



HEXAGON TRANSPORTATION CONSULTANTS, INC.

2090 S. Delaware Street Housing Project

Traffic Impact Analysis

Prepared for:

City of San Mateo

June 28, 2012

Hexagon Office: 111 W. St. John Street, Suite 850
San Jose, CA 95113
Hexagon Job Number: 12MH03
Phone: 408.971.6100
Document Name: TIA-6-28-2012.doc

San Jose • Gilroy • Pleasanton • Marina Del Rey • Phoenix

www.hextrans.com

Areawide Circulation Plans Corridor Studies Pavement Delineation Plans Traffic Handling Plans Impact Fees Interchange Analysis Parking Studies
Transportation Planning Neighborhood Traffic Calming Traffic Operations Traffic Impact Analysis Traffic Signal Design Travel Demand Forecasting





Table of Contents

1.	Introduction	2
2.	Existing Conditions	8
3.	Existing Plus Project Conditions	12
4.	Background Plus Project Conditions	21
5.	Year 2030 Conditions	24
6.	Conclusion	39

Appendices

- Appendix A: Traffic Counts
- Appendix B: Level of Service Calculations

List of Tables

Table 1	Level of Service Definitions at Signalized Intersections	6
Table 2	Level of Service Definitions at Unsignalized Intersections	7
Table 3	SamTrans Bus Service in the Study Area	9
Table 4	Intersection Levels of Service Under Existing Conditions	10
Table 5	Project Trip Estimates.....	13
Table 6	Project TDM Measures Baseline Daily Trips	13
Table 7	Intersection Levels of Service Under Existing Plus Project Conditions.....	15
Table 8	Intersection Levels of Service Under Background Plus Project Conditions	23
Table 9	Corridor Plan Land Use Development Scenarios.....	27
Table 10	2030 Project Trip Estimates.....	33
Table 11	Intersection Levels of Service Under Year 2030 Conditions	33
Table 12	Rail Corridor Plan Development in the Hayward Park Station Area.....	38
Table 13	Intersection Level of Service Summary	40

List of Figures

Figure 1	Site Location and Study Intersections	3
Figure 2	Site Plan.....	4
Figure 3	Existing Traffic Volumes	11
Figure 4	Project Trip Distribution	14
Figure 5	Net Project Trip Assignment.....	17
Figure 6	Existing Plus Project Traffic Volumes	18
Figure 7	Background Plus Project Traffic Volumes	22
Figure 8	Corridor Plan TOD Zones	25
Figure 9	Year 2030 Traffic Volumes	30
Figure 10	2030 Project Trips.....	31
Figure 11	Traffic Volume Growth – AM Peak Hour	32
Figure 12	Traffic Volume Growth – PM Peak Hour	32
Figure 13	95 th Percentile Queue Lengths—AM Peak Hour	35
Figure 14	95 th Percentile Queue Lengths—PM Peak Hour	36



1. Introduction

This report presents the results of the traffic impact analysis conducted for the proposed 111-unit apartment development to be located at 2090 S. Delaware Street in San Mateo, California. The project site is located on the northwest corner of Delaware Street and Pacific Boulevard. A total of 219 parking spaces are proposed including a 197-space parking garage and 22 surface parking stalls. The site would have access via a single driveway on Pacific Boulevard. The existing building on the project site has been vacant for many years and would be demolished.

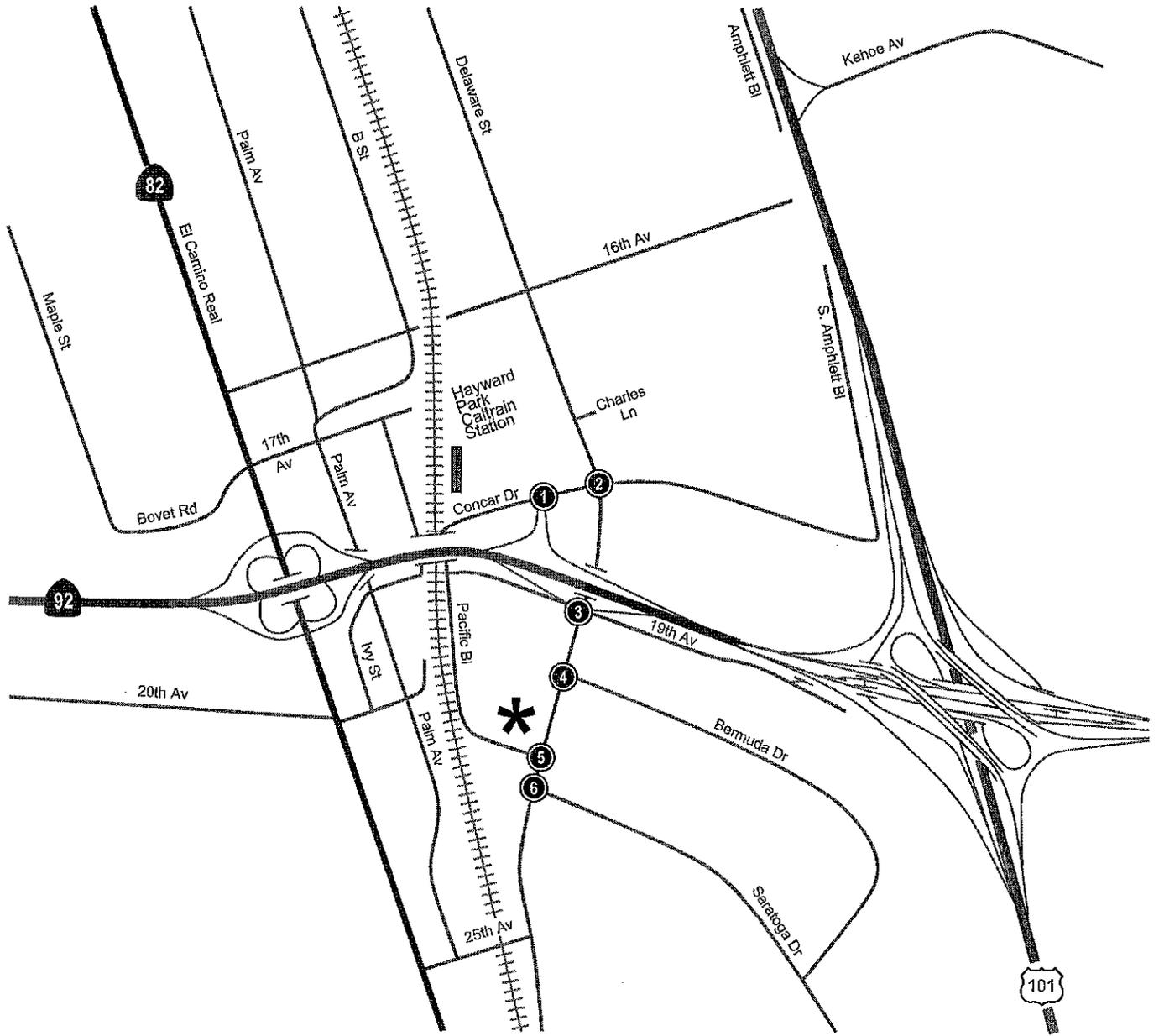
The location of the project site and the surrounding study area are shown on Figure 1. The site plan is shown on Figure 2.

Scope of Study

This study was conducted for the purpose of identifying the potential traffic impacts related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the 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 traffic study includes an analysis of AM and PM peak-hour traffic conditions for five signalized intersections and one unsignalized intersection in the vicinity of the project site. The intersections selected for study represent the intersections that would potentially be affected by project traffic. The selected intersections were based on project trip distribution and assignment as described on page 13 and as shown on Figures 4 and 5. Based on an analysis of projected trip distribution, other intersections farther away would not be impacted by project traffic and would be unaffected by queues or delay at the study intersections. It should be noted that this traffic study tiers off of the San Mateo Rail Corridor Transit Oriented Development Plan and Bay Meadows Specific Plan Amendment Final Environmental Impact Report ("Rail Corridor Plan EIR"), which included an analysis of 25 intersections in the project vicinity. The present study provides additional detailed analysis in the immediate vicinity of the site. The study intersections are identified below.

Study Intersections

- SR 92 Ramps and Concar Drive
- Delaware Street and Concar Drive
- Delaware Street and Nineteenth Avenue
- Delaware Street and Bermuda Drive
- Delaware Street and Saratoga Drive



LEGEND

-  = Study Intersection
-  = Site Location

Figure 1
Site Location and Study Intersections

LANDSCAPE CALCULATIONS

TOTAL SITE AREA	101,345 SF.
VEHICULAR PARKING AND BUILDINGS	87,729 SF.
TOTAL Hardscape (SEWALERS AND PATIORS)	14,002 SF.
TOTAL LANDSCAPE AREA	16,400 SF.
TOTAL TRIP AREA	66 SF.

SEE SHEET L1.0 FOR TREE, TERRAZZO, AND TREE LAY CALCULATIONS

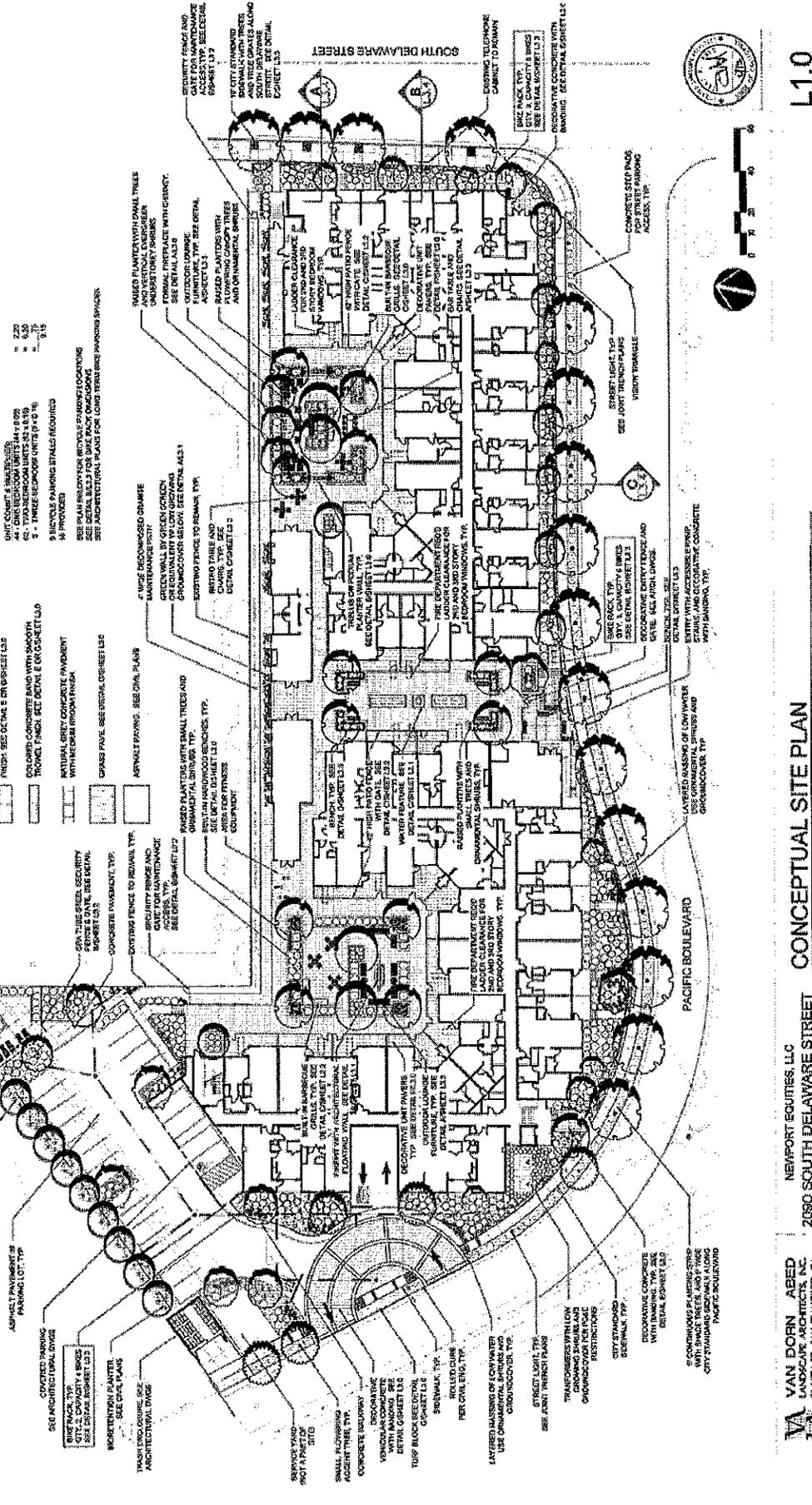
- GENERAL NOTES:**
- SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.

- GENERAL NOTES:**
- SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.

- GENERAL NOTES:**
- SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.

- GENERAL NOTES:**
- SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.

- GENERAL NOTES:**
- SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.
 - SEE SHEET L1.0 FOR PLANTING AND IRRIGATION DESIGN.



VAN DORN ABED
 LANDSCAPE ARCHITECTS, INC.
 81 9TH ST. SAN FRANCISCO, CA
 94103
 415 398-8888

NEWPORT EQUITIES, LLC
 2090 SOUTH DELAWARE STREET
 SAN MATEO, CALIFORNIA

CONCEPTUAL SITE PLAN
 DATE: 05/17/12

SCALE: 1"=20'-0"

L1.0

Figure 2
 Site Plan



- Delaware Street and Pacific Boulevard (unsignalized)

Traffic conditions at the study 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.

Analysis Scenarios

Traffic conditions were evaluated for the following scenarios:

- | | |
|---|---|
| ▪ <i>Existing Conditions</i> | Existing traffic volumes obtained from counts. |
| ▪ <i>Existing Plus Project Conditions</i> | Existing traffic volumes plus traffic added by the proposed project |
| ▪ <i>Background Plus Project</i> | Existing traffic plus traffic added by recently approved projects in the vicinity including 2000 S. Delaware, Station Park Green, and Hines, plus trips generated by the proposed project |
| ▪ <i>Cumulative Year 2030 Conditions</i> | Cumulative 2030 conditions with the proposed project (includes development of the Rail Corridor Plan) |

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 year 2012 traffic counts, previous traffic studies, and the City of San Mateo. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal phasing
- year 2030 traffic forecasts
- traffic projections for approved projects
- planned transportation system improvements

Analysis Methodologies and Level of Service Standards

Traffic conditions 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 forced-flow conditions with extreme delays. A general description of level of service (LOS) is provided in Tables 1 and 2 for signalized and unsignalized intersections, respectively.

Signalized Intersections

Level of service at signalized intersections in the City of San Mateo is evaluated based on the average control delay for all movements at the intersection. The City of San Mateo level of service standard is mid-LOS D (delay of 45 seconds) or better for all of the signalized study intersections.

Table 1
Level of Service Definitions at Signalized Intersections

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.

Unsignalized Intersections

The City of San Mateo has not established a level of service standard for unsignalized intersections. The unsignalized study intersection was analyzed for operational and traffic signal warrant purposes. The unsignalized study intersection was analyzed with the TRAFFIX level of service software, which uses the Highway Capacity Manual (HCM) 2000 methodology for unsignalized intersections. The level of service at two-way stop control (TWSC) intersections is based on the average control delay time for the worst controlled lane group.

Table 2
Level of Service Definitions at Unsignalized Intersections

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression.	Up to 10.0
B	Operations with low delay occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression or high V/C ratios.	25.1 to 35.0
E	Operations with high delay values indicating poor progression and high V/C ratios. This is considered to be the limit of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, 2000 Highway Capacity Manual.

City of San Mateo Level of Service Thresholds

Per the City's General Plan Policy C 2.7, all projects are required, at a minimum, to pay a transportation mitigation fee. The transportation mitigation fee is used to fund planned transportation improvements that are identified in the City of San Mateo Traffic Mitigation Program.

In addition to paying the transportation impact fee, a development project may be required to fund off-site circulation improvements that are needed as a result of project generated traffic if:

- a) The acceptable level of service at the intersection (mid-level LOS D – with an average delay of more than 45 seconds) is exceeded by 4 seconds or more when the project traffic is added, and
- b) The intersection is subject to an increase in delay of 4 or more seconds, and
- c) The needed improvement of the intersection(s) is not funded in the applicable five-year City Capital Improvement Program from the date of application approval.

The cost of the off-site improvements may be reimbursed by the City if a reimbursement program is established throughout the timeframe of the City of San Mateo's current Traffic Mitigation Program or at the time when the improvement was initially scheduled.

The City of San Mateo has not established significance criteria for unsignalized intersections. However, per the City's General Plan Policy C2.8, a development project may be required to fund signalization of off-site unsignalized intersections if warranted as a result of project generated traffic. In addition, existing conditions may warrant signalization of unsignalized intersections.



2. Existing Conditions

The project site is located on the northwest corner of Delaware Street and Pacific Boulevard. The site would have access via a single driveway on Pacific Boulevard.

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

Site Access and Surrounding Roadway Network

Regional access to the site is provided via US 101 and SR 92.

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. Access to the project site is provided via a freeway-to-freeway interchange at SR 92.

SR 92 is a four-lane east-west freeway in the vicinity of the site. SR 92 extends from Half Moon Bay in west San Mateo County to Hayward in Alameda County. Access to the project site is provided by the on and off ramps at Concar Drive and 19th Avenue.

Local access to the site is provided by Delaware Street and Pacific Boulevard.

Delaware Street is a four-lane north-south major arterial in the project vicinity. Delaware Street extends from the northern city border to Bay Meadows.

Pacific Boulevard is a two-lane collector street that extends along the east side of the railroad tracks southward from 19th Avenue to the project site, where it curves eastward to intersect Delaware Street just north of Saratoga Drive.

Existing Bicycle and Pedestrian Facilities

According to the City of San Mateo's Pedestrian and Bike Trail System, there are numerous city-designated bikeways within the vicinity of the project site.

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

- 9th Avenue from Railroad Avenue to Humboldt Street,
- Delaware Street from 4th Avenue to 16th Avenue,
- Delaware Street from Bermuda Drive to 25th Avenue, and
- Saratoga Avenue from Delaware Street to Franklin Parkway.

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

- 9th Avenue from Laurel Avenue to Railroad Avenue,
- 19th Avenue from Grant Street to Norfolk Street,
- 25th Avenue from Hacienda Street to Delaware Street,
- Delaware Street from Peninsula Avenue to 4th Avenue and from 16th Avenue to Bermuda Drive, and
- Hacienda Street from 22nd Avenue to 37th Avenue.

Pedestrian facilities near the site consist of sidewalks along most streets in the area. Delaware Street has sidewalks along both sides of the street including the project frontage. Pacific Boulevard has intermittent sidewalks. There is no sidewalk along part of the project frontage. Also, there is no sidewalk on the section from 19th Avenue to about 400 feet south. A bicycle/pedestrian bridge across the railroad is located adjacent to the south side of SR 92. This connection allows travel between the project site and the commercial development and bus service along El Camino Real.

There does not appear to be any capacity issues with the current pedestrian or bicycle infrastructure in the project vicinity.

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.

Caltrain Service

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The project is about one quarter mile south of the Hayward Park Caltrain station and about one mile north of the Hillsdale Caltrain station. The Hayward Park Caltrain station is located near the intersection of Concar Drive and Pacific Boulevard, and the Hillsdale Caltrain Station is located between El Camino Real and Pacific Boulevard at 31st Avenue. At the Hayward Park Station, Caltrain provides service with 60 minute headways during the weekday AM and PM commute hours. Caltrain service is more frequent at the Hillsdale Caltrain Station, where headways average 20 minutes in each direction during the peak periods, and includes stops by Baby Bullet express trains.

SamTrans Bus Service

The project area is served directly by two local buses. The bus lines that operate within the project study area are listed in Table 3, including their terminus points and commute hour headways.

Table 3
SamTrans Bus Service in the Study Area

Route	Route Description	Headways ¹ (minutes)
53	Local service with stops at San Mateo High School, Borel Middle School, the College of San Mateo, and Highlands Elementary School	varies ²
292	Hillsdale Shopping Center to San Francisco	15-30

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

Existing Traffic Volumes

The existing peak-hour traffic volumes for all study intersections were obtained from traffic counts conducted in January 2012. The existing traffic volumes are shown on Figure 3 and were used as a basis to determine existing levels of service. The traffic counts are provided in Appendix A.

Existing Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 4. The results show that all of the signalized study intersections currently operate within the accepted level of service standard during both peak hours. The level of service calculation sheets are included in Appendix B.

Table 4
Intersection Levels of Service Under Existing Conditions

Intersection	Peak Hour	Count Date	Avg. Delay	LOS
92 Ramps and Concar Drive	AM	01/19/12	7.8	A
	PM	01/19/12	8.9	A
Delaware Street and Concar Drive	AM	01/19/12	26.2	C
	PM	01/19/12	31.0	C
Delaware Street and 19th Avenue	AM	01/18/12	22.1	C
	PM	01/18/12	26.2	C
Delaware Street and Saratoga Drive	AM	01/18/12	19.8	B
	PM	01/18/12	22.5	C
Delaware Street and Bermuda Drive	AM	01/18/12	10.5	B
	PM	01/18/12	9.9	A
Delaware Street and Pacific Boulevard (unsignalized)	AM	01/18/12	12.5	B
	PM	01/18/12	14.4	B

The level of service analysis for the unsignalized intersection is provided for informational purposes only as the City does not have a level of service standard for unsignalized intersections. The unsignalized study intersection currently operates at LOS B during the AM and PM peak hours. The level of service reported for this intersection is based on the delay experienced by the stop-controlled approach on eastbound Pacific Boulevard. The intersection of Delaware Street and Pacific Boulevard does not meet the peak-hour signal warrant during either the AM or PM peak hour under existing conditions.

Currently, northbound Delaware Street traffic attempting to turn left onto westbound Pacific Boulevard stops in the left-most through lane while waiting for a sufficient gap in the opposing traffic flow. There is a "Keep Clear" legend painted in the street to facilitate this movement. The level of service analysis indicates that the existing traffic volumes result in minimal delay on northbound Delaware Street. The traffic counts show that only about 25 vehicles make this left turn during the AM and PM peak hours. Field observations show that these left turns operate without excessive delay or back-ups.

2090 S. Delaware Street Housing Project

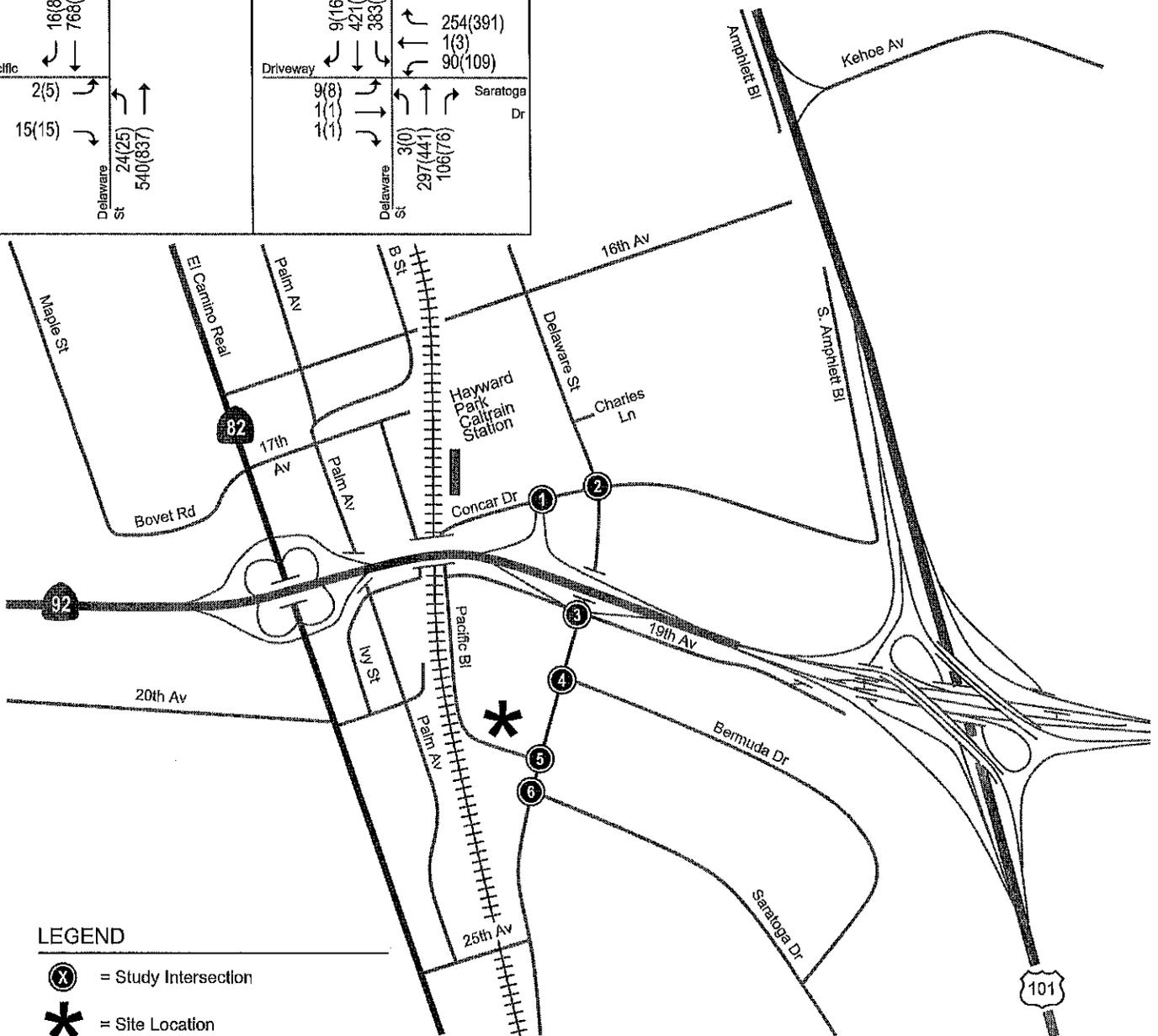
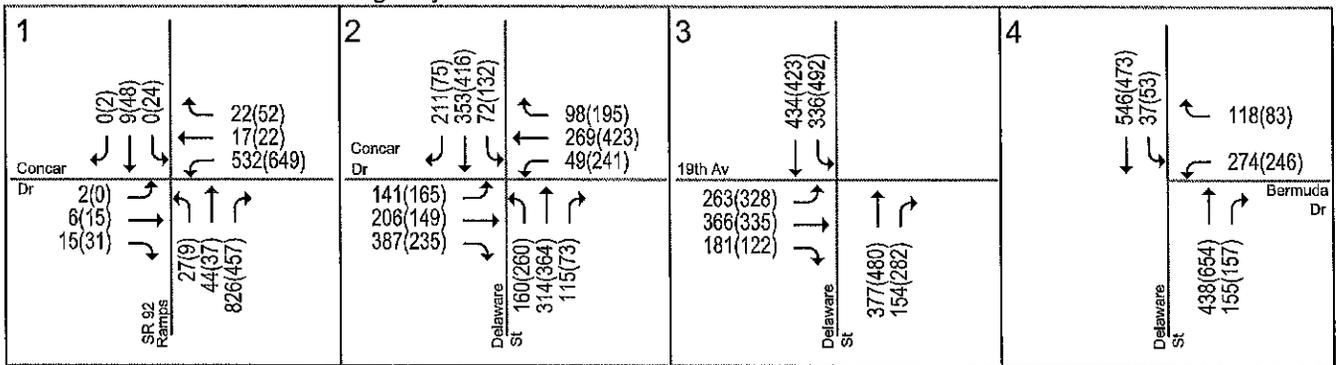


Figure 3
Existing Traffic Volumes



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 proposed project.

The proposed project is located at 2090 S. Delaware Street in San Mateo at the northwest corner of Delaware Street and Pacific Boulevard. The existing building on the project site has been vacant for many years and would be demolished. The proposed project would consist of 111 residential apartments over a 197-space parking garage. In addition, the project would have 22 surface parking spaces for guests. Automobile access to the site would be provided by a circular driveway on Pacific Boulevard.

Project Trip Generation

The magnitude of traffic added to the roadway system by the project was estimated by multiplying the applicable trip generation rates to the size of the development. Trip generation for the proposed project was estimated using the rates published in ITE's *Trip Generation, Eighth Edition*, 2008. This manual is the industry standard for trip generation analysis in the United States. The published rates are based on data collected from hundreds of studies conducted to date for projects with land uses similar to the uses proposed for this project. These rates are generally recommended for use in a study of this type. Table 5 shows the estimated trip generation for the project.

Site Location and Transportation Demand Management Program

This project would be one of the first projects to be developed within the San Mateo Rail Corridor (Transit Oriented Development) Plan. The goal of the Rail Corridor Plan is to achieve an overall reduction in new vehicle trips of at least 25 percent corridor wide compared to typical ITE trip generation rates due to a combination of mixed use, in fill location, density, and TOD development patterns along with Transportation Demand Management (TDM) measures. Accordingly, a trip reduction was applied. The project trip estimates evaluated in this report reflect a trip reduction estimate of 25 percent for the short term and 38 percent for the long term (see Nelson/Nygaard memorandum dated April 30, 2012). After subtracting the 25 percent trip reduction for the short term, the project is estimated to generate a total of 553 net new daily trips, with an increase of 43 trips during the AM peak hour and 52 trips during the PM peak hour. The analysis of potential project traffic impacts was conducted based on these estimates.

**Table 5
Project Trip Estimates**

Land Use	Size	Daily Rate ¹	Daily Trips	AM Peak Hour			PM Peak Hour				
				Peak-Hour Rate ¹	In	Out	Total Trips	Peak-Hour Rate ¹	In	Out	Total Trips
Proposed Use											
Apartments	111 units	6.65	738	0.51	11	46	57	0.62	45	24	69
<i>Trip Reduction²</i>			<i>(185)</i>	<i>(3)</i>	<i>(11)</i>	<i>(14)</i>	<i>(11)</i>	<i>(6)</i>	<i>(17)</i>		
			553	8	35	43	34	18	52		

¹ Rates expressed in trips per dwelling unit.
² 25% Trip reduction based on project density, mix of uses, locally serving retail, transit service, pedestrian/bicycle friendliness, and affordable housing, as estimated for near-term conditions by Nelson/Nygaard (4/30/12).
 Source: Institute of Transportation Engineers, *Trip Generation*, 8th Edition.

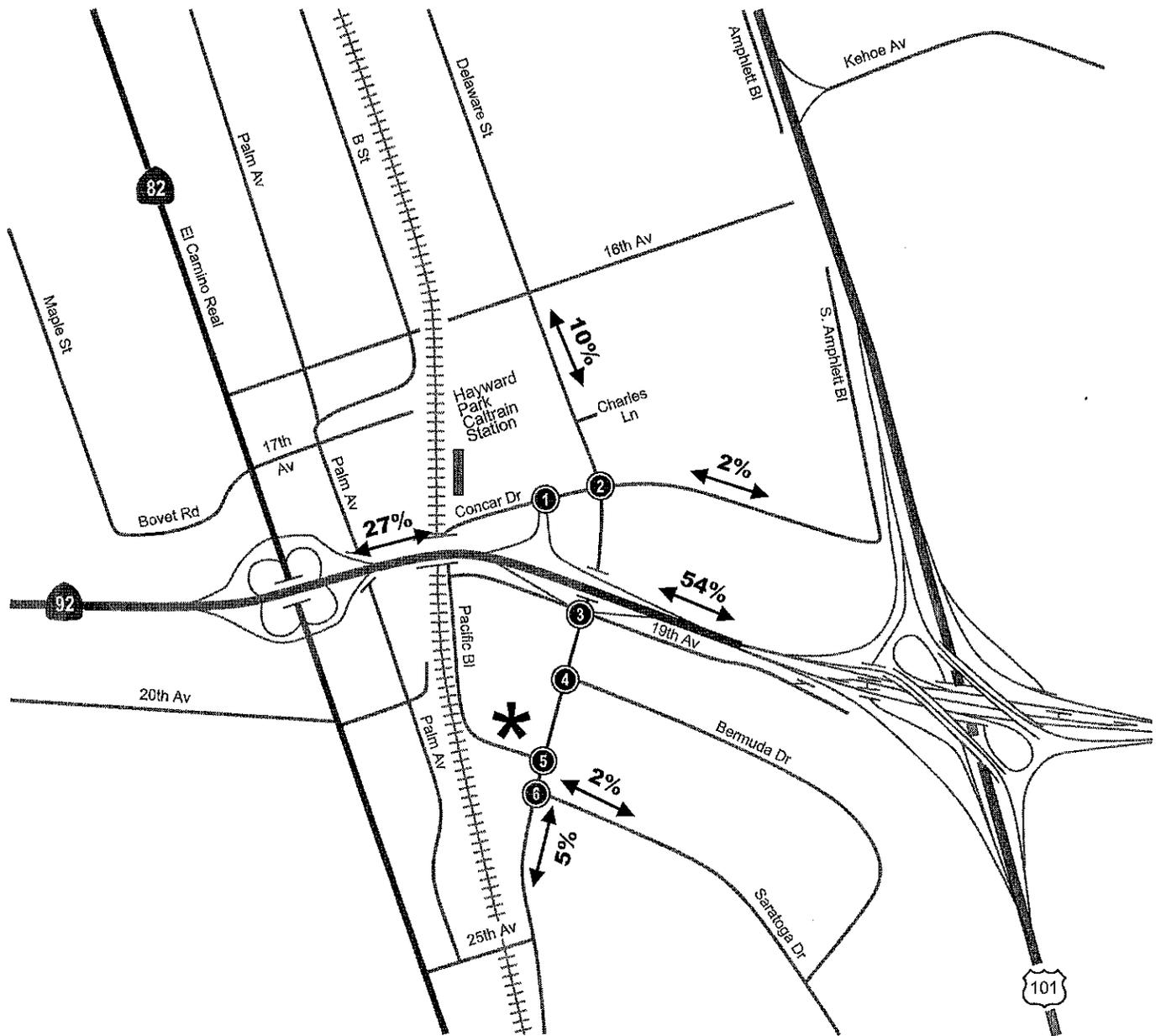
The long-term TDM trip reductions analyzed by Nelson/Nygaard are listed in Table 6.

**Table 6
Project TDM Measures Baseline Daily Trips**

Baseline Daily Trips	% Trip Reduction	% Trip Generation Compared to ITE
ITE Generated Trips	-	100%
URBEMIS Baseline Trips	38%	62%
Currently Proposed TDM Measures	2%	60%
<ul style="list-style-type: none"> On-Site Recreation Amenities/Business Center High-Speed Internet Connectivity Bicycle Parking/ Repair Shop/Training On-Site Transportation Outreach Coordinator Transportation Information Kiosk/Website New Resident Welcome Packet Parking (219 spaces) 		
Total Trip Reduction	40%	60%

The adjusted baseline URBEMIS trip generation is derived using a software model that takes into account variables that affect vehicle trip generation. These include residential and employment densities, mix of uses, the project’s affordability, the presence of local serving retail, amount and cost of parking, transit, pedestrian and bicycle facilities. The URBEMIS adjusted baseline trip generation reduces the standard ITE rates by 38%.

The TDM study also estimates the reductions in trips that would be achieved by the currently proposed TDM measures. It is estimated that the currently proposed TDM measures would further reduce the project trip generation by two percent. Therefore, at the completion of the Rail Corridor build-out, it is estimated that the project’s affordability, density, location, proximity to transit, and TDM program will reduce trip generation by 40% in comparison to a typical suburban apartment development.



LEGEND

- (X) = Study Intersection
- * = Site Location

Figure 4
Project Trip Distribution

Project Trip Distribution and Assignment

The trip distribution pattern for the proposed project was estimated based on existing travel patterns on the surrounding roadway system and the relative locations of complementary uses. The project trip distribution is shown on Figure 4.

The project trips were assigned to the roadway system using the TRAFFIX software and in accordance with the trip distribution pattern shown. The project trip assignment is shown on Figure 5.

Existing Plus Project Traffic Volumes and Intersection Levels of Service

The net project trips, estimated as described above, were added to existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes are shown on Figure 6.

Traffic conditions at the study intersections were evaluated using level of service. The intersection levels of service for existing plus project conditions are summarized in Table 7. The results show that all of the signalized study intersections would operate within the accepted level of service standard during both peak hours. The level of service calculation sheets are included in Appendix B.

Table 7
Intersection Levels of Service Under Existing Plus Project Conditions

Intersection	Peak Hour	Existing		Existing Plus Project		
		Avg. Delay	LOS	Avg. Delay	LOS	Incr. in Delay
92 Ramps and Concar Drive	AM	7.8	A	8.6	A	0.8
	PM	8.9	A	9.4	A	0.5
Delaware Street and Concar Drive	AM	26.2	C	26.2	C	0.0
	PM	31.0	C	30.9	C	-0.1
Delaware Street and 19th Avenue	AM	22.1	C	22.2	C	0.1
	PM	26.2	C	26.4	C	0.2
Delaware Street and Saratoga Drive	AM	19.8	B	19.8	B	0.0
	PM	22.5	C	22.6	C	0.1
Delaware Street and Bermuda Drive	AM	10.5	B	10.4	B	-0.1
	PM	9.9	A	9.9	A	0.0
Delaware Street and Pacific Boulevard (unsignalized)	AM	12.5	B	17.6	C	5.1
	PM	14.4	B	17.8	C	3.4

The level of service analysis for the unsignalized intersection at Delaware Street and Pacific Boulevard is provided for informational purposes only as the City does not have a level of service standard for unsignalized intersections. The level of service shown for this intersection reflects the stop-controlled eastbound approach. The analysis shows that the intersection would continue to operate with only moderate delay values corresponding to LOS C with the addition of traffic generated by the proposed project. The projected traffic volumes under existing plus project conditions would not meet the peak-hour signal warrant.

The *San Mateo Bicycle Master Plan* calls for the study of a possible left turn pocket with bicycle box at the intersection of Pacific Boulevard and Delaware Street. The purpose of the left-turn pocket and bicycle box would be to facilitate bicycle left turns from northbound Delaware Street to northbound Pacific Boulevard as part of the "North-South Bikeway." The feasibility of adding a left-turn pocket on Delaware Street was investigated. One option for adding a northbound left-turn lane is to shorten the

southbound left-turn lane at Saratoga Drive so the northbound and southbound left-turn lanes would be end-to-end. However, due to the short distance between intersections, end-to-end turn lanes would provide storage for only one or two left-turn vehicles in each direction. The reduction in left-turn storage on the southbound approach at the Delaware/Saratoga intersection would have a significant effect on intersection operations. Thus, this option is considered to be infeasible.

A second option is to shift the northbound through lanes to the east to fit in a northbound left-turn lane adjacent to the existing southbound left-turn lane in a side-by-side configuration. In order to align the northbound through lanes, this modification would necessitate the removal of the northbound right-turn lane at the Delaware/Saratoga intersection and the removal of on-street parking along the east side of Delaware Street north of Saratoga Avenue. This option is not recommended due to the impacts on neighboring residents caused by the loss of on-street parking.

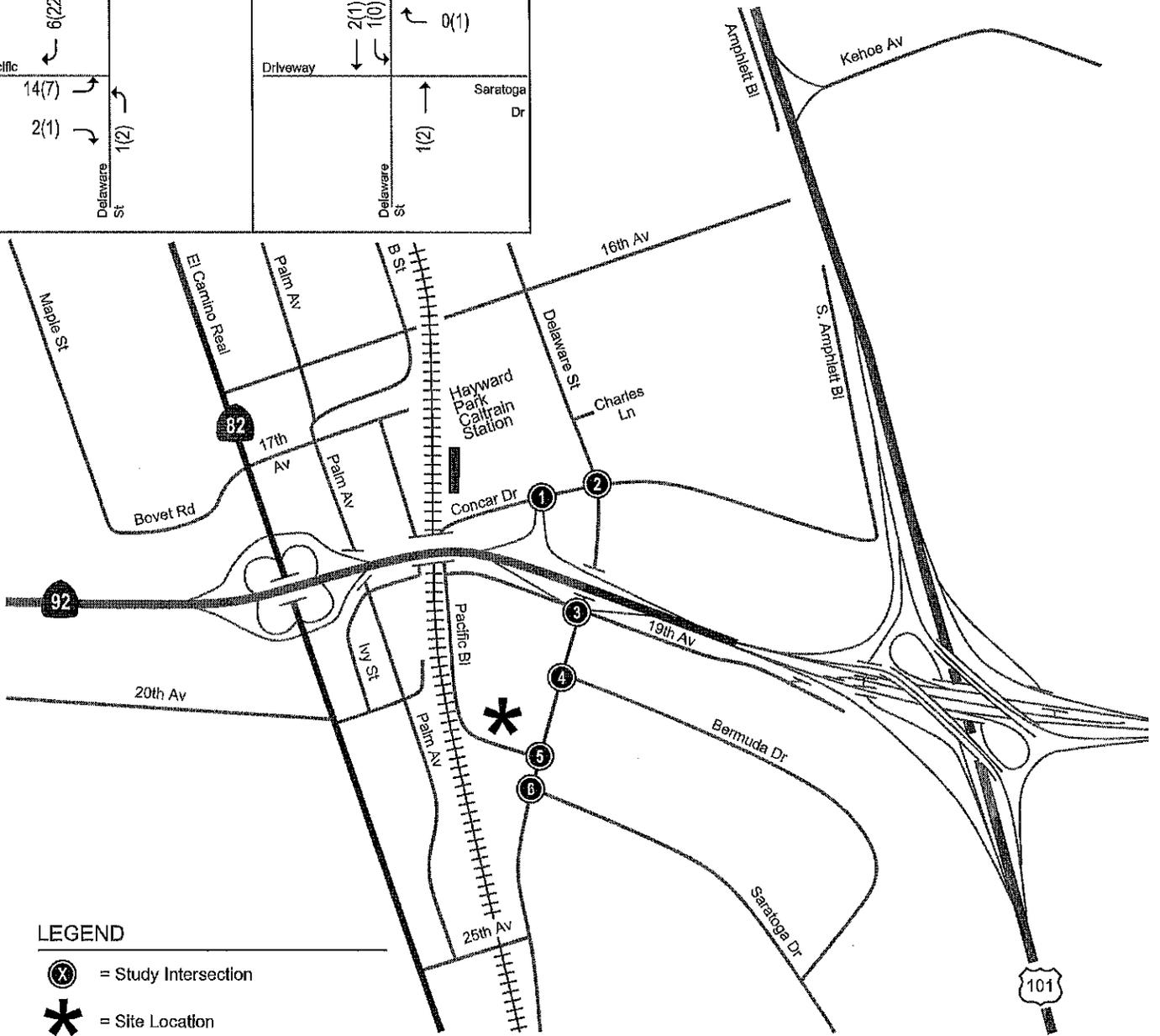
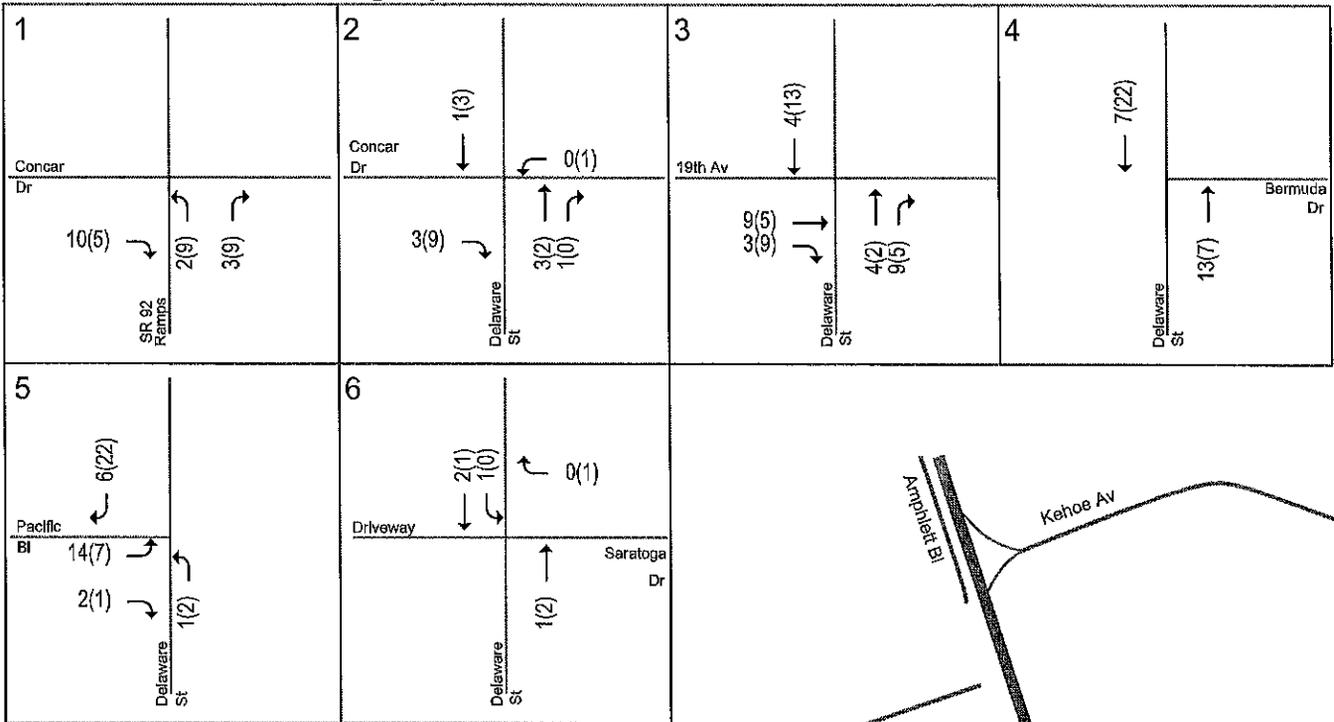
A third option is to convert the southbound left-turn lane between Pacific Boulevard and Saratoga Drive to a northbound left-turn lane and to convert the left-most southbound through lane to a left-turn lane at Saratoga Drive. This would result in a single southbound through lane at the Delaware/Saratoga intersection. Alternatively, the southbound approach at the Delaware/Saratoga intersection could be striped for an exclusive through lane and a shared through/left-turn lane and operated with split-phase signal control on the north and south approaches.

Lastly, the left-most through lane on northbound Delaware Street could be converted into a left-turn lane leaving a single northbound through lane at Pacific Boulevard. In order to avoid inadvertently trapping through vehicles in the left-turn lane it would be necessary to also eliminate one of the two northbound through lanes at the Delaware/Saratoga intersection.

Although the last two options are feasible, they are not recommended because they would reduce through traffic capacity on Delaware Street, which is expected to serve more traffic when it is connected through the Bay Meadows project. The peak-hour volume of traffic turning left from northbound Delaware Street to northbound Pacific Boulevard is only about 25 vehicles under existing conditions and would increase to only 27 vehicles with the project. Furthermore, the evaluation of traffic operations at the Delaware/Pacific intersection indicates that delays to northbound left-turn traffic would be less than 10 seconds per vehicle. Thus, disruptions to northbound through traffic due to vehicles waiting to make a left turn would be infrequent and brief. It is likely that northbound through traffic in the left-most lane could easily maneuver to the adjacent through lane to avoid left-turning vehicles. Thus, it is recommended that the Delaware/Pacific intersection be kept as is. Bicycles traveling north on Delaware Street and wanting to turn left at Pacific Boulevard could cross with the signal at Saratoga Drive, or they could wait within the bike lane on Delaware Street for a gap in traffic in both directions and then cross to Pacific Boulevard.



2090 S. Delaware Street Housing Project



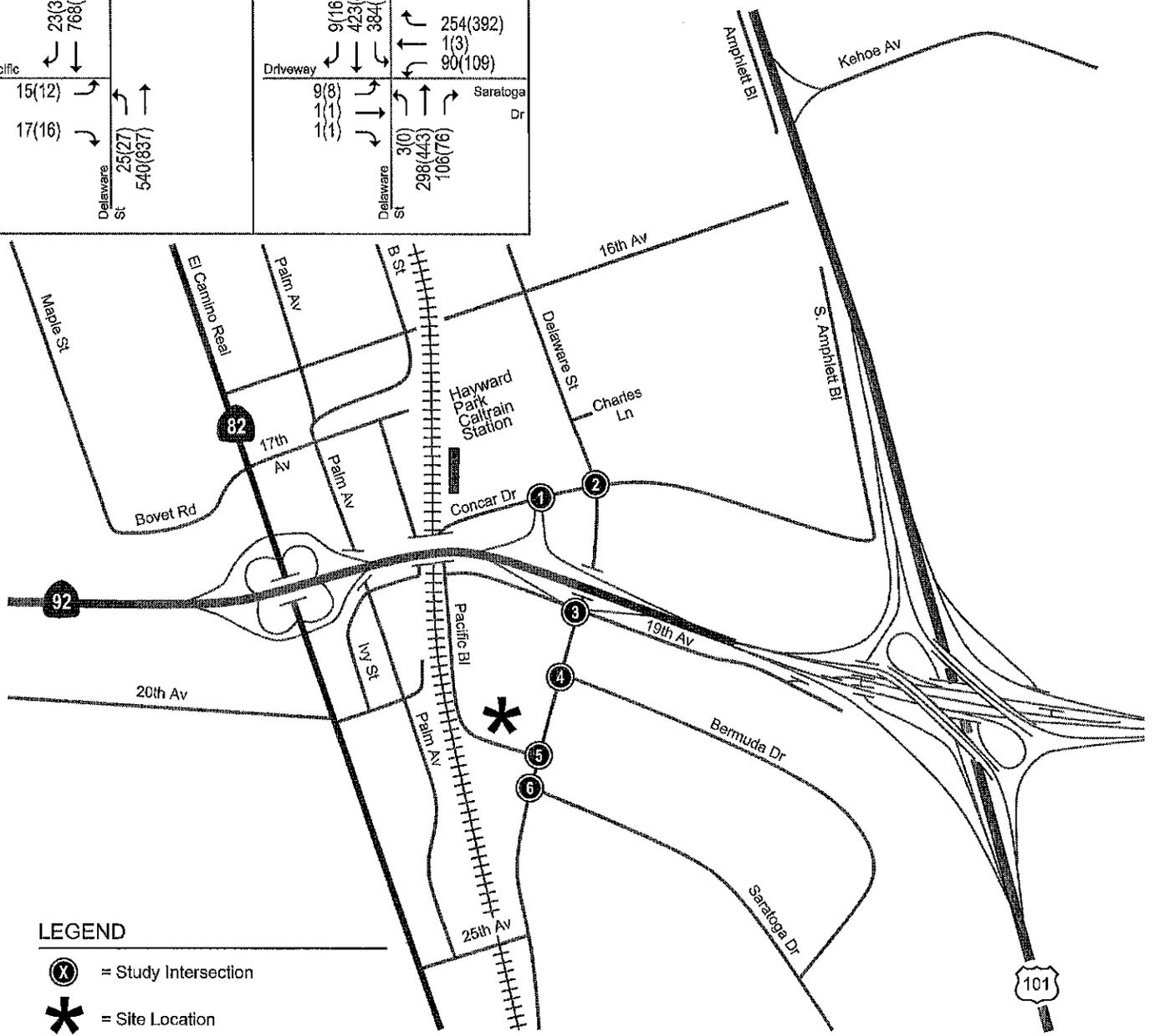
LEGEND

- = Study Intersection
- = Site Location
- XX(X) = AM(PM) Peak-Hour Volumes

Figure 5
Net Project Trip Assignment

2090 S. Delaware Street Housing Project

<p>1</p> <p>Concar Dr</p> <p>2(0) 6(15) 24(36)</p> <p>SR 92 Ramps</p> <p>0(2) 9(48) 0(24)</p> <p>22(52) 17(22) 532(649)</p> <p>30(18) 44(37) 829(466)</p>	<p>2</p> <p>Concar Dr</p> <p>141(165) 206(149) 390(244)</p> <p>211(75) 354(419) 72(132)</p> <p>98(195) 269(423) 49(242)</p> <p>Delaware St</p> <p>160(260) 317(366) 116(73)</p>	<p>3</p> <p>19th Av</p> <p>263(328) 375(340) 184(131)</p> <p>438(436) 336(492)</p> <p>Delaware St</p> <p>381(482) 163(287)</p>	<p>4</p> <p>Bermuda Dr</p> <p>118(83) 274(246)</p> <p>553(495) 37(53)</p> <p>Delaware St</p> <p>451(661) 155(157)</p>
<p>5</p> <p>Pacific Bl</p> <p>15(12) 17(16)</p> <p>23(30) 768(691)</p> <p>Delaware St</p> <p>25(27) 540(637)</p>	<p>6</p> <p>Driveway</p> <p>9(16) 423(460) 384(194)</p> <p>254(392) 1(3) 90(109)</p> <p>Delaware St</p> <p>3(0) 298(443) 106(76)</p> <p>Saratoga Dr</p>		



LEGEND

(X) = Study Intersection

* = Site Location

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

Figure 6
Existing Plus Project Traffic Volumes

Construction Impacts

The duration of construction activities is estimated to be approximately two years. During this time, it will be necessary to haul demolished/excavated materials away from the site and transport building materials to the site. The amount of truck traffic to and from the construction site will vary based upon the work being undertaken at the site. The greatest number of trucks will occur during the excavation/shoring/foundation stage of construction. During this four-month phase, an average of about 60 truck trips (30 inbound and 30 outbound) are expected each day. Truck traffic during all other phases is expected to be no more than 18 trips (9 inbound and 9 outbound) per day. These volumes are substantially lower than the amount of traffic generated by the project at completion with full occupancy.

Haul Routes

It is desirable to limit the amount of hauling in residential areas. Trucks traveling to and from the project site will use the City of San Mateo Municipal Code (SMMC)–designated haul routes whenever possible and will use other arterials and collectors when necessary between the designated haul roads and the project site.

Recommendation 1: Haul routes shall be limited to US 101, SR 92, El Camino Real, Concar Drive, East 25th Avenue, 19th Avenue, South Delaware Street, and Pacific Boulevard per the San Mateo Municipal Code.

Construction Worker Parking and Traffic

The number of construction workers on site will vary based on the stage of construction and the work being undertaken. Initially, approximately 20 workers are expected on site during the demolition, excavation, shoring, and foundation phases. These workers will park on site in areas unaffected by the current construction activities. Once the proposed 197-space parking garage is constructed, it will accommodate parking for the larger number of workers expected during later stages of construction (an average of 75 workers per day during the façade and finishes stage and 25 workers per day during the commission and close-out phase of construction). Construction worker traffic is significantly less than traffic generated by the project at completion with full occupancy so would have no impacts.

Site Access

A circular project driveway providing access to the parking garage and surface parking would be located on Pacific Boulevard. The driveway is expected to be sufficient given the amount of trips generated by the site. The driveway is semi-circular in shape with one end being for vehicle entry and the other end for vehicle exit. The entry area provides a large open area in the shape of a half circle with decorative concrete. To avoid driver confusion, the driveway needs to be clearly marked with arrows to delineate the proper vehicle paths.

Since the driveway is located just after a bend on Pacific Boulevard, adequate sight distance is important. There is signage along the bend advising a speed of 15 miles per hour. The sight distance at this driveway is more than adequate to accommodate vehicles traveling at the recommended turn speed as well as vehicles traveling at the posted speed limit of 25 miles per hour. In order to maintain these conditions, it is recommended that only low-growing plants be planted along the edge of the site as to not obscure vision.

Bicycle and Pedestrian Access

The project site has good bicycle access. There are existing bicycle lanes along the project frontage on Delaware Street. Additional bike lanes are planned for Delaware Street and for Concar Drive in the *San Mateo Bicycle Master Plan*. Pacific Boulevard is planned to be a designated Bike Route and to be part of the “North-South Bikeway” system that is planned to run through the entire city from north to south.

The project would build sidewalks all along its frontage, which would complete a sidewalk gap that currently exists on Pacific Boulevard. The project site is located within easy walking distance of the Hayward Park Caltrain station, which has good rail and bus connectivity. Also, near the Caltrain station is a walking and bicycling overcrossing on the south side of SR92 that connects Pacific Boulevard with 19th Avenue and Palm Avenue, which ultimately provides a connection to El Camino Real. There is a section of Pacific Boulevard without a sidewalk between the site and 19th Avenue. There is adequate room in the public right-of-way to complete this section of sidewalk. The project will be required to build the missing section of the sidewalk.

Parking

On-site vehicular parking consists of 22 above-ground spaces (including 1 handicap accessible) in a parking lot designated for guests and an underground parking garage containing 197 spaces. Tenants will be expected to utilize this parking garage and shall be assigned spaces. Of the 197 garage spaces, 64 will be compact (including 6 tandem), 129 will be standard (including 12 tandem), and 4 will be handicap accessible. In addition, 129 bicycle parking spaces will be provided on-site.

Given the project is located in a Transit Oriented Development zone, the City of San Mateo does not require parking standards. However, for comparison, the project parking requirements were calculated based on the City's standards for sites outside the downtown area. Based on Chapter 27.64 of the City of San Mateo Municipal Code, multiple family residential developments are required to provide resident parking spaces at a rate of 1.6 spaces per one-bedroom unit, 1.8 spaces per two-bedroom unit, and 2.0 spaces per three or more bedroom unit. Based on these rates, the project would be required to provide 193 resident parking spaces. The proposed 197 –space parking garage exceeds the City's parking standards for resident parking. The proposed proportion of compact spaces (64/197 or 32 percent) is within the guidelines established in the City's zoning code. The code does not provide any standards related to the use or number of tandem parking spaces. It is concluded that the proposed number of tandem spaces (18) is reasonable given that as many as 86 of the 111 dwelling units may be assigned two spaces.

The City's zoning code with respect to parking does not apply to this proposed project, but if it did, it would require the project to provide guest parking at a rate of 0.2 spaces per dwelling unit. At this rate, the project would be required to provide 23 guest parking spaces (rounded up from 22.2 spaces). The 22-space surface parking lot is one space short of meeting the city's standard for guest parking. Given that on-street parking is available adjacent the project site along segments of S. Delaware Street and Pacific Boulevard, it is concluded that the proposed on-site guest parking would be adequate.

In addition, the project adheres to handicap accessible parking and bicycle parking standards.



4. **Background Plus Project Conditions**

Background Plus Project Conditions represent near-term traffic conditions that are expected to occur with the addition of traffic from the proposed project and other recently approved projects in the vicinity.

Approved Development

Projects that have been approved by the City of San Mateo but that are not yet constructed or occupied could add traffic to the study intersections. The approved developments included in this study are shown below.

- 2000 S. Delaware Housing Project — located about 500 feet north of the project site. The project consists of 120 residential dwelling units.
- Station Park Green — a 12-acre site located at 1700 South Delaware Street (former K-Mart site). A Specific Plan allows for the development of 599 dwelling units, 60,000 s.f. of retail/services/restaurant space and 10,000 s.f. of office space. An alternative variation allowed under the Specific Plan would reduce the maximum retail/services/restaurant space to a maximum of 25,000 s.f. and increase the office space to a maximum of 45,000 s.f.
- Hines Office — a 3.21 acre site bounded by Concar Drive, Delaware Street, and SR 92. The project would be comprised of 276,467 s.f. of office space.

Background Conditions Roadway Network

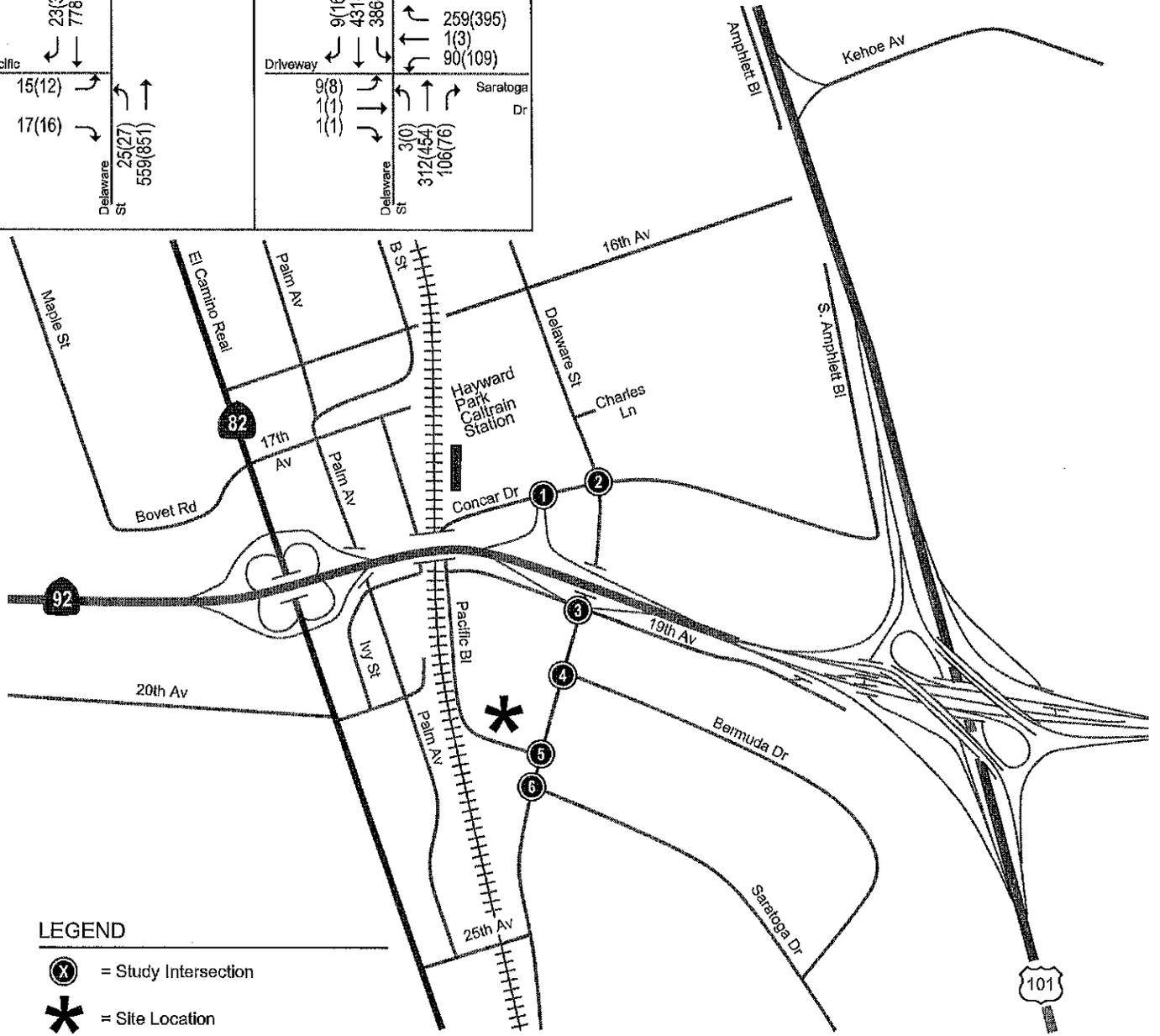
There are no approved and fully funded roadway improvements in the study area in the near term. Thus, the roadway network under background conditions would be the same as under existing conditions.

Background Plus Project Traffic Volumes and Intersection Levels of Service

Peak-hour traffic volumes under background plus project conditions were estimated by adding to existing volumes the estimated traffic from approved, but not yet constructed, developments and the trips generated by the proposed project. Background plus project traffic volumes are shown on Figure 7.

2090 S. Delaware Street Housing Project

<p>1</p> <p>Concar Dr</p> <p>SR 92 Ramos</p>	<p>2</p> <p>Concar Dr</p> <p>Delaware St</p>	<p>3</p> <p>18th Av</p> <p>Delaware St</p>	<p>4</p> <p>19th Av</p> <p>Bermuda Dr</p> <p>Delaware St</p>
<p>5</p> <p>Pacific Bl</p> <p>Delaware St</p>	<p>6</p> <p>Driveway</p> <p>Delaware St</p>		



LEGEND

(X) = Study Intersection

* = Site Location

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

Figure 7

Background Plus Project Traffic Volumes

Traffic conditions at the study intersections were evaluated using level of service. The intersection levels of service for background plus project conditions are summarized in Table 8. The results show that all of the signalized study intersections would operate within the accepted level of service standard during both peak hours. The level of service calculation sheets are included in Appendix B.

Table 8
Intersection Levels of Service Under Background Plus Project Conditions

	Peak Hour	Background Plus Project	
		Avg. Delay	LOS
92 Ramps and Concar Drive	AM	13.3	B
	PM	13.5	B
Delaware Street and Concar Drive	AM	27.5	C
	PM	31.2	C
Delaware Street and 19th Avenue	AM	25.6	C
	PM	28.1	C
Delaware Street and Saratoga Drive	AM	20.0	B
	PM	22.6	C
Delaware Street and Bermuda Drive	AM	12.4	B
	PM	11.8	B
Delaware Street and Pacific Boulevard (unsignalized)	AM	18.0	C
	PM	18.3	C

The level of service analysis for the unsignalized intersection at Delaware Street and Pacific Boulevard is provided for informational purposes only as the City does not have a level of service standard for unsignalized intersections. The level of service shown for this intersection reflects the stop-controlled eastbound approach. The analysis shows that the intersection would continue to operate with only moderate delay values corresponding to LOS C with the addition of traffic generated by the proposed project. The projected traffic volumes under background plus project conditions would not meet the peak-hour signal warrant.

5. Year 2030 Conditions

The 2090 S. Delaware Housing Project is being proposed in the context of the San Mateo Rail Corridor Transit Oriented Development Plan ("Rail Corridor Plan") and the Bay Meadows Specific Plan Amendment Final Environmental Impact Report ("Rail Corridor Plan EIR") and as a result, cumulative traffic impacts have been evaluated based on a Rail Corridor Plan area, City wide and region wide analysis.

San Mateo Rail Corridor Plan

The Rail Corridor Plan was adopted by the City Council in June 2005. This plan is intended to allow, encourage, and provide guidance for the creation of world class transit-oriented development (TOD) within a half-mile radius of the Hillsdale and Hayward Park Caltrain station areas, while maintaining and improving the quality of life for those who already live and work in the area.

The plan includes transit supportive policies, land uses, development densities, height standards, and design guidelines. Bringing these together are two special TOD zones located within the larger plan area, as shown in Figure 8. The TOD zones include sites where redevelopment could occur, within approximately one-half mile of both stations. The plan also includes goals and policies to improve the street system and pedestrian friendliness for other places within the plan area, not in TOD zones, where existing uses may remain, and existing zoning and development standards are retained.

Implementation of the Corridor Plan and resultant development is intended to bring several long-term benefits to the City of San Mateo, including the following:

- Improved access to Caltrain stations for pedestrians, bicycles, autos, and buses, enhancing transit's attractiveness to residents throughout the City.
- New development near the stations will be consistent with goals, objectives and policies adopted by the City of San Mateo specially tailored for the TOD area.
- Higher-density housing recommended near the two stations will add to the City's housing stock and help alleviate some of the pressures present throughout the Bay Area for affordable and market rate housing.
- The potential to create class "A" office space in close proximity of the stations will help San Mateo maintain its stature as an attractive employment center in the Bay Area by retaining existing and attracting new employers.

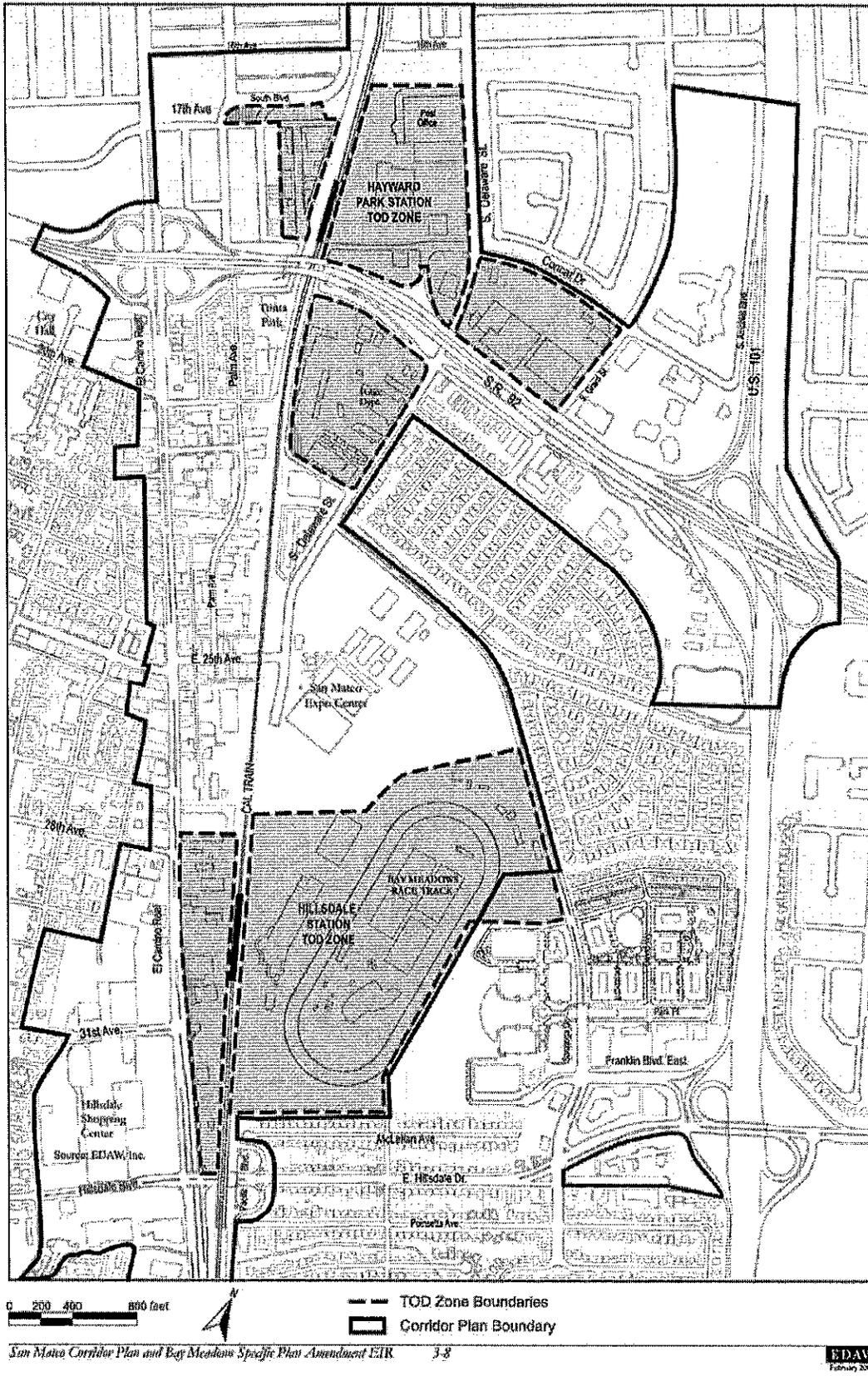


Figure 8
Corridor Plan TOD Zones

- Recommended improvements to the City's street network will add roadway connections, improving mobility throughout the plan area, contributing to the completion of the city-wide street network.
- The City's park system would be enhanced with the creation of a large civic park and smaller neighborhood parks in the plan area.

The concepts in this plan were shaped through a collaborative planning process including input from a Citizen Advisory Committee (CAC) representing local land owners, residents, and businesses, City staff, and public agencies staff. It reflects a vision shaped by a common desire to create world class transit oriented development, and is informed by property ownership patterns, technical, market, and urban design considerations.

Rail Corridor Plan Environmental Impact Report

An Environmental Impact Report (EIR) was prepared to identify impacts that could potentially be generated by adoption and implementation of the City's Rail Corridor Plan. The EIR evaluated the Rail Corridor Plan and the traffic impacts generated by "cumulative" development, which includes all projected growth in the City and the region (including the Corridor Plan) for the year 2020. Subsequently, additional analysis has been prepared as part of the City of San Mateo General Plan (2009) to evaluate projected growth up to the year 2030.

Land Use Assumptions

As part of the Rail Corridor Plan process, two land use alternatives were developed representing low-end (Scenario A) and high-end (Scenario Z) development scenarios that could occur under the proposed policies of the Corridor Plan. These scenarios were developed by the Rail Corridor Citizens Advisory Committee.

This Citizens Advisory Committee (CAC) was appointed by Council to provide public input to staff and consultants in evaluating land use and transportation alternatives. The 17-member committee was comprised of a number of local residents and area business and property owners/managers.

While the Corridor Plan proposes specific heights and densities, the EIR assessed the potential impacts of development within the range of the "A" and "Z" scenarios as developed by the CAC.

Table 9 summarizes the land use programs from these two scenarios.

Table 9
Corridor Plan Land Use Development Scenarios

CORRIDOR SUBAREA	SCENARIO A		SCENARIO Z	
HAYWARD PARK STATION TOD ZONE				
New Housing	636	units	1,725	units
maximum density in subarea (units/acre):		(< 25 u/a)		(< 75 u/a)
New Offices	412,100	s.f.	762,100	s.f.
New Retail	50,000	s.f.	150,000	s.f.
Total New Commercial (office & retail, independent of uses to be replaced) ¹	462,100	s.f.	912,100	s.f.
HILLSDALE STATION TOD ZONE				
New Housing	600	units	1,900	units
maximum density in subarea (units/acre):		(< 25 u/a)		(density TBD)
New Offices	900,000	s.f.	2,777,000	s.f.
New Retail	50,000	s.f.	200,000	s.f.
Total New Commercial (office & retail, independent of uses to be replaced) ¹	950,000	s.f.	2,977,000	s.f.
EL CAMINO REAL CORRIDOR				
New Housing	406	units	406	units
maximum density in subarea (units/acre):		(25 - 50 u/a)		(25 - 50 u/a)
New Offices	254,848	s.f.	254,848	s.f.
New Retail	355,831	s.f.	355,831	s.f.
Total New Commercial (office & retail, independent of uses to be replaced) ¹	610,679	s.f.	610,679	s.f.
CORRIDOR TOTAL				
	SCENARIO A		SCENARIO Z	
New Housing	1,642	units	4,031	units
New Offices	1,566,948	s.f.	3,793,948	s.f.
New Retail	455,831	s.f.	705,831	s.f.
Total New Commercial (office & retail, independent of uses to be replaced) ¹	2,022,779	s.f.	4,499,779	s.f.

¹ Existing uses in the Corridor Plan Area that could be replaced include commercial, industrial, racetrack, and other non-commercial uses. This figure does not include uses to be replaced because it is unknown precisely which uses would be replaced and because not all of those that would be replaced are directly comparable with the commercial uses that would replace them. Within the Hayward Park subarea, as much as 515,000 s.f and 735,000 s.f. of existing uses could be replaced under Corridor Plan A and Corridor Plan Z, respectively. Within the El Camino Real subarea, as much as 275,000 s.f. of existing uses could be replaced under either scenario. The entirety of the uses to be replaced on the Bay Meadows site are racetrack uses (i.e., grandstand, barns, etc.), which do not have a direct commercial equivalent.

Certification of the EIR and Adoption of the Rail Corridor Plan

The City Council in June 2005 adopted the Rail Corridor Plan and certified the EIR for the impacts associated with the "Z" Alternative. In doing so, the City Council adopted a set of Findings and a Statement of Overriding Considerations as explained below:

Statement of Overriding Considerations

Section 15093 of the California Environmental Quality Act (CEQA) Guidelines, states the following:

15093. Statement of Overriding Considerations

(a) CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

(b) When the lead agency approves a project which will result in the occurrence of significant effects which are identified in the final EIR but are not avoided or substantially lessened, the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record. The statement of overriding considerations shall be supported by substantial evidence in the record.

(c) If an agency makes a statement of overriding considerations, the statement should be included in the record of the project approval and should be mentioned in the notice of determination. This statement does not substitute for, and shall be in addition to, findings required pursuant to Section 15091.

Several traffic impacts were noted in the Statement of Overriding Considerations, principally to address freeway and freeway ramp impacts. The Statement of Overriding Considerations indicated that freeway and ramp improvements are not under the control of the City of San Mateo, and therefore their implementation cannot be assured.

For example, for SR 92 ramp and freeway impacts, it was noted that the California Department of Transportation (Caltrans) plans to rebuild the SR 92/EI Camino Real interchange, converting it either to a partial cloverleaf or a diamond design. Depending on the design, rebuilding the ramp could provide sufficient ramp capacity. However, since the improvement of the EI Camino Real/SR 92 interchange is not under the control of the City of San Mateo, and therefore its implementation cannot be assured, this impact was considered significant and unavoidable.

In addition, the Statement of Overriding Considerations prepared for the Corridor Plan and as adopted by the City Council stated that there are economic, social, and other benefits of the Rail Corridor Plan that outweigh the project's unavoidable significant environmental impacts. These were listed as follows:

- Increase housing opportunities while maintaining the character of existing single-family neighborhoods
- Concentration of major new development near transportation and transit corridors
- Development of a strategy to limit traffic congestion
- Establishing and maintaining San Mateo as a sustainable city
- Contributions to the community's economic well-being
- Increase in amount and variety of community housing stock

City of San Mateo General Plan and 2030 Cumulative Traffic

Year 2030 traffic conditions include development anticipated in the *General Plan* and *Rail Corridor Plan*. Two study intersections (Delaware Street/Bermuda Drive and Delaware Street/Pacific Boulevard) were not evaluated in the previous analyses. Therefore, year 2030 forecasts at these intersections were developed based on the traffic growth projected at the adjacent intersections. Figure 9 presents the peak-hour traffic volumes projected in the year 2030. In some cases the 2030 volumes are shown to be less than the background plus project volumes. The *Rail Corridor Plan* includes much more road system connectivity in the corridor plan area than exists today: Delaware Street will be extended to Hillsdale Boulevard, and new connections to EI Camino Real will be provided by grade-separated Caltrain crossings at 28th Avenue and 31st Avenue. This new road network, along with build-out of the



land use plans, will substantially change traffic patterns, with some streets seeing a decrease in traffic and others seeing an increase.

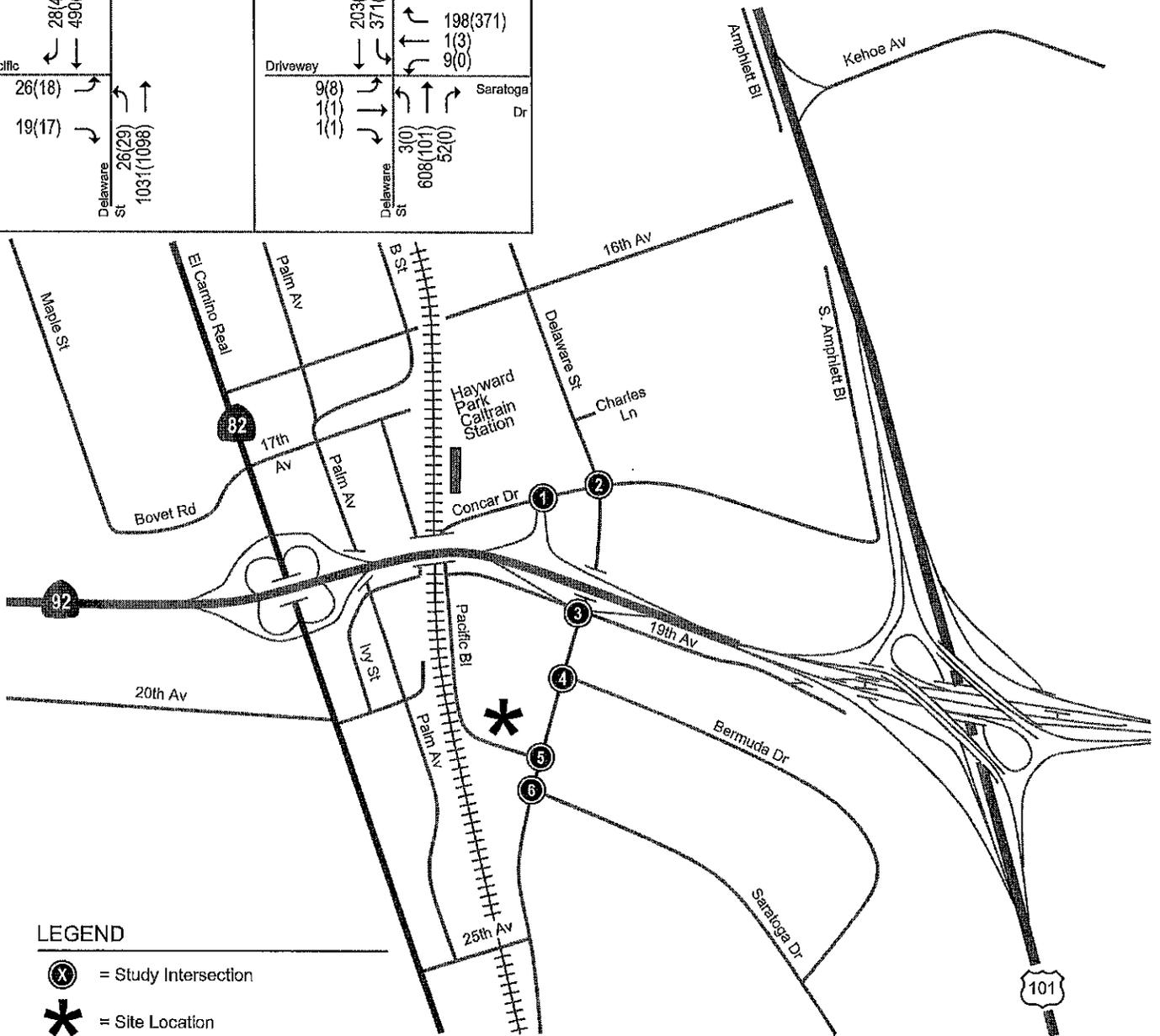


For the 2030 Cumulative scenario, the project is assumed to be achieving the full 38 percent trip reduction due to its location in a new walkable environment, as described in the Nelson-Nygaard analysis. Table 10 shows the project trip generation with the 38 percent reduction. Figure 10 shows the 2030 project trips assigned to the roadway system. Figures 11 and 12 depict the growth in traffic above existing conditions associated with the proposed 2090 S. Delaware Street Housing Project and other future growth to the year 2030. As shown on the figures, the traffic generated by the proposed project is extremely small compared to the existing traffic volumes and projected growth in traffic through the year 2030.



2090 S. Delaware Street Housing Project

<p>1</p> <p>Concar Dr</p> <p>0(3) 37(17) 44(15)</p> <p>4(27) 16(72) 726(606)</p> <p>SR 92 Ramps</p> <p>40(48) 70(126) 770(892)</p>	<p>2</p> <p>Concar Dr</p> <p>175(104) 488(676) 137(98)</p> <p>134(112) 238(333) 87(333)</p> <p>Delaware St</p> <p>257(760) 585(853) 292(186)</p>	<p>3</p> <p>19th Av</p> <p>263(922) 470(881)</p> <p>544(823) 462(176) 77(56)</p> <p>Delaware St</p> <p>627(732) 360(156)</p>	<p>4</p> <p>6(24) 211(914) 52(44)</p> <p>129(70) 307(229)</p> <p>Bermuda Dr</p> <p>24(13) 1(0)</p> <p>Delaware St</p> <p>0(1) 865(934) 192(181)</p>
<p>5</p> <p>Pacific Bl</p> <p>28(48) 490(1095)</p> <p>26(18) 19(17)</p> <p>Delaware St</p> <p>26(29) 1031(1098)</p>	<p>6</p> <p>Driveway</p> <p>203(100) 371(6)</p> <p>198(371) 1(3) 9(0)</p> <p>Delaware St</p> <p>3(0) 608(101) 52(0)</p> <p>Saratoga Dr</p> <p>9(8) 1(1) 1(1)</p>		



LEGEND

(X) = Study Intersection

* = Site Location

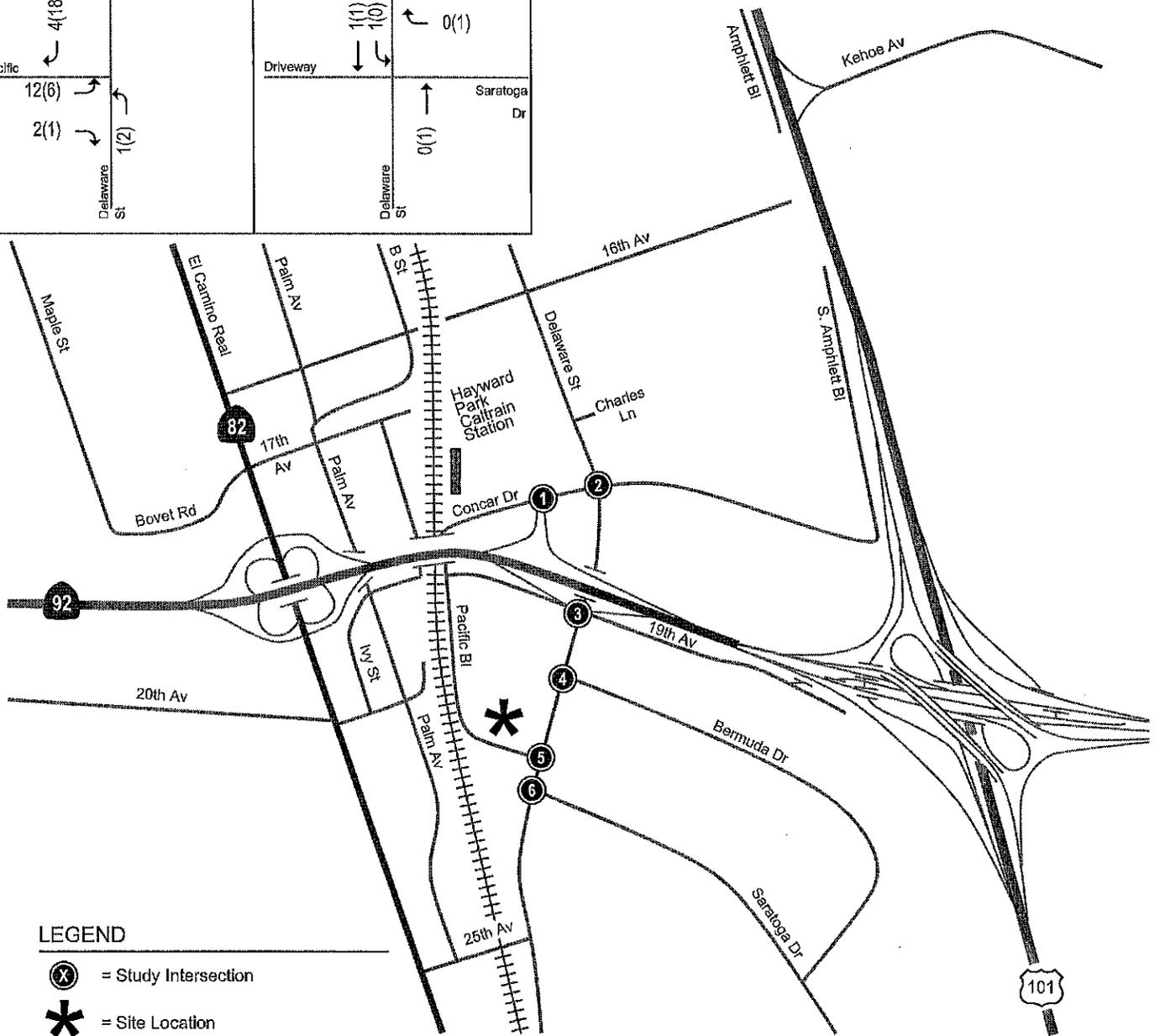
XX(XX) = AM(PM) Peak-Hour Volumes

Figure 9

Year 2030 Traffic Volumes

2090 S. Delaware Street Housing Project

<p>1</p> <p>Concar Dr</p> <p>7(4) →</p> <p>2(8) ←</p> <p>2(8) →</p> <p>SR 92 Ramps</p>	<p>2</p> <p>Concar Dr</p> <p>1(3) ↓</p> <p>0(1) ↶</p> <p>2(8) ↷</p> <p>3(2) ↑</p> <p>1(0) ↶</p> <p>Delaware St</p>	<p>3</p> <p>19th Av</p> <p>3(11) ↓</p> <p>7(4) ↷</p> <p>2(8) ↶</p> <p>4(2) ↑</p> <p>7(4) ↶</p> <p>Delaware St</p>	<p>4</p> <p>5(18) ↓</p> <p>11(6) ↑</p> <p>Delaware St</p> <p>Bermuda Dr</p>
<p>5</p> <p>Pacific Bl</p> <p>4(18) ↶</p> <p>12(6) ↷</p> <p>2(1) ↶</p> <p>1(2) ↷</p> <p>Delaware St</p>	<p>6</p> <p>Driveway</p> <p>1(1) ↶</p> <p>1(0) ↷</p> <p>0(1) ↶</p> <p>0(1) ↑</p> <p>Delaware St</p> <p>Saratoga Dr</p>		



LEGEND

(X) = Study Intersection

* = Site Location

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

Figure 10
2030 Project Trips

Figure 11
Traffic Volume Growth – AM Peak Hour

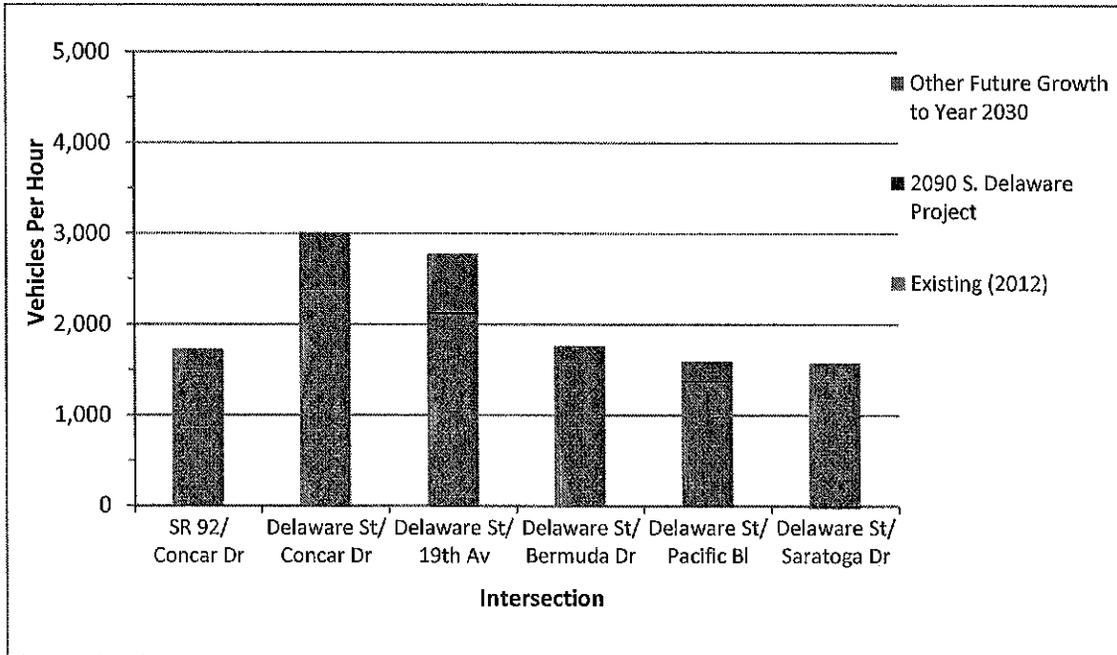
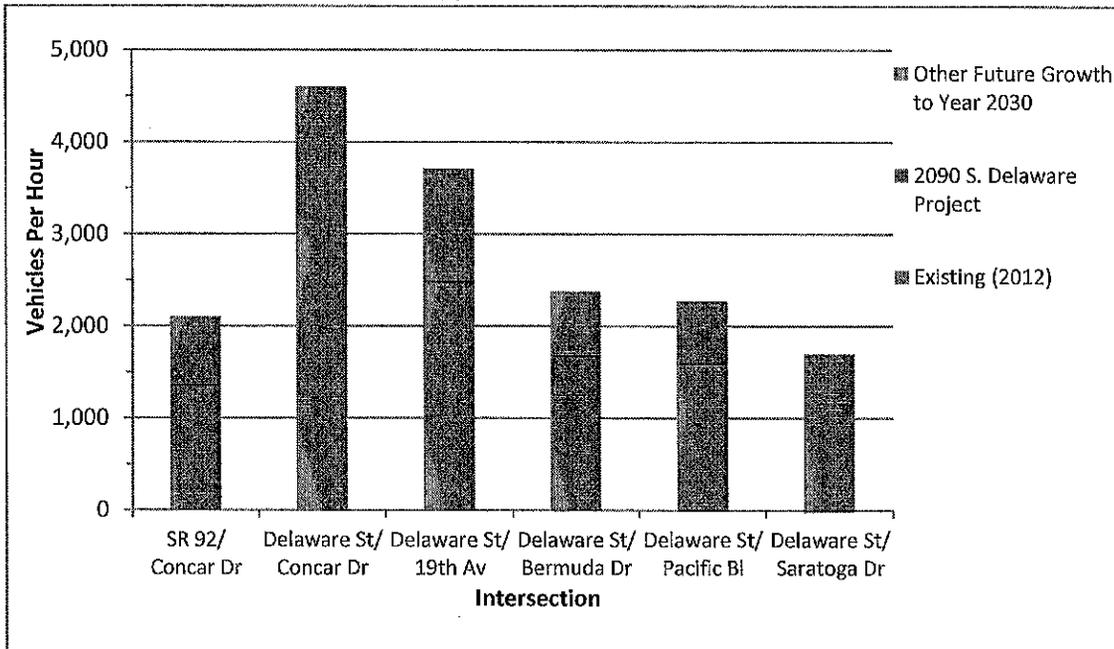


Figure 12
Traffic Volume Growth – PM Peak Hour



Year 2030 traffic conditions at the study intersections were evaluated using level of service. The conclusions of that analysis are summarized in Table 11. The intersection of 19th Avenue and Delaware Street is projected to exceed the City’s level of service standard during the PM peak hour by 2030 if anticipated levels of development are realized. The other study intersections would operate at an acceptable LOS under the 2030 scenario for both the AM and PM peak hours. The City of San Mateo’s Traffic Mitigation Program identified intersection improvements that would maintain acceptable levels of service at this intersection with the addition of future development. The recommended improvements include lane restriping and signal modifications to allow a change from split phase signal timing on Delaware Street to protected left turn phasing. The southbound through/left lane will be changed to a left-turn lane, and the northbound through/right lane will be changed to a through lane. With these improvements, the intersection would operate at an acceptable level under year 2030 conditions.

Table 10
2030 Project Trip Estimates

Land Use	Size	Daily Rate ¹	Daily Trips	AM Peak Hour			PM Peak Hour				
				Peak-Hour Rate ¹	In	Out	Total Trips	Peak-Hour Rate ¹	In	Out	Total Trips
Proposed Use											
Apartments	111 units	6.65	738	0.51	11	46	57	0.62	45	24	69
<i>Trip Reduction²</i>			<i>(280)</i>		<i>(4)</i>	<i>(18)</i>	<i>(22)</i>		<i>(17)</i>	<i>(9)</i>	<i>(26)</i>
			458		7	28	35		28	15	43

¹ Rates expressed in trips per dwelling unit.
² 38% Trip reduction based on project density, mix of uses, locally serving retail, transit service, pedestrian/bicycle friendliness, and affordable housing, as estimated for near-term conditions by Nelson/Nygaard (4/30/12).
 Source: Institute of Transportation Engineers, *Trip Generation*, 8th Edition.

Table 11
Intersection Levels of Service Under Year 2030 Conditions

Intersection	Peak Hour	2030 Without Mitigation		2030 With Mitigation	
		Avg. Delay	LOS	Avg. Delay	LOS
92 Ramps and Concar Drive	AM	10.1	B	10.1	B
	PM	17.9	B	17.9	B
Delaware Street and Concar Drive	AM	27.6	C	27.6	C
	PM	43.2	D	43.2	D
Delaware Street and 19th Avenue	AM	31.3	C	24.4	C
	PM	52.6	D	27.5	C
Delaware Street and Saratoga Drive	AM	22.5	C	22.5	C
	PM	15.9	B	15.9	B
Delaware Street and Bermuda Drive	AM	12.5	B	12.5	B
	PM	9.3	A	9.3	A
Delaware Street and Pacific Boulevard	AM	18.7	C	18.7	C
	PM	41.9	E	41.9	E

A review of the San Mateo traffic model indicates that the traffic findings of the *Rail Corridor EIR* continue to be valid to the year 2030, and no new significant impacts are identified. A review of the

existing and projected traffic conditions in the Corridor Plan area shows that the findings of the Corridor Plan EIR are still valid.

Queuing Analysis

All turning movements at each study intersection were analyzed to identify any operational issues related to vehicle queues. The evaluation of vehicle queuing is not required by CEQA and does not result in the identification of impacts. The analysis is done to identify any necessary operational improvements. Intersection queuing was analyzed using the Poisson Probability Method. Figures 13 and 14 depict the 95th percentile queue lengths at all study intersections under existing conditions, existing plus project conditions, and year 2030 conditions during the AM and PM peak hours, respectively. It should be noted that the 95th percentile queues shown on the figures would not occur simultaneously for all movements, but rather at various times within the peak-hour. By definition, the 95th percentile queues occur only 5 out of every 100 signal cycles during the peak hour. Since the signals at the study intersections have a 90 second cycle length, they cycle about 40 times per hour. Thus, the 95th percentile queue length would occur only about 2 cycles during the peak hour. The average queue length, which would occur during most signal cycles, is about half the length shown in the figures. Also, queues are expected to fully clear the intersection at each signal cycle.



2090 S. Delaware Street



LEGEND

- * = Site Location
- ===== = Existing queue length
- ===== = Added queue length due to project
- ===== = Added queue length due to other future growth in 2030

Source: Google Earth

Figure 13

95th PERCENTILE QUEUE LENGTHS - AM PEAK HOUR

Source: Google Earth



HEXAGON TRANSPORTATION CONSULTANTS, INC.



2090 S. Delaware Street



Source: Google Earth

LEGEND

-  = Site Location
-  = Existing queue length
-  = Added queue length due to project
-  = Added queue length due to other future growth in 2030

Figure 14

95th PERCENTILE QUEUE LENGTHS - PM PEAK HOUR



NORTH
Not to Scale

The calculations and field observations show that the following turn movements are projected to have insufficient storage to accommodate the 95th percentile queues under existing conditions:

- Westbound left-turn/through at SR 92 Ramps/Concar
- Eastbound left-turn at Delaware/Concar
- Eastbound right-turn at Delaware/Concar
- Westbound left-turn at Delaware/Concar
- Northbound right-turn/through at Delaware/19th
- Northbound right-turn at Delaware/19th
- Eastbound right-turn at Delaware/19th
- Southbound right-turn/through/left-turn at Delaware/Bermuda
- Westbound right-turn at Delaware/Bermuda
- Southbound through at Delaware/Saratoga
- Southbound left-turn at Delaware/Saratoga

While the traffic growth through the year 2030 is expected to exacerbate conditions further, the addition of traffic associated with the 2090 S. Delaware Housing Project by itself will not cause the 95th percentile queues at most of these movements to increase. The only exception is the eastbound right-turn movement at the Delaware/Concar intersection. The proposed project is expected to add 2 trips to this movement during the AM peak hour and 8 trips during the PM peak hour causing the 95th percentile queue length to increase by one vehicle length. This change would not be noticeable to drivers.

The analysis also shows that queues on southbound Delaware Street at Saratoga Drive may occasionally extend past the unsignalized intersection of Delaware Street and Pacific Boulevard. This is an existing condition that is caused by the proximity of the two intersections. The City of San Mateo has installed "Keep Clear" pavement markings to discourage drivers from blocking turn movements to and from Pacific Boulevard. Since the intersection of Delaware Street and Saratoga Drive is expected to continue to operate at a good level of service (LOS C or better) the queues that form on the southbound Delaware Street approach would clear with every signal cycle providing ample opportunity for traffic to turn to and from Pacific Boulevard.

Review of Current Projects in the Corridor Plan

In addition to the proposed project, several other developments have been approved recently in the Hayward Park Station Area. These projects are shown in the Table 12.

As shown in the table below, the approved and pending projects in the Hayward Park Station Area are within the allowable limits of development for the area as outlined by the Rail Corridor Plan and as evaluated in the cumulative traffic analysis in the Rail Corridor Plan EIR, and as updated to the year 2030 as part of the City's General Plan update effort.

Conclusion

The Rail Corridor Plan EIR was certified by the San Mateo City Council on June 6, 2005. The Rail Corridor Plan EIR contained a traffic analysis that included all projected growth to the year 2020; this includes all growth in the Rail Corridor Plan area, in the entire City of San Mateo, and in all the surrounding communities. A Statement of Overriding Considerations was adopted recognizing significant, unmitigated traffic impacts that would result. The Statement of Overriding Considerations primarily addressed freeway and ramp conditions, as opposed to local City intersections. In adopting this Statement of Overriding Considerations, the City Council made findings that there are economic, social and other benefits of the Rail Corridor Plan that outweigh the project's unavoidable significant environmental impacts.

Table 12
Rail Corridor Plan Development in the Hayward Park Station Area

Project Name	Location	Dwelling Units	Retail (s.f.)	Office (s.f.)
Station Park Green	1700 S. Delaware St. (K Mart Site)	599	60,000 or 25,000*	10,000 or 45,000*
92 & Delaware Office (Hines Offices)	1830 S. Delaware (former Denny's and Telecenter site)			276,000
2000 Delaware (Residential Project)	2000 S. Delaware St. (former Police Station site)	120		
Delaware Place	2090 S. Delaware St.	111		
Totals for Current Projects		830	60,000	321,000
Allowed Development (Corridor Plan-Scenario Z)		1,725	150,000	762,100
Development Still Possible (Corridor Plan-Scenario Z)		895	90,000	441,100

In reviewing individual development projects that come forward, consistent with the Corridor Plan, it is acknowledged that they will contribute to significant traffic congestion on SR 92 and its ramps. These impacts have been accepted by the City Council in their decision to adopt a statement of overriding considerations.

An updated analysis of cumulative conditions to the year 2030 confirmed that local intersections will continue to operate at acceptable levels of service under both the near term and long term (cumulative) conditions with the recommended improvements identified in the City of San Mateo 2008 Traffic Mitigation Report.



6. Conclusion

The project would cause no significant impacts at the intersections evaluated in this study. However, the project would, as a result of its contribution to cumulative increases in traffic, be required to pay the City of San Mateo's adopted Traffic Impact Fee.

Off-Site Impacts and Mitigation

Impact: The project will contribute to the growth in cumulative traffic demand. Intersection improvements identified in the City of San Mateo Traffic Mitigation Report will be required in the future to maintain intersection levels of service within the adopted standards at some intersections.

Mitigation: The project will be required to pay the City's adopted Traffic Impact.

The intersection levels of service for all study scenarios are shown in Table 13.

Off-Site Recommendations

Recommendation: Construction haul routes shall be limited to US 101, SR 92, El Camino Real, East 25th Avenue, 19th Avenue, South Delaware Street and Concar Drive, per the San Mateo Municipal Code.

**Table 13
Intersection Level of Service Summary**

Peak Hour	Count Date	Existing			Existing Plus Project			Background Plus Project			2030 Without Mitigation			2030 With Mitigation		
		Avg. Delay	LOS	Avg. Delay	LOS	Incr. In Delay	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS
AM	1/19/12	7.8	A	8.6	A	0.8	13.3	B	10.1	B	10.1	B	10.1	B	10.1	B
PM	1/19/12	8.9	A	9.4	A	0.5	13.5	B	17.9	B	17.9	B	17.9	B	17.9	B
AM	1/19/12	26.2	C	26.2	C	0.0	27.5	C	27.6	C	27.6	C	27.6	C	27.6	C
PM	1/19/12	31.0	C	30.9	C	-0.1	31.2	C	43.2	D	43.2	D	43.2	D	43.2	D
AM	1/18/12	22.1	C	22.2	C	0.1	25.6	C	31.3	C	31.3	C	24.4	C	24.4	C
PM	1/18/12	26.2	C	26.4	C	0.2	28.1	C	52.6	D	52.6	D	27.5	C	27.5	C
AM	1/18/12	19.8	B	19.8	B	0.0	20.0	C	22.5	C	22.5	C	22.5	C	22.5	C
PM	1/18/12	22.5	C	22.6	C	0.1	22.6	C	15.9	B	15.9	B	15.9	B	15.9	B
AM	1/18/12	10.5	B	10.4	B	-0.1	12.4	B	12.5	B	12.5	B	12.5	B	12.5	B
PM	1/18/12	9.9	A	9.9	A	0.0	11.8	B	9.3	A	9.3	A	9.3	A	9.3	A
AM	7/18/12	12.5	B	17.6	C	5.1	18.0	C	18.7	C	18.7	C	18.7	C	18.7	C
PM	7/18/12	14.4	B	17.8	C	3.4	18.3	C	41.9	E	41.9	E	41.9	E	41.9	E





Cumulative Impacts

The San Mateo Rail Corridor Transit-Oriented Development Plan and Bay Meadows Specific Plan Amendment Final Environmental Impact Report (Rail Corridor Plan EIR) was certified by the San Mateo City Council on June 6, 2005. The EIR contained a traffic analysis that included all projected growth to the year 2020; this includes all growth in the Rail Corridor Plan area, in the entire City of San Mateo, and in all the surrounding communities. A Statement of Overriding Considerations was adopted recognizing significant, unmitigated traffic impacts that would result. The Statement of Overriding Considerations primarily addressed freeway and ramp conditions, as opposed to local City intersections. In adopting this Statement of Overriding Considerations, the City Council made findings that there are economic, social and other benefits of the Rail Corridor Plan that outweigh the project's unavoidable significant environmental impacts.

An updated analysis of cumulative conditions to the year 2030 confirmed that local intersections will continue to operate at acceptable levels of service under both the near term and long term (cumulative) conditions with the recommended improvements identified in the City of San Mateo 2008 Traffic Mitigation Report.

2090 S. Delaware Street Housing Project

Traffic Impact Analysis

Technical Appendices

June 28, 2012
