Appendix C
Traffic Impact Analysis

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Burlingame Point

Traffic Impact Analysis

Prepared for:

City of Burlingame

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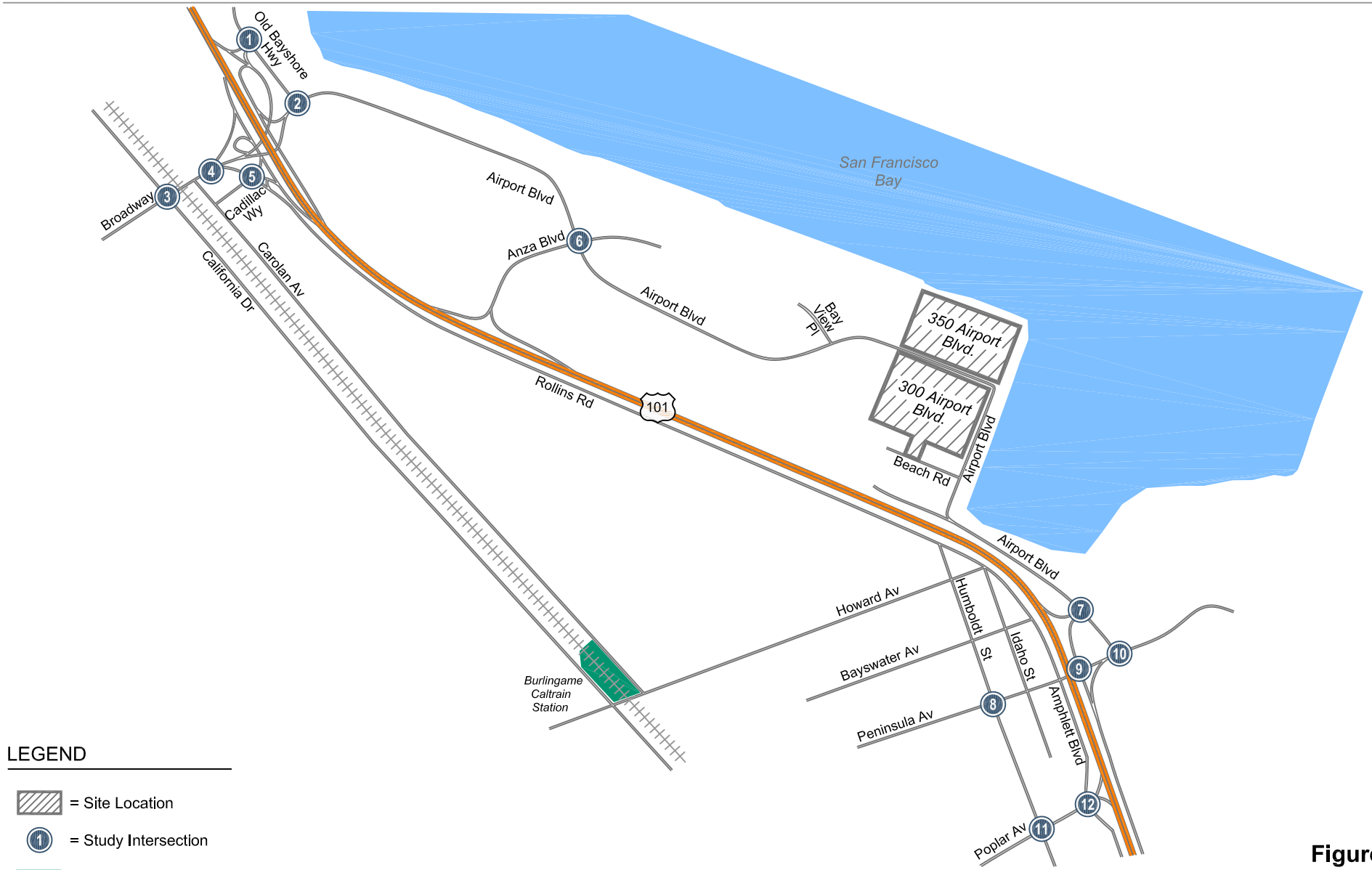
1. Introduction

This report presents the results of the project-level transportation impact analysis (TIA) for the proposed office development located at 300 Airport Boulevard in Burlingame, California. The site is bounded by the San Francisco Bay to the north, Airport Boulevard to the east, industrial buildings to the south, and Sanchez Channel to the west. The site previously housed a drive-in movie theater and is now vacant. Airport Boulevard, which provides direct access to the project site, would be realigned to bisect the site (see Figure 1). The development at 300 Airport Boulevard would consist of 767,000 s.f. of office space, including a 37,000 s.f. amenities building, on the land south of Airport Boulevard.

This report also contains a programmatic analysis of the theoretical maximum development of the remainder of the Anza Point North (APN) subarea (i.e. 350 Airport Boulevard) allowed by the Specific Plan and zoning code changes made in association with 300 Airport Boulevard that apply to the entire APN subarea. The analysis of the maximum development of the APN would consist of the development of 300 Airport Boulevard plus the amendment of the Bayfront Specific Plan and the Anza Point North zoning regulations to increase the maximum allowable floor area ratio (FAR) from 0.6 to 1.0. This amendment would result in a maximum allowable building of 374,000 s.f. of office space on the 8.58 acres of land at 350 Airport Boulevard.

Scope of Study

This study was conducted for the purpose of identifying the potential transportation impacts related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the City of Burlingame, City of San Mateo, and the City/County Association of Governments (C/CAG) of San Mateo County, as described in the Congestion Management Program (CMP). The study includes an analysis of AM and PM peak-hour traffic conditions for six signalized intersections in the City of Burlingame and five signalized intersections in the City of San Mateo. One unsignalized intersection was also selected for study in the City of San Mateo. The traffic analysis also includes a capacity analysis for four freeway interchanges and seven freeway segments in the vicinity of the project site. The study intersections and freeway facilities are identified as follows.



LEGEND

= Site Location

= Study Intersection

= Caltrain Station

Figure 1

Site Location and Study Intersections

City of Burlingame Study Intersections

1. Bayshore Highway and Broadway
2. California Drive and Broadway
3. Rollins Road and Broadway
4. Bayshore Highway and Airport Boulevard
5. Rollins Road and Cadillac Way
6. Airport Boulevard and Anza Boulevard

City of San Mateo Study Intersections

7. Airport Boulevard and US 101 Ramps
8. North Humboldt Street and Peninsula Avenue
9. North Bayshore Boulevard and Coyote Point Drive
10. Airport Boulevard and Coyote Point Drive
11. Humboldt Street and Poplar Avenue
12. Amphlett Boulevard and Poplar Avenue (unsignalized)

Study Freeway Interchanges

1. US 101 / Broadway
2. US 101 / Anza Boulevard
3. US 101 / Airport Boulevard
4. US 101 / Poplar Avenue

Study Freeway Segments

1. US 101, I-380 to Millbrae Avenue
2. US 101, Millbrae Avenue to Broadway
3. US 101, Broadway to Peninsula Avenue
4. US 101, Peninsula Avenue to SR 92
5. US 101, SR 92 to Whipple Avenue
6. US 101, Whipple Avenue to Santa Clara County Line
7. SR 92, I-280 to US 101

Traffic conditions at the intersections were analyzed for the weekday AM and PM peak hours of traffic. The AM peak hour of traffic is generally between 7:00 and 9:00 AM, and the PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on an average weekday.

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes are based on new traffic counts conducted in January 2011 with the exception of the study intersections along Poplar Avenue, which were counted in October 2010.

Scenario 2: *Existing plus Project Conditions.* Existing traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by running the San Mateo County City/County Association of Governments (C/CAG) travel demand forecast model for the year 2010 with the project traffic added. Two scenarios were run: existing plus the 300 Airport project, and existing plus APN buildout. Project conditions were evaluated relative to existing conditions in order to determine potential project impacts.

Scenario 3: *Cumulative (2035) No Project Conditions.* Cumulative no project traffic volumes were represented by year 2035 traffic projections. Year 2035 traffic projections are based on the C/CAG travel demand model forecasts.

Scenario 4: *Cumulative (2035) With Project Conditions.* Cumulative traffic volumes with the project were estimated by rerunning the 2035 C/CAG model for two scenarios: with the addition of the 300 Airport Blvd. project, and with the addition of buildout of the APN subarea.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from January 2011 and October 2010 traffic counts, previous traffic studies, the City of Burlingame, the City of San Mateo, and the C/CAG model. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing, and
- year 2035 traffic forecasts

Model Forecasts

The C/CAG travel demand forecasting model produces link level traffic volume forecasts for four-hour time periods in the morning and afternoon. The four hour forecasts were factored to one-hour forecasts using factors derived by averaging existing traffic counts in the study area. The factors were 0.335 for the AM peak hour and 0.267 for the PM peak hour. The link-level forecasts were adjusted based on the difference between the 2010 model forecasts and the 2010 counts and were then translated into intersection turning movements using the existing turning movement patterns.

Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

Signalized Intersections

Some of the signalized study intersections are located in the City of Burlingame and are therefore subject to the City of Burlingame level of service standards. The City of Burlingame evaluates level of service at signalized intersections based on the *2000 Highway Capacity Manual* (HCM) level of service methodology using TRAFFIX software. This method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. While the City of Burlingame does not have a Council-adopted level of service threshold, a standard of LOS D or better has typically been applied in traffic studies and EIRs. The remaining intersections are in the City of San Mateo. The City of San Mateo level of service standard is a mid-level LOS D (average delay of less than 45 seconds) or better. Table 1 shows the level of service definitions for signalized intersections.

Unsignalized Intersections

There is one unsignalized study intersection that is located in the City of San Mateo. San Mateo does not have a LOS standard for unsignalized intersections. Impacts to this intersection were identified based on engineering judgment. Table 2 shows the level of service definitions for unsignalized intersections.

Freeway Ramps

A freeway ramp analysis was performed in order to verify that the freeway ramps would have sufficient capacity to serve the expected traffic volumes with and without the project. This analysis consisted of a volume-to-capacity ratio evaluation of the freeway ramps at the selected interchanges. The ramp capacities were obtained from the *2000 Highway Capacity Manual*, and consider both the free-flow speed and the number of lanes on the ramp. Table 3 shows the level of service definitions for freeway ramps.

Freeway Segments

The levels of service for the study freeway segments were obtained from the 2009 San Mateo County CMP Roadway Segments Levels of Service Report. The level of service is based on average speed. The level of service standards for freeways in San Mateo County vary by segment according to the CMP. The segment of US 101 between Peninsula Avenue and SR 92 has a LOS standard of F (in both directions) and the segment between Whipple Avenue and the Santa Clara County limit also has a LOS standard of F (in both directions). The remaining study freeway segments on US 101 have a LOS standard of E (in both directions). The LOS standard on the study segment of SR 92 is LOS D. Table 4 shows the level of service definitions for freeway segments.

Report Organization

The remainder of this report is divided into four chapters. Chapter 2 describes existing conditions for the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 describes the method used to estimate project traffic and its impact on the transportation system, and describes any recommended mitigation measures. It also contains an evaluation of other transportation-related issues, such as transit services and pedestrian facilities. Chapter 4 presents the traffic conditions in the study area under 2035 cumulative conditions, both without and with the project. Chapter 5 presents the conclusions of the traffic impact analysis.

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p17-2.

Table 3
Freeway Ramp Level of Service Definitions Based on V/C Ratio

Level of Service	Volume-to-Capacity (V/C) Ratio
A	less than 0.600
B	0.600 - 0.699
C	0.700 - 0.799
D	0.800 - 0.899
E	0.900 - 0.999
F	1.000 and greater

Source: 2009 San Mateo CMP Monitoring.

Table 4
Freeway Level of Service Definitions Based on Speed

Level of Service	Description	Speed (mph)[a]
A	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	65.0
B	Speeds at the free-flow speed are generally maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.	65.0
C	Speeds at or near the free-flow speed of the freeway prevail. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more vigilance on the part of the driver.	64.5
D	Speeds begin to decline slightly with increased flows at this level. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels.	61.0
E	At this level, the freeway operates at or near capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream, leaving little room to maneuver within the traffic stream.	56.0/53.0[b]
F	Vehicular flow breakdowns occur. Large queues form behind breakdown points.	Variable

[a] Greater than or equal to speeds shown.
[b] First value is for four-lane freeways and the second is for six- and eight-lane freeways.
Source: 2009 San Mateo CMP Monitoring for freeway sections with a 65 mph FFS.

2. Existing Conditions

This chapter describes the existing transportation system in the vicinity of the site and presents an analysis of existing operations of key study intersections and freeway facilities.

Existing Roadway Network

Regional access to the site is provided via US 101.

US 101 is an eight-lane north-south freeway in the vicinity of the project site. US 101 extends northward through San Francisco and southward through San Jose. Due to the topographic features of the area, access to and from the project from US 101 is constrained, especially to and from US 101 in the southbound direction. The various routes are described as follows.

To access the project site from US 101 in the northbound direction, drivers can take the Peninsula Avenue off ramp and make a left turn toward the project site.

To access northbound US 101 from the project site, drivers can take either Airport Boulevard south towards the US 101 northbound on ramp located slightly south of the project site, or take Airport Boulevard north and make a left turn at Anza Boulevard. Anza Boulevard leads directly to a US 101 northbound on ramp.

To access the project site from southbound US 101, drivers have two options. In the first option, drivers can exit Poplar Avenue, turn right turn at Poplar Avenue, turn right at Humboldt Street, turn right again at Peninsula Avenue, and finally turn left at Airport Boulevard to access the project site. Alternatively, drivers may take the Broadway exit, turn right onto Cadillac Way, turn right at Rollins Road, turn right again at Broadway, cross US 101 via the Broadway overpass, exit Bayshore Highway, turn right at Bayshore Highway, and then turn left at Airport Boulevard to access the project site.

To access southbound US 101 from the project site, drivers have two options. In the first option, drivers can take Airport Boulevard south towards Peninsula Avenue, turn right at Peninsula Avenue, turn left at Humboldt Street, and then turn left at Poplar Avenue towards the US 101 on ramp. Alternatively, drivers can take Airport Boulevard north towards Anza Boulevard, turn left on Anza Boulevard, enter the US 101 northbound on ramp, exit Broadway, take the second off ramp to Broadway westbound, and then enter the US 101 southbound on ramp.

Local access to the site is provided by Airport Boulevard and Anza Boulevard.

Airport Boulevard is a two-lane north-south street that borders the project site. Airport Boulevard extends from Bayshore Highway in the north to Peninsula Avenue/Coyote Point Drive. Airport

Boulevard expands into a four lane roadway between Anza Boulevard and the Sanchez Channel. Airport Boulevard provides direct access to the site.

Anza Boulevard is short, two- to four-lane east-west roadway in the project vicinity. Anza Boulevard extends from US 101 to a hotel parking lot approximately 2,000 feet to the east. Anza Boulevard provides access to the project site via Airport Boulevard and provides northbound access to US 101.

Existing Bicycle and Pedestrian Facilities

According to the City of Burlingame, there are numerous city-designated bikeways within the vicinity of the project site (see Figure 2).

The following streets in the project area have Class II bicycle lanes:

- Howard Avenue from Highland Avenue to Humboldt Street.

The following streets in the project area are existing designated Class III bicycle routes:

- Airport Boulevard from Broadway to the City of San Mateo at Peninsula Avenue,
- Bayshore Highway from the City of Millbrae to Airport Boulevard,
- Broadway from California Drive to Rollins Road, and
- Humboldt Street from Howard Avenue to the City of San Mateo at Peninsula Avenue.

Pedestrian facilities near the site consist of sidewalks along the north and east side of Airport Boulevard towards the bay. The south and west sides of Airport Boulevard do not have sidewalks.

Existing Transit Service

Existing transit service to the study area is provided by Caltrain and the San Mateo County Transit District (SamTrans). These are described below and shown on Figure 3.

Caltrain Service

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The project is about 0.75 miles southwest of the Burlingame Caltrain station and about four miles from the Millbrae Caltrain station. The Burlingame Caltrain station is located near the intersection of California Drive and North Lane. The Millbrae station is located on Millbrae Avenue at Rollins Road. Caltrain provides service with 20- to 30-minute headways during the weekday AM and PM commute hours.

The San Mateo Caltrain station is located near the intersection of 1st Street and Railroad Avenue, approximately 1.5 miles southeast of the project site. The San Mateo Caltrain station is accessible from the project site by utilizing the Peninsula Avenue overpass and Delaware Street to Railroad Avenue.

SamTrans Bus Service

The project area is served directly by two local buses and the Millbrae BART station shuttle. The bus lines that operate within the project study area are listed in Table 5, including their terminus points and commute hour headways.

BART

Commuter rail service in the project vicinity is provided by BART from the Millbrae Station. The BART system connects Millbrae to the Peninsula, San Francisco, and the East Bay. The Millbrae BART station is located about four miles northwest of the site and is accessible via a shuttle that serves the project area. BART trains operate on 15-minute headways during the commute periods.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were obtained by observations in the field (see Figure 4).

Table 5
SamTrans Bus Service in the Study Area

Route	Description	Headways [1] (minutes)
53	Local service with stops at Borel Square, College of San Mateo, and Laurelwood Shopping Center	varies[2]
292	Hillsdale Shopping Center to San Francisco	20 to 30

1. Headways during peak periods.
2. Limited service on school days only. Adjacent to the project site, there are three trips in the morning and three trips in the afternoon.

Existing Traffic Volumes

Existing traffic volumes were obtained from new counts conducted in January 2011 and October 2010 (see Figure 5). Detailed traffic count data are included in Appendix A.

Existing Intersection Levels of Service

The results show that most of the study intersections currently operate at LOS D or better during both peak hours (see Table 6). The unsignalized intersection of Amphlett Boulevard/Poplar Avenue operates at LOS F under both AM and PM peak hours. The level of service calculation sheets are included in Appendix B.

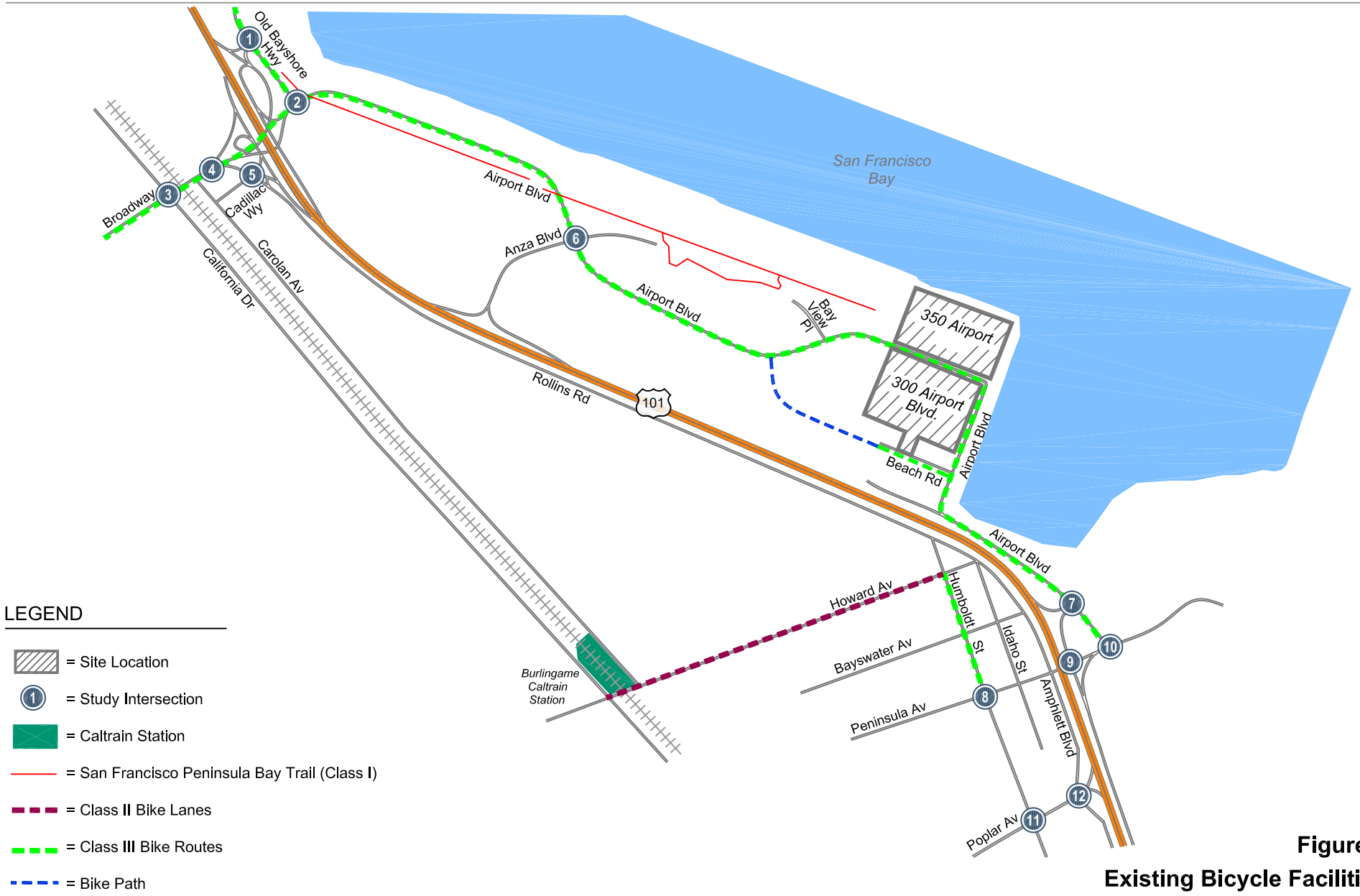
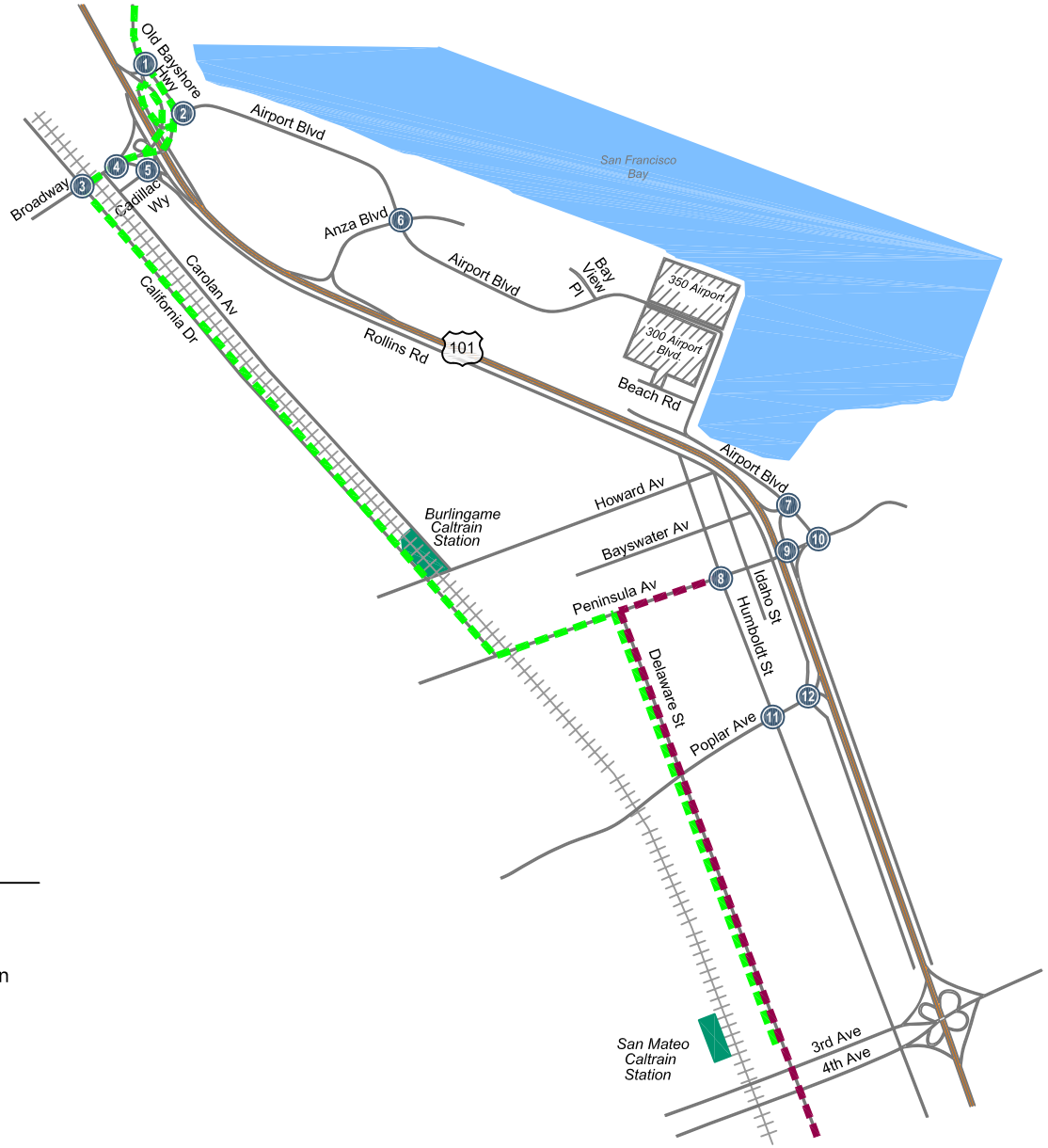


Figure 2
Existing Bicycle Facilities

NORTH
Not to Scale



LEGEND

- = Site Location
- = Study Intersection
- = Caltrain Station
- = Route 53
- = Route 292

Figure 3
Existing Transit Facilities

NORTH
Not to Scale

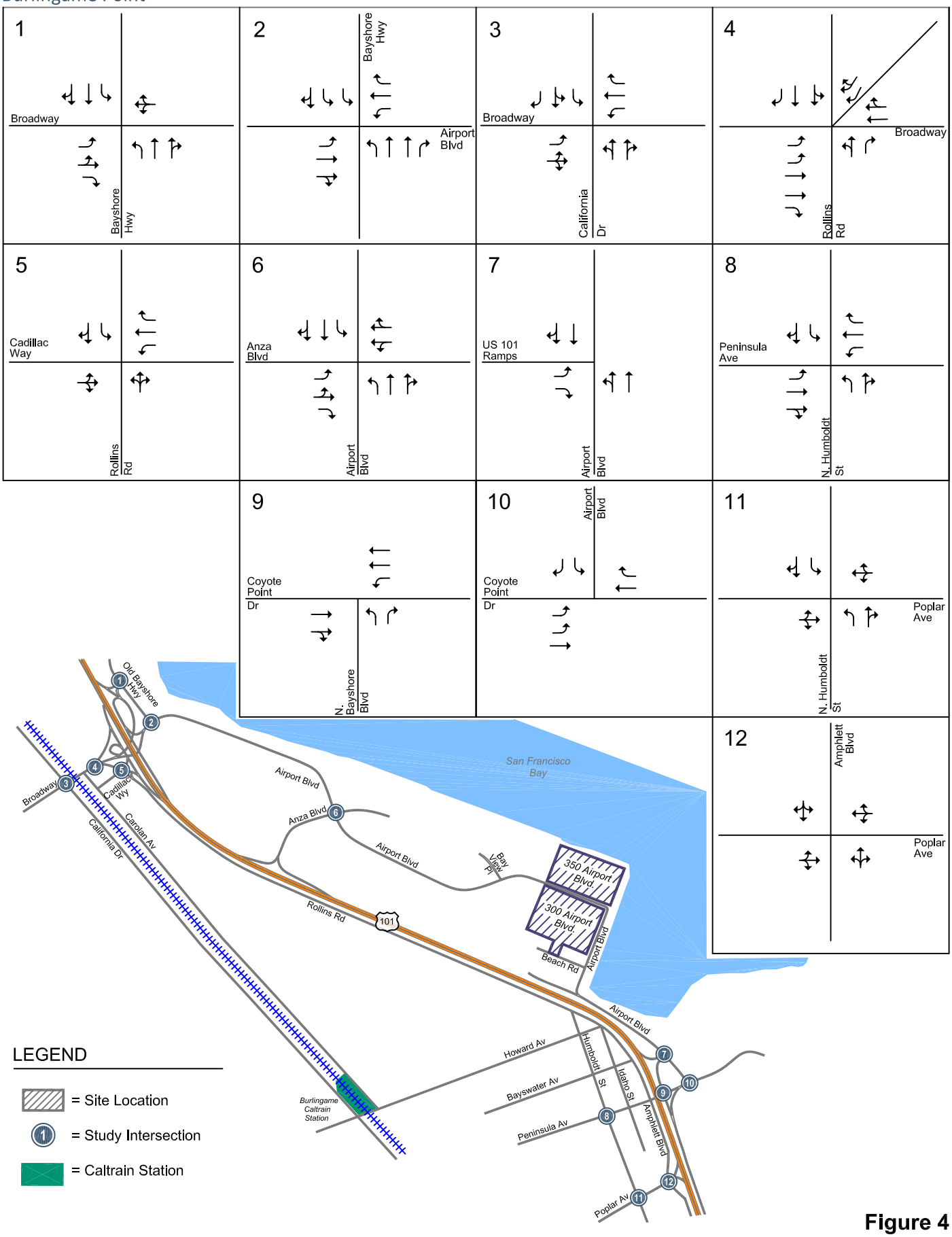


Figure 4
Existing Lane Configuration

Observed Existing Traffic Conditions

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated intersection levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to level of service, and (2) to identify any locations where the level of service analysis does not accurately reflect existing traffic conditions.

The study intersections nearest to the project site operate well during the AM and PM peak hours of traffic, and the level of service analysis reflects actual existing traffic conditions accurately. The study intersections along Broadway in Burlingame see relatively large traffic volumes to or from US 101. The close spacing of the intersections result in spill backs, vehicles not clearing in one signal cycle, and turning vehicles occasionally blocking through lanes. Although the level of service for vehicles westbound on Broadway at Rollins is poor, the other movements at the intersection have short back-ups, and the overall intersection weighted average delay calculates to LOS D. The westbound through volumes on Broadway frequently back up on the overpass, resulting in extended wait times for vehicles attempting to access the US 101 southbound on ramp.

Northbound vehicles at the Rollins Road/Cadillac Way intersection were not all able to clear the intersection in one signal cycle. Approximately 7 to 8 vehicles out of observed queues of about 10 vehicles were able to clear the queue under both AM and PM peak hours. The other movements at the intersection all cleared in one cycle, so the overall weighted average delay calculates to LOS D.

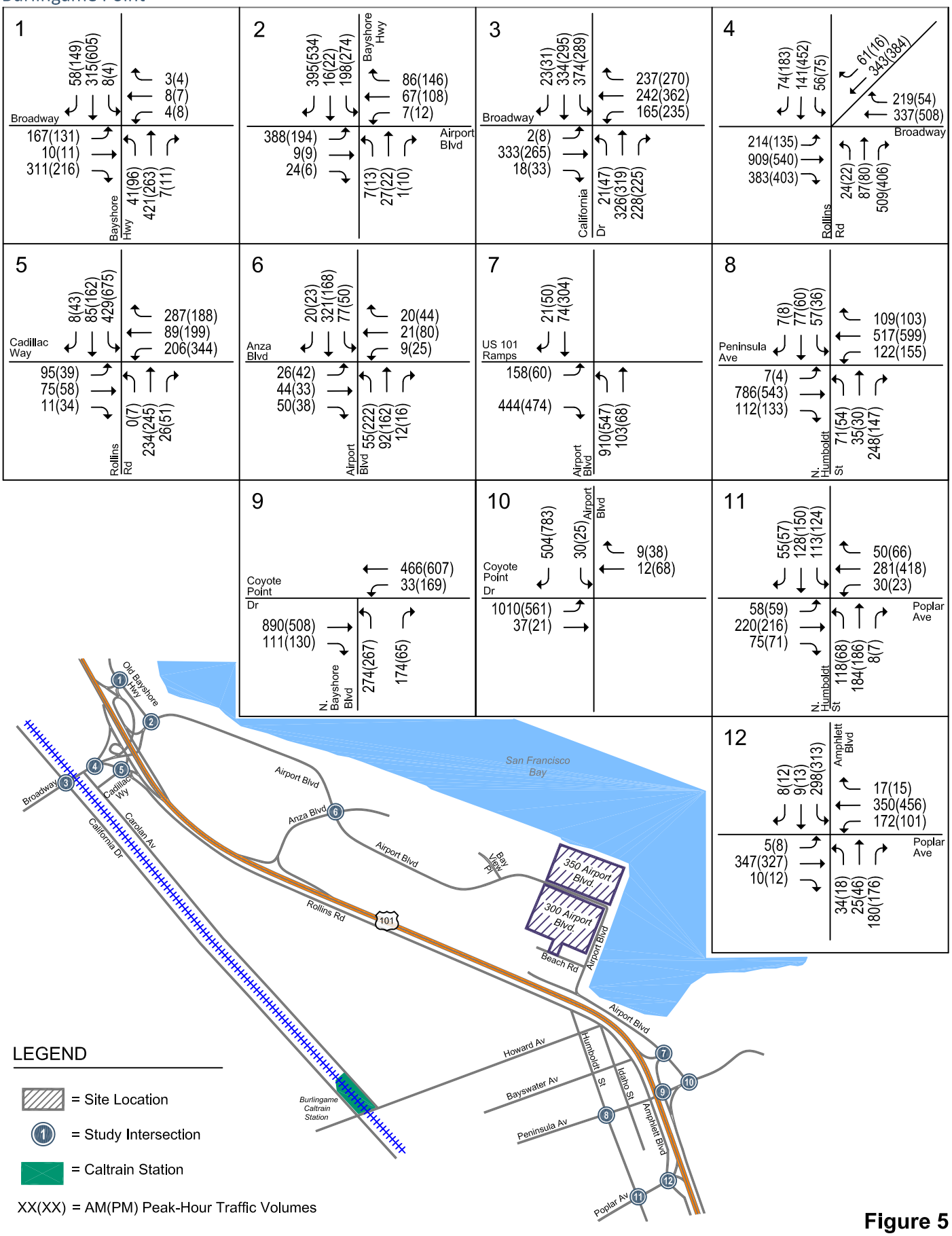


Figure 5

Existing Traffic Volumes

Table 6
Existing Intersection Levels of Service

Study Intersection	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS
Bayshore Highway & Broadway	AM	1/19/11	14.0	B
	PM	1/19/11	12.6	B
Bayshore Highway & Airport Blvd.	AM	1/25/11	17.1	B
	PM	1/25/11	16.4	B
California Dr. & Broadway	AM	1/19/11	36.9	D
	PM	1/19/11	35.2	D
Rollins Rd. & Broadway	AM	1/19/11	37.0	D
	PM	1/19/11	42.0	D
Rollins Rd. & Cadillac Wy.	AM	1/19/11	29.4	C
	PM	1/19/11	43.4	D
Airport Blvd. & Anza Blvd.	AM	1/20/11	17.2	B
	PM	1/20/11	19.2	B
Airport Blvd. & US 101 Ramps	AM	1/20/11	30.5	C
	PM	1/20/11	12.3	B
N. Humboldt St. & Peninsula Av.	AM	1/20/11	16.9	B
	PM	1/20/11	14.1	B
N. Bayshore Blvd. & Coyote Point Dr.	AM	1/20/11	19.0	B
	PM	1/20/11	23.5	C
Airport Blvd. & Coyote Point Dr.	AM	1/20/11	5.1	A
	PM	1/20/11	18.2	B
Humboldt St. & Poplar Av.	AM	10/28/10	12.6	B
	PM	10/28/10	12.4	B
Amphlett Blvd. & Poplar Av.	AM	10/27/10	[1]	**F**
	PM	10/27/10	[1]	**F**

Notes:
Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.
1. Dealy cannot be calculated, traffic volume beyond the bounds of the delay equations.

The study intersections in San Mateo also have some operational issues. During the PM peak hour, vehicles attempting to make a westbound left turn at the North Humboldt Street/Peninsula Avenue intersection were occasionally blocked by long queues at the westbound through movement. At the North Bayshore Boulevard/Coyote Point Drive intersection, eastbound left turn queues spilled out of the turn pocket slightly in the AM peak hour. The overflow did not appear to affect eastbound through traffic. At the Amphlett Boulevard/Poplar Avenue intersection eastbound queues often extend back to North Humboldt Street.

Existing Freeway Ramp Capacity Analysis

This analysis consisted of a volume-to-capacity ratio evaluation of the freeway ramps at the Broadway, Anza Boulevard, Airport Boulevard, and Poplar Avenue interchanges with US 101. The ramp capacity was obtained from the 2000 Highway Capacity Manual (see Chapter 25), which considers both the free-flow speed and the number of lanes on the study ramps. The AM and PM peak hour freeway ramp volumes were obtained from new manual turning movement counts

conducted in January 2011 where available. The remaining ramp counts were obtained from Caltrans.

The ramp analysis showed that the freeway ramps currently have sufficient capacity to serve the existing traffic volumes. The study ramps have a volume-to-capacity (V/C) ratio of less than 1.0, which means that the existing traffic demand does not exceed the existing ramp capacity (see Table 7). At many of the interchanges along US 101 the traffic volume using the ramps is constrained by the freeway volume. This is reflected in the poor levels of service shown for the mainline freeway segments. The ramps themselves are not a constraint.

Table 7
Existing Freeway Ramp Capacity Analysis

Ramp	Type	Capacity	Peak Hour	Existing Conditions Volume	V/C	LOS
US 101/Broadway						
SB US 101 to WB Cadillac Wy	Diagonal	1,800	AM	530	0.294	A
			PM	596	0.331	A
WB Broadway to SB US 101	Loop	1,600	AM	1,270	0.794	C
			PM	565	0.353	A
NB Old Bayshore Hwy to NB US 101	Diagonal	1,800	AM	488	0.271	A
			PM	1,010	0.561	A
US 101/Anza Boulevard						
NB US 101 to EB Anza Blvd	Diagonal	1,800	AM	185	0.103	A
			PM	78	0.043	A
WB Anza Blvd to NB US 101	Diagonal	1,800	AM	265	0.147	A
			PM	262	0.146	A
US 101/Airport Boulevard						
NB US 101 to Airport Blvd	Diagonal	1,800	AM	931	0.517	A
			PM	366	0.203	A
Airport Blvd to NB US 101	Diagonal	1,800	AM	602	0.334	A
			PM	519	0.288	A
US 101/Poplar Avenue						
EB Poplar Av to SB US 101	Diagonal	1,800	AM	1,170	0.650	B
			PM	909	0.505	A

Existing ramp volumes are based on 2009 counts provided by Caltrans and 2011 turning movement counts.

Existing Freeway Levels of Service

Existing weekday AM and PM peak hour levels of service on the study freeway segments were obtained from the 2009 CMP Annual Monitoring Report (see Table 8). Based on the report, each freeway segment has its own level of service standard. The LOS standards for freeway segments included in this study on US 101 are LOS E or F and on SR 92 is LOS D. The following directional study freeway segments currently operate at a substandard LOS:

US 101, southbound between Millbrae Avenue and Broadway – AM and PM peak hours

US 101, southbound between Broadway and Peninsula Avenue – AM and PM peak hours

US 101, northbound, between Peninsula Avenue and SR 92 – AM and PM peak hours

US 101, northbound, between SR 92 and Whipple Avenue – PM peak hour

US 101, northbound between Whipple Avenue and the Santa Clara County line – PM peak hour

US 101, southbound between Whipple Avenue and the Santa Clara County line – AM and PM peak hours

SR 92, eastbound, between I-280 and US 101 – AM and PM peak hours

Table 8
Existing Freeway Levels of Service

Segment	Direction	Peak Hour	LOS Standard	Existing Conditions Avg. Speed[1]	Existing Conditions LOS[1]
US 101					
I-380 to Millbrae Av	NB	AM	E	62.5	D
		PM	E	66.0	A/B
	SB	AM	E	63.9	D
		PM	E	65.2	A/B
Millbrae Av to Broadway	NB	AM	E	65.8	A/B
		PM	E	66.6	A/B
	SB	AM	E	41.4	**F**
		PM	E	39.1	**F**
Broadway to Peninsula Av	NB	AM	E	58.2	E
		PM	E	56.7	E
	SB	AM	E	51.6	**F**
		PM	E	36.4	**F**
Peninsula Av to SR 92	NB	AM	F	21.0	F
		PM	F	27.0	F
	SB	AM	F	59.1	E
		PM	F	54.0	E
SR 92 to Whipple Av	NB	AM	E	66.9	A/B
		PM	E	43.3	**F**
	SB	AM	E	57.8	E
		PM	E	63.2	D
Whipple Av to County Line	NB	AM	F	62.6	D
		PM	F	50.9	F
	SB	AM	F	49.0	F
		PM	F	51.9	F
SR 92					
I-280 to US 101	WB	AM	D	59.5	D
		PM	D	60.1	A/B/C
	EB	AM	D	55.7	**E**
		PM	D	56.8	**E**

Notes:
Bold denotes operation worse than the standard
1. Existing Speed and LOS for freeway segments were obtained from the 2009 CMP Monitoring Program Report. LOS is based on speed.

3. Existing Plus Project Conditions

Existing Plus Project Conditions represent near-term traffic conditions that are expected to occur with the addition of traffic from the project. Two project scenarios are analyzed: development of the 300 Airport Blvd. project, and development of both the 300 Airport Blvd. project and maximum allowable development on the 350 Airport Blvd. site.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis, the criteria used to determine significant impacts on signalized intersections are based on City of Burlingame and City of San Mateo Level of Service standards. The criteria used to determine significant impacts on freeway segments are based on CMP standards.

Project impacts on other transportation facilities, such as pedestrian facilities, bicycle facilities, and transit service were determined on the basis of engineering judgment and are discussed at the end of this chapter.

Definition of Significant Signalized Intersection Impacts – City of Burlingame

The City of Burlingame does not have any Council-adopted definitions of significant traffic impacts. The following standards typically have been used in traffic studies and EIRs.

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of Burlingame if for any peak-hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or

2. The level of service at the intersection is an unacceptable LOS E or F under existing conditions and the addition of project trips causes average delay at the intersection to increase by five (5) or more seconds.

Definition of Significant Signalized Intersection Impacts – City of San Mateo

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of San Mateo if for any peak-hour:

1. The level of service at the intersection degrades from an acceptable mid-LOS D (average delay of less than 45 seconds) or better under existing conditions to an average delay of longer than 45 seconds, or

2. The level of service at the intersection has an average delay longer than 45 seconds under existing conditions and the addition of project trips causes the average delay at the intersection to increase by five (5) or more seconds.

The City of San Mateo does not have any definitions for significant traffic impacts at unsignalized intersections. For the purposes of this EIR, the following definition was used for impacts to unsignalized intersections: the project would add traffic to an unsignalized intersection that is operating at LOS F under existing conditions.

CMP Definition of Significant Freeway Segment Impacts

According to the San Mateo County CMP guidelines, a project is said to create a significant adverse impact on a freeway segment if for either peak hour:

> A freeway segment is operating at a substandard level of service and the project would add traffic to the segment representing one percent (1%) or more of the segment's capacity. This significance threshold represents what would be a perceptible traffic increase to motorists on the freeway.

CMP Definition of Significant Freeway Ramp Impacts

For the purposes of this EIR, a project is said to create a significant adverse impact on freeway ramps if for either peak hour the project would cause the ramp to have a volume-to-capacity ratio exceeding 1.0, or if the ramp has a volume-to-capacity ratio exceeding 1.0 under existing conditions, the project would add traffic equal to more than 1% of the ramp capacity.

Project Trip Generation

The magnitude of traffic generated by the project was estimated in three steps. First, the appropriate trip generation rates for each project component (land use) were applied as if the proposed project included no TDM program. The rates used are published by the Institute of Transportation Engineers (ITE) in *Trip Generation*, Eighth Edition. Second, trip reductions were applied to the 300 Airport Blvd. project to reflect its proposed travel demand management (TDM) program. There is no specific project proposed for the 350 Airport Blvd. site and therefore no proposed TDM plan or TDM reduction. Third, reductions were taken for internal trips for the amenities center in the 300 Airport Blvd. project.

Based on the ITE rates for each proposed land use, 300 Airport Boulevard (without TDM) would generate 1,102 trips during the AM peak hour and 1,124 trips during the PM peak hour. Developments at 300 plus 350 Airport Boulevard (without TDM) would generate 1,641 trips during the AM peak hour and 1,622 trips during the PM peak hour.

The 300 Airport Blvd. project has proposed a Transportation Demand Management (TDM) program. TDM programs typically consist of several components designed to reduce "drive-alone" commuter trips in favor of alternative methods such as carpooling, transit, walking, and bicycling. The project's proposed TDM program includes the following elements:

- Secure bicycle storage under each building,
- Showers and changing rooms in each building,
- Funding for extending the BART shuttle service to the project site and running 10-minute headways. The shuttle serves the Millbrae Intermodal Station,
- Preferential parking for carpools and vanpools near the elevators in each garage,
- Video conference centers in each building,

- On-site amenities, including banking, restaurants, health club, delivery dry cleaning, and delivery pharmacy,
- Worksite bicycles to allow employees to travel during the workday to nearby businesses or recreation,
- On-site child care services at the Amenities Center, and
- Participation in a guaranteed ride home program.

Based on research done by the California Air Pollution Control Officers Association (CAPCOA) and published in the report "Quantifying Greenhouse Gas Mitigation Measures," the proposed TDM program is expected to reduce peak-hour trip generation by 13 percent The result is 114 fewer AM peak hour trips and 111 fewer PM peak hour trips (a detailed analysis of the proposed TDM measures is included in Appendix C).

The proposed amenities center (health club, retail, childcare, and restaurant) would primarily serve the workers in the office portion of the project. It was estimated that approximately 50 percent of the trips associated with the amenities center would be comprised of internal trips. The 50 percent reduction was estimated based on information in the Institute of Transportation Engineers Trip Generation Handbook, increased to account for the lack of similar uses in the area. The 50 percent reduction was estimated based on information in the Institute of Transportation Engineers Trip Generation Handbook, increased to account for the lack of similar uses in the area. With the adjustments for internalization of trips and the TDM program, 300 Airport Boulevard would generate 988 AM peak hour trips and 1,013 PM peak hour trips (see Table 9). Developments at 300 plus 350 Airport Boulevard would generate 1,527 AM peak hour trips and 1,511 PM peak hour trips (see Table 10).

Table 9
Project Trip Estimates – 300 Airport Boulevard

				AM Peak Hour				PM Peak Hour			
Land Use	Size	Daily Rate	Daily Trips	Peak-Hour Rate	In	Out	Total Trips	Peak-Hour Rate	In	Out	Total Trips
Proposed Use											
Office[1]	690 ksf	8.56	5,902	1.27	774	106	879	1.23	145	707	851
Day Care[2]	8 ksf	79.26	634	12.25	52	46	98	12.50	47	53	100
Internal Reduction		*50%*	*(317)*	*50%*	*(26)*	*(23)*	*(49)*	*50%*	*(24)*	*(27)*	*(50)*
Health Club[3]	25 ksf	32.93	836	1.39	16	19	35	3.52	51	38	89
Internal Reduction		*50%*	*(418)*	*50%*	*(8)*	*(10)*	*(18)*	*50%*	*(25)*	*(19)*	*(45)*
Retail[4]	20 ksf	42.94	877	1.00	12	8	20	3.73	37	39	76
Internal Reduction		*50%*	*(439)*	*50%*	*(6)*	*(4)*	*(10)*	*50%*	*(19)*	*(19)*	*(38)*
Restaurant[5]	25 ksf	127.15	3,179	11.67	152	140	292	11.17	165	114	279
Internal Reduction		*50%*	*(1,589)*	*50%*	*(76)*	*(70)*	*(146)*	*50%*	*(82)*	*(57)*	*(140)*
TDM Reduction		*-8% of office*	*(450)*	*13% of office*	*(101)*	*(14)*	*(114)*	*13% of office*	*(19)*	*(92)*	*(111)*
Total			**8,215**		**789**	**199**	**988**		**276**	**737**	**1,013**

1. Institute of Transportation Engineers, *Trip Generation* , 8th Edition. General Office Building (710).
2. Institute of Transportation Engineers, *Trip Generation* , 8th Edition. Day Care Center (565).
3. Institute of Transportation Engineers, *Trip Generation* , 8th Edition. Health/Fitness Club (492).
4. Institute of Transportation Engineers, *Trip Generation* , 8th Edition. Shopping Center (820).
5. Institute of Transportation Engineers, *Trip Generation* , 8th Edition. High-Turnover (Sit-Down) Restaurant (932).

Table 10
Project Trip Estimates – 300 plus 350 Airport Boulevard

		AM Peak Hour Trips			PM Peak Hour Trips		
Land Use	**Size**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
300 Airport Boulevard							
Office[1]	690 ksf	774	106	879	145	707	851
Day Care[2]	8 ksf	52	46	98	47	53	100
Internal Reduction		*(26)*	*(23)*	*(49)*	*(24)*	*(27)*	*(50)*
Health Club[3]	25 ksf	16	19	35	51	38	89
Internal Reduction		*(8)*	*(10)*	*(18)*	*(25)*	*(19)*	*(45)*
Retail[4]	20 ksf	12	8	20	37	39	76
Internal Reduction		*(6)*	*(4)*	*(10)*	*(19)*	*(19)*	*(38)*
Restaurant[5]	25 ksf	152	140	292	165	114	279
Internal Reduction		*(76)*	*(70)*	*(146)*	*(82)*	*(57)*	*(140)*
TDM Reduction		*(101)*	*(14)*	*(114)*	*(19)*	*(92)*	*(111)*
350 Airport Boulevard							
Office	374 ksf	474	65	539	85	413	498
Total		**1,263**	**263**	**1,527**	**361**	**1,150**	**1,511**

Project Trip Distribution and Assignment

The peak hour trips generated by the proposed project were assigned to the roadway system by the C/CAG model. In some cases trips generated by the project would displace existing trips on congested facilities. The displaced trips would use other routes such that the travel times for all trips – both existing and new – would be minimized. The fact that project trips will displace existing trips sometimes results in future volumes that are similar to existing volumes at some intersections. Other intersections are projected to have large volume increases. The impact of displaced trips is included in the transportation analysis.

Existing Plus Project Volumes and Intersection Levels of Service

The C/CAG model was used to assign traffic volumes without and with the proposed project (see Figures 6 and 7). The resulting difference is the project's impact.

Traffic conditions at the study intersections were evaluated using level of service (see Table 11). The level of service calculation sheets are included in Appendix B. The results show that most of the study intersections would continue to operate at LOS D or better during both peak hours. Some of the intersections show an improvement with the increased traffic of the 300 + 350 Airport projects added together. This can happen when traffic is added to intersection turning movements that have low delay. The overall intersection weighted average delay can improve.

The unsignalized intersection of Amphlett Boulevard/Poplar Avenue would continue to operate at LOS F under both AM and PM peak hours. The 300 Airport Boulevard project and development at 350 Airport Boulevard would add traffic to the intersection. This is considered a significant adverse project impact.

The City of San Mateo is considering a range of potential improvements at the Amphlett Boulevard/Poplar Avenue intersection to provide sufficient capacity for existing and future traffic volume. However, a specific improvement project has not been identified at this time. It would be appropriate for the project sponsor, and any future project sponsor for development of the 350 Airport Boulevard site, to make a fair share contribution toward the cost of improvements at this intersection for each project's respective impacts. However, since no specific improvement project has been identified and because this intersection is under the control of an agency other than the City of Burlingame (Caltrans and San Mateo), the impact must be considered significant and unavoidable.

Existing Plus Project Freeway Ramp Analysis

An analysis of the freeway ramps providing access to the project site was performed. The interchanges of US 101/Broadway, US 101/Anza Boulevard, US 101/Airport Boulevard, and US 101/Poplar Avenue were analyzed based on the ramps volume-to-capacity (V/C) ratios to determine their respective operating levels under project conditions. The results show that with the addition of project-generated traffic, the freeway ramps would continue to operate at acceptable levels (see Table 12).

Existing Plus Project Freeway Segment Analysis

The number of trips added to each freeway segment was determined using the C/CAG travel forecast model (see Table 13). The phenomenon of displacement was not considered in the determination of freeway impacts. Even if project traffic displaced existing trips and the volume didn't increase, the impact was deemed significant if the project traffic amounted to more than 1% of capacity on freeway segments with substandard LOS.

Based on this standard, under conditions with traffic from the 300 Airport Boulevard site only, as well as under conditions with traffic from the 300 Airport Boulevard site plus the potential future development at the 350 Airport Boulevard site, the project would have a significant impact on the following six freeway segments during at least one peak hour:

- US 101, southbound between Millbrae Avenue and Broadway – AM & PM peak hours
- US 101, northbound, between Peninsula Avenue and SR 92 – AM & PM peak hours
- US 101, northbound, between SR 92 and Whipple Avenue – PM peak hour
- US 101, northbound between Whipple Avenue and the Santa Clara County line – PM peak hour
- US 101, southbound between Whipple Avenue and the Santa Clara County line – AM & PM peak hours
- SR 92, eastbound between I-280 and US 101 – AM & PM peak hours

Mitigation: Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. Since it is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way, and no comprehensive project to add through lanes has been developed by Caltrans or C/CAG for individual projects to contribute to nor any other mechanism exists for making a fair share contribution, the significant impacts on the freeway segments identified above must be considered significant and unavoidable.

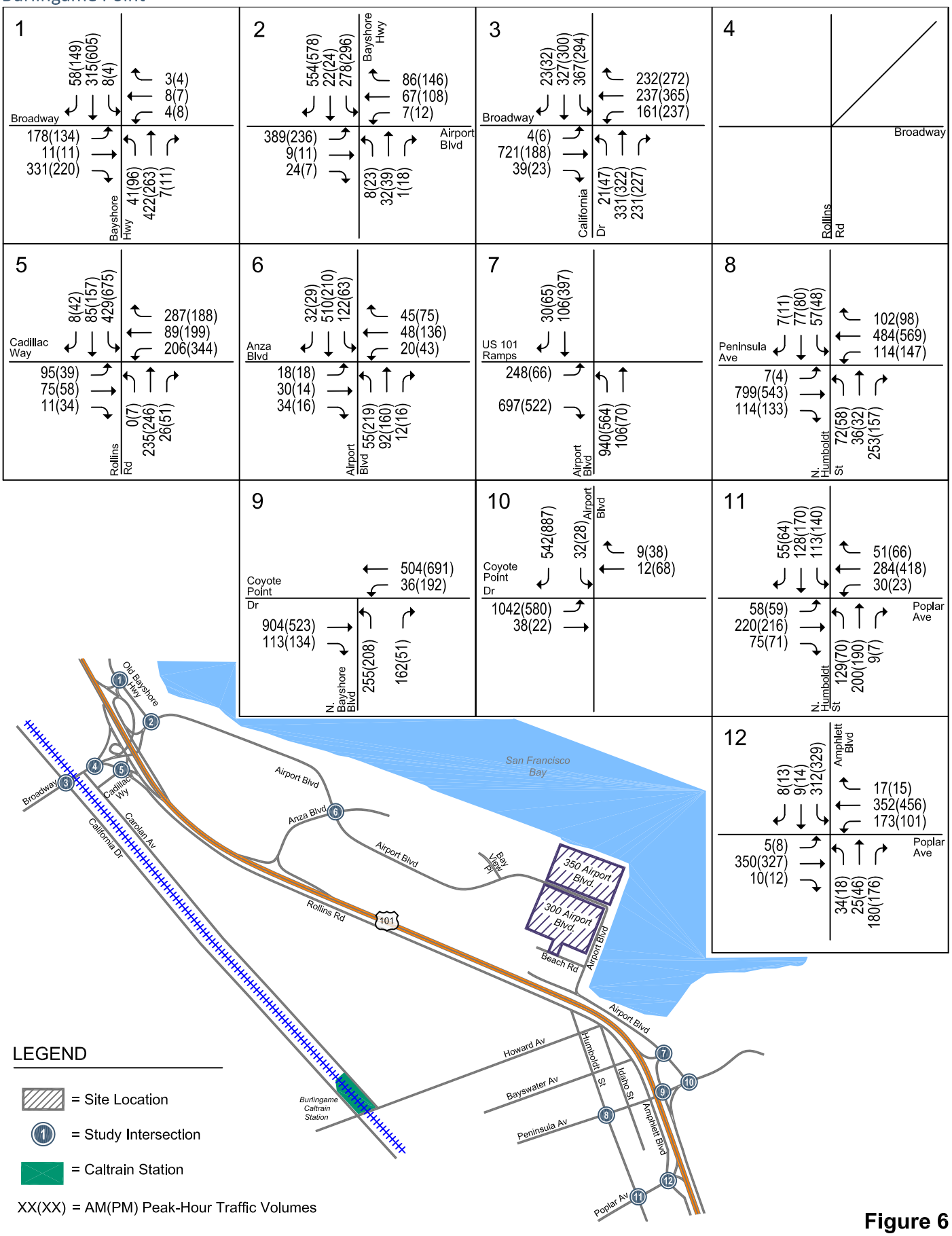


Figure 6

Existing Plus Project Traffic Volumes - 300 Airport Blvd.

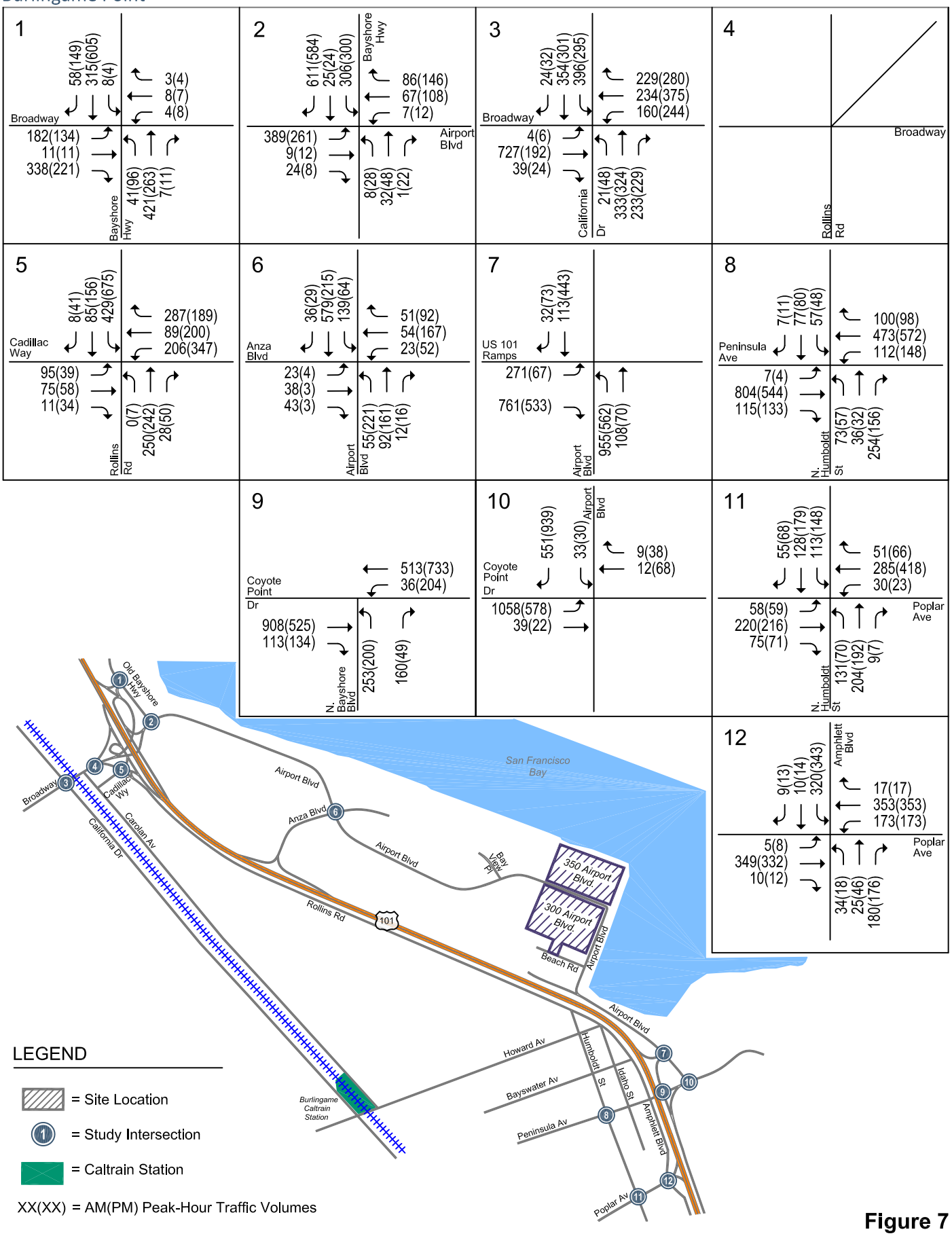


Figure 7

Existing Plus Project Traffic Volumes - 300 + 350 Airport Blvd.

Table 11
Intersection Levels of Service Under Existing Plus Project Conditions

Study Intersection	Peak Hour	Existing		Existing Plus Project Conditions			
				300 Airport Blvd		300 + 350 Airport Blvd	
		Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS
Bayshore Highway & Broadway	AM	14.0	B	14.2	B	14.2	B
	PM	12.6	B	12.7	B	12.7	B
Bayshore Highway & Airport Blvd.	AM	17.1	B	17.8	B	18.4	B
	PM	16.4	B	17.3	B	17.8	B
California Dr. & Broadway	AM	36.9	D	38.6	D	39.0	D
	PM	35.2	D	34.3	C	34.4	C
Rollins Rd. & Broadway	AM	37.0	D	37.3	D	37.4	D
	PM	42.0	D	41.8	D	41.8	D
Rollins Rd. & Cadillac Wy.	AM	29.4	C	29.4	C	29.9	C
	PM	43.4	D	43.6	D	43.4	D
Airport Blvd. & Anza Blvd.	AM	17.2	B	17.6	B	17.9	B
	PM	19.2	B	20.2	C	20.6	C
Airport Blvd. & US 101 Ramps	AM	30.5	C	34.2	C	37.8	D
	PM	12.3	B	13.9	B	14.6	B
N. Humboldt St. & Peninsula Av.	AM	16.9	B	17.2	B	17.3	B
	PM	14.1	B	14.3	B	14.3	B
N. Bayshore Blvd. & Coyote Point Dr.	AM	19.0	B	18.2	B	18.0	B
	PM	23.5	C	21.3	C	20.9	C
Airport Blvd. & Coyote Point Dr.	AM	5.1	A	5.2	A	5.2	A
	PM	18.2	B	19.3	B	20.0	C
Humboldt St. & Poplar Av.	AM	12.6	B	12.7	B	12.7	B
	PM	12.4	B	12.7	B	12.9	B
Amphlett Blvd. & Poplar Av.	AM	[1]	**F**	[1]	**F**	[1]	**F**
	PM	[1]	**F**	[1]	**F**	[1]	**F**

Denotes project significant impact.

1. Dealy cannot be calculated, traffic volume beyond the bounds of the delay equations.

Table 12
Existing Plus Project Conditions Freeway Ramp Capacity Analysis

Ramp	Type	Capacity	Peak Hour	Existing Conditions			Existing Plus Project Conditions							
							300 Airport Blvd				300 + 350 Airport Blvd			
				Volume	V/C	LOS	Trips	Volume	V/C	LOS	Trips	Volume	V/C	LOS
US 101/Broadway														
SB US 101 to WB Cadillac Wy	Diagonal	1,800	AM	530	0.294	A	170	700	0.389	A	262	792	0.44	A
			PM	596	0.331	A	113	709	0.394	A	167	763	0.424	A
WB Broadway to SB US 101	Loop	1,600	AM	1,270	0.794	C	6	1276	0.798	C	9	1279	0.799	C
			PM	565	0.353	A	21	586	0.366	A	30	595	0.372	A
NB Old Bayshore Hwy to NB US 101	Diagonal	1,800	AM	488	0.271	A	3	491	0.273	A	5	493	0.274	A
			PM	1,010	0.561	A	10	1020	0.567	A	15	1025	0.57	A
US 101/Anza Boulevard														
NB US 101 to EB Anza Blvd	Diagonal	1,800	AM	185	0.103	A	50	235	0.131	A	76	261	0.145	A
			PM	78	0.043	A	5	83	0.046	A	8	86	0.048	A
WB Anza Blvd to NB US 101	Diagonal	1,800	AM	265	0.147	A	30	295	0.164	A	46	311	0.173	A
			PM	262	0.146	A	92	354	0.197	A	137	399	0.222	A
US 101/Airport Boulevard														
NB US 101 to Airport Blvd	Diagonal	1,800	AM	931	0.517	A	250	1181	0.656	B	381	1312	0.729	C
			PM	366	0.203	A	144	510	0.283	A	213	579	0.322	A
Airport Blvd to NB US 101	Diagonal	1,800	AM	602	0.334	A	15	617	0.343	A	23	625	0.347	A
			PM	519	0.288	A	51	570	0.317	A	76	595	0.331	A
US 101/Poplar Avenue														
EB Poplar Av to SB US 101	Diagonal	1,800	AM	1,170	0.650	B	90	1260	0.7	C	137	1307	0.726	C
			PM	909	0.505	A	308	1217	0.676	B	457	1366	0.759	C

Existing ramp volumes are based on counts provided by Caltrans and new turning movement counts.

Table 13
Freeway Levels of Service Under Existing Plus Project Conditions

			Existing Conditions				Existing Plus Project Conditions			
							300 Airport Blvd		300 + 350 Airport Blvd	
Segment	Direction	Peak Hour	# of Lanes[1]	Capacity	Avg. Speed[2]	LOS[2]	Trips	% Capacity	Trips	% Capacity
US 101										
I-380 to Millbrae Av	NB	AM	5	11,500	62.5	D	110	1.0%	169	1.5%
		PM	5	11,500	66.0	A/B	174	1.5%	259	2.2%
	SB	AM	5	11,500	63.9	D	170	1.5%	262	2.3%
		PM	5	11,500	65.2	A/B	113	1.0%	167	1.5%
Millbrae Av to Broadway	NB	AM	4	9,200	65.8	A/B	120	1.3%	185	2.0%
		PM	4	9,200	66.6	A/B	144	1.6%	213	2.3%
	SB	AM	4	9,200	41.4	F	**140**	**1.5%**	**215**	**2.3%**
		PM	4	9,200	39.1	F	**123**	**1.3%**	**183**	**2.0%**
Broadway to Peninsula Av	NB	AM	4	9,200	58.2	E	5	0.1%	8	0.1%
		PM	4	9,200	56.7	E	51	0.6%	76	0.8%
	SB	AM	4	9,200	51.6	F	50	0.5%	77	0.8%
		PM	4	9,200	36.4	F	5	0.1%	8	0.1%
Peninsula Av to SR 92	NB	AM	4	9,200	21.0	F	**280**	**3.0%**	**431**	**4.7%**
		PM	4	9,200	27.0	F	**133**	**1.4%**	**198**	**2.2%**
	SB	AM	4	9,200	59.1	E	130	1.4%	200	2.2%
		PM	4	9,200	54.0	E	287	3.1%	426	4.6%
SR 92 to Whipple Av	NB	AM	4	9,200	66.9	A/B	200	2.2%	308	3.3%
		PM	4	9,200	43.3	F	**92**	**1.0%**	**137**	**1.5%**
	SB	AM	4	9,200	57.8	E	90	1.0%	139	1.5%
		PM	4	9,200	63.2	D	205	2.2%	304	3.3%
Whipple Av to County Line	NB	AM	3	6,900	62.6	D	150	2.2%	231	3.3%
		PM	3	6,900	50.9	F	**72**	**1.0%**	**107**	**1.5%**
	SB	AM	3	6,900	49.0	F	**70**	**1.0%**	**108**	**1.6%**
		PM	3	6,900	51.9	F	**154**	**2.2%**	**228**	**3.3%**
SR 92										
I-280 to US 101	WB	AM	2	4,600	59.5	D	100	2.2%	154	3.3%
		PM	2	4,600	60.1	A/B/C	103	2.2%	152	3.3%
	EB	AM	2	4,600	55.7	E	**100**	**2.2%**	**154**	**3.3%**
		PM	2	4,600	56.8	E	**103**	**2.2%**	**152**	**3.3%**

Denotes significant impact.

Notes:
1. Does not include auxiliary lanes
2. Existing Speed and LOS for freeway segments were obtained from the 2009 CMP Monitoring Program Report. LOS is based on speed.

Other Transportation Issues

The analyses in this section are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Transit Service, Pedestrian and Bicycle Facilities

Transit service in the project vicinity is provided by Caltrain, Samtrans, and BART (via shuttle service to the Millbrae BART station). The TDM program for the 300 Airport Boulevard Site includes a shuttle service for employees. The TDM program estimates that employee trips would be reduced 7% due to the shuttle service. A 7 percent transit mode share for the project equates to approximately 63 new transit riders during the AM and PM peak hours for the 300 Airport Boulevard Site. Development of the 300 Airport Boulevard Site plus the potential future development of the 350 Airport Boulevard site could result in 104 new transit riders during the AM and PM peak hours. Given the nearby Caltrain station, BART station, SamTrans bus routes, and the project-sponsored employee shuttle, the existing and planned transit facilities would be adequate for the estimated project transit demand and the impacts associated with the addition of project transit demand would be less than significant.

Pedestrian traffic primarily would be generated by employees of the project walking to and from the transit stops and nearby businesses as well as visitors to the adjacent San Francisco Bay Trail. The current sidewalk network in the project area is incomplete, forcing pedestrians to cross streets with no crosswalks. The project proposes to realign Airport Boulevard near the project site. The project includes a continuous sidewalk network along both sides of the proposed Airport Boulevard realignment. The project also includes a new signalized intersection along Airport Boulevard that would provide protected pedestrian crosswalks. The proposed increased pedestrian connectivity along Airport Boulevard would be a beneficial impact of the project. The project would provide continuous sidewalks from each building to the planned transit shuttle stops.

Bicycle routes are available on Airport Boulevard adjacent to the project, as well as Broadway and Bayshore Highway to the north. The Public Works Department is seeking grant funding to provide bicycle lanes on Airport Boulevard from the intersection with Bayshore Highway to the Sanchez Channel bridge. The TDM program proposed by the applicant includes secure bicycle storage in the lobby or at garage level in all four office buildings. Showers and changing rooms will also be provided throughout the site. Based on the availability of bike routes in the study area, as well the proposed TDM program, a reasonable assumption for bicycle commute trip generation would be a two percent mode share. This calculates to about 18 bicycle trips during the AM and PM peak hours for 300 Airport Boulevard. Based on this assumption, the development at 300 plus 350 Airport Boulevard would result in approximately 30 bicycle trips in the AM and PM peak hours. The bicycle demand created by the proposed project could be accommodated by the existing and planned bicycle facilities in the area.

Site Access and Circulation

This review is based on the site plan dated December 3, 2010 supplied by Millennium Partners. The project proposes to realign Airport Boulevard to pass through the middle of the site (see Figure 8). Four office buildings are proposed, two on either side of the realigned Airport Boulevard. Each office building would have 29,200 square feet per floor. The two office buildings west of Airport Boulevard would be 8 stories and 7 stories, respectively. The two buildings east of Airport Boulevard would be 5 stories. Parking is proposed under the buildings in one level. Additional parking for the west side buildings is proposed in an above-ground parking structure. Surface parking lots are proposed for about 230 spaces. The site plan also includes an Amenities Center in a separate building that would include a health club, child care, and a cafeteria.

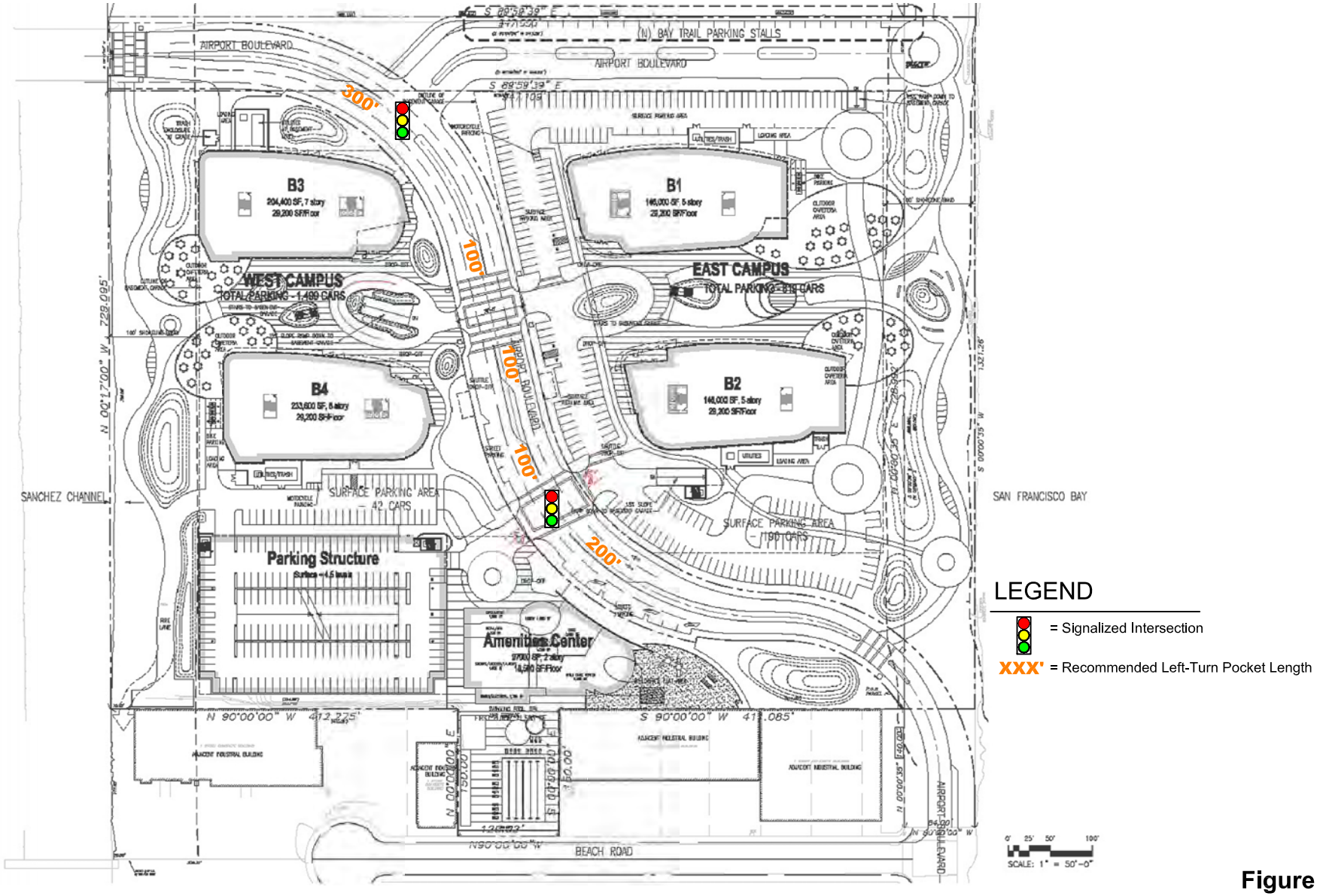
Access to the parking areas is proposed via three intersections along Airport Boulevard. The southern intersection would be signalized; the middle intersection would not be signalized; and the northern intersection would need to be signalized at the time of development of the 350 Airport Boulevard site. Each underground parking garage would have two entrance/exit points, as would the above-ground parking structure. Loading zones are provided for each office building, and loading for the amenities center would occur in the circular drive fronting the facility. Visitor parking will be provided for all office buildings in both the surface parking lots and below-podium parking areas. The site plan shows an extensive system of pedestrian paths connecting all the buildings and providing a trail along the San Francisco Bay frontage. The office buildings are oriented in a way that focuses pedestrian crossings of Airport Boulevard at the middle entrance intersection. The project proposes to install pedestrian treatments at the middle intersection, including special pavers and a raised speed table.

Hexagon estimated the traffic that would use the entrance intersections under 2035 buildout conditions in order to evaluate intersection operations and turn pocket requirements (see Figure 9). The traffic estimates include development of both the 300 Airport Boulevard project and 350 Airport Boulevard at buildout. Figure 8 shows the recommended turn pocket lengths. The intersections would operate at LOS A or B, assuming signals at the north and south intersections.

Operation of the middle intersection could be problematic without a traffic signal. The main entrance to the west side underground garage is oriented to the middle intersection. This could lead to a number of left turns greater than could be accommodated by stop signs. The middle intersection should be monitored for possible signalization following construction and occupancy of the project.

Parking

The site plan shows a total of 2,318 parking spaces. This calculates to 3.02 spaces per 1,000 square feet. The Burlingame parking code requires 3.33 spaces per 1,000 square feet for office spaces. The requirement for the uses in the Amenities Center is 5.0 spaces per 1,000 square feet. However, since many of the Amenities Center patrons will walk to the center from the office buildings, the office parking ratio is appropriate for the Amenities Center as well. According to research published in the Institute of Transportation Engineers (ITE) *Parking Generation* manual, the 85th percentile parking demand for office buildings is 3.44 spaces per 1,000 square feet in a suburban setting and 2.97 spaces per 1,000 square feet in an urban setting. The difference can be attributed to the availability of transit service and nearby services in an urban setting. The applicant has proposed a TDM plan that would reduce trip generation by 13%. A similar reduction in parking demand could be expected. A 13% reduction in the Burlingame parking code yields a ratio of 2.9 parking spaces per 1,000 square feet. Therefore, it can be concluded that the proposed ratio of 3.02 spaces per 1,000 square feet is adequate.



LEGEND

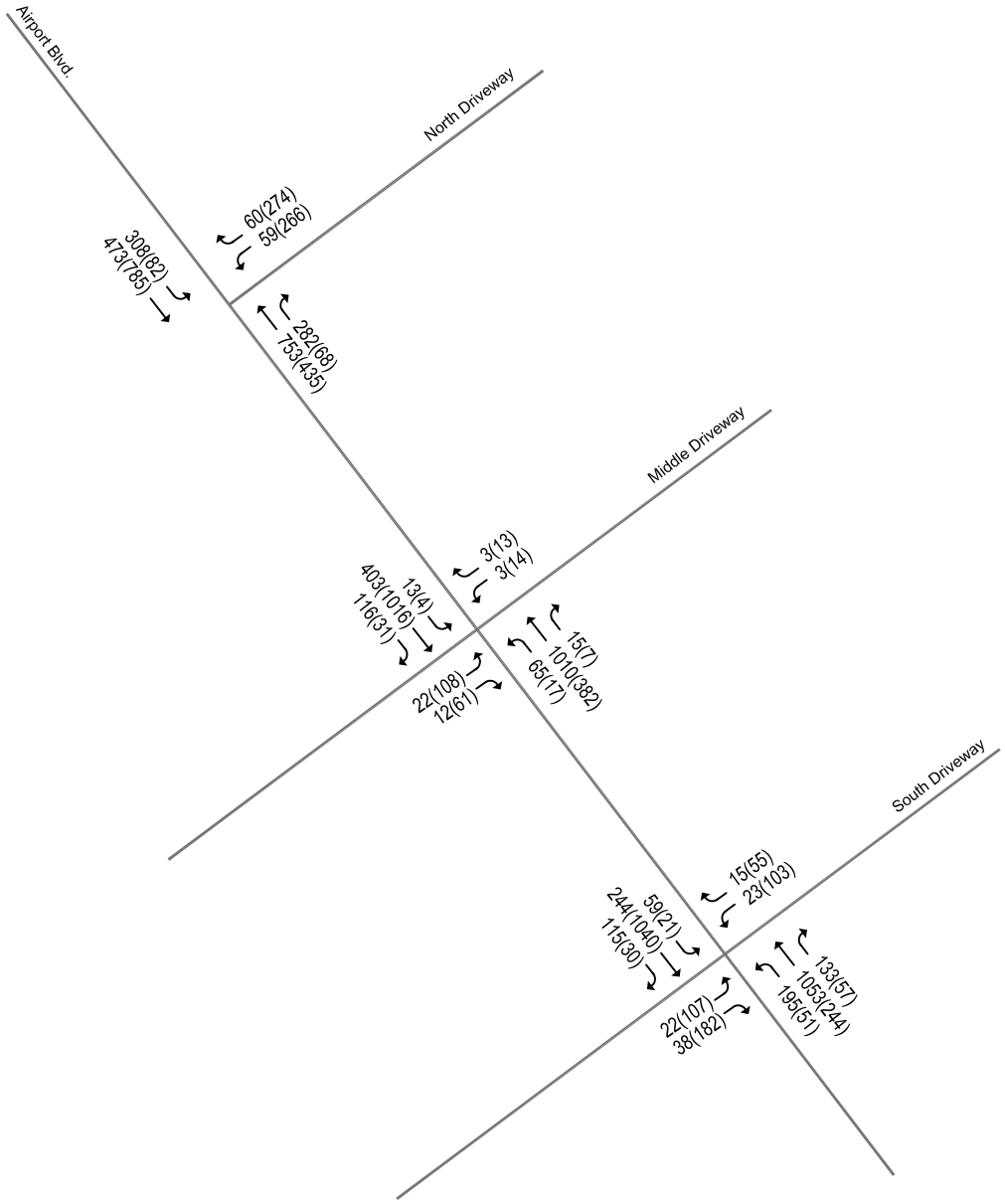
= Signalized Intersection

XXX' = Recommended Left-Turn Pocket Length

Figure 8

Site Plan and Recommended Left Turn Pocket Lengths

NORTH
Not to Scale



LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 9
Total Traffic at Driveway Intersections
(2035 with 300 Airport Blvd. & 350 Airport Blvd.)

NORTH
Not to Scale

4. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions, which are assumed to occur in 2035. Cumulative without project traffic volumes were estimated using the C/CAG travel demand forecasting model. Project trips were added to the model, which distributed and assigned them to the study intersections.

Cumulative Transportation Network and Traffic Volumes

It is assumed in this analysis that the transportation network under cumulative conditions would be the same as existing conditions. It should be noted that the US 101/Broadway Interchange Reconstruction project plans to substantially improve traffic circulation in the area. The reconstruction plans include a new seven lane overcrossing approximately 170 feet north of the existing Broadway overpass. The new overcrossing would be expanded from the existing four lane overpass. In addition, the current "flyover" interchange with multiple freeway access points from surrounding streets will be simplified into a diamond interchange with two access points. As a result of the new configuration, the freeway ramp legs of the intersections at Broadway/Rollins Road and Cadillac Way/Rollins Road will be eliminated. Funding has not yet been approved for the project, so the reconstruction project is not assumed in this report under the cumulative scenario.

Cumulative without and with project peak hour traffic volumes were estimated using the C/CAG traffic model for year 2035. The model takes into account pending developments in the vicinity of the project site as well as forecasts of jobs, housing, and population for the city, the County and the region as developed by the Association of Bay Area Governments (ABAG). The peak hour cumulative traffic volumes with project traffic are shown on Figures 10 and 11.

Cumulative Intersection Level of Service Analysis

The results show that most of the study intersections would continue to operate at LOS D or better during both peak hours (see Table 14). In some cases the delay would be reduced even with the added traffic of the 350 Airport Boulevard site. This can occur when traffic is added to intersection movements that have low delay. The overall intersection weighted average delay can decrease. The signalized intersections of Rollins Road/Broadway and Rollins Road/Cadillac would operate at LOS E or F during the AM and PM peak hours. However, the increase in delay added by the project would be less than 5 seconds, so the project impact would be less than significant.

The unsignalized intersection of Amphlett Boulevard/Poplar Avenue would continue to operate at LOS F under both AM and PM peak hours under cumulative conditions. The 300 Airport Boulevard

project and potential future development at 350 Airport Boulevard would add traffic to the intersection. This is considered a significant adverse traffic impact.

The City of San Mateo is considering a range of potential improvements at the Amphlett Boulevard/Poplar Avenue intersection to provide sufficient capacity for existing and future traffic volume. A specific improvement project has not been identified at this time. It would be appropriate for the applicant for the 300 Airport Boulevard project to make a fair share contribution toward the cost of improvements at this intersection.

Mitigation: The City of San Mateo is considering a range of potential improvements at the Amphlett Boulevard/Poplar Avenue intersection to provide sufficient capacity for existing and future traffic volume. However, a specific improvement project has not been identified at this time. It would be appropriate for the project sponsor, and any future project sponsor for development of the 350 Airport Boulevard site, to make a fair share contribution toward the cost of improvements at this intersection for each project's respective impacts. However, since no specific improvement project has been identified and because this intersection is under the control of an agency other than the City of Burlingame (Caltrans and San Mateo), the impact must be considered significant and unavoidable.

Table 14
Intersection Levels of Service Under Cumulative Conditions

Study Intersection	Peak Hour	Cumulative Conditions: Baseline Avg. Delay	Baseline LOS	300 Airport Blvd Avg. Delay	300 Airport Blvd LOS	300 + 350 Airport Blvd Avg. Delay	300 + 350 Airport Blvd LOS
Bayshore Highway & Broadway	AM	17.0	B	17.5	B	14.3	B
	PM	18.9	B	19.0	B	12.6	B
Bayshore Highway & Airport Blvd.	AM	19.1	B	19.7	B	20.1	C
	PM	22.0	C	24.4	C	25.1	C
California Dr. & Broadway	AM	38.7	D	38.4	D	40.5	D
	PM	39.6	D	39.7	D	39.9	D
Rollins Rd. & Broadway	AM	61.2	E	64.6	E	64.3	E
	PM	65.7	E	64.2	E	64.5	E
Rollins Rd. & Cadillac Wy.	AM	59.2	E	62.1	E	60.3	E
	PM	151.8	F	150.4	F	150.6	F
Airport Blvd. & Anza Blvd.	AM	12.6	B	13.0	B	13.0	B
	PM	29.4	C	26.8	C	26.6	C
Airport Blvd. & US 101 Ramps	AM	29.8	C	31.6	C	33.6	C
	PM	33.2	C	33.7	C	35.9	D
N. Humboldt St. & Peninsula Av.	AM	29.9	C	26.5	C	26.7	C
	PM	30.0	C	30.4	C	29.3	C
N. Bayshore Blvd. & Coyote Point Dr.	AM	22.3	C	22.1	C	22.1	C
	PM	33.0	C	33.3	C	33.4	C
Airport Blvd. & Coyote Point Dr.	AM	5.3	A	5.4	A	5.5	A
	PM	23.3	C	24.3	C	26.8	C
Humboldt St. & Poplar Av.	AM	14.5	B	14.6	B	14.7	B
	PM	14.7	B	14.8	B	14.9	B
Amphlett Blvd. & Poplar Av.	AM	[1]	**F**	[1]	**F**	[1]	**F**
	PM	[1]	**F**	[1]	**F**	[1]	**F**

Denotes cumulative significant impact.

1. Dealy cannot be calculated, traffic volume beyond the bounds of the delay equations.

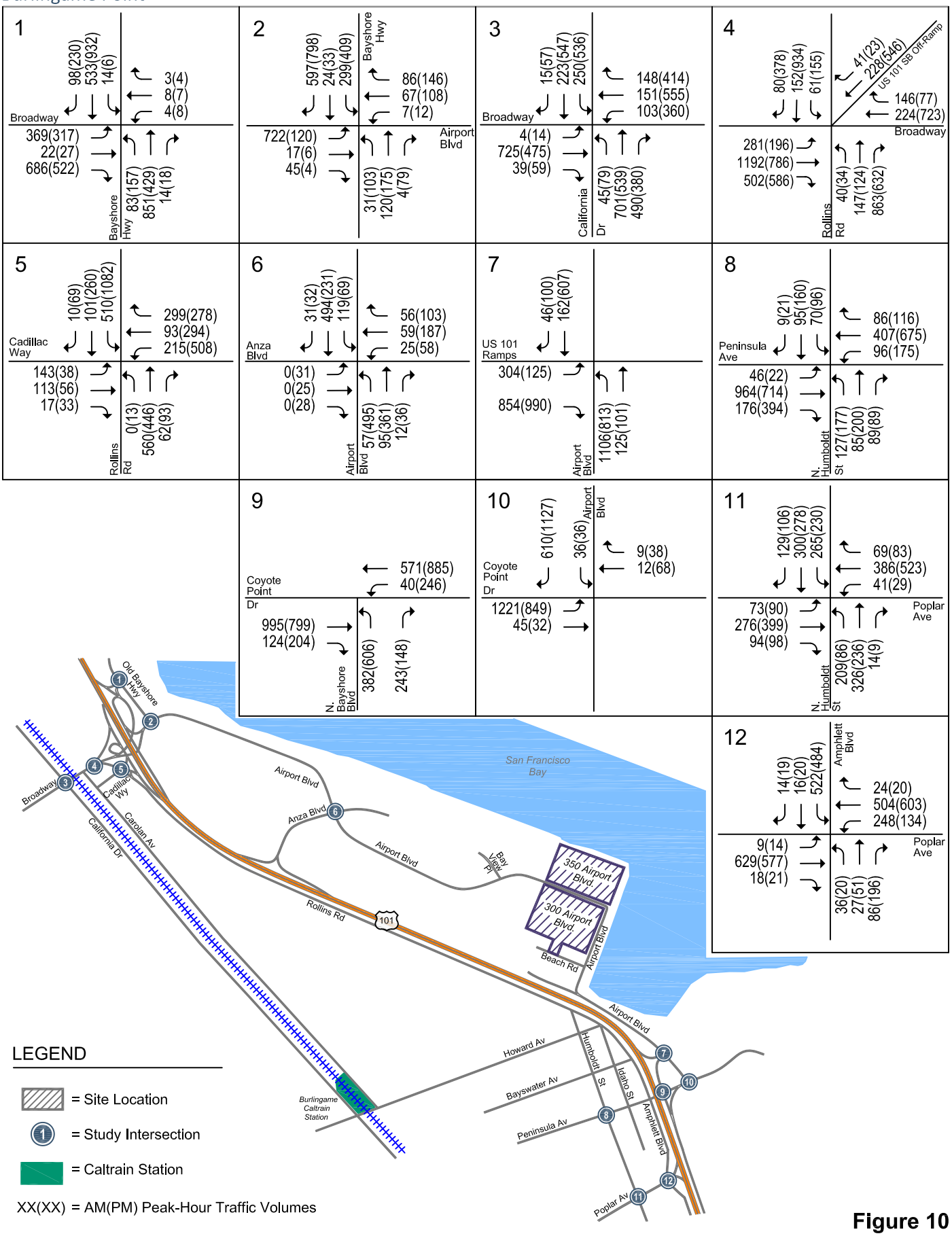


Figure 10

Cumulative Plus Project Traffic Volumes - 300 Airport Blvd.

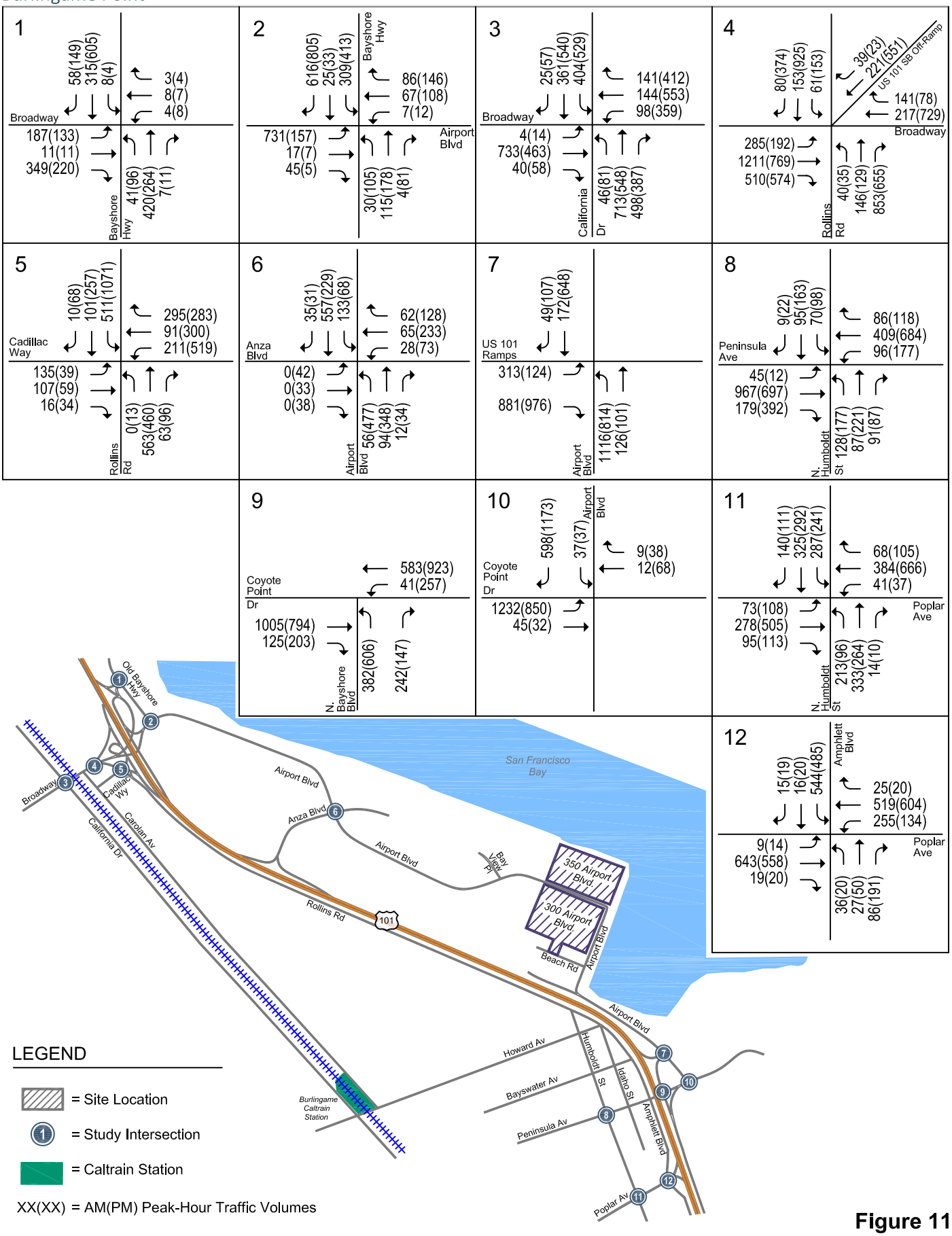


Figure 11

Cumulative Plus Project Traffic Volumes - 300 + 350 Airport Blvd.

Cumulative Freeway Ramp Analysis

An analysis of the freeway ramps providing access to the project site was performed. The interchanges of US 101/Broadway, US 101/Anza Boulevard, US 101/Airport Boulevard, and US 101/Poplar Avenue were analyzed based on the ramps volume-to-capacity (V/C) ratios to determine its operating levels under cumulative conditions. The results show that with the addition of project-generated traffic, the freeway ramps would continue to operate at acceptable level (see Table 15).

Table 15
Cumulative Freeway Ramp Capacity Analysis

Ramp	Type	Capacity	Peak Hour	Cumulative Conditions										
				Baseline			300 Airport Blvd				300 + 350 Airport Blvd			
				Volume	V/C	LOS	Trips	Volume	V/C	LOS	Trips	Volume	V/C	LOS
US 101/Broadway														
SB US 101 to WB Cadillac Wy	Diagonal	1,800	AM	704	0.391	A	170	874	0.485	A	262	965	0.536	A
			PM	953	0.529	A	113	1066	0.592	A	167	1120	0.622	B
WB Broadway to SB US 101	Loop	1,600	AM	1,413	0.883	D	6	1419	0.887	D	9	1422	0.889	D
			PM	822	0.514	A	21	842	0.526	A	30	852	0.533	A
NB Old Bayshore Hwy to NB US 101	Diagonal	1,800	AM	495	0.275	A	3	498	0.277	A	5	499	0.277	A
			PM	1,080	0.600	B	10	1091	0.606	B	15	1096	0.609	B
US 101/Anza Boulevard														
NB US 101 to EB Anza Blvd	Diagonal	1,800	AM	194	0.108	A	50	244	0.135	A	76	270	0.15	A
			PM	87	0.048	A	5	92	0.051	A	8	95	0.053	A
WB Anza Blvd to NB US 101	Diagonal	1,800	AM	269	0.149	A	30	299	0.166	A	46	314	0.175	A
			PM	411	0.228	A	92	503	0.28	A	137	548	0.304	A
US 101/Airport Boulevard														
NB US 101 to Airport Blvd	Diagonal	1,800	AM	1,257	0.698	B	250	1507	0.837	D	381	1637	0.909	E
			PM	960	0.533	A	144	1104	0.613	B	213	1173	0.652	B
Airport Blvd to NB US 101	Diagonal	1,800	AM	610	0.339	A	15	625	0.347	A	23	633	0.352	A
			PM	886	0.492	A	51	937	0.52	A	76	962	0.534	A
US 101/Poplar Avenue														
EB Poplar Av to SB US 101	Diagonal	1,800	AM	1,401	0.778	C	90	1491	0.828	D	137	1538	0.855	D
			PM	1,052	0.584	A	308	1359	0.755	C	457	1508	0.838	D

Cumulative Freeway Segment Capacity Analysis

Cumulative peak hour levels of service on US 101 and SR 92 were estimated based on the future volume forecasts. The impact to freeway segments was deemed significant if project-generated traffic amounted to more than 1 percent of capacity on freeway segments with substandard levels of service. Based on this standard, under conditions with traffic from the 300 Airport Boulevard site only, as well as under conditions with traffic from the 300 Airport Boulevard site plus the potential future development at the 350 Airport Boulevard site, the project would have a significant impact on the following ten freeway segments during at least one peak hour (see Table 16):

- US 101, northbound between Millbrae Avenue and I-380 – AM & PM peak hours
- US 101, southbound between I-380 and Millbrae Avenue – AM peak hour
- US 101, southbound, between MillbraeAvenue and Broadway – AM & PM peak hours
- US 101, northbound, between SR 92 and Peninsula Avenue – AM & PM peak hours
- US 101, southbound, between Peninsula Avenue and SR 92 – AM peak hour
- US 101, northbound, between SR 92 and Whipple Avenue – PM peak hour
- US 101, northbound between the Santa Clara County line and Whipple Avenue – PM peak hour
- US 101, southbound between Whipple Avenue and the Santa Clara County line – AM & PM peak hours
- SR 92, westbound, between US 101 and I-280 – AM peak hour
- SR 92, eastbound between I-280 and US 101 – AM & PM peak hours

Mitigation: Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. It is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way. Further, no comprehensive project to add through lanes has been developed by Caltrans or C/CAG for individual projects to contribute to. Therefore, the significant cumulative impacts on the freeway segments identified above must be considered significant and unavoidable.

Table 16
Freeway Levels of Service Under Cumulative Conditions

Segment	Direction	Peak Hour	# of Lanes	Capacity	Existing LOS	Cumulative LOS	Cumulative Conditions: 300 Airport Blvd Trips	300 Airport Blvd % Capacity	300 + 350 Airport Blvd Trips	300 + 350 Airport Blvd % Capacity
US 101										
I-380 to Millbrae Av	NB	AM	5	11,500	D	F	110	1.0%	**169**	**1.5%**
		PM	5	11,500	A/B	F	**174**	**1.5%**	**259**	**2.2%**
	SB	AM	5	11,500	D	F	**170**	**1.5%**	**262**	**2.3%**
		PM	5	11,500	A/B	C	113	1.0%	167	1.5%
Millbrae Av to Broadway	NB	AM	4	9,200	A/B	D	120	1.3%	185	2.0%
		PM	4	9,200	A/B	C	144	1.6%	213	2.3%
	SB	AM	4	9,200	F	F	**140**	**1.5%**	**215**	**2.3%**
		PM	4	9,200	F	F	**123**	**1.3%**	**183**	**2.0%**
Broadway to Peninsula Av	NB	AM	4	9,200	E	F	5	0.1%	8	0.1%
		PM	4	9,200	E	E	51	0.6%	76	0.8%
	SB	AM	4	9,200	F	F	50	0.5%	77	0.8%
		PM	4	9,200	F	F	5	0.1%	8	0.1%
Peninsula Av to SR 92	NB	AM	4	9,200	F	F	**280**	**3.0%**	**431**	**4.7%**
		PM	4	9,200	F	F	**133**	**1.4%**	**198**	**2.2%**
	SB	AM	4	9,200	E	F	**130**	**1.4%**	**200**	**2.2%**
		PM	4	9,200	E	E	287	3.1%	426	4.6%
SR 92 to Whipple Av	NB	AM	4	9,200	A/B	E	200	2.2%	308	3.3%
		PM	4	9,200	F	F	**92**	**1.0%**	**137**	**1.5%**
	SB	AM	4	9,200	E	E	90	1.0%	139	1.5%
		PM	4	9,200	D	E	205	2.2%	304	3.3%
Whipple Av to County Line	NB	AM	3	6,900	D	D	150	2.2%	231	3.3%
		PM	3	6,900	F	F	**72**	**1.0%**	**107**	**1.5%**
	SB	AM	3	6,900	F	F	**70**	**1.0%**	**108**	**1.6%**
		PM	3	6,900	F	F	**154**	**2.2%**	**228**	**3.3%**
SR 92										
I-280 to US 101	WB	AM	2	4,600	D	E	**100**	**2.2%**	**154**	**3.3%**
		PM	2	4,600	A/B/C	D	103	2.2%	152	3.3%
	EB	AM	2	4,600	E	E	**100**	**2.2%**	**154**	**3.3%**
		PM	2	4,600	E	E	**103**	**2.2%**	**152**	**3.3%**

Denotes significant impact.

5. Conclusion

Project Impacts

The unsignalized intersection of Amphlett Boulevard/Poplar Avenue would continue to operate at LOS F under both AM and PM peak hours. The 300 Airport Boulevard project and development at 350 Airport Boulevard would add traffic to the intersection. This is considered a significant adverse project impact.

The City of San Mateo is considering a range of potential improvements at the Amphlett Boulevard/Poplar Avenue intersection to provide sufficient capacity for existing and future traffic volume. However, a specific improvement project has not been identified at this time. It would be appropriate for the project sponsor, and any future project sponsor for development of the 350 Airport Boulevard site, to make a fair share contribution toward the cost of improvements at this intersection for each project's respective impacts. However, since no specific improvement project has been identified and because this intersection is under the control of an agency other than the City of Burlingame (Caltrans and San Mateo), the impact must be considered significant and unavoidable.

Under conditions with traffic from the 300 Airport Boulevard site only, as well as under conditions with traffic from the 300 Airport Boulevard site plus the potential future development at the 350 Airport Boulevard site, the project would have a significant impact on the following six freeway segments during at least one peak hour:

- US 101, southbound between Millbrae Avenue and Broadway – AM & PM peak hours
- US 101, northbound, between Peninsula Avenue and SR 92 – AM & PM peak hours
- US 101, northbound, between SR 92 and Whipple Avenue – PM peak hour
- US 101, northbound between Whipple Avenue and the Santa Clara County line – PM peak hour
- US 101, southbound between Whipple Avenue and the Santa Clara County line – AM & PM peak hours
- SR 92, eastbound between I-280 and US 101 – AM & PM peak hours

Mitigation: Mitigation of significant project impacts on freeway segments would require roadway widening to construct additional through lanes, thereby increasing freeway capacity. It is not feasible for an individual development project to bear responsibility for implementing such extensive transportation system improvements due to constraints in acquisition and cost of right-of-way. Further, no comprehensive project to add through lanes has been developed by Caltrans or C/CAG for individual projects to contribute to. Therefore, the significant cumulative impacts on the freeway segments identified above must be considered significant and unavoidable.

Burlingame Point

Traffic Impact Analysis

Technical Appendices

October 18, 2011

Appendix A

Traffic Counts

Available Upon Request

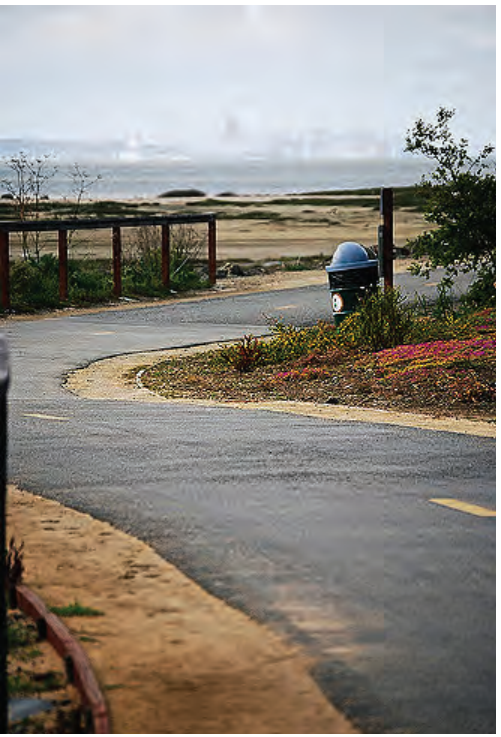
Appendix B

Intersection Level of Service Calculations

Available Upon
Request

Appendix C

Transportation Demand Management Program



Burlingame Point
Transportation Demand Management Program

Prepared by: Fehr & Peers

Prepared for: 350 Beach Road, LLC

April 6, 2011

FEHR PEERS

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1.
INTRODUCTION

This report presents the Transportation Demand Management (TDM) program for the proposed Burlingame Point Office/Life Science campus development located at 300-333 Airport Boulevard in Burlingame, California. The report identifies TDM measures that have a combined effectiveness of more than 10 percent reduction in peak hour trips. In addition to creating a more sustainable development, this trip reduction is necessary to justify the reduced parking ratio from the City requirement of 3.33 spaces per one thousand square feet (ksf) to the project plan of 3.0 spaces per ksf. The TDM Program also satisfies the City/County Association of Governments of San Mateo County (C/CAG) requirement to mitigate all new peak-hour trips based on the C/CAG trip credit guidelines. (1)

C/CAG guidelines require developments that are projected to generate 100 or more net new peak hour trips to implement TDM measures that have the capacity to mitigate all new peak hour trips, based on C/CAG programmatic trip credits. The project is forecasted to generate 1,120 AM peak hour trips and 1,144 PM peak hour trips with an estimated 2,648 employees (2). The C/CAG guidelines provide a list of acceptable TDM measures and the equivalent number of trips that will be credited for each. The TDM program, described in this report, follows and expands upon the framework of these guidelines.

This TDM Program provides a set of strategies, measures, and incentives to encourage future employees of Burlingame Point to walk, bicycle, use public transportation, carpool, or use other alternatives to driving alone when traveling to and from work. In general, TDM supports enhanced mobility by using existing transportation systems, boosts economic efficiency of the current transportation infrastructure, improves air quality, saves energy, and reduces traffic congestion.

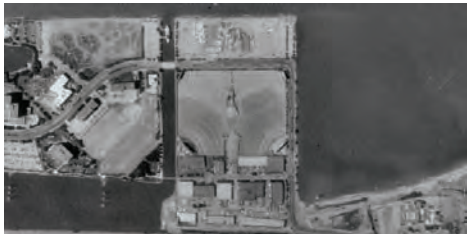
Convenience and cost are the primary factors that affect a person's choice of transportation mode. Measures that work well for some people or types of businesses do not work as well for others. Therefore, an effective TDM Program needs to provide multiple options and incentives that are flexible enough to allow customization to meet the varied needs of individual employees and employers. This program presents an array of proven strategies and measures used in the Bay Area under a flexible implementation plan that can meet the needs of the future tenants of Burlingame Point.

(1) City/County Association of Governments of San Mateo County, Revised C/CAG Guidelines for the Implementation of the Land Use Component of the Congestion Management Program, 2004.
(2) See Appendix C for proposed project trip generation and employee estimates.

PROJECT DESCRIPTION

The project site is located at 300-333 Airport Boulevard in the city of Burlingame, California, as shown in Figure 1. The site is situated in the Anza area of Burlingame, which is in the Northeast portion of the City, east of US-101. The site has been vacant for ten years. Existing land uses in the surrounding area are primarily offices, hotels, airport parking, and parks. The project site is accessible to the region via the following existing transportation facilities and services:

- Motor vehicle access through nearby interchanges of US-101 at Anza Avenue, Broadway, and Peninsula Avenue.
- Transit access through nearby rail transit stations: the site is approximately 0.9 miles from the Burlingame Caltrain Station and approximately 3.5 miles from the Millbrae Intermodal BART/Caltrain Station. Buses and shuttles are available to carry employees between the BART station and the existing transit stop located about 0.3 miles north of the project site.
- Bicycle access through designated bicycle routes, including Airport Boulevard, Bayshore Highway, and California Drive. Bicycle lanes are provided along Howard Avenue and Peninsula Avenue.



The proposed project includes two 5-story, one 7-story, and one 8-story office/life science buildings containing a total of 730,000 sq. ft., an amenities center at 37,000 sq. ft. serving the campus population, and a parking structure above a parking podium and two podium parking areas for a total of 2,318 parking spaces. The City envisions the site to be a potential biotech or pharmaceuticals hub, or it may serve general office purposes. The existing Airport Boulevard alignment will be rerouted through the campus. No buildings will be constructed within the 100' shoreline band; these areas, including the new Bay Trail segment, will be restored and provide public access and rehabilitated shoreline protection structure. The Bay Trail, providing dedicated pedestrian and bicycle access, will run along the east and west side of the project site. Airport Boulevard through the campus will be a bicycle route. An illustrative site plan of the proposed project is shown in Figure 2. The project will be constructed in phases.

The project will also feature enhancements to the transportation services and infrastructure available on site. These enhancements are detailed in this TDM Program.

N

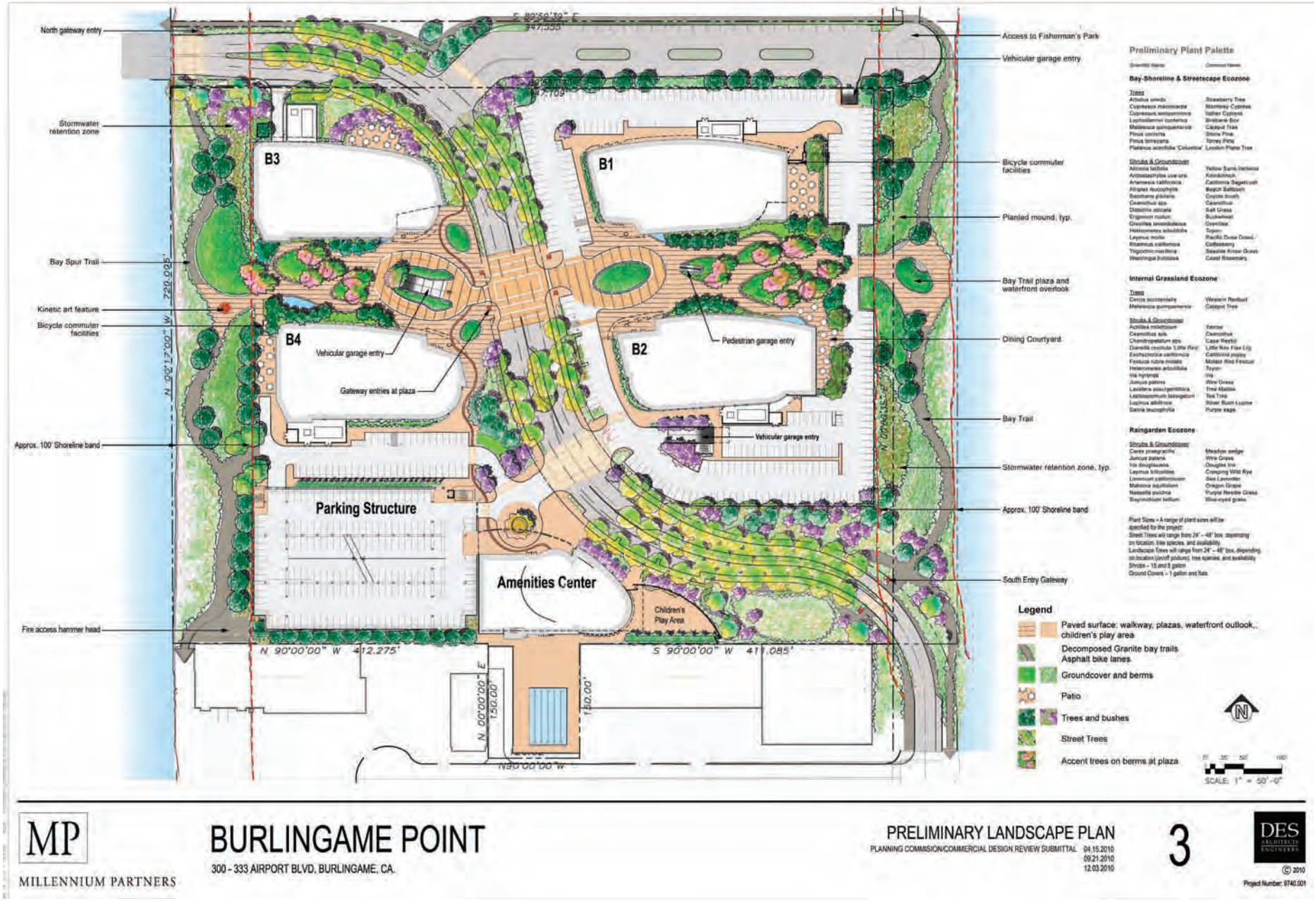
Not to Scale

Project Site Location

Figure 1

FEHR PEERS

SF11-0543 Burlingame Point TDM



Illustrative Site Plan

Figure 2

2. EXISTING TRANSPORTATION SYSTEM

This chapter describes the existing non-automotive transportation system in the project vicinity, including the transit services and facilities, bicycle facilities, and pedestrian facilities.

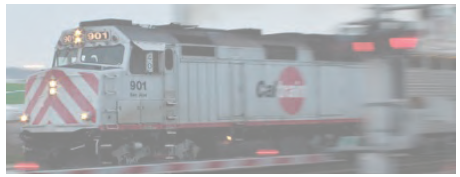
TRANSIT SERVICE

The existing transit facilities and services near the project site are shown on Figure 3 and described in detail below.

Rail Service

Caltrain and BART provide rail passenger services to a variety of regional destinations such as San Francisco, Oakland, and San Jose.

Caltrain



Caltrain headways vary between 20, 35, and 40 minutes in the northbound direction during the AM commute period (6:00 – 9:00 AM). During the PM commute period (4:00 – 7:00 PM), southbound headways vary between 20 and 40 minutes. Less frequent service, about once every hour, is provided during off-peak periods. The Burlingame Caltrain Station is located at Howard Avenue and California Drive, approximately 0.9 miles from the project site. Only local and some limited-stop trains stop at this station, with headways of approximately twenty minutes to an hour. The Burlingame Station is one of the seven stations under consideration to be temporarily suspended for weekday service . (3) The Broadway Caltrain Station, located approximately 1.9 miles from the project site, only has weekend service.
Caltrans does not have plans to provide express (Baby Bullet) service at the Burlingame Station. Patrons accessing the project site via express trains will disembark at the Millbrae Station, which is located at the Millbrae Intermodal Transit Center, approximately 3.5 miles west of the project site. The Burlingame Bayside Area Shuttle is currently available to connect employees between the Millbrae Station and the transit stop located about 0.3 miles north of the project site. This distance is beyond what a typical commuter will be willing to walk, generally up to ¼ of a mile, to reach their final destination. There are no shuttles that connect to the Burlingame Caltrain Station.

BART

In addition to Caltrain, Burlingame employees have access to BART, a regional, rail rapid transit service provided by the Bay Area Rapid Transit District (BART). The Millbrae BART station is also located at the Millbrae Intermodal Transit Center, featuring a cross-platform connection between BART and Caltrain. BART service headways average 15 minutes during the AM (6:00 – 9:00 AM) and PM (4:00 – 7:00 PM) commute periods and 20 minutes during off-peak periods. As noted, the Burlingame Bayside Area Shuttle is available to connect employees between the Millbrae BART station and the transit stop located about 0.3 miles north of the project site.

Bus Service

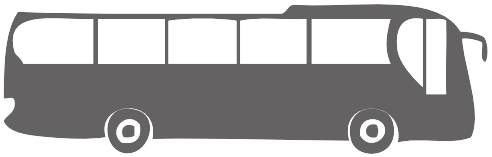
SamTrans

San Mateo Transit District, or SamTrans, provides both local and regional bus service primarily to San Mateo County locations. SamTrans does not provide direct service to the project site. The closest SamTrans stop is along Route 292, and located at the intersection of California Drive/ Howard Avenue, approximately 0.9 mile from the project site.

SamTrans Route 292 provides bus service between the Hillsdale Shopping Center in San Mateo and the Transbay Terminal in downtown San Francisco. This bus route operates along Airport Boulevard, within South San Francisco, and stops at California Drive/Howard Avenue. The hours of operation are 4:47 AM to 2:02 AM on weekdays and weekends. Buses run every 25 minutes on average.

Shuttle Service

Burlingame Bayside Area Shuttle
The Burlingame Bayside Area Shuttle, managed by the Peninsula Traffic Congestion Relief Alliance, provides service between the Millbrae Intermodal station and Burlingame Bayside area office buildings in the morning and evening commute hours during the week, with one shuttle to/from the station, approximately every 32 minutes in the morning (6:57 AM – 9:26 AM) and one shuttle, approximately every 30 minutes in the evening (4:02 PM – 6:51 PM). The closest shuttle stop location is at the intersection of Airport Boulevard and Bay View Place, approximately 0.3 miles from the project site. The existing route of the shuttle does not provide adequate connection to the project site. As noted, 0.3 miles is beyond what a typical commuter is willing to walk to reach their final destination. Currently this shuttle service is free to riders.

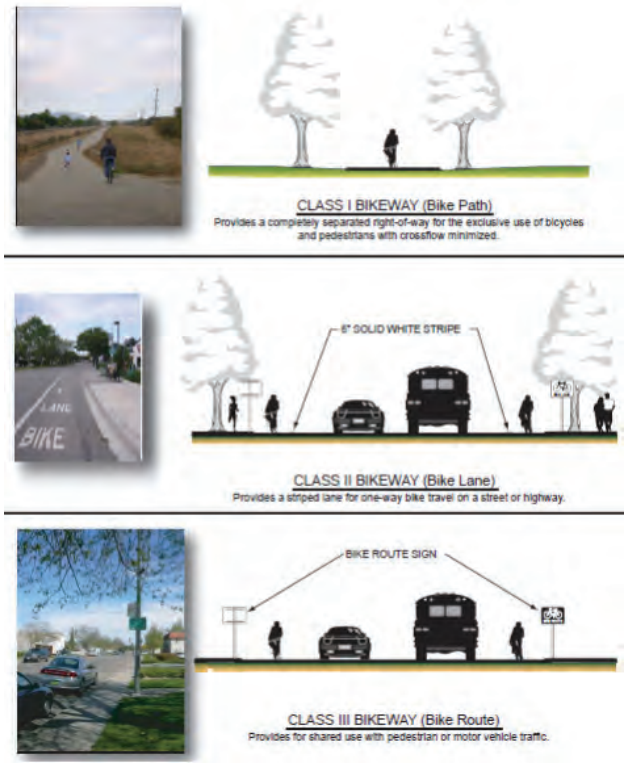


(3) Caltrain, http://www.caltrain.com/Assets/Public/CaltrainPublicMeetingPresentation2011, 2011.

BICYCLE FACILITIES

Bicycles are an important component of the City's transportation network. South San Francisco's bikeways are classified as Class I, Class II, or Class III facilities, as follows and shown to the right:

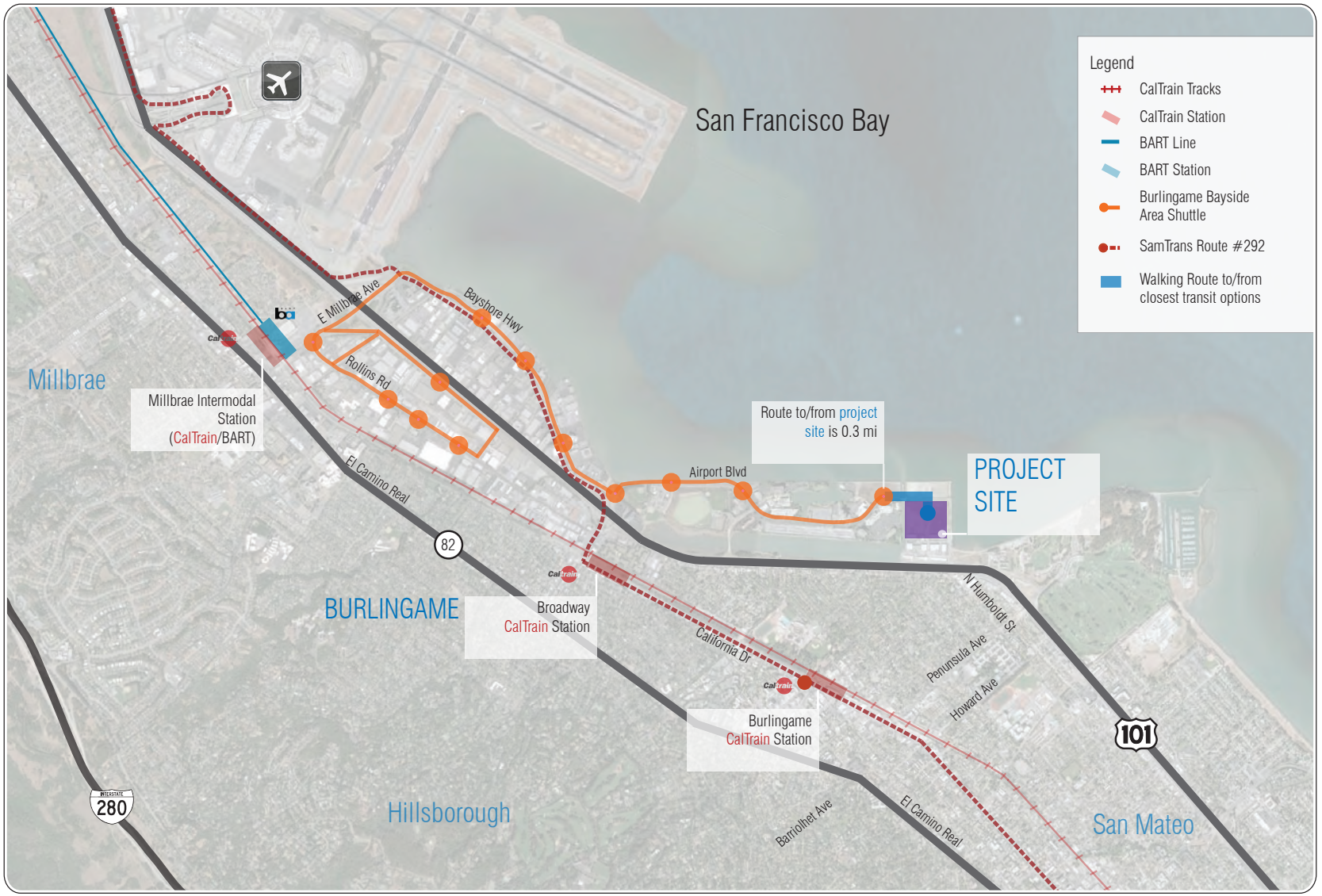
- Class I Bikeway – bike paths within exclusive right-of-way, sometimes shared with pedestrians
- Class II Bikeway – bike lanes for bicycle use only that are striped within the paved area of roadways
- Class III Bikeway – bike routes are shared with motor vehicles on the street. Class III bikeways may also be defined by a wide curb lane and/or use of a shared use arrow stencil marking on the pavement, known as a "sharrow"



See Figure 4 for existing bicycle facilities near the project site. Class III bicycle routes are provided on Airport Boulevard, Bayshore Highway, and California Drive. Howard Avenue and Peninsula Avenue have Class II bicycle lanes. Bicycles are prohibited from traveling on Airport Boulevard, north of Peninsula Avenue. This creates a disconnect between the bicycle lane on Peninsula Avenue and the bicycle route along Airport Boulevard near the project site. The City is considering adding bicycle lanes to the San Francisco Airport to the west of the project site. Through the site, the facilities will remain a bicycle route. The San Francisco Bay Trail, part of a planned 400-mile system of trails encircling the San Francisco Bay, provides Class I facilities along the east and north of the project site.

PEDESTRIAN FACILITIES

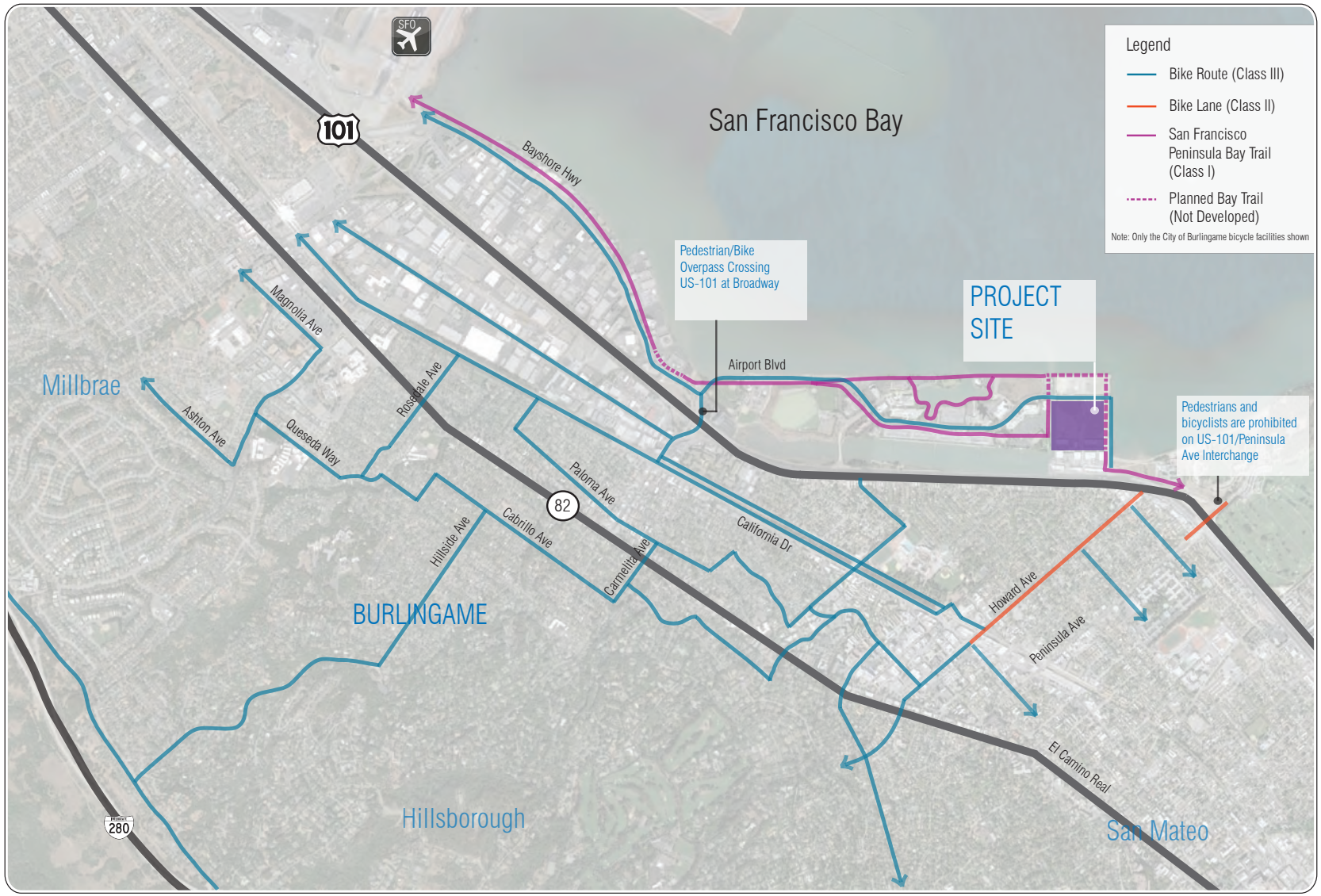
Pedestrian facilities include sidewalks, crosswalks, trails, and pedestrian signals or warning devices. West of the project site, sidewalks are located on both sides of Airport Boulevard. The intersections along Airport Boulevard near the project site lack crosswalk markings and curb ramps. Pedestrian accessibility between the project site and areas west of the US-101 are limited. A freeway overpass, available to pedestrians, is provided on Broadway connecting the project site to downtown Burlingame and the nearby Caltrain stations. Although pedestrian access is available on Peninsula Avenue, another freeway overpass just south of the project site, there is no subsequent connection into the project site. Pedestrians and bicycles are prohibited from traveling on Airport Boulevard, north of Peninsula Avenue (see Figure 4 for more detail). The Bay Trail is a public pedestrian and bicycle trail that is planned to extend around the entire San Francisco Bay. The project site provides direct access to the Bay Trail.



Not to Scale

Existing Transit Network

Figure 3



Existing Bicycle Facilities

Figure 4

FEHR PEERS

SF11-0543 Burlingame Point TDM

3. TRANSPORTATION DEMAND MANAGEMENT PROGRAM

The elements for the Burlingame Point TDM Program include shuttle service that encourages the use of BART and Caltrain, participation in associations that promote commute alternatives to the single-occupant vehicle, and other incentives and dis-incentives to yield a reduction in the number of off-site trips. Table 1 summarizes the TDM measures, which are described in detail below. Appendix A presents a summary of the proposed general locations for the site design features affiliated with the TDM program. Final locations for TDM measures will be determined with City staff in coordination with the Developer.

TABLE 1
BURLINGAME POINT TDM PROGRAM MEASURES

#	TDM Measure	Description
1	Secure Bicycle Storage	Secure, indoor bicycle storage will be provided in a lobby or garage level room within the four office buildings.
2	Showers and Changing Rooms	Shower facilities with changing rooms will be provided throughout the site, with access available to all employees.
3	Shuttle Service	Operation of a shuttle service during the peak period to nearby rail stations.
4	Preferential Parking for Carpoolers	Preferential parking spaces will be provided for carpools at each of the four office buildings.
5	Preferential Parking for Vanpoolers	Preferential parking spaces will be provided for vanpools at each of the four office buildings.
6	Commute Assistance Center	An on-site, one-stop shopping for transit and commute alternatives information will be provided. A TDM coordinator will be at the center part-time to assist building tenants with trip planning.
7	Employees' Surveys	Two surveys will be developed and administered every year to examine TDM program participation and best practices.
8	Video Conferencing Centers	One video conferencing center will be installed at each office building for use by the tenants of the facility.
9	On-Site Amenities/ Accommodations	Amenities will be provided at the project site to encourage people to stay on site during the workday, including: banking, retail, delivery dry cleaning, exercise facilities, child care center, delivery pharmacy, and food service.
10	On-Site Bicycles for Employee Use	Bicycles will be provided at each office building. Employees will have access to bicycles during breaks for personal or business use.
11	Child Care Services	A child center service will be provided on site.
12	Guaranteed Ride Home Program	Employees will be able to use the Alliance's guaranteed ride home (GRH) program for emergencies. The program provides vouchers for taxicabs or rental cars.
13	Combination of Ten TDM Strategies	A minimum of 10 different strategies from the C/CAG list will be implemented.
14	Transportation Action Plan	In coordination with the Alliance, a Transportation Action Plan will be developed for the project.
15	Transportation Management Association	A Transportation Management Association will be created.
16	Coordination of Transportation Demand Management programs	The project will coordinate TDM programs with existing developments/employers in the area.

Source: Fehr & Peers, 2011.

TDM MEASURE DETAILS

Based on a review of TDM Programs and employee travel surveys for comparable sites in the Bay Area, the TDM Program assumes the following composition of the alternative mode share for the estimated 2,648 project site employees:

- *Transit: 9% (238 employees)*
- *Carpool: 5% (132 employees)*
- *Vanpool: 2% (53 employees)*
- *Bicycle: 3% (86 employees)* (4)
- *Walk: 1% (41 employees)*

The quantity and distribution of the TDM strategies presented in this chapter reflect this assumption. Should employee surveys suggest the mode share has a different distribution, the allocation of the TDM strategies, and additional or substitute strategies, may be appropriate.

#1 Secure Bicycle Storage

Secure bicycle storage is a key strategy in promoting increased bicycle usage. Each office building will provide an indoor, secure bicycle storage area. Each storage area will hold up to 26 bicycles. In addition, bicycle racks will be located outside of Building #1 and #4 which will hold up to 50 bicycles. The locations are shown on Appendix A.

#2 Showers and Changing Rooms

Shower and changing rooms will help promote bicycling as an alternative commute option. Shower facilities (men's and women's) will be provided in each of the four office buildings, and also at the amenities center, assuring all tenants have access. Each office building will include four showers and two changing rooms. The amenities center will have 12 showers and two changing rooms. The locations are shown on Appendix A.

#3 Shuttle Service

The Peninsula Commuter Alliance currently runs a commute shuttle, Burlingame Bayside Area Shuttle, from the Millbrae Intermodal Station to employers just north of project site. The project will coordinate with the Alliance to create a public/private partnership to fund and extend the existing shuttle route to include two stops within the project site (in front of Building #2 and #4) and provide 10-minute headways during peak periods. The shuttle stop at Building #4 will also serve the child care center. The shuttle extension will provide a key "first mile / last mile" solution to Caltrain and BART commuters accessing the project site. The TDM Coordinator will monitor the usage of the shuttle and assess its demand. If the shuttle is overcapacity, the project will coordinate with the Alliance to fund a dedicated shuttle serving the project site. The shuttle route and stations are shown on Appendix A.

#4 and #5 Preferential Parking for Carpoolers and Vanpoolers

Fifteen carpool spaces and two vanpool spaces will be reserved at each of the four office buildings. These reserved spaces will be located in premium and convenient locations to discourage single-occupant vehicle trips by improving accessibility for those sharing vehicles. The spaces maybe underutilized at times. Therefore, carpool/vanpool spaces may have single occupancy vehicles allowed after 10 AM, thereby also promoting flextime. The locations are shown on Appendix A.

(4) This includes transit riders bicycling from a transit stop into the project site. These commuters are included in both transit and bicycle commute share.

#6 Commute Assistance Center

A commute assistance center, located at the amenities center, will function as one stop shopping for transit and commute alternatives information. The reception area of the amenities center will provide transit information and brochures. The amenities center will also have a dedicated commute assistance center staffed by the TDM Coordinator for 12 hours a month to assist building tenants with trip planning. The center will include:

- *Transit information*
- *Brochure rack*
- *Computer kiosk connected to Internet*
- *Telephone (with commute and transit information numbers)*
- *Desk and chairs (for personalized trip planning)*
- *On-site transit ticket sales*
- *Quarterly educational programs to support commute alternatives*
- *Rideshare matching assistance*

#7 Employees' Survey

An employee survey, administered by the TDM Coordinator on a biannual basis, will be used to assess the performance of the TDM Program and identify opportunities for improvement. Alternative mode use changes will be tracked with the employee survey and compared to prior years' results.

#8 Video Conferencing Centers

Each office building will have at least one room capable of conducting video conferencing.

#9 On-Site Amenities / Accommodations

On-site amenities and accommodations encourage employees to stay on site during the workday. This reduces mid-day trips and enables employees to leave their vehicles at home. The amenities center will provide banking, retail shops, exercise facilities, a child care center, and food service. Delivery dry cleaning and pharmacy services will also be offered to project tenants. Each office building may also have more retail or food services.

#10 On-Site Bicycles for Employee Use

On-Site bicycles provide employees with an option to make mid-day trips without bringing a personal vehicle to work. The project will provide four bicycles for each office building for employee use, totaling to 16 bicycles.

#11 Child Care Services

A child care center will be located at the amenities center on the project site. The child care center will accept up to 30 children a day and will accept multiple age groups (infants=0-2 years, preschool=3&4 years, school-age=5 to 13 years).

#12 Guaranteed Ride Home Program

A common reason that employees do not use alternative modes (i.e., carpool, vanpool, or transit) is the inability to leave work unexpectedly for a family emergency or the fear of being stranded if they need to work late. One TDM element that allays these fears is the Alliance's Guaranteed Ride Home program. With this program, employees can use a taxi service, rental car, or other means to get home, and the employer pays for the service. The lease agreement will state that the tenants must participate in the Alliance's Guaranteed Ride Home program, which will be managed by the TDM Coordinator. The project will ensure that a minimum of 150 Guaranteed Ride Home slots are purchased for the development. Employees who wish to use the service will contact the TDM Coordinator to make the travel arrangements.

#13 Combination of Ten TDM Strategies

Based on C/CAG guidelines, implementation of at least ten TDM measures will provide an additional credit of five peak hour trips.

#14 and #15 Transportation Action Plan and Transportation Management Association

Tenants will participate with the Peninsula Traffic Congestion Relief Alliance, which provides ongoing support for alternative commute programs. The TDM Coordinator will work with the Alliance to create a Transportation Action Plan for each tenant. If the office park has multiple tenants, each tenant will provide a representative to form a Transportation Management Association and be the liaison to the TDM Coordinator.

#16 Coordination of TDM Programs

The TDM Coordinator will coordinate TDM programs with existing developments / employers in the surrounding area.

Supporting Features

TDM Coordinator

The lease agreement between the owner and tenants will state that the tenants will designate a TDM Coordinator for the site. The TDM Coordinator will promote the TDM Program, activities, and features to all employees. The TDM Coordinator will develop an on-site transportation information center and provide assistance on site twice a month (Measure #8). The TDM Coordinator will provide information via new employee orientation packets, flyers, posters, email, and/or educational programs. The TDM Coordinator's role will also include actively marketing alternative mode use and providing ride-share matching assistance. The TDM Coordinator will conduct biannual employee commute surveys to identify the need for mode specific promotional material and educational programs (Measure #7).

Direct Route to Transit

Well-lit paths will be provided using the most direct route to the nearest shuttle stop from the different buildings. These paths are shown on Appendix A.

Passenger Loading Zones

A convenient passenger loading zone for a carpool or vanpool drop-off will be provided for all buildings.

Pedestrian Connections

On-site pedestrian facilities will be provided, including sidewalks and lighted paths between the buildings, parking areas, and Airport Boulevard. Pedestrian safety enhancements to facilitate Airport Boulevard crossings will also be provided. These connections are shown on Appendix A.

Information Boards and Kiosks

Information kiosk/boards will be located in employee break rooms or other common gathering areas (i.e., building lobby) to supplement the commute assistance center (Measure #8). The kiosk will contain information on on-site amenities, shuttles, SamTrans, Caltrain, BART, vanpool organizations, bicycle routes, and other transportation options information. The TDM Coordinator will be in charge of updating information.

Promotional Programs

Promotional programs include new employee orientation packets outlining alternative transportation options and an orientation program, which will explain the importance and benefits of using alternative transportation modes. Packets will include (but not be limited to) information on carpool/vanpool options, shuttle services, on-site amenities, and bicycle options. Other annual or quarterly events could include commute fairs where various transit organizations set up marketing booths during lunch and events like "Bike to Work Day."

Transportation Options for Visitors (Maps and Schedules); On-site Assistance

Visitors to Burlingame Point will also be able to use the on-site transportation amenities. Maps and schedules will be available online and at the commute assistance center.

Spare the Air Promotion

The TDM Coordinator will notify employees of Spare the Air days (as declared for the Bay Area region) and associated transit promotions. Prizes may be offered for non-single-occupant vehicle travel on these days to encourage participation.

Rideshare Week Promotion

The TDM Coordinator will promote and encourage ridesharing during a Rideshare Week Promotion. The TDM Coordinator may offer prizes as incentives for ridesharing.

ENFORCEMENT AND FINANCING

The lease language for all tenants will require the designation of a TDM Coordinator(s) for the project site (multiple tenants may share one TDM Coordinator), membership in the Alliance, and compliance with and implementation of the TDM Program. Tenants may implement the TDM Program with different additional measures, so long as the programmatic credits from the replacement measures meet or exceed the programmatic credits of the measures identified by this plan. Tenants not meeting requirements may be subjected to penalties per the lease. The TDM Coordinator will be responsible for monitoring compliance with the TDM program on an annual basis.

The Burlingame Point TDM Program will be funded through the project sponsor, tenant payments and Alliance grants, which pay up to 50 percent of bicycle facility and 75 percent of Guaranteed Ride Home Program costs.

4. COMPLIANCE WITH GUIDELINES AND TRIP REDUCTION EVALUATION

This section documents the proposed TDM Program's compliance and trip reduction evaluation with respect to:

1. C/CAG requirement to mitigate all new peak-hour trips based on the C/CAG trip credit guidelines

2. Ten percent reduction in peak-hour trips required to justify the reduced parking ratio

In addition, the analysis included a high level estimate of costs and ease of implementation for each strategy. This provides the project sponsor guidance on prioritizing measures to include in the final TDM Program. This analysis can be found in Appendix B.

TABLE 2
C/CAG CREDIT ANALYSIS FOR TDM MEASURES

#	TDM Measure	# of Trips Credited[1]	Assumptions	C/CAG Trip Credits[2]
1	Secure Bicycle Storage	One peak-hour trip will be credited for every 3 new bike lockers/racks installed and maintained.	Assume a lobby or parking garage level room at each building (4 buildings) can be used as bicycle storage, with room to store 26 bicycles each. Assume outdoor facilities (near Buildings #1 and #4) provide parking for 50 bicycles. Equivalent of 154 bike lockers.	51
2	Showers and Changing Rooms	Ten peak-hour trips will be credited for each new combination shower and changing room installed. An additional 5 peak hour trips will be credited when installed in combination with at least 5 bike lockers.	Assume 4 showers with changing rooms for each office building and 12 showers with changing rooms in the amenities center, totaling to 28 showers. Assume installed in combination w/ bike lockers.	420
3	Shuttle Service	One peak-hour trip will be credited for each peak-hour trip seat on the shuttle. Increases to two trips if a Guaranteed Ride Home Program is also in place. Five additional trips will be credited if the shuttle stops at a childcare facility en route to/from the worksite.	Assume one 22 seater shuttle, running every 10 min (e.g. 6 stops for peak hour), totaling to 132 peak hour trip seats. Assumes guaranteed ride home. Assumes a stop at child care center. (+ 5 points)	269
4	Preferential Parking for Carpoolers	Two peak-hour trips will be credited for each parking spot reserved.	Assume 15 spots at each office building, totaling to 60 spots.	120
5	Preferential Parking for Vanpoolers	Seven peak hour trips will be credited for each parking spot reserved.	Assume 2 spots at each office building, totaling to 8 spots.	56
6	Commute Assistance Center	One peak hour trip will be credited for each feature added to the information center; and an additional one peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.	Assume 7 features will be implemented. Assume the center is open 12 hours a month	19
7	Employees' Surveys	Three peak hour trips will be credited for a survey developed to be administered twice yearly.	Assume 2 surveys to be developed and administered every year.	3
8	Video Conferencing Centers	Five peak hour trips will be credited for a center installed at the facility.	Assume one video conferencing center per office building	20

C/CAG REQUIREMENTS

C/CAG Guidelines require the Burlingame Point TDM Program to have the capacity to reduce fully the demand for new peak hour trips. According to C/CAG Guidelines, the amount of "new" peak hour trips (5) is calculated based on standard rates developed by the Institute of Transportation Engineers (ITE) (6). Applying ITE rates, the proposed project is estimated to generate 1,120 new AM peak hour trips and 1,144 new PM peak hour trips with an estimated 2,648 employees. (7)

According to C/CAG trip credits, the Burlingame Point TDM Program will have the capacity to reduce the demand for peak hour trips by 1,202 trips, as shown in Table 2. This exceeds the maximum number of AM or PM peak hour trips calculated using ITE estimates (1,120 and 1,144 trips, respectively). The Burlingame Point TDM Program therefore exceeds C/CAG requirements.

TABLE 2 (Continued)
C/CAG CREDIT ANALYSIS FOR TDM MEASURES

#	TDM Measure	# of Trips Credited[1]	Assumptions	C/CAG Trip Credits[2]
9	On-Site Amenities/ Accommodations	Five peak hour trips will be credited for each feature added to the job site.	Assume 7 distinct amenities: • Amenities center: banking, retail, exercise facilities; child care center; coffee shop • Other: delivery dry cleaning; delivery pharmacy. 4 office buildings may potentially have food service but will not include in credit calculations.	35
10	On-Site Bicycles for Employee Use	One peak hour trip will be credited for every four bicycles provided.	Assume 4 bicycles will be provided for each office building, totaling to 16 bicycles.	4
11	Child Care Services	One trip will be credited for every two child care slots at the job site. This amount increases to one trip for each slot if the child care service accepts multiple age groups (infants=0-2yrs, preschool=3&4 yrs, school-age=5 to 13 yrs).	Assume a child center accepting all ages for 30 children.	30
12	Guaranteed Ride Home Program	Two peak hour trips will be credited for every 2 slots purchased in the program.	Assume purchasing 150 spots (30% of the estimated number of non SOV drivers)	150
13	Combination of Ten TDM Strategies	Five peak hour trips will be credited.	Assume will implement 10 different strategies listed above.	5
14	Transportation Action Plan	Ten peak hour trips will be credited.		10
15	Transportation Management Association	Five peak hour trips will be credited.		5
16	Coordination of Transportation Demand Management programs	Five peak hour trips will be credited.		5
			C/CAG Trip Credits	1,202
			Peak Hour Trips	1,144

Notes:

1. Revised C/CAG Guidelines, September 21, 2004.
2. C/CAG trip credits in peak hour trips.

Source: City/County Association of Governments San Mateo County 2004, and Fehr & Peers, 2011.

(5) "New" is defined as in excess of existing land use trip generation.
(6) Trip Generation Handbook, 8th Edition, Institute of Transportation Engineers, 2008.
(7) See Appendix C for project trip generation and employee estimates. There will be some trip reductions due to internalization and pass-by for the uses in the amenities building. The internalization reductions are accounted for in the TDM reduction.

TRIP REDUCTION EVALUATION

The project's TDM target is a ten percent reduction in peak-hour trips. This target stems from the project's reduced parking ratio from the City requirement of 3.33 spaces per one thousand square feet (ksf)(8) to the project plan of 3.0 spaces per ksf . Based on the analysis described below, the project exceeds the goal, reaching a 13 percent reduction in peak-hour trips.

Methods documented in *Quantifying Greenhouse Gas Mitigation Measures* (9), a report recently released by the California Air Pollution Control Officers Association (CAPCOA), were used to estimate the trip reduction effects of the proposed TDM strategies. The CAPCOA report provides methods for quantifying vehicle miles traveled (VMT) and vehicle trip (VT) reduction for a list of mitigation measures, primarily focused on project-level mitigation. The CAPCOA measures were screened on the basis of the feasibility of quantifying the reductions, the availability of robust and meaningful data upon which to base the quantification, and whether the measures would result in appreciable reductions. The report represents the state of practice in quantifying effectiveness of TDM strategies. It has been adopted into CalEEMod, a statewide land use emissions model developed in collaboration with the air districts of California, and is recommended for use in California Environmental Quality Act (CEQA) documentation by the Bay Area Air Quality Management District.

(8) Peak parking demand reduction is not directly related to peak hour trip reduction. However, peak hour trip reduction is considered an acceptable proxy.
(9) Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association. August, 2010.

TABLE 3
TRIP REDUCTION ESTIMATES FOR TDM MEASURES

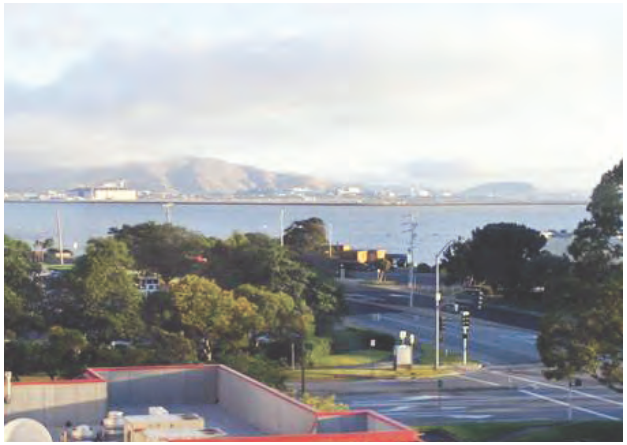
#	Measure	% Trip	Calculation Summary[1]
1	Secure Bicycle Storage	--	Literature suggests end-of-trip facilities would have minimal impacts when implemented alone and thus is not quantified.
2	Showers and Changing Rooms	--	Literature suggests end-of-trip facilities would have minimal impacts when implemented alone and thus is not quantified.
3	Shuttle Service	7%	CAPCOA calculations for employee-sponsored shuttle (measure TRT-11). Assumed low implementation with large employer size. % Reduction in commute VT = % shift in shuttle mode share of commute trips * % employees eligible * adjustment from shuttle mode share to commute VT = 10% * 100% *0.69
4	Preferential Parking for Carpoolers	--	Literature suggests preferential parking should be treated as complementary strategy and is likely to have negligible impacts when implemented alone; trip reduction not quantifiable by CAPCOA.
5	Preferential Parking for Vanpoolers	--	Literature suggests preferential parking should be treated as complementary strategy and is likely to have negligible impacts when implemented alone; trip reduction not quantifiable by CAPCOA.
6	Commute Assistance Center	2%	CAPCOA calculations for commute trip reduction marketing (TRT-7). Assumed estimated 50% of employees utilize. % Reduction in commute VT = % reduction in commute vehicle trips * % employees eligible = 4% * 50%
7	Employees' Surveys	--	Research found no literature quantifying impacts of strategy.
8	Video Conferencing Centers	--	Research found no literature quantifying impacts of strategy.
9	On-Site Amenities/ Accommodations	4%	CAPCOA calculations for diversity of development (measure LUT-3). % Reduction in VT = % increase in land use index * elasticity of VMT w.r.t. land use index = 43% * 0.09
10	On-Site Bicycles for Employee Use	--	Literature suggests bicycle share programs have minimal impacts.
11	Child Care Services	--	Effectiveness should overlap with impacts already quantified in Measure #9.
12	Guaranteed Ride Home Program	--	Per CAPCOA, effectiveness is already wrapped into other commute strategies.
13	Combination of Ten TDM Strategies	--	N/A
14	Transportation Action Plan	--	N/A
15	Transportation Management Association	--	Effectiveness of TMA should be an overlap with marketing impacts already quantified.
16	Coordination of Transportation Demand Management programs	--	N/A
		13%	Total Estimated Trip Reduction[2]
		10%	Target

Notes:

1. The CAPCOA Report uses a 1 to 1 conversion from VMT to vehicle trips. The report assumes that all vehicle trips will average out to typical trip length. Thus, the report assumes that a percentage reduction in vehicle trips will equal the same percentage reduction in vehicle miles traveled. This assumption was utilized in this table's calculations to report final % vehicle trip reduction.

2. As described in the CAPCOA report (p.57), the effectiveness of each TDM strategy combined should be multiplied (not added) to reduce the risk of double counting. Overall trip reduction = 1 – (1 - 0.07) * (1 - 0.02) * (1 - 0.04)

Source: Fehr & Peers, 2011.



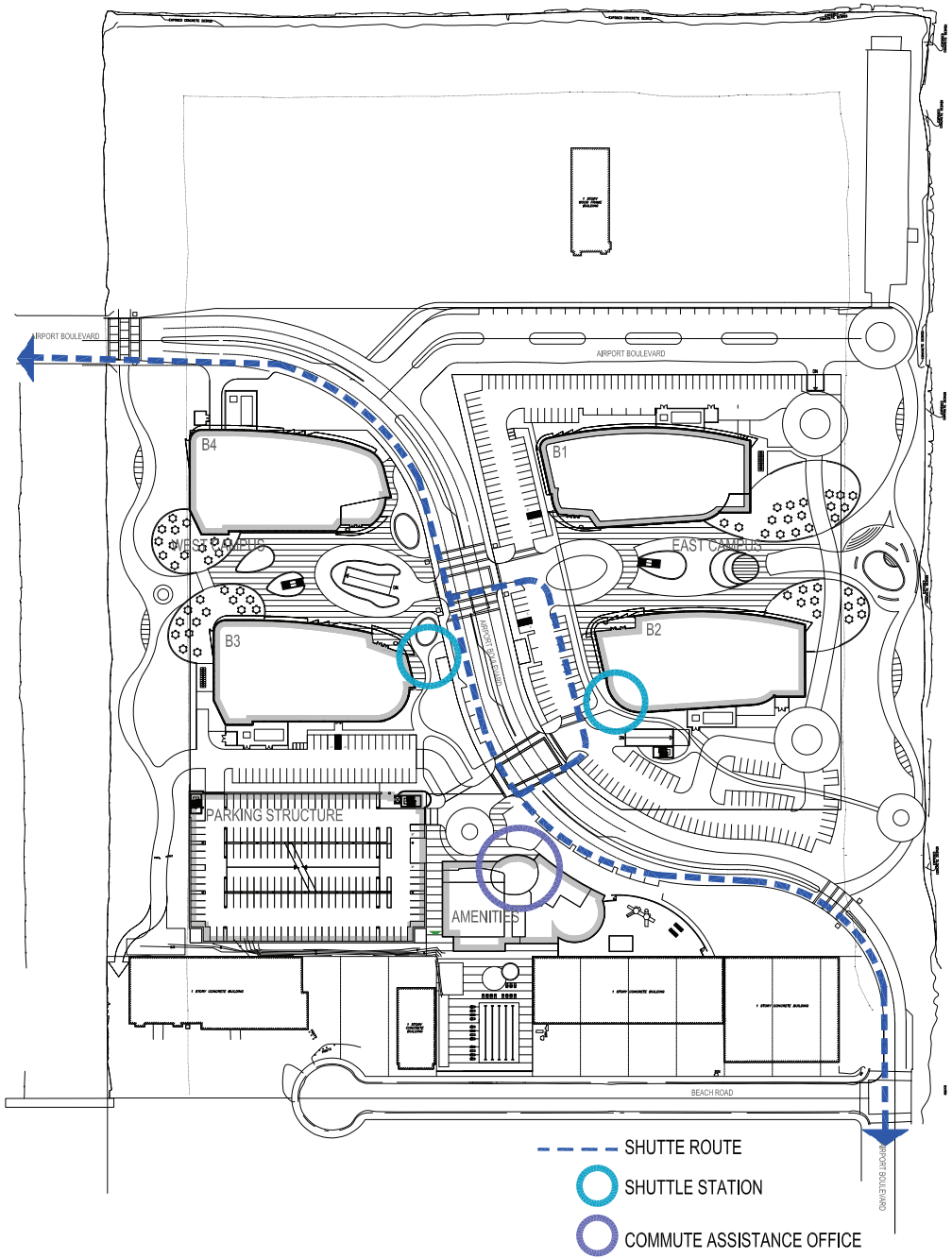
5. CONCLUSION

The project's comprehensive TDM Program, as described in this report, is able to meet C/CAG requirements and exceed the project's goal of a ten percent peak-hour trip reduction. The project receives 1,202 C/CAG trip credits, exceeding the required 1,144 credits. In addition, TDM program analysis shows an estimated 13 percent reduction in peak hour trips, three percentage points higher than the ten percent goal.

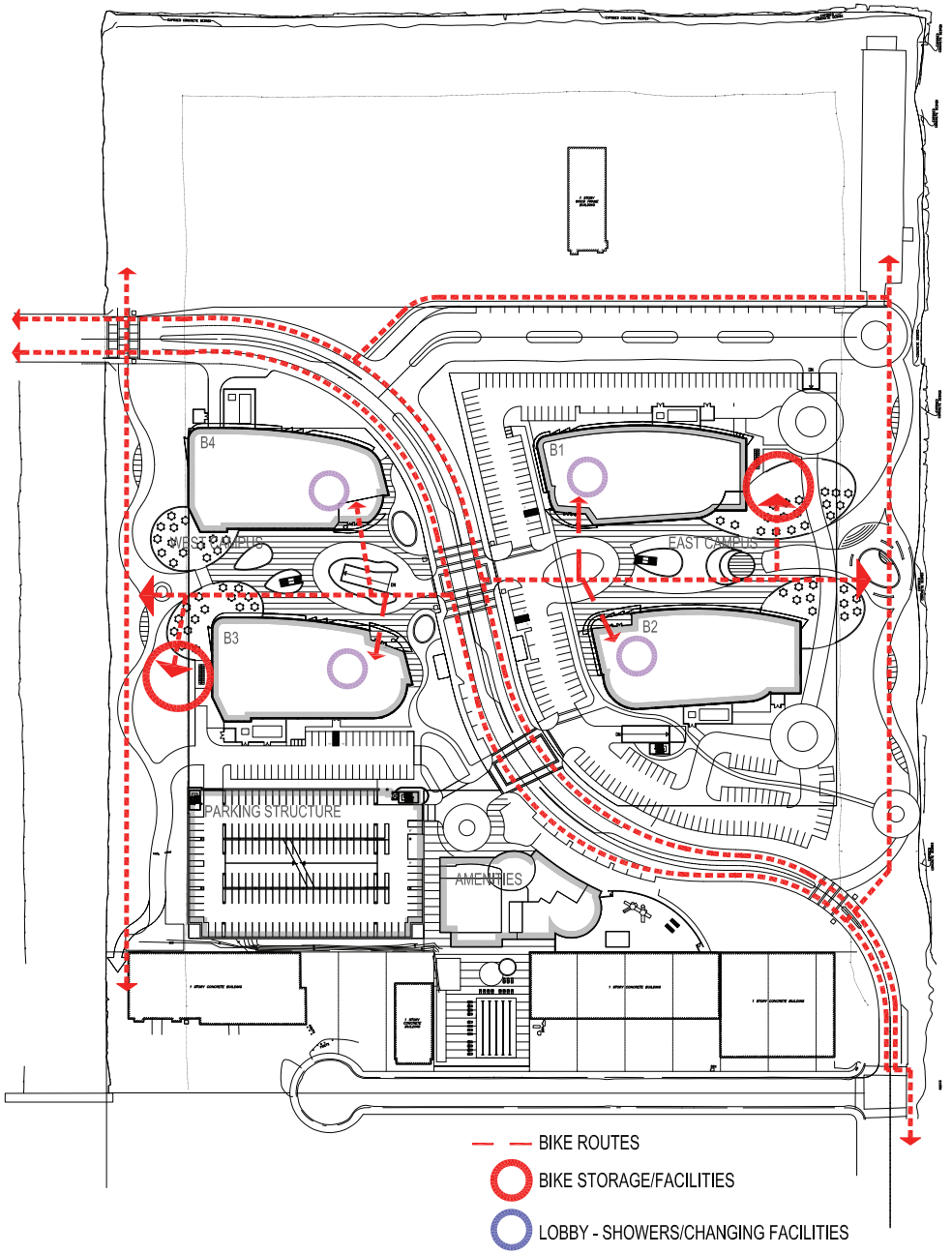
The following appendices provide additional documentation for the strategies and calculations presented in this report. Appendix D provides detail on secondary strategies considered for the TDM program. These secondary strategies are categorized into Tier 2 ("For Consideration") and Tier 3 ("More Difficult"). These strategies should provide future guidance if strategies within the TDM program can no longer be implemented or if additional C/CAG trip credits are required.

APPENDIX A:
TDM DIAGRAMS PROVIDED BY DES ARCHITECTS + ENGINEERS

DES
ARCHITECTS
ENGINEERS

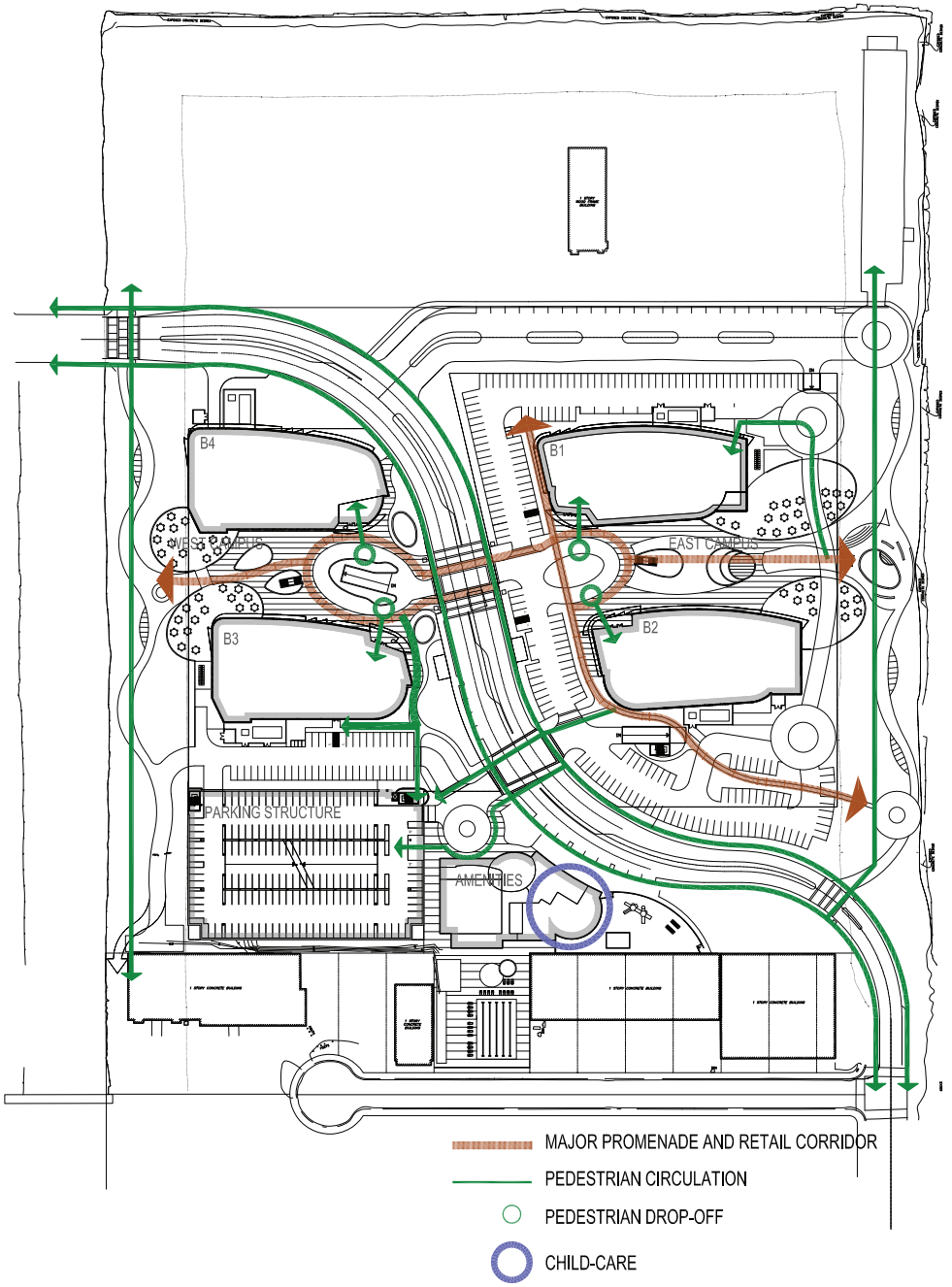


SHUTTLE AND COMMUTE ASSISTANCE



BIKE ROUTES, STORAGE AND SHOWER/CHANGING ROOMS (PODIUM LEVEL)

PREFERENTIAL PARKING FOR CAR AND VAN POOLERS
AND BIKE STORAGE



PEDESTRIAN AND BIKE CIRCULATION
AND BIKE STORAGE

APPENDIX B:
COSTS AND IMPLEMENTATION ANALYSIS

TABLE B1
TDM PROGRAM COSTS AND IMPLEMENTATION ANALYSIS

#	Measure	Approximate Cost Range[1]	Ease of Implementation
1	Secure Bicycle Storage	Low. Assume costs included as part of development.	Easy. Developer can implement during construction.
2	Showers and Changing Rooms	Medium.	Easy. Developer can implement during construction.
3	Shuttle Service	Medium. Coordinate with the Alliance to create a public/private partnership to fund and extend the existing route.	Medium. The Alliance currently runs a commute shuttle from Millbrae intermodal station to employers just north of project site. Coordinate with the Alliance to create a public/private partnership to fund and extend the existing route.
4	Preferential Parking for Carpoolers	Low.	Easy. Developer can implement during construction.
5	Preferential Parking for Vanpoolers	Low.	Easy. Developer can implement during construction.
6	Commute Assistance Center	Low.	Medium. Requires continuance implementation and monitoring.
7	Employees' Surveys	Low.	Easy/Medium. Requires coordination with employers.
8	Video Conferencing Centers	Low. Assume costs included as part of development.	Medium. Developer could incorporate within lease agreement and monitor for compliance.
9	On-Site Amenities/ Accommodations	Low. Assume costs included as part of development.	Medium. Developer can implement during construction.
10	On-Site for Bicycles Employee Use	Low.	Easy/Medium. Requires coordination with bike-share program and/or employers.
11	Child Care Services	Low. Assume costs included as part of development.	Medium. Developer can implement during construction.
12	Guaranteed Ride Home Program	Low. Employers subsidize a percentage of costs (coordination with the Alliance program)	Easy. Alliance is readily available to customize this low-cost program for the developer.
13	Combination of Ten TDM Strategies	N/A	N/A
14	Transportation Action Plan	Low.	Easy. Alliance is readily available to customize a plan for the developer.
15	Transportation Management Association	Low.	Medium. Requires continuance implementation and monitoring.
16	Coordination of Transportation Demand Management programs	Low.	Medium. Depends on what existing developments are feasible to coordinate with.

Note:
1. Approximate cost ranges are estimates relative to other measures within the TDM program.

Source: Fehr & Peers, 2011.

APPENDIX C:
PROJECT TRIP GENERATION AND EMPLOYEE ESTIMATES

TABLE C1
PROJECT TRIP GENERATION ESTIMATES

Land Use	Size	Unit	Rate or Equation	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
Office	730	ksf	Equation	810	110	920	152	744	896
Health Club	23	ksf	Rate	14	17	32	46	35	81
Child Care	8	ksf	Rate	52	46	98	47	53	100
Cafeteria	6	ksf	Rate	36	33	70	39	27	67
			Total	912	207	1,120	285	859	1,144

Source: Institute of Transportation Engineers, 2008 and Fehr & Peers, 2011.

TABLE C2
PROJECT EMPLOYEE ESTIMATES

Land Use	Size	Unit	Employees Per ksf	Employees
Office	730	ksf	3.5	2,555
Amenities	37	ksf	2.5	93
Total				2,648

Source: Institute of Transportation Engineers, 2008 and Fehr & Peers, 2011.

APPENDIX D:
TIER 2 AND TIER 3 TDM MEASURES

TABLE D1
TIER 2 AND TIER 3 TDM MEASURES

#	TDM Measure	# of Trips Credited[1]	Assumptions	C/CAG Trip Credits[2]	% Trip	Calculation Summary[3]	Cost Range[4]	Ease of Implementation
Tier 2 – For Consideration								
17	Subsidizing transit tickets for employees.	One peak-hour trip will be credited for each transit pass that is subsidized at least $20 per month for one year. One additional trip will be credited if the subsidy is increased to $75 for parents using transit to take a child to childcare en route.	Assume 9% transit ridership among all employees, totaling an estimate of 240 transit passes provided.	240	2%	CAPCOA calculations for subsidized transit (measure TRT-4). % Reduction in VT = % reduction in commute vehicle trips * % of employees eligible = 2% *100%		Medium. Developer could incorporate within lease agreement and monitor for compliance.
18	Subsidizing pedestrians/ bicyclists who commute to work.	One peak hour trip will be credited for each employee that is subsidized at least $20 per month for one year.	Assume 2% of all employees will be interested in becoming pedestrian/ bicyclist commuters, totaling an estimate of 50 employees	50	--	This would overlap with Measure #17.	Low	Medium. Developer could incorporate within lease agreement and monitor for compliance.
19	Provide use of motor vehicles to employees who use alternate commute methods so they can have access to vehicles during breaks for personal use.	Five peak hour trips will be credited for each vehicle provided.	Assume 2 motor vehicles for entire site.	10	0.4%	CAPCOA calculations for carsharing (TRT-10) = % Reduction in VT = % reduction in car-share member annual VT * number of carshare members per shared car / deployment level = 37% * 20 / 2000	Low/	Easy/Medium. Requires coordination with carshare program and employers.
20	Pay for parking at park and ride lots or transit stations.	One peak hour trip will be credited for each spot purchased.	Assume subsidizing 50 spots.	50	--	Research found no literature quantifying impacts of strategy.	Low/	Medium. Developer could incorporate within lease agreement and monitor for compliance.
			Additional Tier 2 Credits Added	350	2%	Additional Tier 2 Trip Reduction		
			Subtotal C/CAG Credits	1,552	15%	Subtotal Trip Reduction[5]		
			Additional Credits Needed	0	0%	Additional Reduction Needed		

TABLE D1 (Continued)
TIER 2 AND TIER 3 TDM MEASURES

#	TDM Measure	# of Trips Credited[1]	Assumptions	C/CAG Trip Credits[2]	% Trip	Calculation Summary[3]	Cost Range[4]	Ease of Implementation
Tier 3 – More Difficult								
21	Implementation of a vanpool program.	Seven peak hour trips will be credited for each vanpool arranged by a specific program operated at the site of the development. Increases to ten trips if a Guaranteed Ride Home Program is also in place.	Assume providing 4 vanpools for the site. Assumes guaranteed ride home (which is offered through the Alliance program)	40	1%	CAPCOA calculations for employee-sponsored vanpool (measure TRT-11). % Reduction in commute VT = % shift in vanpool mode share of commute trips * % employees eligible * adjustment from shuttle mode share to commute VT = 1% * 100% *0.69		Medium. Developer could incorporate within lease agreement and monitor for compliance.
22	Implementation of a parking cash out program.	One peak hour trip will be credited for each parking spot where the employee is offered a cash payment in return for not using parking at the employment site.	Assume 10% of employees will be willing to forfeit parking spots due to this program, totaling an estimate of 260 employees	260	2%	CAPCOA calculations for parking cash out (measure TRT-15). Reduction in commute VT = % reduction in commute VT * % of employees eligible = 4.5%*50%	High	Medium. Developer could incorporate within lease agreement and monitor for compliance.
			Additional Tier 3 Credits Added	300	3%	Additional Tier 3 Trip Reduction		
			Total C/CAG Credits	1,852	17%	Total Trip Reduction[5]		
			Additional Credits Needed	0	0%	Additional Reduction Needed		

Notes:

1. Revised C/CAG Guidelines, September 21, 2004.
2. C/CAG trip credits in peak hour trips.
3. The CAPCOA Report uses a 1 to 1 conversion from VMT to vehicle trips. The report assumes that all vehicle trips will average out to typical trip length. Thus, the report assumes that a percentage reduction in vehicle trips will equal the same percentage reduction in vehicle miles traveled. This assumption was utilized in this table's calculations to report final % vehicle trip reduction.
4. Approximate cost ranges are estimates relative to other measures within the TDM program.
5. As described in the CAPCOA report (p.57), the effectiveness of each TDM strategy combined should be multiplied (not added) to reduce the risk of double counting.

Source: Fehr & Peers, 2011.

APPENDIX E:
CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY (C/CAG) TDM MEASURES AND CREDITS

C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS
OF SAN MATEO COUNTY

Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park • Millbrae Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside

September 21, 2004

TO: City Managers, Planning Directors, and Public Works Directors

FROM: Tom Madalena, Planner II, City/County Association of Governments

SUBJECT: REVISED C/CAG GUIDELINES FOR THE IMPLEMENTATION OF THE LAND USE COMPONENT OF THE CONGESTION MANAGEMENT PROGRAM

At the C/CAG meeting on September 9, 2004, the Board adopted revised guidelines for the land use component of the Congestion Management Program. We would like to keep you informed of all changes to this policy. The purpose of this revision is to increase the number of options for reducing the impacts of traffic, to provide clarity for the stakeholders involved in the implementation of this policy, and to reallocate the credits associated with some of the transportation demand management measures. All of the revisions to the guidelines are noted in **bold** text. These revisions will take effect immediately.

As a reminder, the Congestion Management Program policy and guidelines must be followed for all projects that meet the following criteria:

1. The project will generate a net 100 or more peak hour trips on the Congestion Management Program roadway network.

2. The project is subject to CEQA review.

If you have a project that meets these criteria, you should follow these steps:

1. Review the guidelines with the project applicant and determine if a combination of the acceptable options/measures will fully reduce the net number of trips that this project is anticipated to generate on the CMP roadway network.

2. If yes, include this information as part of the environmental documents that are circulated and adopted by the local jurisdiction Board.

3. If no, or if new or revised measures are being proposed, contact Tom Madalena for C/CAG review and approval as early in the process as possible so that the agreed upon plan can be included in the environmental documents placed in circulation.

455 COUNTY CENTER, 2ND FLOOR, REDWOOD CITY, CA 94063 • ☎ 650/363-1867 • FAX: 650/363-4849
(FRM00440.DOC)

4. If agreement is not reached with C/CAG staff on the plan, an immediate review by the C/CAG Board will be scheduled so that the local jurisdiction project approval process will not be delayed.

As an ongoing and living document, we welcome any suggestions that you may have for the guidelines. Please contact Tom Madalena at 650/363-1867 (tmadalena@co.sanmateo.ca.us) if you have any questions or comments.

Attachment

GUIDELINES FOR IMPLEMENTING THE LAND USE COMPONENT OF THE CONGESTION MANAGEMENT PROGRAM

All land use changes or new developments that require a negative declaration or an Environmental Impact Report (EIR) and that are projected to generate a net (subtracting existing uses that are currently active) 100 or more trips per hour at any time during the a.m. or p.m. peak hour period, must be reported to C/CAG within ten days of completion of the initial study prepared under the California Environmental Quality Act (CEQA). Peak period includes 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. **Peak hour is defined as the hour when heaviest daily traffic volume occurs and generally occurs during morning and afternoon commute times. Traffic counts are obtained during AM and PM peak periods and the volume from the heaviest hour of AM or PM traffic is used to define peak hour for those time periods. The highest number of net trips resulting from AM or PM peak hour will be used. Net trips are calculated by subtracting trips for existing uses from those generated by the new project.** Although projects that generate less than 100 peak hour trips are not subject to these guidelines, local jurisdictions are strongly encouraged to apply them to all projects, particularly where the jurisdiction has determined that the impacts of the project will have an adverse effect on traffic in that jurisdiction.

These guidelines are not intended to establish a Countywide **threshold** of significance of 100 peak hour trips for CEQA purposes. The determination of what level of traffic results in a significant impact is left in the first instance to the local jurisdiction. These guidelines do contemplate, however, that all trips resulting from projects that are reviewed by C/CAG and fall under these guidelines will be mitigated, whether or not it rises to a level of significance under CEQA.

Local jurisdictions must ensure that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development. The local jurisdiction can select one or more of the options that follow or may propose other methods for mitigating the trips. It is up to the local jurisdiction working together with the project sponsor to choose the method(s) that will be compatible with the intended purpose of the project and the community that it will serve. The options identified in these guidelines are not intended to limit choices. Local jurisdictions are encouraged to be creative in developing options that meet local needs while accomplishing the goal of mitigating new peak hour trips. The additional measures that are not specifically included in these guidelines should be offered for review by C/CAG staff in advance of approving the project. Appeals to the decisions by C/CAG staff will be taken to the full C/CAG Board for consideration.

The Congestion Management Program roadway network includes all state highways and selected principal arterials. When considering land use projects, local jurisdictions may either require that mitigation for impacts to the Congestion Management Program roadway network be finally determined and imposed as a condition of approval of the project, or may conditionally approve such project, conditioned on compliance with the requirements to mitigate the impacts to the Congestion Management Program roadway network. In those instances where conditional approval is given, a building permit may not be issued for the project until the required mitigation is determined and subsequently imposed on the project.

Some of the choices for local jurisdictions include:

1. Reduce the scope of the project so that it will generate less than 100 net peak hour trips.
2. 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.
3. If a local jurisdiction currently collects traffic mitigation fees, any portion of the fees that are used to mitigate the impacts of the project's traffic on the Congestion Management Program roadway network will count as a credit toward the reduction in the demand for trips required under the Congestion Management Program. The developer may also contribute a one-time only payment of $20,000 per peak hour trip (including the first 100 trips) to a special fund for the implementation of appropriate transportation demand management system measures at that development. These funds will be used to implement transportation demand management programs that serve the development making the contribution.
4. Require the developer and all subsequent tenants to implement Transportation Demand Management programs that have the capacity to fully reduce the demand for new peak hour trips. The developer/tenants will not be held responsible for the extent to which these programs are actually used. **The developer shall pay for a monitoring program for the first three years of the development. The purpose of the monitoring program is to assess the compliance of the project with the final TDM plan**. The following is a list of acceptable programs and the equivalent number of trips that will be credited as reduced. 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. For example, a developer may elect to contract with the Alliance or another provider of TDM services to meet this requirement. These situations can also be submitted to C/CAG in advance for consideration. It is up to each local jurisdiction to use its best judgment to determine the extent to which certain measures are "reasonable and effective." For example, there will be a point where additional showers will not result in more people riding bicycles or walking to work.
5. Adopt Congestion Management Program guidelines for projects within its jurisdiction and submit those guidelines for approval by C/CAG. The local jurisdiction would then apply these guidelines to the appropriate level of project and provide an annual report describing affected projects and guidelines applied. C/CAG would review the jurisdiction's efforts on an annual basis and could require amendments to the jurisdiction's guidelines if the jurisdiction's guidelines were not meeting Congestion Management Program goals.

6. Adopt the C/CAG guidelines for application to the appropriate level of project in the jurisdiction, and submit an annual report describing affected projects and guidelines applied. C/CAG would review the jurisdiction's efforts on an annual basis and could require amendments to the jurisdiction's guidelines if the jurisdiction's guidelines were not meeting Congestion Management Program goals.
7. Negotiate with C/CAG staff for other acceptable ways to mitigate the trips for specific developments on a case-by-case basis.
8. **C/CAG recognizes that for retail or special uses appropriate TDM measures may be difficult to implement. Please contact C/CAG to develop appropriate measures for these types of projects.**

Transportation Demand Management Measure	**Number of Trips Credited**	**Rationale**
Secure bicycle storage	One peak hour trip will be credited for every 3 new bike lockers/racks installed and maintained. **Lockers/racks must be installed within 100 feet of the building.**	Experience has shown that bicycle commuters will average using this mode one-third of the time, especially during warmer summer months.
Showers and changing rooms.	**Ten** peak hour trips will be credited for each new combination shower and changing room installed. **An additional 5 peak hour trips will be credited when installed in combination with at least 5 bike lockers**	**10 to 1 ratio based on cost to build and the likelihood that bicycle utilization will increase.**
Operation of a dedicated shuttle service during the peak period to a rail station or an urban residential area. **Alternatively the development could buy into a shuttle consortium.**	One peak hour trip will be credited for each peak-hour round trip seat on the shuttle. Increases to two trips if a Guaranteed Ride Home Program is also in place. Five additional trips will be credited if the shuttle stops at a child-care facility enroute to/from the worksite.	Yields a one-to-one ratio (one seat in a shuttle equals one auto trip reduced); utilization increases when a guaranteed ride home program is also made available.
Charging employees for parking.	**Two** peak hour trips will be credited for each parking spot charged out at $20 per month for one year. **Money shall be used for TDM measures such as shuttles or subsidized transit tickets.**	Yields a **two**-to-one ratio
Subsidizing transit tickets for employees.	One peak hour trip will be credited for each transit pass that is subsidized at least $20 per month for one year. One additional trip will be credited if the subsidy is increased to $75 for parents using transit to take a child to childcare enroute to work.	Yields a one-to-one ratio (one transit pass equals one auto trip reduced).
Subsidizing pedestrians/bicyclists who commute to work.	One peak hour trip will be credited for each employee that is subsidized at least $20 per month for one year.	Yields a one-to-one ratio (One pedestrian/bicyclist equals one auto trip reduced.
Creation of preferential parking for carpoolers.	Two peak hour trips will be credited for each parking spot reserved.	Yields a two-to-one ratio (one reserved parking spot equals a minimum of two auto trips reduced).
Creation of preferential parking for vanpoolers.	Seven peak hour trips will be credited for each parking spot reserved.	Yields a seven-to-one ratio (one reserved parking spot equals a minimum of seven auto trips reduced).
Implementation of a vanpool program.	Seven peak hour trips will be credited for each vanpool arranged by a specific program operated at the site of the development. Increases to ten trips if a Guaranteed Ride Home Program is also in place.	The average van capacity is seven.

Operation of a commute assistance center, offering on site, one stop shopping for transit and commute alternatives information, preferably staffed with a live person to assist building tenants with trip planning.	One peak hour trip will be credited for each feature added to the information center; and an additional one peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants. Possible features may include: Transit information brochure rack Computer kiosk connected to Internet Telephone (with commute and transit information numbers) Desk and chairs (for personalized trip planning) On-site transit ticket sales Implementation of flexible work hour schedules that allow transit riders to be 15-30 minutes late or early (due to problems with transit or vanpool). Quarterly educational programs to support commute alternatives	This is based on staff's best estimate. Short of there being major disincentives to driving, having an on site TDM program offering commute assistance is fundamental to an effective TDM program.
Survey Employees to examine use and best practices.	**Three peak hour trips will be credited for a survey developed to be administered twice yearly**	**This is based on staff's best estimate with the goal of finding best practices to achieve the mode shift goal.**
Implementation of a parking cash out program.	One peak hour trip will be credited for each parking spot where the employee is offered a cash payment in return for not using parking at the employment site.	Yields a one-to-one ratio (one cashed out parking spot equals one auto trip reduced.
Implementation of ramp metering.	Three hundred peak hour trips will be credited if the local jurisdiction in cooperation with CalTrans, installs and turns on ramp metering lights during the peak hours at the highway entrance ramp closest to the development.	This is a very difficult and costly measure to implement and the reward must be significant.
Installation of high bandwidth connections in employees' homes to the Internet to facilitate home telecommuting	**One peak hour trip will be credited for every three connections installed. This measure is not available as credit for a residential development.**	Yields a one-to-**three** ratio.
Installation of video conferencing centers that are available for use by the tenants of the facility.	**Five** peak hour trips will be credited for a center installed at the facility.	**This is based on staff's best estimate.**
Implementation of a compressed workweek program.	One peak hour trip will be credited for every 5 employees that are offered the opportunity to work four compressed days per week.	The workweek will be compressed into 4 days; therefore the individual will not be commuting on the 5th day.
Flextime: Implementation of an alternate hours workweek program.	**One peak hour trip will be credited for each employee that is offered the opportunity to work staggered work hours. Those hours can be a set shift set by the employer or can be individually determined by the employee.**	**This is based on staff's best estimate.**
Provision of assistance to employees so they can live close to work.	If an employer develops and offers a program to help employees find acceptable residences within five miles of the employment site, a credit of one trip will be given for each slot in the program.	This assumes that a five-mile trip will generally not involve travel on the freeways.

Implementation of a program that gives preference to hiring local residents at the new development site.	One peak hour trip will be credited for each employment opportunity reserved for employees recruited and hired from within five miles of the employment site.	This assumes that a five-mile trip will generally not involve travel on the freeways.
Provision of on-site amenities/accommodations that encourage people to stay on site during the workday, making it easier for workers to leave their automobiles at home.	**Five** peak hour trips will be credited for each feature added to the job site. Possible features may include: banking grocery shopping clothes cleaning exercise facilities child care center	This is based on staff's best estimate.
Provide use of motor vehicles to employees who use alternate commute methods so they can have access to vehicles during breaks for personal use.	**Five** peak hour trips will be credited for each vehicle provided.	This is based on staff's best estimate.
Provide use of bicycles to employees who use alternate commute methods so they can have access to bicycles during breaks for personal use.	One peak hour trip will be credited for every four bicycles provided.	This is based on staff's best estimate.
Provision of child care services as a part of the development	One trip will be credited for every two child care slots at the job site. This amount increases to one trip for each slot if the child care service accepts multiple age groups (infants=0-2yrs, preschool=3&4 yrs, school-age=5 to 13 yrs).	**This is based on staff's best estimate.**
Developer/property owner may join an employer group to expand available child care within 5 miles of the job site or may provide this service independently	One trip will be credited for each new child care center slot created either directly by an employer group, by the developer/property owner, or by an outside provider if an agreement has been developed with the developer/property owner that makes the child care accessible to the workers at the development.	**This is based on staff's best estimate.**
Join the Alliance's guaranteed ride home program.	**Two** peak hour trips will be credited for every 2 slots purchased in the program.	Experience shows that when a Guaranteed Ride Home Program is added to a TDM program, average ridership increases by about 50%.
Combine any ten of these elements and receive an additional credit for five peak hour trips.	Five peak hour trips will be credited.	Experience has shown that offering multiple and complementary TDM components can magnify the impact of the overall program.
Work with the Alliance to develop/ implement a Transportation Action Plan.	**Ten** peak hour trips will be credited.	This is based on staff's best estimate.
The developer can provide a cash legacy after the development is complete and designate an entity to implement any (or more than one) of the previous measures before day one of occupancy.	Peak hour trip reduction credits will accrue as if the developer was directly implementing the items.	Credits accrue depending on what the funds are used for.
Encourage infill development.	Two percent of all peak hour trips will be credited for each infill development.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).

Encourage shared parking.	Five peak hour trips will be credited for an agreement with an existing development to share existing parking.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).
Participate in/create/sponsor a Transportation Management Association.	Five peak hour trips will be credited.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).
Coordinate Transportation Demand Management programs with existing developments/ employers.	Five peak hour trips will be credited.	This is based on staff's best estimate.
For employers with multiple job sites, institute a proximate commuting program that allows employees at one location to transfer/trade with employees in another location that is closer to their home.	One peak hour trip will be credited for each opportunity created.	Yields a one-to-one ratio.
Pay for parking at park and ride lots or transit stations.	One peak hour trip will be credited for each spot purchased.	Yields a one-to-one ratio.

Additional Measures for Residential Developments

Develop schools, convenience shopping, recreation facilities, and child care centers in new subdivisions.	Five peak hour trips will be credited for each facility included.	This is based on staff's best estimate.
Provision of child care services at the residential development and/or at a nearby transit center	One trip will be credited for every two child care slots at the development/transit center. This amount increases to one trip for each slot if the child care service accepts multiple age groups (infants, preschool, school-age).	**This is based on staff's best estimate.**
Make roads and streets more pedestrian and bicycle friendly.	Five peak hour trips will be credited for each facility included.	This is based on staff's best estimate.
Revise zoning to limit undesirable impacts (noise, smells, and traffic) instead of limiting broad categories of activities.	Five peak hour trips will be credited.	This is based on staff's best estimate.
Create connections for non-motorized travel, such as trails that link dead-end streets.	Five peak hour trips will be credited for each connection make.	This is based on staff's best estimate.
Create alternative transportation modes for travel within the development and to downtown areas - bicycles, scooters, electric carts, wagons, shuttles, etc.	One peak hour trip will be credited for each on-going opportunity created (i.e. five bicycles/ scooters/wagons = five trips, two-seat carts = two trips, seven passenger shuttle = seven trips).	This is based on staff's best estimate.
Design streets/roads that encourage pedestrian and bicycle access and discourage automobile access.	Five trips will be credited for each design element.	This is based on staff's best estimate.
Install and maintain	Five trips will be credited for each	This is based on staff's best

alternative transportation kiosks.	kiosk.	estimate.
Install/maintain safety and security systems for pedestrians and bicyclists.	Five trips will be credited for each measure implemented.	This is based on staff's best estimate.
Implement jitneys/ vanpools from residential areas to downtowns and transit centers.	One trip will be credited for each seat created.	Yields a one-to-one ratio.
Locate residential development within one-third mile of a fixed rail passenger station.	All trips from a residential development within one-third mile of a fixed rail passenger station will be considered credited due to the location of the development.	This is based on staff's best estimate.

The local jurisdiction must also agree to maintain data available for monitoring by C/CAG, that supports the on-going compliance with the agreed to trip reduction measures.