4.9 Transportation and Circulation

4.9.1 Introduction

Section 4.9, Transportation and Circulation, addresses the impacts that transportation and land use changes related to the 201 Haskins Way Project would have on levels of service (LOS), vehicle miles traveled (VMT), traffic hazards, transit, pedestrians, bicycles, loading, and emergency vehicle access, as well as the transportation-related impacts of construction activities. All of these transportation subtopics are considered in the discussions of existing conditions and year 2040 cumulative conditions. The section describes existing transportation conditions on the project site and in the transportation study area and presents the baseline transportation conditions against which project impacts are measured. Project-specific impacts are presented for the proposed project (separately for Phase 1 and for Phases 1 and 2 at buildout), and mitigation measures, if any, are identified when feasible.

4.9.2 Environmental Setting

TRANSPORTATION STUDY AREA

The study area for transportation impacts, shown in **Figure 4.9.1: Transportation Study Area**, includes the U.S. 101 freeway, which is the primary regional access route to the project site, and the freeway interchanges and local streets that provide access between the project site and the U.S. 101 freeway, as well as routes connecting to adjacent cities.

EXISTING CONDITIONS

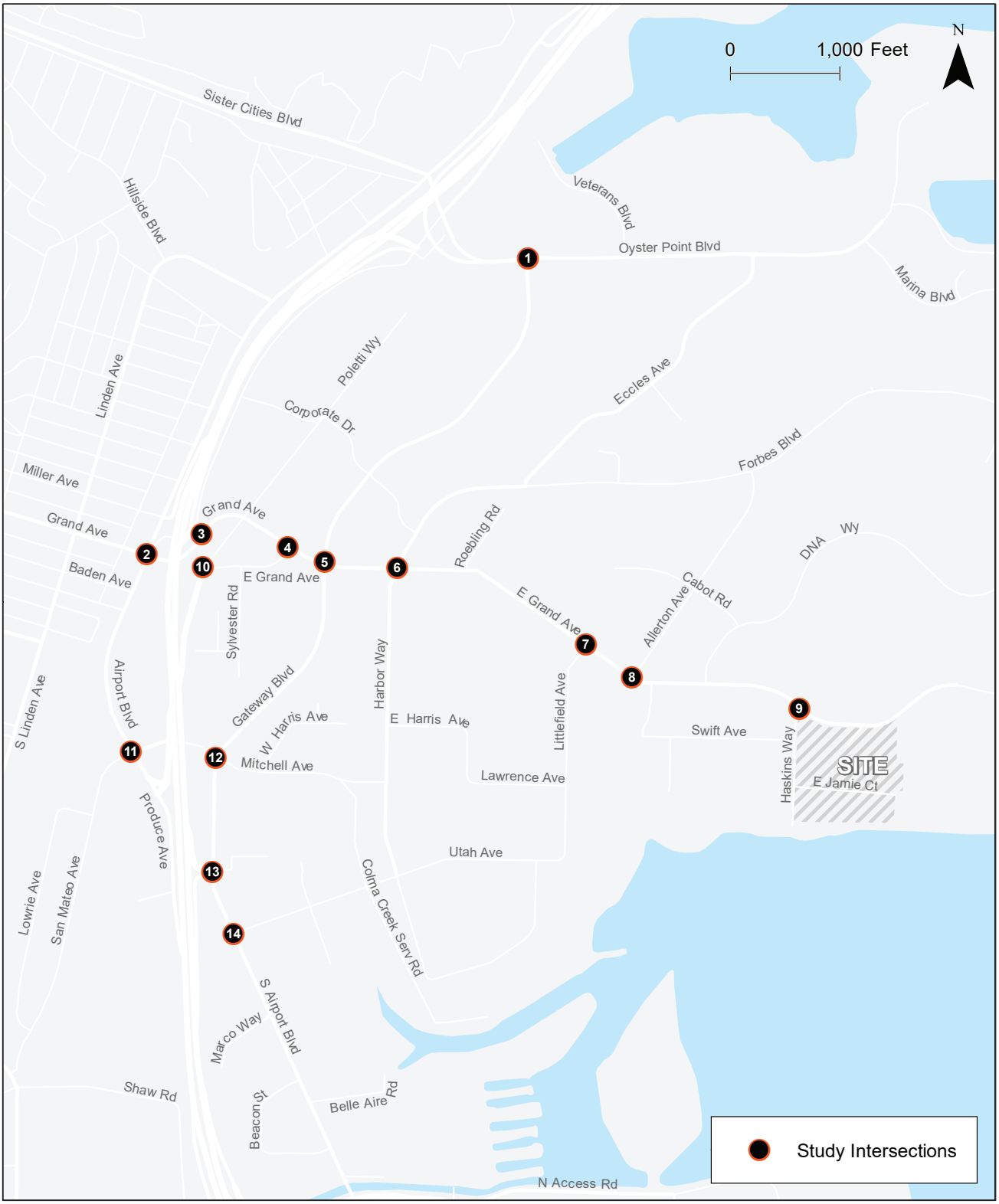
This section describes the transportation conditions in the study area in terms of existing roads and traffic operations, transit service, and pedestrian and bicycle conditions.

Existing Roads

Regional vehicle access to the project site is provided primarily by the U.S. 101 freeway. East Grand Avenue is the primary local street connection between the project site and the regional road system.

Regional Roads

The U.S. 101 is an eight-lane freeway that provides regional access to the project area. To the north, it provides connections to downtown San Francisco, northern California, and Oakland and the East Bay via the Bay Bridge. To the south, U.S. 101 serves Santa Clara County and extends to Los Angeles and southern California. Within the study area, access from the north is provided by a southbound off-ramp at Airport Boulevard/Miller Avenue (connecting to Grand Avenue) and a flyover ramp to Oyster Point Boulevard. Northbound on-ramps are at Grand Avenue, Oyster Point Boulevard and from South Airport Boulevard (between Mitchell Avenue and Utah Avenue). Access from the south is available from northbound off-ramps at East Grand Avenue/Executive Drive and at South Airport Boulevard (between



Source: Kittelson & Associates (2018)

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FIGURE 4.9.1: TRANSPORTATION STUDY AREA

Mitchell Avenue and Utah Avenue), while ramps to southbound U.S. 101 are at Produce Avenue and at Dubuque Avenue just south of Oyster Point Boulevard.

Local Roads

East Grand Avenue is the central access route to the area east of U.S. 101 and is classified in the *City of South San Francisco General Plan* (General Plan) as a major arterial street. Between the intersection with the Grand Avenue Overcrossing and its intersection with Forbes Boulevard, East Grand Avenue is a six-lane arterial. It continues east of this intersection as a four-lane facility, narrowing to a 50-foot pavement width with two lanes east of Haskins Way.

Grand Avenue and the Grand Avenue Overcrossing are the continuation of East Grand Avenue west to Airport Boulevard and downtown South San Francisco. The Grand Avenue Overcrossing is a four-lane arterial street.

Airport Boulevard is a four-lane north-south major arterial street that parallels the west side of U.S. 101, ending at its intersection with San Mateo Avenue and Produce Avenue.

Gateway Boulevard is a four-lane major arterial street connecting East Grand Avenue with South Airport Boulevard and Oyster Point Boulevard.

Harbor Way is a two-lane minor arterial street serving existing and planned industrial uses south of East Grand Avenue. Harbor Way provides access to South Airport Boulevard and several U.S. 101 freeway ramps via Mitchell Avenue and Utah Avenue.

Forbes Boulevard is a four-lane major arterial street beginning at East Grand Avenue and connecting to the central Genentech campus area north of East Grand Avenue.

Littlefield Avenue is a two-lane collector street that serves the industrial area south of East Grand Avenue and provides a connection to South Airport Boulevard via Utah Avenue.

Allerton Avenue is a two-lane collector street that serves businesses north of East Grand Avenue.

DNA Way (formerly Grandview Drive) is a two-lane major arterial street that provides a second connection between East Grand Avenue and the Genentech campus area.

Haskins Way is a two-lane local street that serves the Materials Recovery Facility (MRF) and several adjacent properties south of East Grand Avenue.

EXISTING TRAFFIC OPERATIONS

This section provides information on the existing operating conditions (in terms of level of service) for selected intersections and freeway mainline segments in the transportation study area.

LEVEL OF SERVICE METHODOLOGY

Level of service (LOS) describes the operating conditions experienced by persons on a transportation system. For motorized vehicles, level of service is a qualitative measure of the effects of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated LOS A through F, from best to worst, which cover the entire range of traffic operations that might occur. Levels of service A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents conditions where traffic demands exceed capacity and the flow of traffic breaks down, resulting in stop-and-go conditions and long queues of vehicles.

Methodologies outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM) are used to evaluate level of service for intersections and freeway mainline segments. The intersection analysis uses the Synchro software, based on a Synchro network provided by the City of South San Francisco as used for the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update (July 2018). Consistent with the City's Synchro network, the 2010 HCM methodologies are used for most signalized and all unsignalized intersections, with 2000 HCM methodologies used for selected signalized intersections (as noted in the tables below) where the Synchro software does not fully implement the 2010 HCM methodologies.

Signalized Intersections

Signalized intersections are evaluated based on traffic volumes, traffic signal phasing and timing, and factors related to conditions such as peaking within the peak hour and the presence of trucks and pedestrians. The LOS is determined by the weighted average delay per vehicle for all vehicles entering the intersection. The LOS for signalized intersections is defined in Table 4.9.1: Level of Service Definition for Signalized and All-Way Stop Intersections.

Unsignalized All-Way Stop Intersections

At all-way stop intersections, LOS is determined by the weighted average delay for all vehicles entering the intersection and the calculated average total delay per vehicle and LOS for the intersection as a whole. The average delay criteria used to determine the LOS at all-way stop controlled intersections are the same as those shown for signalized intersections in **Table 4.9.1: Level of Service Definition for Signalized and All-Way Stop Intersections**.

Unsignalized One- or Two-Way Stop Intersections

For unsignalized intersections with stop-sign control on one street only, the methodology calculates an average total delay per vehicle for each minor street movement and for the major street left-turn movements based on the availability of adequate gaps in through traffic on the main street. A level of service designation is assigned to individual movements or to combinations of movements in the case of shared lanes, based on delay. The LOS for unsignalized one- and two-way stop intersections are defined in **Table 4.9.2: Level of Service Definition for Unsignalized One- and Two-Way Stop Intersections**.

Table 4.9.1: Level of Service Definition for Signalized and All-Way Stop Intersections

Level of Service	Description	Vehicle Delay (seconds per vehicle)
A	Very low delay	≤ 10
B	Minimal delay	> 10 – 20
C	Acceptable delay	> 20 – 35
D	Approaching unstable delay	> 35 – 55
E	Unstable operations and substantial delay	> 55 – 80
F	Excessive delay	> 80

Source: Transportation Research Board, Highway Capacity Manual, 2010

Table 4.9.2: Level of Service Definition for Unsignalized One- and Two-Way Stop Intersections

Level of Service	Description	Vehicle Delay (seconds per vehicle)
A	Little or no delay	0 – 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 – 25
D	Long traffic delays	> 25 – 35
E	Very long traffic delays	> 35 – 50
F	Extreme delays potentially affecting other traffic movements at the intersection	> 50

Source: Transportation Research Board, Highway Capacity Manual, 2010

The HCM specifies that the LOS for the worst case movement or shared approach be reported as the intersection LOS for unsignalized one- and two-way stop intersections. It is not unusual for some of the minor street movements to have LOS D, E, or F conditions while the major street movements have LOS A, B, or C conditions. In such cases, the minor street traffic experiences delays that can be substantial for individual minor street vehicles, but the majority of vehicles using the intersection have very little delay. Usually this is because the minor street traffic volumes are relatively low.

Queue Analysis

Queues in specific lane groups are evaluated based on the intersection operations analysis methods described above. The probabilities of different queue lengths for traffic movements are calculated based on volumes, amount of green signal time for the movement, and randomness of vehicle arrivals. The reported queue length represents the 95th percentile probability, meaning that the reported queue length should only be exceeded 5 percent of the time during peak hours.

Signal Warrants

The potential need for traffic signals at unsignalized intersections where the minor street movements experience substantial delay is evaluated in accordance with the *California Manual on Uniform Traffic Control Devices* (CA MUTCD). The analysis for the proposed project focuses on the peak hour volume

warrant (Warrant 3). The peak hour volume warrant is intended for application where traffic conditions are such that for at least one hour of the day, traffic on the minor street suffers long delays in entering or crossing the major street. Before a signal is installed, a more detailed signal warrant study is recommended that considers volumes during the eight highest hours of the day, pedestrian traffic, and accident histories.

It is possible that an unsignalized intersection will not meet signal warrants but will have one or more movements that experience LOS F operations. LOS F can be indicated for a very low volume of vehicles at a stop sign. Although these stopped vehicles may experience long delays of one minute or more, there would not be an overall benefit if the higher numbers of vehicles on the major street are stopped in favor of the few vehicles on the minor street. The signal warrant considers a balance between major street and minor street delays, and may indicate that there is overall system benefit if drivers on the minor street continue to experience long (LOS E or F) delays.

Freeway Mainline Segments

Caltrans' "Guide for the Preparation of Traffic Impact Studies" requires the use of HCM analysis methodology and applies the freeway mainline segment level of service criteria presented in **Table 4.9.3: Freeway Mainline Segment Level of Service Criteria**.

Table 4.9.3: Freeway Mainline Segment Level of Service Criteria

Level of Service	Maximum Density (passenger vehicles per mile per lane)
A	≤ 11
B	18
C	26
D	35
E	45
F	> 45

Source: Transportation Research Board, Highway Capacity Manual (2010)

Freeway Ramps

The methodologies for evaluation of freeway off-ramps and on-ramps are based on planning-level methodologies as applied in prior South San Francisco transportation studies.[1]

On-ramp operation has been evaluated using planning-level methodology contained in the Year 2010 *Highway Capacity Manual*. Capacity is dependent upon the free flow speed of on-ramp traffic. For single- and double-lane diamond on-ramps with higher speeds, capacity has been set at 2,200 and 3,300 vehicles per hour, respectively. For single-lane button hook or curving on-ramps, capacity has been set at 2,000 vehicles per hour. However, during peak traffic periods ramp metering will always be adjusting on-ramp flow based upon prevailing freeway operating conditions.

[1] City of South San Francisco, 2018. *East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update*, July 2018.

For off-ramps, Caltrans uses a planning level volume of 1,500 vehicles per hour as the maximum acceptable limit that can be accommodated by a single lane off-ramp at its divergence from the freeway. For two-lane divergences from the freeway, an acceptable limit of 2,300 vehicles per hour has been used.

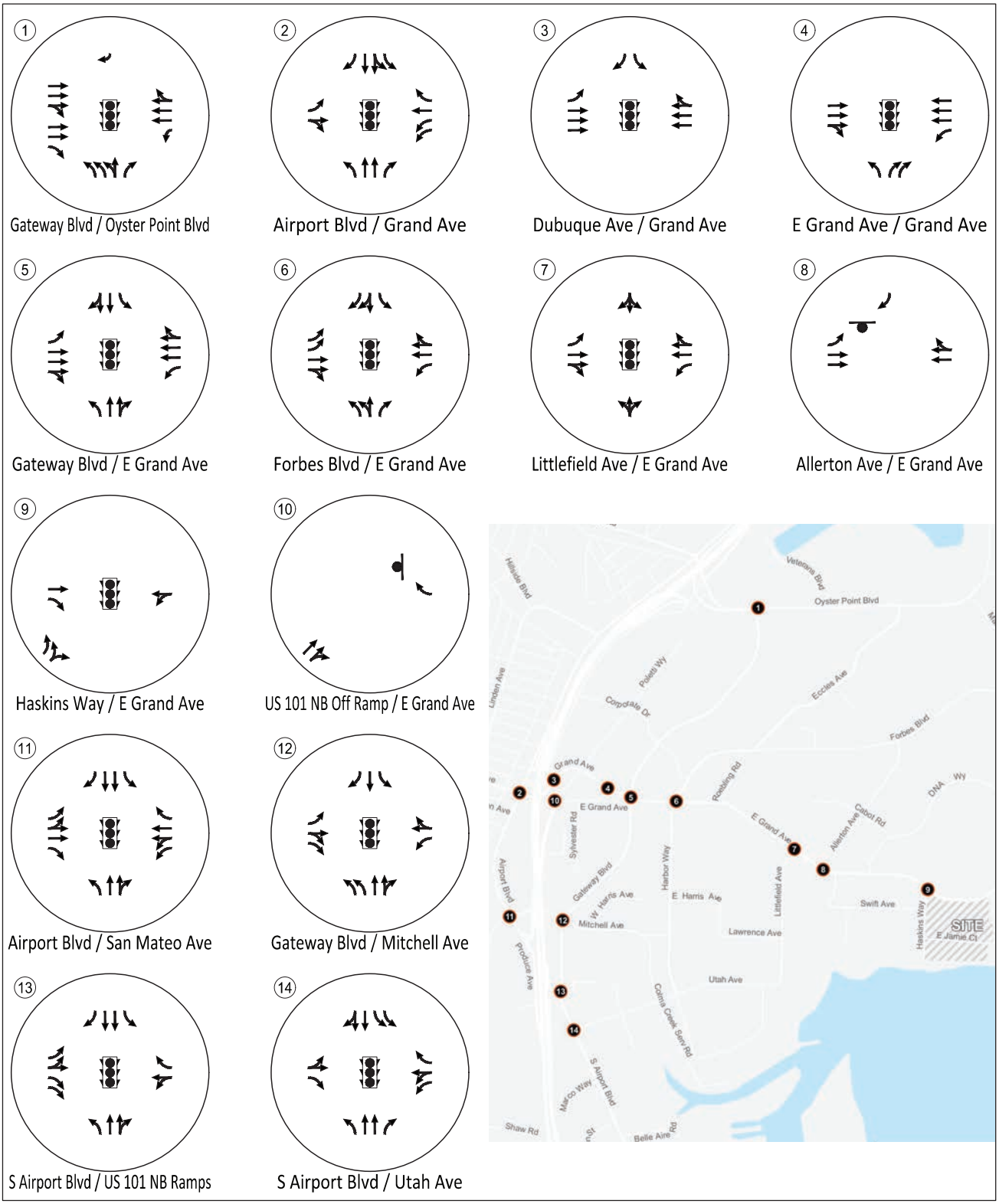
EXISTING INTERSECTION OPERATIONS

The study intersections were selected because they have the potential to be affected by traffic to and from the project site. They were identified based on prior traffic studies of development in the project area and were verified by City of South San Francisco staff. A total of 14 study intersections, listed below, were evaluated (numbers correspond to those shown on Figure 4.9.1, with north-south streets listed first):

1. Gateway Boulevard and Oyster Point Boulevard/U.S. 101 Southbound Off-Ramp
2. Airport Boulevard and Grand Avenue
3. Dubuque Avenue and Grand Avenue
4. East Grand Avenue and Grand Avenue
5. Gateway Boulevard and East Grand Avenue
6. Forbes Boulevard/Harbor Way and East Grand Avenue
7. Littlefield Avenue and East Grand Avenue
8. Allerton Avenue and East Grand Avenue
9. Haskins Way and East Grand Avenue
10. U.S. 101 Northbound Off-Ramp/Poletti Way and East Grand Avenue
11. Airport Boulevard/Produce Avenue and San Mateo Avenue/South Airport Boulevard
12. Gateway Boulevard/South Airport Boulevard and Mitchell Avenue
13. South Airport Boulevard and U.S. 101 Northbound Ramps
14. South Airport Boulevard and Utah Avenue

Existing intersection lanes and traffic controls were verified for the 14 study intersections and are shown in **Figure 4.9.2: Existing Lane Configuration and Traffic Control**. Peak hour turning movement counts were obtained from the City of South San Francisco as contained in the 2016 base year intersection analysis tool (Synchro software) provided by the City (see **Figure 4.9.3: Existing (2016) AM Peak Hour Intersection Volumes** and **Figure 4.9.4: Existing (2016) PM Peak Hour Intersection Volumes**). The AM peak hour is the highest traffic hour at each location between 7:00 and 9:00 AM and is typically 7:30 to 8:30 AM at the majority of locations. The PM peak hour is the highest traffic hour at each location between 4:00 and 6:00 PM and is typically 4:30 to 5:30 PM at the majority of locations. The intersection of Haskins Way and Grand Avenue was not included in the traffic counts provided by the City, and the peak hour turning movements were counted at this intersection on October 12, 2017.

Existing traffic operations were evaluated at the 14 study intersections and the results of the analysis are summarized in **Table 4.9.4: Intersection Level of Service – Existing (2016)**. As shown in the table, all study intersections currently operate at LOS D or better during both the AM and PM peak hours, with the exception of the intersection of Gateway Boulevard/South Airport Boulevard and Mitchell Avenue (Intersection 12), which operates at LOS E during the PM peak hour.



Source: Kittelson & Associates (2018)

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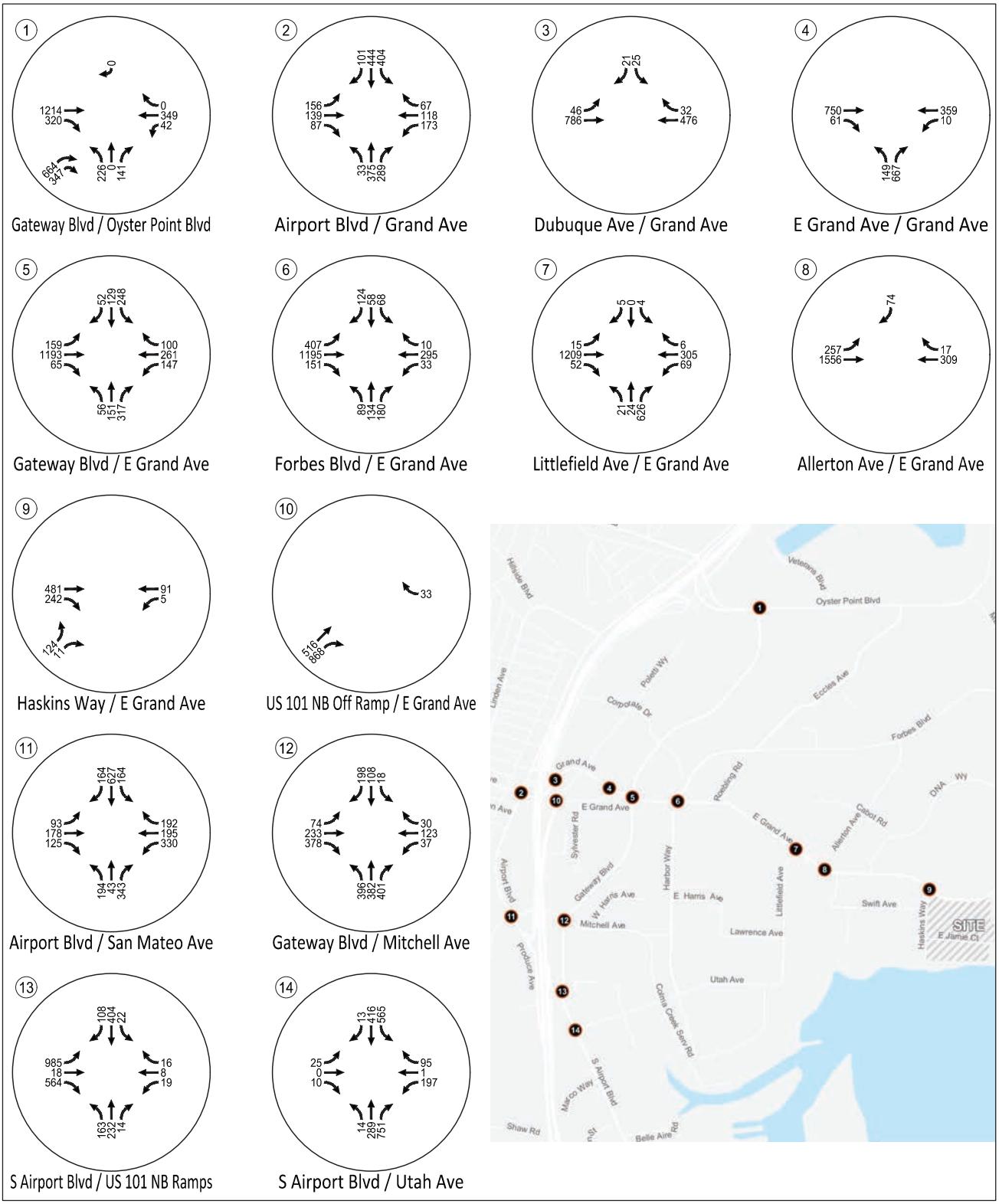
FIGURE 4.9.2: EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL



Source: Kittelson & Associates (2018)

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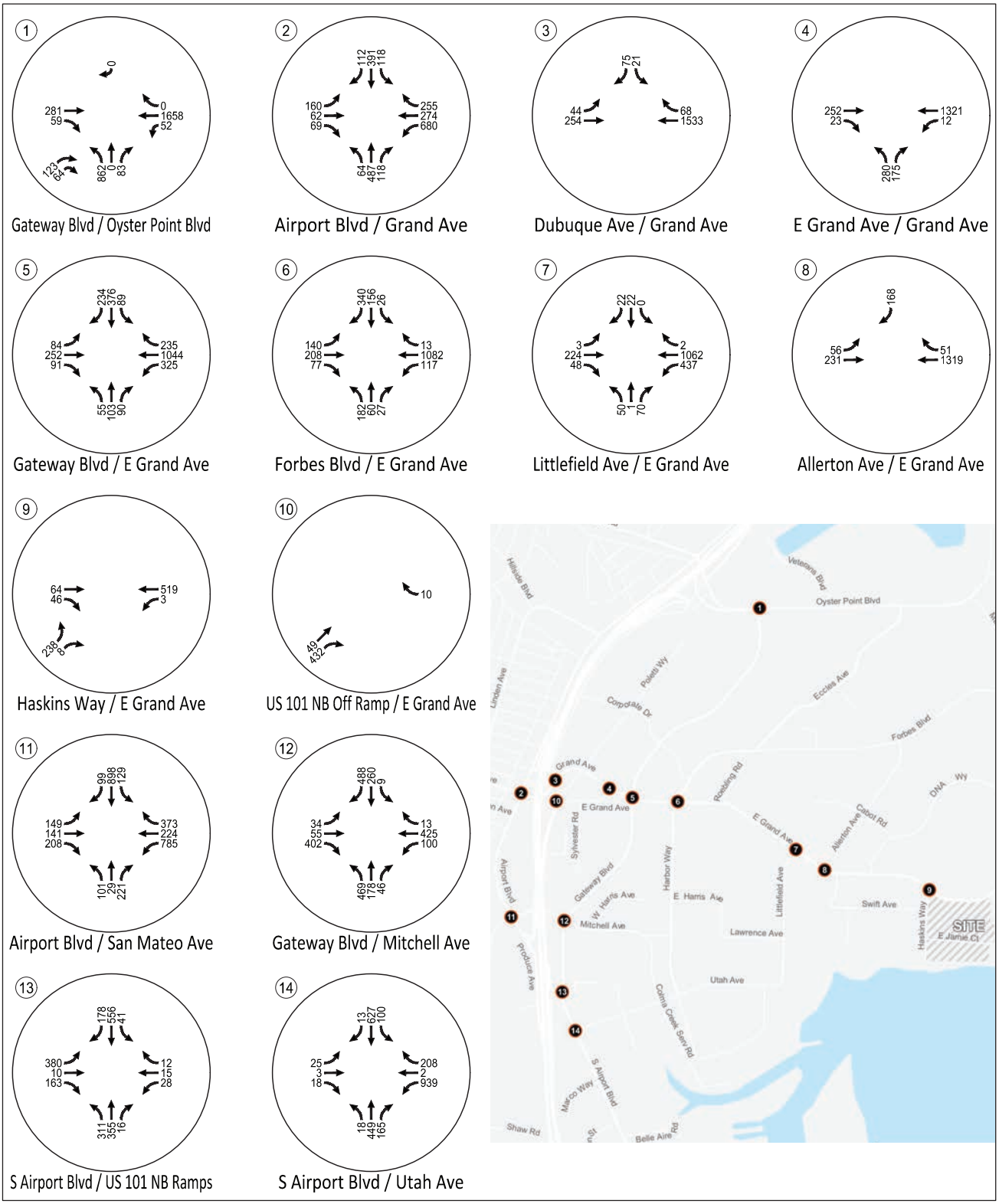
FIGURE 4.9.3: EXISTING (2016) AM PEAK HOUR INTERSECTION VOLUMES



Source: Kittelson & Associates (2018)

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FIGURE 4.9.4: EXISTING (2016) PM PEAK HOUR INTERSECTION VOLUMES

Table 4.9.4: Intersection Level of Service – Existing (2016)

No.	Intersection	Control Type	Level of Service – Average Delay per Vehicle in Seconds	
			AM Peak Hour	PM Peak Hour
1	Gateway Blvd/Oyster Point Blvd/US 101 SB Off-Ramp Flyover	Signal	C – 31.4	C – 21.0
2	Airport Blvd/Grand Ave	Signal	D – 38.2	D – 41.0
3	Dubuque Ave/Grand Ave Overcrossing	Signal	A – 5.0	A – 5.0
4	E Grand Ave/Grand Ave Overcrossing	Signal	A – 6.3	A – 7.3
5	Gateway Blvd/E Grand Ave	Signal	C – 22.7	C – 20.0
6	Forbes Blvd/Harbor Way/E Grand Ave	Signal	C – 30.5	D – 37.0
7	Littlefield Ave/E Grand Ave	Signal	D – 42.3	B – 15.6
8	Allerton Ave/E Grand Ave	TWSC	B – 10.1	D – 28.6
	Exceeds Peak Hour Signal Warrant		No	**Yes**
9	Haskins Way/E Grand Ave	Signal	A – 5.3	A – 6.2
10	US 101 NB Off-Ramp/Poletti Way/Grand Ave	TWSC	C – 16.2	A – 9.9
	Exceeds Peak Hour Signal Warrant		No	No
11	Airport Blvd/San Mateo Ave/Produce Ave	Signal	D – 36.3	D – 39.3
12	Gateway Blvd/S Airport Blvd/Mitchell Ave	Signal	D – 48.9	**E – 63.9**
13	S Airport Blvd/US 101 NB Hook Ramps/Wondercolor Ln	Signal	C – 28.0	C – 26.5
14	S Airport Blvd/Utah Ave	Signal	C – 28.4	C – 32.7

Note: TWSC = Two-Way Stop Control

Bold = exceeds City of South San Francisco's LOS D threshold for signalized intersections

Source: Kittelson & Associates, Inc. (2018)

Existing Signal Warrants

Peak hour signal warrants were evaluated at the two unsignalized study intersections, Allerton Avenue / East Grand Avenue (Intersection 8), and U.S. 101 NB Ramps/Poletti Way/East Grand Avenue (Intersection 10). Existing traffic volumes exceed the peak hour signal warrant at the intersection of Allerton Avenue and East Grand Avenue during the PM peak hour but not during the AM peak hour. The current East of 101 Traffic Impact Fee includes an improvement at this intersection which would provide a traffic signal. Existing traffic volumes at the intersection of U.S. 101 Northbound Off-Ramp/Poletti Way and East Grand Avenue do not exceed the peak hour signal warrant criteria.

Existing Intersection Queues

Queues were evaluated on selected movements which could be impacted by project traffic and the results of the analysis are summarized in **Table 4.9.5: Intersection Queues – Existing (2016)**. The analysis indicates that 95th percentile queues exceed available storage lengths on the following three movements:

- At the intersection of Gateway Boulevard with Oyster Point Boulevard and the U.S. 101 SB Off-Ramp Flyover (Intersection 1), on the right turn from the flyover ramp during the AM peak hour

- At the intersection of Gateway Boulevard with East Grand Avenue (Intersection 5), in the westbound left-turn lane during both the AM and PM peak hours
- At the intersection of South Airport Boulevard/Produce Avenue/San Mateo Avenue (Intersection 11), in the westbound through-left lanes during the PM peak hour

Table 4.9.5: Intersection Queues – Existing (2016)

Intersection	Storage Length (feet per lane)	95th Percentile Queue Lengths (feet per lane)	
		AM Peak Hour	PM Peak Hour
1. Oyster Point Blvd/Gateway Blvd/ US 101 SB Off-Ramp Flyover			
SB Off-Ramp Thru	2900	385	67
SB Off-Ramp Right	375	**512**	86
2. Airport Blvd/Grand Ave			
SB Airport Blvd Left	300	258	118
WB Grand Ave Right	75	40	58
4. Gateway Blvd/East Grand Ave			
EB E Grand Ave Thru	300	85	138
WB E Grand Ave Thru	560	13	8
WB E Grand Ave Left	200	**238**	**348**
11. Airport Blvd/ San Mateo Ave/Produce Ave			
WB Airport Thru/Left	225	208	**380**
13. S Airport Blvd/US 101 NB On/Off Hook Ramps/Wondercolor Ln			
Off-Ramp Left	750	410	165
Off-Ramp Right	150	31	18

Note: Analysis using Synchro software 2010 *Highway Capacity Manual* methodology where possible, 2000 *Highway Capacity Manual* methodology at Intersections 1, 2 and 13.

Bold = Queue exceeds storage length

Source: Kittelson & Associates, Inc. (2018)

EXISTING FREEWAY OPERATIONS

Existing freeway volumes were obtained from the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update, which derived the freeway volumes from May 2016 freeway mainline counts from the Caltrans Performance Measurement System (PeMS). The freeway volumes were evaluated relative to the level of service criteria, as shown in **Table 4.9.6: Freeway Mainline Level of Service – Existing (2016)**. All but one of the study freeway segments operate at an acceptable LOS E or better.

Table 4.9.6: Freeway Mainline Level of Service – Existing (2016)

Segment	AM Peak Hour			PM Peak Hour		
	Volume	Density	LOS	Volume	Density	LOS
North of Oyster Point Blvd						
Northbound	8023	38.9	E	7668	35.9	E
Southbound	7692	36.1	E	6852	30.2	D
North of I-380						
Northbound	10951	33.1	D	7551	21.1	C
Southbound	7936	27.3	D	8677	30.7	D

Note: Density is shown in passenger cars per lane per mile; LOS = Level of Service

Bold = exceeds San Mateo County Congestion Management Program LOS E threshold

Highway Capacity Manual (2010) Analysis Methodology

Source: Kittelson & Associates, Inc. (2018)

EXISTING FREEWAY RAMP OPERATIONS

Existing U.S. 101 freeway ramp volumes were compared to capacity thresholds, as shown in **Table 4.9.7: Freeway Ramp Capacity and Volumes – Existing (2016)**. Existing volumes on all study ramps are below ramp capacities during both the A.M. and P.M. peak hours.

Table 4.9.7: Freeway Ramp Capacity and Volumes – Existing (2016)

Freeway Ramp	AM Peak Hour			PM Peak Hour	
	Capacity	Volume	Exceeds Capacity	Volume	Exceeds Capacity
NB Off-Ramp to S. Airport/Wondercolor	2300	1567	No	553	No
SB On-Ramp from Produce Avenue	3300	1154	No	1950	No
NB Off-Ramp to E. Grand/Poletti	2300	1384	No	481	No
NB On-Ramp from Airport/Grand	2000	550	No	783	No
SB Off-Ramp to Airport	1500	610	No	586	No

EXISTING TRANSIT SERVICE

Transit service in the study area includes local bus service, shuttle service and regional rail service, as shown on **Figure 4.9.5: Existing Transit Service**.

Source: Kittelson & Associates (2018)

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FIGURE 4.9.5: EXISTING TRANSIT SERVICE

Regional Transit

CALTRAIN

Caltrain provides train service between Gilroy, San Jose, and San Francisco. The South San Francisco station is located beneath the elevated intersection of Dubuque Avenue and Grand Avenue, with vehicle access provided from Dubuque Avenue. Trains serve this station approximately twice an hour during commute periods and hourly during midday. The station is 1.5 miles from the project site. Several bus services (described in following sections) provide connections between the Caltrain station and areas surrounding the station. Caltrain is currently constructing a new center platform and pedestrian underpass at the South San Francisco station. The modifications will improve pedestrian access from Grand Avenue and will make the station fully compliant with the Americans with Disabilities Act (ADA).

BART

The Bay Area Rapid Transit (BART) system is a regional rail system that serves the northern Peninsula, San Francisco, and various cities in the East Bay. The South San Francisco BART station is located approximately 3.5 miles from the project site, along El Camino Real near McLellan Drive. This station is served by the Antioch to San Francisco International Airport/Millbrae line, which operates every 15

minutes on weekdays with several additional trains during the AM peak period. Several bus services (described in following sections) provide connections between the BART station and the East of 101 Area.

FERRIES

The South San Francisco ferry terminal is located on Marina Boulevard in the Oyster Point portion of the East of 101 Area. It is approximately 2 miles from the project site. Service is provided by the Water Emergency Transit Authority from Alameda and Oakland in the morning and to Alameda and Oakland in the evening. There are three trips during each of the peak commute periods. Several shuttle bus services (described in following sections) provide connections between the ferry terminal and the East of 101 Area.

Local Transit

SAMTRANS

The San Mateo County Transit District (SamTrans) provides bus service in South San Francisco and San Mateo County. There is no direct SamTrans service within 1.5 miles of the project site. Several SamTrans lines serve Airport Boulevard.

Route 38 connects Airport Boulevard in South San Francisco with the Safe Harbor shelter and the Colma BART station. It operates during peak periods only. Route 292 provides service parallel to U.S. 101 between Hillsdale Mall in San Mateo and downtown San Francisco. There is a stop on Airport Boulevard at Baden Avenue near Grand Avenue. Average service frequencies are 20 minutes during peak periods and 30 minutes midday.

Route 397 is a limited late-night service between Palo Alto and downtown San Francisco with a stop on Airport Boulevard at Baden Avenue near Grand Avenue.

SHUTTLES

Commute.org operates shuttles connecting the East of 101 Area with Caltrain, BART and the ferry terminal. The Commute.org shuttles currently use 20 passenger vehicles, with 28 passenger vehicles planned for the routes serving BART based on demand. There are existing shuttle stops near the project site at the corner of Haskins Way and Swift Avenue, and in the parking lot for 400/450 Jamie Court. There are also private shuttle buses operated by companies, particularly Genentech, to connect their employees with regional transit services or provide direct service from other cities.

The South San Francisco-Utah-Grand BART shuttle provides direct service to stops on Haskins Way and Jamie Court, connecting to South San Francisco BART. It operates every 30 minutes during the morning and evening commute periods, with no midday service. There are 16 daily shuttle trips with an average of 135 daily passengers, for an average of 8.4 passengers per trip.

The South San Francisco-Utah-Grand Caltrain shuttle connects the South San Francisco Caltrain station to employers along Grand Avenue and Utah Avenue, with direct service to stops on Haskins Way and Jamie Court. It operates approximately every 30 minutes during the morning and evening commute periods, with no midday service. There are 14 daily shuttle trips with an average of 104 daily passengers, for an average of 7.4 passengers per trip.

The South San Francisco-Utah-Grand Ferry shuttle connects the South San Francisco ferry terminal to employers along Grand Avenue and Utah Avenue, with direct service to stops on Haskins Way and Jamie Court. It operates four shuttle trips during the AM peak period and three during the PM peak period, timed to meet the ferry service. There are 7 daily shuttle trips with an average of 56 daily passengers, for an average of 8.11 passengers per trip.

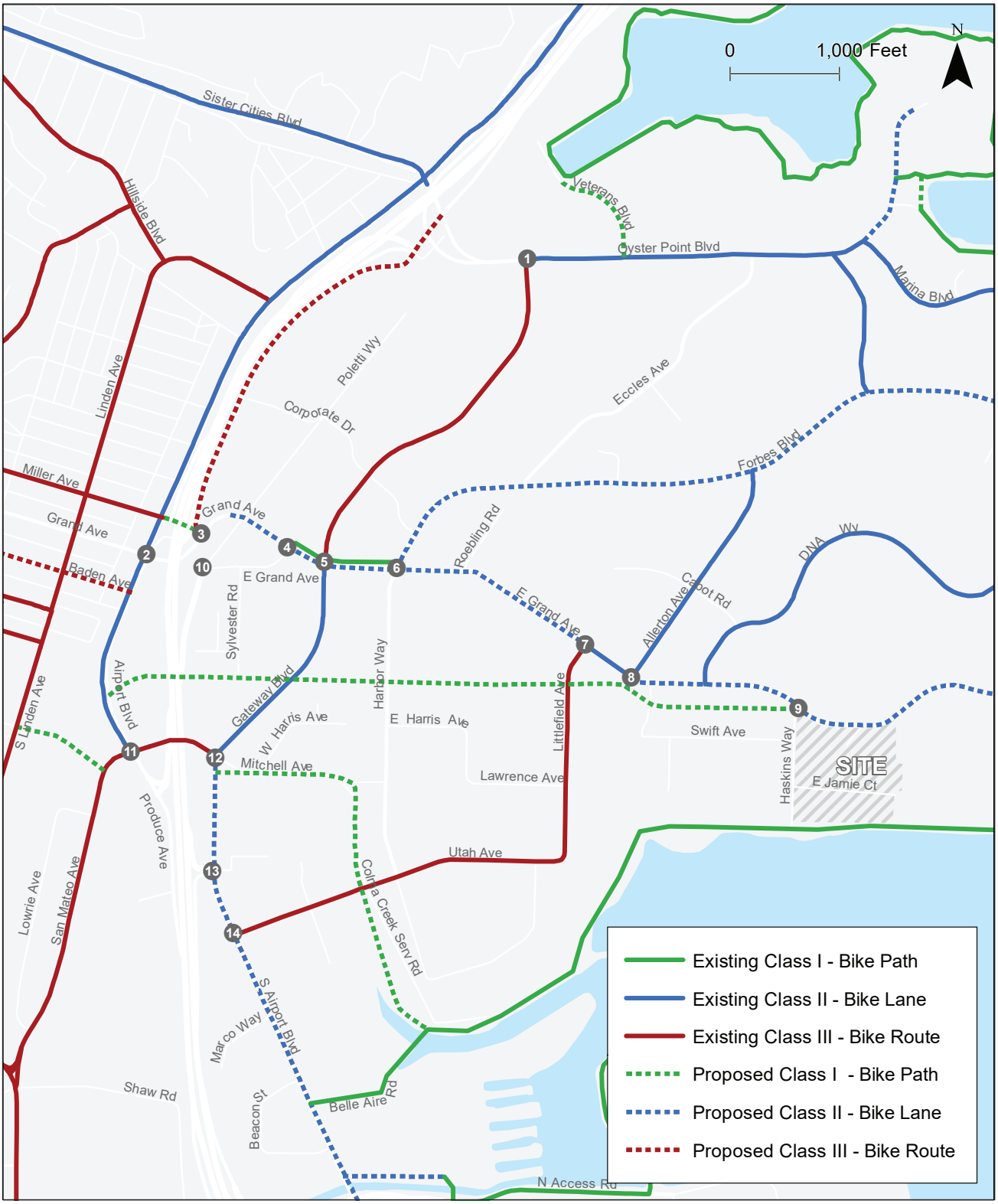
Information on whether specific shuttle runs are currently operating at or over capacity is not available.

Existing Bicycle Facilities

The San Francisco Bay Trail (Bay Trail) is a paved multi-use path that borders the shore of San Francisco Bay around the perimeter of the East of 101 Area. Access to the Bay Trail from the project site is available at the south end of Haskins Way.

The project site is not served directly by designated on-street bicycle facilities. As shown in **Figure 4.9.6: Existing and Proposed Bicycle Facilities**, there are Class II bicycle lanes[2] on a short segment of East Grand Avenue between Littlefield Avenue and Allerton Avenue. There are also bike lanes on Allerton Avenue and DNA Way. A Class III shared bike route is designated on Littlefield Avenue and Utah Avenue.

[2] A Class II bicycle lane is a striped and signed bicycle lane separated from traffic; a Class III shared bike route has signs indicating the bicycle route but the road is shared by bicycles and motor vehicles, with no separate bicycle lane.



Source: Kittelson & Associates (2018)

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FIGURE 4.9.6: EXISTING AND PROPOSED BICYCLE FACILITIES

The *South San Francisco Bike Master Plan* designates East Grand Avenue east of Dubuque Avenue as a route for future Class II bike lanes, which would directly serve the project site. A proposed separated Class I bike path west of Dubuque Avenue would connect East Grand Avenue to Airport Boulevard and the downtown area.[3]

When traffic counts were conducted at the intersection of Haskins Way and East Grand Avenue in October 2017, four bicyclists were observed during the AM peak hour and zero bicycles were observed in the PM peak hour.

Existing Pedestrian Facilities

Existing pedestrian conditions were observed in the study area. There are no sidewalks on East Grand Avenue, Haskins Way or East Jamie Court adjacent to the project site. As shown in **Figure 4.9.7: Existing and Proposed Pedestrian Facilities**, there are sidewalks on the opposite sides of each of these streets. There are sidewalks on both sides of East Grand Avenue west of Haskins Way. Pedestrians can also use the San Francisco Bay Trail.

When traffic counts were conducted at the intersection of Haskins Way and East Grand Avenue in October 2017, two pedestrians were observed during the AM peak hour and seven pedestrians were observed in the PM peak hour.

4.9.3 Regulatory Framework

This section provides a summary of the plans and policies of federal, state, and regional agencies and the City of South San Francisco that have policy and regulatory control over the project site.

FEDERAL

There are no federal regulations that pertain to the evaluation of the proposed project's transportation impacts.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is the primary state agency responsible for transportation issues. One of its duties is the construction and maintenance of the state highway system. Caltrans has established standards for roadway traffic flow and developed procedures to determine if state-controlled facilities require improvements. Caltrans facilities within the project study area include the U.S. 101 freeway, the on- and off-ramps and the traffic signals at ramp termini.

[3] A Class I bike path is a completely separate right-of-way reserved for shared use of bicycles and pedestrians.

Source: Kittelson & Associates (2018)

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FIGURE 4.9.7: EXISTING AND PROPOSED PEDESTRIAN FACILITIES

Caltrans, as a responsible agency under the California Environmental Quality Act (CEQA), is available for early consultation on projects to provide guidance on applicable transportation analysis methodologies or other transportation-related issues, and is responsible for reviewing traffic impact studies for errors and omissions pertaining to the state highway facilities. In relation to this role, Caltrans published the "Guide for the Preparation of Traffic Impact Studies"[4] (Caltrans Guide), which establishes "measures of effectiveness" used to determine significant impacts on state facilities. Caltrans endeavors to maintain a minimum level of service at the transition between LOS C and LOS D on state facilities. Where an existing facility is operating at less than the LOS C/D threshold, the existing measure of effectiveness should be maintained. For example, a facility that operates at LOS E under existing conditions should be maintained to operate at no worse than LOS E under future conditions.

The Caltrans Guide also mandates that traffic analyses include mitigation measures to lessen potential project impacts on state facilities and to meet each project's fair share responsibility for the impacts. However, the ultimate mitigation measures and their implementations are to be determined based on consultation between Caltrans, the City of South San Francisco, and the project sponsor.

Senate Bill 743

Senate Bill 743 (SB 743; 2013) requires the Governor's Office of Planning and Research (OPR) to update the CEQA Guidelines and establish "criteria for determining the signficance of transportation impacts of projects within transit priority areas." As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diveristy of land uses." The new criteria eliminate the use of level of service measures in favor of VMT for environmental review purposes.

The OPR has submitted changes to the CEQA Guidelines with an accompanying technical advisory document. The Natural Resources Agency has begun the formal administrative rulemaking process under the Administrative Procedure Act. Changes would only go into effect after the Office of Administrative Law reviews and approves the changes. OPR recommends that the new procedures remain optional for a two-year period and that the new procedures become effective statewide in January 2020.

The proposed revisions to the CEQA Guidelines submitted by OPR in November 2017 in compliance with SB 743 include criteria for analyzing transportation impacts. For land use projects, VMT exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less-than-significant transportation impact.[5] Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less-than-significant transportation impact. A lead agency has discretion to choose the most appropriate

[4] California Department of Transportation, *Guide for the Preparation of Traffic Impact Studies,* December 2002. Available on line at: http://dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf. Accessed June 4, 2018.

[5] Governor's Office of Planning and Research, "Proposed Updates to the CEQA Guidelines," November 2017, p. 78. Available online at http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf. Accessed June 8, 2018.

methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure.

The OPR "Technical Advisory on Evaluating Transportation Impacts in CEQA" provides a recommended threshold for office projects. Office projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact.[6]

REGIONAL

San Mateo County City/County Association of Governments

The San Mateo County City/County Association of Governments (C/CAG) prepares the county's Congestion Management Program (CMP), a plan mandated by California law to describe the strategies to address congestion problems on the Metropolitan Transportation System (MTS) and CMP network, which includes state highways and principal arterials. The 2017 CMP for San Mateo County was last updated in January 2018. The CMP uses level of service standards as a means to measure congestion and has established LOS standards to determine how local governments meet the objectives of the CMP. U.S. 101 is the only MTS and CMP roadway in the study area. Regional transit systems include BART, Caltrain, and SamTrans.

The LOS standards established for roads and intersections in the San Mateo County CMP street network vary based on geographic differences. For roadway segments and intersections near the county border, the LOS standard was set at E in order to be consistent with the recommendations in the neighboring counties. If the existing level of service in 1990/91 was F, the standard was set to LOS F. If the existing or future LOS was or will be E, the standard was set to E. For the remaining roadways and intersections, the standard was set to be one letter designation worse than the projected LOS in the year 2000.

If a proposed land use change would either cause a deficiency (to operate below the standard LOS) on a CMP-designated roadway system facility, or would significantly affect (by using greater than 1 percent of the facility capacity) a deficient CMP system facility that operated at LOS F in the 1991 CMP baseline LOS, mitigation measures are to be developed so that LOS standards are maintained on the CMP-designated roadway system. If mitigation measures are not feasible (due to financial, environmental, or other factors), a Deficiency Plan must be prepared for the deficient facility. The Deficiency Plan must indicate the land use and infrastructure action items to be implemented by the local agency to eliminate the deficient conditions. A Deficiency Plan may not be required if the deficiency would still occur if traffic operation outside the county were excluded from the determination of conformance.

For proposed individual development projects that would generate more than 100 net new peak hour vehicle trips on the CMP network, local jurisdictions must ensure that the developer and/or tenants analyze those impacts and apply feasible mitigation for the new peak hour trips generated by the project by selecting one or more of the options listed below. It is up to the local jurisdiction working together

[6] Governor's Office of Planning and Research, "Technical Advisory on Evaluating Transportation Impacts in CEQA," November 2017, p. 12. Available online at http://opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf. Accessed June 8, 2018.

with the project sponsor to choose the methods that will be compatible with the intended purpose of the project. This list is not all inclusive. Additional measures may be proposed for consideration by C/CAG in advance of project approval by the local decision-maker.

a. Reduce the scope of the project so that it will generate less than 100 peak hour trips.

b. Build adequate roadway and/or transit improvements so that the added peak hour trips will have no measurable impact on the Congestion Management Program roadway network.

c. Contribute an amount per peak hour trip to a special fund for improvements to the Congestion Management Program roadway network. This amount will be set annually by C/CAG based on a nexus test.

d. Require the developer and all subsequent tenants to implement Transportation Demand Management programs that mitigate the new peak hour trips. A list of acceptable programs and the equivalent number of trips that are mitigated will be provided by C/CAG annually. Programs can be mixed and matched so long as the total mitigated trips is equal to or greater than the new peak hour trips generated by the project. These programs, once implemented, must be on-going for the occupied life of the development. Programs may be substituted with prior approval of C/CAG, so long as the number of mitigated trips is not reduced. Additional measures may be proposed to C/CAG for consideration. Also, there may be special circumstances that warrant a different amount of credit for certain measures. These situations can also be submitted to C/CAG in advance for consideration.

LOCAL

City of South San Francisco General Plan

The Transportation Element of the General Plan contains the following policies that are relevant to the evaluation of project impacts and mitigation measures:

Policy 2-I-4: Require all new developments seeking an FAR bonus set forth in Table 2.2-2 to achieve a progressively higher alternative mode usage. The requirements of the TDM Program are detailed in the Zoning Ordinance. The requirements of the TDM program for projects seeking an FAR bonus are based on the percentage trip reduction that is achieved.

Policy 4.2-G-1: Undertake efforts to enhance transportation capacity, especially in growth and emerging employment areas such as in the East of 101 area.

Policy 4.2-G-10: Make efficient use of existing transportation facilities and, through the arrangement of land uses, improved alternate modes, and enhanced integration of various transportation systems serving South San Francisco, strive to reduce the total vehicle-miles traveled.

Policy 4.2-G-12: Provide fair and equitable means for paying for future street improvements including mechanisms such as development impact fees.

Policy 4.2-G-13: Strive to maintain LOS D or better on arterial and collector streets, at all intersections, and on principal arterials in the CMP during peak hours.

Policy 4.2-G-14: Accept LOS E or F after finding that:

- There is no practical and feasible way to mitigate the lower level of service; and
- The uses resulting in the lower level of service are of clear, overall public benefit.

Policy 4.2-I-5: Establish accessibility requirements for all streets designated as arterial or collector on Figure 4-1. As part of development review of all projects along these streets, ensure that access to individual sites does not impede through traffic flow.

Policy 4.2-I-7: Continue to require that new development pays a fair share of the costs of street and other traffic and transportation improvements, based on traffic generated and impacts on service levels. Explore the feasibility of establishing impact fee, especially for improvements required in the Lindenville area.

Policy 4.2-I-10: Design roadway improvements and evaluate development proposals based on LOS standards.

Policy 4.2-I-11: Implement, to the extent feasible, circulation system improvements illustrated in Figures 4-1, 4-2 and 4-3 prior to deterioration in levels of service below the stated standard.

Policy 4.3-G-1: Develop a comprehensive and integrated system of bikeways that promote bicycle riding for transportation and recreation.

Policy 4.3-G-2: Provide safe and direct pedestrian routes and bikeways between and through residential neighborhoods, and to transit centers.

Policy 4.3-G-5: In partnership with employers, continue efforts to expand shuttle operations.

Policy 4.3-G-6: In partnership with the local business community, develop a transportation systems management plan with identified trip-reduction goals, while continuing to maintain a positive and supportive business environment.

Policy 4.3-I-4: Require provision of secure covered bicycle parking at all existing and future multifamily residential, commercial, industrial, and office/institutional uses.

Policy 4.3-I-6: Expand pedestrian facilities in new development, using the PMP for pedestrian design guidelines and to identify other improvements that should be considered for projects proposed in areas that are identified in PMP concept plans.

Policy 4.3-I-11: As part of any development in Lindenville or East of 101, require project proponents to provide sidewalks and street trees as part of frontage improvements for new development and redevelopment projects.

Policy 4.3-I-16: Favor Transportation Systems Management programs that limit vehicle use over those that extend the commute hour.

Policy 4.3-I-18: Establish parking standards to support trip reduction goals by:

- Allowing parking reductions for projects that have agreed to implement trip reduction methods, such as paid parking, and for mixed use development.
- Requiring projects larger than 25 employees to provide preferential parking for carpools and vanpools.

Policy 4.4-G-1: Promote local and regional public transit serving South San Francisco.

Policy 4.4-G-2: Explore mechanisms to integrate various forms of transit.

The *East of 101 Area Plan*, which was adopted prior to the City's General Plan, is primarily used as a design-only document for new projects located east of U.S. 101. Therefore, the General Plan policies listed under the Transportation Element are the guiding policies and supersede all Circulation Element policies set forth in Chapter 5 of the *East of 101 Area Plan*.

City of South San Francisco Municipal Code

Several sections of the South San Francisco Municipal Code pertain to the transportation components of the proposed project.

Municipal Code Section 20.330.004, Required Parking Spaces, specifies that each land use shall be provided at least the number of on-site parking spaces stated in Table 20.330.004. These parking ratios should generally not be exceeded. However, the City Planner may allow parking in excess of the spaces required as long as the amount of parking provided is supportive of the recommendations and requirements of the TDM plan prepared for the project. For business and professional office uses, the minimum required parking spaces are 1 per 300 square feet (sq. ft.) of floor area up to 100,000 sq. ft. and 1 per 350 sq. ft. over 100,000 sq. ft.; for research and development uses, the minimum required parking spaces are 1 per 350 sq. ft.

Municipal Code Section 20.330.006, Parking Reductions, states that required parking for any use may be reduced through approval of a Conditional Use Permit (CUP). Support for a CUP could include a description of possible Transportation Demand Management measures, such as preferential carpool spaces, telecommuting or staggered work shifts, provision of transit passes or other transit incentives for residents or employees, incorporation of spaces for car share vehicles, bicycles, or other measures that could result in reduced parking demand.

Municipal Code Section 20.330.008, Bicycle Parking, specifies that short-term bicycle parking spaces shall be provided at a rate of 10 percent of the number of required automobile parking spaces and any establishment with 25 or more employees shall provide long-term bicycle parking at a ratio of one space per 25 vehicle spaces.

Municipal Code Section 20.330.009, On-Site Loading, specifies the number of on-site loading spaces (minimum 50 feet in length) that must be provided based on building square footage.

Municipal Code Chapter 20.400, Transportation Demand Management, contains the City's TDM requirements. The TDM requirements apply to all nonresidential development expected to generate 100 or more average daily trips. The minimum requirements are to achieve 28 percent alternative mode usage (compared to solo driving) with additional density bonuses allowed for higher use of alternative modes. In order to achieve an FAR of 1.0, as required for development of the project, the TDM plan implemented in connection with the project must achieve 35 percent alternative mode usage. The chapter also contains required trip reduction measures, TDM plan submittal, and monitoring requirements.

Bicycle Master Plan

The *South San Francisco Bicycle Master Plan* (Bicycle Plan) recommends a comprehensive and integrated system of bikeways that promote bicycle riding for transportation and recreation.[7] The Bicycle Plan follows the steps necessary to qualify for a wide range of funding sources, including the California

[7] City of South San Francisco, *South San Francisco Bicycle Master Plan*, adopted February 2011. Available online at http://www.ssf.net/home/showdocument?id=760. Accessed June 8, 2018.

Bicycle Transportation Account. The following policy is relevant to evaluation of project impacts and mitigation measures:

> **Policy 3.2:** Bicycle parking facilities should be provided at schools, parks and transit stops, and shall be required to be provided at private developments including places of work, commercial shopping establishments, parks, community facilities and other bicyclist destinations.

The Bicycle Plan recommends improvements to on-street and off-street bicycle facilities. As shown on **Figure 6.2: New General Plan Bikeways**,[8] in the project area these include recommendations for bicycle lanes on East Grand Avenue and development of an off-street multi-use path along former railroad right-of-way parallel to and south of East Grand Avenue.

Pedestrian Master Plan

The *South San Francisco Pedestrian Master Plan* describes the planning context, existing conditions, recommended improvements, and funding plan for pedestrian facilities in South San Francisco.[9] The following policies are relevant to evaluation of project impacts and mitigation measures:

> **Policy 1.1:** Integrate pedestrian facilities and planning into all of the City's planning review and construction activities, legitimizing walking as a transportation mode.
>
> > **Implementation Measure 1.1-1:** All development projects shall be required to conform to the Pedestrian Master Plan goals, policies and implementation measures.
>
> **Policy 3.2:** Pedestrian facilities and amenities should be provided at schools, parks and transit stops, and shall be required to be provided at private developments including places of work, commercial shopping establishments, parks, community facilities and other pedestrian destinations.

The Pedestrian Plan includes recommendations for priorities for sidewalk gap closures throughout the City. The completion of sidewalks adjacent to the project site is listed as third priority gap closures.[10]

4.9.4 Impacts and Mitigation Measures

This section describes the impact analysis related to transportation and circulation for the proposed project. This section also describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany the discussion of each identified significant impact.

[8] *South San Francisco Bicycle Master Plan*, p. 6-4.

[9] City of South San Francisco, *South San Francisco Pedestrian Master Plan*, adopted February 2014. Available online at http://www.ssf.net/home/showdocument?id=516. Accessed June 8, 2018.

[10] *South San Francisco Pedestrian Master Plan*, Chapter 5, Concept Plan, Section 5.1, Citywide Sidewalk Gap Closure Plan, p. V-3, Concept Plan One.

SIGNIFICANCE CRITERIA

Per the CEQA Guidelines, Appendix G, a transportation and circulation impact is considered significant if project implementation would:

a. conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

b. conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways;

c. result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

d. substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

e. result in inadequate emergency access; or

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The proposed revisions to the CEQA Guidelines would replace the criteria related to LOS with criteria related to VMT.

The following significance criteria are based on the CEQA Guidelines and are consistent with criteria used for the City of South San Francisco and C/CAG:

Circulation System Performance

Intersection Impact Criteria

A project would result in a significant traffic impact at a signalized intersection if:

- the addition of project traffic at an intersection operating at an acceptable LOS (LOS D or better) without the project would cause the intersection to operate at an unacceptable LOS (LOS E or F) with the project, and the total traffic volume through the intersection would increase by at least 2 percent (1 percent for an intersection with a freeway ramp connection); or
- the project would add more than 2 percent of total traffic volume at an intersection operating at an unacceptable LOS (LOS E or F) without the project, or 1 percent for an intersection with a freeway ramp connection.

A project would result in a significant traffic impact at an unsignalized intersection if:

- the addition of project traffic at an intersection operating at an acceptable LOS (LOS E or better) without the project would cause the intersection to operate at an unacceptable LOS F with the project, and the total traffic volume through the intersection would increase by at least 2 percent; or

- the project would add more than 2 percent of total traffic volume at an intersection operating at an unacceptable LOS F without the project; or
- the addition of project traffic would cause traffic volumes to exceed the Caltrans peak hour or pedestrian/school crossing warrant criteria; or
- the project would add more than 2 percent of total traffic volume at an intersection where traffic volumes exceed the Caltrans peak hour or pedestrian/school crossing warrant criteria without the project.

Queue Impact Criteria

A project would result in a significant traffic impact at an intersection if:

- the addition of project traffic on a turn-lane or freeway off-ramp where the 95th percentile queues are within the available storage length without the project would cause 95th percentile vehicle queues to exceed the available storage length; or
- the project would add more than 1 percent to the traffic volume on a turn-lane, freeway off-ramp or through lane segment where 95th percentile queues would exceed the available storage length without the project.

Freeway Ramp Impact Criteria

A project would result in a significant traffic impact at a freeway ramp if:

- the addition of project traffic on a freeway ramp would cause volumes to exceed the ramp capacity; or
- the project would add more than 1 percent to the traffic volume on a freeway ramp where volumes would exceed the available capacity without the project.

Conflict with Congestion Management Program

Trip Generation Impact Criterion

A project sponsor must comply with the "Land Use Impact Analysis Program" guidelines in the latest 2017 CMP for San Mateo County. For proposed individual development projects that would generate more than 100 net new peak hour vehicle trips on the CMP network, local jurisdictions must ensure that the developer and/or tenants analyze those impacts and apply feasible mitigation for the new peak hour trips generated by the project by selecting one or more of the options listed below. It is up to the local jurisdiction working together with the project sponsor to choose the methods that will be compatible with the intended purpose of the project. A project would result in a significant traffic impact on the CMP road system if it will add more than 100 net new peak hour vehicle trips.

Freeway Segment Impact Criteria

A project would result in a significant traffic impact on a CMP freeway segment if:

- the addition of project traffic on a freeway segment operating at an acceptable LOS (LOS E or better) without the project would cause the segment to operate at an unacceptable LOS F with the project, and the total traffic volume on the segment increases by at least 1 percent; or

- the project would add more than 1 percent of total traffic volume on a freeway segment operating at an unacceptable LOS F without the project.

Increase Hazards

Safety Impact Criterion

A project safety impact is considered significant if the project would introduce a design feature that presents safety concerns within the project site or on the adjacent streets.

Emergency Access Impact Criterion

An emergency vehicle access impact is considered to be significant if the proposed project would provide inadequate design features to accommodate emergency vehicle access and circulation.

Conflict with Transit, Bicycle or Pedestrian Facilities

Transit Impact Criteria

A project would result in a significant impact on public transit facilities if:

- the project would conflict with adopted policies, plans or programs supporting alternative transportation; or
- the project would disrupt existing transit service; or
- the project would cause demand for public transit service to increase above that which local transit operators or agencies could accommodate; or
- the project would not provide amenities necessary to accommodate transit demand.

Bicycle and Pedestrian Impact Criteria

A project would result in a significant impact on bicycle or pedestrian facilities if:

- the project would conflict with adopted policies, plans or programs supporting bicycle and pedestrian circulation; or
- the project would disrupt existing bicycle or pedestrian facilities; or
- at a signalized intersection, the project would increase pedestrian walking distance, increase pedestrian exposure, or significantly increase pedestrian delay.

Vehicle-Miles of Travel

A project proposing “office” land uses would result in a significant impact on VMT if it would generate VMT per employee that is greater than a threshold of 15 percent below the regional average, with the region defined as employees working in San Mateo County, where VMT is measured from all residence locations including both within and outside San Mateo County.

Change in Air Traffic Patterns

The proposed project would not result in a change in air traffic patterns; therefore, no significance criteria are applicable. This criterion is not discussed further in this section.

APPROACH TO ANALYSIS

The traffic analysis for the proposed project is based on the City of South San Francisco traffic modeling system applied for the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update. The traffic modeling system includes two components:

- A traffic demand forecasting model (EMME software) which estimates traffic volumes based on assumed development. The traffic forecast model covers the East of 101 Area and the downtown area. It also includes assumptions for traffic growth at the boundaries of those areas based on traffic forecasts from the regional travel forecast model maintained by C/CAG.
- An intersection analysis network tool (Synchro software) which contains consistent assumptions for evaluation of intersection operations for a given level of traffic volumes.

The traffic for the proposed project was estimated and added to the City's traffic modeling system in order to evaluate project traffic impacts. For the base year (existing plus project scenario), the City traffic model was used to determine project trips and then those trips were added to the existing traffic counts. For cumulative conditions, the 2040 traffic forecasts from the City traffic model were used as a base (without project) scenario, and the project traffic was added to the 2040 base scenario.

Baseline Conditions

Transportation impacts of the proposed project are evaluated relative to existing conditions and cumulative conditions. The City of South San Francisco has not defined a near-term baseline conditions scenario which would include development that would be occupied at the time that the proposed project is operational. Traffic added by the project would represent a larger share of total traffic when compared to existing traffic levels as opposed to comparing project-generated traffic to traffic volumes that include other baseline development expected to be occupied when the proposed project would be occupied. The cumulative analysis ensures that the project impacts are considered along with all other foreseeable development within the year 2040 study planning horizon.

Cumulative 2040 Traffic Forecasts

The 2040 traffic forecasts in the traffic demand forecasting model were based on a projection of development in the East of 101 and downtown areas provided by the City of South San Francisco. The development assumptions include projects that are under construction but not yet occupied, approved projects, projects currently under review, and potential development not necessarily associated with a specific building project. The assumptions used for this study are consistent with those used for the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update prepared in July 2018. In particular, the proposed land uses for the *Oyster Point Specific Plan* do not include housing. In the East of 101 Area, the total land use growth assumptions from 2016 to 2040 include 1,290 hotel rooms and over 13 million sq. ft. of non-residential square footage.

The development assumptions for the 201 Haskins project site used in the 2040 forecasts were reviewed. It was confirmed that the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update assumed existing (as of the 2016 model base year) industrial uses on the 201 Haskins site. Therefore, project traffic must be added to the 2040 forecast to generate cumulative traffic forecasts with the proposed project.

The 2040 peak hour traffic forecasts without the proposed project are based directly on the traffic forecasts reported in the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update and are shown in **Figure 4.9.8: 2040 AM Peak Hour Traffic Forecasts without Project** and **Figure 4.9.9: 2040 PM Peak Hour Traffic Forecasts without Project**. The intersection of Haskins Drive with East Grand Avenue was not included in the City traffic model. Therefore, future growth at that intersection was estimated based on growth reported at adjacent intersections.

Consistent with the East of 101 and Downtown Specific Plan Year 2016 Traffic Model Update, the traffic analysis for 2040 cumulative conditions includes implementation of transportation improvements that will be funded and implemented by the East of 101 Area Traffic Impact Fee. These include improvements at the following study intersections:

2. Airport Boulevard and Grand Avenue
5. Gateway Boulevard and East Grand Avenue
6. Forbes Boulevard/Harbor Boulevard and East Grand Avenue
7. Littlefield Avenue and East Grand Avenue
8. Allerton Avenue and East Grand Avenue
11. Airport Boulevard/Produce Avenue/San Mateo Avenue
12. Gateway Boulevard/South Airport Boulevard/Mitchell Avenue

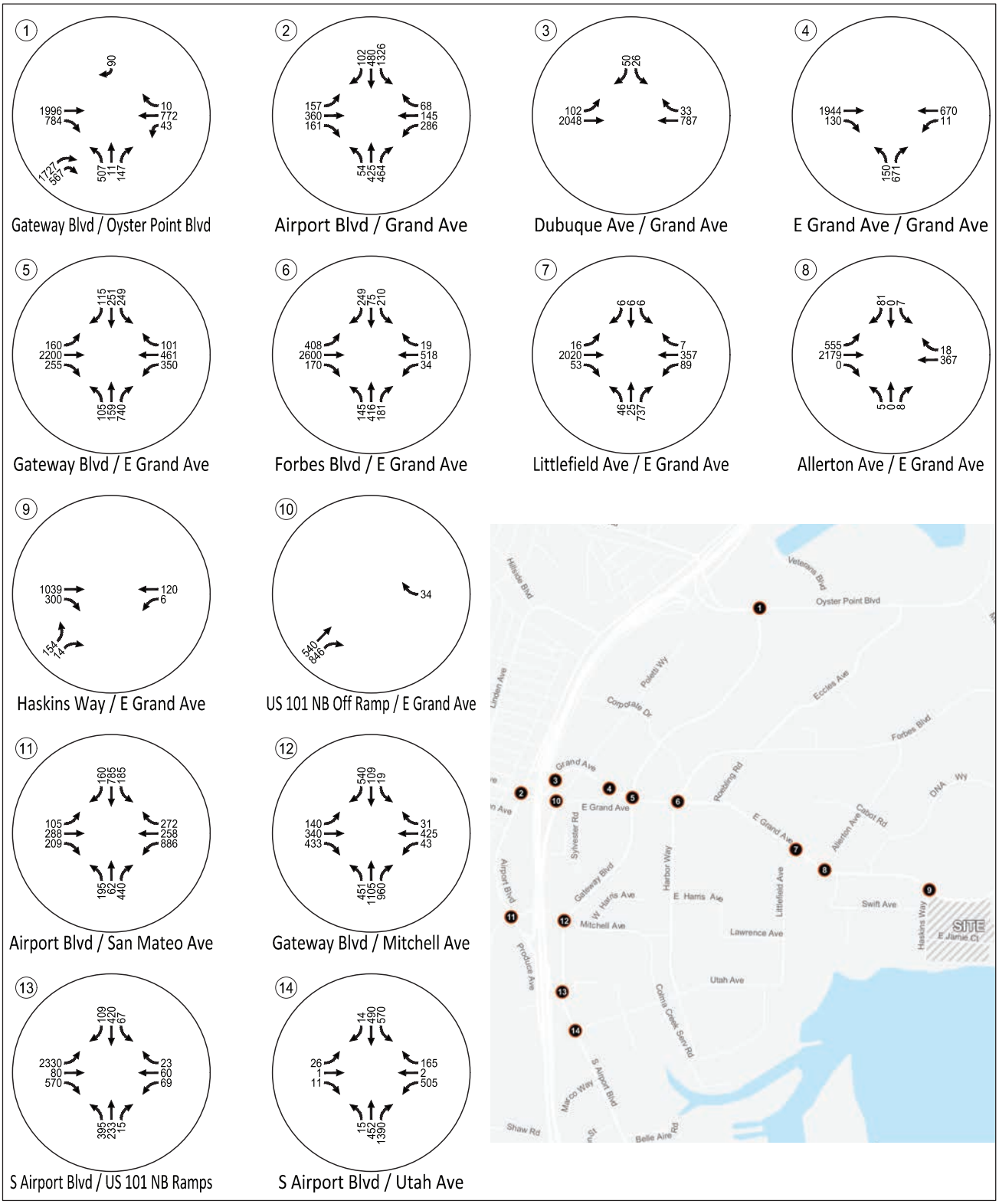
Caltrans and MTC are currently studying the implementation of high-occupancy vehicle (HOV) lanes or express lanes on the U.S. 101 freeway in San Mateo County. However, these regional freeway improvements are not assumed in this analysis as they have not secured committed full funding.

Project Trip Generation

Trip generation relates land uses to the number of persons or vehicles entering or exiting the site. The trip generation rates are typically based on traffic counts and surveys at similar existing land uses.

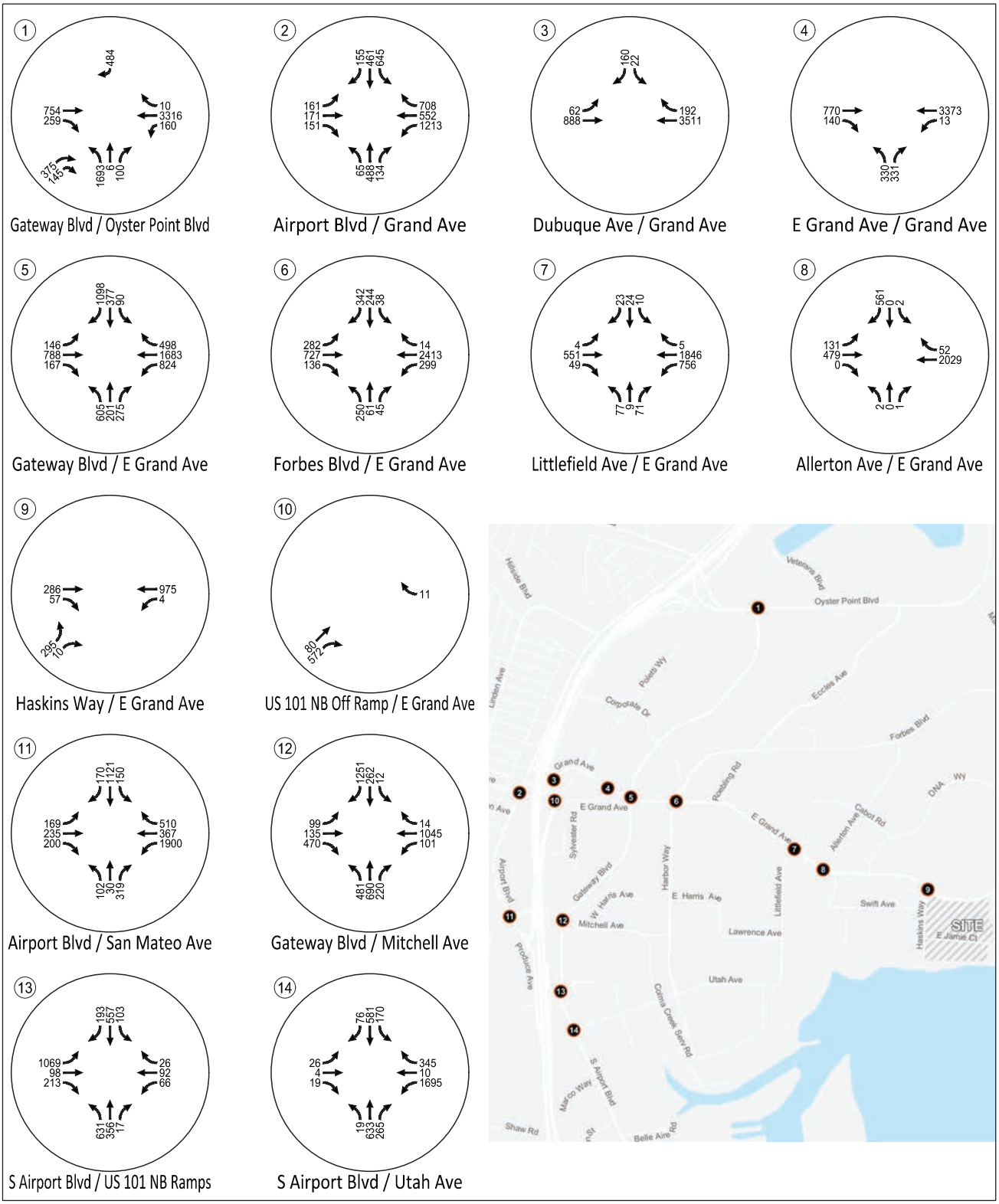
Vehicle Trip Generation Rates

The vehicle trip generation rates for the proposed project are based on the trip generation rates used in the City's traffic forecasting model. The "Office" category assumes that building space is occupied by employee work spaces and supporting facilities at densities of approximately 3 to 4 employees per 1,000 sq. ft. (KSF). The "R&D" (research and development) category assumes that a substantial amount of building area is dedicated to laboratory equipment, so that employee densities are in the range of 2 to 3 per KSF. The "Office" category of trip generation has been assumed for all project office and R&D space. This assumption provides a conservative estimate of project traffic generation and traffic impacts regardless of which type of business would occupy the space. The City traffic model uses an "average" trip generation rate for this office category as opposed to a "fitted curve" trip generation rate.



Source: Kittelson & Associates (2018)

FIGURE 4.9.8: 2040 AM PEAK HOUR TRAFFIC FORECASTS WITHOUT PROJECT



Source: Kittelson & Associates (2018)

FIGURE 4.9.9: 2040 PM PEAK HOUR TRAFFIC FORECASTS WITHOUT PROJECT

Standard vehicle trip generation rates, such as those documented in the Institute of Transportation Engineers' (ITE) *Trip Generation,* are based on averages of surveys of office buildings conducted during the past 30 years, primarily in suburban locations. They assume minimal use of transit and other TDM measures. The ITE Trip Generation rates for General Office Building (Code 710) are 9.74 daily vehicle trips per KSF, with 1.16 vehicle trips per KSF in the AM peak hour and 1.15 vehicle trips per KSF in the PM peak hour.[11] The proposed project would be required to implement a TDM program as required by the City of South San Francisco and C/CAG. In addition, peak commute travel in the Bay Area tends to be more spread out through the entire peak period than in many less congested areas of the United States. Therefore, the City model trip generation rates are somewhat lower than standard ITE trip generation rates, with the AM peak hour rate 30 percent lower than ITE and the PM peak hour rate 19 percent lower than ITE.

The City traffic model does not include trip generation rates for the daily time period. The daily trips are estimated from the peak hour trips based on the ratios of peak hour to daily trips for the ITE *Trip Generation* "Office" category.

Net Project Vehicle Trips

The project would remove existing industrial uses from the site. Since these industrial uses were active and generating traffic that is included in the base traffic counts from 2016 and 2017, their trips are subtracted from the total project trip generation to determine the net added vehicle trips for each project phase. [12] This methodology is also consistent with the application of the City's traffic model, which assumes fully occupied industrial uses for the parcels within the project site. The City traffic model rate for industrial uses is based on an "average" trip generation rate as opposed to a "fitted curve" trip generation rate.

As shown in **Table 4.9.8: Vehicle Trip Generation**, the Phase 1 project would generate 2,533 net daily vehicle trips, with 258 in the AM peak hour and 298 in the PM peak hour. Phase 2 would generate an additional 1,913 net daily vehicle trips, with 178 in the AM peak hour and 219 in the PM peak hour. Phases 1 and 2 combined at project buildout would add 4,777 daily trips, 436 AM peak hour trips, and 517 PM peak hour trips.

[11] Institute of Transportation Engineers, *Trip Generation Manual*, 10th Edition, September 2017.

[12] The trucking and distribution use on the 201 Haskins Way site relocated in 2018. As this use was still active when traffic counts were established, it is appropriate to consider the trips generated by this use in the calculation of net added vehicle trips. Other industrial uses on the project site are still in operation.

Table 4.9.8: Vehicle Trip Generation

Land Use				Vehicle Trips		
	Land Use	Size (Sq.Ft.)	Vehicle Trip Generation Rates per KSF AM (PM)	Daily	AM Peak Hour	PM Peak Hour
PHASE 1 (Est Complete 2021)						
Existing Land Use (To Be Removed)						
Existing Mixed Industrial (MI)	Industrial	-24,075	0.62 (0.62)	-118	-15	-15
Proposed Land Use						
New Business and Technology Park (BTP)	Office	336,368	0.81 (0.93)	2,651	273	313
Net New Trips (Phase 1)				*2,533*	*258*	*298*
PHASE 2 (Est Complete 2023)						
Existing Land Use (To Be Removed)						
Existing Mixed Industrial (MI)	Industrial	-157,995	0.62 (0.62)	-772	-98	-98
Proposed Land Use						
New Business and Technology Park (BTP)	Office	341,232	0.81 (0.93)	2,685	276	317
Net New Trips (Phase 2)				*1,913*	*178*	*219*
Net New Trips (Phases 1 & 2)				**4,777**	**436**	**517**

Notes: Trip generation rates from City of South San Francisco Traffic Forecast Model
KSF = thousand square feet
Daily vehicle trips estimated by using the ratio between Daily and PM peak hour trips from ITE Trip Generation Manual, 10th Edition

Source: Kittelson & Associates, Inc. (2018)

Person Trip Generation

The United States Census American Community Survey reports the following commute mode shares for workplaces in South San Francisco:[13]

- Drive Alone 71%
- Carpool/Vanpool 9%
- Public Transit 13%
- Other 7%

The "Other" category could include taxis and transportation network vehicles (such as Lyft or Uber) in addition to bicycling and walking. Assuming an average carpool occupancy of 2.5 persons per vehicle, the Phase 1 project would generate approximately 3,400 daily person trips, including 440 transit trips (45 AM peak hour, 52 PM peak hour). Phases 1 and 2 combined at buildout would generate 6,400 daily person trips, including 830 transit trips (83 AM peak hour, 97 PM peak hour).

[13] United States Census Bureau, American Community Survey, 2016 One Year Estimates, Means of Transportation to Work by Selected Characteristics for Workplace Geography South San Francisco, California.

PROJECT VEHICLE TRIP DISTRIBUTION

The estimated distribution of project traffic was based on the City's traffic forecasting model. The AM and PM peak hour trips to and from the transportation analysis zone (TAZ) containing the project site were traced through each study intersection using a "select zone" traffic assignment. Distribution percentages to and from major origins and destinations were calculated based on these forecasts and are shown in **Table 4.9.9: Project Vehicle Trip Distribution**. These trips were then scaled to match the calculated AM and PM peak hour trips for Phase 1 of the project, shown in **Figure 4.9.10: Phase 1 Project Trips, AM Peak Hour** and **Figure 4.9.11: Phase 1 Project Trips, PM Peak Hour**, and for project buildout, shown in **Figure 4.9.12: Phase 1 and 2 Project Trips, AM Peak Hour** and **Figure 4.9.13: Phase 1 and 2 Project Trips, PM Peak Hour**. The same trip distribution percentages were assumed for the proposed uses and the replaced industrial uses, as both uses generate primarily employee commute trips during peak hours.

IMPACT EVALUATION

Impacts and mitigation measures are described for the following categories:

- Intersection impacts
- Queue impacts
- Trip generation impacts
- Freeway segment impacts
- Safety impacts
- Emergency access impacts
- Transit impacts
- Bicycle and pedestrian circulation impacts
- Vehicle-miles of travel impacts

Table 4.9.9: Project Vehicle Trip Distribution

Direction	AM (%)		PM (%)	
	IN	OUT	IN	OUT
Oyster Point Blvd west of Gateway Blvd	11%	2%	5%	11%
Airport Blvd north of Grand Ave	27%	2%	37%	4%
Grand Ave west of Airport Blvd	3%	2%	2%	3%
Airport Blvd south of Grand Ave	3%	2%	2%	3%
US 101 NB Off-Ramp to Grand Avenue	15%	-	24%	-
San Mateo Ave west of Airport Blvd	1%	1%	1%	0%
South of Airport Blvd/Produce Ave/San Mateo Ave	1%	29%	1%	28%
US 101 NB Off-Ramp to South Airport Blvd/Wondercolor Ln	17%	0%	19%	0%
South of S Airport Blvd/Utah Ave	20%	5%	2%	16%
US 101 NB On-Ramp from Grand Ave	-	47%	-	30%
Internal to East of 101 Area	*2%*	*10%*	*6%*	*5%*
Total	**100%**	**100%**	**100%**	**100%**

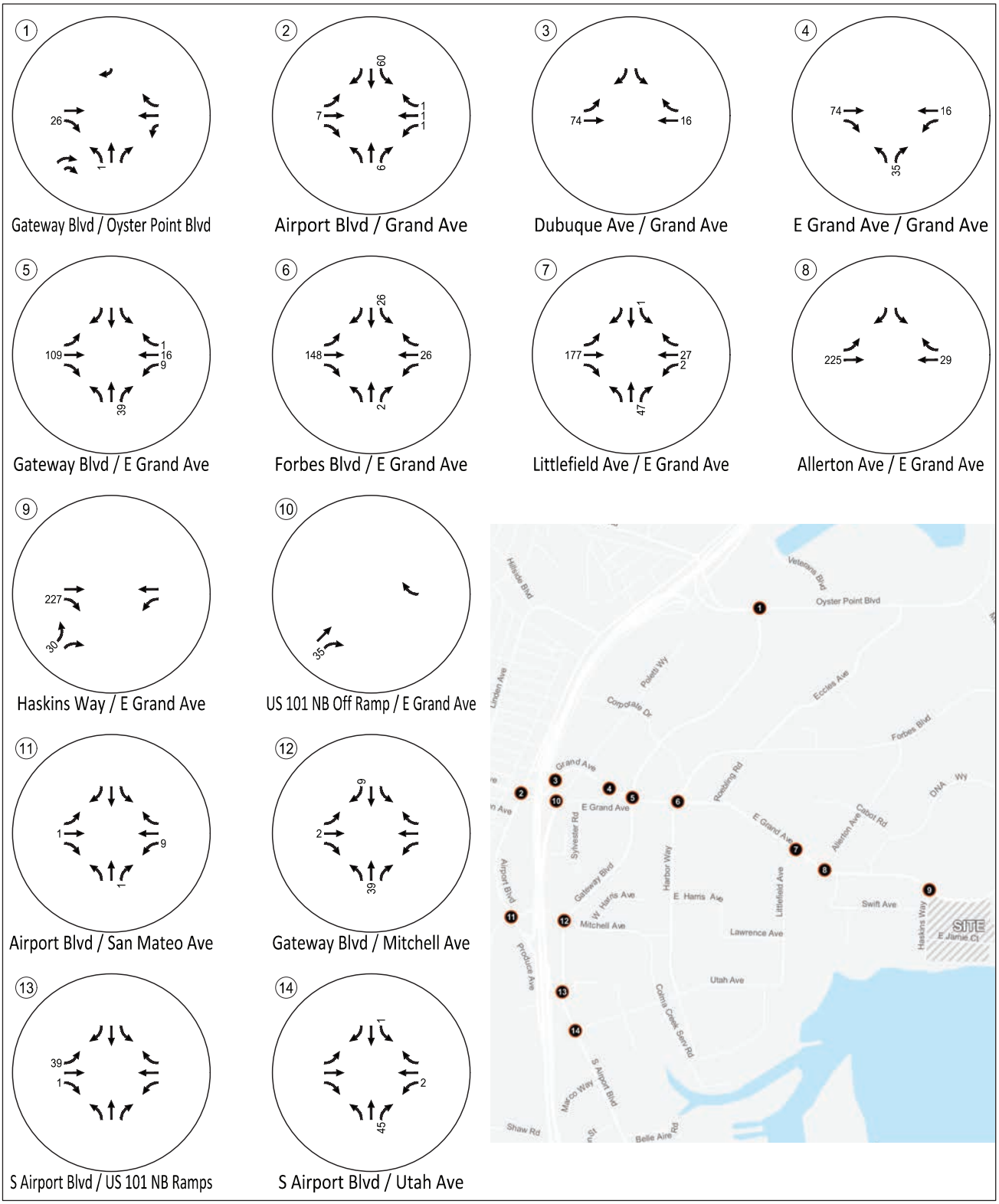
Source: Kittelson & Associates, Inc. (2018) based on City of South San Francisco Traffic Forecast Model

The project-specific impacts are presented first, in relation to existing conditions. Cumulative 2040 conditions with the proposed project are presented at the end of the section.

Existing Plus Project Conditions

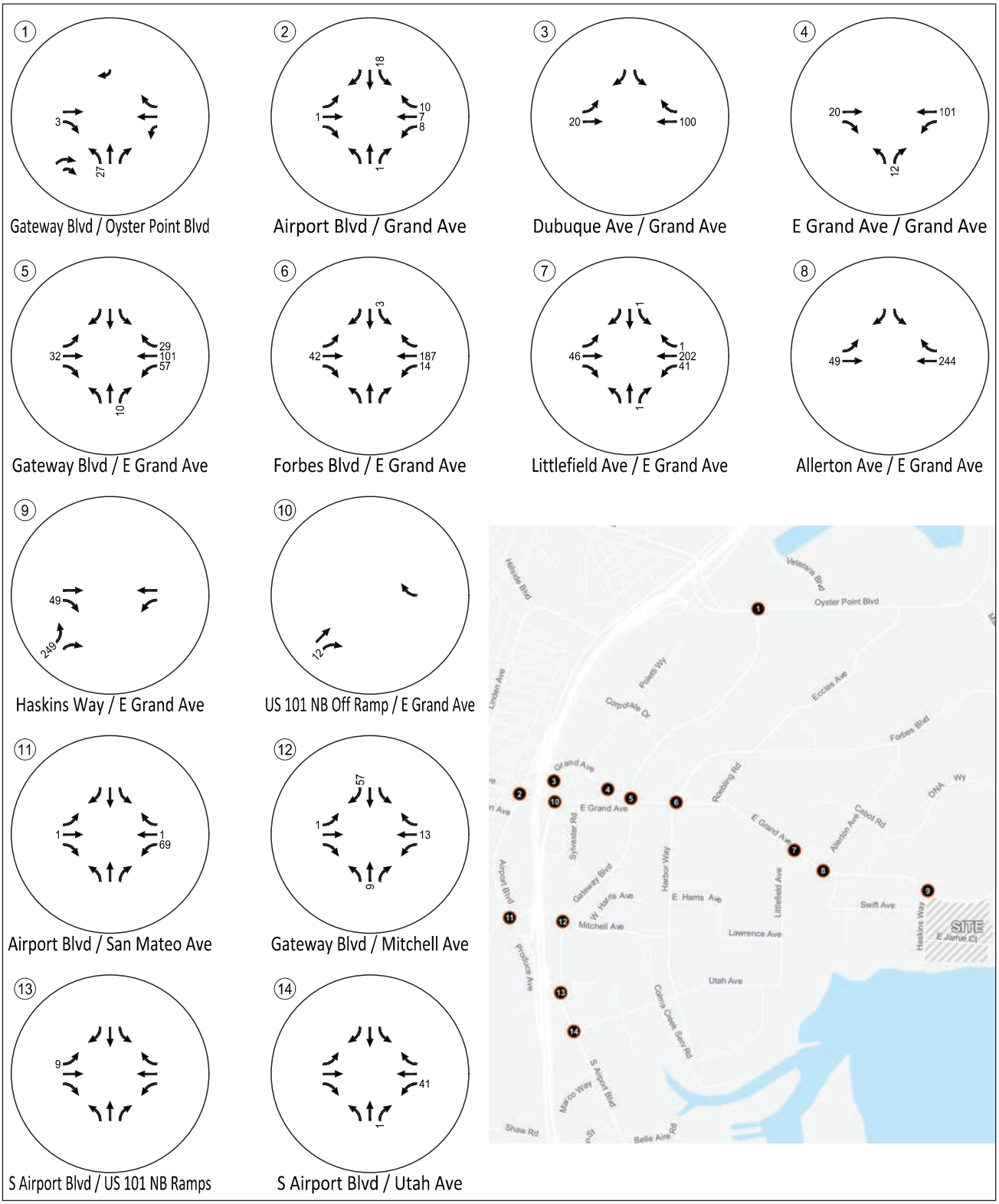
Intersection Impacts

Project traffic was added to existing traffic volumes, and operations were evaluated at the 14 study intersections. As shown in **Table 4.9.10: Intersection Level of Service – Existing (2016) AM Peak Hour Without and With Project**, and **Table 4.9.11: Intersection Level of Service – Existing (2016) PM Peak Hour Without and With Project**, 13 of the 14 study intersections in the AM peak hour and 12 of the 14 study intersections in the PM peak hour would continue to operate at an acceptable LOS D or better and would not result in significant traffic impacts with traffic generated by the proposed project. Three intersections—Intersection 7: Littlefield Avenue and East Grand Avenue, Intersection 8: Allerton Avenue and East Grand Avenue, and Intersection 12: Gateway Boulevard/South Airport Boulevard/Mitchell Avenue —would operate at LOS E or F, and therefore would exceed standards with the addition of project-generated vehicle trips in either the AM or PM peak hour. Both Phase 1 and buildout of the proposed project would contribute more than 2 percent of the total traffic. These three intersections are discussed individually below.



Source: Kittelson & Associates (2018)

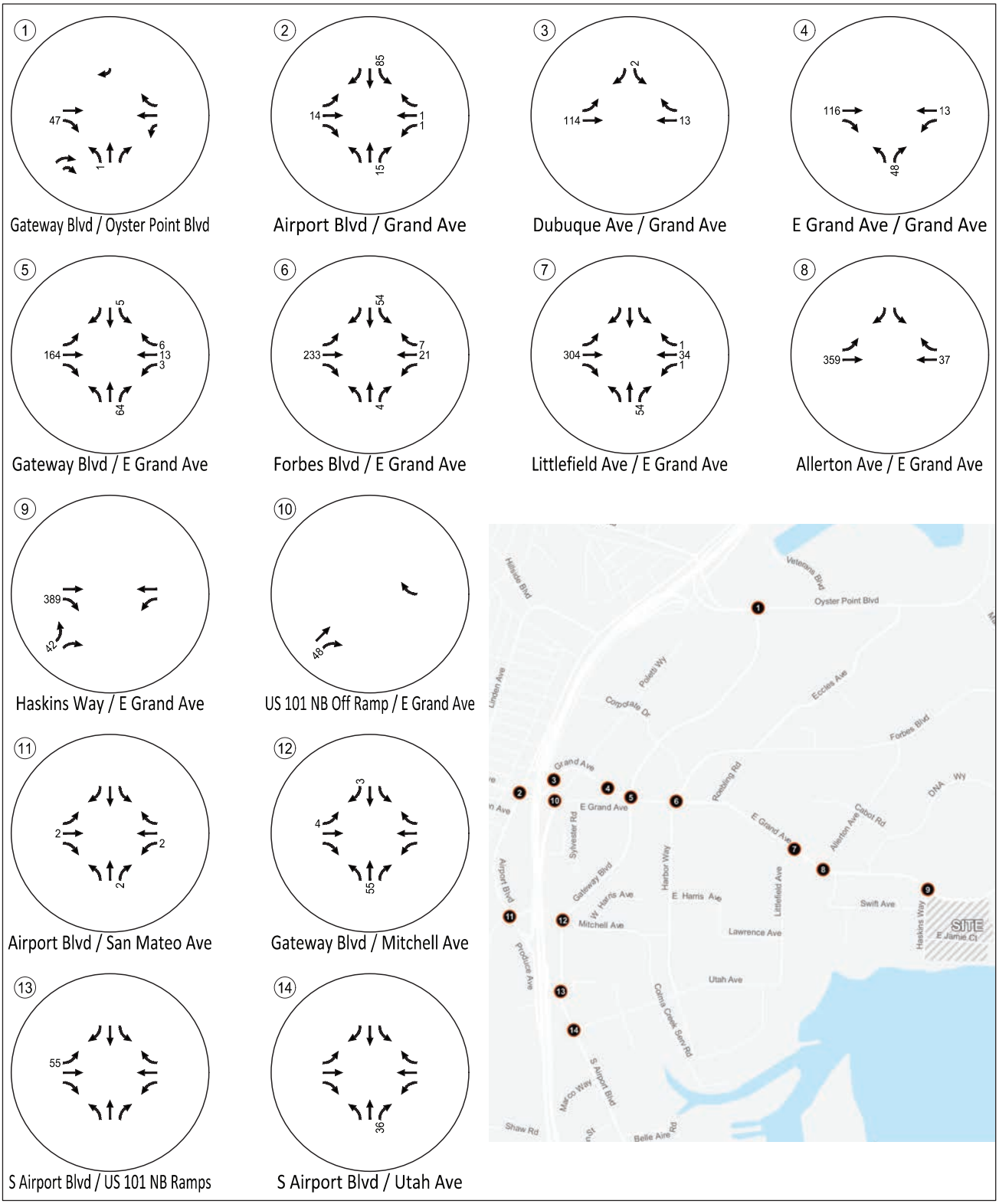
FIGURE 4.9.10: PHASE 1 PROJECT TRIPS, AM PEAK HOUR



Source: Kittelson & Associates (2018)

201 HASKINS WAY PROJECT

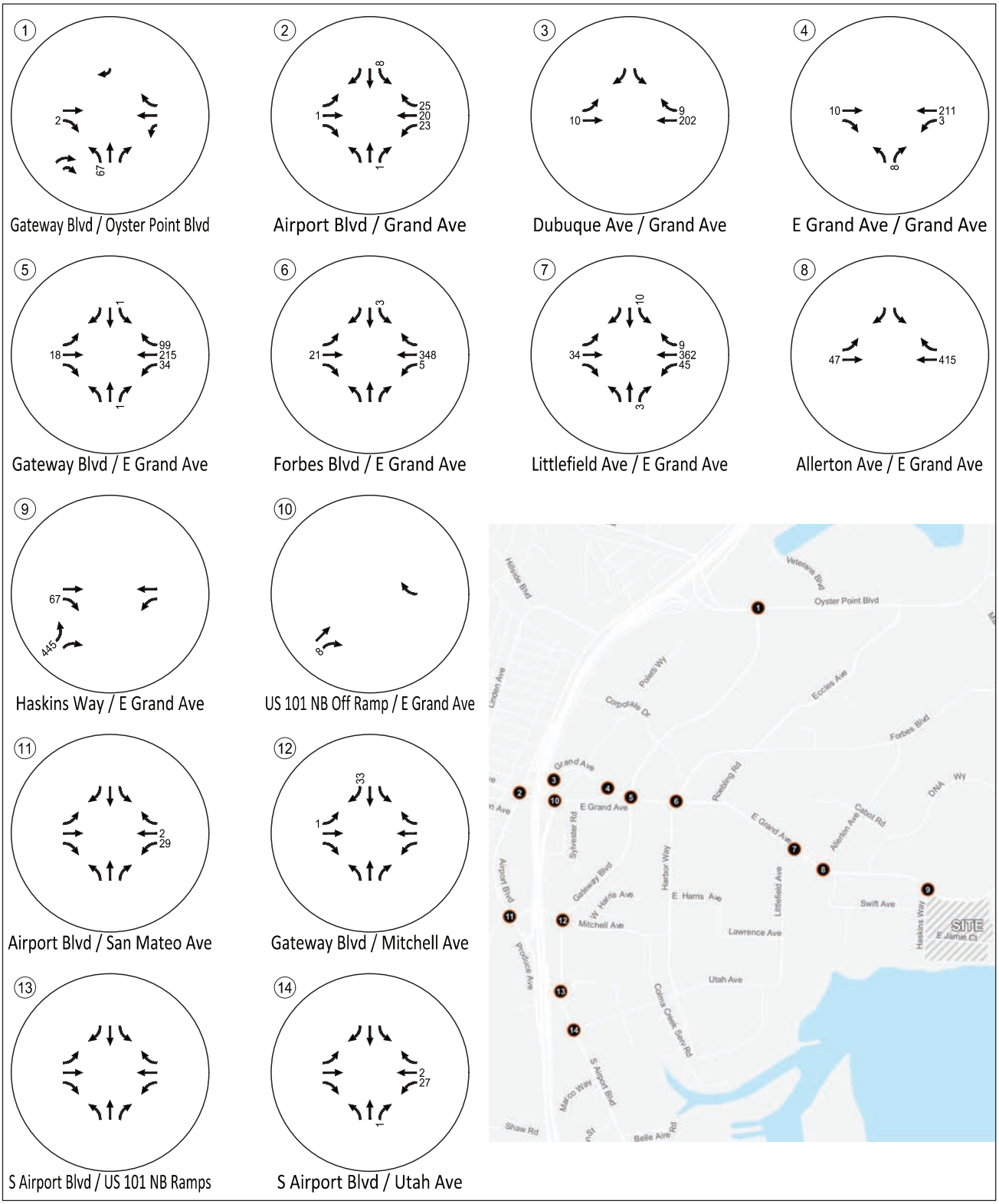
FIGURE 4.9.11: PHASE 1 PROJECT TRIPS, PM PEAK HOUR



Source: Kittelson & Associates (2018)

201 HASKINS WAY PROJECT

FIGURE 4.9.12: PHASE 1 AND 2 PROJECT TRIPS, AM PEAK HOUR



Source: Kittelson & Associates (2018)

201 HASKINS WAY PROJECT

FIGURE 4.9.13: PHASE 1 AND 2 PROJECT TRIPS, PM PEAK HOUR

Table 4.9.10: Intersection Level of Service – Existing (2016) AM Peak Hour Without and With Project

No.	Intersection	Control Type	Level of Service – Average Delay per Vehicle in Seconds [Project Traffic Percentage of Total Traffic at Intersections Exceeding LOS D]		
			Existing	With Phase 1	With Buildout
1	Gateway Blvd/Oyster Point Blvd/US 101 SB Off-Ramp Flyover	Signal	C – 31.4	C – 31.9	C – 32.3
2	Airport Blvd/Grand Ave	Signal	D – 38.2	D – 38.5	D – 39.0
3	Dubuque Ave/Grand Ave Overcrossing	Signal	A – 5.0	A – 4.4	A – 4.2
4	E Grand Ave/Grand Ave Overcrossing	Signal	A – 6.3	A – 5.9	A – 5.7
5	Gateway Blvd/E Grand Ave	Signal	C – 22.7	C – 22.8	C – 22.8
6	Forbes Blvd/Harbor Way/E Grand Ave	Signal	C – 30.5	C – 31.2	C – 33.8
7	Littlefield Ave/E Grand Ave	Signal	D – 42.3	**E – 61.0 [10.9%]***	**F – 82.5 [18.5%]***
8	Allerton Ave/E Grand Ave	TWSC	B – 10.1	B – 10.2	B – 10.3
	Exceeds Peak Hour Signal Warrant		*No*	*No*	*No*
9	Haskins Way/E Grand Ave	Signal	A – 5.3	A – 5.9	A – 7.7
10	US 101 NB Off-Ramp/Poletti Way/Grand Ave	TWSC	C – 16.2	C – 16.6	C – 16.8
	Exceeds Peak Hour Signal Warrant		*No*	*No*	*No*
11	Airport Blvd/San Mateo Ave/Produce Ave	Signal	D – 36.3	D – 36.5	D – 36.6
12	Gateway Blvd/S Airport Blvd/Mitchell Ave	Signal	D – 48.9	D – 50.0	D – 50.2
13	S Airport Blvd/US 101 NB Hook Ramps/Wondercolor Ln	Signal	C – 28.0	C – 28.5	C – 29.1
14	S Airport Blvd/Utah Ave	Signal	C – 28.4	C – 30.1	C – 32.5

Note: Signalized level of service – control delay in seconds; TWSC = Two-Way Stop Control

[xx%] – Project volume percent of total traffic entering intersection

Bold = exceeds threshold *** = Significant impact**

Source: Kittelson & Associates, Inc. (2018)

Table 4.9.11: Intersection Level of Service – Existing (2016) PM Peak Hour Without and With Project

No.	Intersection	Control Type	Level of Service – Average Delay per Vehicle in Seconds [Project Traffic Percentage of Total Traffic at Intersections Exceeding LOS D]		
			Existing	With Phase 1	With Buildout
1	Gateway Blvd/Oyster Point Blvd/US 101 SB Off-Ramp Flyover	Signal	C – 21.0	C – 21.3	C – 21.5
2	Airport Blvd/Grand Ave	Signal	D – 41.0	D – 41.2	D – 41.4
3	Dubuque Ave/Grand Ave Overcrossing	Signal	A – 5.0	A – 5.2	A – 5.6
4	E Grand Ave/Grand Ave Overcrossing	Signal	A – 7.3	A – 6.8	A – 6.5
5	Gateway Blvd/E Grand Ave	Signal	C – 20.0	B – 19.8	B – 19.3
6	Forbes Blvd/Harbor Way/E Grand Ave	Signal	D – 37.0	D – 38.2	D – 42.1
7	Littlefield Ave/E Grand Ave	Signal	B – 15.6	B – 15.9	B – 16.2
8	Allerton Ave/E Grand Ave	TWSC	D – 28.6	**E – 43.6 [16.0%]***	**F – 67.2 [27.9%]***
	Exceeds Peak Hour Signal Warrant		***Yes***	***Yes***	***Yes***
9	Haskins Way/E Grand Ave	Signal	A – 6.2	A – 7.5	A – 8.8
10	US 101 NB Off-Ramp/Poletti Way/Grand Ave	TWSC	A – 9.9	A –1090	B – 10.0
	Exceeds Peak Hour Signal Warrant		*No*	*No*	*No*
11	Airport Blvd/San Mateo Ave/Produce Ave	Signal	D – 39.3	D – 40.2	D – 40.8
12	Gateway Blvd/S Airport Blvd/Mitchell Ave	Signal	**E – 63.9**	**E – 78.3 [3.2%]***	**F – 92.1 [5.7%]***
13	S Airport Blvd/US 101 NB Hook Ramps/Wondercolor Ln	Signal	C – 26.5	C – 26.5	C – 26.5
14	S Airport Blvd/Utah Ave	Signal	C – 32.7	C – 32.9	C – 33.0

Note: Signalized level of service – control delay in seconds; TWSC = Two-Way Stop Control

[xx%] – Project volume percent of total traffic entering intersection

Bold = exceeds threshold * = Significant impact

Source: Kittelson & Associates, Inc. (2018)

Impact TR-1: The proposed project (Phase 1 or buildout) would cause the intersection of Littlefield Avenue and East Grand Avenue to exceed LOS D operations during the AM peak hour, and the project (Phase 1 or buildout) would contribute more than 2 percent of the total traffic through the intersection. ***(Less than Significant with Mitigation)***

At Intersection 7, Littlefield Avenue and East Grand Avenue, traffic from the proposed project would result in LOS E in the AM peak hour, as shown in Table 4.9.10. Development of Phase 1 would contribute 10.9 percent of the total traffic using the intersection, resulting in a significant impact. At buildout (Phases 1 & 2) the proposed project is estimated to contribute 18.5 percent of the total traffic, also a significant impact.

Mitigation Measure MM-TR-1 has been identified to reduce this significant impact:

Mitigation Measure MM-TR-1: Add a Northbound Right-Turn Lane at the Intersection of Littlefield Avenue and East Grand Avenue.

The City of South San Francisco shall restripe the northbound approach on Littlefield Avenue to provide a separate right-turn lane in addition to the existing left-through-right lane. The additional turn lane may require removal of on-street parking and/or acquisition of right-of-way along Littlefield Avenue approaching East Grand Avenue. This improvement is included in the East of 101 Area Traffic Impact Fee. Therefore, the project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards this mitigation.

Implementation of the mitigation measure would result in LOS D or better operations at this intersection. The impact would be less than significant after mitigation.

Impact TR-2: The proposed project (Phase 1 or buildout) would cause the intersection of Allerton Avenue and East Grand Avenue to exceed LOS D operations during the PM peak hour, and the project would contribute more than 2 percent of the total traffic through the intersection. ***(Significant and Unavoidable [Mitigation found to be infeasible])***

At Intersection 8, Allerton Avenue and East Grand Avenue, traffic from the proposed project would result in unacceptable LOS E or F operations in the PM peak hour. Existing traffic volumes at the intersection exceed the Caltrans peak hour signal warrant during the PM peak hour, and Phase 1 or buildout of the project would add more than 2 percent of total traffic volume during the PM peak hour. Development of Phase 1 would contribute 16.0 percent of the total traffic using the intersection, resulting in a significant impact. At buildout (Phases 1 & 2) the proposed project is estimated to contribute 27.9 percent of the total traffic, which would also be a significant impact.

Mitigation Measure MM-TR-2 has been identified to reduce this significant impact:

Mitigation Measure MM-TR-2: Add a Traffic Signal and a Southbound Right-Turn Lane at the Intersection of Allerton Avenue and East Grand Avenue.

The City of South San Francisco shall restripe the southbound approach on Allerton Avenue to provide a separate right-turn lane in addition to the existing left-through-right lane, and install a traffic signal at the intersection. The installation of a traffic signal is included in the East of 101 Area Traffic Impact Fee, but not the additional turn lane. The project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards the traffic signal. The project shall contribute a proportionate share to the additional cost of improvements beyond the traffic signal.

Implementation of the mitigation measure would result in LOS D or better operations. The impact after mitigation would be less than significant. However, the revisions to the lane striping would remove a portion of the Class II bicycle lanes on Allerton Avenue and thereby disrupt an existing bicycle facility. This secondary impact of the mitigation measure would be significant relative to the bicycle and pedestrian impact criteria. In order to avoid impacts on the bicycle facility, additional right-of-way would need to be acquired from the adjacent property owners and Allerton Avenue would need to be widened by approximately 12 feet. The acquisition of property would require removal of parking spaces for properties that do not have alternative locations for replacement parking, such that the associated buildings would not be able to be occupied. The City of South San Francisco has determined that causing businesses to be non-viable due to lack of parking would reduce the City's tax base, and that funding sources for

acquisition of property for additional right-of-way are unknown and may not be available for the additional turn lane; therefore, this mitigation measure is considered to be infeasible. While the mitigation measure could reduce the traffic impact to a less-than-significant level, the mitigation measure is infeasible and the overall impact at this intersection would remain significant.

Additionally, a TDM program would be required to be prepared and implemented pursuant to City ordinance. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's impact to a less-than-significant level. The impact would be significant and unavoidable.

Impact TR-3: The proposed project (Phase 1 or buildout) would contribute more than 2 percent of the total traffic through the intersection of Gateway Boulevard/South Airport Boulevard/Mitchell Avenue, which operates at LOS E during the PM peak hour without the project. ***(Less than Significant with Mitigation)***

At Intersection 12, Gateway Boulevard/South Airport Boulevard/Mitchell Avenue would operate at an unacceptable LOS E in the PM peak hour with project-generated traffic; this location would also operate at LOS E without the project, as shown in Table 4.9.11. The proposed project would contribute 3.2 percent of the total traffic through the intersection from Phase 1 development and 5.7 percent from buildout of the proposed project, which would be a significant impact.

Mitigation Measure MM-TR-3 has been identified to reduce this significant impact:

> **Mitigation Measure MM-TR-3: Widen and Restripe the Southbound, Eastbound and Westbound Approaches at the Intersection of Gateway Boulevard/South Airport Boulevard/Mitchell Avenue**.
>
> The City of South San Francisco shall widen the southbound approach on Gateway Boulevard to provide a second right-turn lane, widen the eastbound approach on South Airport Boulevard to provide a second left-turn lane and replace the existing shared through-right lane with one through lane and a second right-turn lane, and widen the westbound approach on Mitchell Avenue to replace the existing shared through-right lane with three through lanes and a right-turn lane. This improvement is included in the East of 101 Area Traffic Impact Fee. Therefore, the project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards this mitigation.

With implementation of the mitigation measure, the impact would be less than significant.

Queue Impacts

Project traffic was added to existing traffic volumes at study intersections, and 95th percentile queues were evaluated on key movements affecting either U.S. 101 off-ramps or short street segments between adjacent intersections. The results of the evaluation are summarized in **Table 4.9.12: Queues on Key Movements – Existing (2016) and Existing plus Project AM and PM Peak Hours**. At 6 of the 10 study locations, storage would be available for the longer queues resulting from the addition of project-generated traffic, and no significant impact would result.

Table 4.9.12: Queues on Key Movements – Existing (2016) and Existing + Project AM and PM Peak Hours

Intersection	Storage Length (feet)	AM Peak Hour			PM Peak Hour		
		Existing	With Phase 1	With Buildout	Existing	With Phase 1	With Buildout
1. Oyster Point Blvd/Gateway Blvd/US 101 SB Off-Ramp Flyover							
SB Off-Ramp Thru	2900	385	385	385	67	67	67
SB Off-Ramp Right	375	**512**	**513 [<1%]**	**514 [<1%]**	86	86	86
2. Airport Blvd/Grand Ave							
SB Airport Blvd Left	300	258	**327 [15.3%]***	**351 [21.2%]***	118	123	126
WB Grand Ave Right	75	40	43	42	58	62	54
4. Gateway Blvd/E. Grand Ave							
EB E. Grand Ave Thru	300	85	105	113	138	145	148
WB E. Grand Ave Thru	560	13	13	13	8	8	8
WB E. Grand Ave Left	200	**238**	**263 [6.1%]***	**275 [8.8%]***	**348**	**395 [17.5%]***	**420 [31.7%]***
11. Airport Blvd/Produce Ave/San Mateo Ave							
WB Airport Thru/Left	225	208	213	213	**380**	**400 [8.8%]***	**413 [15.9%]***
13. S. Airport Blvd/US 101 NB On/Off Hook Ramps/Wondercolor Ln							
Off-Ramp Left	750	410	435	452	165	178	182
Off-Ramp Right	150	31	31	34	18	18	18

Note: Synchro software used for all analysis year 2010 where possible, otherwise year 2000

[xx%] – Project volume percent of turn movement

Bolded results = unacceptable operation *** = Significant impact**

Source: Kittelson & Associates, Inc. (2018)

As shown in the table, the three following locations have 95th percentile queues in either the AM or PM peak hours or both that currently exceed available storage lengths: (1) the U.S. 101 southbound off-ramp right-turn lane to Oyster Point Boulevard in the AM peak hour; (2) the westbound left turn lane from East Grand Avenue to Gateway Boulevard in both AM and PM peak hours; and (3) the westbound left-turn lane of Airport Boulevard at San Mateo Avenue/Produce Avenue in the PM peak hour. With project-generated traffic, these three locations and one new location (Airport Boulevard at Grand Avenue in the AM peak hour) would have queues that would exceed the available storage.

The proposed project would add more than 1 percent of total traffic at two of the locations where queues already exceed available storage, and therefore would result in significant traffic impacts. The proposed project also would cause one location to exceed available storage length. Each location where queues would exceed storage capacity is discussed separately in Impacts TR-4 through TR-8, below.

Impact TR-4: The proposed project (Phase 1 or buildout) would add less than 1 percent of traffic to the right-turn lane from the southbound U.S. 101 flyover off-ramp at Gateway Boulevard/Oyster Point Boulevard where the 95th percentile queue currently exceeds the ramp's storage length in the AM peak hour. (*Less than Significant*)

Existing 95th percentile queues exceed storage length by up to about 137 feet in the right-turn lane on the southbound U.S. 101 flyover off-ramp at Gateway Boulevard/Oyster Point Boulevard in the AM peak hour. The proposed project would contribute slightly to the queue at this location. However, the proposed project would add less than 1 percent of total traffic on this movement, and the impact would be less than significant. No mitigation is necessary.

Impact TR-5: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic to the westbound left-turn movement on East Grand Avenue at Gateway Boulevard where the 95th percentile queue currently exceeds the available storage length during the AM and PM peak hours without the project. *(Less than Significant with Mitigation)*

At the intersection of Gateway Boulevard and East Grand Avenue, the existing 95th percentile queue in the westbound left-turn lane exceeds the available storage length in the AM and PM peak hours. The proposed project, in both Phase 1 and at buildout, would add more than 1 percent of the total number of westbound left-turn vehicles in the AM and PM peak hours. Traffic generated by Phase 1 would contribute about 6.1 percent of total traffic in the AM peak and about 17.5 percent in the PM peak hour. Traffic generated by buildout of the proposed project would contribute about 8.8 percent in the AM peak hour and 31.7 percent in the PM peak hour. As these are each more than 1 percent of total traffic, the impact would be significant and require mitigation.

> **Mitigation Measure MM-TR-5: Adjust Signal Timing at Gateway Boulevard and East Grand Avenue.**
>
> The City of South San Francisco shall adjust signal timing at the intersection of Gateway Boulevard with East Grand Avenue to reduce the 95th percentile queue length in the westbound left-turn lane by the amount increased by the project. Improvements at this intersection are included in the East of 101 Area Traffic Impact Fee. Therefore, the project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards this mitigation.

With implementation of this mitigation measure, the impact would be less than significant.

Impact TR-6: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic to the westbound left turn movement on Airport Boulevard at San Mateo Avenue/Produce Avenue where the 95th percentile queue currently exceeds the available storage length during the PM peak hour without the project. *(Less than Significant with Mitigation)*

At the intersection of Airport Boulevard and San Mateo Avenue, the existing 95th percentile queue on the westbound left-turn movement exceeds the storage length in the PM peak hour. Traffic generated by the proposed project, both with Phase 1 and at buildout, would contribute more than 1 percent to the total traffic in the left-turn lane. Phase 1 traffic would contribute 8.8 percent, and buildout traffic would contribute about 15.9 percent of total traffic, resulting in a significant impact and requiring mitigation.

Mitigation Measure MM-TR-6: Adjust Signal Timing at the intersection of Airport Boulevard/San Mateo Avenue/Produce Avenue.

The City of South San Francisco shall adjust signal timing at the intersection of Airport Boulevard and San Mateo Avenue/Produce Avenue to reduce the 95th percentile queue length in the westbound left-turn lane by the amount increased by the project. Improvements at this intersection are included in the East of 101 Area Traffic Impact Fee. Therefore, the project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards this mitigation.

With implementation of the mitigation measure, the impact would be less than significant.

Impact TR-7: The proposed project (Phase 1 or buildout) would cause the existing 95th percentile queue to exceed the available storage capacity in the AM peak hour at the southbound left-turn lane on Airport Boulevard at Grand Avenue. (*Less Than Significant with Mitigation*)

The existing 95th percentile queue on the Airport Boulevard left turn movement does not exceed the storage capacity in the AM peak hour. With project traffic generated by both Phase 1 development and Phases 1 & 2 at buildout, the queue would cause the 95th percentile queue to exceed the available storage capacity at this location. Traffic generated in Phase 1 would be about 15.3 percent of total traffic, and at buildout would be about 21.2 percent of total traffic, resulting in a significant traffic impact and requiring mitigation.

Mitigation Measure MM-TR-7: Adjust Signal Timing at Airport Boulevard and Grand Avenue.

The City of South San Francisco shall adjust signal timing at the intersection of Airport Boulevard with Grand Avenue to reduce the 95th percentile queue length in the southbound left-turn lane to be within the available 300 feet of storage length. Improvements at this intersection are included in the East of 101 Area Traffic Impact Fee. Therefore, the project's payment of East of 101 Traffic Impact Fees will represent the project's required contribution towards this mitigation.

With implementation of this mitigation measure, the impact would be reduced to a less-than-significant level.

Freeway Ramps

Project traffic was added to existing traffic volumes on freeway ramps to determine whether project traffic would result in volumes that would exceed the acceptable capacity thresholds. The results are presented in **Table 4.9.13: Freeway Ramp Capacity and Volumes – Existing (2016) Without and With Project**.

Table 4.9.13: Freeway Ramp Capacity and Volumes – Existing (2016) Without and With Project

Freeway Ramp		Existing	With Phase 1	With Buildout
	Capacity	Volume	Volume	Volume
AM PEAK HOUR				
NB Off-Ramp to S. Airport/Wondercolor	2300	1567	1607	1636
SB On-Ramp from Produce Avenue	3300	1154	1163	1167
NB Off-Ramp to E. Grand/Poletti	2300	1384	1419	1444
NB On-Ramp from Airport/Grand	2000	550	564	570
SB Off-Ramp to Airport	1500	610	670	714
PM PEAK HOUR				
NB Off-Ramp to S. Airport/Wondercolor	2300	553	562	566
SB On-Ramp from Produce Avenue	3300	1950	2019	2075
NB Off-Ramp to E. Grand/Poletti	2300	481	493	498
NB On-Ramp from Airport/Grand	2000	783	858	918
SB Off-Ramp to Airport	1500	586	604	611

Source: Kittelson & Associates, Inc. (2018)

Impact TR-8: The proposed project (Phase 1 or buildout) would add traffic to freeway ramps, but not in numbers that would exceed the capacity of the freeway ramps. (*Less than Significant)*

Under existing conditions, all freeway ramps serving the project have volumes that are less than the ramp capacities during the AM and PM peak hours. The proposed project would add traffic to each ramp, but traffic volumes would remain less than the ramp capacities. The additional project-generated traffic would not result in significant impacts on freeway ramp capacities and no mitigation is required.

Trip Generation

Impact TR-9: The proposed project (Phase 1 or buildout) would generate more than 100 peak hour vehicle trips, exceeding the threshold in the San Mateo County CMP. *(Less than Significant with Mitigation)*

Phase 1 of the proposed project would generate 258 net new vehicle trips in the AM peak hour and 298 in the PM peak hour (Table 4.9.8). Buildout of the proposed project would generate 436 net new vehicle trips in the AM peak hour and 517 in the PM peak hour. Under both scenarios, the proposed project would generate more than 100 peak hour vehicle trips. The project sponsor would be required by South San Francisco Municipal Code Chapter 20.400 to prepare and implement a Transportation Demand Management program (TDM program); some features of the TDM program could produce "trip credits" as identified in Appendix I of the San Mateo County CMP. In order to comply with San Mateo County CMP requirements, the measures implemented must provide enough trip credits to mitigate the effective peak hour trip generation, including the first 100 net new peak hour trips.

Mitigation Measure MM-TR-9: Implement Transportation Demand Management measures listed in San Mateo County Congestion Management Program Appendix I.

The project shall implement a TDM program consistent with the City's TDM ordinance and using trip credits in compliance with C/CAG's CMP sufficient to account for all net new peak hour trips.

With implementation of the mitigation measure, the impact would be less than significant.

Freeway Segments

Project traffic was added to existing traffic volumes on two key freeway segments to determine whether project traffic would result in levels of service that would exceed the acceptable LOS E threshold applicable to freeways. The results are presented in **Table 4.9.14: Freeway Mainline Level of Service – Existing (2016) Without and With Project**.

Impact TR-10: The proposed project (Phase 1 or buildout) would not add more than 1 percent of total traffic to any study segment of U.S. 101 during the AM or PM peak hours, which would operate at LOS F without the project. ***(Less than Significant)***

As shown in Table 4.9.14, all freeway segments currently operate at LOS E or better. The proposed project would add traffic to these segments but would not cause any changes in LOS. Therefore there would be no significant impacts on freeway segments as a result of project-generated traffic. All segments

Table 4.9.14: Freeway Mainline Level of Service – Existing (2016) Without and With Project

Segment	Existing			With Phase 1			With Buildout		
	Volume	Density	LOS	Volume	Density	LOS	Volume	Density	LOS
AM PEAK HOUR									
North of Oyster Point Blvd									
Northbound	8023	38.9	E	8037	39.0	E	8043	39.1	E
Southbound	7692	36.1	E	7746	36.5	E	7786	36.9	E
North of I-380									
Northbound	10951	33.1	D	11026	33.5	D	11081	33.8	D
Southbound	7936	27.3	D	7945	27.3	D	7949	27.3	D
PM PEAK HOUR									
North of Oyster Point Blvd									
Northbound	7668	35.9	E	7743	36.5	E	7803	37.0	E
Southbound	6852	30.2	D	6870	30.3	D	6878	30.3	D
North of I-380									
Northbound	7551	21.1	C	7572	21.2	C	7581	21.2	C
Southbound	8677	30.7	D	8747	31.1	D	8803	31.4	D

Note: Density is shown in passenger cars per lane per mile; LOS = Level of Service
Bold = exceeds LOS threshold
[xx%] – Percent traffic added by project
Highway Capacity Manual (2010) Analysis Methodology
Source: Kittelson & Associates, Inc. (2018)

would continue to operate at acceptable LOS E or better. No mitigation would be necessary, and no Deficiency Plan would be required under the CMP.

Safety

Existing driveway access to the various parcels on the project site provides appropriate sightlines and does not present any hazardous features to either vehicle or pedestrian traffic. There are no active bicycle lanes on streets adjacent to the eight parcels that make up the project site. There are no sidewalks along some of the streets that border the project site.

Impact TR-11: The proposed project (Phase 1 or buildout) would not introduce hazardous design features within the project site or on the adjacent streets. ***(Less than Significant)***

The proposed project would remove three driveways on Haskins Way, two driveways on East Grand Avenue, and one driveway on East Jamie Court. However, the proposed project would construct four new driveways (two along Haskins Way, one on East Jamie Court and one on East Grand Avenue). The new driveways would be designed to City standards and would not present new hazardous conditions for either vehicles or pedestrians. Sidewalks would be added as part of the proposed project, reducing existing potentially hazardous conditions for pedestrians in the project vicinity. The project would also create a new north-south pedestrian path east of Haskins Way, which at buildout would connect Jamie

Court with East Grand Avenue. No significant safety impacts would result from the proposed project, and no mitigation is necessary.

Emergency Access

Existing emergency access to the project site is provided by City streets and driveways on Haskins Way, East Jamie Court, and East Grand Avenue. The proposed project would not reroute or otherwise change any City streets in its vicinity other than to add sidewalks. New driveway access would be provided to some of the parcels as part of the proposed project.

Impact TR-12: The proposed project (Phase 1 or buildout) would provide adequate emergency access. ***(Less than Significant)***

Phase 1 of the proposed project would maintain existing access points on Haskins Way and East Jamie Court for the development south of East Jamie Court, and would establish new access points on Haskins Way and East Jamie Court for the 201 Haskins site north of East Jamie Court. Existing emergency access would be maintained and there would be no design features within the site that would impede emergency vehicle access. Buildout with Phase 2 would add an additional access point on East Grand Avenue, and there would be no design features within the site that would impede emergency vehicle access. The impact would be less than significant, and no mitigation would be required.

Transit

The 201 Haskins project site would be served by existing Commute.org shuttle services to Caltrain, BART, and the South San Francisco ferry terminal. The project would not conflict with adopted transit programs and would not disrupt existing transit services.

Impact TR-13: The proposed project (Phase 1 and buildout) may exceed the capacity of the existing shuttle services serving the East of 101 Area. (*Less than Significant with Mitigation*)

The proposed project is estimated to generate up to 52 peak hour transit trips with development of Phase 1 and up to 97 peak hour transit trips at buildout. These trips would primarily use the local shuttle services that provide access to Caltrain, BART, and the South San Francisco ferry. The number of new transit trips would be distributed among the regional transit services (BART, Caltrain, ferry) and would not be expected to exceed capacities on these facilities. The transit trips generated by the proposed project could, however, cause demand for local shuttles to increase to a level that could not be accommodated with existing services and facilities provided by local operators. This would be a significant impact on transit services and require mitigation.

> **Mitigation Measure MM-TR-13: Expand local shuttle services.**
>
> The project sponsor shall participate in Commute.org's Employer/Property Manager Consortium and contribute a fair share of funding as required to ensure that shuttle buses serving the project site can accommodate peak hour transit passengers added by the proposed project. If the Commute.org shuttles do not adequately meet commuter needs or ridership exceeds capacity as a result of the proposed project, the project sponsor shall explore options to enhance the Commute.org shuttle program or augment shuttle services with other shuttle providers or mobility solutions.

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

Impact TR-14: The proposed project (Phase 1 or buildout) would add transit riders at bus stops without amenities. (*Less than Significant with Mitigation)*

The Phase 1 project site plan includes a covered entry court/atrium which could be used for transit passenger waiting, and an adjacent porte cochère which could be used by shuttle buses. The current conceptual version of the proposed project site plan for Phase 2 does not specifically identify any amenities to accommodate transit demand, such as bus shelters on East Grand Avenue, or any new bus stop signage or wayfinding to access shuttle stops. Without these amenities, transit use would be less convenient and potential transit users would be less likely to travel by transit. This is considered to be a significant impact of project buildout under the 4th transit impact criterion (p. 4.9.28).

Mitigation Measure MM-TR-14 has been identified to reduce this significant impact:

> **Mitigation Measure MM-TR-14: Provide shuttle stop amenities for Phase 2.**
>
> For Phase 2 buildout, the project sponsor shall coordinate with shuttle providers to install amenities for transit passengers including seating, shelters and signage at shuttle bus stops, as well as transit information for employees in the new and expanded structures. The project sponsor shall contribute its fair share to the cost of these amenities.

With implementation of this mitigation measure, the impact would be less than significant.

Bicycle/Pedestrian

The Phase 1 project would complete sidewalks along the site frontage on the east side of Haskins Way and the north side of East Jamie Court. Phase 2 would create a new pedestrian linkage through the site connecting East Grand Avenue with the Bay Trail.

The proposed project would not conflict with any adopted plans or programs supporting bicycle or pedestrian transportation.

Impact TR-15: The proposed project (Phase 1 or buildout) would add pedestrians and bicyclists to local street segments, but not in numbers that would exceed the capacity of sidewalks or streets. (*Less than Significant)*

While the proposed project would generate more pedestrians than currently walk in the vicinity of the project site, the proposed project includes completing the missing and inadequate sidewalks along the project frontages on the north side of East Jamie Court, the east side of Haskins Way, and the south side of East Grand Avenue as the adjacent property is developed. In addition, the new pedestrian linkages would reduce pedestrian walking distance to the Bay Trail. These project features would improve pedestrian conditions, and would not disrupt any existing pedestrian facilities once construction is completed. The proposed project would also increase the number of bicyclists using nearby streets, but not to the level that would exceed the capacity of any streets or that would affect bicycle safety. The impact would be less than significant, and no mitigation is necessary.

Vehicle Miles of Travel

Impact TR-16: The proposed project (Phase 1 or buildout) would add VMT to the regional transportation system, but the VMT per employee would be less than a threshold of 15 percent below the regional average, with the region defined as employees working in San Mateo County. *(Less than Significant)*

According to the Bay Area Air Quality Management District Vehicle Miles Traveled Data Portal,[14] the average daily VMT generated per employee in San Mateo County is 27.4. The average for South San Francisco is 25.6 VMT per employee, or 6.6 percent lower than the county average. The recommended OPR CEQA guidelines call for a VMT per employee target of 15 percent lower than the regional average, which would be 23.3 VMT per employee if San Mateo County is used as the regional average. Without further reductions in VMT below the current South San Francisco average, the proposed project would generate VMT per employee that exceeds the target of 15 percent lower than the regional average. The project would be required to implement a TDM program in compliance with City ordinances that would achieve a minimum 28 percent alternative mode usage (not equivalent to 28 percent reduction in peak hour vehicle trip generation) and provide regular monitoring of performance. In order to achieve an FAR of 1.0, as required for development of the project, the TDM plan implemented in connection with the project must achieve 35 percent alternative mode usage. Implementation of the required TDM program would reduce traffic generation and VMT per capita to 23.3 VMT per employee or less, which would be

[14] Bay Area Air Quality Management District, Vehicle Miles Traveled Data Portal, http://capvmt.us-west-2.elasticbeanstalk.com/data. Accessed June 4, 2018.

15 percent lower than the county average. The impact would be less than significant. No mitigation is necessary.

Cumulative Conditions

The approach to the cumulative transportation analysis is described above in "Approach to Analysis," p. 4.9.29. As explained there, the analysis for 2040 cumulative conditions assumes implementation of transportation improvements to be funded and implemented by the East of 101 Area Traffic Impact Fee in effect at the time of this report. The analysis determines whether there would be significant cumulative impacts in the future, in analysis year 2040, and if so, whether Phase 1 or full buildout of both Phase 1 and Phase 2 of the proposed project would contribute considerably to those significant impacts. The traffic analysis is based on the City's travel demand model.

In 2040 it is expected that the entire project site would be built out—both Phase 1 and Phase 2. The traffic analysis presents results for Phase 1 and separately for buildout of both Phase 1 and Phase 2, to be conservative, in the event that Phase 2 is not completed.

Intersection Impacts

Project traffic was added to cumulative 2040 traffic volumes (without the project) and operations were evaluated at the study intersections. The results are summarized in **Table 4.9.15: Intersection Level of Service – Year 2040 AM Peak Hour Without and With Project**, and **Table 4.9.16: Intersection Level of Service – Year 2040 PM Peak Hour Without and With Project**. Five of the study intersections would operate at acceptable LOS D or better in the AM and PM peak hours under cumulative conditions in 2040. With Phase 1 project traffic, no significant cumulative traffic impacts would result at three of those locations during those time periods, while cumulative traffic impacts with Phase 1 project traffic would result in LOS E or F operations and therefore significant impacts at two of those locations. Cumulative with buildout project traffic would cause LOS E or F operations and therefore significant impacts at three of the five locations. Nine other study intersections would operate at unacceptable LOS E or F in either the AM or PM peak hour, or both, under cumulative conditions without project traffic. Although the proposed project would contribute traffic at these locations, Phase 1 project contributions would be less than cumulatively considerable at four of the locations, while traffic increases at five locations would be cumulatively considerable requiring mitigation. Project contributions at buildout would be less than cumulatively considerable at one of the locations. Traffic increases at buildout at 11 locations would be cumulatively considerable in either the AM or PM peak hour or both, and would add more than 2 percent of the total traffic volume at an intersection or add more than 1 percent of the total traffic volume at an intersection with a freeway ramp connection already operating at LOS F. These impacts would require mitigation.

Table 4.9.15: Intersection Level of Service – Year 2040 AM Peak Hour Without and With Project

No.	Intersection	Control Type	Level of Service – Average Delay per Vehicle in Seconds [Project Traffic Percentage of Total Traffic at Intersections Exceeding LOS D]		
			No Project 2040 Conditions	With Phase 1	With Buildout
1	Gateway Blvd/Oyster Point Blvd/US 101 SB Off-Ramp Flyover	Signal	**F – 141.6**	**F – 144.4 [0.4%]**	**F – 146.4 [0.7%]**
2	Airport Blvd/Grand Ave	Signal	**F – 102.3**	**F – 110.4 [1.9%]**	**F – 116.6 [3.2%]***
3	Dubuque Ave/Grand Ave Overcrossing	Signal	C – 25.9	C – 26.1	C – 26.3
4	E Grand Ave/Grand Ave Overcrossing	Signal	C – 24.7	D – 40.0	B – 12.0
5	Gateway Blvd/E Grand Ave	Signal	D – 39.6	D – 40.4	D – 41.2
6	Forbes Blvd/Harbor Way/E Grand Ave	Signal	D – 54.9	**E – 69.8 [4.0%]***	**F – 86.3 [6.8%]***
7	Littlefield Ave/E Grand Ave	Signal	D – 46.2	**E – 67.7 [7.5%]***	**F – 87.5 [12.8%]***
8	Allerton Ave/E Grand Ave	Signal	B – 19.9	C – 22.1	D – 39.0
9	Haskins Way/E Grand Ave	Signal	A – 8.8	A – 9.0	A – 9.4
10	US 101 NB Off-Ramp/Poletti Way/Grand Ave	TWSC	B – 10.4	B – 10.4	B – 10.4
	Exceeds Peak Hour Signal Warrant		*No*	*No*	*No*
11	Airport Blvd/Produce Ave/San Mateo Ave	Signal	D – 43.3	D – 43.4	D – 43.5
12	Gateway Blvd/S Airport Blvd/Mitchell Ave	Signal	D – 46.0	D – 46.4	D – 46.7
13	S Airport Blvd/US 101 NB Hook Ramps/Wondercolor Ln	Signal	**F – 183.6**	**F – 188.8 [0.9%]**	**F – 192.5 [1.6%]***
14	S Airport Blvd/Utah Ave	Signal	**F – 161.5**	**F – 174.1 [1.3%]**	**F – 183.4 [2.3%]***

Note: Signalized level of service – control delay in seconds; TWSC = Two-Way Stop Control

[xx%] – Project volume percent of total traffic entering intersection

Bold = exceeds threshold *** = Significant impact**

Source: Kittelson & Associates, Inc. (2018)

Table 4.9.16: Intersection Level of Service – Year 2040 PM Peak Hour Without and With Project

No.	Intersection	Control Type	Level of Service – Average Delay per Vehicle in Seconds [Project Traffic Percentage of Total Traffic at Intersections Exceeding LOS D]		
			No Project 2040 Conditions	With Phase 1	With Buildout
1	Gateway Blvd/Oyster Point Blvd/US 101 SB Off-Ramp Flyover	Signal	**F - 128.4**	**F - 131.0 [0.4%]**	**F - 133.1 [0.7%]**
2	Airport Blvd/Grand Ave	Signal	**F - 112.6**	**F - 115.6 [0.9%]**	**F - 117.5 [1.5%]**
3	Dubuque Ave/Grand Ave Overcrossing	Signal	D - 43.0	D - 53.5	**E - 62.1 [4.3%]***
4	E Grand Ave/Grand Ave Overcrossing	Signal	D - 52.6	**E - 62.3 [2.7%]***	**F - 81.1 [4.6%]***
5	Gateway Blvd/E Grand Ave	Signal	**F - 119.3**	**F - 130.0 [3.4%]***	**F - 138.6 [5.9%]***
6	Forbes Blvd/Harbor Way/E Grand Ave	Signal	**F - 260.9**	**F - 259.8 [5.1%]***	**F - 270.9 [8.8%]***
7	Littlefield Ave/E Grand Ave	Signal	C - 24.6	D - 35.0	D - 50.3
8	Allerton Ave/E Grand Ave	Signal	**F - 153.9**	**F - 191.5 [9.0%]***	**F - 224.4 [15.6%]***
9	Haskins Way/E Grand Ave	Signal	A - 8.5	B - 13.8	C - 20.0
10	US 101 NB Off-Ramp/Poletti Way/Grand Ave	TWSC	A - 8.6	A - 8.6	A - 8.6
	Exceeds Peak Hour Signal Warrant		*No*	*No*	*No*
11	Airport Blvd/Produce Ave/San Mateo Ave	Signal	**F - 104.3**	**F - 110.2 [1.3%]**	**F - 115.7 [2.4%]***
12	Gateway Blvd/S Airport Blvd/Mitchell Ave	Signal	**F - 127.4**	**F - 140.2 [1.7%]**	**F - 150.3 [2.9%]***
13	S Airport Blvd/US 101 NB Hook Ramps/Wondercolor Ln	Signal	**F - 139.0**	**F - 140.2 [0.3%]**	**F - 140.7 [0.4%]**
14	S Airport Blvd/Utah Ave	Signal	**F - 106.5**	**F - 112.5 [1.1%]**	**F - 117.5 [1.9%]**

Note: Signalized level of service – control delay in seconds; TWSC = Two-Way Stop Control

[xx%] – Project volume percent of total traffic entering intersection

Bold = exceeds threshold *** = Significant impact**

Source: Kittelson & Associates, Inc. (2018)

Impact C-TR-1: The proposed project (Phase 1 or buildout) would not contribute considerably to significant cumulative traffic impacts in the AM and PM peak hours at the intersection of Gateway Boulevard/Oyster Point Boulevard/U.S. 101 southbound Off-Ramp Flyover. (*Less than Significant)*

The level of service without or with the proposed project would be LOS F and would exceed standards in 2040 in combination with traffic from cumulative development at the intersection of Gateway Boulevard/Oyster Point Boulevard/U.S. 101 southbound Off-Ramp Flyover in the AM and PM peak hours. However, as shown in Tables 4.9.15 and 4.9.16, the proposed project would add less than 1 percent of total traffic at this intersection both with traffic generated by Phase 1 development alone and at full buildout. The intersection of Gateway Boulevard/Oyster Point Boulevard/U.S. 101 Southbound Off-Ramp Flyover would continue to operate at LOS F in the AM and PM peak hours.

The proposed project would contribute 0.4 percent of total traffic with Phase 1 development and 0.7 percent at full buildout in the AM peak hour, and would contribute 0.4 percent of total traffic with Phase 1 development and 0.7 percent at full buildout in the PM peak hour. Therefore, while there would be significant cumulative traffic impacts in the future at this location, the proposed project would not contribute considerably to those impacts. No project mitigation is necessary.

Impact C-TR-2: Phase 1 of the proposed project would not contribute considerably to significant cumulative traffic impacts in the AM or PM peak hour at the intersection of Airport Boulevard/Grand Avenue. ***(Less than Significant)***

The intersection of Airport Boulevard/Grand Avenue would continue to operate at unacceptable LOS F under cumulative conditions in 2040 with traffic generated by Phase 1 of the proposed project in the AM and PM peak hours. However, as shown in Table 4.9.15: Intersection Level of Service – Year 2040 AM Peak Hour Without and With Project and Table 4.9.16: Intersection Level of Service – Year 2040 PM Peak Hour Without and With Project, in both peak hours, traffic generated by Phase 1 of the proposed project would contribute less than 2 percent of the total traffic – 1.9 percent in the AM peak hour and 0.9 percent in the PM peak hour. Therefore, while there would be significant cumulative traffic impacts at this location, development of only Phase 1 of the proposed project would not contribute considerably to this significant cumulative impact. No mitigation is necessary.

Buildout of both Phase 1 and Phase 2 of the proposed project would contribute considerably to significant cumulative impacts in the AM peak hour at this location and is discussed in Impact C-TR-3.

Impact C-TR-3: Buildout of the proposed project (Phases 1 & 2) would contribute considerably to the significant cumulative impact at the intersection of Airport Boulevard and Grand Avenue during the AM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, without the project, the intersection of Airport Boulevard/Grand Avenue would operate at an unacceptable LOS F during both the AM and PM peak hours, as shown on Tables 4.9.15 and 4.9.16. With the addition of project-generated traffic from project buildout, the intersection would continue to operate at LOS F during both peak hours. Buildout of the proposed project would contribute 1.5 percent to total traffic volumes in the PM peak hour and would not contribute considerably to the significant cumulative impact. However, buildout of the proposed project would contribute 3.2 percent to total traffic volumes in the AM peak hour, as shown in Table 4.9.15. This is more than a 2 percent contribution during the AM peak hour, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure C-TR-3: Add a Third Eastbound Lane on Grand Avenue at Airport Boulevard.**
>
> The City of South San Francisco shall widen the eastbound approach on Grand Avenue to provide a third eastbound lane, with the approach striped as a shared left-through lane, a through lane and a right-turn lane.

The mitigation measure would improve operations from LOS F to LOS E but would not result in LOS D or better operations at this location. No additional feasible physical improvements have been identified to provide LOS D or better operations at this intersection with 2040 cumulative traffic volumes. A project's

contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measure designed to alleviate the cumulative impact (CEQA Guidelines, § 15130(a)(3)). Implementation of Mitigation Measure MM-C-TR-3 would more than compensate for the project's contribution to cumulative traffic (by improving the LOS from F without the project to LOS E with the project and mitigation) but would not eliminate the cumulative impact of LOS exceeding LOS D or better operations. The mitigation measure would remove recent sidewalk improvements on Grand Avenue. The narrowing of the sidewalk on Grand Avenue would diminish the visual character of the gateway to downtown and conflict with the City's desired streetscape, but would not significantly impact pedestrian travel through the intersection. Therefore, implementation of Mitigation Measure MM-C-TR-3 would not introduce additional significant cumulative impacts.

The City is in the process of updating its East of 101 Area Traffic Impact Fee (TIF) and Capital Improvement Program (CIP). The City is considering including Mitigation Measure MM-C-TR-3 in the updated TIF and CIP. The Phase 2 project sponsor(s) will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-3. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the proposed project's contribution to the cumulative traffic impact to a less-than-cumulatively considerable level, the measure would not eliminate the significant cumulative impact, and the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-3, so the impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-4: Buildout of the proposed project (Phases 1 & 2) would contribute considerably to a significant cumulative impact the intersection of Dubuque Avenue and Grand Avenue during the PM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, without the project, the intersection of Dubuque Avenue and Grand Avenue would operate at an acceptable LOS D or better during both the AM and PM peak hours, as shown on Tables 4.9.15 and 4.9.16. With the addition of project-generated traffic from project buildout, the intersection would operate at LOS E during the PM peak hour, and the project would add 4.3 percent of the total traffic through the intersection. This is more than a 2 percent contribution to total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure MM-C-TR-4: Adjust Signal Timing for Pedestrian Crossings at the intersection of Dubuque Avenue and Grand Avenue.**
>
> The City of South San Francisco shall adjust existing signal timings for pedestrian crossings for cumulative traffic demands to reduce vehicle delay.

The mitigation measure would reduce vehicle delay and improve operations but may not result in LOS D or better operations at this location. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measure designed to alleviate the cumulative impact (CEQA Guidelines, § 15130(a)(3)). Implementation of Mitigation Measure MM-C-TR-4 would partially compensate for the project's contribution to cumulative traffic (by reducing vehicle delay) but would not eliminate the cumulative impact of LOS exceeding LOS D or better operations.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-4 in the updated TIF and CIP. The Phase 2 project sponsor(s) will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-4. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce (but not eliminate) the proposed project's contribution to the cumulative traffic impact, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-4, so the impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-5: The proposed project (Phase 1 or buildout) would contribute considerably to a significant cumulative impact the intersection of East Grand Avenue and Grand Avenue Overcrossing during the PM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, without the project, the intersection of East Grand Avenue and the Grand Avenue Overcrossing would operate at an acceptable LOS D during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from Phase 1, the intersection would operate at LOS E during the PM peak hour. With the addition of project-generated traffic from buildout, the intersection would operate at LOS F during the PM peak hour. Phase 1 of the proposed project would contribute 2.7 percent to total traffic volumes in the PM peak hour, and buildout (Phases 1 & 2) would contribute 4.6 percent of total traffic volumes. This is more than a 2 percent contribution during the PM peak hour, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure MM-C-TR-5: Add a Second Northbound Left-Turn Lane to the northbound approach on East Grand Avenue at the Grand Avenue Overcrossing.**
>
> The City of South San Francisco shall restripe the northbound approach on East Grand Avenue to provide a second left-turn lane, and implement curb and traffic signal modifications as required.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including the improvement contemplated under Mitigation Measure MM-C-TR-5 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit

is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-5. At this time, the City, therefore, cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-5, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the Phase 2 project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-6: The proposed project (Phase 1 or buildout) would contribute considerably to a significant cumulative impact at the intersection of Gateway Boulevard and East Grand Avenue during the PM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, without the project, the intersection of Gateway Boulevard and East Grand Avenue would operate at an unacceptable LOS F during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from Phase 1 or project buildout, the intersection would continue to operate at LOS F during the PM peak hour. Phase 1 of the proposed project would contribute 3.4 percent to total traffic volumes in the PM peak hour, and buildout (Phases 1 & 2) would contribute 5.9 percent of total traffic volumes. This is more than a 2 percent contribution during the PM peak hour, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure MM-C-TR-6: Add a Westbound Right-Turn Lane and a Northbound Left-Turn Lane at the intersection of Gateway Boulevard and East Grand Avenue.**
>
> The City of South San Francisco shall restripe or widen the westbound approach on East Grand Avenue to provide a separate right-turn lane in addition to the existing three through lanes and planned two left-turn lanes. Widen the northbound approach on Gateway Boulevard to provide a second left-turn lane.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-6 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-6. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-6, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant

cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-7: The proposed project (Phase 1 or buildout) would contribute considerably to a significant cumulative impact at the intersection of Harbor Way/Forbes Boulevard and East Grand Avenue in both the AM and PM peak hours. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, the intersection of Harbor Way/Forbes Boulevard/Grand Avenue would operate at an acceptable LOS D during the AM peak hour, as shown on Table 4.9.15, and an unacceptable LOS F during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from either Phase 1 or buildout, the intersection would experience further delay. Traffic from Phase 1 of the proposed project would cause the AM peak LOS to change from LOS D to LOS E, and during the PM peak hour the intersection would continue to operate at LOS F with the project contributing 5.1 percent to total traffic volumes. Traffic from buildout of the proposed project would result in further degradation during the AM peak hour, to LOS F, and during the PM peak hour the intersection would continue to operate at LOS F with the project contributing 8.8 percent of total traffic. Both Phase 1 and buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure MM-C-TR-7: Add a Fourth Westbound Through Lane on East Grand Avenue and Restripe Northbound and Southbound Approaches to the Intersection of Harbor Way/Forbes Boulevard/East Grand Avenue.**
>
> The City of South San Francisco shall widen the westbound approach on East Grand Avenue at Harbor Way/Forbes Boulevard to provide a fourth through lane. Restripe southbound Forbes Boulevard from the planned improvements to provide one left-turn lane, two through lanes and one right-turn lane. Restripe northbound Harbor Boulevard from the planned improvements to provide two left-turn lanes, one through lane and one right-turn lane, with signal modifications as required.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-7 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-7. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-7, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the Phase 1 or Phase 2 project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-8: The proposed project (Phase 1 or buildout) would contribute considerably to a significant cumulative impact at the intersection of Littlefield Avenue and East Grand Avenue in the AM peak hour. ***(Significant and Unavoidable [Mitigation found infeasible])***

Under 2040 cumulative conditions with forecast growth, the intersection of Littlefield Avenue/East Grand Avenue would operate at an acceptable LOS D during the AM peak hour, as shown on Table 4.9.15. With the addition of project-generated traffic from either Phase 1 or buildout, the intersection would experience further delay. Traffic from Phase 1 of the proposed project would cause the intersection to operate at LOS E. Traffic from buildout of the proposed project would result in further degradation, causing the intersection to operate at LOS F. Both Phase 1 and buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation.

> **Mitigation Measure MM-C-TR-8: Add an Eastbound Through Lane to the Intersection of Littlefield Avenue/East Grand Avenue**.
>
> The City of South San Francisco shall widen East Grand Avenue to provide a third eastbound through lane.

Implementation of the mitigation measure would provide LOS D or better operations. The cumulative traffic impact after mitigation would be less than significant. However, the revisions to the lane striping could impact the existing bike lanes on East Grand Avenue. This secondary impact of the mitigation measure would be significant relative to the bicycle and pedestrian impact criteria. Mitigation of the secondary impact would require the acquisition of additional right-of-way from adjacent property owners so that East Grand Avenue could provide a third eastbound through lane and maintain bicycle lanes on each side. The acquisition of property would require removal of parking spaces for properties that do not have alternative locations for replacement parking, such that the associated buildings would not be able to be occupied. Because the City of South San Francisco has determined that acquisition of property for the additional right-of-way to widen East Grand Avenue would economically affect existing businesses that need parking to remain viable, and that funding for the acquisition is not assured, this mitigation measure is considered to be infeasible. Therefore, while the mitigation measure could reduce the traffic impact to a less-than-significant level, the overall impact at this intersection would remain significant.

Impact C-TR-9: The proposed project (Phase 1 or buildout) would contribute considerably to a significant cumulative impact at the intersection of Allerton Avenue and East Grand Avenue in the PM peak hour. ***(Significant and Unavoidable [Mitigation found infeasible])***

Under 2040 cumulative conditions with forecast growth, the intersection of Allerton Avenue/East Grand Avenue would operate at an unacceptable LOS F during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from either Phase 1 or buildout, the intersection would continue to operate at LOS F and would experience further delay. Traffic from Phase 1 of the proposed project would contribute 9.0 percent to total traffic volumes. Traffic from buildout of the proposed project would result in further degradation, and the project would contribute 15.6 percent of total traffic. Both Phase 1 and buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation**.**

Mitigation Measure MM-C-TR-9: Add a Westbound Through Lane and a Southbound Right-Turn Lane at the intersection of Allerton Avenue/East Grand Avenue.

The City of South San Francisco shall widen East Grand Avenue to provide a third westbound through lane, and restripe the southbound approach on Allerton Avenue to provide a separate right-turn lane in addition to the existing left-through-right lane.

Implementation of the mitigation measure would result in operations at this intersection of LOS D or better. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measure designed to alleviate the cumulative impact (CEQA Guidelines, § 15130(a)(3)). The cumulative traffic impact after mitigation would be less than significant. However, the revisions to the lane striping would remove a portion of the Class II bicycle lanes on Allerton Avenue and could impact the existing bike lanes on East Grand Avenue. This secondary impact of the mitigation measure would be significant relative to the bicycle and pedestrian impact criteria. Mitigation of the secondary impact would require the acquisition of additional right-of-way from adjacent property owners so that East Grand Avenue could provide a third eastbound through lane and maintain bicycle lanes on each side, and so that Allerton Avenue could provide an additional southbound lane and maintain bicycle lanes. The acquisition of property would require removal of parking spaces for properties that do not have alternative locations for replacement parking, such that the associated buildings would not be able to be occupied. Because the City of South San Francisco has determined that acquisition of property for the additional right-of-way to widen East Grand Avenue could affect existing businesses that require parking to remain viable, and that funding for acquisition is not assured, this mitigation measure is considered to be infeasible. Therefore, while the mitigation measure could reduce the traffic impact to a less-than-significant level, the overall impact at this intersection would remain significant.

Impact C-TR-10: The proposed project at buildout (Phase 1 & 2) would contribute considerably to a significant cumulative impact at the intersection of Airport Boulevard/Produce Avenue/San Mateo Avenue in the PM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, the intersection of Airport Boulevard/Produce Avenue/San Mateo Avenue would operate at an unacceptable LOS F during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from buildout, the intersection would continue to operate at LOS F and would experience further delay. Traffic from buildout of the proposed project would contribute 2.4 percent of total traffic. The project at buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation**.**

Mitigation Measure MM-C-TR-10: Reconstruct the Southbound Approach on Airport Boulevard at San Mateo Avenue.

The City of South San Francisco shall reconstruct southbound Airport Boulevard at San Mateo Avenue to convert the right-turn lane to a shared through-right lane, so that the southbound approach provides one left-turn lane, two through lanes and a shared through-right lane, and implement curb and traffic signal modifications as required.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-10 in the updated TIF and CIP. The Phase 2 project sponsor(s) will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-10. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-10, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the Phase 2 project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-11: The proposed project at buildout (Phase 1 & 2) would contribute considerably to a significant cumulative impact at the intersection of Gateway Boulevard/South Airport Boulevard/Mitchell Avenue in the PM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, the intersection of Gateway Boulevard/South Airport Boulevard/Mitchell Avenue would operate at an unacceptable LOS F during the PM peak hour, as shown on Table 4.9.16. With the addition of project-generated traffic from buildout, the intersection would continue to operate at LOS F and would experience further delay. Traffic from buildout of the proposed project at buildout would contribute 2.9 percent of total traffic. The project at buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation**.**

The planned improvements at this intersection to be implemented by the East of 101 Area Traffic Impact Fee would provide the maximum number of operational lanes for all critical traffic movements for safe and effective operation of an at-grade intersection. No additional feasible physical mitigation has been identified to provide LOS D operations with the forecast traffic volumes. While a TDM program would be required to be prepared and implemented pursuant to City ordinance, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-12: The proposed project at buildout (Phase 1 & 2) would contribute considerably to a significant cumulative impact at the freeway ramp intersection of South Airport Boulevard and U.S. 101 Northbound Hook Ramps/Wondercolor Lane in the AM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, the intersection of South Airport Boulevard and U.S. 101 Northbound Hook Ramps/Wondercolor Lane would operate at an unacceptable LOS F during the AM peak hour, as shown on Table 4.9.15. With the addition of project-generated traffic from buildout, the intersection would continue to operate at LOS F and would experience further delay. Traffic

from buildout of the proposed project would contribute 1.6 percent of total traffic. The project at buildout would contribute more than 1 percent of total traffic at a freeway ramp intersection, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation**.**

This intersection provides the maximum number of operational lanes for all critical traffic movements for safe and effective operation of an at-grade intersection at this location. No additional feasible physical mitigation has been identified to provide LOS D operations with the forecast traffic volumes. While a TDM program would be required to be prepared and implemented pursuant to City ordinance, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-considerable level. The impact would be significant and unavoidable.

Impact C-TR-13: The proposed project at buildout (Phase 1 & 2) would contribute considerably to a significant cumulative impact at the intersection of South Airport Boulevard and Utah Avenue in the AM peak hour. ***(Significant and Unavoidable)***

Under 2040 cumulative conditions with forecast growth, the intersection of South Airport Boulevard and Utah Avenue would operate at an unacceptable LOS F during the AM peak hour, as shown on Table 4.9.15. With the addition of project-generated traffic from buildout, the intersection would continue to operate at LOS F and would experience further delay. Traffic from buildout of the proposed project would contribute 2.3 percent of total traffic. The project at buildout would contribute more than 2 percent of total traffic, which would be a considerable contribution to the significant cumulative traffic impact at this location and require mitigation**.**

> **Mitigation Measure MM-C-TR-13: Restripe the Northbound Approach on South Airport Boulevard at Utah Avenue**.
>
> The City of South San Francisco shall restripe northbound South Airport Boulevard at Utah Avenue to convert the rightmost through lane to a shared through-right lane, so that the northbound approach provides one left-turn lane, one through lane, one shared through-right lane and one right-turn lane, and implement traffic signal modifications as required.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-13 in the updated TIF and CIP. The Phase 2 project sponsor(s) will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-13. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-13, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the Phase 2 project's contribution to a

significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Queue Impacts

Project traffic was added to cumulative 2040 traffic volumes and 95th percentile queues were evaluated on key movements. As shown in **Table 4.9.17: Queues on Key Movements– Cumulative (2040) AM and PM Peak Hours**, queues would be within storage lengths on 5 of the 10 study locations in the AM peak hour and on 4 of the 10 locations in the PM peak hour with 2040 traffic volumes without the project.

At the remaining five locations in the AM peak hour and six locations in the PM peak hour, queues from increased traffic in 2040 would exceed available storage lengths with the project, resulting in significant cumulative impacts. During the AM peak hour, both Phase 1 and buildout of the proposed project would not add traffic greater than 1 percent of the movement volume on one of the five movements where queues would exceed storage length, but would add more than 1 percent of traffic on four of the five movements, resulting in considerable contributions to these significant impacts. For the PM peak hour, the proposed project (Phase 1 and buildout) would add more than 1 percent of traffic on all six

Table 4.9.17: Queues on Key Movements – Cumulative (2040) AM and PM Peak Hours

	Storage Length (feet)	AM Peak Hour			PM Peak Hour		
		No Project 2040 Conditions	With Phase 1	With Phase 1 & 2	No Project 2040 Conditions	With Phase 1	With Phase 1 & 2
1. Oyster Point Blvd/Gateway Blvd/US 101 SB Off-Ramp Flyover							
SB Off-Ramp Thru	2900	932	932	932	159	159	159
SB Off-Ramp Right	375	**657**	**658 [<1%]**	**659 [<1%]**	150	150	150
2. Airport Blvd/Grand Ave							
SB Airport Blvd Left	300	**696**	**744 [4.5%]***	**778 [7.8%]***	**396**	**411 [2.8%]***	**417 [3.9%]***
WB Grand Ave Right	75	22	23	23	**448**	**463 [1.4%]***	**477 [2.5%]***
5. Gateway Blvd/East Grand Ave							
EB E. Grand Ave Thru	300	30	40	58	**328**	**345 [4.1%]***	**360 [5.7%]***
WB E. Grand Ave Thru	560	3	5	5	**1208**	**1420 [6.0%]***	**1588 [10.8%]***
WB E. Grand Ave Left	200	**430**	**468 [2.6%]***	**478 [3.7%]***	**353**	**378 [6.9%]***	**403 [12.5%]***
11. Airport Blvd/Produce Ave/San Mateo Ave							
WB S Airport Thru/Left	225	**348**	**353 [1.0%]***	**353 [1.5%]***	**960**	**1075 [3.6%]***	**1173 [6.6%]***
13. S Airport Blvd/US 101 NB On/Off Hook Ramps/Wondercolor Ln							
Off-Ramp Left	750	**1487**	**1520 [1.7%]***	**1543 [2.8%]***	723	733	735
Off-Ramp Right	150	102	103	104	49	49	49

Note: Analysis using Synchro software 2010 Highway Capacity Manual methodology where possible, 2000 Highway Capacity Manual methodology at Intersections 1, 2 and 13.

[xx%] – Project volume percent of turn movement

Bolded results = unacceptable operation *** = Significant impact**

Source: Kittelson & Associates, Inc. (2018)

movements where queues would exceed storage length without the project, resulting in considerable contributions to these significant impacts. In total, significant cumulative queue impacts were identified at five intersections, and the proposed project would contribute considerably to four of the five. These intersections are discussed below.

Impact C-TR-14: The proposed project (Phase 1 or buildout) would add less than 1 percent of traffic to the right-turn movement from the southbound U.S. 101 off-ramp at Oyster Point Boulevard/Gateway Boulevard where cumulative queues would exceed storage length without the project in the AM peak hour, and therefore would not contribute considerably to a significant cumulative traffic impact. (*Less than Significant*).

Morning traffic at this location would substantially exceed the available storage length with growth in the area expected to occur by 2040 without traffic generated by the proposed project. This would be a significant cumulative impact. While both Phase 1 and buildout of the proposed project would add traffic to this movement, the project's contribution under either project scenario would be less than 1 percent of total traffic on this movement. Therefore, the proposed project would not contribute considerably to the significant cumulative impact. No mitigation is necessary.

Impact C-TR-15: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic and therefore would contribute considerably to the significant cumulative impacts on the southbound left turn movement in the AM and PM peak hours and the westbound right-turn movement in the PM peak hour at the intersection of Airport Boulevard and Grand Avenue where the 95th percentile queues with future cumulative growth in 2040 would exceed the available storage length without the project. *(Significant and Unavoidable)*

The 95th percentile queue for southbound left-turning traffic on Airport Boulevard at Grand Avenue in the AM and PM peak hours, with forecast cumulative growth in 2040, would substantially exceed the available storage length. This would be a significant cumulative impact. Both Phase 1 and buildout of the proposed project would add vehicles on this movement. Phase 1 traffic would contribute 4.5 percent of total AM peak hour traffic and 2.8 percent of PM peak hour traffic, and buildout of the proposed project would contribute 7.8 percent of total AM peak hour traffic and 3.9 percent of PM peak hour traffic, resulting in a considerable contribution to the significant cumulative impact.

The 95th percentile queue for westbound right-turning traffic on Grand Avenue at Airport Boulevard in the PM peak hour, with forecast growth in 2040, would also exceed the available storage length in the PM peak hour, which would be a significant cumulative impact. Traffic generated by Phase 1 of the proposed project would contribute 1.4 percent of the total traffic to this movement, and therefore would contribute considerably to this significant cumulative impact. Traffic generated by buildout of the proposed project would contribute 2.5 percent of total traffic and thus would contribute considerably to the significant cumulative impact, requiring mitigation.

> **Mitigation Measure MM-C-TR-15: At the intersection of Airport Boulevard and Grand Avenue, widen Grand Avenue to provide a third eastbound approach lane at the intersection and adjust signal timing.**
>
> The City of South San Francisco shall widen Grand Avenue to provide a third lane on the eastbound approach (Mitigation Measure MM-C-TR-3) and adjust signal timing at the

intersection of Airport Boulevard and Grand Avenue to reduce the 95th percentile queue length in the southbound left-turn lane and westbound right-turn lane.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-15 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-15. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the traffic impact to a less-than-significant level, the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-15, so the overall impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-16: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic and therefore would contribute considerably to the significant cumulative impacts on the eastbound and westbound through movements in the PM peak hour and westbound left turn movement in the AM and PM peak hours on East Grand Avenue at Gateway Boulevard where the 95th percentile queues would exceed the available storage lengths during these peak hours without the proposed project. ***(Significant and Unavoidable)***

The 95th percentile queue in the eastbound through movement on East Grand Avenue at Gateway Boulevard would exceed the available storage length in the PM peak hour with traffic from forecast development in 2040, resulting in a significant cumulative impact. Phase 1 of the proposed project would contribute 4.1 percent of the traffic on this movement, and buildout would contribute 5.7 percent. Therefore, the proposed project would contribute considerably to the significant cumulative impact.

The 95th percentile queue in the westbound through movement on East Grand Avenue at Gateway Boulevard would exceed the available storage length in the PM peak hour with traffic from forecast development in 2040, resulting in a significant cumulative impact. Phase 1 of the proposed project would contribute 6.0 percent of the traffic on this movement, and buildout would contribute 10.8 percent. Therefore, the proposed project would contribute considerably to the significant cumulative impact.

The westbound left-turn movement on East Grand Avenue at Gateway Boulevard would exceed the available storage length in both the AM and PM peak hours with traffic from forecast growth in 2040, resulting in a significant cumulative impact. Phase 1 of the proposed project would contribute 2.6 percent to this movement in the AM peak hour and 6.9 percent in the PM peak hour and therefore would contribute considerably to the significant cumulative impact. Buildout of the proposed project would contribute 3.7 percent to this movement in the AM peak hour and 12.5 percent in the PM peak hour, also resulting in a considerable contribution to significant cumulative impacts and requiring mitigation.

Mitigation Measure MM-C-TR-16: Add a Westbound Right-Turn Lane and a Northbound Left-Turn Lane and Adjust Signal Timing at the Intersection of Gateway Boulevard and East Grand Avenue.

The City of South San Francisco shall add a westbound right-turn lane on East Grand Avenue and a northbound left-turn lane on Gateway Boulevard, and adjust signal timing at the intersection of Gateway Boulevard with East Grand Avenue to reduce the 95th percentile queue length in the eastbound through lane and westbound left-turn lane.

Implementation of the mitigation measure would result in queues that would be no longer than those that would occur without the proposed project in the westbound left-turn lane in the AM peak hour and in the westbound through lanes in the PM peak hour, but would not mitigate the other two impacted movements for westbound left turns or eastbound through travel in the PM peak hour. The impact would be significant and unavoidable.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-16 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-16. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the proposed project's contribution to a portion of the cumulative traffic impact to a less-than-significant level, the measure would not eliminate the significant cumulative impact, and the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-16, so the impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-17: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic and therefore would contribute considerably to the significant cumulative impact on the westbound left turn movement on Airport Boulevard at the intersection of Airport Boulevard/Produce Avenue where the 95th percentile queue would exceed the available storage length during the AM and PM peak hours in 2040 without the proposed project. ***(Significant and Unavoidable)***

The westbound through movement on Airport Boulevard at Produce Avenue/San Mateo Avenue would exceed the available storage length in the AM and PM peak hours with traffic from forecast growth in 2040, which would be a significant cumulative impact. Phase 1 of the proposed project would contribute slightly more than 1.0 percent to the total AM peak hour traffic volume on this movement and 3.6 percent of the PM peak hour traffic and therefore would contribute considerably to the significant cumulative impact. Buildout of the proposed project would contribute 1.5 percent to the total AM peak hour traffic on this movement and 6.6 percent of the PM peak hour traffic, and would also contribute considerably to the significant cumulative impact, requiring mitigation.

Mitigation Measure MM-C-TR-17: Adjust Signal Timing at the Intersection of Airport Boulevard/Produce Avenue and San Mateo Avenue/Airport Boulevard.

The City of South San Francisco shall reconstruct the southbound approach on Airport Boulevard at San Mateo Avenue to convert the right-turn lane to a shared through-right lane, so that the southbound approach provides one left-turn lane, two through lanes and a shared through-right lane, and implement curb and traffic signal modifications and adjust signal timing at the intersection of Airport Boulevard and San Mateo Avenue to reduce the 95th percentile queue length in the westbound left-turn lane.

Implementation of the mitigation measure would result in queues that are no longer than those that would occur without the project during the AM peak hour but not during the PM peak hour. The impact would remain significant and unavoidable with mitigation.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-17 in the updated TIF and CIP. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-17. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. Thus, while the proposed mitigation measure could reduce the proposed project's contribution to the cumulative traffic impact to a less-than-significant level, the measure would not eliminate the significant cumulative impact, and the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-18, so the impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would be significant and unavoidable.

Impact C-TR-18: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic and therefore would contribute considerably to the significant cumulative impact on the eastbound left turn movement on the northbound U.S. 101 off-ramp at South Airport Boulevard/Wondercolor Lane where the 95th percentile queue would exceed the available storage length during the AM peak hour in 2040 without the proposed project. ***(Significant and Unavoidable)***

Traffic from future development forecast to occur by 2040 would substantially exceed the available storage length in the AM peak hour on the left-turn movement on the northbound U.S. 101 off ramp at South Airport Boulevard, which would be a significant cumulative impact. Phase 1 of the proposed project would contribute 1.7 percent of the traffic volume on this movement and buildout would contribute 2.8 percent. Therefore, both Phase 1 and buildout would contribute considerably to the significant cumulative impact and require mitigation.

Mitigation Measure MM-C-TR-18: Adjust Signal Timing at the Intersection of South Airport Boulevard and U.S. 101 Hook Ramps at Wondercolor Lane.

The City of South San Francisco shall coordinate with Caltrans to adjust signal timing at the intersection of South Airport Boulevard and the U.S. 101 hook ramps at Wondercolor Lane.

The City is in the process of updating its East of 101 Area TIF and CIP. The City is considering including Mitigation Measure MM-C-TR-18 in the updated TIF and CIP, in coordination with Caltrans. The Phase 1 and Phase 2 project sponsors will pay the applicable TIF in effect at the time the building permit is issued. Until TIF and CIP updates are complete, however, the City does not have a mechanism for funding Mitigation Measure MM-C-TR-18. At this time, the City therefore cannot guarantee that this mitigation measure will be implemented. In addition, while queues would be reduced, it cannot be demonstrated that queues could be reduced sufficiently to remove the proposed project's considerable contribution by this mitigation. Thus, the measure would not eliminate the significant cumulative impact, and the City has not yet completed the TIF and CIP updates to include or fund Mitigation Measure MM-C-TR-18, so the impact would remain significant.

A TDM program would be required to be prepared and implemented pursuant South San Francisco Municipal Code Chapter 20.400. However, it cannot be guaranteed that the required TDM program would reduce intersection traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-cumulatively considerable level. The impact would remain significant and unavoidable.

Freeway Segments

Project traffic was added to cumulative 2040 traffic volumes on key freeway segments, and freeway volumes were evaluated. The results are shown in **Table 4.9.18: Freeway Mainline Level of Service – Year 2040 Without and With Project**. Level of service F operations were identified on both of the study freeway segments in one or both directions during both the AM and PM peak hours with forecast development in 2040, exceeding the LOS E threshold identified in the San Mateo County Congestion Management Program and resulting in significant cumulative impacts. Phase 1 of the proposed project would add less than 1 percent of total traffic on all segments in either direction during both the AM and PM peak hours. Buildout of the proposed project (Phases 1 & 2) would add less than 1 percent of total traffic in both directions on one segment during the AM peak hour, and less than 1 percent of total traffic in the southbound direction of that segment and in the northbound direction on the other segment during the PM peak hour, but would add slightly more than 1 percent of total traffic in one direction of each segment during the PM peak hour, resulting in a considerable contribution to a significant cumulative impact. These segments are discussed in Impact C-TR-19.

Impact C-TR-19: The freeway segments serving the proposed project site would operate at unacceptable LOS F in the future with forecast development in 2040, resulting in a significant cumulative impact. The proposed project at buildout (Phases 1 & 2) would add more than 1 percent of total traffic to two freeway segments during the PM peak hour which would operate at LOS F under cumulative conditions without the project. ***(Significant and Unavoidable for buildout)***

All but two directions of the two freeway segments studied would operate at an unacceptable LOS F in 2040 with traffic generated by forecast development without the project. This would be a significant cumulative traffic impact, other than the LOS D operations on the southbound segment of U.S. 101 north of I-380 in the AM peak hour, and the LOS D on the northbound segment north of I-380 in the PM peak hour.

Table 4.9.18: Freeway Mainline Level of Service – Year 2040 Without and With Project

Segment	No Project			With Phase 1			With Buildout		
	Volume	Density	LOS	Volume	Density	LOS	Volume	Density	LOS
AM PEAK HOUR									
North of Oyster Point Blvd									
Northbound	**10176**	**72.6**	**F**	**10190**	**73.0**	**F [0.1%]**	**10196**	**73.1**	**F [0.2%]**
Southbound	**9651**	**60.5**	**F**	**9705**	**61.6**	**F [0.6%]**	**9745**	**62.4**	**F [0.9%]**
North of I-380									
Northbound	**13349**	**48.4**	**F**	**13424**	**49.1**	**F [0.6%]**	**13479**	**49.6**	**F [0.89]**
Southbound	8656	30.6	D	8665	30.7	D	8669	30.7	D
PM PEAK HOUR									
North of Oyster Point Blvd									
Northbound	**12897**	**n/a**	**F**	**12972**	**n/a**	**F [0.6%]**	**13032**	**n/a**	**F [1.0%]***
Southbound	**8676**	**45.7**	**F**	**8694**	**45.9**	**F [0.2%]**	**8702**	**46.0**	**F [0.3%]**
North of I-380									
Northbound	9974	29.0	D	9995	29.0	D	10004	29.1	D
Southbound	**11351**	**48.8**	**F**	**11421**	**51.8**	**F [0.6%]**	**11477**	**52.4**	**F [1.1%]***

Note: Density is shown in passenger cars per lane per mile; LOS = Level of Service; Highway Capacity Manual (2010) Analysis Methodology

Bolded results = unacceptable operation *** significant impact**

Source: Kittelson & Associates, Inc. (2018)

As noted above, on most freeway segments both Phase 1 and full buildout of the proposed project would add traffic but would not contribute more than 1 percent to total traffic volumes on the segments exhibiting significant cumulative impacts. Therefore, the proposed project would not contribute considerably to significant cumulative impacts except on two segments of U.S. 101, both in the PM peak hour. North of Oyster Point Boulevard in the northbound direction, Phase 1 of the proposed project would contribute 0.6 percent to total traffic volumes, which would not be considered to be a considerable contribution. However, full buildout of the proposed project would contribute 1.01 percent to this freeway segment in the PM peak hour and would contribute considerably to the significant cumulative impact at this location. North of I-380 in the southbound direction, Phase 1 would contribute 0.6 percent to total traffic volumes in the PM peak hour, which would not be a considerable contribution. However, full buildout of the proposed project would contribute 1.1 percent and would contribute considerably to the significant cumulative impact at this location

While a TDM program would be required to be prepared and implemented pursuant to City ordinance, it cannot be guaranteed that the required TDM program would reduce freeway traffic by the amount

necessary to reduce the project's contribution to a significant cumulative impact to a less-than-considerable level. No other feasible mitigation measures have been identified. The impact would be significant and unavoidable.

Freeway Ramps

Project traffic was added to existing traffic volumes on freeway ramps to determine whether cumulative project traffic would result in volumes that would exceed the acceptable capacity thresholds. The results are presented in **Table 4.9.19: Freeway Ramp Capacity and Volumes – Existing (2016) Without and With Project**.

Table 4.9.19: Freeway Ramp Capacity and Volumes – Year 2040 Without and With Project

Freeway Ramp	Capacity	No Project	With Phase 1	With Phase 1 & 2
		Volume	Volume	Volume
AM PEAK HOUR				
NB Off-Ramp to S. Airport/Wondercolor	2300	**2980**	**3020 [1.3%]***	**3049 [2.3%]***
SB On-Ramp from Produce Avenue	3300	1821	1830	1834
NB Off-Ramp to E. Grand/Poletti	2300	1386	1421	1446
NB On-Ramp from Airport/Grand	2000	741	754	760
SB Off-Ramp to Airport	1500	1364	1424	1468
PM PEAK HOUR				
NB Off-Ramp to S. Airport/Wondercolor	2300	1380	1389	1393
SB On-Ramp from Produce Avenue	3300	3233	**3302 [2.1%]***	**3358 [3.9%]***
NB Off-Ramp to E. Grand/Poletti	2300	652	664	669
NB On-Ramp from Airport/Grand	2000	1633	1708	1768
SB Off-Ramp to Airport	1500	1332	1350	1357

Bolded results = exceeds capacity *** significant impact**

Source: Kittelson & Associates, Inc. (2018)

Impact C-TR-20: The proposed project (Phase 1 or buildout) would add more than 1 percent of total traffic and therefore would contribute considerably to the significant cumulative impact on the northbound U.S. 101 off-ramp at South Airport Boulevard/Wondercolor Lane where the volume would exceed the available capacity during the AM peak hour in 2040 without the proposed project. ***(Significant and Unavoidable)***

Traffic from future development forecast to occur by 2040 would substantially exceed the available capacity in the AM peak hour on the northbound U.S. 101 off-ramp to South Airport Boulevard/Wondercolor Lane, which would be a significant cumulative impact. Phase 1 of the proposed project would contribute 1.3 percent of the traffic volume on this off-ramp and buildout would contribute 2.3 percent. Therefore, both Phase 1 and buildout would contribute considerably to the significant cumulative impact. No feasible physical mitigation has been identified to increase the capacity of the off-ramp. While a TDM program would be required to be prepared and implemented pursuant to City ordinance, it cannot be guaranteed that the required TDM program would reduce freeway ramp traffic by

the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-considerable level. The impact would be significant and unavoidable.

Impact C-TR-21: The proposed project (Phase 1 or buildout) would add traffic volumes which would cause total traffic to exceed capacity and therefore would contribute considerably to the significant cumulative impact on the southbound U.S. 101 on-ramp from Produce Avenue where the volume would not exceed the available capacity during the PM peak hour in 2040 without the proposed project. ***(Significant and Unavoidable)***

Traffic from future development forecast to occur by 2040 would not exceed the available capacity on the southbound U.S. 101 on-ramp from Produce Avenue. Traffic added by the proposed project (Phase 1 or buildout) would cause traffic volumes to exceed ramp capacity during the PM peak hour, resulting in a significant cumulative impact. Phase 1 of the proposed project would contribute 2.1 percent of the traffic volume on this on-ramp and buildout would contribute 3.9 percent. Therefore, both Phase 1 and buildout would contribute considerably to the significant cumulative impact. No feasible physical mitigation has been identified to increase the capacity of the on-ramp. While a TDM program would be required to be prepared and implemented pursuant to City ordinance, it cannot be guaranteed that the required TDM program would reduce freeway ramp traffic by the amount necessary to reduce the project's contribution to a significant cumulative impact to a less-than-considerable level. The impact would be significant and unavoidable.

Transit, Safety, Emergency Access, Bicycle/Pedestrian Travel, and VMT

The proposed project would add to the demand for shuttle service to regional transit facilities in the project area, as discussed in Impact TR-12. It is expected that the shuttle system in the East of 101 Area would expand as development occurs in the future and participation in the shuttle system by local employers increases. The project sponsor would contribute to the shuttle system. Therefore, the proposed project would not contribute considerably to a significant cumulative impact on the local shuttles.

The proposed project would not result in any safety or emergency access impacts and therefore would not contribute considerably to any significant cumulative impacts on hazardous travel conditions or emergency access in the project vicinity. The proposed project would not result in substantial amounts of bicycle traffic that would contribute considerably to any significant bicycle impacts under future cumulative conditions. The proposed project would include pedestrian improvements in the form of new sidewalks that would enhance the pedestrian experience; therefore, it would not contribute considerably to any significant cumulative impacts on pedestrian travel.

VMT is by its nature a cumulative impact. No individual project alone would be of sufficient size to prevent a region from meeting established VMT goals. If a proposed project's VMT per employee would be more than 15 percent below the regional average VMT per employee, it can be determined that the project would not contribute considerably to significant cumulative VMT impacts.

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