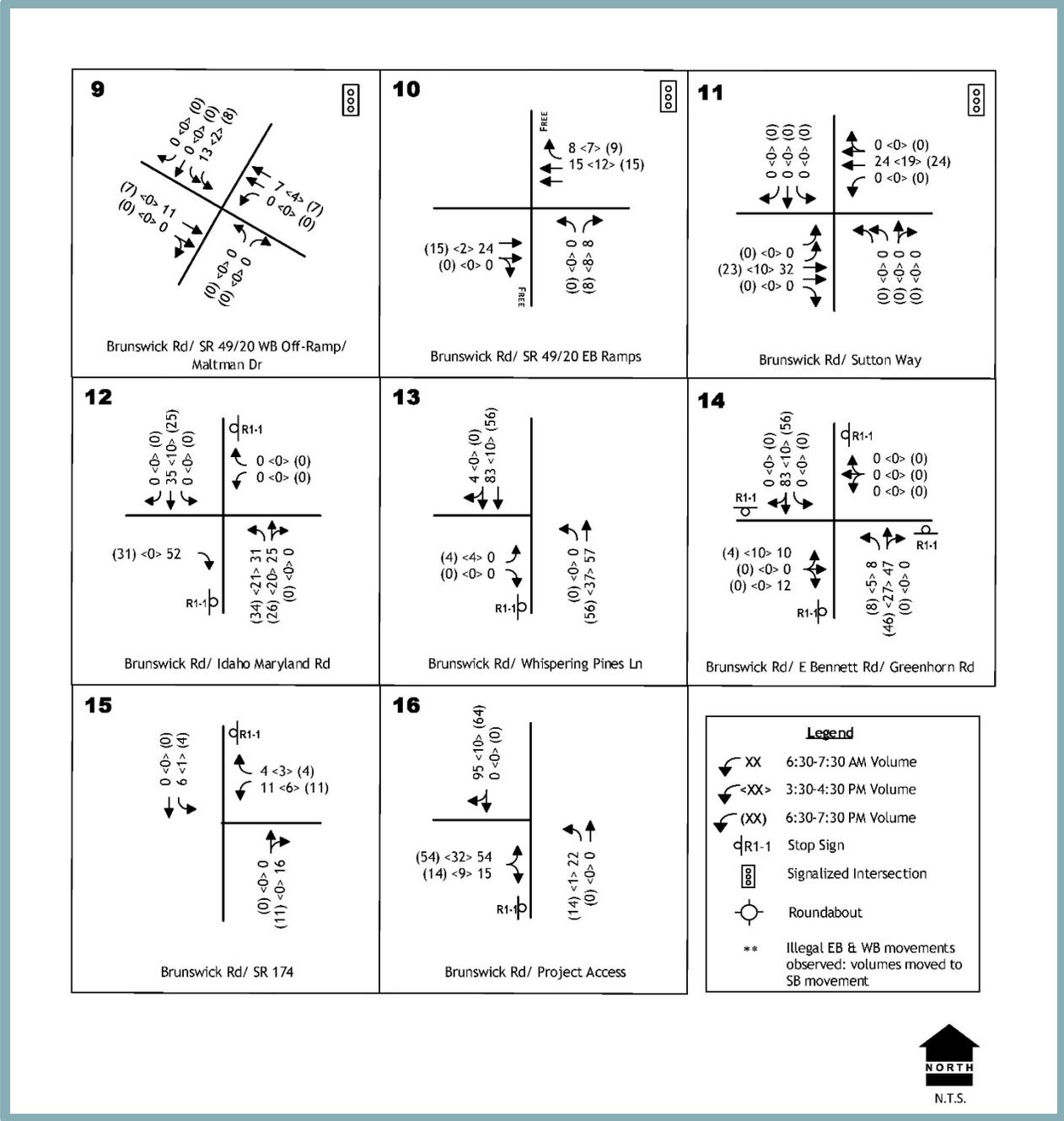
Figure 4.12-10
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Scenario #2



Source: KAnderson & Associates, Inc., 2021.



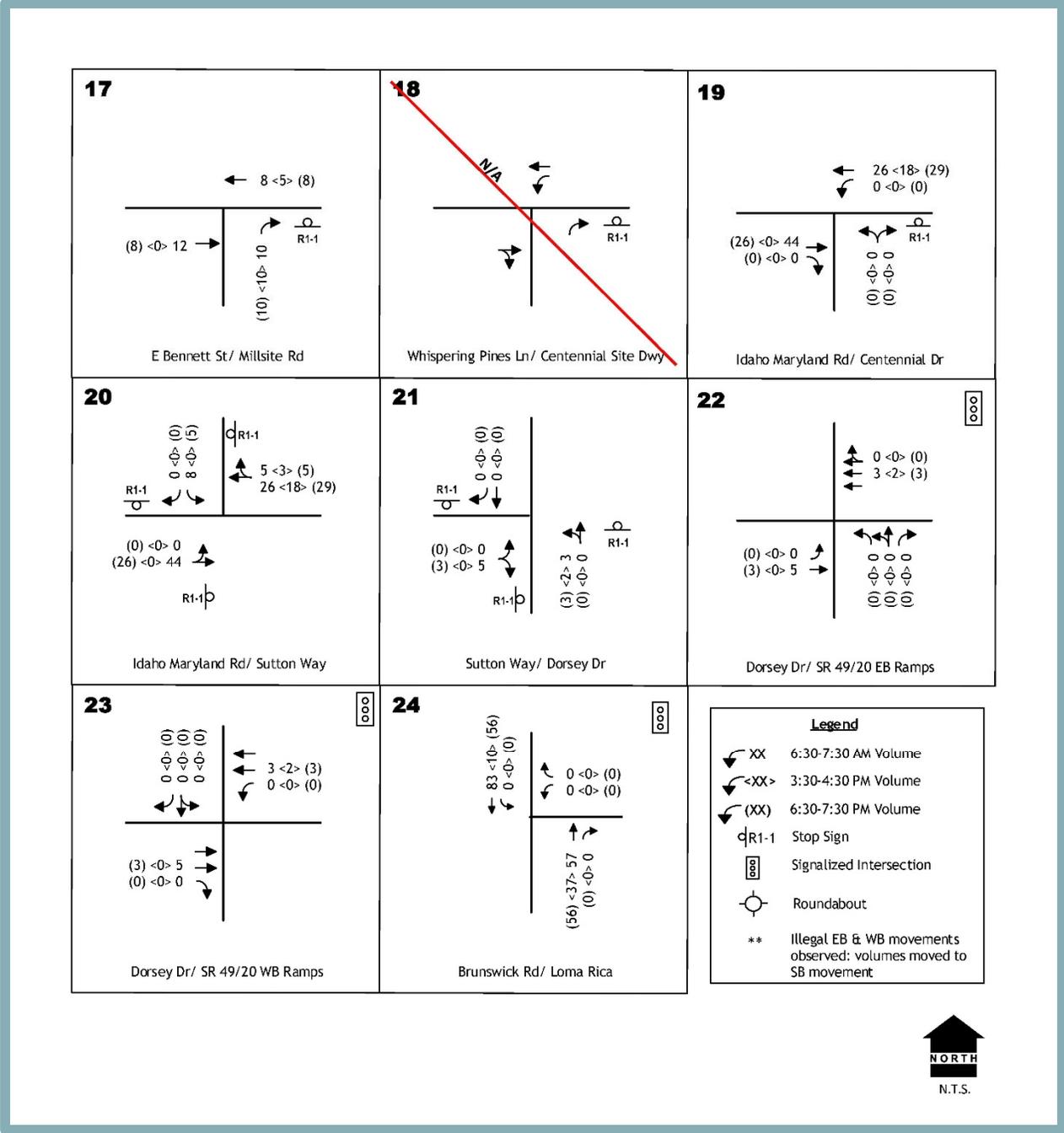
Figure 4.12-11
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Scenario #2



Source: KDAnderson & Associates, Inc., 2021.



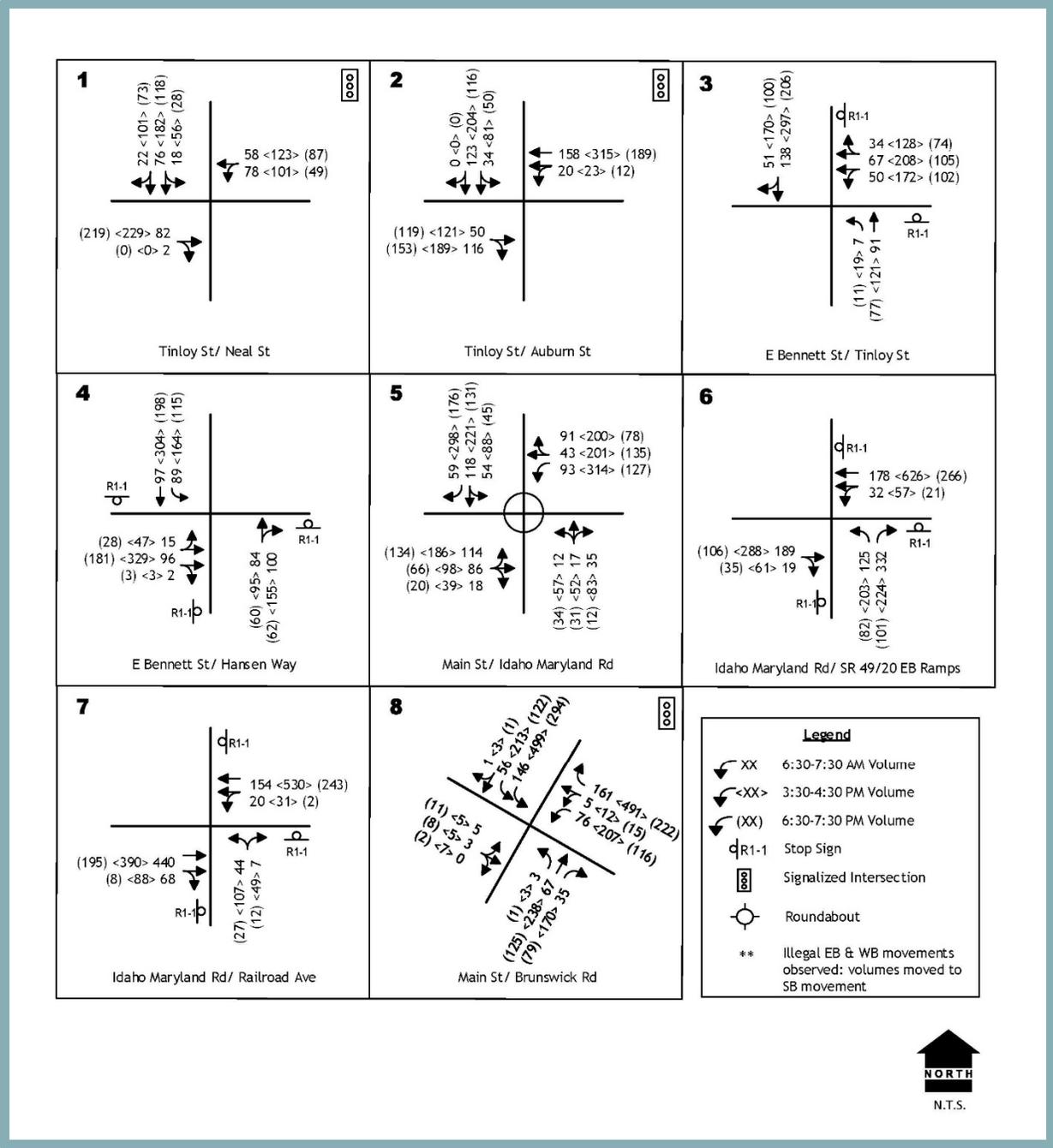
Figure 4.12-12
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Scenario #2



Source: KDAnderson & Associates, Inc., 2021.



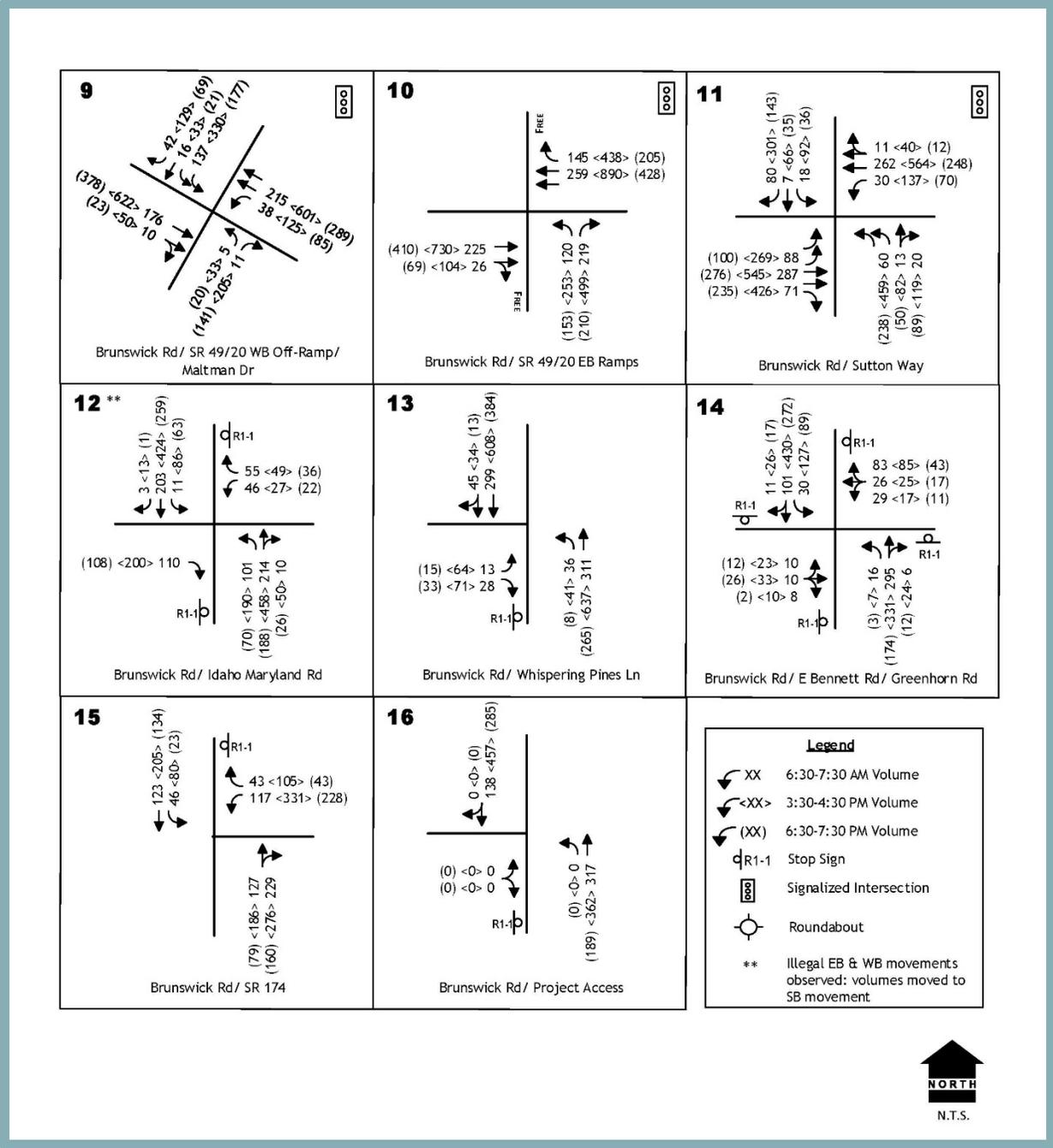
Figure 4.12-13
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Conditions



Source: KDAAnderson & Associates, Inc., 2021.



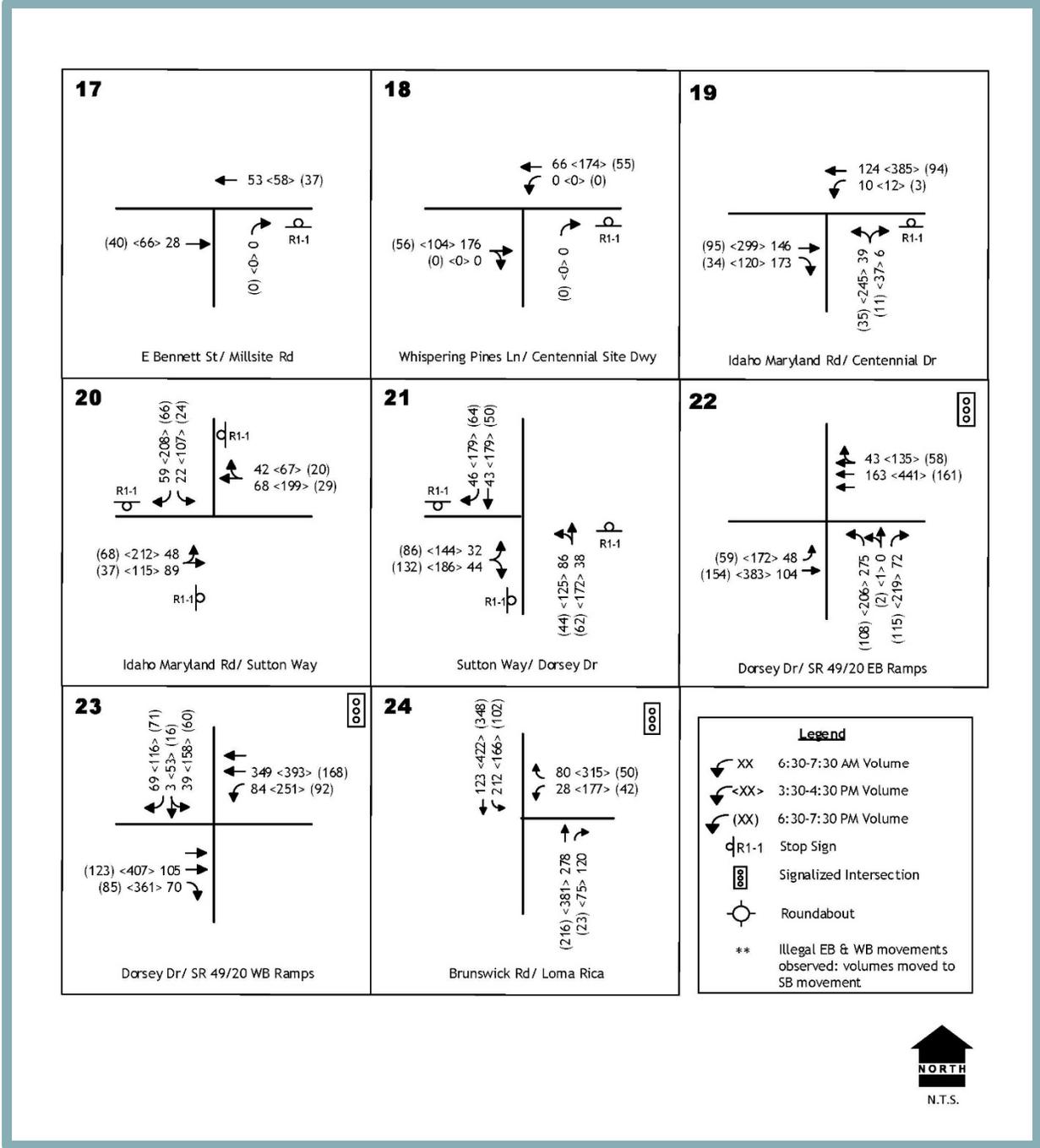
Figure 4.12-14
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Conditions



Source: KDAAnderson & Associates, Inc., 2021.



Figure 4.12-15
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Conditions



Source: KDAnderson & Associates, Inc., 2021.



- 7) **130 Crown Point Circle:** This project is located in the Whispering Pines Specific Plan zone and includes construction of a 6,889-square-foot dental office (medical office building);
- 8) **Loma Rica Ranch:** This project includes the first phase of the Loma Rica Ranch Specific Plan (LRRSP). The LRRSP area includes lands between Sutton Way to east of Brunswick Road, north of Idaho Maryland Road. The first phase includes 175 single-family residential units and 60 duplex/townhome lots;
- 9) **Dorsey Marketplace:** This project considered two alternative site plans. Alternative A included commercial development of 181,900 square feet, construction of 90 multiple-family residential units and a 3,200-square-foot clubhouse. Alternative B provided up to 172 apartments, a 3,200-square-foot clubhouse, approximately 104,350 square feet of commercial space, and approximately 8,500 square feet of office space. The worst-case trip generation for the site, Alternative A, was used;
- 10) **South Woodlands:** This project is located on Greenhorn Road east of Brunswick Road and consists of development of 30 single-family residential lots;
- 11) **Tranquility Lane Estates:** This project is located on Idaho Maryland Road east of Brunswick Road and consists of development of nine single-family residential lots.

Because operation of the proposed project would likely not commence within the next five years, the EPAP Condition is considered the baseline condition for the analysis within this chapter, as compared to the Existing Condition. This is consistent with *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 452 (*Neighbors for Smart Rail*), for which the Supreme Court stated, "...we note that in appropriate circumstances an existing conditions analysis may take account of environmental conditions that will exist when the project begins operations; the agency is not strictly limited to those prevailing during the period of EIR preparation. An agency may, where appropriate, adjust its existing conditions baseline to account for a major change in environmental conditions that is expected to occur before project implementation."

Cumulative Condition Assumptions

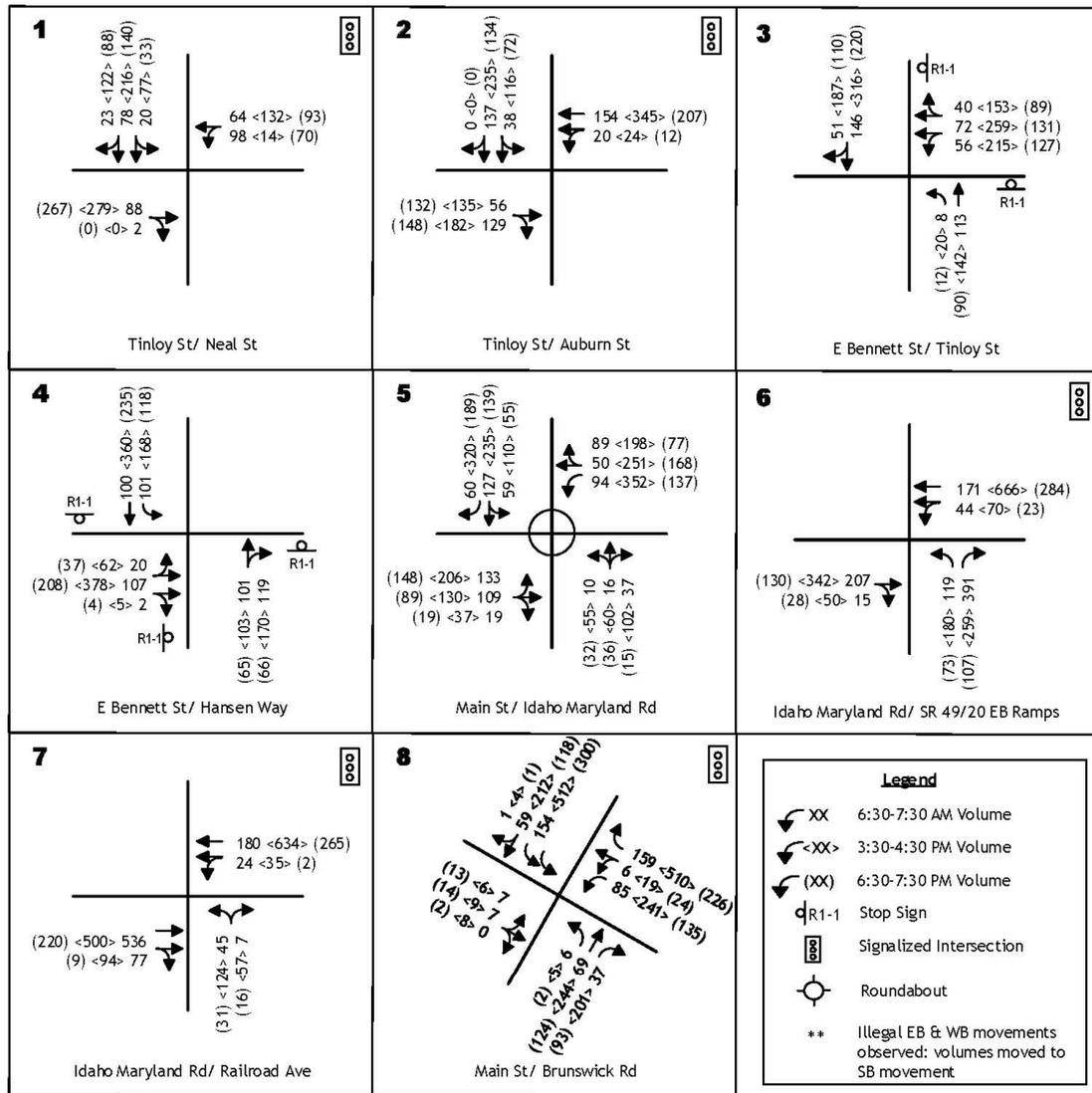
The analysis of the long range 2035 cumulative condition is intended to consider the impact of the proposed project within the context of the Nevada County region buildout projected to occur by 2035.

2035 Traffic Forecasts

Year 2035 traffic forecasts were based on the most recent NCTC regional travel demand model and includes those projects identified in the EPAP scenario and other reasonably foreseeable cumulative growth. Fehr & Peers maintains the NCTC model and provided AM, PM, and daily model volumes for the base year 2012 and the buildout year 2035. Based on direction from the Nevada County Public Works Department, the differential method was used to develop peak hour turning movements at all study intersections. The differential method adds the difference between the two model results to the existing traffic conditions. Turning movements at each intersection for the three scenarios were developed by applying the differential method with the proportional traffic rate between the off-peak scenarios and the peak hour scenarios. Figure 4.12-16 through Figure 4.12-18 display the Cumulative No Project traffic volumes at each study intersection for each of the three study time periods.



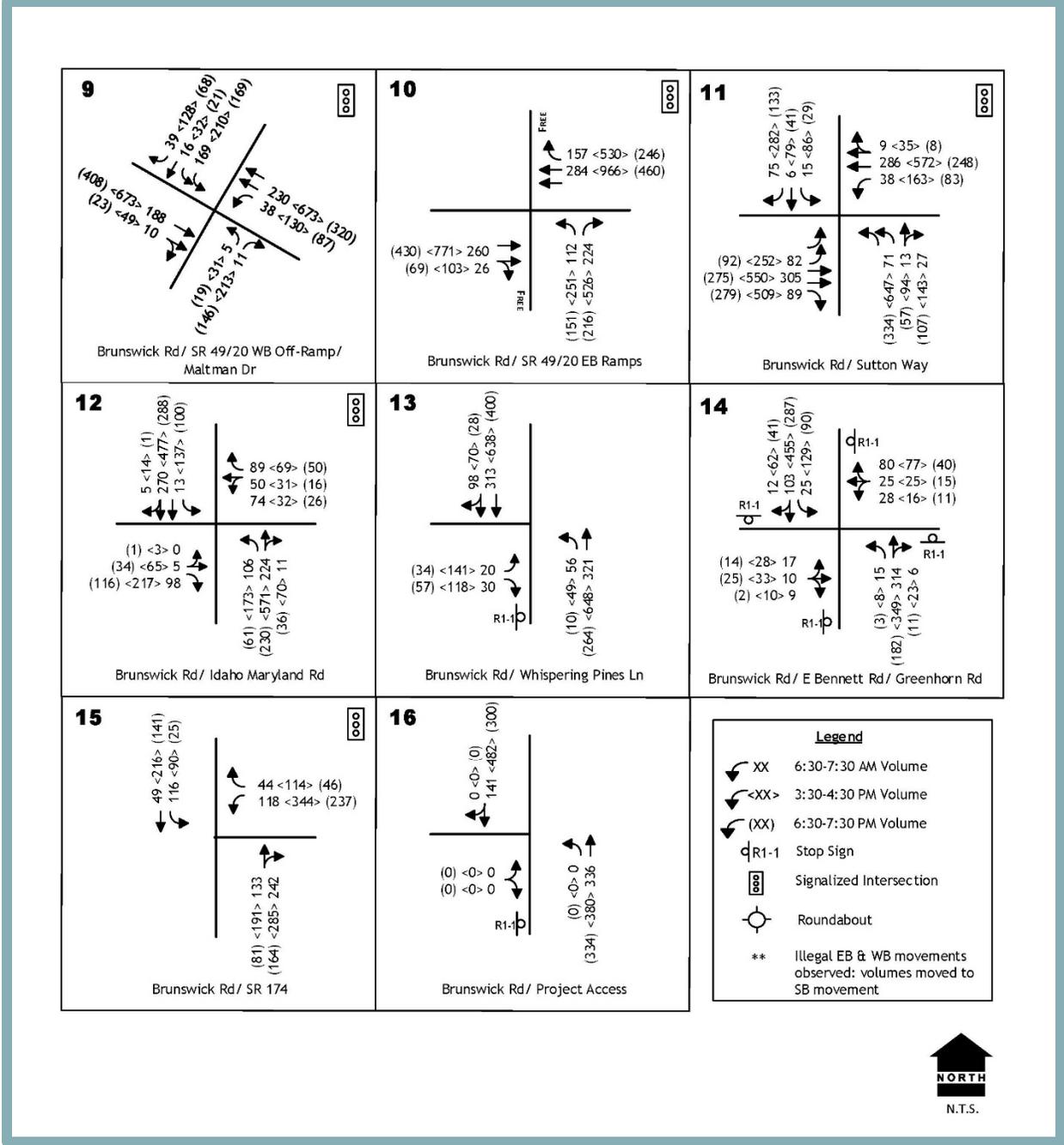
Figure 4.12-16
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative No Project Conditions



Source: KDAnderson & Associates, Inc., 2021.



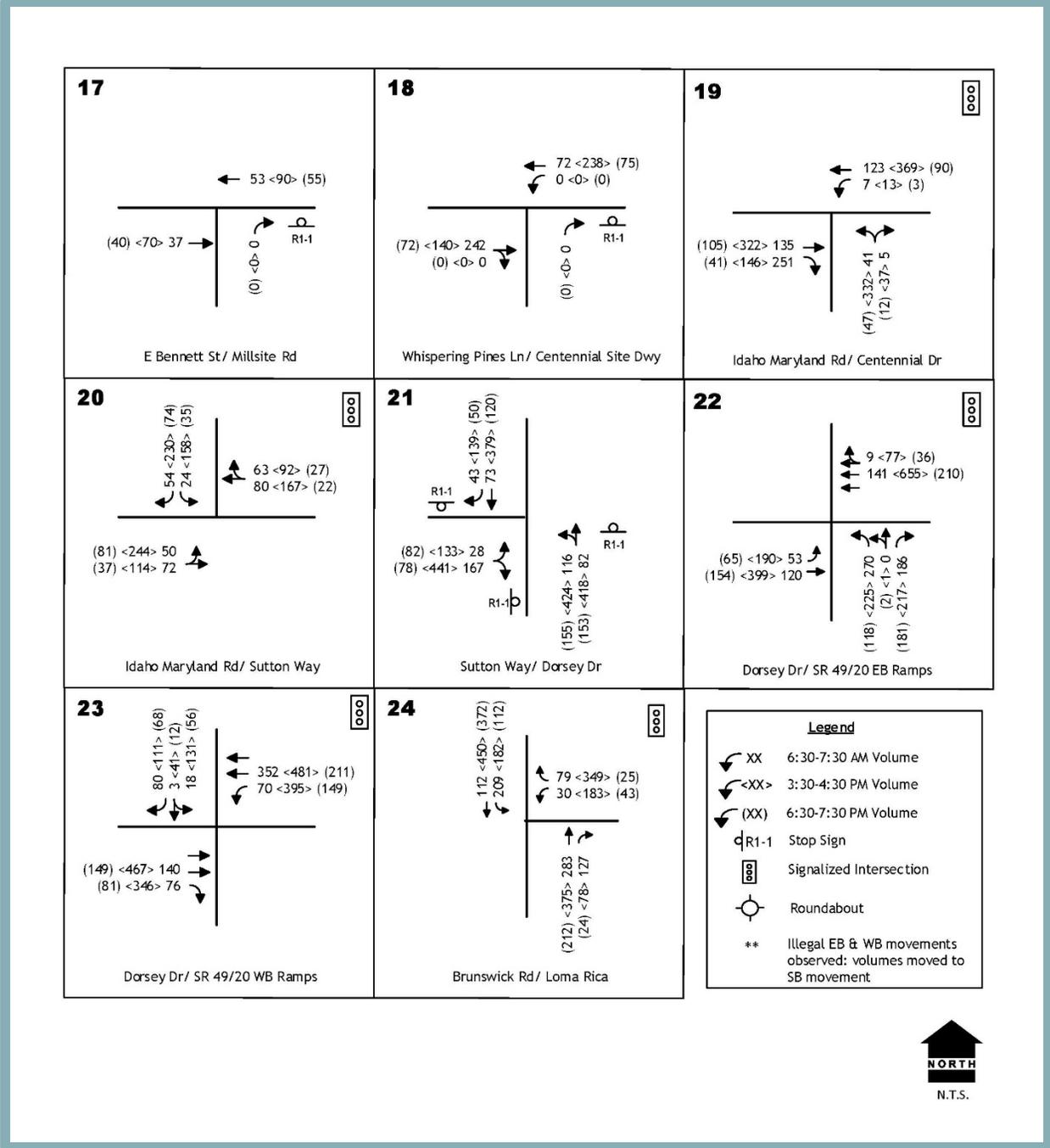
Figure 4.12-17
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Cumulative No Project Conditions



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-18
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative No Project Conditions



Source: KDAAnderson & Associates, Inc., 2021.



Roadway Conditions

The roadways studied for the project are generally projected to remain with their current lane configurations in 2035. The following changes to the projected 2035 roadway network were identified based on Nevada County's, Grass Valley's, and Caltrans' project lists:

- Idaho Maryland Rd/SR 49 Ramps
 - Install traffic signal with NB overlap
- Idaho Maryland Road/Railroad Avenue
 - Install traffic signal
- Brunswick Road/Idaho Maryland Road
 - Install traffic signal, split phase on Idaho Maryland Road with EB overlap
 - Lane configuration to include:
 - EB left-through lane and right-turn lane
 - WB left-through lane and right-turn lane
 - NB left-turn lane and through-right lane
 - SB left-turn lane, through lane and through-right lane
- Idaho Maryland Road/Centennial Drive
 - Install traffic signal

Signal timing was optimized at all intersections. Other roadway improvements were identified; however, none were operational and have not been listed.

One intersection, Brunswick Road/SR 174, was previously identified to be signalized in the NCTC Regional Transportation Program (RTMF). The most recent study, the NCTC 2016 Nexus Study, removed the project from the program as the study showed acceptable intersection LOS. The Caltrans SR 174 Transportation Concept Report (TCR) continues to identify this intersection as a planned, but unfunded improvement, which could include either a traffic signal or roundabout. Based on the aforementioned data, the intersection was analyzed under current traffic operations.

Project Vehicle Miles Traveled Analysis

The NCTC TDM for 2035 conditions was used to estimate the proposed project's daily employee VMT per service population for comparison to the NCTC baseline VMT per service population. Fehr & Peers was retained to conduct model runs to develop VMT projections for the proposed project. Trip generation for the VMT analysis was based on the project building square footage and the trip generation rates contained in the TDM. An initial model run was performed to compare model trip generation to the project employee generation expected to occur. Fehr and Peers iteratively adjusted the input land use element of the model as the model initially estimated higher volumes than the project is expected to generate. Project trips were then tracked throughout the model network using a select-zone analysis. Project VMT was calculated on each link by multiplying the link distance by the number of vehicles using a particular link.

The VMT analysis incorporates Transportation Alternatives pursuant to Nevada County LUDC Sec. L-II 4.1.9. The detailed VMT analysis methodology and results are included in Appendix X to Appendix O of this EIR.

The proposed project would involve the use of heavy trucks to transport fill to the Centennial Industrial Site and to local markets via SR 49. However, as described in further detail below, an analysis of VMT from heavy truck trips is not required pursuant to SB 743 and the CEQA Guidelines and, thus, was not included in this EIR.



Section 1 of SB 743 reads:

“[w]ith the adoption of Chapter 728 of the Statutes of 2008, popularly known as the Sustainable Communities and Climate Protection Act of 2008 [SB 375], the Legislature signaled its commitment to encouraging land use and transportation planning decisions and investments that reduce vehicle miles traveled and contribute to the reductions in greenhouse gas emissions required in the California Global Warming Solutions Act of 2006 [AB 32]”

As demonstrated in the excerpt above, SB 743 directly states that the analysis of VMT is required to achieve the goals established in SB 375, which is based on the greenhouse gas (GHG) emissions goals set forth in Assembly Bill (AB) 32.

Section 1(b) of SB 375, enacted in 2008, states that:

“[i]n 2006, the Legislature passed and the Governor signed Assembly Bill 32 (Chapter 488 of the Statutes of 2006; hereafter AB 32), which requires the State of California to reduce its greenhouse gas emissions to 1990 levels no later than 2020. According to the State Air Resources Board, in 1990 greenhouse gas emissions from automobiles and light trucks were 108 million metric tons, but by 2004 these emissions had increased to 135 million metric tons.”

Likewise, Section 1(c) of SB 375 states that:

“[g]reenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.”

As such, SB 375 was focused on reducing GHG emissions through changing land use patterns and transportation policy in a way that reduces automobile and light truck use, rather than by reducing the use of heavy trucks for the movement of goods. Based on the above, the legislative intent of SB 743 and the associated CEQA Guidelines Section 15064.3 is to ensure that lead agencies analyze VMT for passenger car and light truck trips related to land use projects.

In December 2018, OPR issued guidance (“OPR Guidance”) on implementation of SB 743 and the related CEQA Guideline Section 14 California Code of Regulations (CCR) § 15064.3.⁸ The OPR Guidance clearly acknowledges the purpose of the VMT methodology is to reduce emission of GHG pursuant to the strategies set forth in SB 375:

“employing VMT as the metric of transportation impact statewide will help to ensure GHG reductions planned under SB 375 will be achieved through on-the-ground development, and will also play an important role in creating the additional GHG reductions needed beyond SB 375 across the State. Implementation of this change will rely, in part, on local land use decisions to reduce GHG emissions associated with the transportation sector, both at the project level, and in long-term plans (including general plans, climate action

⁸ Governor’s Office of Planning and Research. *Technical Advisory: On Evaluation Transportation Impacts in CEQA*. December 2018.



plans, specific plans, and transportation plans) and supporting sustainable community strategies developed under SB 375.” (OPR Guidance, p. 3.)

The new CEQA Guidelines Section 15064.3 does not specifically state what type of vehicles are to be include or excluded from the VMT analysis, and merely states “[f]or the purposes of this section, ‘vehicle miles traveled’ refers to the amount and distance of automobile travel attributable to a project.” (14 CCR § 15064.3(a).)

On the question of what types of vehicles are to be included in the VMT analysis, OPR stated in its 2018 Guidance that:

“[p]roposed Section 15064.3, subdivision (a), states, ‘For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project.’ **Here, the term ‘automobile’ refers to on-road passenger vehicles, specifically cars and light trucks.** Heavy-duty truck VMT **could** be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT).” (OPR Guidance, p. 4; Emphasis added.)

Accordingly, OPR advises that the term “automobile” was not meant to include heavy trucks, but lead agencies **could** include heavy trucks where doing so was convenient under the applicable traffic model. Additionally, the OPR Guidance addresses numerical transportation impact thresholds for a “land use project,” but then only specifically describes residential, office, and retail projects, providing further evidence that movement of goods/materials in heavy trucks was meant to be excluded from the VMT requirement. (OPR Guidance, pp. 11-16.)

Nevada County has adopted VMT traffic analysis guidelines which do not provide guidance on heavy trucks. However, other jurisdictions throughout the State have approved guidance indicating that heavy truck trucks may be excluded from VMT analysis pursuant to SB 743. For instance, the City of Irvine Traffic Study Guidelines include the following direction:

“3.1 Screening Criteria

OPR Guidance Regarding Goods Movement: Section 3 of the Guidelines for Implementation of the California Environmental Quality Act specifies that VMT to be analyzed is defined as the amount and distance of automobile travel attributable to a project. SB 743 therefore does not require the inclusion of heavy-duty truck trips, utility vehicles or other types of vehicles in the VMT analysis. In the case of trucks, the State’s strategy for the goods movement sector is not in VMT reduction, but in advances in technology (zero and near-zero emission control strategies).

City of Irvine Recommendation: VMT analysis will be performed for automobile trips only, which is consistent with State policy.”⁹

Similar language regarding excluding truck VMT from the evaluation of transportation impacts under CEQA has been incorporated into the Traffic Study Guidelines adopted by other cities, including San Marcos (July 1, 2020), Long Beach (June 2020), Clovis (July 1, 2020), San Diego (March 20, 2020), and San Mateo (July 16, 2020). In December 2020, Placer County, which neighbors Nevada County, adopted the County of Placer Transportation Study Guidelines. While the County of Placer Transportation Study Guidelines do not explicitly address the exclusion of heavy trucks for VMT analysis, County staff have indicated that Placer County concurs with the

⁹ City of Irvine. *City of Irvine Traffic Study Guidelines* [pg. 8]. April 2020.



aforementioned methodology, and would not require a project-specific analysis of heavy truck VMT.

Overall, SB 743 and the associated CEQA Guidelines Section 15064.3 were established in order to reduce statewide GHG emissions, and do not require an analysis of VMT related to heavy truck use for the movement of goods. Nevada County has not yet adopted transportation analysis guidelines for heavy trucks, but other jurisdictions in the State have supported the exclusion of heavy truck trips from VMT analysis. As such, this EIR does not include heavy truck trips associated with the transport of fill in the VMT analysis. Importantly, non-transportation effects of heavy truck VMT are evaluated where appropriate in this EIR, such as air quality and GHG emissions.

Pavement Conditions Analysis

KD Anderson performed an assessment of pavement based on Chapters 600, 610, and 630 of the *Highway Design Manual* (California Department of Transportation, 2018). As stated in the *Highway Design Manual*, pavements should be engineered to carry the truck traffic loads expected during the pavement design life. Truck traffic, which includes buses, trucks, and truck-trailers, is the primary factor affecting pavement design life and its serviceability. The methods described in the *Highway Design Manual* for evaluating impacts specify how to estimate traffic loading and pavement performance. Traffic loading is estimated by using established constants to convert truck traffic volumes into 18-kip (1 kip equals 1,000 pounds) equivalent single axle loads (ESALs).

Caltrans identifies 20- and 40-year design life periods when constructing or rehabilitating pavement. For the project analysis, a 20-year design life was used to calculate the Traffic Index (TI). The ESAL constants, as described in the *Highway Design Manual*, are presented in Table 30 of the Manual. The total projected ESALs during the pavement design life are converted into a TI (Table 31) that is used along with the characteristics of the subgrade soils (R-Value) to determine the required pavement thickness.

Truck Turn Assessment

The assessment of truck turning movements was conducted using AutoTURN software prepared by Transoft. This software implements procedures described in the American Association of State and Highway Transportation Officials (AASHTO) document *A Policy on Geometric Design of Highways and Streets*, and the *Caltrans Highway Design Manual*. The software is a CADD based program that simulates turning maneuvers for various vehicles. The program is used to define both vehicle tire tracking and trailer sweep paths in order to test design roadway features to meet minimum design vehicle constraints. A Superior Super Tag SST100 truck vehicle template was created based on information obtained for this vehicle.

The spatial database used in the analysis of all truck turning movements was based on aerial photography acquired from Google Earth, with imagery dated May 17, 2018. At each location the aerial photograph was imported into a CADD file. AutoTURN was then superimposed over each aerial photograph to simulate the projected turning paths for a STAA vehicle. The resulting paths were then reviewed to determine the ability of vehicles to complete the required movements within the identified constraints:

- Drive off of the edge of the pavement, or
- Encroach into the opposing lane.



These AutoTURN paths were then used to develop the limits of new pavement and shoulder, if needed, for each turning movement.

Independent Peer Review

TJKM was retained by Raney, under contract with Nevada County, to conduct a third-party independent peer review of the Traffic Impact Analysis prepared by KD Anderson and Associates. In general, TJKM concluded that the study followed traffic impact study guidelines established by Nevada County, the City of Grass Valley, and Caltrans. Generally, TJKM found the study to be comprehensive and accurate and indicated general agreement with the findings and recommendations of the study. Notwithstanding, several specific comments were provided by TJKM and subsequently addressed by KD Anderson in a revised report.

Project-Specific Impacts and Mitigation Measures

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

4.12-1 Conflict with a program, plan, ordinance, or policy addressing study intersections under EPAP Plus Project Conditions. Based on the analysis below, impacts to all study intersections under EPAP Plus Project Conditions would be less than significant, with the exception of the Brunswick Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive intersections. With implementation of mitigation, the impacts to the Brunswick Road/Idaho Maryland Road and Idaho Maryland Road/Centennial Drive intersections would be reduced to a less-than-significant level. However, even after mitigation, the project's impact to the Brunswick Road/SR 174 intersection would be *significant and unavoidable*.

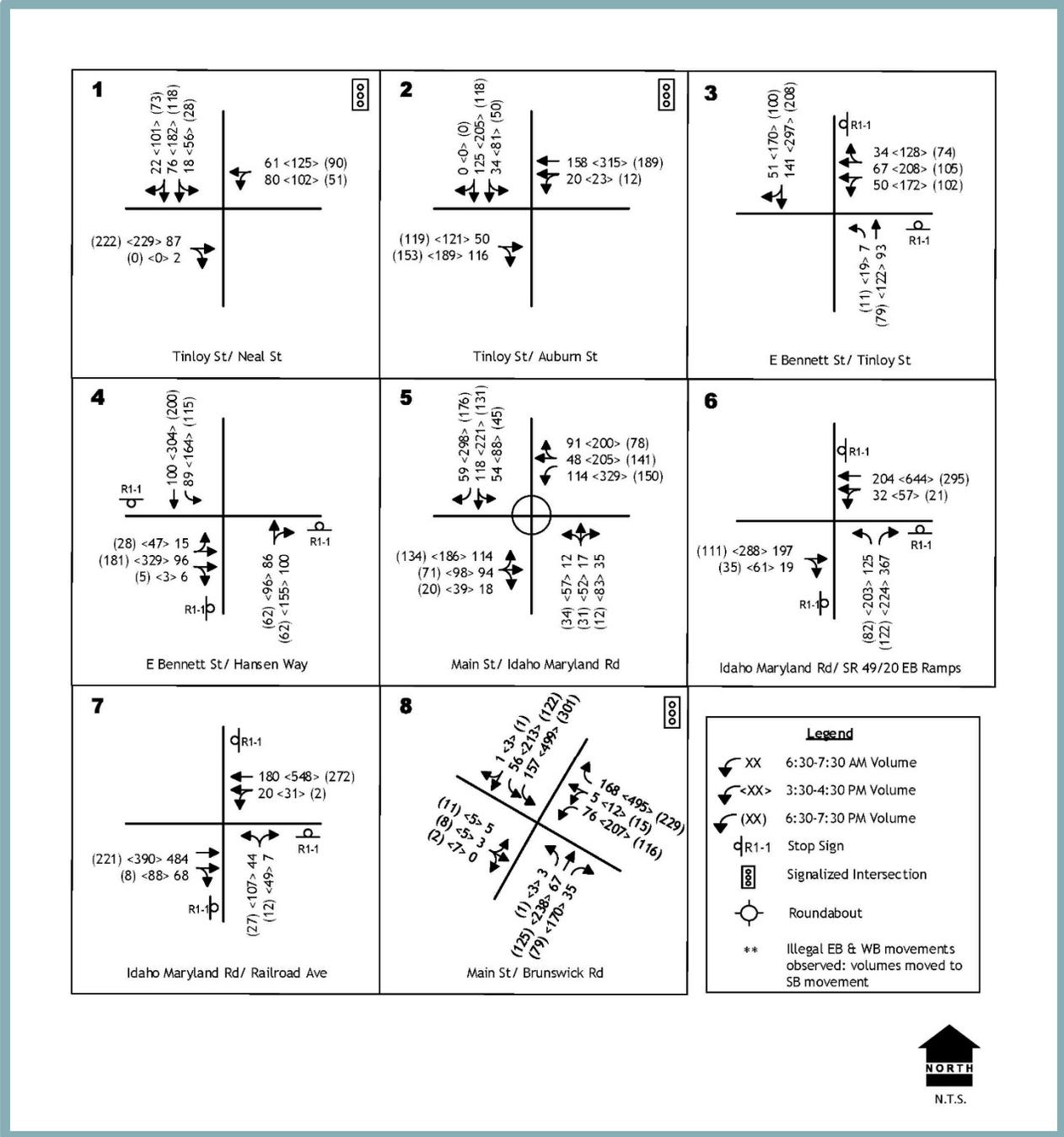
The LOS impacts of the proposed project have been identified by superimposing project traffic onto EPAP Conditions. This analysis addresses two proposed project scenarios, where Scenario #1 considers transport of engineered fill to the Centennial Industrial Site and Scenario #2 considers transport of engineered fill to construction sites accessible via SR 49. The results of the proposed project analysis of study intersections under EPAP Plus Project Conditions for the two scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Figure 4.12-19 through Figure 4.12-21 display the EPAP Plus Project under Scenario #1 traffic volumes at each study intersection for each of the study time periods. Table 4.12-10 summarizes operating LOS at the study intersections under EPAP Conditions and Scenario #1 of EPAP Plus Project Conditions for each of the study time periods.



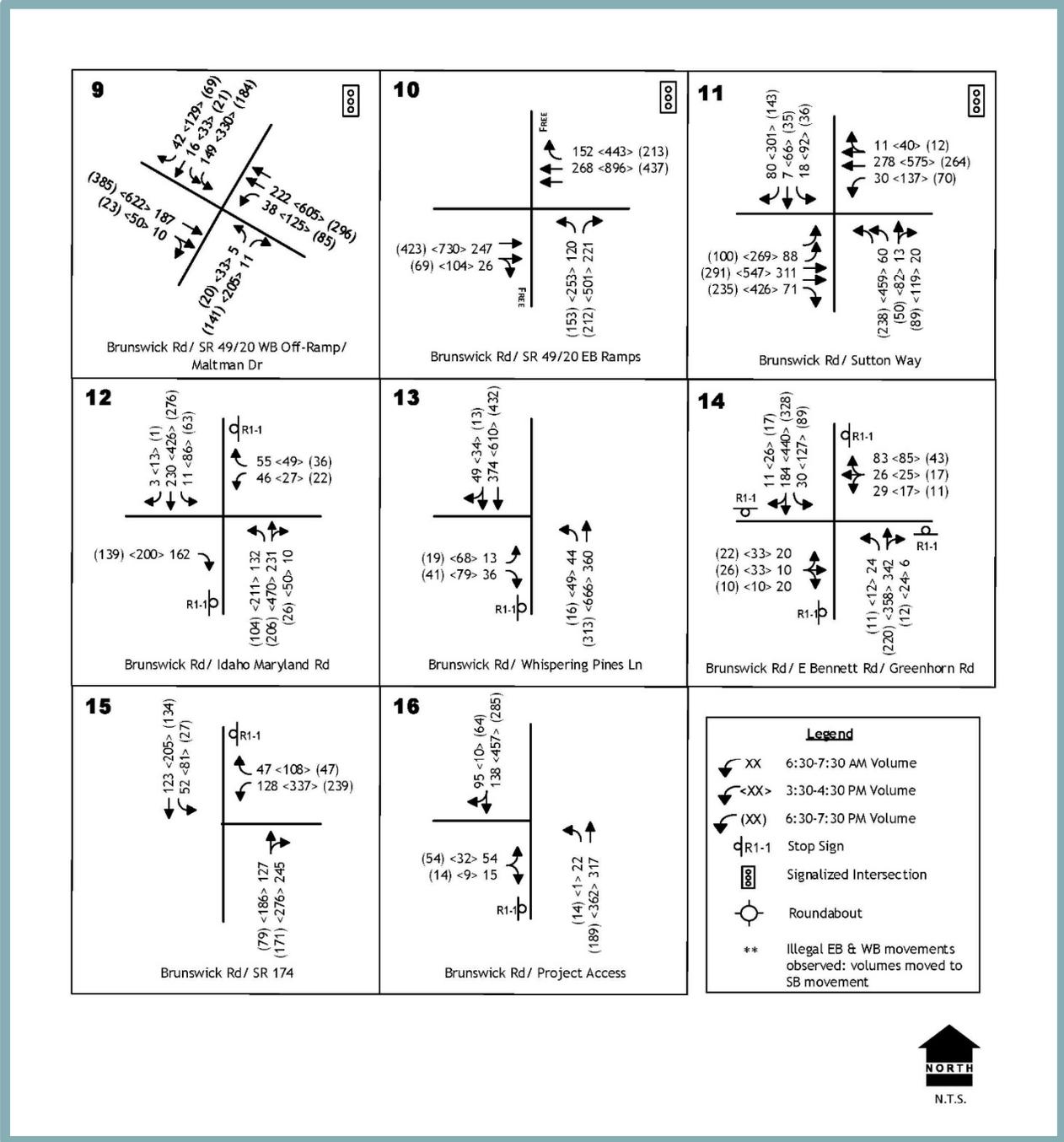
Figure 4.12-19
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Plus Project Conditions
(Scenario #1)



Source: KDAAnderson & Associates, Inc., 2021.



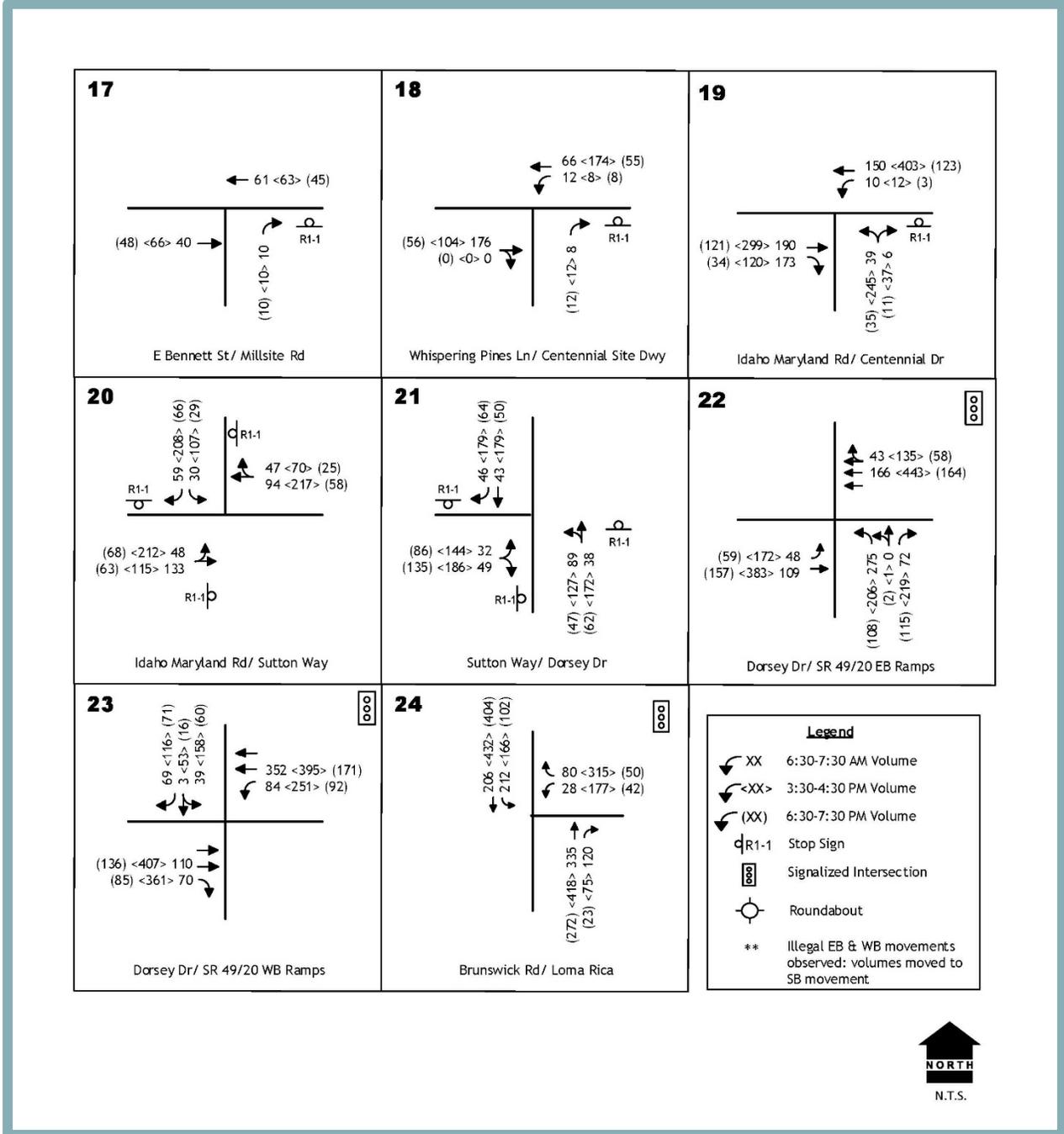
Figure 4.12-20
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Plus Project Conditions
(Scenario #1)



Source: KAnderson & Associates, Inc., 2021.



Figure 4.12-21
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Plus Project Conditions
(Scenario #1)



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-10
Project Traffic Hours Intersection LOS – EPAP Plus Project Conditions (Scenario #1)**

Location – Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	5.1	A	8.4	A	8.2	A	7.0	A	7.1	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.3	A	6.1	A	8.7	A	8.7	A	6.9	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.8	A	3.8	A	6.4	A	6.3	A	4.2	A	4.0	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.3	A	9.3	B	15.2	B	15.2	B	10.2	B	10.2	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.7	A	4.8	A	6.8	A	7.0	A	4.4	A	4.6	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	14.9	C	17.2	C	22.6	C	23.7	A	9.9	B	10.3	Yes*
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.0	B	11.5	C	16.5	C	17.0	A	8.7	A	8.9	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	5.9	B	13.7	B	13.4	A	9.0	A	9.0	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	15.9	B	16.8	B	19.8	B	19.8	B	16.5	B	16.9	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	9.1	A	8.7	B	13.5	B	13.6	A	9.0	A	8.9	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.2	A	5.2	C	21.5	C	22.0	A	9.5	A	9.2	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A A B C	8.0 7.8 10.4 17.9	A A B D	8.2 7.9 11.3 25.4	A A B F	9.0 8.8 14.1 83.7	A A B F	9.1 8.9 14.1 98.2	A A B C	8.0 7.9 10.7 15.3	A A B C	8.2 7.9 11.2 18.3	Yes*
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 10.9	A B	8.8 11.4	A B	9.1 14.5	A B	9.1 14.8	A B	8.3 10.6	A B	8.5 11.1	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.7	B	12.7	C	18.5	C	20.7	B	10.8	B	12.4	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B A	12.5 7.6	B A	13.0 7.7	E A	36.3 7.8	E A	38.1 7.8	B A	12.6 7.4	B A	13.0 7.4	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.5	Not Studied		A B	8.4 12.5	Not Studied		A B	8.2 11.7	No
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.5	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡ NB WB Left	NB Stop	Not Studied		A A	9.6 7.8	Not Studied		A A	9.0 7.5	Not Studied		A A	8.7 7.4	No
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B A	11.3 8.2	B A	12.2 8.4	F A	99.8 8.5	F A	112.3 8.5	B A	10.2 7.6	B A	10.8 7.7	Yes*
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	A	8.5	B	13.9	B	14.3	A	8.1	A	8.5	No
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.1	A	8.2	C	15.6	C	15.7	A	9.2	A	9.3	No
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	9.3	A	9.3	B	13.7	B	14.0	A	8.2	A	8.3	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	6.2	A	6.2	B	14.9	B	15.9	A	7.4	A	7.4	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.8	B	11.5	B	14.2	B	14.7	A	8.3	A	8.5	N/A

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Red** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



As shown in Table 4.12-10, the following three intersections are projected to operate unacceptably under EPAP Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under EPAP Plus Project Scenario #1 Conditions.

12. Brunswick Road/Idaho Maryland Road
15. Brunswick Road/SR 174
19. Idaho Maryland Road/Centennial Drive

Seven intersections would meet the peak hour signal warrant under EPAP Plus Project Scenario #1 Conditions during the 3:30 to 4:30 PM project traffic hour scenario. However, only the Brunswick Road/Idaho Maryland Road intersection, the SR 174 at Brunswick Road intersection, and the Idaho Maryland Road at Centennial Drive intersection would operate below the accepted LOS D threshold.

EPAP Plus Project Scenario #2

Figure 4.12-22 through Figure 4.12-24 display the EPAP Plus Project under Scenario #2 traffic volumes at each study intersection for each of the study time periods. Table 4.12-11 summarizes operating LOS at the study intersections under EPAP Conditions and Scenario #2 of EPAP Plus Project Conditions for each of the study time periods. The conclusions for Scenario #2 are the same as Scenario #1.

As shown in the table, the following three intersections are projected to operate unacceptably under EPAP Conditions (3:30-4:30PM) and would worsen as a result of project traffic under EPAP Plus Project Scenario #2 Conditions.

12. Brunswick Road/Idaho Maryland Road
15. Brunswick Road/SR 174
19. Idaho Maryland Road/Centennial Drive

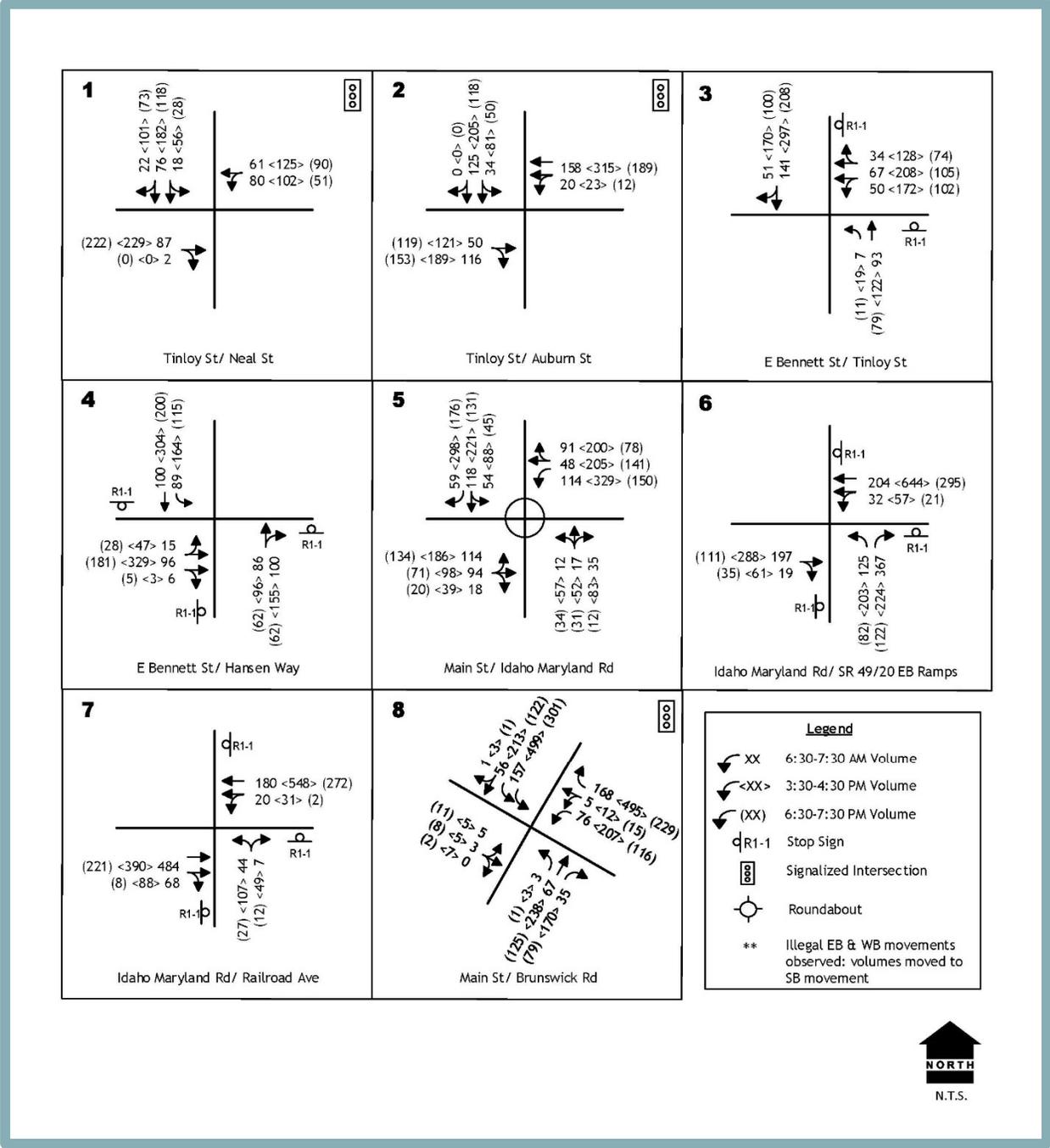
During the project hour analyses, seven intersections would meet the peak hour signal warrant; however, only the Brunswick Road/Idaho Maryland Road intersection, the SR 174 at Brunswick Road intersection, and the Idaho Maryland Road at Centennial Drive intersection would operate below the accepted LOS D threshold.

Conclusion

Based on the above, under both Scenarios #1 and #2 the proposed project would increase traffic through three intersections already identified as operating unacceptably under Existing and EPAP Conditions. Thus, a **significant** impact to the Brunswick Road/Idaho Maryland Road, Brunswick Road/SR 174, and Idaho Maryland Road/Centennial Drive intersections would occur under the EPAP Plus Project Conditions.



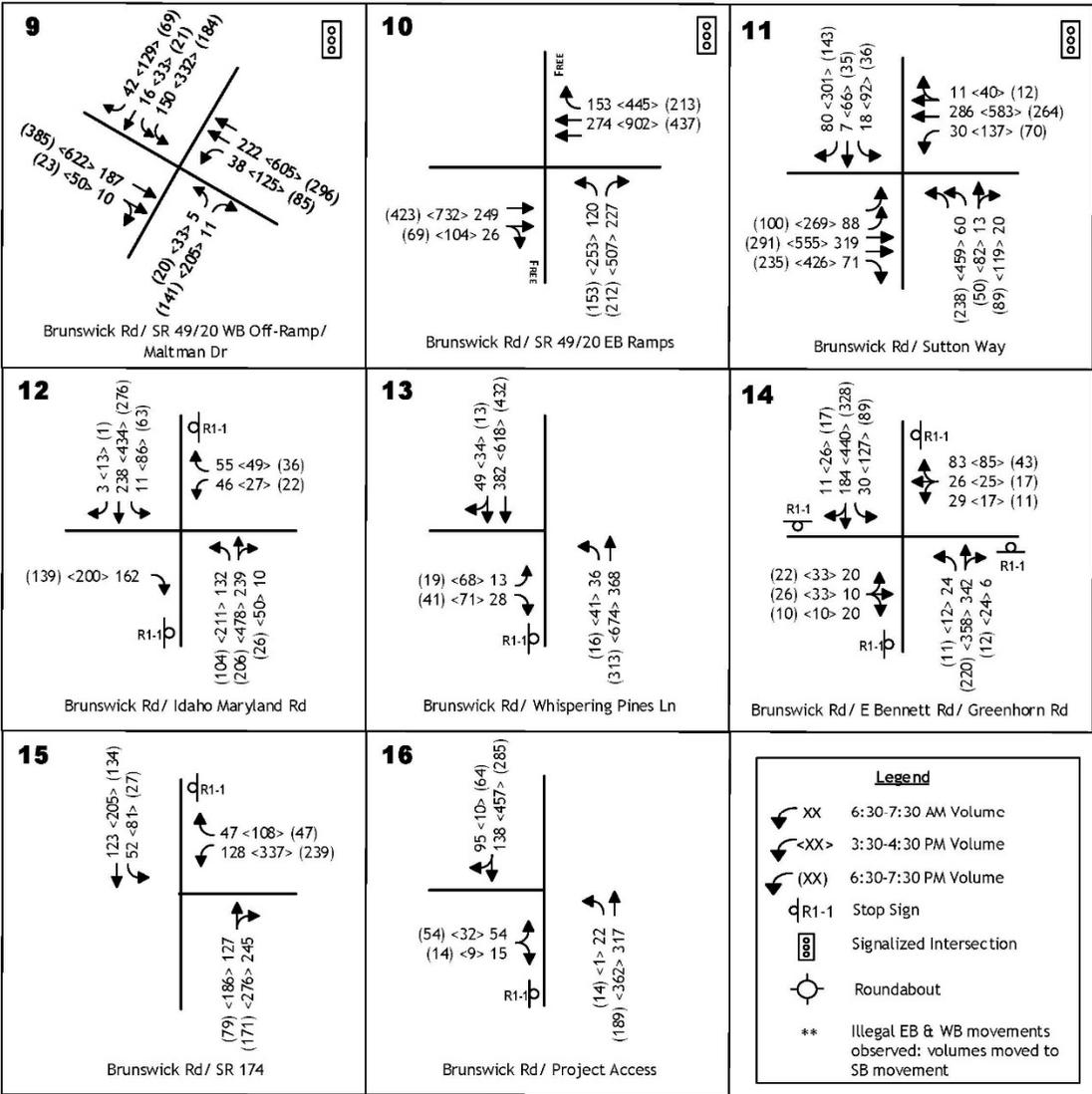
Figure 4.12-22
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – EPAP Plus Project Conditions
(Scenario #2)



Source: KAnderson & Associates, Inc., 2021.



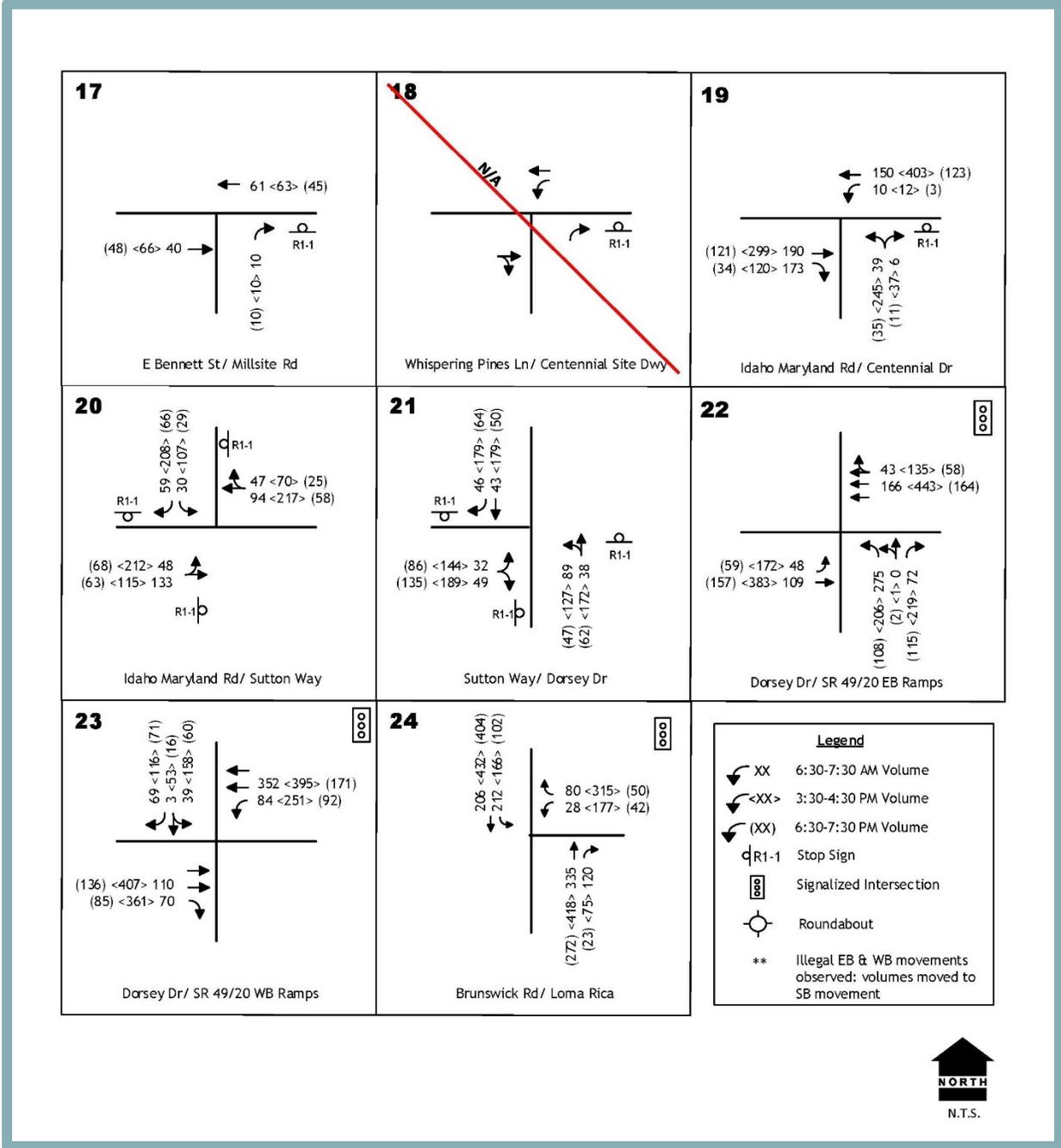
Figure 4.12-23
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – EPAP Plus Project Conditions
(Scenario #2)



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-24
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – EPAP Plus Project Conditions
(Scenario #2)



Source: KDAAnderson & Associates, Inc., 2021.



**Table 4.12-11
Project Traffic Hours Intersection LOS – EPAP Plus Project Conditions (Scenario #2)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		EPAP		EPAP Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	4.8	A	5.0	A	8.4	A	8.6	A	7.0	A	6.8	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	6.3	A	6.2	A	8.7	A	8.6	A	6.9	A	7.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	3.8	A	3.8	A	6.4	A	6.4	A	4.2	A	4.1	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.3	A	9.3	B	15.2	B	15.2	B	10.2	B	10.2	No
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	4.7	A	4.8	A	6.8	A	7.0	A	4.4	A	4.6	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	14.9	C	17.2	C	22.6	C	23.7	A	9.9	B	10.3	Yes*
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.0	B	11.5	C	16.5	C	17.0	A	8.7	A	8.9	No
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.1	B	13.7	B	13.5	A	9.0	A	9.0	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	15.9	B	16.8	B	19.8	C	20.3	B	16.5	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	9.1	A	8.7	B	13.5	B	14.0	A	9.0	A	8.8	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.2	A	5.3	C	21.5	C	22.1	A	9.5	A	9.6	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	A A B C	8.0 7.8 10.4 17.9	A A B D	8.2 7.9 11.5 26.7	A A B F	9.0 8.8 14.1 83.7	A A B F	9.2 8.9 14.3 107.3	A A B C	8.0 7.9 10.7 15.3	A A B C	8.2 7.9 11.3 18.8	Yes*
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 10.9	A B	8.8 11.5	A B	9.1 14.5	A B	9.1 14.9	A B	8.3 10.6	A B	8.5 11.2	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	10.7	B	12.7	C	18.5	C	20.7	B	10.8	B	12.4	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	B A	12.5 7.6	B A	13.0 7.7	E A	36.3 7.8	E A	38.1 7.8	B A	12.6 7.4	B A	13.0 7.4	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.5	Not Studied		A B	8.4 12.5	Not Studied		A B	8.2 11.7	No
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.5	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡	NB Stop	Not Studied		Not Applicable		Not Studied		Not Applicable		Not Studied		Not Applicable		
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	B A	11.3 8.2	B A	12.2 8.4	F A	99.8 8.5	F A	112.3 8.5	B A	10.2 7.6	B A	10.8 7.7	Yes*
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.1	A	8.5	B	13.9	B	14.3	A	8.1	A	8.5	No
21. Sutton Way/Dorsey Dr ‡	AWS	A	8.1	A	8.2	C	15.6	C	15.7	A	9.2	A	9.3	No
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	9.3	A	9.0	B	13.7	B	13.7	A	8.2	A	8.4	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	6.2	A	6.1	B	14.9	B	15.6	A	7.4	A	7.3	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.8	B	11.5	B	14.2	B	14.7	A	8.3	A	8.5	N/A

- Notes:
- AWS = all way stop
 - † = Nevada County jurisdiction
 - ‡ = Grass Valley jurisdiction
 - **Red** indicates intersection operates below the applicable threshold of significance
 - * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



Mitigation Measure(s)

The mitigation measures for the three intersections impacted by the proposed project in the EPAP scenario are discussed below.

Brunswick Road/Idaho Maryland Road

Signalization would improve the Brunswick Road/Idaho Maryland Road intersection to LOS D. This intersection is identified to be signalized in the City of Grass Valley GVTIF. Under EPAP Plus Project (Scenario #1), the project is expected to add 35 additional vehicles through the intersection during the 3:30-4:30 PM time period, and under EPAP Plus Project (Scenario #2), the project would add 47 additional vehicles. Mitigation Measure 4.12-1(a) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

SR 174/Brunswick Road

Signalization or a roundabout would improve the intersection to acceptable LOS conditions. Under EPAP Plus Project Scenarios #1 and #2, the project is expected to add 10 additional vehicles through the intersection during the 3:30 to 4:30 PM time period. NCTC removed this intersection from their RTMF program in their 2016 Nexus Study, while Caltrans has the intersection identified as a planned, but unfunded improvement in their SR 174 TCR. Installation of a traffic signal would improve the intersection operation to LOS B with an overall delay of 13.3 seconds per vehicle. Mitigation Measure 4.12-1(b) requires the project applicant to enter into a traffic mitigation agreement with the County and provide the project's fair share contribution toward the improvements needed to improve intersection operations to an acceptable level. Because the remaining funds for the intersection improvements are unknown, in terms of timing and contributing parties, the successful implementation of the intersection improvements is uncertain. Therefore, the project's impact to the SR 174/Brunswick Road intersection is *significant and unavoidable*.

Idaho Maryland/Centennial Drive

Signalization will improve the Idaho Maryland/Centennial Drive intersection to LOS D. This intersection is identified to be signalized in the City of Grass Valley GVTIF. Under EPAP Plus Project (Scenario #1), the project is expected to add 18 additional vehicles through the intersection during the 3:30 to 4:30 PM time period, and under EPAP Plus Project (Scenario #2), the project would add 15 additional vehicles. Mitigation Measure 4.12-1(b) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

4.12-1(a) *Brunswick Road/Idaho Maryland Road – Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-1(b) *SR 174/Brunswick Road – The project applicant shall enter into a Traffic Mitigation Agreement with the County regarding the SR 174/Brunswick Road intersection. The Agreement shall require the*



applicant to pay the project's fair share contribution toward the improvements necessary to improve intersection operations to an acceptable level. The Agreement shall include the fair share calculations and total payment amount. Based on the Caltrans methodology to assess fair share, it is estimated that the fair share percentage is 14.9%.

4.12-1(c) *Idaho Maryland Road/Centennial Drive - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-2 Conflict with a program, plan, ordinance or policy addressing study roadway segments under EPAP Plus Project conditions. Based on the analysis below, the impact is less than significant.

As presented in the discussion below, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better under EPAP Conditions, while the SR 174 segment would continue to operate at LOS E. The SR 174 segment exceeds the LOS C threshold of significance¹⁰ in both directions under EPAP Conditions.

The results of the proposed project analysis of study roadway segments under EPAP Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Table 4.12-12 summarizes the LOS based on the EPAP Condition and EPAP Plus Project Scenario #1 Condition traffic volumes on study area roads with the existing roadway configuration. Similar to EPAP Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate acceptably at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under EPAP Plus Project Scenario #1 Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 76.9 percent to 78.2 percent in the westbound direction; the ATS would decrease by 0.1 mph, from 29.3 mph to 29.2 mph. The PTSF in the eastbound direction would remain unchanged at 59.8 percent and the ATS would decrease by 0.1 mph, from 30.3 mph to 30.2 mph.

¹⁰ Conservatively using the County's LOS C threshold for rural regions here, rather than the LOS D Caltrans threshold.



**Table 4.12-12
Roadway Segment LOS – EPAP Plus Project Conditions (Scenario #1)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			EPAP PM Peak Hour	EPAP Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.5 / 76.4 / D 31.4 / 77.1 / D	31.2 / 77.1 / D 31.2 / 78.4 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.1 / 67.7 / C 36.3 / 82.9 / D	36.1 / 72.5 / D 35.5 / 83.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.6 / 61.7 / C 35.5 / 78.1 / C	34.9 / 68.3 / D 34.8 / 80.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.9 / 67.4 / C 33.2 / 80.9 / D	33.7 / 67.9 / D 33.2 / 83.9 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.0 / 36.1 / B 35.9 / 52.7 / B	36.1 / 37.6 / B 34.8 / 53.4 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.8 / E 29.3 / 76.9 / E	30.2 / 59.8 / E 29.2 / 78.2 / E

Notes:

- ATS = average travel speed
- PTSF = percent time spent following
- **Bold** indicates applicable threshold of significance exceeded

Source: KDAnderson & Associates, Inc., 2021.



EPAP Plus Project Scenario #2

Table 4.12-13 summarizes the LOS based on the EPAP Condition and EPAP Plus Project Scenario #2 Condition traffic volumes on study area roads with the existing roadway configuration. Similar to EPAP Scenario #1 Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under EPAP Plus Project Scenario #2 Conditions. The SR 174 segment would continue to exceed the LOS C threshold of significance in both directions under EPAP Plus Project Scenario #2 Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 76.9 percent to 78.2 percent in the westbound direction; the ATS would decrease by 0.1 mph. The PTSF in the eastbound direction would remain unchanged at 59.8 percent and the ATS would decrease by 0.1 mph.

Conclusion

Although the segment of SR 174 from Brunswick Road to Empire Street would operate unacceptably under EPAP Plus Project Conditions, the proposed project would have minimal effect on the segment from EPAP Conditions. In addition, under County Policy LU-4.16, relative to the State highway system, additional growth and development may be allowed within the County, notwithstanding any adverse impacts that may result in the short term by such growth and development. Therefore, impacts to study roadway segments under the EPAP Plus Project Condition would be considered ***less than significant***.

Mitigation Measure(s)

None required.

4.12-3 Conflict with a program, plan, ordinance or policy addressing intersection queues under the EPAP Plus Project scenario. Based on the analysis below, the impact is *less than significant*.

The results of the proposed project analysis of study intersection queue lengths under EPAP Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

EPAP Plus Project Scenario #1

Table 4.12-14 presents a comparison of EPAP Plus Project Scenario #1 to EPAP (No Project) Conditions for the project traffic hours (6:30-7:30 AM; 3:30-4:30 PM; 6:30-7:30 PM). The following intersections would have queue lengths in excess of available storage length under EPAP (No Project) Conditions, and would continue to exceed available storage length under EPAP Plus Project Scenario #1:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;



**Table 4.12-13
Roadway Segment LOS – EPAP Plus Project Conditions (Scenario #2)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			EPAP PM Peak Hour	EPAP Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	31.5 / 76.4 / D 31.4 / 77.1 / D	31.2 / 77.7 / D 31.1 / 78.0 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	37.1 / 67.7 / C 36.3 / 82.9 / D	36.1 / 72.5 / D 35.5 / 83.6 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.6 / 61.7 / C 35.5 / 78.1 / C	34.9 / 68.3 / D 34.8 / 80.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.9 / 67.4 / C 33.2 / 80.9 / D	33.7 / 67.9 / D 33.2 / 83.9 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.0 / 36.1 / B 35.9 / 52.7 / B	36.1 / 37.6 / B 34.8 / 53.4 / B
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	30.3 / 59.8 / E 29.3 / 76.9 / E	30.2 / 59.8 / E 29.2 / 78.2 / E
Notes: <ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded 				
Source: <i>KDAnderson & Associates, Inc., 2021.</i>				



**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	67	69	105	103	99	99
WB	150	86	86	139	126	95	92
2. S. Auburn St / Tinloy St							
NB through	80	78	73	115	117	78	73
NB through-left	80	55	53	76	78	53	52
SB	75	78	76	109	109	101	101
WB	95	84	85	99	99	79	75
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	27	28	41	42	31	28
NB through	150	46	45	54	56	47	47
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	38	38	<25	<25
SB through	150	<25	<25	95	95	35	35
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	26	26	<25	<25
SB	---	<25	<25	49	51	<25	<25
EB	---	30	32	63	60	28	29
WB	---	<25	<25	53	53	26	27
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	120	163	55	55	<25	<25
NB left	355	33	38	63	63	<25	<25
WB	90	30	35	203	220	33	40
7. Idaho Maryland Rd / Railroad Ave							
EB	90	75	88	80	83	<25	<25
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	43	42	119	114	60	55

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**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left (2 lanes)	355	60	66	179	173	99	100
WB left (2 lanes)	150	45	41	90	88	61	63
WB right	150	54	57	153	148	71	72
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	75	77	57	54
NB right	100	32	28	135	131	85	82
SB left (2 lanes)	260	117	125	191	197	136	135
SB right	260	47	50	86	79	52	55
EB	160	47	63	210	207	123	135
WB left	145	62	62	107	103	89	96
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	165	159	225	221	177	177
NB right	---	93	98	245	250	91	96
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	56	53	241	247	110	112
SB left	190	43	41	102	110	55	57
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	59	55	124	122	67	64
EB right	250	45	47	150	155	87	82
WB left	125	44	44	144	137	69	64
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	<25	<25	<25	<25	<25	<25
SB left	120	<25	<25	<25	<25	<25	<25
EB right	---	<25	25	40	40	<25	<25
WB left	60	25	40	68	73	<25	<25
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25

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**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB left	110	<25	<25	<25	<25	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	30	205	215	43	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway							
NB	---	--	<25	---	<25	---	<25
WB left	100	---	<25	---	<25	---	<25
19. Idaho Maryland Rd / Centennial Dr							
NB	---	<25	<25	315	335	<25	<25
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd /Sutton Way							
SB right	90	<25	<25	45	45	<25	<25
SB left	---	<25	<25	<25	<25	<25	<25
EB	---	<25	25	98	100	<25	<25
WB	---	<25	<25	63	70	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	38	38	<25	<25

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**Table 4.12-14
EPAP Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB thru	---	<25	<25	43	45	<25	<25
NB	---	<25	<25	98	98	<25	<25
EB	---	<25	<25	110	110	40	40
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	112	113	104	108	56	60
NB right	215	41	43	98	96	48	51
EB left	180	60	60	155	150	56	66
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	50	50	58	60	48	48
SB left-thru	400	53	52	154	165	67	68
EB right	155	36	40	199	205	41	44
WB left	180	81	81	184	183	84	82
24. Brunswick Rd / Loma Rica Dr							
NB right	410	31	31	26	26	<25	<25
SB left	400	133	146	135	135	64	68
WB left	100	32	35	160	160	35	38
Notes:							
<ul style="list-style-type: none"> Highlighted values indicate queue length in excess of available storage. Queuing distances based on stochastic modeling. * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way WB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

As discussed in the Methods of Analysis section above, this analysis assumes that a 25-foot segment can store one additional vehicle. Therefore, “Plus Project” queues exceeding the turn lane are assumed to have a substantial impact only if the “Plus Project” queue is greater than 25 feet of the “No Project” queue. During “Plus Project” conditions, none of the study intersections would have a storage lane length that is greater than 25 feet when compared to the “No Project” condition. The intersections of Neal Street at Tinloy Street and Tinloy Street at S. Auburn Street have queues that would continue to exceed the available storage and back up through the adjacent intersection. Similar conditions would continue to exist at the westbound approach of the Idaho Maryland Road / SR 49 EB Ramps intersection and the eastbound approach of Brunswick Road at SR 49 Westbound Off-Ramp - Maltman Drive intersection. It is assumed that one additional vehicle (25 feet) can store in the available left or right turn taper and this occurs at four locations. Consequently, none of the “Plus Project” condition queues are considered significant under EPAP Plus Project Conditions Scenario #1.

EPAP Plus Project Scenario #2

Table 4.12-15 presents a comparison of EPAP plus Project Scenario #2 to EPAP (No Project) Conditions. The following intersections would have queue lengths in excess of available storage length under EPAP (No Project) Conditions, and would continue to exceed available storage length under EPAP Plus Project Scenario #2:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way WB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, project traffic under EPAP Scenario #2 would cause the following two additional intersections to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
12. Brunswick Rd/Idaho Maryland Rd WB left;

As presented in the Table 4.12-15, during “Plus Project” conditions, none of the study intersections would have a storage lane length that is greater than 25 feet when compared to the “No Project” condition. Consequently, none of the “Plus Project” condition queues are considered significant under EPAP Plus Project Conditions Scenario #2.



**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	67	66	105	103	99	94
WB	150	86	87	139	138	95	89
2. S. Auburn St / Tinloy St							
NB through	80	78	71	115	109	78	76
NB through-left	80	55	52	76	67	53	52
SB	75	78	71	109	104	101	100
WB	95	84	82	99	103	79	75
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	27	27	41	43	31	32
NB through	150	46	45	54	56	47	45
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	38	38	<25	<25
SB through	150	<25	<25	95	95	35	35
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	26	26	<25	<25
SB	---	<25	<25	49	51	<25	<25
EB	---	30	32	63	60	28	29
WB	---	<25	<25	53	53	26	27
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	120	163	55	55	<25	<25
NB left	355	33	33	63	63	<25	<25
WB	90	30	35	203	220	33	40
7. Idaho Maryland Rd / Railroad Ave							
EB	90	75	88	80	83	<25	<25
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	43	39	119	126	60	59

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**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left (2 lanes)	355	60	64	179	177	99	99
WB left (2 lanes)	150	45	36	90	88	61	60
WB right	150	54	56	153	149	71	74
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	75	75	57	52
NB right	100	32	28	135	129	85	83
SB left (2 lanes)	260	117	127	191	199	136	143
SB right	260	47	50	86	76	52	54
EB	160	47	56	210	204	123	128
WB left	145	62	63	107	104	89	85
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	165	160	225	226	177	172
NB right	---	93	100	245	259	91	99
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	56	52	241	251	110	111
SB left	190	43	41	102	105	55	56
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	59	60	124	128	67	63
EB right	250	45	46	150	161	87	86
WB left	125	44	45	144	147	69	67
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	<25	<25	<25	<25	<25	<25
SB left	120	<25	<25	<25	<25	<25	<25
EB right	---	<25	25	40	40	<25	<25
WB left	60	25	43	68	75	<25	<25
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25

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**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB left	110	<25	<25	<25	<25	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	30	205	215	43	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway – Not Applicable							
19. Idaho Maryland Rd / Centennial Dr							
NB	---	<25	<25	315	335	<25	<25
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd / Sutton Way							
SB right	90	<25	<25	45	45	<25	<25
SB left	---	<25	<25	<25	<25	<25	<25
EB	---	<25	25	98	100	<25	<25
WB	---	<25	<25	63	70	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	38	38	<25	<25
SB thru	---	<25	<25	43	45	<25	<25
NB	---	<25	<25	98	98	<25	<25

(Continued on next page)



**Table 4.12-15
EPAP Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
EB	---	<25	<25	110	110	40	40
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	112	107	104	113	56	59
NB right	215	41	41	98	99	48	54
EB left	180	60	62	155	157	56	65
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	50	50	58	57	48	49
SB left-thru	400	53	57	154	151	67	69
EB right	155	36	39	199	196	41	41
WB left	180	81	77	184	179	84	84
24. Brunswick Rd / Loma Rica Dr							
NB right	410	31	31	26	26	<25	<25
SB left	400	133	146	135	135	64	68
WB left	100	32	35	160	160	35	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



Conclusion

Although the proposed project could result in longer queue lengths at several study intersections, queue lengths in excess of 25 feet from “No Project” conditions would not occur. Therefore, impacts to study intersection queues under the EPAP Plus Project Conditions would be considered ***less than significant***.

Mitigation Measure(s)

None required.

4.12-4 Conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities. Based on the analysis below, the impact is *less than significant*.

As noted previously, minimal sidewalks exist near the Brunswick Industrial Site and the Centennial Industrial Site, with only a discontinuous sidewalk along the northern portion of Idaho Maryland Road near the Centennial Industrial Site being present. In addition, according to the Nevada County Bicycle Master Plan,¹¹ Idaho Maryland Road near the Centennial Industrial Site, specifically from E. Main Street to Sutton Way, is identified as being an existing Class II bike lane.¹² Although a wide shoulder is provided along a portion of Idaho Maryland Road north of the Centennial Industrial Site, the shoulder is not marked as a bike lane. The Nevada County Bicycle Master Plan identifies the remainder of Idaho Maryland Road from Sutton Way to Brunswick Road for a proposed Class II bike lane. The proposed project would not involve any truck trips along Idaho Maryland Road and thus, would not have the potential to conflict with any existing conditions or plans related to bicycle or pedestrian facilities along Idaho Maryland Road.

Whispering Pines Lane, which would provide access to the Centennial Industrial Site, has a wide shoulder that is not marked as a bike lane. The proposed haul truck trips from the Brunswick Industrial Site to the Centennial Industrial Site would involve travel along Brunswick Road and Whispering Pines Lane. The proposed project would involve widening of Whispering Pines Lane near the Centennial Industrial Site, which would include a provision of a bicycle lane. The proposed bicycle lane would provide a safe route and access to the area for bicyclists currently using the existing shoulder along Whispering Pines Lane for bicycle travel.

Marked bicycle facilities do not exist near the Brunswick Industrial Site. The NCTC's Active Transportation Plan identifies Brunswick Road from Idaho Maryland Road south to Loma Rica Drive as a proposed Class II bike lane, and then as a Class III¹³ with

¹¹ Fehr & Peers. *Nevada County Bicycle Master Plan Amendment 1*. December 2016.

¹² A Class II Bike Lane provides a striped and stenciled lane for one way travel on a street or highway. Bike lane minimum widths are: four feet without gutter where parking is prohibited, five feet with gutter where parking is prohibited and five feet where parking is permitted.

¹³ A Class III Bike Route provides for shared use with pedestrian or motor vehicle traffic and is identified by items including signage and shared roadway bicycle markings, also known as “sharrows.” These markings provide increased awareness of cyclists to motorists, and may guide cyclists to ride to the left of roadside hazards like parked vehicle “door zones.” A Class III Bike Route with Multi-Use Shoulder provides a striped shoulder of variable width. This facility is used when jurisdictions wish to maximize road space for bicycles but do not have sufficient right-of-way to meet minimum requirements for Class II bike lanes. Class III Bike Routes with Multi-Use Shoulder are common in mountainous areas similar to rural Nevada County.



multi-use shoulder facility from Loma Rica Drive south to SR 174, and along both directions of SR 174.¹⁴ While the proposed project would involve haul truck trips from the Brunswick Industrial Site to the Centennial Industrial Site along Brunswick Road, this road already carries regular truck traffic and the project's incremental contribution of truck traffic would only add, on average, 1.2 round trips every 10 minutes. Thus, although additional traffic would be added to the roadway, the proposed project would not involve any improvements or operations that would conflict with any plans related to bicycle or pedestrian facilities along Brunswick Road.

For those employees who would like to bike to the Brunswick Industrial Site using the future Class III bike route with multi-use shoulder along Brunswick Road, the proposed project would include an area for bicycle racks at the Brunswick Industrial Site, which would provide a minimum of 11 racks (44 bicycle spaces).

It is noted that the City of Grass Valley Parks and Recreation Master Plan (2001), as well as other subsequent City planning efforts, identify a potential trail along Wolf Creek, including the portion traversing the northern edge of the Centennial Industrial Site. As the proposed placement of fill at the Centennial Industrial Site avoids Wolf Creek and its riparian habitat, the project would not preclude potential placement of a trail along Wolf Creek should the City pursue such an effort in the future.

The project is not currently served by transit and the Nevada County Transit Services Division does not have any plans to bring service to the project area. Currently, the nearest bus route to the Brunswick Industrial Site is Route #3, the Grass Valley Loma Rica Loop route, which operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport. Route #3 passes within 0.5-mile of the Brunswick Industrial Site and directly by the Centennial Industrial Site. Due to the nature of the proposed project, the proposed project would not involve any improvements or operations that would conflict with any existing conditions or plans associated with transit facilities in the area.

Overall, the proposed project would not conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities, and impacts would be **less than significant**.

Mitigation Measure(s)

None required.

4.12-5 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Based on the analysis below, the impact is less than significant.

Because the proposed project is an industrial land use project, the County determined that the preferred significance threshold metric shall be VMT per worker (i.e., project employee). The Grass Valley subarea was used as the basis due to the project's proximity to the City. As shown in Table 4.12-4, the Grass Valley subarea has an associated home-based VMT per worker of 18.6. As shown in Table 4.12-16 on a per

¹⁴ Fehr & Peers. *Nevada County Active Transportation Plan*. July 2019, Figure 33.



worker basis, the proposed project is modeled to generate a daily rate per employee of 13.9 VMT (under 2035 Plus Project Conditions), which is more than 14.3 percent below the Grass Valley area metric of 18.6 VMT per worker. Therefore, the proposed project would result in a reduced VMT per service population for the applicable subarea.

Table 4.12-16	
Rise Grass Valley Project Generated VMT Summary	
Metric	2035 Future Year
Total Daily Project VMT	1,538
Maximum Employees on Site (including Centennial employees)	111
Daily VMT per Employee	13.9

Source: Fehr & Peers, 2020.

In addition, because the proposed project is anticipated to employ approximately 312 direct employees during full operations, pursuant to Section L-II 4.1.9 of the Nevada County LUDC, the project applicant would be required to submit a detailed analysis of transportation alternatives, documenting feasible measures for reducing auto dependence.

Although the overall project site is not currently served by transit and the Nevada County Transit Services Division does not have plans to bring service to the project area, the nearest bus route to either the Brunswick Industrial Site or Centennial Industrial Site is Route #3, which operates between the Tinloy Street/Bank Street Transit Center and the Nevada County Airport and passes directly by the Centennial Industrial Site. The proposed project would incorporate an area for bicycle racks at the Brunswick Industrial Site, which would provide a minimum of 11 racks (44 bicycle spaces). Pursuant to Nevada County LUDC, additional potential transportation reduction alternatives for the proposed project were identified in the Traffic Impact Analysis prepared for the proposed project, based on the Transportation Demand Management strategies included in the Vehicle Miles Traveled Implementation report prepared by Fehr & Peers for the NCTC, and include the following:

- **Commuter Trip Reduction, #3.4.11, TRT-11: Provide Employer-Sponsored Vanpool/Shuttle:** This strategy would make a company sponsored vanpool/shuttle available to allow employees to commute in a single vehicle. Because employees of the proposed project are likely to be coming from throughout the area, the use of specific locations for pick up, such as existing Park-and-Ride lots in the County, would facilitate the reduction of commute vehicles.

The proposed project could also institute a shuttle service between the project site(s) and the Tinloy Street/Bank Street Transit Center to provide a convenient location for employees to transfer from public transit or to be dropped off. A shuttle could operate several times each day, during the 7:00 AM and 7:00 PM shift changes and at the end of the administrative workday, after 3:30 PM.

- **Commuter Trip Reduction, #3.4.3, TRT-3: Provide Ride-Sharing Programs:** This strategy involves the employer providing ride-share coordination and parking facilities to provide information for employees to ride share to and from work. This



strategy is intended to match employees by location resulting in a reduction of commute vehicles. Rideshare activities would provide incentives for employees commuting to and from the site. Ridesharing could be coordinated between employees along a similar route from their residence to the work site. The use of existing Park-and-Ride lots may provide a location for employees to meet and commute together, reducing the number of vehicles in the roadway network. Three Caltrans Park-and-Ride locations exist in Nevada County, two in Penn Valley and one in Grass Valley; all are located along SR 20. A Park-and-Ride location also exists in Auburn for employees commuting along SR 49 from Placer County. Incentives may include the use of high-occupancy vehicle (HOV) lanes, less maintenance on a single vehicle due to reduced use, and cost sharing between employees/employer.

Given that the proposed project would result in a VMT per worker ratio that is greater than 14.3 percent below the subarea mean for the Grass Valley subarea of 18.6, impacts associated with a conflict or being inconsistent with CEQA Guidelines section 15064.3, subdivision (b), would be ***less than significant***.

Mitigation Measure(s)

None required.

4.12-6 Substantially increase hazards to vehicle safety due to a geometric design feature (e.g., 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*.

Potential impacts related to construction traffic, roadway design features, and incompatible uses are discussed below.

Construction Traffic

Construction activities of the proposed project would generate vehicle trips on local roadways, including heavy-duty truck trips. In addition, the project would include widening of Whispering Pines Lane and construction of a potable water pipeline to supply residences along a portion of E. Bennett Road, which could temporarily impede traffic. As a result, construction activities could include disruptions to the transportation network near the project site, including the possibility of temporary lane closures.

Nonetheless, construction workers typically arrive before the morning peak hour and leave before the evening peak hours of the traditional commute time periods. Deliveries of building material would also normally occur outside of the traditional commute time periods. However, without proper planning of construction activities, construction traffic and potential street closures could interfere with existing roadway operations during the construction phase.

Roadway Design Features and Incompatible Uses

Due to the nature of the project, a number of potential issues related to roadway design features and incompatible uses could occur as a result of implementation of the



proposed project, including the adequacy of pavement conditions for truck traffic, routes to handle truck turning movements, sight distance along proposed haul routes, and acceleration of trucks on grade. Each of the potential issues is discussed in further detail below.

Pavement Conditions

Truck traffic is the primary factor affecting pavement design life and is, therefore, used to engineer pavement thickness. Passenger cars and pick-up trucks are considered to have a negligible impact when considering traffic loads. Traffic loads are transmitted to the pavement surface from the vehicle axles, and the loading is determined by using established constants to convert truck data into 18,000-pound ESAL. The ESAL's are converted into a Traffic Index value (TI), which is then used to calculate the minimum pavement thickness. An increase in the TI as a result of a new project creates a corresponding decrease in the expected life of the existing pavement. Therefore, if the TI value for conditions with the proposed project is higher than the TI value without the project, a project-related decrease in the expected life of the pavement would occur and is considered an adverse impact.

A pavement condition analysis was conducted as part of the Traffic Impact Analysis prepared for the proposed project in order to assess the impact of the project on the roadway pavement where engineered fill haul trucks and other trucks, such as deliveries and concentrate shipments, are expected to travel. Pavement impacts were analyzed based on a comparison of the TI under Plus Project and No Project conditions. Caltrans identifies 20- and 40-year design life periods when constructing or rehabilitating pavement. For this analysis, a 20-year design life was used to calculate the TI. Vehicle classification counts were conducted along Brunswick Road, E. Bennett Road, and Whispering Pines Lane during the week of September 23, 2019, while school was in session to determine the existing daily truck volumes. The classification count provided a breakdown, by direction and axle, of the types of trucks along each of the roadways. The impact of the proposed project on pavement condition was analyzed for the following roadways, which includes the Centennial Industrial Site haul route for five of the 20 years and the SR 49 haul route for 15 of the 20 years:

- Brunswick Road between E. Bennett Road and Project Driveway;
- Brunswick Road between E. Bennett Road and Whispering Pines Lane;
- Brunswick Road between SR 49 and Whispering Pines Lane;
- E. Bennett Road between Project Driveway and Brunswick Road;
- Whispering Pines Lane between Brunswick Road and Crown Point Circle; and
- Whispering Pines Lane between Crown Point Circle and the Centennial Industrial Site.

Table 4.12-17 presents a breakdown of the existing average daily traffic conditions along the roadway segments including the vehicle classification in each direction along the roadway, and the truck type, by axle.



Table 4.12-17 Average Daily Traffic/Truck Classification					
Location	Daily Traffic	2-Axle Volume	3-Axle Volume	4-Axle Volume	5+ Axle Volume
Brunswick Road					
102 North of Whispering Pines Ln					
NB	6,185	313	0	28	4
SB	6,109	297	0	24	3
105 Whispering Pines Ln to E. Bennett Rd					
NB	7,752	703	50	31	31
SB	7,614	534	50	26	14
107 E. Bennett Rd to Project Driveway					
NB	4,680	319	13	12	7
SB	4,752	170	13	7	14
E. Bennett Rd					
106 Millsite Rd to Brunswick Rd					
EB	721	50	4	1	2
WB	763	57	4	1	0
Whispering Pines Lane					
104 Brunswick Rd to Crown Point Cir					
EB	1,339	84	12	3	5
WB	1,136	100	12	3	2
103 Crown Point Cir to Centennial Site					
EB	1,608	61	11	2	2
WB	1,744	51	11	4	4
Source: KDAnderson & Associates, Inc., 2021.					

Based on the Traffic Impact Analysis, implementation of the proposed project would result in an increase in the TI value on the following roadway segments:

- To Centennial Industrial Site Haul Route
 - Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
 - E. Bennett Road between Project Driveway and Brunswick Road (eastbound)
- To SR 49 Haul Route
 - Brunswick Road northbound between E. Bennett Road and Whispering Pines Lane;
 - Brunswick Road northbound between Whispering Pines Lane and SR 49;
 - E. Bennett Road between Project Driveway and Brunswick Road (eastbound)

Because the design pavement thickness depends on the projected TI, the additional project truck traffic would result in a shorter lifespan of the pavement or increased maintenance at the above roadway segments.

Truck Turning Movements

The Traffic Impact Analysis included an assessment of the adequacy of routes to and from the Brunswick Industrial Site on Brunswick Road, specifically to determine



whether key intersections along each route, as currently configured, would be capable of accommodating the proposed haul trucks and to identify the approximate level of roadway widening improvements that may be necessary to allow haul truck movements. The haul trucks that would be used for the proposed project would be single unit, four-axle Superior Super Tag SST100 trucks.

It is important to note that the City of Grass Valley has no designated truck routes within the Grass Valley City limits, although trucks are prohibited on East Maryland Drive.¹⁵ Similarly, the Nevada County General Plan does not identify specific truck routes within unincorporated Nevada County.

Haul truck traffic to and from the Brunswick Industrial Site would consist of inbound and outbound routes to both the Centennial Industrial Site and to the SR 49/Brunswick Road interchange. The following five intersections along the haul truck routes were analyzed:

- **Brunswick Industrial Site Driveway:** This entrance would be used for haul trucks entering the Brunswick Industrial Site from the north and would include right turning traffic into the site.
- **Millsite Road/E. Bennett Road Exit:** This location would be used only for haul trucks departing the Brunswick Industrial Site and heading to either the Centennial Industrial Site or SR 49 and would include right turning traffic departing the site.
- **Brunswick Road/E. Bennett Road/Greenhorn Road:** This location includes southbound through traffic and eastbound to northbound left turning traffic. The analysis only considered the turning movement.
- **Brunswick Road/Whispering Pines Lane:** This location includes northbound to westbound traffic heading to the Centennial Industrial Site and eastbound to southbound traffic heading from the Centennial Industrial Site. Truck traffic would also use this intersection heading to SR 49; however, the through movements were not analyzed.
- **Centennial Industrial Site Driveway.** This location includes westbound left-turn movements into the proposed Centennial Industrial Site driveway and northbound right-turn movements departing the driveway.

The results of the truck turn assessment for each of the intersections analyzed are presented below.

Brunswick Industrial Site Driveway

Trucks would approach the project driveway from the north, from either SR 49 or the Centennial Industrial Site. The truck turn assessment shows that the trucks would be able to enter the wide driveway unimpeded, while allowing any outbound vehicles to queue adjacent to the inbound movements.

¹⁵ City of Grass Valley. *City of Grass Valley 2020 General Plan* [pg. 4-4]. Adopted November 1999 [Updates through 2014].



Millsite Road/E. Bennett Road Exit

The truck turn assessment considered the existing gravel road as well as a former road looping around the mine shaft. Because the road allows departing trucks to approach E. Bennett Road at a 90-degree angle, the road is proposed to be used, as visibility is maximized for departing drivers. Based on the truck turn assessment, the intersection would require new pavement along the Millsite Road approach.

Brunswick Road/E. Bennett Road/Greenhorn Road

The truck turn assessment determined that the trucks leaving the Brunswick Industrial Site and heading north on Brunswick Road to either the Centennial Industrial Site or SR 49 could complete the left-turn without entering the southbound left-turn lane. Additionally, the vehicle envelope would remain on the roadway along northbound Brunswick Road.

Brunswick Road/Whispering Pines Lane

The truck turn assessment determined that northbound to westbound movements could be completed without entering the eastbound left-turn lane or the westbound shoulder. The assessment also indicates that the eastbound to southbound right-turn would be completed with trucks able to complete the right turn while staying within the eastbound approach and the outside departure lane along Brunswick Road. The truck wheels are not anticipated to overtop the curb in the southwest quadrant of the intersection.

Centennial Industrial Site Driveway

The existing center median east of the project frontage along Whispering Pines Lane ends about 60 feet east of the property. The east end of the property is the approximate location where the full width roadway section ends, and a two-way roadway begins and continues to Idaho Maryland Road. To provide access to the Centennial Industrial Site, widening of the south side of Whispering Pines Lane is proposed. Whispering Pines Lane would be widened to provide a 12-foot, two-way, left-turn lane, a 12-foot travel lane, and a six-foot bicycle lane. The proposed layout would allow an area for haul trucks to queue while waiting to enter the site. The truck turn assessment determined that inbound and outbound trucks could turn simultaneously without interfering with the opposing vehicle.

Sight Distance

A sight distance analysis was completed as part of the Traffic Impact Analysis for several locations along the proposed haul routes, including the Brunswick Road driveway, the Millsite Road driveway, the Centennial Industrial Site driveway, and the Brunswick Road/Whispering Pines Lane intersection, in order to determine consistency with available sight distance standards. Available sight distance was evaluated using the standards documented in the Caltrans *Highway Design Manual*. Based on the locations of the driveways, the Minimum Stopping Sight Distance (MSSD) and Corner Sight Distance (CSD) was considered. The *Highway Design Manual* notes that the MSSD criterion is used for CSD evaluation at driveways.



The results of the sight distance analysis for each of the locations evaluated are presented below.

Brunswick Road Driveway

The posted speed limit along Brunswick Road is 50 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 700 feet for left turning vehicles and 775 feet for right turning vehicles. Considering MSSD for driveways, 430 feet would be needed. According to the sight distance analysis, the line of sight looking north would be 800 feet and the line of sight looking south would be 750 feet. Thus, the sight line in both directions meet the applicable CSD requirements. Any landscaping material over two feet in height inside the sight line should be removed.

Millsite Road Driveway

The posted speed limit along E. Bennett Road is 35 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 540 feet. The sight line was reviewed for eastbound traffic, as this access would be restricted to right-turning movements. Considering MSSD for driveways, 250 feet would be needed. According to the sight distance analysis, the line of sight looking west would be 580 feet, which meets the CSD requirement. Any proposed landscaping material over two feet in height inside the sight line should be removed.

Centennial Industrial Site driveway

The posted speed limit along Whispering Pines Lane and Centennial Drive is 30 mph. However, traffic heading south on Centennial Drive is required to make a 90-degree turn to the east onto Brunswick Road. Warning signs along Centennial Drive note that truck traffic is present on the road and a left-turn sign with a suggested speed of 15 mph is present just prior to the 90-degree turn. The sight line was reviewed for eastbound traffic, as haul trucks leaving the site would head east back to the Brunswick Industrial Site.

MSSD requirements for vehicles completing the 90° left turn at the suggested 15 mph speed requires a minimum sight distance of 100 feet. According to the sight distance analysis, the sight line looking west would be 210 feet, which meets the MSSD requirement. The entire sight line is along paved roads.

Whispering Pines Lane

The posted speed limit along Brunswick Road is 45 mph. Considering CSD requirements, the corresponding minimum sight distance standard for this speed is 695 feet. The sight line was reviewed for southbound traffic, as all truck traffic from the Centennial Industrial Site would be turning right heading to the Brunswick Industrial Site. According to the sight distance analysis, the line of sight looking north would be 1,000 feet, which meets the CSD requirement.

Truck Acceleration on Grade

The location of the Brunswick Industrial Site relative to hauling engineered fill to either the Centennial Industrial Site or SR 49 requires loaded trucks to travel northbound



uphill on Brunswick Road from E. Bennett Road, approximately ¼-mile north, until reaching the crest just west of Loma Rica Drive. Brunswick Road has a posted speed limit of 50 mph and is used by truck traffic between SR 174 and SR 49. Trucks currently account for approximately six percent of all traffic between SR 49 and SR 174, with the truck traffic increasing to about nine percent between Whispering Pines Lane and E. Bennett Road. Trucks also account for approximately eight percent of traffic along Whispering Pines Lane.

Heading north along Brunswick Road, the grade departing the E. Bennett Road intersection is approximately one percent for approximately 800 feet, after which the grade increases to approximately eight percent for approximately 600 feet. From the crest to Whispering Pines Lane, the grade declines at approximately five percent. Trucks returning from the Centennial Industrial Site or SR 49 would travel unloaded and would be able to accelerate more quickly, especially when entering southbound Brunswick Road from Whispering Pines Lane.

Section 3.4 of the AASHTO document, “A Policy on Geometric Design of Highways and Streets” (i.e., the Green Book), was reviewed to estimate the speeds of trucks on the aforementioned grades. As trucks depart the E. Bennett Road intersection, the northbound grade is flat and allows trucks to accelerate smoothly. According to the AASHTO Green Book, a fully laden “typical truck” could reach approximately 42 mph prior to arriving at the eight percent grade west of Loma Rica Drive. Trucks would then decelerate to approximately 35 mph as they travel up the grade.

Southbound trucks heading towards the Brunswick Industrial Site would either be traveling at a higher rate of speed (i.e., 45 mph) as they travel south through the intersection or would be accelerating from a stopped condition as they turn right from Whispering Pines Lane. As noted in the discussion above regarding the sight distance analysis, vehicles turning right from this location would have 1,000 feet of sight distance looking north. While these trucks are accelerating from a stopped condition, they are anticipated to be able to accelerate faster and to a higher speed as they would be unloaded. Two southbound lanes are present along Brunswick Road north of Whispering Pines Lane. The outside lane continues for approximately 325 feet before ending and merging into the inside lane. The uphill five percent grade continues past Loma Rica Drive for approximately 1,500 feet prior to reaching the crest. Under a fully laden condition, trucks would be expected to be able to reach the merge point with a speed of approximately 26 mph and reach a speed of approximately 33 mph by the time they reach the crest. Project trucks would reach higher speeds because they would be empty, and the available sight distance would allow drivers to enter Brunswick Road when road conditions permit.

TJKM’s peer review also notes the presence of “ICY” signs on Brunswick Road, north of the Brunswick Industrial Site, also implies difficult traffic conditions during periods of inclement weather. Loaded trucks on the downhill section of Brunswick Road, approaching the Loma Rica Drive signals during poor weather, should be addressed. As mentioned above, this portion of Brunswick Road is already regularly used by heavy-duty haul trucks. An approximate length of just over 900 feet exists from the crest of the hill on Brunswick Road to its down grade intersection with Loma Rica Drive. As is currently the case, it is incumbent upon individual truck drivers to drive with caution during periods of inclement weather.



Conclusion

Based on the above, without proper planning of construction activities, short-term construction traffic and potential street closures could interfere with existing roadway operations during the construction phase. In addition, the additional project truck traffic would result in a shorter lifespan of the pavement or increased maintenance at a number of study roadway segments, and pavement improvements would be required at the E. Bennett Road/Millsite Road intersection to ensure adequate truck turning movements. Therefore, the proposed project could substantially increase hazards to vehicle safety due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) associated with the proposed project, and a **significant** impact could occur.

Mitigation Measure(s)

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

4.12-6(a) *Prior to the commencement of construction and issuance of Encroachment Permits, construction signing and traffic control plans shall be provided to the Nevada County Public Works Department and the City of Grass Valley for review and acceptance. The construction signing and traffic control plans shall include (but not necessarily be limited to) items such as:*

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



- *Providing a point of contact for residents and guests to obtain construction information, have questions answered, and convey complaints.*

The construction signing and traffic control plans shall be developed such that the following minimum set of performance standards is achieved throughout project construction.

- *All construction employees shall park in designated lots owned by the project applicant or on private lots otherwise arranged for by the project applicant.*
- *Roadways shall be maintained clear of debris (e.g., rocks) that could otherwise impede travel and impact public safety.*

4.12-6(b) *Prior to commencement of engineered fill hauling, the project applicant shall enter into separate road maintenance agreements with Nevada County and the City of Grass Valley to provide the project's fair share of funding for maintenance of roadways commensurate with the project's impact to pavement conditions on both Nevada County and Grass Valley roadways including Brunswick Road between E. Bennett Road and SR 49 and E. Bennett Road between project driveway and Brunswick Road.*

4.12-6(c) *Prior to approval of an Encroachment Permit for driveway construction at the intersection of E. Bennett Road/Millsite Road, the Nevada County Public Works Department shall review and approve the improvement plans for the E. Bennett Road/Millsite Road intersection which need to include pavement widening and designation that only right-hand turns are allowed from the project site at this location. Prior to commencement of project operations, the E. Bennett Road/Millsite Road intersection shall be improved to the satisfaction of Nevada County Public Works Department, at the expense of the project applicant.*

4.12-6(d) *Prior to the County issuing any permits for work on the Centennial Industrial Site: 1) the project applicant shall submit plans to the Grass Valley Engineering Division and receive approval from the City of Grass Valley for widening of Whispering Pines Lane along the Centennial Industrial Site's frontage for purposes of facilitating adequate truck turn movements into and out of the Site. The plans shall reflect a 12-foot two-way-left-turn-lane (TWLTL), a 12-foot travel lane, and a six-foot bicycle lane; 2) In addition, the applicant shall designate and record a landscape easement to mitigate sight distance concerns. The plans shall be approved by the City of Grass Valley and the project applicant shall be responsible for 100 percent of the cost for this improvement.*

4.12-6(e) *Prior to commencement of operations, the project applicant shall obtain an encroachment permit from Nevada County and install: 1) W51 "Slow Trucks" road sign along Brunswick Road, about 500 feet north of the E.*



Bennett Road intersection; 2) A second sign shall be installed at the applicant's expense just south of the crest of the grade, warning truck drivers of the transition in grade and presence of the downgrade Loma Rica Drive intersection.

- 4.12-6(f) *Prior to the County issuing any permits for work on the Brunswick Site, the project applicant shall remove any landscaping over 2 feet in height inside the sight line from the project driveway to Brunswick Road.*

4.12-7 Result in inadequate emergency access. Based on the analysis below, the impact is *less than significant*.

Several factors determine whether a project has sufficient access for emergency vehicles, including the following:

- Number of access points (both public and emergency access only);
- Width of access points; and
- Width of internal roadways.

Access to the Brunswick Industrial Site is currently provided by gated entrances on both E. Bennett Road and Brunswick Road. The existing Brunswick Road access would be the primary entrance/exit for project employees, vendors, and haul trucks, while the existing E. Bennett Road access would be used as an exit for haul trucks and large delivery trucks turning right onto E. Bennett Road, full access for emergency personnel and, as necessary, for equipment movement.

The south side of Whispering Pines Lane is proposed to be widened in order to provide access to the Centennial Industrial Site. Specifically, Whispering Pines Lane would be widened to provide a 12-foot, two-way, left-turn lane, a 12-foot travel lane, and a six-foot bicycle lane. The proposed layout would allow an area for haul trucks to queue while waiting to enter the site and sufficient space for inbound and outbound trucks to turn simultaneously without interfering with the opposing vehicle.

The gated access points would be required to comply with the emergency vehicle access conditions established by the Nevada County Code. In addition, all internal roadways would be required to comply with applicable County standards for roadway widths. Accordingly, emergency vehicles would be afforded unimpeded access to the site. In addition, with implementation of Mitigation Measure 4.12-6, temporary construction activities associated with the proposed project would not impede access to existing nearby uses. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

Cumulative methodology for the transportation analysis has already been described in this Chapter. In addition, for further detail related to the cumulative setting of the proposed project, refer to Chapter 5, Statutorily Required Sections, of this EIR.



4.12-8 Conflict with a program, plan, ordinance or policy addressing study intersections under Cumulative Plus Project Conditions. Based on the analysis below, impacts to all study intersections under Cumulative Plus Project Conditions would be less than significant, with the exception of the Brunswick Road/SR 174 and Sutton Way/Dorsey Drive intersections. With implementation of mitigation, the project's incremental contribution to the significant cumulative impact at the Sutton Way/Dorsey Drive intersection would be reduced to less-than-cumulatively considerable. However, even after mitigation, the project's incremental contribution to the significant cumulative impact at the Brunswick Road/SR 174 intersection would be *cumulatively considerable and significant and unavoidable*.

Similar to the EPAP analysis, this cumulative section evaluates two proposed project scenarios, where Scenario #1 considers transport of engineered fill to the Centennial Industrial Site and Scenario #2 considers transport of engineered fill to construction sites accessible via SR 49. The results of the analysis of study intersections under Cumulative Plus Project Conditions for the two scenarios are presented separately in detail below.

Cumulative Plus Project Scenario #1

Figure 4.12-25 through Figure 4.12-27 display the Cumulative Plus Project Condition under Scenario #1 traffic volumes at each study intersection for each of the study time periods. Table 4.12-18 summarizes operating LOS at the study intersections under Cumulative No Project Conditions and Scenario #1 of Cumulative Plus Project Conditions for each of the study time periods.

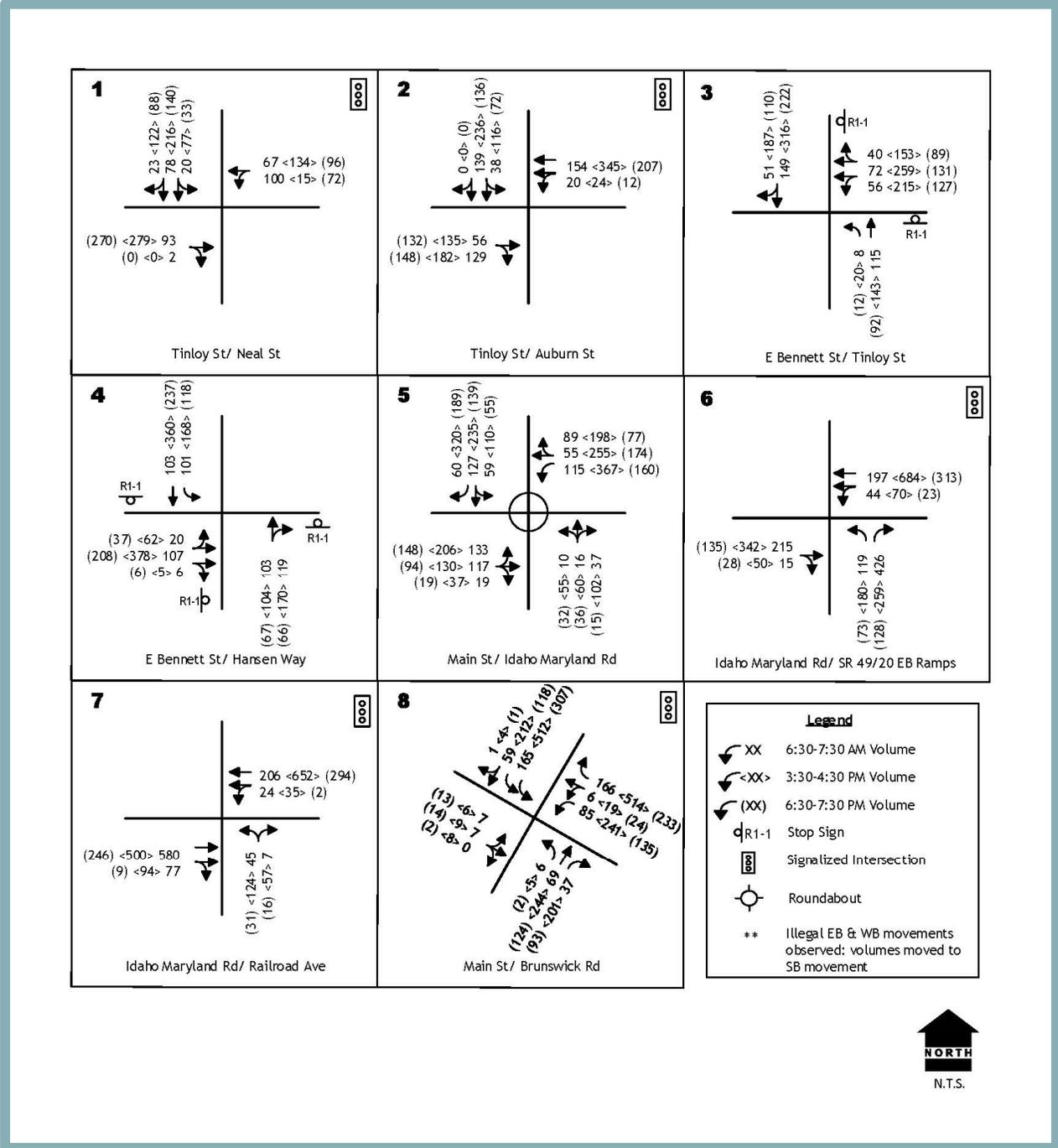
As shown in the table, two intersections are anticipated to operate unacceptably under Cumulative No Project Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under Cumulative Plus Project Scenario #1 Conditions, as follows:

15. Brunswick Road/SR 174 (SB, LOS E)
21. Sutton Way/Dorsey Drive (LOS F)

Eight intersections are projected to meet the 3:30 to 4:30 PM project traffic hour signal warrant under Cumulative Plus Project Scenario #1 Conditions, seven of which would also be met under Cumulative No Project Conditions. These include E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp, E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp, Brunswick Road/Whispering Pines Lane, Brunswick Road/E. Bennett Road-Greenhorn Road, SR 174/Brunswick Road, Idaho-Maryland Road/Sutton Way, and Sutton Way/Dorsey Drive. The eighth intersection meeting the project traffic hour signal warrant under the Plus Project condition is the Brunswick Road/Project Driveway intersection (during the 3:30 to 4:30 PM project traffic hour scenario). However, only the SR 174 at Brunswick Road and Sutton Way at Dorsey Drive intersections would operate below the accepted LOS threshold.



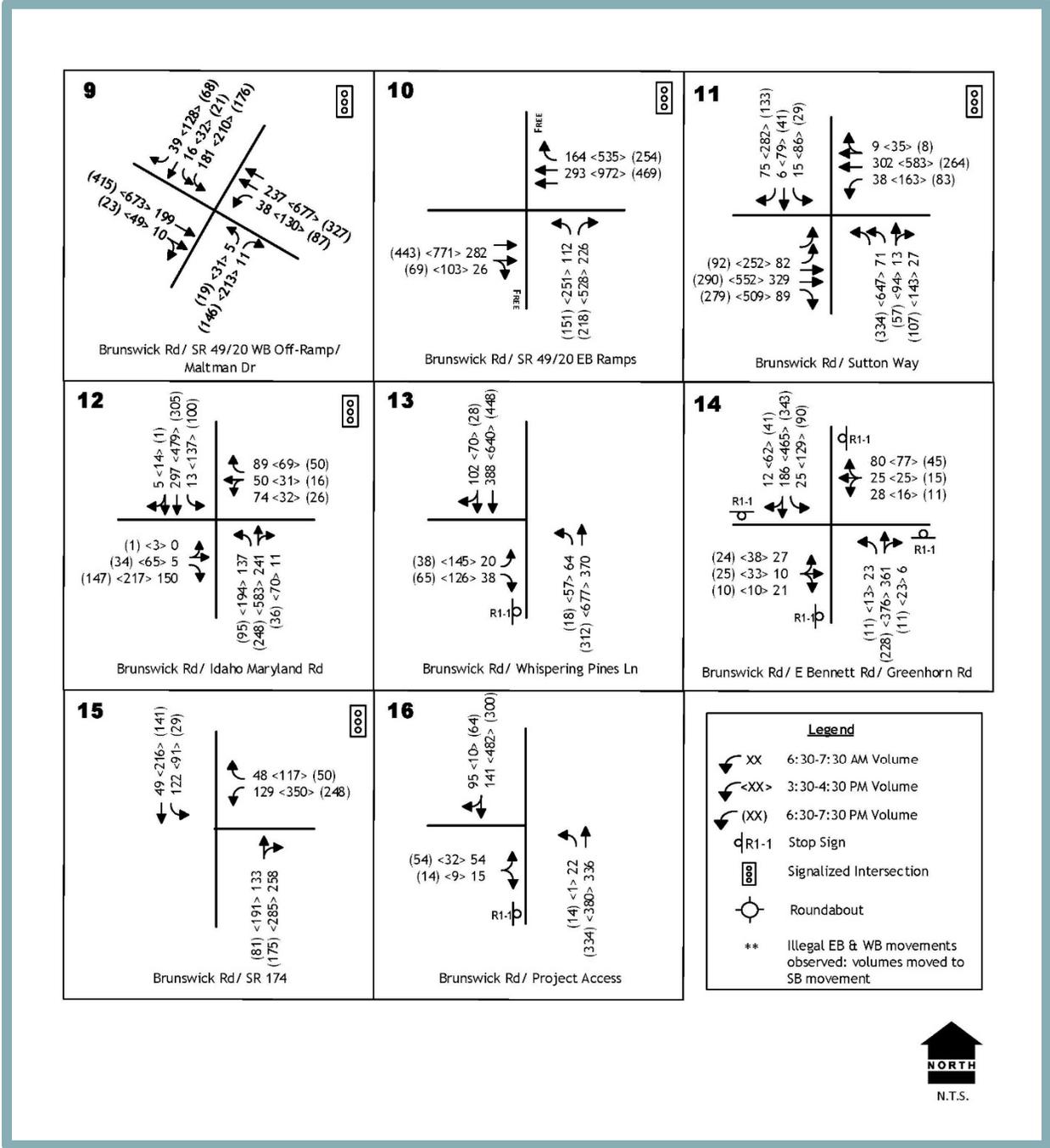
Figure 4.12-25
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KAnderson & Associates, Inc., 2021.



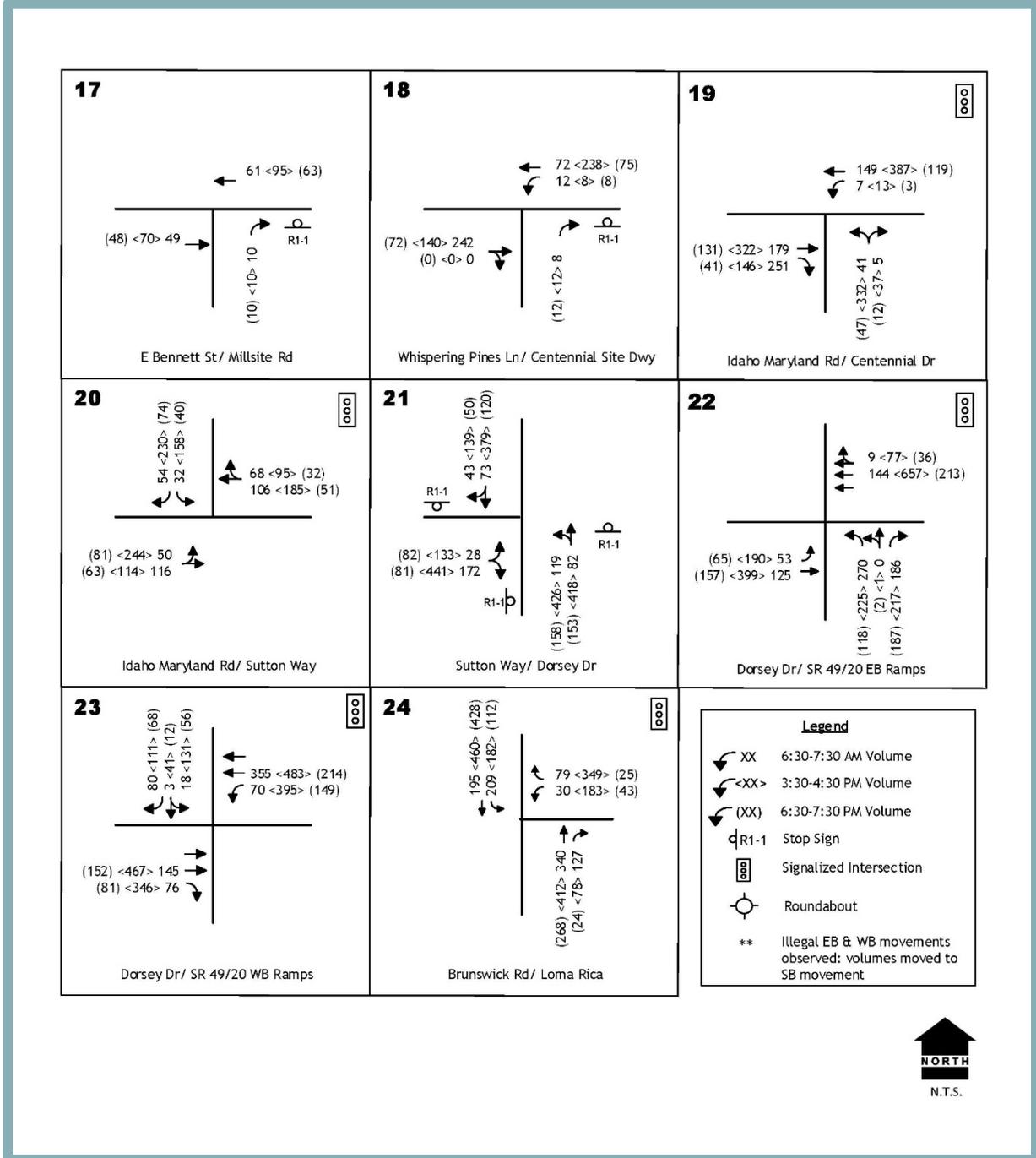
Figure 4.12-26
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-27
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative Plus Project Conditions
(Scenario #1)



Source: KDAnderson & Associates, Inc., 2021.



**Table 4.12-18
Project Traffic Hours Intersection LOS – Cumulative Plus Project Conditions (Scenario #1)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	6.7	A	6.9	A	9.0	A	9.0	B	11.7	B	12.2	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	7.2	A	7.1	A	9.9	A	9.5	A	9.0	A	9.1	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	4.1	A	4.1	A	8.0	A	7.6	A	4.4	A	4.5	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.6	A	9.6	C	18.3	C	18.3	B	10.7	B	10.8	Yes*
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	5.1	A	5.3	A	8.3	A	8.4	A	4.9	A	5.1	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	12.7	B	13.3	B	19.4	B	19.6	B	11.9	B	12.0	N/A
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.5	B	11.7	B	19.3	B	19.4	B	12.2	B	12.4	N/A
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.2	B	14.0	B	14.2	A	9.8	A	9.7	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	17.1	B	18.1	B	16.9	B	17.2	B	16.1	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.3	A	8.4	B	14.9	B	14.8	A	8.9	A	8.7	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.3	A	5.2	C	28.2	C	30.2	B	10.7	B	10.5	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	B	17.3	B	18.5	C	31.6	C	32.5	B	18.1	B	18.7	N/A
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 11.0	A B	8.7 11.4	A C	9.4 19.3	A C	9.4 19.9	A B	8.3 11.0	A B	8.5 11.3	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd †	AWS	B	11.0	B	13.0	C	23.7	D	27.2	B	10.9	B	12.6	Yes*
15. Brunswick Rd/SR 174 † SB EB Left	SB Stop	A B	7.7 12.8	A B	7.8 13.4	A E	7.8 46.2	A E	7.8 48.9	A C	8.2 17.5	A B	7.4 13.1	Yes*
16. Brunswick Rd/Project Driveway † NB Left EB	EB Stop	Not Studied		A B	7.8 11.4	Not Studied		A B	8.5 12.9	Not Studied		A B	8.1 12.2	Yes*
17. E. Bennett Rd/Millsite Rd † NB	NB Stop	Not Studied		A	8.6	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡ NB WB Left	NB Stop	Not Studied		A A	9.7 7.8	Not Studied		A A	9.1 7.5	Not Studied		A A	8.7 7.4	No
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	A	6.7	A	6.6	B	11.5	B	11.5	A	7.5	A	7.4	N/A
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.0	A	8.4	B	14.2	B	14.5	A	7.9	A	8.1	Yes*
21. Sutton Way/Dorsey Dr ‡	AWS	A	9.0	A	9.1	F	213.1	F	214.3	B	10.4	B	10.5	Yes*
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	8.9	A	8.6	B	14.8	B	15.0	A	8.7	A	8.9	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	5.6	A	5.5	B	17.6	B	16.9	A	8.2	A	8.4	N/A
24. Brunswick Rd/Loma Rica Dr †	Signal	B	11.9	B	11.6	B	14.8	B	15.5	A	8.1	A	8.2	N/A

- AWS = all way stop
- † = Nevada County jurisdiction
- ‡ = Grass Valley jurisdiction
- **Red** indicates intersection operates below the applicable threshold of significance
- * = meets warrant in 3:30 PM hour

Source: KDAAnderson & Associates, Inc., 2021.



Cumulative Plus Project Scenario #2

Figure 4.12-28 through Figure 4.12-30 display the Cumulative Plus Project Condition under Scenario #2 traffic volumes at each study intersection for each of the study time periods. Table 4.12-19 summarizes operating LOS at the study intersections under Cumulative No Project Conditions and Scenario #2 of Cumulative Plus Project Conditions for each of the study time periods. The conclusions for Scenario #2 are the same as Scenario #1.

As shown in the table, two intersections are anticipated to operate unacceptably under Cumulative No Project Conditions (3:30-4:30 PM) and would worsen as a result of project traffic under Cumulative Plus Project Scenario #1 Conditions, as follows:

15. Brunswick Road/SR 174 (SB, LOS E)
21. Sutton Way/Dorsey Drive (LOS F)

Eight intersections are projected to meet the 3:30 to 4:30 PM project traffic hour signal warrant under Cumulative Plus Project Scenario #2 Conditions, seven of which would also be met under Cumulative No Project Conditions. These include E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp, E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp, Brunswick Road/Whispering Pines Lane, Brunswick Road/E. Bennett Road-Greenhorn Road, SR 174/Brunswick Road, Idaho-Maryland Road/Sutton Way, and Sutton Way/Dorsey Drive. The eighth intersection meeting the project traffic hour signal warrant under the Plus Project condition is the Brunswick Road/Project Driveway intersection (during the 3:30 to 4:30 PM project traffic hour scenario). However, only the SR 174 at Brunswick Road and Sutton Way at Dorsey Drive intersections would operate below the accepted LOS threshold.

Conclusion

Based on the above, under both Scenarios #1 and 2 the proposed project would increase traffic through two intersections already identified as operating unacceptably under Cumulative No Project Conditions. Thus, the proposed project's incremental contribution to the significant cumulative impact to the Brunswick Road/SR 174 and Sutton Way/Dorsey Drive intersections would be considered **cumulatively considerable** and **significant**.

Mitigation Measure(s)

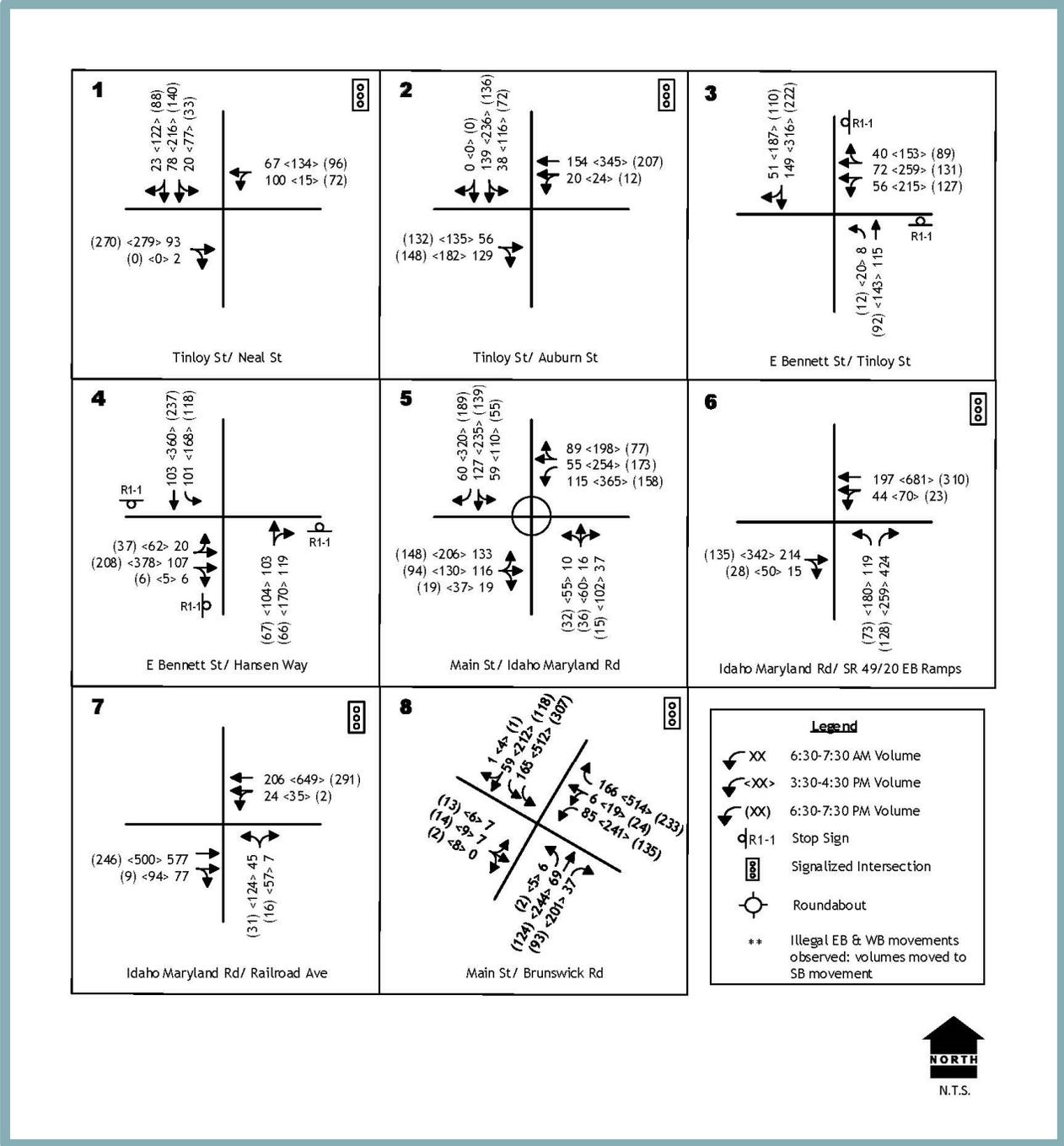
The mitigation measures for the two intersections impacted by the proposed project in the Cumulative scenario are discussed below.

SR 174/Brunswick Road

Signalization or a roundabout would improve the intersection to acceptable LOS conditions. Under Cumulative Plus Project Scenarios #1 and #2, the project is expected to add 10 additional vehicles through the intersection during the 3:30 to 4:30 PM time period. NCTC removed this intersection from their RTMF program in their 2016 Nexus Study, while Caltrans has the intersection identified as a planned, but unfunded improvement in their SR 174 TCR. Mitigation Measure 4.12-1(b) requires the project applicant to enter into a traffic mitigation agreement with Caltrans and provide the project's fair share contribution toward the improvements needed to improve intersection operations to an acceptable level.



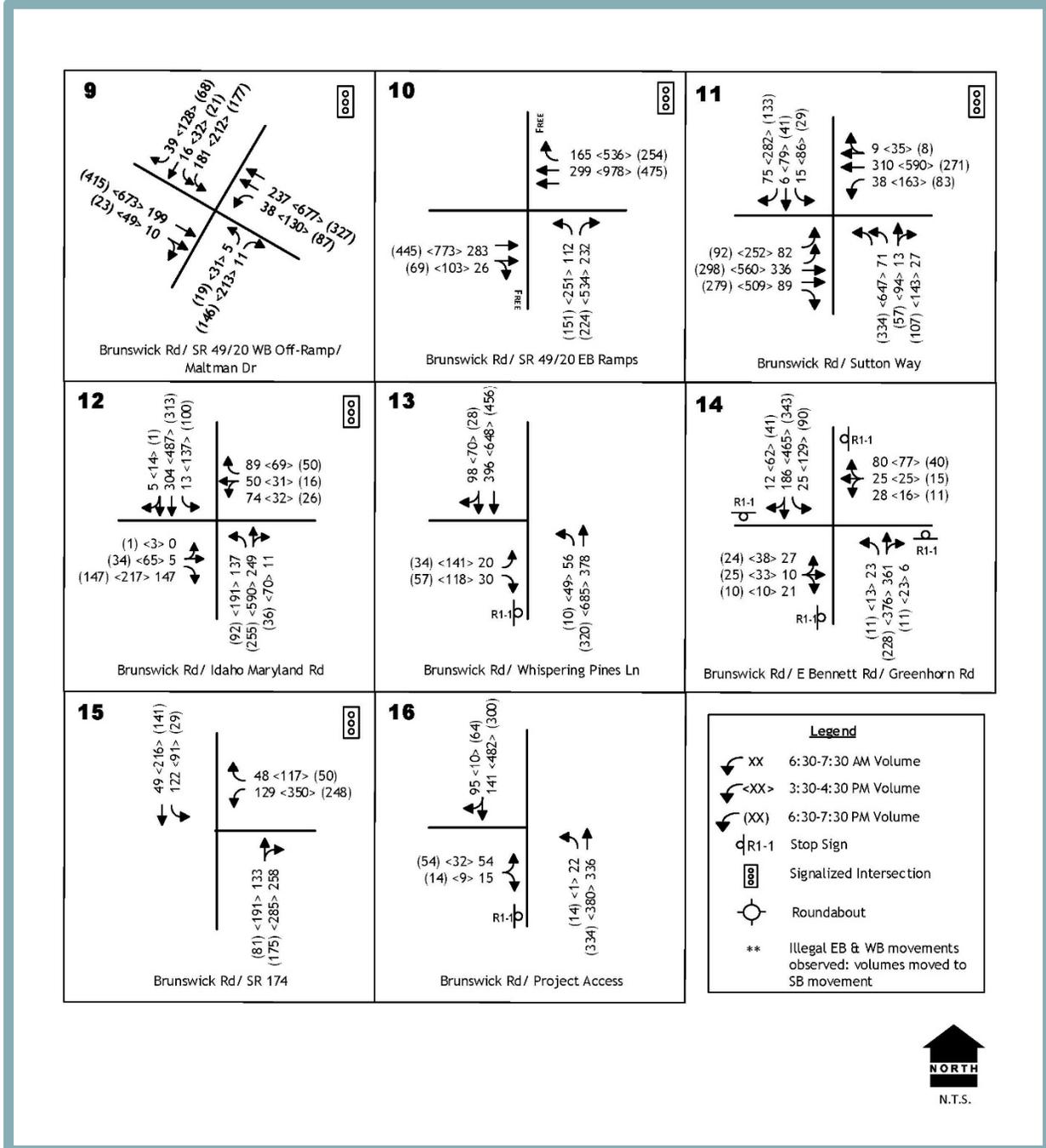
Figure 4.12-28
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 1 through 8) – Cumulative Plus Project Conditions
(Scenario #2)



Source: KDAAnderson & Associates, Inc., 2021.



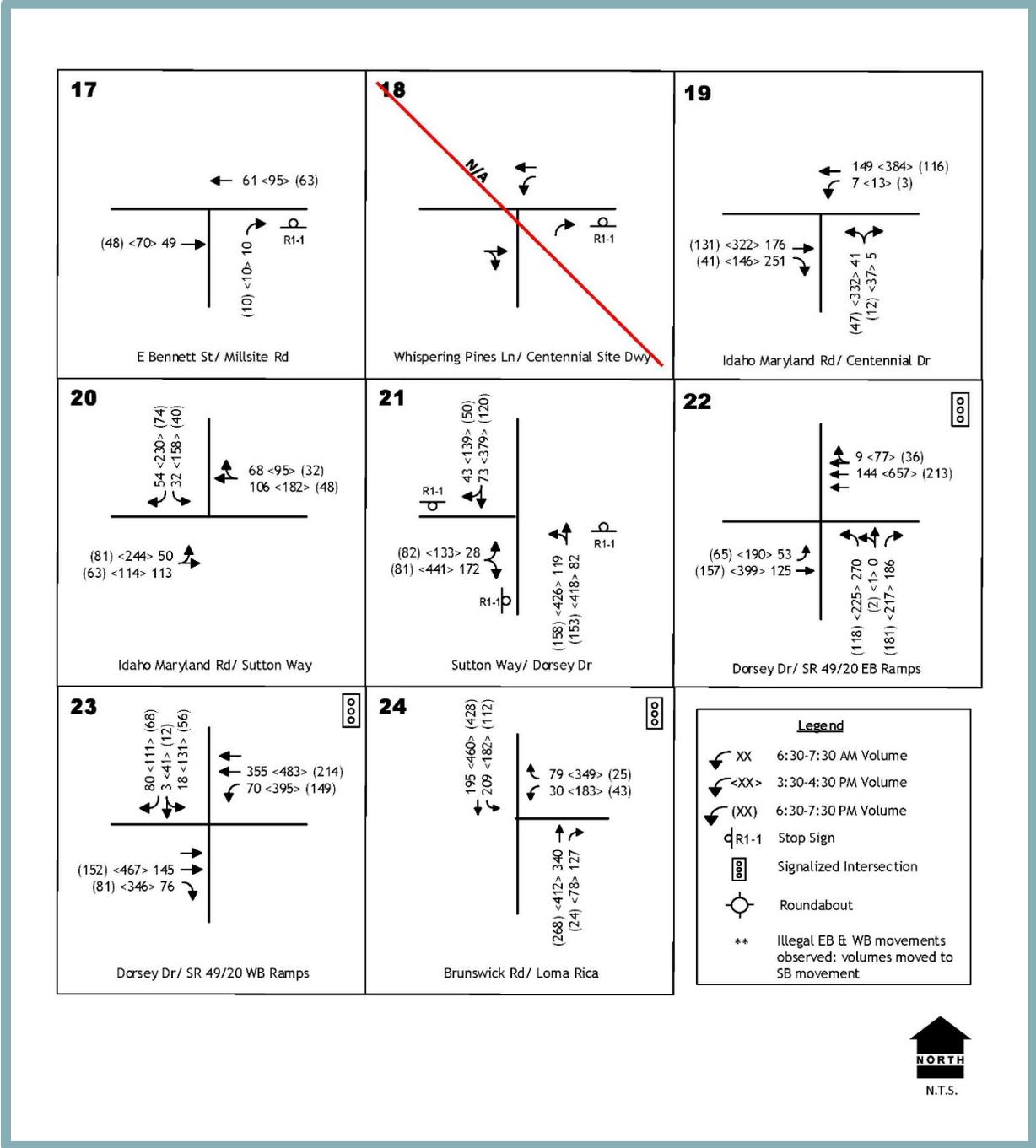
Figure 4.12-29
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 9 through 16) – Cumulative Plus Project Conditions
(Scenario #2)



Source: KDAnderson & Associates, Inc., 2021.



Figure 4.12-30
Project Traffic Hours Traffic Volumes and Lane Configurations
(Intersections 17 through 24) – Cumulative Plus Project Conditions
(Scenario #2)



Source: KAnderson & Associates, Inc., 2021.



**Table 4.12-19
Project Traffic Hours Intersection LOS – Cumulative Plus Project Conditions (Scenario #2)**

Location - Jurisdiction	Control	6:30 – 7:30 AM				3:30 – 4:30 PM				6:30 – 7:30 PM				Meets Traffic Signal Warrant?
		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project		
		LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	LOS	Average Delay (veh/sec)	
1. Neal St/Tinloy St ‡	Signal	A	6.7	A	7.2	A	9.0	A	9.7	B	11.7	B	12.4	N/A
2. S. Auburn St/Tinloy St ‡	Signal	A	7.2	A	7.2	A	9.9	B	10.0	A	9.0	A	9.0	N/A
3. E. Bennett Rd/Tinloy St/SR 49 WB Off-Ramp ‡	SB/WB Stop	A	4.1	A	4.0	A	8.0	A	7.6	A	4.4	A	4.5	Yes*
4. E. Bennett Rd/Hansen Way/SR 49 EB On-Ramp ‡	AWS	A	9.6	A	9.6	C	18.3	C	18.3	B	10.7	B	10.8	Yes*
5. Main St/Idaho Maryland Rd/SR 49 WB Ramps ‡	Roundabout	A	5.1	A	5.3	A	8.3	A	8.4	A	4.9	A	5.0	N/A
6. Idaho Maryland Rd/SR 49 EB Ramps ‡	AWS	B	12.7	B	13.3	B	19.4	B	19.6	B	11.9	B	12.0	N/A
7. Idaho Maryland Rd/Railroad Ave ‡	AWS	B	11.5	B	11.7	B	19.3	B	19.4	B	12.2	B	12.4	N/A
8. Main St/Brunswick Rd/W. Olympia Dr ‡	Signal	A	6.1	A	6.5	B	14.0	B	14.3	A	9.8	B	10.2	N/A
9. Brunswick Rd/SR 49 WB Off-Ramp/Maltman Dr ‡	Signal	B	17.1	B	17.7	B	16.9	B	17.8	B	16.1	B	16.4	N/A
10. Brunswick Rd/SR 49 EB Ramps ‡	Signal	A	8.3	A	8.2	B	14.9	B	14.9	A	8.9	A	8.7	N/A
11. Brunswick Rd/Sutton Way ‡	Signal	A	5.3	A	5.3	C	28.2	C	30.0	B	10.7	B	10.7	N/A
12. Brunswick Rd/Idaho Maryland Rd ‡ NB Left SB Left EB WB	EB/WB Stop	B	17.3	B	18.5	C	31.6	C	33.0	B	18.1	B	18.8	N/A
13. Brunswick Rd/Whispering Pines Ln ‡ NB Left EB	EB Stop	A B	8.4 11.0	A B	8.7 11.6	A C	9.4 19.3	A C	9.4 20.0	A B	8.3 11.0	A B	8.5 11.3	Yes*
14. Brunswick Rd/E. Bennett Rd/Greenhorn Rd ‡	AWS	B	11.0	B	13.0	C	23.7	D	27.2	B	10.9	B	12.6	Yes*
15. Brunswick Rd/SR 174 ‡ SB EB Left	SB Stop	A B	7.7 12.8	A B	7.8 13.4	A E	7.8 46.2	A E	7.8 48.9	A C	8.2 17.5	A B	7.4 13.1	Yes*
16. Brunswick Rd/Project Driveway ‡ NB Left EB	EB Stop	Not Studied		A B	7.8 11.4	Not Studied		A B	8.5 12.9	Not Studied		A B	8.1 12.2	Yes*
17. E. Bennett Rd/Millsite Rd ‡ NB	NB Stop	Not Studied		A	8.6	Not Studied		A	8.7	Not Studied		A	8.6	No
18. Whispering Pines Ln/Centennial Industrial Site Driveway ‡	NB Stop	Not Studied		Not Applicable		Not Studied		Not Applicable		Not Studied		Not Applicable		
19. Idaho Maryland Rd/Centennial Dr ‡ NB WB Left	NB Stop	A	6.7	A	6.6	B	11.5	B	11.5	A	7.5	A	7.4	N/A
20. Idaho Maryland Rd /Sutton Way ‡	AWS	A	8.0	A	8.4	B	14.2	B	14.5	A	7.9	A	8.1	Yes*
21. Sutton Way/Dorsey Dr ‡	AWS	A	9.0	A	9.1	F	213.1	F	214.3	B	10.4	B	10.5	Yes*
22. Dorsey Dr/SR 49 EB Ramps ‡	Signal	A	8.9	A	8.7	B	14.8	B	15.3	A	8.7	A	9.3	N/A
23. Dorsey Dr/SR 49 WB Ramps ‡	Signal	A	5.6	A	5.8	B	17.6	B	17.6	A	8.2	A	8.5	N/A
24. Brunswick Rd/Loma Rica Dr ‡	Signal	B	11.9	B	11.6	B	14.8	B	15.5	A	8.1	A	8.2	N/A

- Notes:
- AWS = all way stop
 - † = Nevada County jurisdiction
 - ‡ = Grass Valley jurisdiction
 - **Red** indicates intersection operates below the applicable threshold of significance
 - * = meets warrant in 3:30 PM hour

Source: KAnderson & Associates, Inc., 2021.



Because the remaining funds for the intersection improvements are unknown, in terms of timing and contributing parties, the successful implementation of the intersection improvements is uncertain. Therefore, the project's incremental impact to the SR 174/Brunswick Road intersection is *significant and unavoidable*.

Sutton Way/Dorsey Drive

As part of the Dorsey Marketplace project, the Sutton Way/Dorsey Drive intersection will be realigned to create two three-legged intersections. Construction of this project is slated to begin in Spring 2021. The City of Grass Valley has noted that signalization is not anticipated for this intersection and that stop controls are to be determined. The proposed Idaho-Maryland Mine Project is expected to generate two additional vehicles in a total of 1,936 vehicles passing through the intersection during the 3:30 – 4:30 PM period. Mitigation Measure 4.12-8(b) requires the applicant to pay the GVTIF to the City of Grass Valley, given that the needed intersection improvement is included in the City's TIF. Thus, payment of the GVTIF would reduce the impact to a *less-than-significant* level.

4.12-8(a) SR 174/Brunswick Road – Implement Mitigation Measure 4.12-1(b).

4.12-8(b) *Sutton Way/Dorsey Drive - Prior to issuance of building permits, the applicant shall pay the GVTIF to the City of Grass Valley. Proof of payment shall be submitted to the Nevada County Community Development Agency.*

4.12-9 Conflict with a program, plan, ordinance or policy addressing study roadway segments under Cumulative Plus Project Conditions. Based on the analysis below, the project's incremental contribution to the significant cumulative impact is less than cumulatively considerable.

As presented in the discussion below, all roadway segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better under Cumulative No Project Conditions, while the SR 174 segment would continue to operate at LOS E. The SR 174 segment exceeds the LOS C threshold of significance in both directions under Cumulative No Project Conditions.

The results of the proposed project analysis of study roadway segments under Cumulative Plus Project Conditions for the two proposed project scenarios are presented separately in detail below.

Cumulative Plus Project Scenario #1

Table 4.12-20 summarizes the LOS based on the Cumulative Plus Project, Scenario #1, Condition traffic volumes on study area roads with the existing roadway configuration. Similar to Cumulative No Project Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate acceptably at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under Cumulative Plus Project, Scenario #1, Conditions.



**Table 4.12-20
Roadway Segment LOS – Cumulative Plus Project Conditions (Scenario #1)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			Cumulative No Project PM Peak Hour	Cumulative Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	29.9 / 81.3 / D 30.0 / 80.8 / D	29.7 / 82.4 / D 29.9 / 83.2 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	35.0 / 85.8 / D 35.9 / 72.8 / D	34.5 / 87.2 / D 34.5 / 76.1 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.4 / 63.1 / C 35.3 / 79.7 / C	34.7 / 69.1 / D 34.5 / 81.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.7 / 67.8 / D 33.0 / 81.7 / D	33.4 / 68.8 / D 32.7 / 81.8 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.9 / 27.3 / B 35.7 / 56.5 / B	34.7 / 38.8 / C 34.7 / 57.8 / C
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	29.8 / 60.2 / E 28.6 / 80.4 / E	29.7 / 60.8 / E 28.6 / 81.5 / E
<p>Notes:</p> <ul style="list-style-type: none"> • ATS = average travel speed • PTSF = percent time spent following • Bold indicates applicable threshold of significance exceeded <p>Source: <i>KDAnderson & Associates, Inc., 2021.</i></p>				



However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 80.4 percent to 81.5 percent in the westbound direction; the ATS would remain at 28.6 mph. In the eastbound direction, the PTSF would increase from 60.2 percent to 60.8 percent, while the ATS would decrease by 0.1 mph, from 29.8 mph to 29.7 mph.

Cumulative Plus Project Scenario #2

Table 4.12-21 summarizes the LOS based on the Cumulative Plus Project, Scenario #2, Condition traffic volumes on study area roads with the existing roadway configuration. Similar to Cumulative No Project Conditions, all segments along Brunswick Road and E. Bennett Road would continue to operate at LOS D or better, while the SR 174 segment would continue to operate at LOS E, under Cumulative Plus Project, Scenario #2, Conditions. The SR 174 segment would continue to exceed the LOS C threshold of significance in both directions under Cumulative Plus Project, Scenario #2, Conditions. However, the proposed project would have a minimal effect on the projected conditions along the segment of SR 174 from Brunswick Road to Empire Street, with an increase in the PTSF from 80.4 percent to 81.5 percent in the westbound direction; the ATS would remain at 28.6 mph. The PTSF in the eastbound direction would increase from 60.2 percent to 60.8 percent, while the ATS would decrease by 0.1 mph, from 29.8 mph to 29.7 mph.

Conclusion

Although the segment of SR 174 from Brunswick Road to Empire Street would operate unacceptably under Cumulative Plus Project Conditions, the proposed project would have minimal effect on the segment from Cumulative No Project Conditions. In addition, under County Policy LU-4.16, relative to the State highway system, additional growth and development may be allowed within the County, notwithstanding any adverse impacts that may result in the short term by such growth and development. Therefore, the proposed project's incremental contribution to the significant cumulative impact to study roadway segments would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.12-10 Conflict with a program, plan, ordinance or policy addressing intersection queues under the cumulative scenario. Based on the analysis below, even with implementation of mitigation, the impact is determined to be *significant and unavoidable*.

The results of the proposed project analysis of intersection queues under Cumulative Plus Project Conditions for the two proposed project scenarios are presented separately below.



**Table 4.12-21
Roadway Segment LOS – Cumulative Plus Project Conditions (Scenario #2)**

Roadway	Location	Facility Classification	ATS/PTSF/LOS	ATS/PTSF/LOS
			Cumulative No Project PM Peak Hour	Cumulative Plus Project PM Peak Hour
Brunswick Road	SR 49 to Whispering Pines Ln NB SB	Class I Highway	29.9 / 81.3 / D 30.0 / 80.8 / D	29.5 / 82.5 / D 29.8 / 83.5 / D
	Whispering Pines Ln to E. Bennett Rd NB SB	Class I Highway	35.0 / 85.8 / D 35.9 / 72.8 / D	34.1 / 87.8 / D 34.5 / 76.1 / D
	E. Bennett Rd to Project Driveway NB SB	Class I Highway	35.4 / 63.1 / C 35.3 / 79.7 / C	34.6 / 69.4 / D 34.5 / 81.1 / D
	Project Driveway to SR 174 NB SB	Class I Highway	33.7 / 67.8 / D 33.0 / 81.7 / D	33.4 / 68.8 / D 32.7 / 81.8 / D
E. Bennett Rd	Project Driveway to Brunswick Rd EB WB	Class III Highway	35.9 / 27.3 / B 35.7 / 56.5 / B	34.7 / 38.8 / C 34.7 / 57.8 / C
SR 174	Brunswick Rd to Empire St EB WB	Class I Highway	29.8 / 60.2 / E 28.6 / 80.4 / E	29.7 / 60.8 / E 28.6 / 81.5 / E

Notes:

- ATS = average travel speed
- PTSF = percent time spent following
- **Bold** indicates applicable threshold of significance exceeded

Source: *KDAnderson & Associates, Inc., 2021.*



Cumulative Plus Project Scenario #1

Table 4.12-22 presents a comparison of Cumulative Plus Project Scenario #1 to Cumulative Conditions. The following intersections have queue lengths in excess of available storage length under Cumulative No Project conditions and would continue to exceed available storage length under Cumulative Plus Project Scenario #1:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
7. Idaho Maryland Rd/Railroad Ave EB;
8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way NB left and WB left;
12. Brunswick Rd/Idaho Maryland Rd SB left;
15. Brunswick Rd/SR 174 SB left;
23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, incremental project traffic under Cumulative Scenario #1 would cause the following intersection movement to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr WB right

During “Plus Project” conditions one intersection -- Brunswick Road/Sutton Way -- would have a storage length that is greater than 25 feet when compared to the “No Project” condition during the 3:30-4:30 PM hour. The northbound left-turn lanes of the Brunswick Road/Sutton Road intersection would extend up to 110 feet beyond the “No Project” scenario. Thus, the project’s incremental traffic could result in a cumulatively considerable contribution to queue length at one intersection under Cumulative Plus Project Conditions Scenario #1.

Cumulative Plus Project Scenario #2

Table 4.12-23 presents a comparison of Cumulative Plus Project Scenario #2 to Cumulative conditions. The proposed project would result in queue lengths in excess of available storage length at the following intersection locations under Scenario #2:

1. Neal St/Tinloy St EB;
2. S. Auburn St/Tinloy St NB through, SB, and WB;
6. Idaho Maryland Rd/SR 49 EB Ramps WB;
7. Idaho Maryland Rd/Railroad Ave EB;
8. E. Main St/Brunswick Rd – W. Olympia Dr NB right;
9. Brunswick Rd/SR 49 WB Off-Ramp – Maltman Dr NB right and EB;
10. Brunswick Rd/SR 49 EB Ramps NB left;
11. Brunswick Rd/Sutton Way NB left and WB left;
12. Brunswick Rd/Idaho Maryland Rd SB left;
15. Brunswick Rd/SR 174 SB left;



**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	84	80	116	115	119	120
WB	150	115	103	106	109	131	140
2. S. Auburn St / Tinloy St							
NB through	80	73	75	137	136	98	102
NB through-left	80	44	45	63	66	44	44
SB	75	86	84	139	134	123	133
WB	95	68	70	113	113	103	101
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	28	28	41	40	33	34
NB through	150	46	44	66	64	46	49
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	40	40	<25	<25
SB through	150	<25	<25	145	145	45	45
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	32	32	<25	<25
SB	---	<25	<25	70	72	25	25
EB	---	39	41	86	88	34	36
WB	---	<25	<25	66	68	32	33
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	39	51	48	48	<25	<25
NB left	355	81	87	151	151	50	52
WB	90	61	68	260	266	72	78
7. Idaho Maryland Rd / Railroad Ave							
EB	90	123	136	166	166	47	53
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25
NB right	125	42	43	130	139	59	62
SB left (2 lanes)	355	68	67	175	176	106	109

(Continued on next page)



**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
WB left (2 lanes)	150	43	44	97	102	75	71
WB right	150	47	51	149	159	69	74
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	28	68	66	54	53
NB right	100	30	30	131	117	84	85
SB left (2 lanes)	260	134	142	148	151	140	133
SB right	260	45	46	84	86	54	56
EB	160	61	65	202	203	128	141
WB left	145	61	61	106	106	90	93
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	141	152	215	218	180	177
NB right	---	106	102	262	258	110	97
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	58	55	435	545	141	136
SB left	190	38	37	115	110	52	57
SB right	180	---	---	---	<25	---	---
EB left (2 lanes)	185	61	53	127	138	66	63
EB right	250	52	50	224	220	98	96
WB left	125	48	49	177	179	84	79
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	90	108	151	166	56	76
SB left	120	<25	<25	188	188	103	106
EB left	150	34	25	74	74	39	39
WB left	175	100	99	68	68	43	43
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25
EB left	110	<25	<25	58	60	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25

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**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	28	248	260	45	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway							
NB	---	---	<25	---	<25	---	<25
WB left	100	---	<25	---	<25	---	<25
19. Idaho Maryland Rd / Centennial Dr							
NB	---	28	29	285	285	29	30
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd / Sutton Way							
SB right	90	<25	<25	48	48	<25	<25
SB left	---	<25	<25	35	35	<25	<25
EB	---	<25	<25	105	105	<25	<25
WB	---	<25	<25	55	60	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	28	28	<25	<25
SB thru	---	<25	<25	190	190	<25	<25
NB	---	30	30	1333	1340	58	60
EB	---	25	25	188	188	<25	25
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	98	103	125	120	58	54

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**Table 4.12-22
Cumulative Plus Project Queues (Scenario #1)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
NB right	215	59	57	97	100	62	59
EB left	180	63	60	180	177	65	67
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	53	52	63	64	49	49
SB left-thru	400	43	42	165	162	64	67
EB right	155	41	44	218	217	40	42
WB left	180	73	74	253	250	108	111
24. Brunswick Rd / Loma Rica Dr							
NB right	410	32	32	27	27	<25	<25
SB left	400	134	146	147	147	69	74
WB left	100	35	38	178	178	36	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Highlighted values indicate queue length in excess of available storage with more than 25-foot increase from No Project condition. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
1. Neal St / Tinloy St							
EB	70	84	86	116	117	119	118
WB	150	115	116	106	110	131	144
2. S. Auburn St / Tinloy St							
NB through	80	73	76	137	144	98	97
NB through-left	80	44	46	63	69	44	45
SB	75	86	84	139	137	123	129
WB	95	68	69	113	117	103	93
3. E. Bennett Rd / Tinloy St – SR 49 WB Off-Ramp							
NB left turn	60	28	26	41	40	33	34
NB through	150	46	47	66	64	46	48
4. E. Bennett Rd / Hansen Way – SR 49 EB On-Ramp							
SB left turn	60	<25	<25	40	40	<25	<25
SB through	150	<25	<25	145	145	45	45
5. E. Main St / Idaho Maryland Rd - SR 49 WB Ramps							
NB	---	<25	<25	32	32	<25	<25
SB	---	<25	<25	70	71	25	25
EB	---	39	41	86	88	34	34
WB	---	<25	<25	66	67	32	32
6. Idaho Maryland Rd / SR 49 EB Ramps							
NB right	---	39	51	48	48	<25	<25
NB left	355	81	87	151	151	50	52
WB	90	61	68	260	266	72	78
7. Idaho Maryland Rd / Railroad Ave							
EB	90	123	136	166	166	47	53
8. E. Main St / Brunswick Rd – W. Olympia Dr							
NB left	110	<25	<25	<25	<25	<25	<25

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
NB right	125	42	43	130	134	59	70
SB left (2 lanes)	355	68	66	175	177	106	117
WB left (2 lanes)	150	43	47	97	106	75	73
WB right	150	47	55	149	155	69	73
9. Brunswick Rd / SR 49 WB Off-Ramp – Maltman Dr							
NB left	100	<25	<25	68	70	54	51
NB right	100	30	30	131	128	84	83
SB left (2 lanes)	260	134	144	148	149	140	140
SB right	260	45	50	84	86	54	52
EB	160	61	62	202	205	128	139
WB left	145	61	65	106	107	90	89
10. Brunswick Rd / SR 49 EB Ramps							
NB left	200	141	153	215	225	180	179
NB right	---	106	94	262	259	110	96
11. Brunswick Rd / Sutton Way							
NB left (2 lanes)	280	58	56	435	490	141	139
SB left	190	38	39	115	113	52	54
SB right	180	---	---	---	---	---	---
EB left (2 lanes)	185	61	60	127	134	66	62
EB right	250	52	50	224	208	98	95
WB left	125	48	47	177	181	84	79
12. Brunswick Rd / Idaho Maryland Rd							
NB left	540	90	108	151	166	56	77
SB left	120	<25	<25	188	188	103	107
EB left	150	34	<25	74	74	39	39
WB left	175	100	99	68	68	43	44

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
13. Brunswick Rd / Whispering Pines Ln							
NB left	210	<25	<25	<25	<25	<25	<25
EB left	110	<25	<25	58	60	<25	<25
14. Brunswick Rd / E. Bennett Rd – Greenhorn Rd							
NB left	225	<25	<25	<25	<25	<25	<25
SB left	260	<25	<25	<25	<25	<25	<25
EB	---	<25	<25	<25	<25	<25	<25
WB	---	<25	<25	<25	<25	<25	<25
15. Brunswick Rd / SR 174							
SB left	90	25	28	248	260	45	48
EB left	130	<25	<25	<25	<25	<25	<25
16. Brunswick Rd / Project Driveway							
NB left	350	---	<25	---	<25	---	<25
EB	---	---	<25	---	<25	---	<25
17. E. Bennett Rd / Millsite Rd							
NB right	---	---	<25	---	<25	---	<25
18. Whispering Pines Ln / Project Driveway – Not Applicable							
19. Idaho Maryland Rd / Centennial Dr							
NB	---	28	29	285	285	29	30
WB left	130	<25	<25	<25	<25	<25	<25
20. Idaho Maryland Rd / Sutton Way							
SB right	90	<25	<25	48	48	<25	<25
SB left	---	<25	<25	35	35	<25	<25
EB	---	<25	<25	105	105	<25	<25
WB	---	<25	<25	55	60	<25	<25
21. Sutton Way / Dorsey Dr							
SB right	120	<25	<25	28	28	<25	<25

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**Table 4.12-23
Cumulative Plus Project Queues (Scenario #2)**

Location	Length*	No Project	Plus Project	No Project	Plus Project	No Project	Plus Project
		EPAP 6:30 – 7:30 AM	EPAP 6:30 – 7:30 AM	EPAP 3:30 – 4:30 PM	EPAP 3:30 – 4:30 PM	EPAP 6:30 – 7:30 PM	EPAP 6:30 – 7:30 PM
		Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)	Queue (feet)
SB thru	---	<25	<25	190	190	<25	<25
NB	---	30	30	1333	1340	58	60
EB	---	25	25	188	188	<25	25
22. Dorsey Dr / SR 49 EB Ramps							
NB Left (2 lanes)	215	98	101	125	128	58	52
NB right	215	59	60	97	101	62	63
EB left	180	63	63	180	174	65	75
23. Dorsey Dr / SR 49 EB Ramps							
SB right	400	53	52	63	59	49	49
SB left-thru	400	43	38	165	161	64	69
EB right	155	41	42	218	220	40	49
WB left	180	73	76	253	249	108	114
24. Brunswick Rd / Loma Rica Dr							
NB right	410	32	32	27	27	<25	<25
SB left	400	134	146	147	147	69	74
WB left	100	35	38	178	178	36	38
Notes:							
<ul style="list-style-type: none"> • Highlighted values indicate queue length in excess of available storage. • Highlighted values indicate queue length in excess of available storage with more than 25-foot increase from No Project condition. • Queuing distances based on stochastic modeling. • * indicates longest lane for multiple turn lane approaches. 							
Source: KAnderson & Associates, Inc., 2021.							



23. Dorsey Dr/SR 49 EB Ramps EB right and WB left; and
24. Brunswick Rd/Loma Rica Dr WB left.

In addition, incremental project traffic under Cumulative Scenario #1 would cause the following intersection movement to have queue lengths in excess of available storage:

8. E. Main St/Brunswick Rd – W. Olympia Dr WB right

With one exception, all of the aforementioned intersections would result in a queue length increase that is less than a 25-foot difference from the “No Project” condition. During “Plus Project” conditions, the Brunswick Road/Sutton Way intersection would have a storage length that is greater than 25 feet when compared to the “No Project” condition. The Brunswick Road/Sutton Way northbound left-turn lanes would extend up to 55 feet beyond the “No Project” scenario during the 3:30 to 4:30 PM hour. Thus, the project’s incremental traffic could result in a cumulatively considerable contribution to queue length at one intersection under Cumulative Plus Project Conditions Scenario #2.

Conclusion

The proposed project would result in longer queue lengths at several study intersections under both Scenario #1 and Scenario #2. Under both scenarios, queue lengths in excess of the 25-foot increase threshold would occur only for the northbound left at the Brunswick Road/Sutton Way intersection during the 3:30-4:30 PM hour. Therefore, the impact to study intersection queues under the Cumulative Plus Project Condition would be considered **significant**.

Mitigation Measure(s)

As noted above, queues in the northbound left turn lanes of the Brunswick Road/Sutton Way intersection would exceed the threshold of significance. Re-timing of the Brunswick Road/Sutton Way intersection would maintain LOS C conditions (29.5 seconds per vehicle) with queues declining for this movement. Following implementation of Mitigation Measure 4.12-10, the queues are shown to decrease to up to 386 feet under Scenario #1 and 434 feet under Scenario #2, both of which are less than the Cumulative No Project Condition. As such, implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level. However, because the intersection is within the jurisdiction of the City of Grass Valley, Nevada County does not have legal authority to impose this mitigation measure and ensure its eventual outcome. As a result, the impact is conservatively determined to be *significant and unavoidable*.

- 4.12-10 *Prior to commencement of project operations, the Brunswick Road/Sutton Way intersection shall be re-timed to the satisfaction of the City of Grass Valley, at the expense of the project applicant. Based on the Caltrans methodology to assess fair share percentage, the fair share is 8.5 percent. Final payment amount shall be determined by the City of Grass Valley, and shall represent the reasonable cost of re-timing the intersection.*

