EXHIBIT B

HEXAGON TRANSPORTATION CONSULTANTS, INC.

# Pleasanton Workday Office Development

## Transportation Impact Analysis

***Prepared for:***

City of Pleasanton

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# Executive Summary

The purpose of this report is to analyze the transportation impacts of the proposed Workday office development located adjacent to the West Dublin/Pleasanton BART station on Stoneridge Mall Road in Pleasanton, California. The project would consist of 430,000 square feet (s.f.) of office space and two parking structures. One parking structure would consist of approximately 700 parking spaces and be located on the project site. The other parking structure would consist of approximately 900 parking spaces and be located on the southwest portion of the Stoneridge Corporate Plaza site, south of the project. Access to the site would be provided via existing driveways on Stoneridge Mall Road and Embarcadero Court.

The potential traffic impacts related to the proposed development were evaluated following the standards and methodologies set forth by the Cities of Pleasanton and Dublin. Because the project is expected to generate more than 100 peak hour trips, the analysis also was conducted in accordance with the requirements of the Alameda Congestion Management Agency (CMA), the administering agency for the Congestion Management Program (CMP) of Alameda County. Traffic impacts due to the project were determined based on AM and PM peak hour levels of service for 13 signalized intersections, two unsignalized intersections, and 14 Metropolitan Transportation System (MTS) roadway segments.

## Project Trip Generation

Project trip generation was estimated by applying to the size and uses of the development the appropriate trip generation rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 9th Edition*. Based on ITE's trip generation rates for general office use (ITE code 710), the project would generate 3,978 gross daily vehicle trips, with 615 gross trips occurring during the AM peak hour and 560 gross trips occurring during the PM peak hour.

Because the project site is located near the West Dublin/Pleasanton BART station, a transit reduction of 3 percent was applied to the overall project trip generation. This reduction was based on estimates of transit mode share from the Pleasanton TDF model. While higher transit rider mode splits are typically observed around major transit nodes (such as BART stations), the vast majority of BART service is provided in areas west of the project site and serves only a small subset of potential commute routes. In addition, existing commute patterns in the Bay Area show heavy traffic from the Tri-Valley area to the major employment centers in the East Bay and San Francisco during the AM commute hours, and the reverse in the PM peak hour. Because the delays on freeways are high in the peak direction, commuters often find BART service a convenient alternative to driving. However, the proposed project is an office development; most of its trips to/from the East Bay would occur in the off-peak direction of BART service, where the delays on the freeways are much lower. For many future employees of the proposed development that live in the East Bay, it would be much quicker to drive to the site rather than utilize BART.

In addition to the transit reduction, the project will receive trip credits for the approved uses at the site under both the (1) existing plus approved and (2) buildout conditions analyses. The site is currently approved for 350 multi-family units and 14,286 s.f. of commercial use. Under the existing plus project scenario, these trip credits do not apply.

After applying the appropriate trip reductions, under existing plus project conditions, the project would generate 3,859 net new daily trips, with 597 net new trips occurring during the AM peak hour and 543 net new trips occurring during the PM peak hour. Under the (1) existing plus approved and (2) buildout scenarios, the project would generate 1,090 net new daily trips, with 413 net new trips occurring during the AM peak hour and 288 net new trips occurring during the PM peak hour.

The assignment of site-generated traffic to and from intersections and freeway ramps in the project area was carried out directly by the City of Pleasanton TDF model. Under project conditions, the model assignment includes any potential redistribution of traffic associated with the existing Stoneridge Corporate Plaza. The project land uses and ITE trip generation estimates were coded into the TDF model, which was then used to generate future traffic volume forecasts for all of the study scenarios. This method is different than "hand" assignment methods where project traffic is added directly to base year no project traffic volumes. For large projects, use of the TDF model is considered more accurate because it accounts for (1) changes in origin-destination pairs (2) ambient traffic diversion that may occur as a result of project traffic, and (3) the spreading of peak hour trips into off-peak hours.

## Intersection Level of Service Impacts

Table ES-1 summarizes the results of the intersection level of service analysis under existing, existing plus approved, and buildout conditions. Under all study scenarios, all of the signalized study intersections would operate at LOS D or better during the AM and PM peak hours, with one exception. The signalized intersection of Foothill Road and Canyon Way would operate at LOS E under all project scenarios during the PM peak hour. However, this intersection is a "*Gateway Intersection*" and is not required to maintain a LOS of D or better. The City of Pleasanton has already planned improvements at this intersection as part of its Traffic Impact Fee (TIF) program. The project would result in the following significant impact:

> **Significant Impact #1:** The worst approach of the unsignalized intersection of Stoneridge Mall Road and BART Entrance would operate at LOS F during the PM peak hour under existing plus approved no project and with project conditions. In addition, the project would add more than 30 seconds of delay to the worst approach, which constitutes a significant impact. This intersection would also meet traffic signal warrant checks under existing plus approved conditions both with and without the proposed project during the PM peak hour.
>
> **Mitigation #1:** Per the City of Pleasanton's TIF improvements, the intersection of Stoneridge Mall Road and BART Entrance is planned for signalization. As mitigation for the project's significant impact at this intersection, the project would be responsible for a fair share contribution toward signalization of the intersection through the payment of its TIF fees.

## Freeway Ramp Capacity Analysis

The proposed project would not create a significant impact at any of the study ramp locations under any of the project scenarios.

## Operations Analysis

The analysis indicated that the estimated maximum vehicle queues would exceed the vehicle storage capacity at a few locations. The following recommendations were noted:

- It is recommended that the queuing storage for the southbound left turn movement at Foothill Road and Canyon Way be increased to 1,200 feet to accommodate the anticipated queues. This would

require either (1) lengthening the existing southbound left turn pocket or (2) constructing a third southbound left turn pocket. Lengthening the existing left turn pocket would require removal of the median. Constructing a third left turn pocket would require removal of the median, modification of the median nose, acquiring right-of-way for receiving lanes, restriping of lane lines, modifications to vehicle detection, and aligning the signal heads to the new lane geometry. According to the City of Pleasanton *Traffic Impact Fee and Nexus Report*, May 2010, addition of a third left turn lane for the southbound movement is planned for the intersection.

- At the intersection of Stoneridge Mall Road and Stoneridge Drive, it is recommended that the inner most southbound left turn pocket be lengthened back to the midblock break where fire access occurs. This would add approximately 125 feet of additional queuing space at the intersection. However, this would require removal of the landscaped median. Because this issue occurs under no project conditions, and not solely caused by project traffic, a fair share contribution to the improvement may be appropriate. However, the final determination will be made by City staff.

## Site Access, On Site Circulation and Parking

The site access, onsite circulation, and parking were evaluated for the proposed project. Because the site plan is conceptual, many details of the plan (such as drive aisle widths, stall widths, curb radii, parking space count, etc.) are not yet available. The following recommendations were noted:

- The Stoneridge Mall Road driveway should have two outbound lanes, one right turn lane and one-shared left-through lane. Ideally, this driveway should have a clear throat of 200 feet. However, a clear throat of 100 feet would be adequate to accommodate the average queues during peak hours. To reduce the probability of head on collisions, the two way center left turn lane should be converted to a left turn lane at the driveway. A traffic signal is warranted at this intersection during the PM peak hour with the proposed project. However, the planned addition of a traffic signal at the intersection of the BART entrance/Stoneridge Mall Road may preclude efficient traffic signal operation. The final determination of whether a traffic signal is desirable at this location will be made by Community Development staff. Other options for improved access at the site could include (1) combining the BART driveway with the project driveway at Stoneridge Mall Road and installing a single traffic signal or (2) moving the north parking structure to the eastern part of the Stoneridge Corporate Plaza site so that more traffic would utilize the Embarcadero Court driveways.

- The design of the roundabout at the project driveway/Embarcadero Court is not shown on the current plan. Prior to final design, the layout of the roundabout should be checked by Community Development staff to insure that it complies with the guidelines specified in the publication *Roundabouts: An Informational Guide.*

- Although the current sight distance at the project driveways was checked in the field and determined to be adequate, landscaping is not shown on the current site plan. The project access points should be free and clear of any obstructions to optimize sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and other vehicles traveling on Stoneridge Mall Road and Embarcadero Court. Landscaping and parking should not conflict with a driver's ability to locate a gap in traffic. Adequate corner sight distance (sight distance triangles) should be provided at all site access points and onsite intersections in accordance with Caltrans standards. Sight distance triangles should be measured approximately 10 feet back from the traveled way.

- Prior to final design, the design and layout of the parking structures should be reviewed by Community Development staff. This includes a review of sight distance and parking controls at the garage entrances (to prevent vehicles from spilling back to the public street network).The current design shows the eastern entrance of the southern parking garage would be located approximately 50 feet north of the project driveway/Embarcadero Court intersection. To prevent queues from the garage from spilling onto Embarcadero Court, consideration should be given to relocating this driveway to the north approximately 100 feet.

- Because the site plan is conceptual, access to the site for trucks cannot be assessed. Prior to final design, the project applicant should submit an exhibit showing the intended truck routes to and from the loading areas onsite. In addition, the drive aisles and intersections should be checked to insure that they are permissible by delivery trucks, garbage trucks, moving trucks, and fire trucks. The project applicant should provide an exhibit showing truck turn templates overlaid onto the site plan. Traffic volumes onsite would be relatively low, and encroachment of heavy vehicles on opposing traffic lanes would not likely create operational problems if it is predominately confined to off peak hours.
- Where pedestrian paths cross drive aisles, wheelchair ramps are not shown on the current plan. Prior to final design, the project should provide pedestrian crosswalks consistent with *Americans with Disabilities Act* (ADA) requirements.
- Consistent with City of Pleasanton parking requirements, the proposed project should provide 1,433 parking spaces onsite. For the existing Stoneridge Corporate Plaza site, the proposed project should either (1) replace the parking lost due to the construction of the south parking structure or (2) demonstrate that the Stoneridge Corporate Plaza would have sufficient parking to comply with City parking requirements. This recommendation applies under both the buildout of the proposed project and during construction.

## Other Transportation Modes

The project's impact to pedestrian, bicycle and transit facilities was evaluated. Based on this analysis, the project would not create an adverse significant impact to any of these facilities. However, the following recommendation was noted:

- According to the City of Pleasanton *Pedestrian and Bicycle Master Plan, Appendix G - 2,* bicycle parking should be required of non-residential projects. The cited example ratio is one bicycle parking space for each 20 vehicle parking stalls or per each 5,000 square feet of commercial space. Prior to final design, City staff should review the project site plan to ensure that adequate accommodations for bike parking are provided.

## CMA Analysis

In order to determine the impact of the project, AM and PM peak-hour traffic volumes on eight directional freeway segments and six directional MTS roadway segments (years 2020 and 2035) in the vicinity of the project were analyzed. Although the model estimates that the project would increase traffic during the AM and PM peak-hours, the project would not cause a significant impact to any of the study freeway or roadway segments.

**Table ES- 1**
**Intersection Level of Service Summary**

| Study Number | Intersection | Traffic Control | Peak Hour | Existing | | Existing + Project | | Existing + Approved: No Project | | Existing + Approved: With Project | | Buildout: No Project | | Buildout: With Project | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] |
| **Pleasanton Intersections:** | | | | | | | | | | | | | | | |
| #1 | San Ramon Rd and I-580 WB Off Ramp[4] | Signal | AM | 9.4 | A | 11.0 | B | 9.7 | A | 10.5 | B | 12.2 | B | 13.4 | B |
| | | | PM | 12.5 | B | 13.1 | B | 15.5 | B | 15.5 | B | 14.4 | B | 15.1 | B |
| #2 | Foothill Rd and I-580 EB Off Ramp[4] (Future) | Signal | AM | -- | -- | -- | -- | 10.3 | B | 12.6 | B | 13.6 | B | 14.9 | B |
| | | | PM | -- | -- | -- | -- | 11.8 | B | 12.0 | B | 11.5 | B | 11.9 | B |
| #3 | Foothill Rd and Canyon Wy/Dublin Canyon Rd[4,5] | Signal | AM | 21.6 | C | 27.0 | C | 31.7 | C | 39.9 | D | 31.2 | C | 35.0 | D |
| | | | PM | 45.8 | D | 58.2 | E | 65.2 | E | 72.0 | E | 59.6 | E | 66.6 | E |
| #4 | Foothill Rd and Stoneridge Dr | Signal | AM | 18.9 | B | 18.9 | B | 24.7 | C | 23.7 | C | 43.9 | D | 40.4 | D |
| | | | PM | 23.2 | C | 23.5 | C | 45.7 | D | 48.7 | D | 34.5 | C | 29.0 | C |
| #5 | Stoneridge Mall Rd and Canyon Wy | Signal | AM | 5.0 | A | 5.5 | A | 4.5 | A | 5.5 | A | 4.4 | A | 5.2 | A |
| | | | PM | 5.8 | A | 6.4 | A | 6.7 | A | 6.8 | A | 5.6 | A | 5.8 | A |
| #6 | Stoneridge Mall Rd and Bart Entrance | SSSC/Signal[2,3] | AM | 1.0/13.0 | A/B | 0.9/15.0 | A/B | 2.8/15.6 | A/C | 2.4/16.5 | A/C | 5.8 | A | 5.6 | A |
| | | | PM | 3.3/24.1 | A/C | 4.3/37.6 | A/E | 13.6/58.0 | B/F | 20.2/94.1 | C/F | 8.2 | A | 8.3 | A |
| #7 | Stoneridge Mall Rd and Project Dwy | SSSC[3] | AM | 1.7/12.6 | A/B | 3.7/29.0 | A/D | 6.0/33.9 | A/D | 3.6/33.5 | A/D | 6.1/35.3 | A/E | 3.5/31.2 | A/D |
| | | | PM | 3.7/19.3 | A/C | 14.4/47.7 | B/E | 8.0/35.4 | A/E | 13.4/45.9 | B/E | 7.4/39.1 | A/E | 12.7/49.2 | B/E |
| #8 | Stoneridge Mall Rd and Embarcadero Ct | Signal | AM | 11.8 | B | 18.8 | B | 13.1 | B | 22.4 | C | 12.8 | B | 20.9 | C |
| | | | PM | 20.2 | C | 23.9 | C | 22.1 | C | 25.6 | C | 21.5 | C | 23.4 | C |
| #9 | Stoneridge Mall Rd and Workday Wy | Signal | AM | 9.5 | A | 11.4 | B | 12.2 | B | 16.2 | B | 11.4 | B | 13.4 | B |
| | | | PM | 20.0 | C | 26.5 | C | 22.1 | C | 27.3 | C | 17.5 | B | 19.7 | B |
| #10 | Stoneridge Mall Rd and Stoneridge Dr | Signal | AM | 7.7 | A | 8.0 | A | 9.9 | A | 9.9 | A | 10.3 | B | 10.1 | B |
| | | | PM | 15.4 | B | 16.5 | B | 37.4 | D | 39.8 | D | 22.4 | C | 23.5 | C |
| #11 | I-680 SB Off Ramp and Stoneridge Dr[4] | Signal | AM | 13.8 | B | 16.7 | B | 12.0 | B | 12.7 | B | 12.6 | B | 13.1 | B |
| | | | PM | 11.3 | B | 11.6 | B | 14.3 | B | 15.0 | B | 12.2 | B | 12.1 | B |
| #12 | I-680 NB Off Ramp and Stoneridge Dr[4] | Signal | AM | 13.7 | B | 14.2 | B | 16.6 | B | 17.5 | B | 19.8 | B | 20.7 | C |
| | | | PM | 12.5 | B | 12.7 | B | 13.2 | B | 13.2 | B | 11.5 | B | 11.4 | B |
| #13 | Johnson Dr and Stoneridge Dr[4] | Signal | AM | 18.1 | B | 18.5 | B | 15.6 | B | 15.4 | B | 17.8 | B | 17.4 | B |
| | | | PM | 22.2 | C | 22.1 | C | 24.1 | C | 22.6 | C | 23.6 | C | 22.9 | C |
| #14 | Hopyard Rd and Stoneridge Dr | Signal | AM | 28.4 | C | 29.0 | C | 29.0 | C | 29.5 | C | 31.7 | C | 32.3 | C |
| | | | PM | 34.3 | C | 34.8 | C | 41.0 | D | 40.9 | D | 53.5 | D | 51.6 | D |
| **Dublin Intersection:** | | | | | | | | | | | | | | | |
| #15 | San Ramon Rd and Dublin Blvd | Signal | AM | 34.0 | C | 34.1 | C | 32.5 | C | 32.0 | C | 31.7 | C | 32.1 | C |
| | | | PM | 37.3 | D | 37.3 | D | 38.2 | D | 37.8 | D | 38.2 | D | 38.2 | D |

[1] Signalized intersection levels of service and delays reported are for overall average delay. SSSC intersection levels of service and delays reported are for both the overall average delay and the approach with the highest delay.
[2] Run as SSSC under existing and existing plus approved scenarios. Run as signalized under buildout conditons.
[3] SSSC = Side Street Stop Control.
[4] These intersections are Gateway Intersections and may have an LOS worse than D.
[5] Added third southbound left turn lane under buildout conditons per the Pleasanton TIF.

Denotes unacceptable level of service
Denotes Significant Impact

# 1. Introduction

The purpose of this report is to analyze the transportation impacts of the proposed Workday office development located adjacent to the West Pleasanton BART station on Stoneridge Mall Road in Pleasanton, California. The project would consist of 430,000 square feet (s.f.) of office space and two parking structures. One parking structure would consist of approximately 700 parking spaces and be located on the project site. The other parking structure would consist of approximately 900 parking spaces and be located on the southwest portion of the Stoneridge Corporate Plaza site, south of the project. Access to the site would be provided via existing driveways on Stoneridge Mall Road and Embarcadero Court. The project site location and the surrounding study area are shown on Figure 1. The site plan is shown in Figure 2.

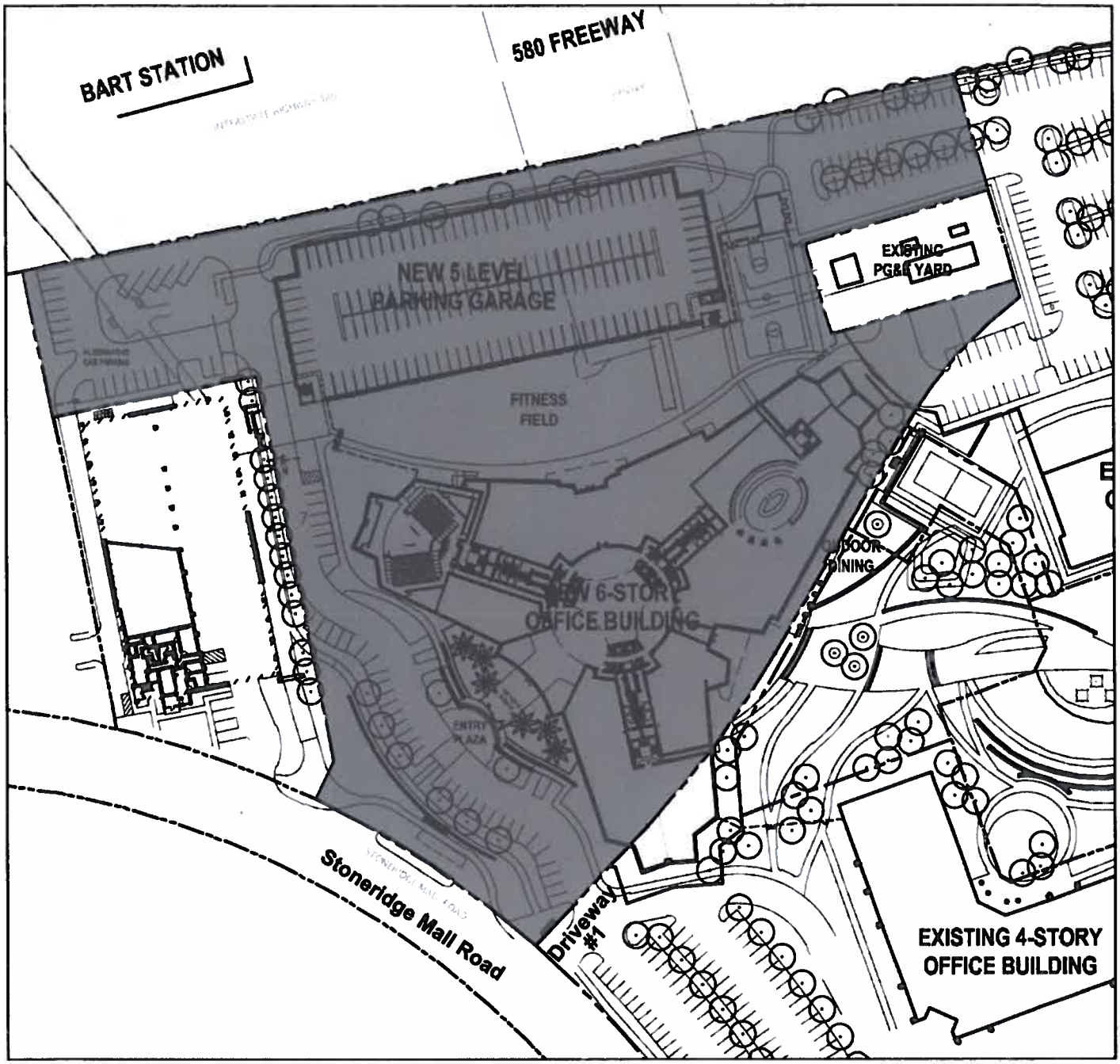
## Scope of Study

The potential traffic impacts related to the proposed development were evaluated following the standards and methodologies set forth by the Cities of Pleasanton and Dublin. Because the project is expected to generate more than 100 peak hour trips, the analysis also was conducted in accordance with the requirements of the Alameda Congestion Management Agency (CMA), the administering agency for the Congestion Management Program (CMP) of Alameda County. The following study intersections were analyzed for this project.

1. San Ramon Road and I-580 WB Off Ramp
2. Foothill Road and I-580 EB Off Ramp (Future Intersection)
3. Foothill Road and Canyon Way/Dublin Canyon Road
4. Foothill Road and Stoneridge Drive
5. Stoneridge Mall Road and Canyon Way
6. Stoneridge Mall Road and BART Entrance (Unsignalized)
7. Stoneridge Mall Road and Project Driveway (Unsignalized)
8. Stoneridge Mall Road and Embarcadero Court
9. Stoneridge Mall Road and Workday Way
10. Stoneridge Mall Road and Stoneridge Drive
11. I-680 SB Off Ramp and Stoneridge Drive
12. I-680 NB Off Ramp and Stoneridge Drive
13. Johnson Drive and Stoneridge Drive
14. Hopyard Road and Stoneridge Drive
15. San Ramon Road and Dublin Boulevard[1]

[1] Denotes City of Dublin Intersection


**Figure 1**
**Site Location and Study Intersections**

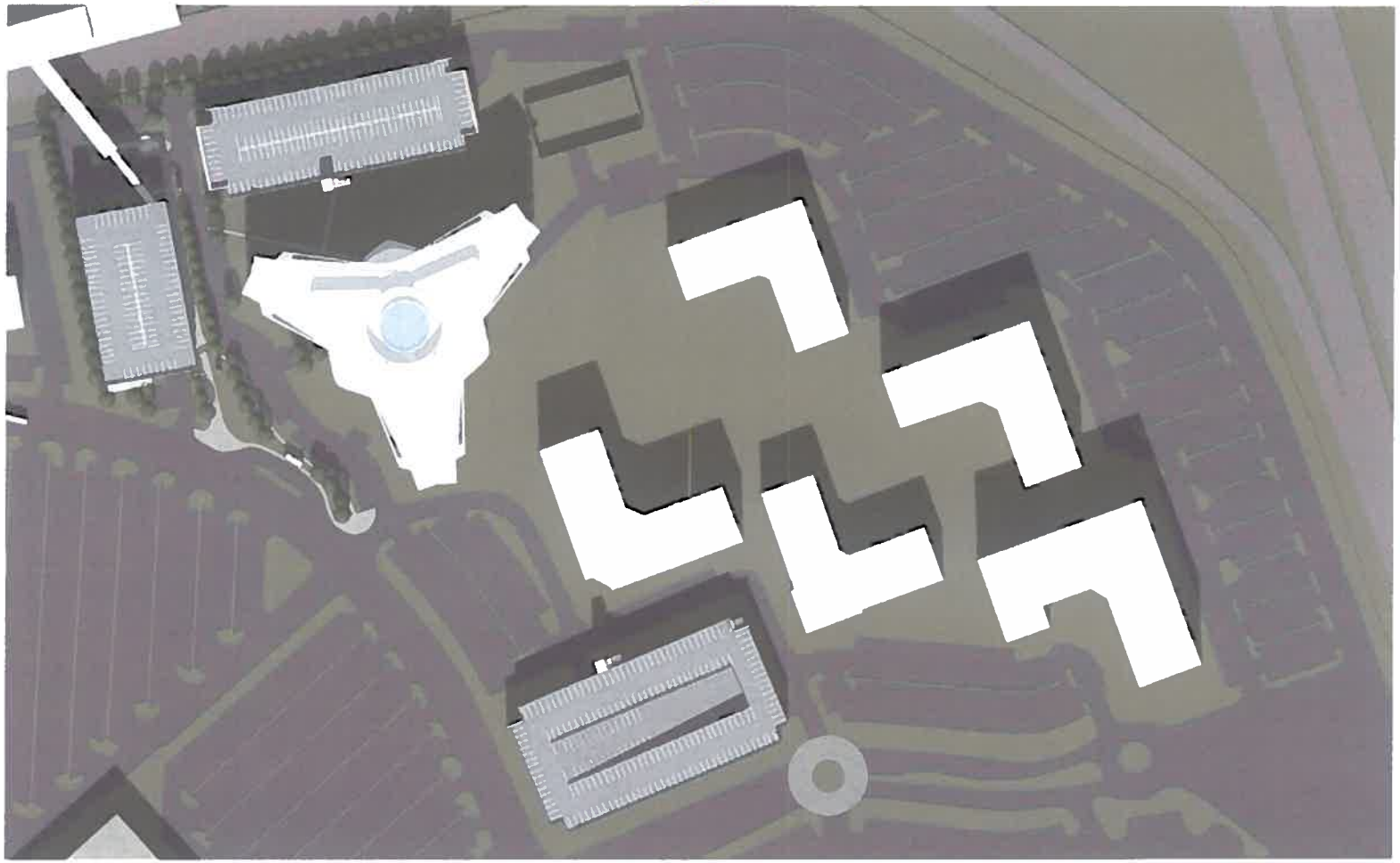



1" = 120'-0"

# EXHIBIT B
# PRELIMINARY SITE PLAN

**Figure 2A**
**Site Plan**

# 1 Building Scheme



WORKDAY CONFIDENTIAL

workday.

**Figure 2B**
**Site Plan**

Traffic conditions at the study intersections were analyzed for the non-holiday season weekday AM and PM peak hours. The AM peak hour 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 day. Because the project is located near a regional shopping mall, there are periods in late November and December when traffic conditions would be different than described in this report. Generally, vehicle trips increase during the PM commute hour for some traffic movements around retail centers beginning in Thanksgiving and peaking just before Christmas. However, holiday season travel patterns occur for a relatively few number of days each year and are considered atypical. The traffic engineering profession generally discourages data collection during atypical periods because it is uneconomical to construct physical improvements to accommodate seasonal traffic increases. For this reason, the transportation infrastructure and land use impacts of new projects are most commonly analyzed during the non-holiday period, when travel conditions are more representative of the entire year.

Traffic conditions were evaluated for the following scenarios:

**Scenario 1:** *Existing Conditions.* Existing traffic volumes are based on traffic counts from the years 2012, 2013, and 2014. These counts were obtained from the City of Pleasanton, but were supplemented by new turning movement counts conducted by Hexagon.

**Scenario 2:** *Existing Plus Project Conditions.* Existing plus project conditions were estimated by adding to existing traffic volumes the additional traffic generated by the project. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts.

**Scenario 3:** *Existing Plus Approved Conditions.* Traffic volumes were obtained from the City of Pleasanton Travel Demand Forecast model. The existing plus approved no project volumes reflect all approved development in the city, including the previously approved uses at the project site. The existing plus approved with project conditions were estimated by adding the traffic generated by the project to the existing plus approved traffic volumes, minus the previously approved uses at the project site. Existing plus approved with project conditions were evaluated relative to existing plus approved without project conditions in order to determine potential near-term project impacts.

**Scenario 4:** *Buildout Conditions.* Traffic volumes were obtained from the City of Pleasanton Travel Demand Forecast model. The buildout no project traffic volumes reflect all approved and pending development in the city, including the previously approved uses at the project site. The buildout with project conditions were estimated by adding the traffic generated by the project to the buildout no project traffic volumes, minus the previously approved uses at the project site. Buildout with project conditions were evaluated relative to buildout without project conditions in order to determine potential far-term project impacts.

**Scenario 5:** *CMA Analysis.* For projects that generate more than 100 peak-hour vehicle trips, a CMA traffic analysis is required using the Countywide Travel Demand Forecast (TDF) model. The CMA analysis evaluates impacts to the CMA roadway network for the years 2020 and 2035.

## Methodology

This section describes the methods used to determine the traffic operations for each scenario. It includes the methods used for data collection, level of service calculations, and describes the various level of service standards as well as the criteria for project impacts.

## Data Requirements

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the City of Pleasanton, field observations, and published information from various transportation agencies. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing (for signalized intersections)
- approved and pending developments (size, use, and location)
- Alameda County CMA TDF model
- existing bicycle facilities
- existing transit service
- local parking requirements

## Analysis Methodologies and Level of Service Standards

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

Fourteen of the study intersections are located in the City of Pleasanton and one is located in the City of Dublin; each intersection is subject to the level of service standard for which it is located. The Cities of Pleasanton and Dublin evaluate level of service at signalized intersections based on the Highway Capacity Manual (HCM) level of service methodology using Synchro software. The HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. *Control delay* is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The correlation between average delay and level of service is shown in Table 1. The Cities of Pleasanton and Dublin have a level of service standard for signalized intersections of LOS D or better. The City of Pleasanton has a few exceptions to the LOS standard within the Downtown Area and the City of Pleasanton gateway intersections. These intersections may have a level of service worse than the LOS D standard if no reasonable mitigation exists or if the necessary mitigation is contrary to other goals and policies of the City. According to the Pleasanton General Plan, six of the signalized study intersections are considered gateway intersections.

- Foothill Road and I-580 WB Off Ramp
- Foothill Road and I-580 EB Off Ramp
- Foothill Road and Canyon Way/Dublin Canyon Road
- I-680 SB Off Ramp and Stoneridge Off Ramp
- I-680 NB Off Ramp and Stoneridge Off Ramp
- Johnson Drive and Stoneridge Drive

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 Cities of Pleasanton and Dublin intersection Level of Service standards.

According to the City of Pleasanton level of service guidelines, a development is said to create a significant adverse impact on traffic conditions at a signalized intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under no project conditions to an unacceptable LOS E or LOS F under project conditions, or

2. If the intersection is already operating at an unacceptable LOS E or LOS F under no project conditions, and the project adds ten or more trips to the intersection.

According to the City of Dublin level of service guidelines, a development is said to create a significant adverse impact on traffic conditions at a signalized intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under no project conditions to an unacceptable LOS E or LOS F under project conditions, or

2. If the intersection is already operating at an unacceptable LOS E or LOS F under no project conditions, and the project adds one or more trips to the intersection.

A significant impact at a signalized intersection is said to be satisfactorily mitigated when measures are implemented that would restore intersection levels of service to an acceptable LOS or restore the intersection to operating levels that are better than no project conditions.

**Table 1**
**Signalized Intersection Level of Service Definitions Based on Average 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 lenghts, 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

Level of service at unsignalized intersections also was based on the *Highway Capacity Manual* (HCM) method. Synchro software is used to apply the HCM operations method for evaluation of conditions at unsignalized intersections. This method is applicable for one-way, two-way, and all-way stop-controlled intersections. The delay and corresponding level of service at unsignalized, stop-controlled intersections is presented in Table 2. For side-street stop controlled intersections, the LOS was reported for the overall intersection average delay and the average delay on the worst approach. The City of Pleasanton level of service standard for unsignalized intersections is LOS E for any intersection approach.

The project is said to create a significant impact at an unsignalized intersection if any of the following occur:

1. Deterioration of an intersection approach at an unsignalized intersection from LOS E or better to LOS F, or
2. If the intersection approach is already operating at an unacceptable LOS F under no project conditions and one of the following occurs:
    - Project traffic results in satisfaction of the peak hour volume traffic signal warrant;
    - Project traffic increases minor street approach delay by more than 30 seconds; or
    - Where the peak hour volume signal warrant is met without Project traffic and delay cannot be measured, the Project increases traffic by 10 or more vehicles per lane on the controlled approach.

**Table 2**
**Unsignalized Intersection Level of Service Definitions Based on 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.

## Signal Warrant Methodology

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersections. For this study, the need for signalization is assessed on the basis of the operating conditions at the intersections (i.e., level of service) and on the peak hour volume signal warrant – warrant #3 – described in the *2012 California Manual on Uniform Traffic Control Devices* (MUTCD). This method provides an indication of whether traffic conditions and peak hour traffic levels are, or would be, sufficient to justify installation of a traffic signal.

## Intersection Operations

The operations analysis is based on vehicle queuing for high-demand movements at intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of "n" vehicles for a vehicle movement using the following formula:

$$P(x=n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

P (x=n) = probability of "n" vehicles in queue

n = number of vehicles in the queue

$\lambda$ = Average number of vehicles in the queue per lane (vehicles per hour /signal cycles per hour)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement.

### Freeway Ramp Capacity Analysis

This analysis was performed in order to verify that the freeway ramps would have sufficient capacity to serve the expected traffic volumes with 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 *Highway Capacity Manual 2010* and the *Alameda Countywide Transportation Model Update – Model Documentation 2009*.

For the purposes of this study, the project is said to create a significant adverse impact on a freeway ramp if its implementation:

- Causes the volume-to-capacity (V/C) ratio of the freeway ramp to exceed 1.0; or
- if a segment is already operating at or above a V/C of 1.0 in the No Project case and the project causes an increase in the V/C ratio by more than 0.03 (for example, from 1.03 to 1.07).

## Report Organization

The remainder of this report is divided into six chapters. Chapter 2 describes the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 describes the method used to estimate project traffic. Chapter 4 describes the project impacts under existing plus project conditions on the transportation system. Chapter 5 presents the intersection operations under existing plus approved conditions and the project impact on the transportation system. Chapter 6 presents the intersection operations under cumulative traffic conditions. Chapter 7 describes non-level of service operational issues associated with the proposed project and Chapter 8 presents the impacts to the CMA roadway network.

# 2. Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

## Existing Roadway Network

Regional access to the project site is provided via Interstates 580 (I-580) and 680 (I-680). Local access to the site is provided via Foothill Road, Stoneridge Drive, Stoneridge Mall Road, and Canyon Way. These roadways are described below.

***I-580*** is an east-west freeway with four mixed-flow lanes in the eastbound direction and four mixed-flow lanes in the westbound direction within the project vicinity. I-580 provides regional access from the East Bay cities to San Joaquin County, where it merges with I-5. Access to the project study area is provided via its interchange with Foothill Road/San Ramon Road.

***I-680*** is a six to eight lane north/south freeway with three mixed-flow lanes and one HOV lane in each direction north of I-580 and three mixed-flow lanes in each direction south of I-580. I-680 extends north through Contra Costa County and south to Santa Clara County. The HOV lanes run north and south from central Contra Costa County to near the Dublin/San Ramon border. Access to the project study area is provided via its interchange with Stoneridge Drive.

***Foothill Road*** is predominantly a north-south arterial roadway that extends north from Kilkare Road in Sunol to I-580, where it becomes San Ramon Road and continues into the City of Dublin. It is two lanes wide from Kilkare Road to Stoneridge Drive, five lanes wide (three lanes northbound and two lanes southbound) from Stoneridge Drive to Canyon Way/Dublin Canyon Road, and four to six lanes wide from Canyon Way/Dublin Canyon Road to San Ramon Road. Foothill Road provides access to the project site via Canyon Way.

***Stoneridge Drive*** is predominantly an east-west arterial roadway that extends from Foothill Road in the west to El Charro Road, where it becomes Jack London Boulevard and continues into the City of Livermore. It is four lanes wide from Foothill Road to Stoneridge Mall Road, primarily six lanes wide from Stoneridge Mall Road to Chabot Drive, five lanes wide (three lanes westbound and two lanes eastbound) from Chabot Drive to Las Positas Boulevard, and four lanes wide east of Las Positas Boulevard. Stoneridge Drive provides access to the project site via Stoneridge Mall Road.

***Stoneridge Mall Road*** is a four-lane collector roadway that extends north from Stoneridge Drive into the Stoneridge Mall area, where it circles the mall and surrounding commercial/office uses and terminates at its intersection with Workday Way. North of its intersection with Workday Way, Stoneridge Mall Road has a two-way center left turn lane. Stoneridge Mall Road provides direct access to the project site.

***Canyon Way*** is a four to six-lane collector roadway that extends from Stoneridge Mall Road in the east to Foothill Road, where it becomes Dublin Canyon Road. Canyon Way provides access to the project site via Stoneridge Mall Road.

## Existing Bicycle and Pedestrian Facilities

Bicycle facilities are divided into three classes. Class I bikeways are separate bike paths that are physically separated from motor vehicles and offer two-way bicycle travel on a separate path. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings. Class III bikeways are bike routes and only have signs to help guide bicyclists on recommended routes to certain locations.

The 2010 *Pleasanton Pedestrian and Bicycle Master Plan* describes the existing bicycle network in the City of Pleasanton. The existing bicycle facilities in the vicinity of the project site are described below and shown on Figure 3.

- Stoneridge Drive has existing eastbound and westbound Class II bicycle lanes between (1) Foothill Road and Gibraltar Drive and (2) West Las Positas Boulevard and the City limits to the east. Class II lanes are located only on the eastbound travelled way of Stoneridge Drive between Gibraltar Drive and West Las Positas Boulevard.

- Foothill Road has existing southbound Class II bicycle lanes from just south of Canyon Way to Moeller Ranch Drive and southbound and northbound Class II bicycle lanes from Moeller Ranch Drive to Muirwood Drive.

- Dublin Canyon Road has existing Class II bicycle lanes from Foothill Road to the City limits in the west.

- The Alamo Canal (Centennial) Trail is an East Bay Regional Park District Regional Trail that extends from central Pleasanton north under I-580 and into the City of Dublin, where it connects to the Iron Horse Trail. It is located on the east side of I-680 across from the project site.

According to the *Pleasanton Pedestrian and Bicycle Master Plan*, there are Class II bike lanes proposed along the portions of Foothill Road where bike lanes do not currently exist.

Sidewalks are found along virtually all previously-described local roadways in the study area and along the streets near the site, with a few exceptions. Foothill Road lacks sidewalks on the west side of the roadway within the project vicinity and on a short portion of the east side immediately south of Stoneridge Drive. Also, Canyon Way lacks sidewalks on the south side of the roadway and Stoneridge Mall Road lacks sidewallks on the interior of the roadway.

## Existing Transit Service

Existing transit service in the project vicinity is provided by the Livermore Amador Valley Transit Authority (LAVTA) and Bay Area Rapid Transit (BART). The transit service provided in the study area is described below and shown on Figure 4.

### *Livermore Amador Valley Transit Authority (LAVTA)*

LAVTA provides transit service for the Tri-Valley communities of Dublin, Livermore and Pleasanton via Wheels, which provides local, regional, and paratransit bus service. In addition, Wheels provides connections to BART, ACE, and the Central Contra Costa County Transportation Authority (County Connection) services. There are several existing bus stops within the Stoneridge Shopping Mall site, with a bus duckout and shelter on Stoneridge Mall Road adjacent to the project site at the BART parking garage. There is an additional bus duckout with shelter located on Stoneridge Mall Road immediately south of the signalized intersection with Embarcadero Court. Table 3 summarizes the service frequencies for the transit routes in the study area.

**Table 3**
**LAVTA Transit Service**

| Route | Route Description | Weekday Hours of Operation | Headway [1] |
|---|---|---|---|
| R | East/Vasco LLNL to Stoneridge Mall/Dublin/Pleasanton BART | 5:15AM to 8:00PM | 15 |
| 3 | East Dublin/Pleasanton BART to Stoneridge Mall | 6:00AM to 8:50PM | 30 |
| 10 | East/Vasco LLNL to Stoneridge Mall/Dublin/Pleasanton BART | 3:45AM to 1:45AM | 30 |
| 53 | Pleasanton ACE Station to W. Dublin BART/Stoneridge Mall | 5:30AM - 8:45AM & 4:00PM - 7:30PM | 25 to 60 |
| 70xv | Pleasant Hill BART to Stoneridge Mall/E. Dublin BART | 7:30AM - 8:30AM & 4:45PM - 5:50PM | NA |
| 603 | Stoneridge Mall Road to Hart Middle School | 8:10AM - 8:25AM & 3:15PM - 3:30PM | NA |
| 604 | Fairlands to Foothill Highschool | 7:15AM - 7:45AM & 3:00PM - 3:30PM | NA |

[1] Approximate headways during commute periods, in minutes
NA - Route has only one trip

### *Bay Area Rapid Transit (BART)*

Commuter rail service in the project vicinity is provided by BART. The closest access to the BART system, which provides service to San Francisco and many locations in the East Bay, is at the West Dublin/Pleasanton Station located immediately north of the project site. BART is accessible by foot via the I-580 pedestrian overcrossing adjacent to the project site. BART trains operate on 15 minute headways during the commute periods.

## Existing Intersection Lane Configurations and Traffic Volumes

The existing lane configurations at the study intersections were determined by observations in the field. The existing intersection lane configurations are shown on Figure 5. Existing peak hour traffic volumes were obtained from recent manual turning-movement counts at the study intersections. The existing peak hour intersection volumes are shown on Figure 6. New traffic count data are included in Appendix A.

## Existing Signalized Intersection Levels of Service

The results of the signalized intersection levels of service analysis under existing conditions are summarized in Table 4. The results show that, measured against the City of Pleasanton and Dublin level of service standards, all of the signalized study intersections currently operate at acceptable levels of service during both the AM and PM peak hours of traffic. The level of service calculation sheets are included in Appendix C.

## Existing Unsignalized Intersection Levels of Service

The results of the unsignalized intersection levels of service analysis under existing conditions are summarized in Table 4. The results show that, measured against the City of Pleasanton level of service standards, both of the unsignalized study intersections currently operate at acceptable levels of service during both the AM and PM peak hours of traffic. Neither of the unsignalized study intersections currently meet peak hour signal warrant checks. The level of service calculation sheets are included in Appendix C.

**Table 4**
**Existing Intersection Levels of Service**

| Study Number | Intersection | Traffic Control | Peak Hour | Existing Delay (in seconds)[1] | Existing LOS[1] |
|---|---|---|---|---|---|
| **Pleasanton Intersections:** | | | | | |
| #1 | San Ramon Rd and I-580 WB Off Ramp[3] | Signal | AM | 9.4 | A |
| | | | PM | 12.5 | B |
| #2 | Foothill Rd and I-580 EB Off Ramp[3] (Future) | Signal | AM | -- | -- |
| | | | PM | -- | -- |
| #3 | Foothill Rd and Canyon Wy/Dublin Canyon Rd[3] | Signal | AM | 21.6 | C |
| | | | PM | 45.8 | D |
| #4 | Foothill Rd and Stoneridge Dr | Signal | AM | 18.9 | B |
| | | | PM | 23.2 | C |
| #5 | Stoneridge Mall Rd and Canyon Wy | Signal | AM | 5.0 | A |
| | | | PM | 5.8 | A |
| #6 | Stoneridge Mall Rd and Bart Entrance | SSSC[2] | AM | 1.0/13.0 | A/B |
| | | | PM | 3.3/24.1 | A/C |
| #7 | Stoneridge Mall Rd and Project Dwy | SSSC[2] | AM | 1.7/12.6 | A/B |
| | | | PM | 3.7/19.3 | A/C |
| #8 | Stoneridge Mall Rd and Embarcadero Ct | Signal | AM | 11.8 | B |
| | | | PM | 20.2 | C |
| #9 | Stoneridge Mall Rd and Workday Wy | Signal | AM | 9.5 | A |
| | | | PM | 20.0 | C |
| #10 | Stoneridge Mall Rd and Stoneridge Dr | Signal | AM | 7.7 | A |
| | | | PM | 15.4 | B |
| #11 | I-680 SB Off Ramp and Stoneridge Dr[3] | Signal | AM | 13.8 | B |
| | | | PM | 11.3 | B |
| #12 | I-680 NB Off Ramp and Stoneridge Dr[3] | Signal | AM | 13.7 | B |
| | | | PM | 12.5 | B |
| #13 | Johnson Dr and Stoneridge Dr[3] | Signal | AM | 18.1 | B |
| | | | PM | 22.2 | C |
| #14 | Hopyard Rd and Stoneridge Dr | Signal | AM | 28.4 | C |
| | | | PM | 34.3 | C |
| **Dublin Intersection:** | | | | | |
| #15 | San Ramon Rd and Dublin Blvd | Signal | AM | 34.0 | C |
| | | | PM | 37.3 | D |

[1] Signalized intersection levels of service and delays reported are for overall average delay. SSSC intersection levels of service and delays reported are for both the overall average delay and the approach with the highest delay.
[2] SSSC = Side Street Stop Control.
[3] These intersections are Gateway Intersections and may have an LOS worse than D.


**Figure 3**
**Bicycle Facilities**

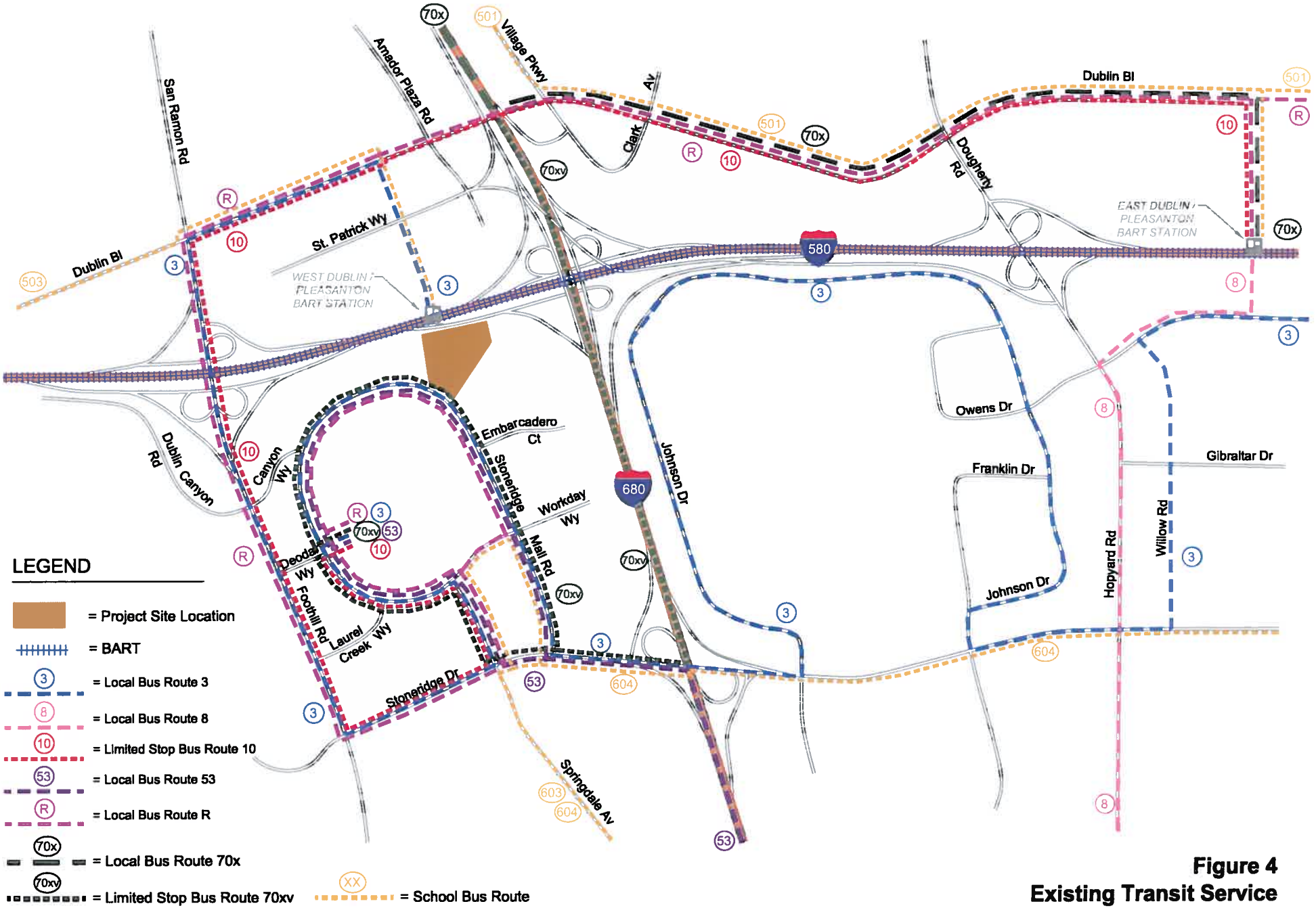



**Figure 4**
**Existing Transit Service**

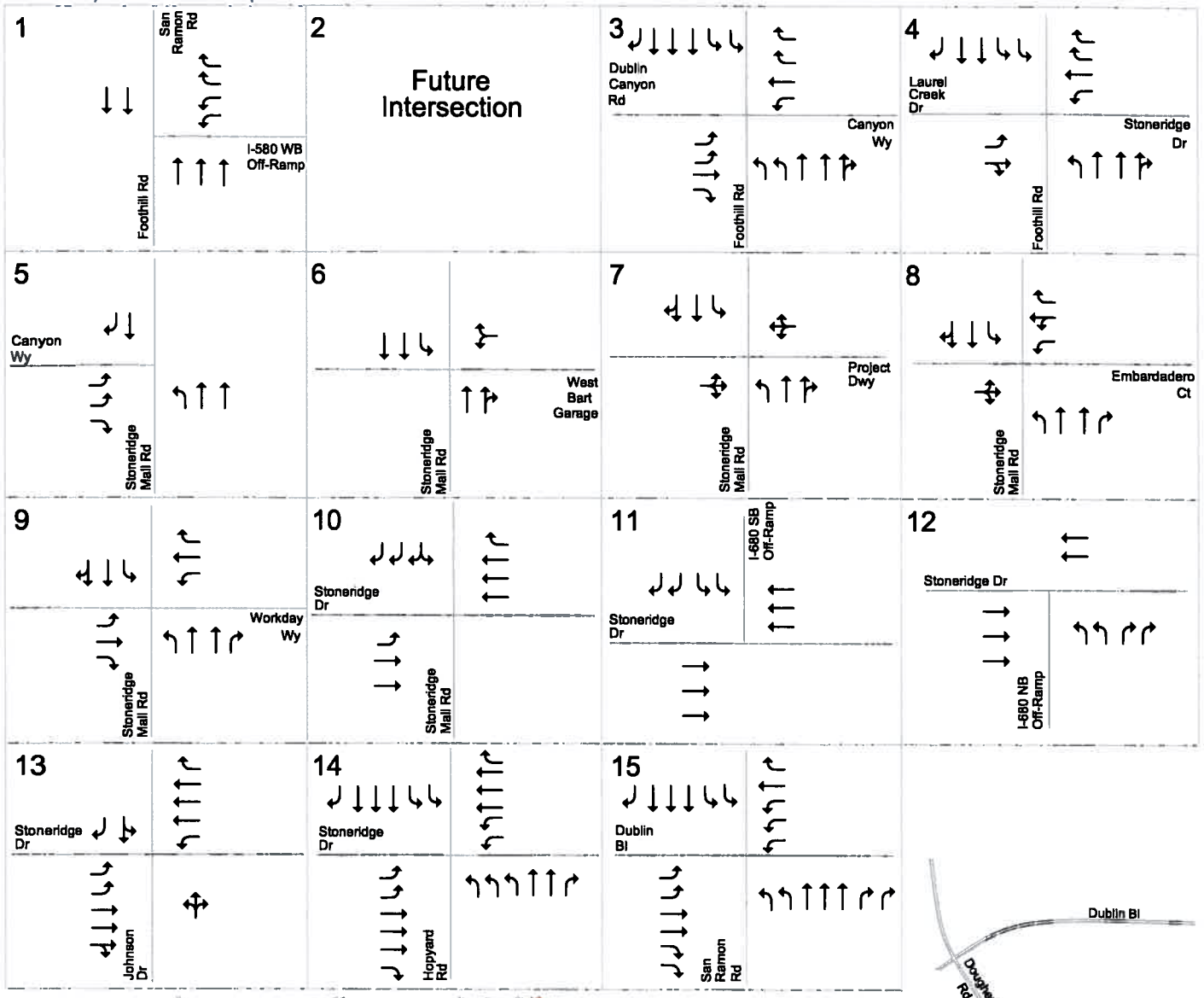




**Figure 5**
**Existing Lane Configurations**



NORTH
Not to Scale

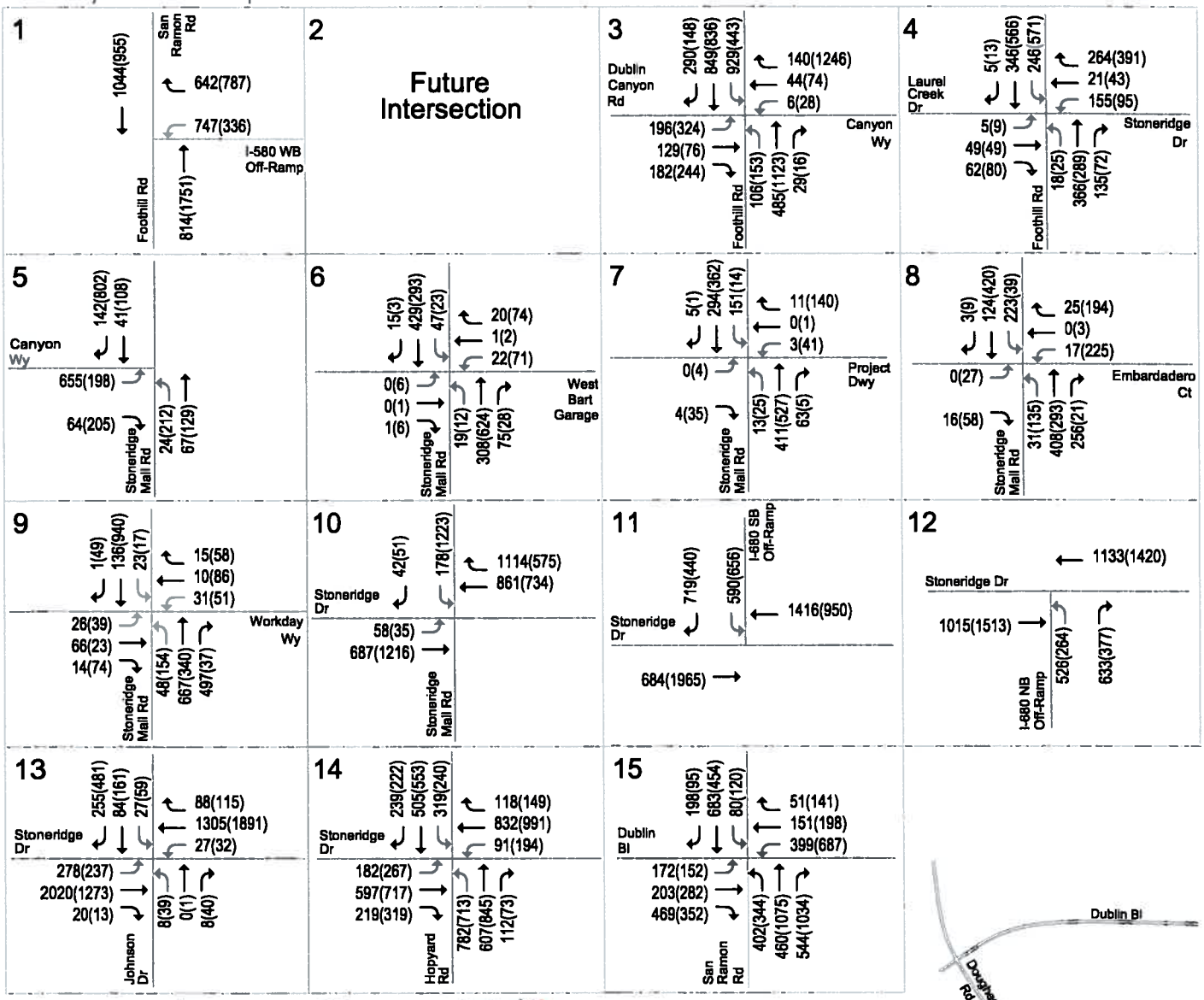



**Figure 6**
**Existing Traffic Volumes**

## Existing Freeway Ramp Capacity Analysis

The results of the freeway ramp capacity analysis under existing conditions are summarized in Table 5. The results show that all of the study ramps have volume-to-capacity (V/C) ratios less than 1.0, which means that all of the ramps currently operate below capacity.

**Table 5**
**Existing Freeway Ramp Analysis**

| Freeway Ramps | Peak Hour | Capacity (vph)[1] | Existing Volumes[2] | Existing V/C Ratio[3] |
|---|---|---|---|---|
| **I-580 at Foothill Road/San Ramon Road** | | | | |
| NB Foothill to WB I-580 On Ramp | AM | 1800 | 194 | 0.11 |
| | PM | 1800 | 617 | 0.34 |
| NB Foothill to EB I-580 On Ramp | AM | 1800 | 272 | 0.15 |
| | PM | 1800 | 765 | 0.43 |
| **I-680 at Stoneridge Drive** | | | | |
| EB Stoneridge to NB I-680 On Ramp | AM | 1800 | 228 | 0.13 |
| | PM | 1800 | 865 | 0.48 |
| EB Stoneridge to SB I-680 On Ramp | AM | 470 | 169 | 0.36 |
| | PM | 1800 | 591 | 0.33 |

[1] Capacities obtained from Highway Capacity Manual 2010 and the Alameda Countywide Transportation Model Update - Model Documentation 2009.
[2] Volumes obtained from the City of Pleasanton 2012 Synchro files.
[3] Volume-to-capacity ratio.

## 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 levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the LOS calculation does not accurately reflect level of service in the field.

Overall, the study intersections operate adequately during the weekday AM and PM peak hours, and the level of service analysis appears to accurately reflect actual existing traffic conditions. However, field observations showed that some operational problems currently occur at the following locations near the project site:

- ***San Ramon Road and Dublin Boulevard.*** During the AM and PM peak hours, the queue for the northbound left turn on San Ramon Road occasionally spills out of the turn pocket and does not clear in one cycle.
- ***San Ramon Road and I-580 Westbound Ramps.*** During the PM peak hour, the northbound queue in the curb lane occasionally spills back to the intersection of Foothill Road and Canyon Way. However, at the time of these observations, construction of the new Foothill Road and I-580 eastbound ramps intersection was underway. This may have caused the long queues observed.
- ***Foothill Road and Canyon Way.*** During the AM peak hour, the queue for the southbound inside left turn on Foothill Road occasionally spills out of the turn pocket into the through lane, but

typically clears the intersection in one cycle. During the PM peak hour, the queue for the westbound right turn on Canyon Way occasionally spills past the midblock driveways to the east.

- ***Stoneridge Mall Road and Workday Way.*** During the AM peak hour, the queue for the northbound left turn on Stoneridge Mall Road occasionally spills out of the turn pocket into the through lane, but typically clears the intersection in one cycle.
- ***Stoneridge Mall Road and Stoneridge Drive.*** During the PM peak hour, there is an intermittently heavy southbound queue on Stoneridge Mall Road, which occasionally spills back to the preceding intersection at McWilliams Lane. However, the movement typically clears the intersection in one cycle.

# 3.
# Project Characteristics

This chapter describes the method by which project traffic is estimated. The proposed Workday office development is located adjacent to the West Dublin/Pleasanton BART station on Stoneridge Mall Road. The project would consist of 430,000 square feet (s.f.) of office space and two parking structures. One parking structure would consist of approximately 700 parking spaces and be located on the project site. The other parking structure would consist of approximately 900 parking spaces and be located on the southwest portion of the Stoneridge Corporate Plaza site, south of the project. Access to the site would be provided via existing driveways on Stoneridge Mall Road and Embarcadero Court.

## Estimating Project Traffic

The magnitude of traffic produced by the proposed development and the locations where that traffic would appear were estimated by (1) calculating the project trip generation and (2) assigning project traffic to the roadway segments and intersections around the project site using a travel demand forecast (TDF) model. These procedures are described below.

Through empirical research, data have been collected that correlate common land uses to their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. Project trip generation was estimated by applying to the size and uses of the development the appropriate trip generation rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation*, *9th Edition*. Based on ITE's trip generation rates for general office use (ITE code 710), the project would generate 3,978 gross daily vehicle trips, with 615 gross trips occurring during the AM peak hour and 560 gross trips occurring during the PM peak hour.

Because the project site is located near the West Dublin/Pleasanton BART station, a transit reduction of 3 percent was applied to the overall project trip generation. This reduction was based on estimates of transit mode share from the Pleasanton TDF model. While higher transit rider mode splits are typically observed around major transit nodes (such as BART stations), the vast majority of BART service is provided in areas west of the project site and serves only a small subset of potential commute routes. In addition, existing commute patterns in the Bay Area show heavy traffic from the Tri-Valley area to the major employment centers in the East Bay and San Francisco during the AM commute hours, and the reverse in the PM peak hour. Because the delays on freeways are high in the peak direction, commuters often find BART service a convenient alternative to driving. However, the proposed project is an office development; most of its trips to/from the East Bay would occur in the off-peak direction of BART service,

where the delays on the freeways are much lower. For many future employees of the proposed development that live in the East Bay, it would be much quicker to drive to the site rather than utilize BART.

In addition to the transit reduction, the project will receive trip credits for the approved uses at the site under both the (1) existing plus approved and (2) buildout conditions analyses. The site is currently approved for 350 multi-family units and 14,286 s.f. of commercial use. Under the existing plus project scenario, these trip credits do not apply.

After applying the appropriate trip reductions, under existing plus project conditions, the project would generate 3,859 net new daily trips, with 597 net new trips occurring during the AM peak hour and 543 net new trips occurring during the PM peak hour. Under the (1) existing plus approved and (2) buildout scenarios, the project would generate 1,090 net new daily trips, with 413 net new trips occurring during the AM peak hour and 288 net new trips occurring during the PM peak hour. The project trip generation estimates are presented below in Table 6.

**Table 6**
**Project Trip Generation Estimates**

| | | | | | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | Size | Units | Daily Rate | Daily Trips | Pk-Hr Rate | In | Out | Total | Pk-Hr Rate | In | Out | Total |
| **Proposed Use** | | | | | | | | | | | | |
| General Office [1] | 430.0 | ksf | 9.25 | 3,978 | 1.43 | 541 | 74 | 615 | 1.30 | 95 | 465 | 560 |
| Transit Reduction[2] | | | 3% | (119) | | (16) | (2) | (18) | | (3) | (14) | (17) |
| | | | | 3,859 | | 525 | 72 | 597 | | 92 | 451 | 543 |
| **Approved Use** | | | | | | | | | | | | |
| Commercial Space [3] | 14.286 | ksf | 42.70 | 610 | 0.96 | 9 | 5 | 14 | 3.71 | 25 | 28 | 53 |
| Apartments [4] | 350 | units | 6.41 | 2,245 | 0.50 | 35 | 140 | 175 | 0.60 | 137 | 73 | 210 |
| | | | | 2,855 | | 44 | 145 | 189 | | 162 | 101 | 263 |
| Transit Reduction[2] | | | 3% | (86) | | (1) | (4) | (5) | | (5) | (3) | (8) |
| | | | | 2,769 | | 43 | 141 | 184 | | 157 | 98 | 255 |
| ***Net Project Trip Totals*** | | | | 1,090 | | 482 | -69 | 413 | | -65 | 353 | 288 |

Notes:
[1] Based on Fitted Curved Equation for General Office Building (710). Institute of Transportation Engineers, Trip Generation, 9th Edition.
[2] A transit trip reduction of 3% was applied based on results from the City of Peasanton travel demand forecasting model.
[3] Based on Average Rate for Shopping Center (820). Institute of Transportation Engineers,Trip Generation, 9th Edition.
[4] Based on Fitted Curved Equation for Apartments (220). Institute of Transportation Engineers,Trip Generation, 9th Edition.

The assignment of site-generated traffic to and from intersections and freeway ramps in the project area was carried out directly by the City of Pleasanton TDF model. Under project conditions, the model assignment includes any potential redistribution of traffic associated with the existing Stoneridge Corporate Plaza. The project land uses and ITE trip generation estimates were coded into the TDF model, which was then used to generate future traffic volume forecasts for all of the study scenarios. This method is different than "hand" assignment methods where project traffic is added directly to base year no project traffic volumes. For large projects, use of the TDF model is considered more accurate because it accounts for (1) changes in origin-destination pairs (2) ambient traffic diversion that may occur as a result of project traffic, and (3) the spreading of peak hour trips into off-peak hours. The modeling process is described in greater detail in the following section.

## Modeling the Project

Except for existing traffic volumes (which were developed from existing counts), all future (no project and project) traffic volumes at intersections and freeway ramps were generated using the City of Pleasanton TDF model, including the existing plus project scenario. The City of Pleasanton TDF Model includes a more detailed zone and network structure within the City of Pleasanton than the Alameda County TDF

model. The Pleasanton TDF model reflects projected traffic growth both in the City of Pleasanton and throughout the region. The Pleasanton TDF model also includes any local and regional planned roadway improvements that will alter travel patterns in the future. The improvements in the vicinity of the project are described in the following sections of this report for (1) existing plus approved and (2) buildout conditions. The Pleasanton TDF model includes three base years: existing, existing plus approved, and General Plan buildout. Prior to modeling the project, the Pleasanton TDF model was validated by comparing base year 2012/2013 forecasts to the existing traffic counts at study locations in the project area.

To estimate the traffic volumes that would occur with the proposed project, the project land uses and trip generation estimates were coded in the City of Pleasanton TDF model and the approved land uses from the project site were removed. At some study locations, the model traffic volumes with the project are not as high as what might be expected given the size of the proposed project. This typically occurs when project traffic displaces other traffic on the roadway network. For example, the project would add a large number of trips to I-580, I-680, Stoneridge Drive, and Foothill Road. Under existing and future conditions, certain movements on these roadways experience high levels of congestion. In such cases, the model will assign project traffic to the roadway network in accordance with the quickest route to and from the intended destination. The quickest route for project traffic may be to use Stoneridge Drive, Foothill Road, I-580, and I-680, but because the presence of project traffic would affect the travel time of other street users, ambient traffic would re-route to other roadways to minimize their overall travel times. This "re-routed" traffic affects ambient traffic at other nearby roadways and freeway segments, which then also re-routes to find the quickest route to their final destination. This process in the TDF model repeats itself until the shortest possible travel time is achieved for all trips (origin-destination pairs) in the region. In essence, the model spreads the increases in traffic volumes across all roadways in the region, with the largest traffic increases generally occurring nearest to the project site.

In addition, the TDF model accounts for the spreading of the peak commute period. As travel times increase for certain origin to destination trips, travelers are shifted to the "shoulder hours" and are not expected to begin or end their trip within the chosen peak-hour. This behavior results in "peak-spreading" and effectively reduces the number of peak-hour trips associated with the project. For example, if someone is commuting into the Stoneridge Mall area from Tracy, the delays are higher on I-580 under year 2035 buildout conditions than under the existing conditions. Thus, the model will reduce the number of peak hour trips made between these two zones more in the buildout scenario than in the existing scenario because drivers will have a greater incentive to avoid the peak commute period. While the number of trips on I-580 would still be higher in the buildout scenario, and the delays on I-580 would be higher, the number of trips during the peak 60 minutes going into the Stoneridge Mall area may be reduced slightly because more trips will be shifted to off peak hours (to avoid the bottlenecks).

The traffic volumes from the Pleasanton TDF model were adjusted at ramps and intersections using the following process: (1) the raw base year model forecasts (year 2013) from the Pleasanton TDF model were subtracted from the future forecasts, and (2) this traffic increment was added to the existing traffic counts for each intersection and ramp movement. This method captures both the amount of future traffic added to intersections and ramps as well as any diversion of ambient traffic caused by future land use changes or roadway improvements.

Per Alameda County CMA requirements, impacts at freeway segments and routes of regional significance were estimated using the Alameda County TDF model. This process is described in detail in Chapter 8.

# 4.
# Existing Plus Project Conditions

This chapter describes existing plus project traffic conditions. Existing plus project traffic conditions could potentially exist if the project was constructed and occupied prior to the other approved projects in the area. It is unlikely that this traffic condition would occur, since other approved projects expected to add traffic to the study area would likely be built and occupied during the time the project is going through the development review and construction process. This scenario describes a less congested traffic condition, since it ignores any potential traffic from prior approvals. Existing plus project conditions also do not include any planned roadway improvements.

## Existing Plus Project Traffic Volumes

To estimate traffic for existing plus project conditions, the project land use and trip generation estimates were coded into the City of Pleasanton TDF model. The model forecasts were adjusted using existing traffic counts as described in the "Modeling the Project" section of Chapter 3. The existing plus project traffic volumes at the study intersections are shown graphically on Figure 7.

## Existing Plus Project Signalized Intersection Levels of Service

The results of the signalized intersection level of service analysis under existing plus project conditions are summarized in Table 7. The results show that all of the signalized intersections would continue to operate at acceptable levels of service during the AM and PM peak hours of traffic under existing plus project conditions. The intersection of Foothill Road and Canyon Way would operate at LOS E during the PM peak hour. However, the intersection is a "*Gateway Intersection*" and is not required to maintain a LOS of D or better. The City of Pleasanton has already planned improvements at this intersection as part of the City's Traffic Impact Fee (TIF) program. The level of service calculation sheets are included in Appendix C.

## Existing Plus Project Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under existing plus project conditions are summarized in Table 7. The results show that, both of the unsignalized intersections would operate at acceptable levels of service (LOS E or better) during both the AM and PM peak hours under existing plus project conditions. The level of service calculation sheets are included in Appendix C.

The level of service analysis at unsignalized intersections was supplemented with an assessment of the need for signalization of the intersections. The results of the traffic signal warrant analysis shows that, under existing plus project conditions, the intersection of Stoneridge Mall Road and Project Driveway

would meet signal warrants during the PM peak hour. This intersection is discussed in detail in Chapter 7 of this report under the *Site Access* section. However, this would not constitute a significant impact according to City of Pleasanton criteria because the intersection would operate at an acceptable LOS. The Stoneridge Mall Road and Bart Entrance intersection would not meet the peak hour traffic signal warrant check under existing plus project conditions. The traffic signal warrant sheets are included in Appendix B.

**Table 7**
**Existing Plus Project Intersection Levels of Service**

| Study Number | Intersection | Traffic Control | Peak Hour | Existing | | Existing + Project | |
|---|---|---|---|---|---|---|---|
| | | | | Delay (in seconds)[1] | LOS[1] | Delay (in seconds)[1] | LOS[1] |
| **Pleasanton Intersections:** | | | | | | | |
| #1 | San Ramon Rd and I-580 WB Off Ramp[3] | Signal | AM | 9.4 | A | 11.0 | B |
| | | | PM | 12.5 | B | 13.1 | B |
| #2 | Foothill Rd and I-580 EB Off Ramp[3] (Future) | Signal | AM | – | – | – | – |
| | | | PM | – | – | – | – |
| #3 | Foothill Rd and Canyon Wy/Dublin Canyon Rd[3] | Signal | AM | 21.6 | C | 27.0 | C |
| | | | PM | 45.8 | D | 58.2 | E |
| #4 | Foothill Rd and Stoneridge Dr | Signal | AM | 18.9 | B | 18.9 | B |
| | | | PM | 23.2 | C | 23.5 | C |
| #5 | Stoneridge Mall Rd and Canyon Wy | Signal | AM | 5.0 | A | 5.5 | A |
| | | | PM | 5.8 | A | 6.4 | A |
| #6 | Stoneridge Mall Rd and Bart Entrance | SSSC[2] | AM | 1.0/13.0 | A/B | 0.9/15.0 | A/B |
| | | | PM | 3.3/24.1 | A/C | 4.3/37.6 | A/E |
| #7 | Stoneridge Mall Rd and Project Dwy | SSSC[2] | AM | 1.7/12.6 | A/B | 3.7/29.0 | A/D |
| | | | PM | 3.7/19.3 | A/C | 14.4/47.7 | B/E |
| #8 | Stoneridge Mall Rd and Embarcadero Ct | Signal | AM | 11.8 | B | 18.8 | B |
| | | | PM | 20.2 | C | 23.9 | C |
| #9 | Stoneridge Mall Rd and Workday Wy | Signal | AM | 9.5 | A | 11.4 | B |
| | | | PM | 20.0 | C | 26.5 | C |
| #10 | Stoneridge Mall Rd and Stoneridge Dr | Signal | AM | 7.7 | A | 8.0 | A |
| | | | PM | 15.4 | B | 16.5 | B |
| #11 | I-680 SB Off Ramp and Stoneridge Dr[3] | Signal | AM | 13.8 | B | 16.7 | B |
| | | | PM | 11.3 | B | 11.6 | B |
| #12 | I-680 NB Off Ramp and Stoneridge Dr[3] | Signal | AM | 13.7 | B | 14.2 | B |
| | | | PM | 12.5 | B | 12.7 | B |
| #13 | Johnson Dr and Stoneridge Dr[3] | Signal | AM | 18.1 | B | 18.5 | B |
| | | | PM | 22.2 | C | 22.1 | C |
| #14 | Hopyard Rd and Stoneridge Dr | Signal | AM | 28.4 | C | 29.0 | C |
| | | | PM | 34.3 | C | 34.8 | C |
| **Dublin Intersection:** | | | | | | | |
| #15 | San Ramon Rd and Dublin Blvd | Signal | AM | 34.0 | C | 34.1 | C |
| | | | PM | 37.3 | D | 37.3 | D |

[1] Signalized intersection levels of service and delays reported are for overall average delay. SSSC intersection levels of service and delays reported are for both the overall average delay and the approach with the highest delay.
[2] SSSC = Side Street Stop Control.
[3] These intersections are Gateway Intersections and may have an LOS worse than D.
Denotes unacceptable level of service

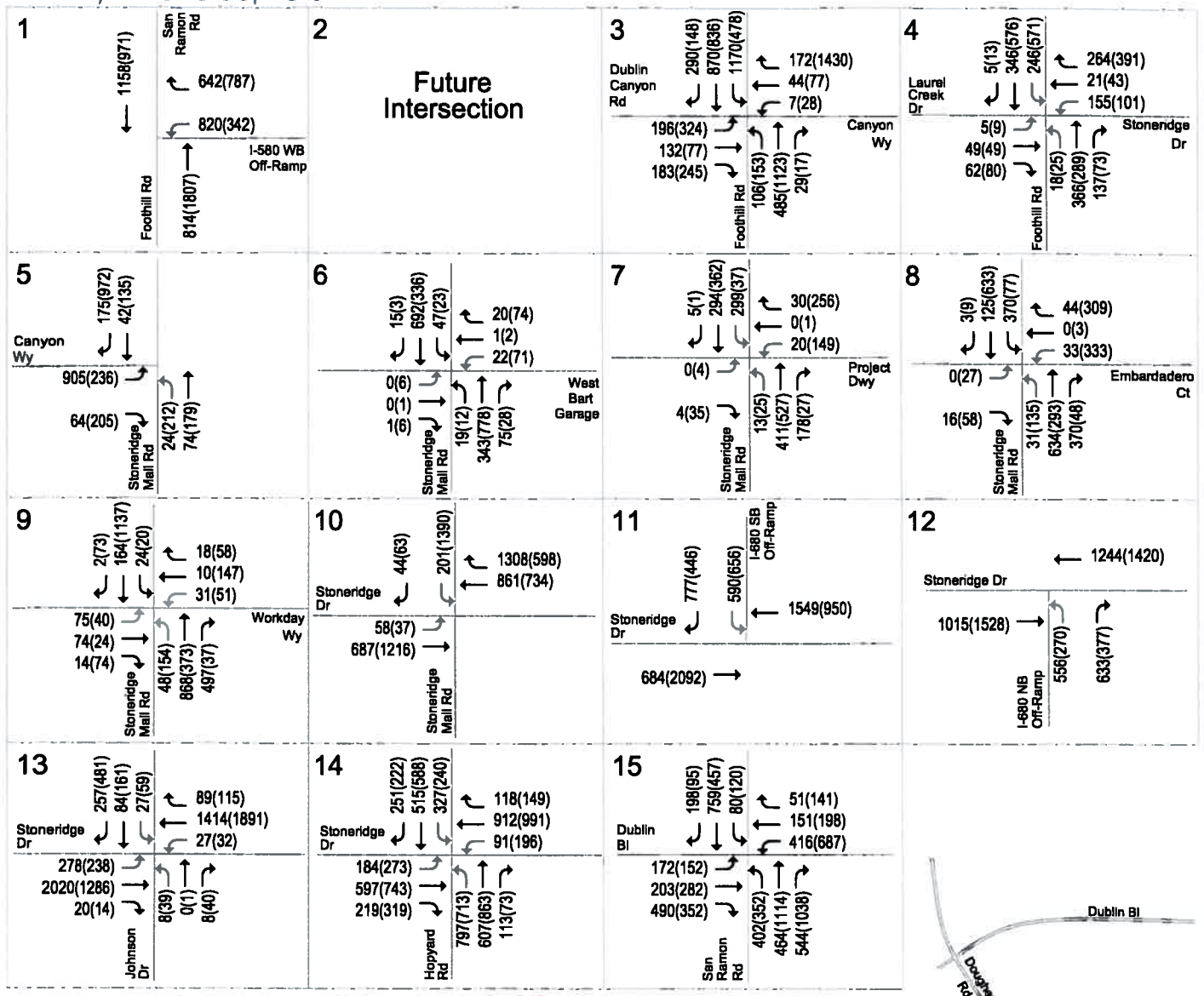
## Existing Plus Project Freeway Ramp Capacity Analysis

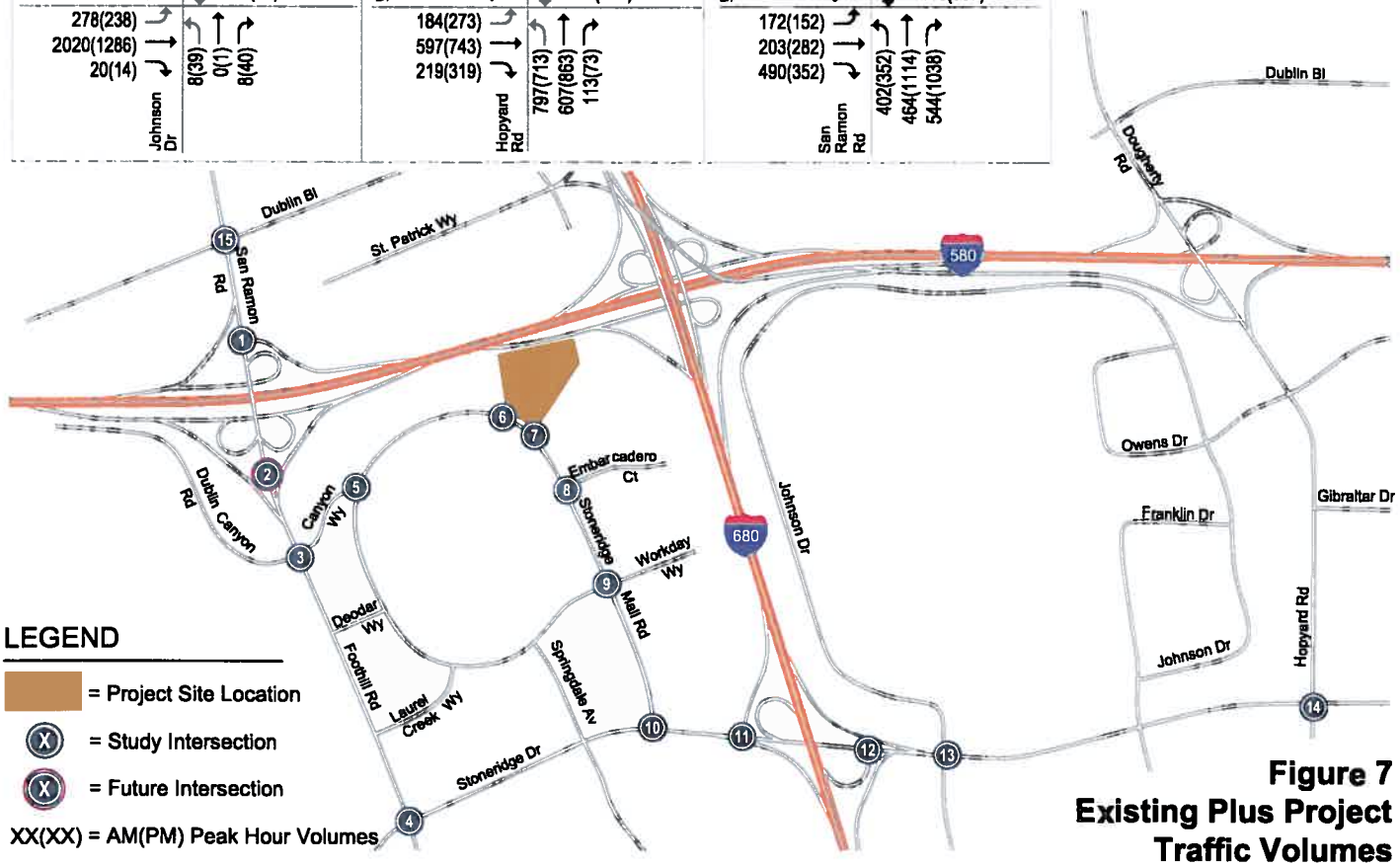
The results of the freeway ramp capacity analysis under existing plus project conditions are summarized in Table 8. The results show that all of the study ramps have volume-to-capacity (V/C) ratios less than 1.0, which means that the proposed project would not cause any ramps to operate below capacity.

**Table 8**
**Existing Plus Project Freeway Ramp Analysis**

| | | | Existing | | Existing + Project | |
|---|---|---|---|---|---|---|
| Freeway Ramps | Peak Hour | Capacity (vph)[1] | Volumes[2] | V/C Ratio[3] | Volumes[2] | V/C Ratio[3] |
| **I-580 at Foothill Road/San Ramon Road** | | | | | | |
| NB Foothill to WB I-580 On Ramp | AM | 1800 | 194 | 0.11 | 188 | 0.10 |
| | PM | 1800 | 617 | 0.34 | 691 | 0.38 |
| NB Foothill to EB I-580 On Ramp | AM | 1800 | 272 | 0.15 | 277 | 0.15 |
| | PM | 1800 | 765 | 0.43 | 768 | 0.43 |
| **I-680 at Stoneridge Drive** | | | | | | |
| EB Stoneridge to NB I-680 On Ramp | AM | 1800 | 228 | 0.13 | 233 | 0.13 |
| | PM | 1800 | 865 | 0.48 | 936 | 0.52 |
| EB Stoneridge to SB I-680 On Ramp | AM | 470 | 169 | 0.36 | 182 | 0.39 |
| | PM | 1800 | 591 | 0.33 | 617 | 0.34 |

[1] Capacities obtained from Highway Capacity Manual 2010 and the Alameda Countywide Transportation Model Update - Model Documentation 2009.
[2] Volumes obtained from the City of Pleasanton Synchro files and TDF model .
[3] Volume-to-capacity ratio.




LEGEND

= Project Site Location

X = Study Intersection

X = Future Intersection

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

**Figure 7**
**Existing Plus Project Traffic Volumes**



NORTH

# 5.
# Existing Plus Approved Conditions

This chapter describes existing plus approved traffic conditions without and with the project. Existing plus approved no project and with project traffic volumes were estimated using forecasts from the City of Pleasanton TDF model. The Pleasanton TDF model includes various local and regional improvements outside of the project area. Included in this chapter is a summary of any intersection impacts caused by the project under existing plus approved conditions.

## Transportation Network Under Existing Plus Approved Conditions

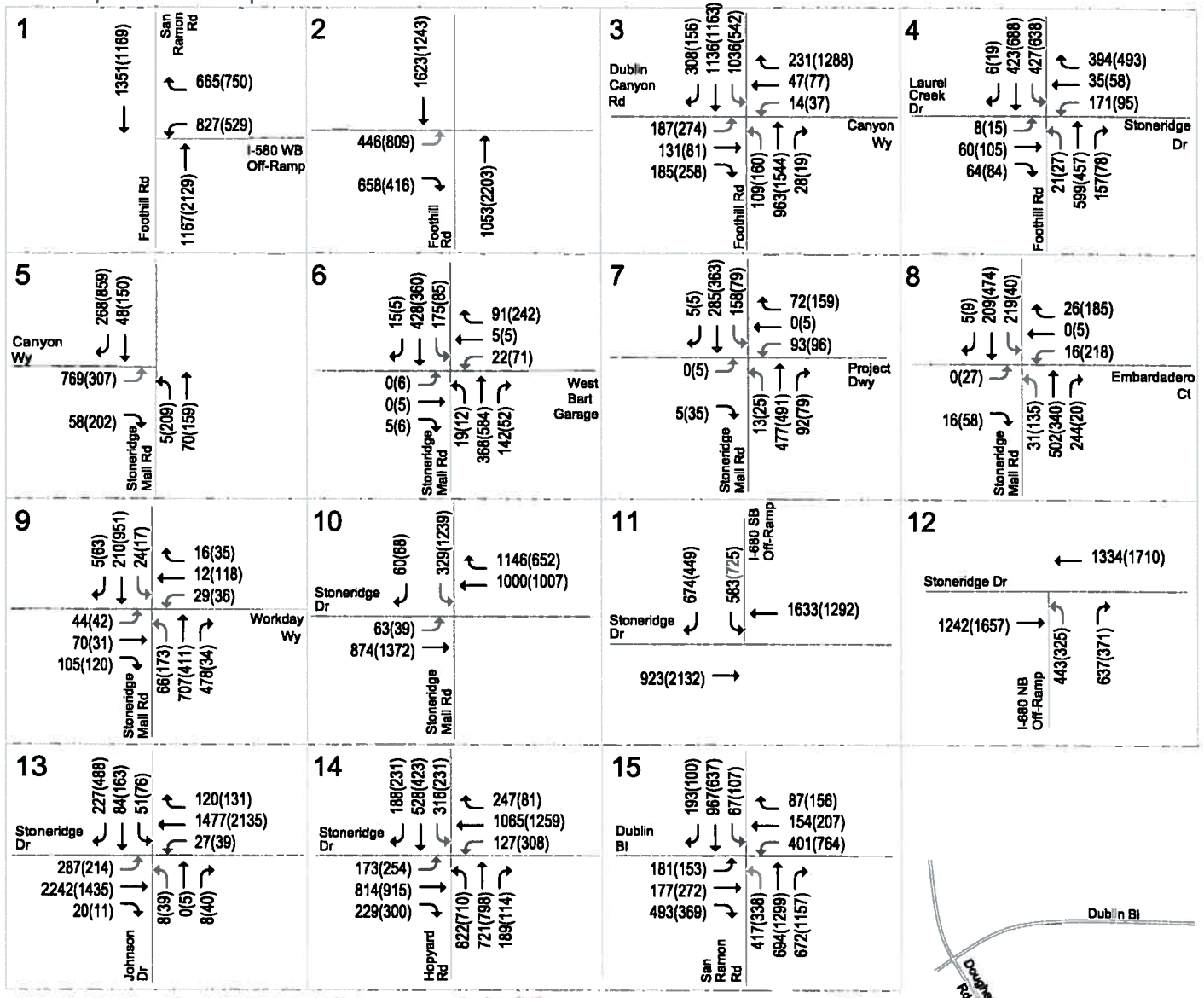
It is assumed in this analysis that the roadway network at the study intersections and freeway ramps under existing plus approved conditions would be the same as those described under existing conditions, with a few exceptions. The planned Pleasanton Traffic Impact Fee (TIF) improvements at Foothill Road and the I-580 eastbound ramps were included in the existing plus approved scenarios. The TIF improvements, which are currently under construction, would replace the direct (1) eastbound to southbound and (2) eastbound to northbound freeway off ramp connections with a new T-intersection at Foothill Road. The intersection will be signalized with the following geometry:

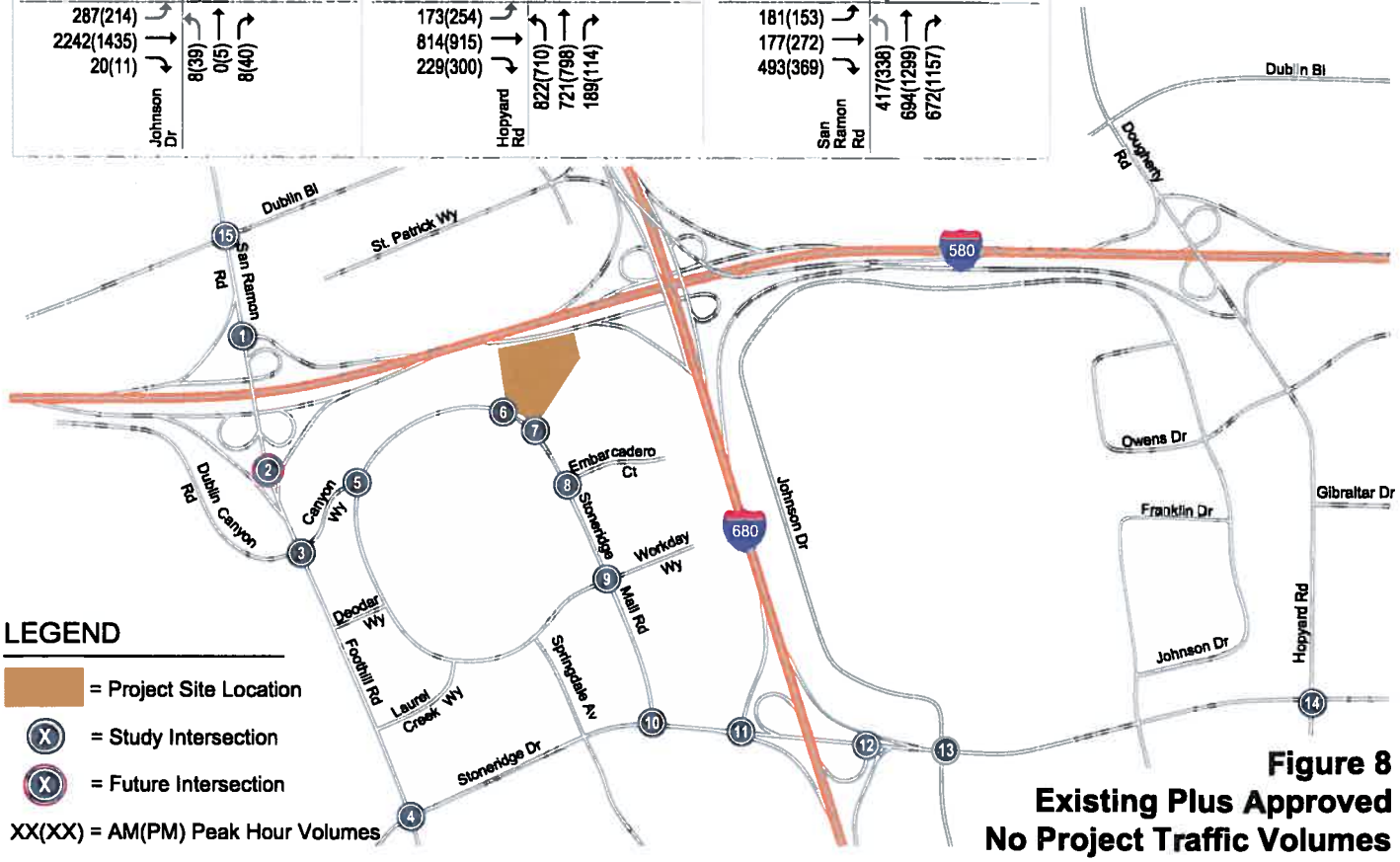
- **Northbound**: 2 through lanes and 2 right turn lanes
- **Southbound**: 2 through lanes and 1 right turn lane
- **Eastbound**: 2 left turn lanes and 2 right turn lanes

In addition, the eastbound on ramp from Foothill Road to I-580 will consist of two mixed-flow lanes that will merge prior to the metering light, and one HOV lane. Before construction at the ramp commenced, the eastbound on ramp had one mixed-flow lane and one HOV lane.

## Existing Plus Approved Traffic Volumes

Existing plus approved no project traffic volumes were estimated using traffic forecasts produced by the Pleasanton TDF model and reflect all current approved developments in the City, including those at the project site. Existing plus approved with project traffic volumes were also estimated using the Pleasanton TDF model. The proposed office uses replaced the previously approved residential and commercial uses at the project site (see also "Estimating Project Traffic" section of Chapter 3). The model forecasts were adjusted using existing traffic counts as described in the "Modeling the Project" section of Chapter 3. The existing plus approved no project and plus project traffic volumes are shown on Figures 8 and 9, respectively.




## LEGEND

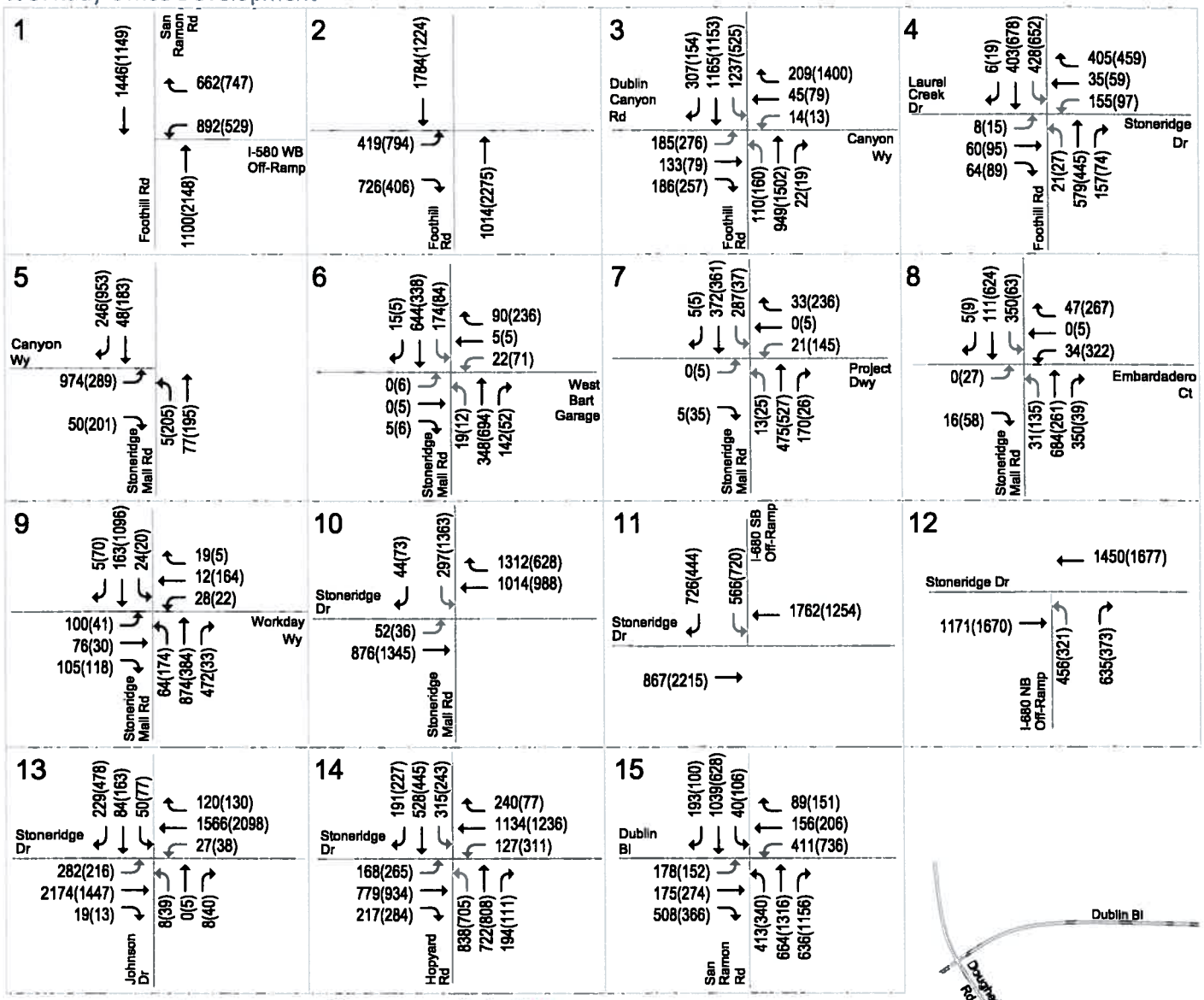
= Project Site Location

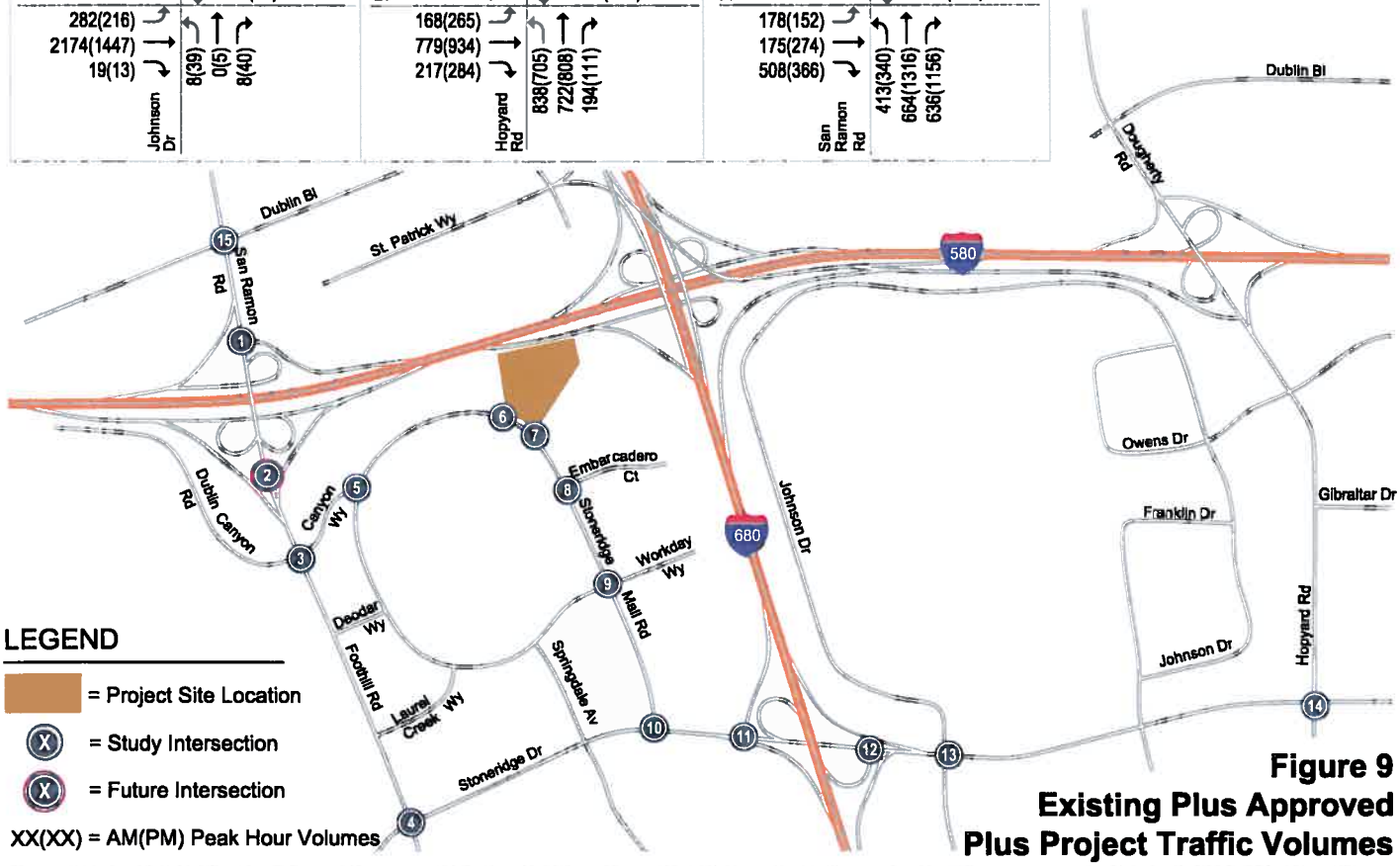
(X) = Study Intersection

(X) = Future Intersection

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

**Figure 8**
**Existing Plus Approved**
**No Project Traffic Volumes**




LEGEND

= Project Site Location

X = Study Intersection

X = Future Intersection

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

**Figure 9**
**Existing Plus Approved Plus Project Traffic Volumes**

## Existing plus Approved Signalized Intersection Levels of Service

The results of the signalized intersection level of service analysis for the existing plus approved no project and with project scenarios are summarized in Table 9. Existing plus approved with project conditions were evaluated relative to existing plus approved no project conditions in order to determine potential near term project impacts. It should be noted that the average delays at some intersections are reduced with the addition of project traffic. Sometimes, this occurs when project traffic is added to intersection movements that experience delays that are lower than the overall intersection average delay. For example, if the average intersection delay is 50 seconds without the project, and the project would add 100 vehicle trips to a right turn movement that experiences an average delay of 5 seconds, then the weighted average of the delays for all intersection movements would be lower than 50 seconds - even though additional traffic was added to the intersection. In addition, the previously approved residential use on the project site has a different directional distribution pattern than the proposed office use. Residential uses have more outbound trips in the AM peak hour and more inbound trips in the PM peak hour, where office uses have the opposite inbound/outbound splits. This can change the "critical" movements at an intersection, which also may sometimes result in lower overall intersection average delays.

The results show that, measured against the Cities of Pleasanton and Dublin level of service standards, all of the signalized intersections would operate at acceptable levels of service during the AM and PM peak hours under both existing plus approved no project and with project conditions. The intersection of Foothill Road and Canyon Way would operate at LOS E with and without the project during the PM peak hour. However, the intersection is a "*Gateway Intersection*" and is not required to maintain a LOS of D or better. The City of Pleasanton has already planned improvements at this intersection as part of the City's Traffic Impact Fee (TIF) program. The detailed level of service calculation sheets are included in Appendix C.

## Existing Plus Approved Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under existing plus approved conditions are summarized in Table 9. The traffic signal warrant sheets are included in Appendix B and the level of service calculation sheets are included in Appendix C.

The intersection of Stoneridge Mall Road and Project Driveway would operate at an acceptable LOS E or better during both the AM and PM peak hours under existing plus approved with project conditions. This intersection would meet traffic signal warrant checks under existing plus approved conditions with the proposed project during the PM peak hour. It would not meet signal warrant checks under existing plus approved no project conditions.

> **Significant Impact #1:** The worst approach of the unsignalized intersection of Stoneridge Mall Road and BART Entrance would operate at LOS F during the PM peak hour under existing plus approved no project and with project conditions. In addition, the project would add more than 30 seconds of delay to the worst approach, which constitutes a significant impact. This intersection would also meet traffic signal warrant checks under existing plus approved conditions both with and without the proposed project during the PM peak hour.
>
> **Mitigation #1:** Per the City of Pleasanton's TIF improvements, the intersection of Stoneridge Mall Road and BART Entrance is planned for signalization. As mitigation for the project's significant impact at this intersection, the project would be responsible for a fair share contribution toward signalization of the intersection through the payment of its TIF fees.

**Table 9**
**Existing Plus Approved Conditions Intersection Levels of Service**

| Study Number | Intersection | Traffic Control | Peak Hour | Existing + Approved: No Project Delay (in seconds)[1] | No Project LOS[1] | With Project Delay (in seconds)[1] | With Project LOS[1] |
|---|---|---|---|---|---|---|---|
| **Pleasanton Intersections:** | | | | | | | |
| #1 | San Ramon Rd and I-580 WB Off Ramp[3] | Signal | AM | 9.7 | A | 10.5 | B |
| | | | PM | 15.5 | B | 15.5 | B |
| #2 | Foothill Rd and I-580 EB Off Ramp[3] (Future) | Signal | AM | 10.3 | B | 12.6 | B |
| | | | PM | 11.8 | B | 12.0 | B |
| #3 | Foothill Rd and Canyon Wy/Dublin Canyon Rd[3] | Signal | AM | 31.7 | C | 39.9 | D |
| | | | PM | 65.2 | E | 72.0 | E |
| #4 | Foothill Rd and Stoneridge Dr | Signal | AM | 24.7 | C | 23.7 | C |
| | | | PM | 45.7 | D | 48.7 | D |
| #5 | Stoneridge Mall Rd and Canyon Wy | Signal | AM | 4.5 | A | 5.5 | A |
| | | | PM | 6.7 | A | 6.8 | A |
| #6 | Stoneridge Mall Rd and Bart Entrance | SSSC[2] | AM | 2.8/15.6 | A/C | 2.4/16.5 | A/C |
| | | | PM | 13.6/58.0 | B/F | 20.2/94.1 | C/F |
| #7 | Stoneridge Mall Rd and Project Dwy | SSSC[2] | AM | 6.0/33.9 | A/D | 3.6/33.5 | A/D |
| | | | PM | 8.0/35.4 | A/E | 13.4/45.9 | B/E |
| #8 | Stoneridge Mall Rd and Embarcadero Ct | Signal | AM | 13.1 | B | 22.4 | C |
| | | | PM | 22.1 | C | 25.6 | C |
| #9 | Stoneridge Mall Rd and Workday Wy | Signal | AM | 12.2 | B | 16.2 | B |
| | | | PM | 22.1 | C | 27.3 | C |
| #10 | Stoneridge Mall Rd and Stoneridge Dr | Signal | AM | 9.9 | A | 9.9 | A |
| | | | PM | 37.4 | D | 39.8 | D |
| #11 | I-680 SB Off Ramp and Stoneridge Dr[3] | Signal | AM | 12.0 | B | 12.7 | B |
| | | | PM | 14.3 | B | 15.0 | B |
| #12 | I-680 NB Off Ramp and Stoneridge Dr[3] | Signal | AM | 16.6 | B | 17.5 | B |
| | | | PM | 13.2 | B | 13.2 | B |
| #13 | Johnson Dr and Stoneridge Dr[3] | Signal | AM | 15.6 | B | 15.4 | B |
| | | | PM | 24.1 | C | 22.6 | C |
| #14 | Hopyard Rd and Stoneridge Dr | Signal | AM | 29.0 | C | 29.5 | C |
| | | | PM | 41.0 | D | 40.9 | D |
| **Dublin Intersection:** | | | | | | | |
| #15 | San Ramon Rd and Dublin Blvd | Signal | AM | 32.5 | C | 32.0 | C |
| | | | PM | 38.2 | D | 37.8 | D |

[1] Signalized intersection levels of service and delays reported are for overall average delay. SSSC intersection levels of service and delays reported are for both the overall average delay and the approach with the highest delay.
[2] SSSC = Side Street Stop Control.
[3] These intersections are Gateway Intersections and may have an LOS worse than D.
Denotes unacceptable level of service
Denotes Significant Impact

## Existing Plus Approved Ramp Capacity Analysis

The results of the ramp capacity analysis under existing plus approved conditions are summarized in Table 10. The results show that the northbound Foothill Road to westbound I-580 on ramp (during the AM peak hour) and the northbound Foothill Road to eastbound I-580 on-ramp (during the PM peak hour) would have V/C ratios greater than 1.0. However, the proposed project would not increase the V/C ratios

by more than 0.03, so this would not constitute a signficant impact. All of the remaining study ramps would have volume-to-capacity (V/C) ratios of less than 1.0, which means that the existing plus approved plus project traffic demand would not exceed the ramp capacity.

**Table 10**
**Existing Plus Approved Freeway Ramp Analysis**

| | | | Existing + Approved | | | |
|---|---|---|---|---|---|---|
| | | | No Project | | Plus Project | |
| Freeway Ramps | Peak Hour | Capacity (vph)[1] | Volumes[2] | V/C Ratio[3] | Volumes[2] | V/C Ratio[3] |
| **I-580 at Foothill Road/San Ramon Road** | | | | | | |
| NB Foothill to WB I-580 On Ramp | AM | 470 | 546 | 1.16 | 547 | 1.16 |
| | PM | 1800 | 1,098 | 0.61 | 1,134 | 0.63 |
| NB Foothill to EB I-580 On Ramp | AM | 1800 | 250 | 0.14 | 250 | 0.14 |
| | PM | 590 | 664 | 1.13 | 664 | 1.13 |
| **I-680 at Stoneridge Drive** | | | | | | |
| EB Stoneridge to NB I-680 On Ramp | AM | 1800 | 130 | 0.07 | 129 | 0.07 |
| | PM | 1800 | 673 | 0.37 | 738 | 0.41 |
| EB Stoneridge to SB I-680 On Ramp | AM | 470 | 231 | 0.49 | 256 | 0.54 |
| | PM | 1800 | 482 | 0.27 | 496 | 0.28 |

[1] Capacities obtained from Highway Capacity Manual 2010 and the Alameda Countywide Transportation Model Update - Model Documentation 2009.
[2] Volumes obtained from the City of Pleasanton TDF model .
[3] Volume-to-capacity ratio.

# 6. Cumulative/Buildout Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative/buildout conditions both with and without the proposed project. For this analysis, buildout represents traffic conditions assuming the buildout of the City of Pleasanton General Plan to year 2035. Buildout no project and with project traffic volumes were obtained from the City of Pleasanton TDF model. The Pleasanton TDF model includes various local and regional improvements outside of the project area. Included in this chapter is a summary of any intersection impacts caused by the project.

## Buildout Transportation Network

It is assumed in this analysis that the transportation network under buildout conditions, including all study roadways and intersection lane configurations, would be the same as that described under existing plus approved conditions, with a few exceptions. The following planned Pleasanton Traffic Impact Fee (TIF) improvements were included in the buildout scenarios.

- Signalization of the Stoneridge Mall Road and BART Garage intersection and converting the outbound shared right-left turn lane to one right turn lane and one left turn lane.
- The addition of a third southbound left turn lane and third eastbound receiving lane at the intersection of Foothill Road and Canyon Way.

In addition, the Pleasanton and Tri-Valley TIF programs include various regional and local roadway improvements outside the study area. These improvements are on file with the City of Pleasanton and are available upon request.

## Buildout Traffic Volumes

Buildout no project traffic volumes were estimated using traffic forecasts produced by the City of Pleasanton TDF model and reflect the buildout of the City General Plan to year 2035, including the commercial and residential land uses previously assumed for the project site. Buildout with project traffic volumes were also estimated using the Pleasanton TDF model. The proposed project uses replaced the previously approved residential and commercial uses at the project site (see also "Estimating Project Traffic" section of Chapter 3). The model forecasts were adjusted using existing traffic counts as described in the "Modeling the Project" section of Chapter 3.

For some study locations, the traffic volumes in the buildout scenario are lower than those of the existing plus approved scenario. As travel times increase in the future for certain origin to destination trips, more travelers are shifted to the "shoulder hours" and are not expected to begin or end their trip within the chosen peak-hour. This behavior results in "peak-spreading" and effectively reduces the number of peak-hour trips associated with the project. The buildout no project and with project traffic volumes are shown on Figures 10 and 11, respectively.

## Buildout Signalized Intersection Levels of Service

The signalized intersection level of service results under buildout conditions are summarized in Table 11. The results show that, measured against the Cities of Pleasanton and Dublin level of service standards, most of the signalized study intersections would operate at an acceptable LOS D or better under buildout conditions during both the AM and PM peak hours. The intersection of Foothill Road and Canyon Way would operate at LOS E with and without the project during the PM peak hour. However, the intersection is a "*Gateway Intersection*" and is not required to maintain a LOS of D or better. The City of Pleasanton has already planned improvements at this intersection as part of the City's Traffic Impact Fee (TIF) program. The detailed level of service calculation sheets are included in Appendix C.

## Buildout Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under buildout conditions are summarized in Table 11. The results show that the unsignalized intersection of Stoneridge Mall Road and Project Driveway is expected to operate at an acceptable LOS E or better during both the AM and PM peak hours under buildout conditions with or without the project. The level of service calculation sheets are included in Appendix C. The results of the traffic signal warrant analysis shows that, under buildout no project conditions, the intersection of Stoneridge Mall Road and Project Driveway would not meet signal warrants during the AM and PM peak hours. Under buildout plus project conditions, it would meet traffic signal warrants during the PM peak hour. The traffic signal warrant sheets are included in Appendix B.

## Buildout Ramp Capacity Analysis

The results of the intersection ramp capacity analysis under buildout conditions are summarized in Table 12. The results show that the northbound Foothill Road to westbound I-580 on ramp (during the AM peak hour) and the northbound Foothill Road to eastbound I-580 on-ramp (during the PM peak hour) would have V/C ratios greater than 1.0. However, the proposed project would not increase the V/C ratios by more than 0.03, so this would not constitute a signficant impact. All of the remaining study ramps would have volume-to-capacity (V/C) ratios of less than 1.0, which means that the buildout plus project traffic demand would not exceed the ramp capacity.

**Table 11**
**Buildout Intersection Levels of Service**

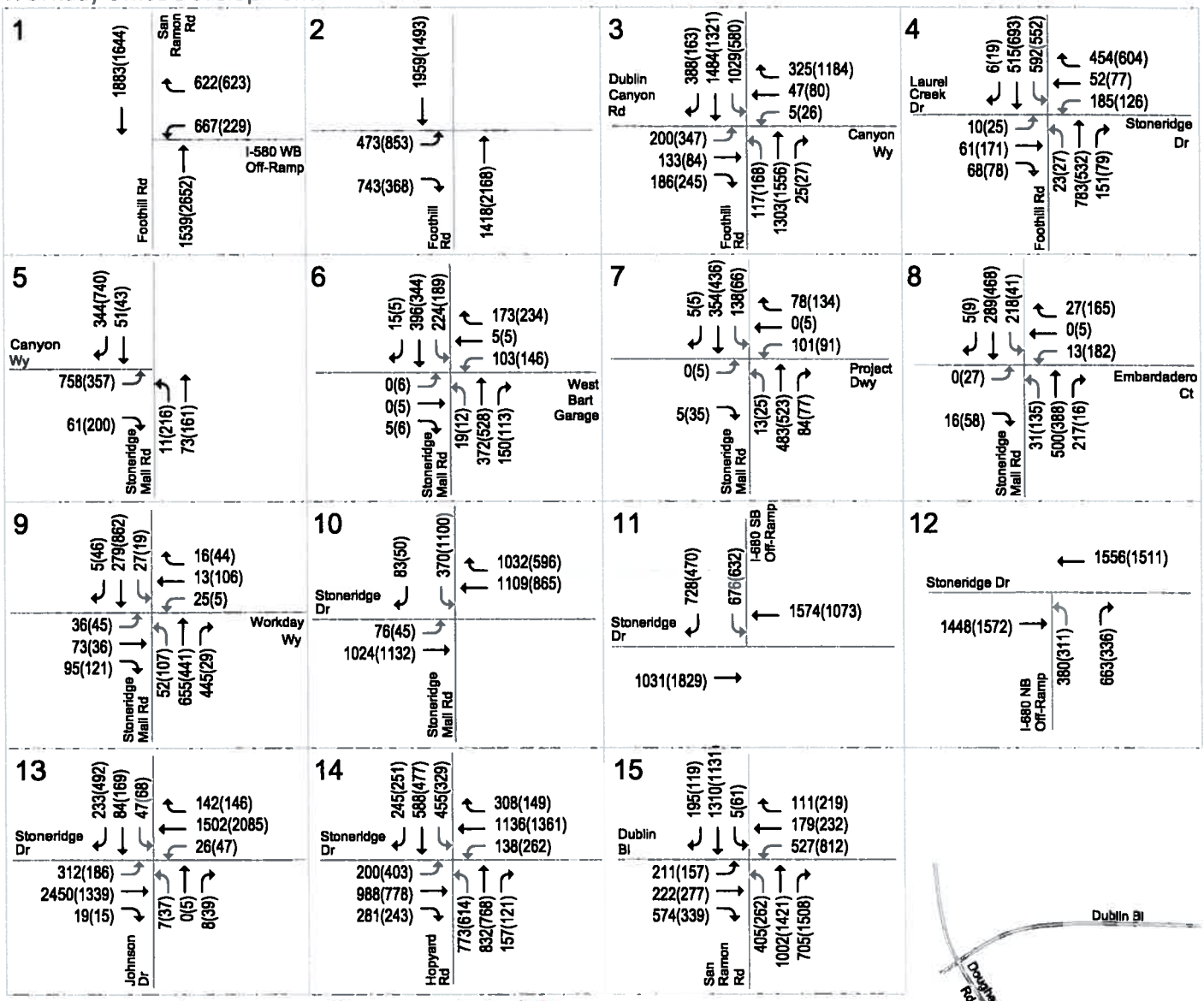
| Study Number | Intersection | Traffic Control | Peak Hour | Buildout: No Project Delay (in seconds)[1] | Buildout: No Project LOS[1] | Buildout: With Project Delay (in seconds)[1] | Buildout: With Project LOS[1] |
|---|---|---|---|---|---|---|---|
| **Pleasanton Intersections:** | | | | | | | |
| #1 | San Ramon Rd and I-580 WB Off Ramp[3] | Signal | AM | 12.2 | B | 13.4 | B |
| | | | PM | 14.4 | B | 15.1 | B |
| #2 | Foothill Rd and I-580 EB Off Ramp[3] (Future) | Signal | AM | 13.6 | B | 14.9 | B |
| | | | PM | 11.5 | B | 11.9 | B |
| #3 | Foothill Rd and Canyon Wy/Dublin Canyon Rd[3,4] | Signal | AM | 31.2 | C | 35.0 | D |
| | | | PM | 59.6 | E | 66.6 | E |
| #4 | Foothill Rd and Stoneridge Dr | Signal | AM | 43.9 | D | 40.4 | D |
| | | | PM | 34.5 | C | 29.0 | C |
| #5 | Stoneridge Mall Rd and Canyon Wy | Signal | AM | 4.4 | A | 5.2 | A |
| | | | PM | 5.6 | A | 5.8 | A |
| #6 | Stoneridge Mall Rd and Bart Entrance | Signal | AM | 5.8 | A | 5.6 | A |
| | | | PM | 8.2 | A | 8.3 | A |
| #7 | Stoneridge Mall Rd and Project Dwy | SSSC[2] | AM | 6.1/35.3 | A/E | 3.5/31.2 | A/D |
| | | | PM | 7.4/39.1 | A/E | 12.7/49.2 | B/E |
| #8 | Stoneridge Mall Rd and Embarcadero Ct | Signal | AM | 12.8 | B | 20.9 | C |
| | | | PM | 21.5 | C | 23.4 | C |
| #9 | Stoneridge Mall Rd and Workday Wy | Signal | AM | 11.4 | B | 13.4 | B |
| | | | PM | 17.5 | B | 19.7 | B |
| #10 | Stoneridge Mall Rd and Stoneridge Dr | Signal | AM | 10.3 | B | 10.1 | B |
| | | | PM | 22.4 | C | 23.5 | C |
| #11 | I-680 SB Off Ramp and Stoneridge Dr[3] | Signal | AM | 12.6 | B | 13.1 | B |
| | | | PM | 12.2 | B | 12.1 | B |
| #12 | I-680 NB Off Ramp and Stoneridge Dr[3] | Signal | AM | 19.8 | B | 20.7 | C |
| | | | PM | 11.5 | B | 11.4 | B |
| #13 | Johnson Dr and Stoneridge Dr[3] | Signal | AM | 17.8 | B | 17.4 | B |
| | | | PM | 23.6 | C | 22.9 | C |
| #14 | Hopyard Rd and Stoneridge Dr | Signal | AM | 31.7 | C | 32.3 | C |
| | | | PM | 53.5 | D | 51.6 | D |
| **Dublin Intersection:** | | | | | | | |
| #15 | San Ramon Rd and Dublin Blvd | Signal | AM | 31.7 | C | 32.1 | C |
| | | | PM | 38.2 | D | 38.2 | D |

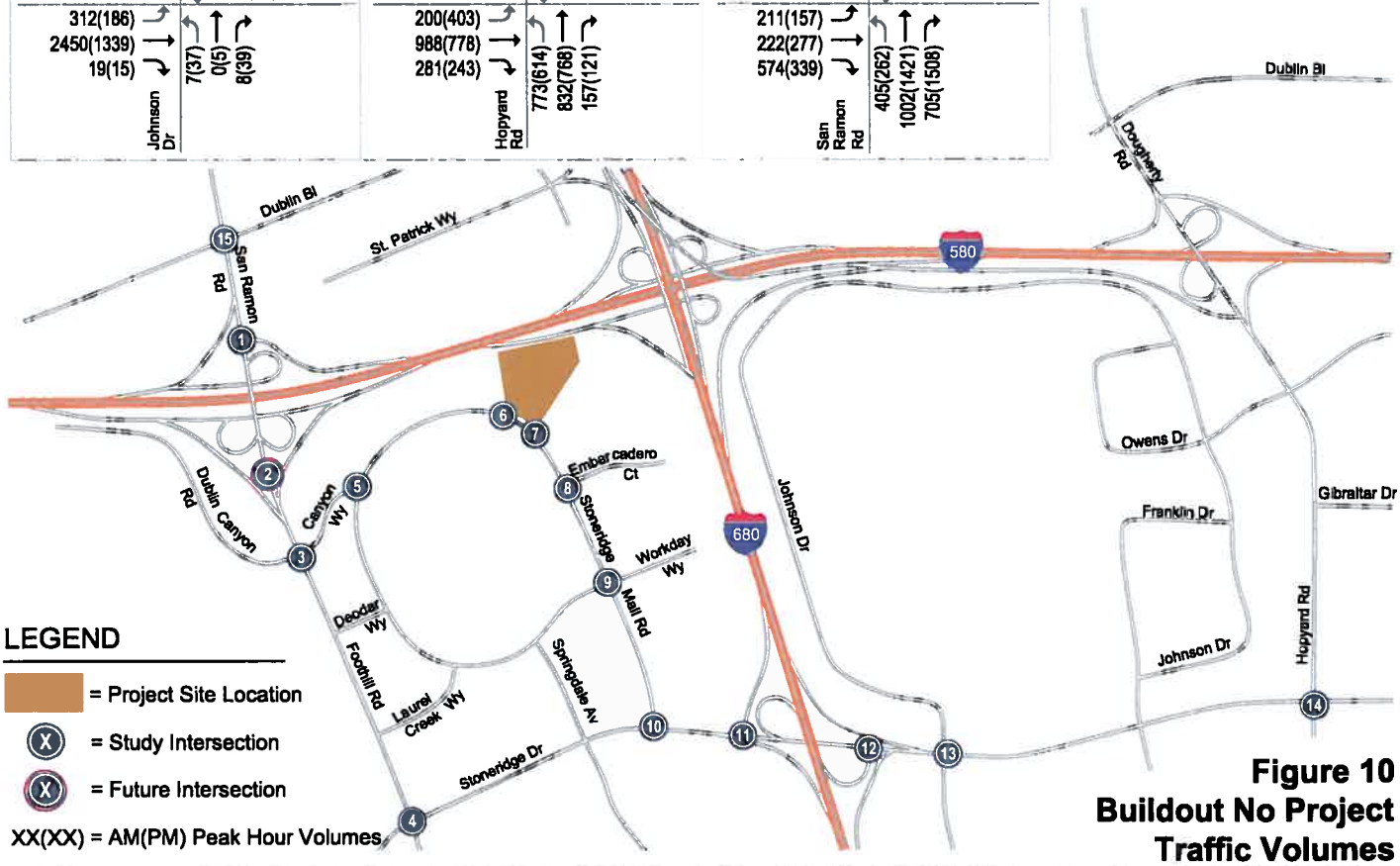
[1] Signalized intersection levels of service and delays reported are for overall average delay. SSSC intersection levels of service and delays reported are for both the overall average delay and the approach with the highest delay.
[2] SSSC = Side Street Stop Control.
[3] These intersections are Gateway Intersections and may have an LOS worse than D.
[4] Added third southbound left turn lane under buildout conditons per the Pleasanton TIF.
Denotes unacceptable level of service

**Table 12**
**Buildout Freeway Ramp Analysis**

| Freeway Ramps | Peak Hour | Capacity (vph)[1] | Buildout No Project | | Buildout Plus Project | |
|---|---|---|---|---|---|---|
| | | | Volumes[2] | V/C Ratio[3] | Volumes[2] | V/C Ratio[3] |
| **I-580 at Foothill Road/San Ramon Road** | | | | | | |
| NB Foothill to WB I-580 On Ramp | AM | 470 | 565 | 1.20 | 562 | 1.20 |
| | PM | 1800 | 583 | 0.32 | 588 | 0.33 |
| NB Foothill to EB I-580 On Ramp | AM | 1800 | 331 | 0.18 | 325 | 0.18 |
| | PM | 590 | 679 | 1.15 | 687 | 1.16 |
| **I-680 at Stoneridge Drive** | | | | | | |
| EB Stoneridge to NB I-680 On Ramp | AM | 1800 | 126 | 0.07 | 119 | 0.07 |
| | PM | 1800 | 363 | 0.20 | 403 | 0.22 |
| EB Stoneridge to SB I-680 On Ramp | AM | 470 | 313 | 0.67 | 310 | 0.66 |
| | PM | 1800 | 406 | 0.23 | 424 | 0.24 |

[1] Capacities obtained from Highway Capacity Manual 2010 and the Alameda Countywide Transportation Model Update - Model Documentation 2009.
[2] Volumes obtained from the City of Pleasanton TDF model .
[3] Volume-to-capacity ratio.




## LEGEND

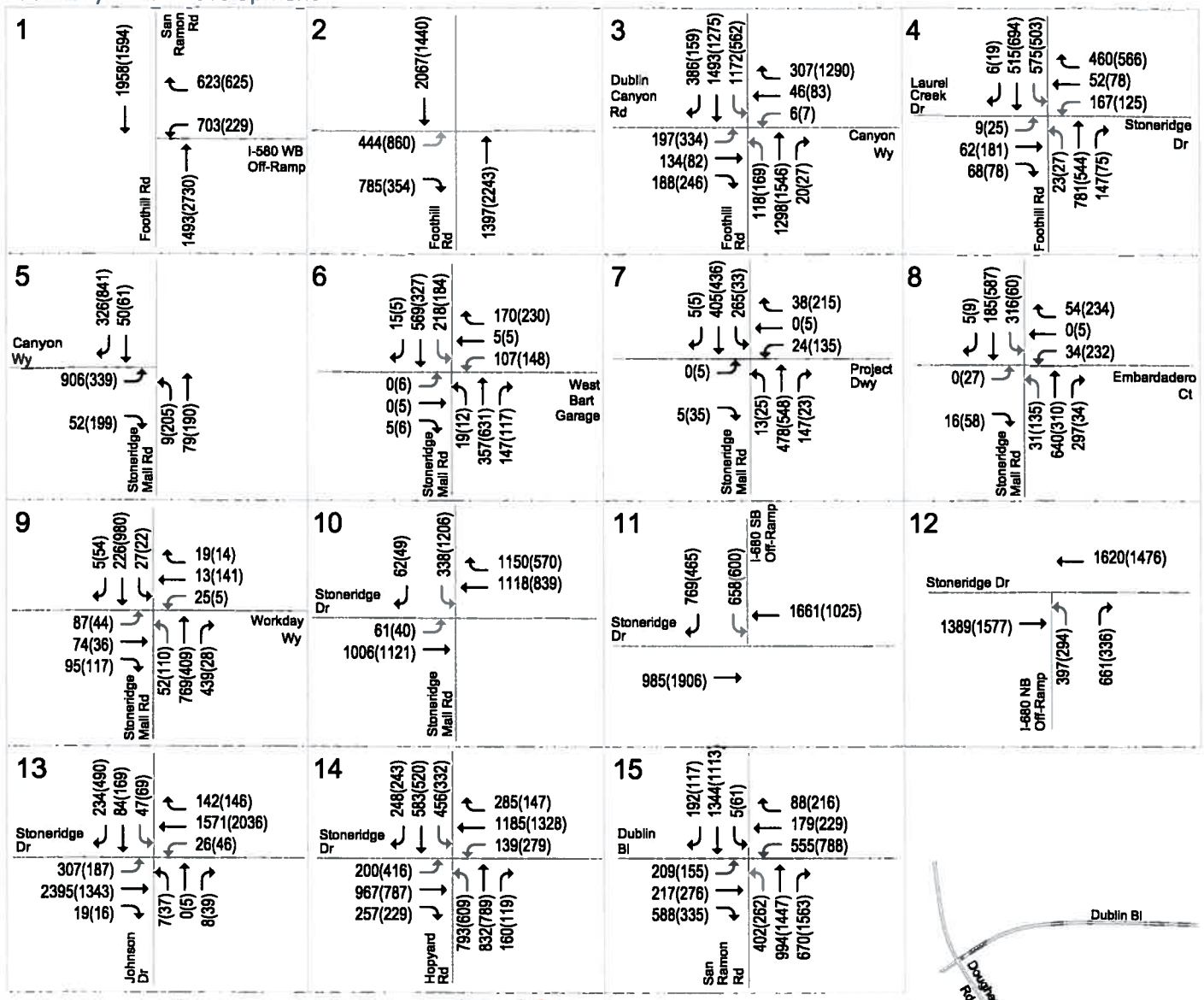
= Project Site Location

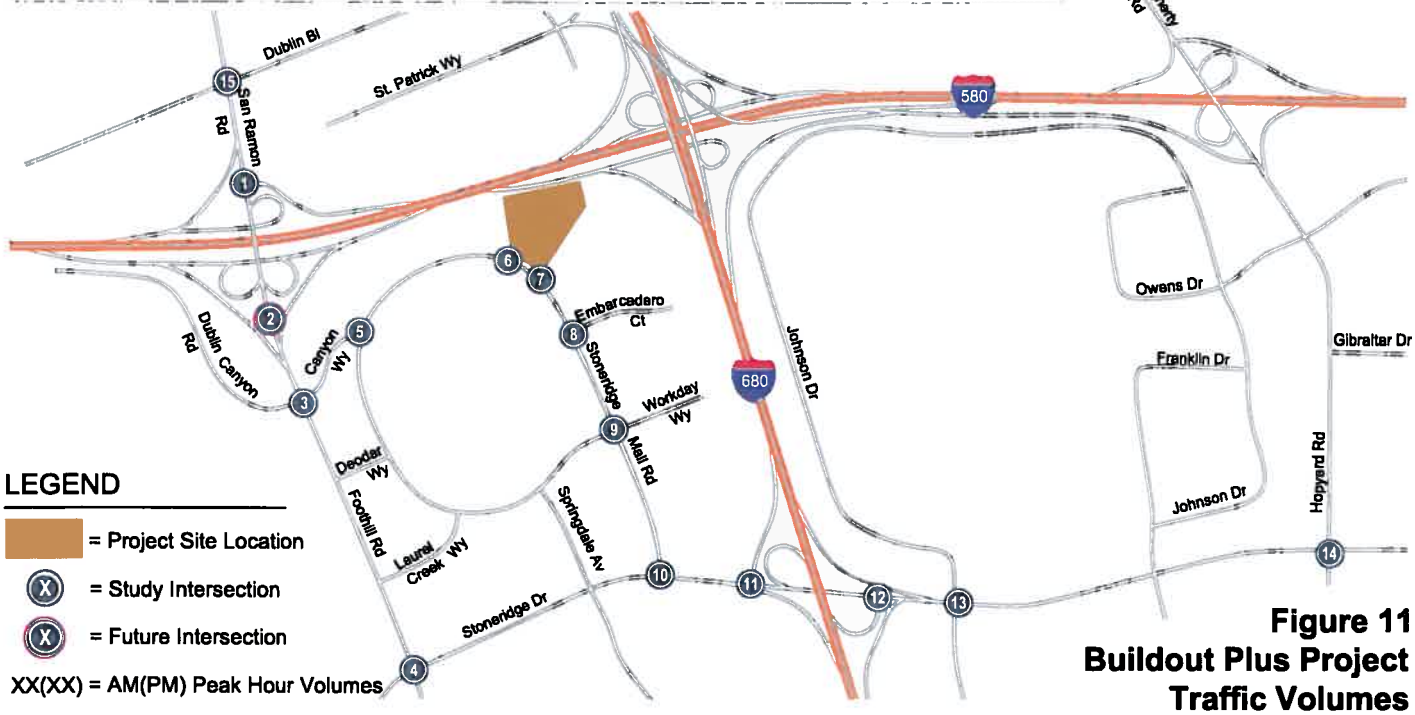
X = Study Intersection

X = Future Intersection

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

**Figure 10**
**Buildout No Project Traffic Volumes**




LEGEND

= Project Site Location

= Study Intersection

= Future Intersection

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

**Figure 11**
**Buildout Plus Project Traffic Volumes**

# 7.
# Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project site, including:

- Operations analysis – vehicle queuing and storage at selected intersections
- Onsite Circulation & Access
- Potential impacts to transit, pedestrian and bicycle facilities

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community. Although operational issues are not considered CEQA impacts, they do describe traffic conditions that are relevant to describing the project environment.

## Operations Analysis

A vehicle queuing analysis was conducted for the high demand turn movements where the project would add traffic. Vehicle queues were estimated using a Poisson probability distribution. The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95$^{th}$ percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections. The vehicle queuing estimates and a tabulated summary of the findings for the study intersections are provided in Tables 13 and 14. The analysis indicated that the estimated maximum vehicle queues would exceed the vehicle storage capacity at the following locations:

- Southbound left turn at Foothill Road and Canyon Way under existing plus project and existing plus approved plus project conditions during the AM peak hour.
- Westbound left turn at Stoneridge Mall Road and Project Driveway under existing plus project, existing plus approved plus project, and buildout plus project conditions during the PM peak hours.
- Southbound left/right turn at Stoneridge Mall Road and Stoneridge Drive under existing plus approved plus project and buildout plus project conditions during the PM peak hour.

## Table 13
## AM Peak Hour Vehicle Queuing Analysis

| Measurement | San Ramon Rd / I-580 WB Ramps WBL AM | Foothill Rd / Canyon Wy SBL AM | Stoneridge Mall Rd / Canyon Wy EBL AM | I-680 NB Ramps / Stoneridge Dr NBL AM | Stoneridge Mall Rd / Project Dwy SBL AM | Stoneridge Mall Rd / Project Dwy WBL AM | Stoneridge Mall Rd / Stoneridge Dr SBL/R AM | Stoneridge Mall Rd / Embarcadero Ct SBL AM | Stoneridge Mall Rd / Embarcadero Ct WBT/L PM |
|---|---|---|---|---|---|---|---|---|---|
| ***Existing*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 41.6 | 84.0 | 32.7 | 60.0 | 8.9 | 12.6 | 50 | 47.5 | 47.5 |
| Volume (vph) | 747 | 929 | 655 | 526 | 151 | 15 | 220 | 223 | 17 |
| Avg. Queue (veh.) | 8.6 | 21.7 | 5.9 | 8.8 | 0.4 | 0.1 | 3.1 | 2.9 | 0.2 |
| Avg. Queue[2] (ft.) | 216 | 542 | 149 | 219 | 9 | 1 | 76 | 74 | 6 |
| 95th %. Queue (veh.) | 14 | 30 | 10 | 14 | 2 | 1 | 6 | 6 | 1 |
| 95th %. Queue (ft.) | 350 | 750 | 250 | 350 | 50 | 25 | 150 | 150 | 25 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| ***Existing + Project*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 49.4 | 102.8 | 38.9 | 60.0 | 10.2 | 58.5 | 52 | 74.9 | 74.9 |
| Volume (vph) | 820 | 1170 | 905 | 556 | 299 | 20 | 245 | 370 | 33 |
| Avg. Queue (veh.) | 11.3 | 33.4 | 9.8 | 9.3 | 0.8 | 0.3 | 3.5 | 7.7 | 0.7 |
| Avg. Queue[2] (ft.) | 281 | 835 | 244 | 232 | 21 | 8 | 88 | 192 | 17 |
| 95th %. Queue (veh.) | 17 | 43 | 15 | 15 | 3 | 1 | 7 | 13 | 2 |
| 95th %. Queue (ft.) | 425 | 1075 | 375 | 375 | 75 | 25 | 175 | 325 | 50 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | **N** | Y | Y | Y | Y | Y | Y | Y |
| ***Existing + App +NoProj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 42.2 | 107.1 | 34.1 | 60.0 | 9.3 | 52.6 | 56.9 | 52.3 | 52.3 |
| Volume (vph) | 827 | 1036 | 769 | 443 | 158 | 93 | 389 | 219 | 16 |
| Avg. Queue (veh.) | 9.7 | 30.8 | 7.3 | 7.4 | 0.4 | 1.4 | 6.1 | 3.2 | 0.2 |
| Avg. Queue[2] (ft.) | 242 | 771 | 182 | 185 | 10 | 34 | 154 | 80 | 6 |
| 95th %. Queue (veh.) | 15 | 40 | 12 | 12 | 2 | 3 | 10 | 6 | 1 |
| 95th %. Queue (ft.) | 375 | 1000 | 300 | 300 | 50 | 75 | 250 | 150 | 25 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| ***Existing + App + Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 46.2 | 110.7 | 39.9 | 60.0 | 10.5 | 71.6 | 60.7 | 83.7 | 83.7 |
| Volume (vph) | 892 | 1237 | 974 | 456 | 287 | 21 | 341 | 350 | 34 |
| Avg. Queue (veh.) | 11.4 | 38.0 | 10.8 | 7.6 | 0.8 | 0.4 | 5.7 | 8.1 | 0.8 |
| Avg. Queue[2] (ft.) | 286 | 951 | 270 | 190 | 21 | 10 | 144 | 203 | 20 |
| 95th %. Queue (veh.) | 17 | 48 | 16 | 12 | 3 | 2 | 10 | 13 | 2 |
| 95th %. Queue (ft.) | 425 | 1200 | 400 | 300 | 75 | 50 | 250 | 325 | 50 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | **N** | Y | Y | Y | Y | Y | Y | Y |
| ***Buildout No Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 63.3 | 98.1 | 33.9 | 60.0 | 9.2 | 55.0 | 58 | 52.3 | 52.3 |
| Volume (vph) | 667 | 1029 | 758 | 380 | 138 | 101 | 453 | 218 | 13 |
| Avg. Queue (veh.) | 11.7 | 28.0 | 7.1 | 6.3 | 0.4 | 1.5 | 7.3 | 3.2 | 0.2 |
| Avg. Queue[2] (ft.) | 293 | 701 | 178 | 158 | 9 | 39 | 182 | 79 | 5 |
| 95th %. Queue (veh.) | 18 | 37 | 12 | 11 | 1 | 4 | 12 | 6 | 1 |
| 95th %. Queue (ft.) | 450 | 925 | 300 | 275 | 25 | 100 | 300 | 150 | 25 |
| Storage (ft.) | 1500 | 1400[8] | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| ***Buildout + Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 71.5 | 99.9 | 38.5 | 60.0 | 10.2 | 65.9 | 60.5 | 81.6 | 81.6 |
| Volume (vph) | 703 | 1172 | 906 | 397 | 265 | 24 | 400 | 316 | 34 |
| Avg. Queue (veh.) | 14.0 | 32.5 | 9.7 | 6.6 | 0.8 | 0.4 | 6.7 | 7.2 | 0.8 |
| Avg. Queue[2] (ft.) | 349 | 813 | 242 | 165 | 19 | 11 | 168 | 179 | 19 |
| 95th %. Queue (veh.) | 20 | 42 | 15 | 11 | 2 | 2 | 11 | 12 | 2 |
| 95th %. Queue (ft.) | 500 | 1050 | 375 | 275 | 50 | 50 | 275 | 300 | 50 |
| Storage (ft.) | 1500 | 1400[8] | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |

[1] Vehicle queue calculations based on cycle length for signalized intersections and movement delay for unsignalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[3] The first number is the left turn storage capacity from the intersection to where the off ramp becomes one lane. The second number is total storage capacity available from the intersection to the gore point on the freeway.
[4] This is a two way center left lane and storage shown is from project driveway to the crosswalk at the BART garage.
[5] This is the combined storage for all southbound movements from the crosswalk back to the preceding intersection.
[6] The first number is southbound left turn storage only. The second number is the left turn storage plus the additional storage provided by the two-way-center left turn lane before the project driveway to the north.
[7] This is the combined storage for the westbound left and shared through/left lanes from the crosswalk back to the preceding intersection.
[8] A third southbound left turn lane of 400 feet was assumed under buildout conditons per the City's TIF improvements.

## Table 14
## PM Peak Hour Vehicle Queuing Analysis

| Measurement | San Ramon Rd / I-580 WB Ramps WBL PM | Foothill Rd / Canyon Wy SBL PM | Stoneridge Mall Rd / Canyon Wy EBL PM | I-680 NB Ramps / Stoneridge Dr NBL PM | Stoneridge Mall Rd / Project Dwy SBL PM | Stoneridge Mall Rd / Project Dwy WBL PM | Stoneridge Mall Rd / Stoneridge Dr SBL/R PM | Stoneridge Mall Rd / Embarcadero Ct SBL PM | Stoneridge Mall Rd / Embarcadero Ct WBT/L PM |
|---|---|---|---|---|---|---|---|---|---|
| ***Existing*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 57.1 | 121.6 | 36.2 | 60.0 | 8.8 | 19.3 | 65.6 | 64.8 | 64.8 |
| Volume (vph) | 336 | 825 | 198 | 264 | 22 | 182 | 1274 | 39 | 228 |
| Avg. Queue (veh.) | 5.3 | 27.9 | 2.0 | 4.4 | 0.1 | 1.0 | 23.2 | 0.7 | 4.1 |
| Avg. Queue[2] (ft.) | 133 | 697 | 50 | 110 | 1 | 24 | 580 | 18 | 103 |
| 95th %. Queue (veh.) | 9 | 37 | 5 | 8 | 1 | 3 | 31 | 2 | 8 |
| 95th %. Queue (ft.) | 225 | 925 | 125 | 200 | 25 | 75 | 775 | 50 | 200 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| ***Existing + Project*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 60.8 | 118.0 | 38.0 | 60.0 | 9.0 | 105.8 | 65.6 | 72.9 | 72.9 |
| Volume (vph) | 342 | 478 | 236 | 270 | 37 | 149 | 1453 | 77 | 336 |
| Avg. Queue (veh.) | 5.8 | 15.7 | 2.5 | 4.5 | 0.1 | 4.4 | 26.5 | 1.6 | 6.8 |
| Avg. Queue[2] (ft.) | 144 | 392 | 62 | 113 | 2 | 109 | 662 | 39 | 170 |
| 95th %. Queue (veh.) | 10 | 22 | 5 | 8 | 1 | 8 | 35 | 4 | 11 |
| 95th %. Queue (ft.) | 250 | 550 | 125 | 200 | 25 | 200 | 875 | 100 | 275 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | **N** | Y | Y | Y |
| ***Existing + App +NoProj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 79.5 | 116.9 | 38.9 | 120.0 | 9.2 | 73.9 | 120.0 | 73.1 | 73.1 |
| Volume (vph) | 529 | 542 | 307 | 325 | 79 | 96 | 1307 | 40 | 223 |
| Avg. Queue (veh.) | 11.7 | 17.6 | 3.3 | 10.8 | 0.2 | 2.0 | 43.6 | 0.8 | 4.5 |
| Avg. Queue[2] (ft.) | 292 | 440 | 83 | 271 | 5 | 49 | 1089 | 20 | 113 |
| 95th %. Queue (veh.) | 18 | 25 | 7 | 17 | 1 | 5 | 55 | 2 | 8 |
| 95th %. Queue (ft.) | 450 | 625 | 175 | 425 | 25 | 125 | 1375 | 50 | 200 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | **N** | Y | Y |
| ***Existing + App + Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 79.4 | 118.3 | 39.2 | 120.0 | 9.0 | 98.6 | 120.0 | 78.2 | 78.2 |
| Volume (vph) | 529 | 525 | 289 | 321 | 37 | 145 | 1436 | 63 | 327 |
| Avg. Queue (veh.) | 11.7 | 17.3 | 3.1 | 10.7 | 0.1 | 4.0 | 47.9 | 1.4 | 7.1 |
| Avg. Queue[2] (ft.) | 292 | 431 | 79 | 268 | 2 | 99 | 1197 | 34 | 178 |
| 95th %. Queue (veh.) | 18 | 24 | 6 | 16 | 1 | 7 | 60 | 4 | 12 |
| 95th %. Queue (ft.) | 450 | 600 | 150 | 400 | 25 | 175 | 1500 | 100 | 300 |
| Storage (ft.) | 1500 | 1000 | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | **N** | **N** | Y | Y |
| ***Buildout No Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 74.5 | 116.4 | 34.4 | 120.0 | 9.3 | 79.3 | 120.0 | 74.0 | 74.0 |
| Volume (vph) | 229 | 580 | 357 | 311 | 66 | 91 | 1150 | 41 | 187 |
| Avg. Queue (veh.) | 4.7 | 18.8 | 3.4 | 10.4 | 0.2 | 2.0 | 38.3 | 0.8 | 3.8 |
| Avg. Queue[2] (ft.) | 118 | 469 | 85 | 259 | 4 | 50 | 958 | 21 | 96 |
| 95th %. Queue (veh.) | 9 | 26 | 7 | 16 | 1 | 5 | 49 | 3 | 7 |
| 95th %. Queue (ft.) | 225 | 650 | 175 | 400 | 25 | 125 | 1225 | 75 | 175 |
| Storage (ft.) | 1500 | 1400[8] | 850 | 525/1650[3] | 225[4] | 200 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| ***Buildout + Proj*** | | | | | | | | | |
| Cycle/Delay[1] (sec) | 74.6 | 117.9 | 35.8 | 120.0 | 9.0 | 107.0 | 120.0 | 74.2 | 74.2 |
| Volume (vph) | 229 | 562 | 339 | 294 | 33 | 135 | 1255 | 60 | 237 |
| Avg. Queue (veh.) | 4.7 | 18.4 | 3.4 | 9.8 | 0.1 | 4.0 | 41.8 | 1.2 | 4.9 |
| Avg. Queue[2] (ft.) | 119 | 460 | 84 | 245 | 2 | 100 | 1046 | 31 | 122 |
| 95th %. Queue (veh.) | 9 | 26 | 7 | 15 | 1 | 8 | 53 | 3 | 9 |
| 95th %. Queue (ft.) | 225 | 650 | 175 | 375 | 25 | 200 | 1325 | 75 | 225 |
| Storage (ft.) | 1500 | 1400[8] | 850 | 525/1650[3] | 225[4] | 50 | 1275[5] | 175/450[6] | 555[7] |
| Adequate (Y/N) | Y | Y | Y | Y | Y | **N** | **N** | Y | Y |

[1] Vehicle queue calculations based on cycle length for signalized intersections and movement delay for unsignalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[3] The first number is the left turn storage capacity from the intersection to where the off ramp becomes one lane. The second number is total storage capacity available from the intersection to the gore point on the freeway.
[4] This is a two way center left lane and storage shown is from project driveway to the crosswalk at the BART garage.
[5] This is the combined storage for all southbound movements from the crosswalk back to the preceding intersection.
[6] The first number is southbound left turn storage only. The second number is the left turn storage plus the additional storage provided by the two-way-center left turn lane before the project driveway to the north.
[7] This is the combined storage for the westbound left and shared through/left lanes from the crosswalk back to the preceding intersection.
[8] A third southbound left turn lane of 400 feet was assumed under buildout conditons per the City's TIF improvements.

### *Foothill Road and Canyon Way – Southbound Left turn*

Under existing conditions, there is approximately 1,000 feet of storage capacity for the southbound left turn lanes at the intersection of Foothill Road and Canyon Way. The storage capacity is measured as the distance between the intersection crosswalk and the taper of the left turn pocket. Beyond this, vehicles would queue north into the through lane. Under buildout conditions, the City of Pleasanton TIF program shows the installation of a third southbound left turn lane, which would provide approximately 400 feet of additional storage. During the AM peak hour, under existing and existing plus approved no project conditions, the calculated 95$^{th}$ percentile queue is 750 feet and 1,000 feet, respectively. Field observations also indicate that the vehicle queues for the subject movement are heavy under existing conditions. Traffic from the proposed project would add up to 325 feet (or 13 vehicles) to the 95$^{th}$ percentile queue relative to no project conditions during the AM peak hour.

> **Recommendation:** In conjunction with the proposed development, it is recommended that the queuing storage for the southbound left turn movement at Foothill Road and Canyon Way be increased to 1,200 feet to accommodate the anticipated queues. This would require either (1) lengthening the existing southbound left turn pocket or (2) constructing a third southbound left turn pocket. Lengthening the existing left turn pocket would require removal of the median. Constructing a third left turn pocket would require removal of the median, modification of the median nose, acquiring right-of-way for receiving lanes, restriping of lane lines, modifications to vehicle detection, and aligning the signal heads to the new lane geometry. According to the City of Pleasanton *Traffic Impact Fee and Nexus Report*, May 2010, addition of a third left turn lane for the southbound movement is planned for the intersection.

### *Stoneridge Mall Road and Project Driveway – Westbound Left turn*

Under existing conditions, there is approximately 200 feet of storage capacity for the westbound left turn from the Project Driveway to Stoneridge Mall Road. The storage capacity is measured as the distance between the intersection stop bar and the nearest drive aisle within the site. Beyond this, vehicles would queue across the drive aisle. Under project conditions, the site plan shows there would be approximately 50 feet of storage capacity for the westbound left turn lane. Under project conditions, up to 200 feet of vehicle storage (or 8 vehicles) would be required for this movement during the PM peak hour. A discussion of possible improvements for this intersection is provided in the "Site Access" section in this chapter.

### *Stoneridge Mall Road and Stoneridge Drive – Southbound Left/Right turn*

Under existing conditions, there is approximately 1,275 feet of storage capacity for the southbound left/right turn lanes at the intersection of Stoneridge Mall Road and Stoneridge Drive. The storage capacity is measured as the distance between the intersection crosswalk and the McWilliams Lane intersection to the north. Beyond this, vehicles would queue through the intersection. During the PM peak hour, under existing plus approved and buildout no project conditions, the calculated 95$^{th}$ percentile queue is 1,375 and 1,225, respectively. Field observations also indicate that the vehicle queues for the subject movement are heavy under existing conditions. Traffic from the proposed project would add up to 125 feet (or five vehicles) to the 95$^{th}$ percentile queue relative to no project conditions during the PM peak hour.

> **Recommendation:** At the intersection of Stoneridge Mall Road and Stoneridge Drive, it is recommended that the inner most southbound left turn pocket be lengthened back to the midblock break where fire access occurs. This would add approximately 125 feet of additional queuing space at the intersection. However, this would require removal of the landscaped median. Because this issue occurs under no project conditions, and not solely caused by project traffic, a fair share contribution to the improvement may be appropriate. However, the final determination will be made by City staff.

# Site Access, On Site Circulation and Parking

This section describes the site access, onsite circulation, and parking for the proposed project. This review is based on the conceptual site plan provided to Hexagon (See Figure 2). Because the site plan is conceptual, many details of the plan (such as drive aisle widths, stall widths, curb radii, parking space count, etc.) are not yet available. All dimensions described in this section are approximate.

## *Site Access*

The proposed project's access would be shared with the Stoneridge Corporate Plaza site to the south. Primary access to the project site to the public street network would be provided via existing driveways on (1) Stoneridge Mall Road south of the BART garage (Driveway 1), (2) Embarcadero Court approximately 425 feet east of Stoneridge Mall Road (Driveway 2), and (3) the eastern end of Embarcadero Court (Driveway 3). Most of the parking at the site would be provided in two new parking structures. The northern parking structure would have approximately 700 spaces and be located just east of the BART garage. Most of these trips would use Driveway 1. The southern parking structure would have approximately 900 parking spaces and be located just north of Embarcadero Court at Stoneridge Corporate Plaza. Some of the 900 parking stalls in this structure would replace the existing parking at Stoneridge Corporate Plaza (the exact parking supply onsite has not yet been determined). Most of the trips from the southern garage would use Driveway 2. Based on the parking layout, it was assumed that approximately half of the project trips would use the Stoneridge Mall Road driveway (Driveway 1) and the other half would use Embarcadero Court driveways (Driveways 2 & 3). The driveways are described below.

**Stoneridge Mall Road, Driveway 1.** Under existing conditions, the Stoneridge Mall Road driveway is stop controlled on the east driveway approach, has one inbound and one outbound lane, and is a full-access. Left turn access at the driveway from Stoneridge Mall Road would be provided via an existing two-way center left turn lane. Under project conditions, this driveway was assumed to have two outbound lanes (see Tables 4, 7, 9, and 11 for LOS at the Stoneridge Mall Road driveway). This driveway has a clear throat of approximately 50 feet (which would accommodate 2 vehicles), beyond which, there is a cross aisle providing access to parking stalls. This driveway aligns approximately with a mall drive aisle across Stoneridge Mall Road. Under existing plus project conditions, Driveway 1 would accommodate approximately 527 (477 in/50 out) trips during the AM peak hour and approximately 470 (64 in/406 out trips during the PM peak hour. During the PM peak hour under existing plus project conditions, the driveway approach at the intersection would operate at LOS E (47.7 seconds of delay). In addition, the peak hour volume signal warrant would be satisfied during the PM peak hour under all project scenarios. There is an existing traffic signal at the intersection of Stoneridge Mall Road and Embarcadero Court, approximately 525 feet south of Driveway #1. In addition, there is a planned traffic signal at the intersection of the BART garage and Stoneridge Mall Road approximately 250 feet north of the driveway. Generally, it is desirable for traffic signals to be spaced at least 500 feet apart to minimize the probability of vehicle spill back through the intersections. However, signalization may be possible if all three traffic signals are interconnected and coordinated. If unsignalized with two outbound lanes at the project driveway, vehicles have the option to avoid long left turn delays by making a right turn instead. In addition, left turn vehicles will get breaks in traffic from the future traffic signal to the north and the existing traffic signal to the south. The queuing calculations indicate that the maximum 95$^{th}$ percentile left turn queue under existing plus project conditions would be 75 feet inbound during the AM peak hour and 200 feet outbound during the PM peak hour. The clear throat at the driveway would not accommodate the outbound vehicle queue, which means that vehicles would spill back through the onsite cross aisle.

> **Recommendation:** The Stoneridge Mall Road driveway should have two outbound lanes, one right turn lane and one-shared left-through lane. Ideally, this driveway should have a clear throat of 200 feet. However, a clear throat of 100 feet would be adequate to accommodate the average queues during peak hours. To reduce the probability of head on collisions, the two way center left turn lane should be converted to a left turn lane at the driveway. A traffic signal is warranted at this intersection during the PM peak hour with the proposed project. However, the planned addition of a traffic signal at the intersection of the BART entrance/Stoneridge Mall Road may preclude efficient traffic signal operation. The final determination of whether a traffic signal is desirable at this location will be made by Community Development staff. Other options for improved access at the site could include (1) combining the BART driveway with the project

driveway at Stoneridge Mall Road and installing a single traffic signal or (2) moving the north parking structure to the eastern part of the Stoneridge Corporate Plaza site so that more traffic would utilize the Embarcadero Court driveways.

**Mid-Embarcadero Court, Driveway 2.** The midblock Embarcadero Court driveway is currently stop controlled on the north and south driveway approaches, has one inbound and one outbound lane, and is full-access. Embarcadero Court has four through lanes. The driveway has a clear throat of approximately 50 feet (which would accommodate 2 vehicles), beyond which, there is an entrance shown to the parking structure. This driveway is served by an eastbound left turn on Embarcadero Court, which is approximately 120 feet long. It also aligns approximately with a commercial driveway across Embarcadero Court. Under existing plus project conditions, this driveway would accommodate approximately 440 (395 in/45 out) trips during the AM peak hour and approximately 400 (55 in/345 out) trips during the PM peak hour. Based on field observations on Embarcadero Court, the traffic flows are highly directional (inbound to the office in the morning and outbound in the evening). As a result, during the AM peak hour, there is little opposing traffic for inbound left turns from Embarcadero Court to the project driveway (approximately 40 peak hour opposing trips). Thus, vehicular delays would be brief and inbound left turns would not overflow the turn pocket. During the PM peak hour, there is more opposing traffic for outbound driveway right turns and there would be higher driveway delays. Existing traffic counts show approximately 300 opposing peak hour trips on Embarcadero Court (or one trip every 12 seconds). However, there would still be adequate gaps for project traffic to access the street. The conceptual plan shows a possible roundabout concept at this driveway. Because multilane roundabouts are relatively uncommon, it is assumed that a single lane roundabout would be constructed. The critical circulating volume in the roundabout would be approximately 850 AM peak hour trips and 815 PM peak hour trips under existing plus project conditions. According to the publication *Roundabouts: An Informational Guide* by the Federal Highway Administration, single lane roundabouts have a maximum circulating flow of 1,800 vehicles per hour and a maximum exit flow of 1,200 vehicles per hour. Under existing plus project conditions, the traffic volumes would be considerably lower than this, indicating that a roundabout would likely have sufficient capacity to accommodate the anticipated traffic demand.

> **Recommendation:** The design of the roundabout at the project driveway/Embarcadero Court is not shown on the current plan. Prior to final design, the layout of the roundabout should be checked by Community Development staff to insure that it complies with the guidelines specified in the publication *Roundabouts: An Informational Guide.*

**End-Embarcadero Court, Driveway 3.** The end of Embarcadero Court has a two lane roundabout that provides access to the at-grade parking lots associated with the project site, the Stoneridge Corporate Plaza site, and the commercial uses to the south. This driveway is stop controlled and has one inbound lane and one outbound lane. Because of the relatively remote location of this driveway in proximity to the parking structures, few vehicles are expected to utilize Driveway 3. Thus, this driveway would continue to operate with relatively short vehicular delays and vehicle queues during peak hours.

> **Recommendation:** Although the current sight distance at the project driveways was checked in the field and determined to be adequate, landscaping is not shown on the current site plan. The project access points should be free and clear of any obstructions to optimize sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and other vehicles traveling on Stoneridge Mall Road and Embarcadero Court. Landscaping and parking should not conflict with a driver's ability to locate a gap in traffic. Adequate corner sight distance (sight distance triangles) should be provided at all site access points and onsite intersections in accordance with Caltrans standards. Sight distance triangles should be measured approximately 10 feet back from the traveled way.

## *Onsite Circulation*

The project site is located between the existing BART garage and Stoneridge Corporate Plaza, and much of the site's circulation is shared with these sites. The main building would be located in the center of the site. Most of the parking would be provided in two new parking structures, with some new surface parking stalls in a few locations. A 700-space parking structure would be constructed just north of the main building. Access to this garage would be provided on its west side via an existing north/south drive aisle that runs between the structure and Stoneridge Mall Road. Secondary access would be provided to the east side of the parking structure through the Stoneridge Corporate Plaza site. A second 900-space

parking structure would be constructed to the south of the main building on the Stoneridge Corporate Plaza site. This garage could be accessed from the north via the Stoneridge Mall Road driveway or from the east via the mid-Embarcadero Court driveway. All parking would be provided at 90 degrees to the respective drive aisles. There are no dead end aisles that would serve parking areas shown on the current plan. Because the plans are conceptual, the ramping and layout of the parking structures is not shown.

> **Recommendation:** Prior to final design, the design and layout of the parking structures should be reviewed by Community Development staff. This includes a review of sight distance and parking controls at the garage entrances (to prevent vehicles from spilling back to the public street network). The current design shows the eastern entrance of the southern parking garage would be located approximately 50 feet north of the project driveway/Embarcadero Court intersection. To prevent queues from the garage from spilling onto Embarcadero Court, consideration should be given to relocating this driveway to the north approximately 100 feet.

> **Recommendation:** Because the site plan is conceptual, access to the site for trucks cannot be assessed. Prior to final design, the project applicant should submit an exhibit showing the intended truck routes to and from the loading areas onsite. In addition, the drive aisles and intersections should be checked to insure that they are permissible by delivery trucks, garbage trucks, moving trucks, and fire trucks. The project applicant should provide an exhibit showing truck turn templates overlaid onto the site plan. Traffic volumes onsite would be relatively low, and encroachment of heavy vehicles on opposing traffic lanes would not likely create operational problems if it is predominately confined to off peak hours.

Onsite, the volume and speed of vehicular traffic would be low enough such that shared use of the drive aisles between bikes and motor vehicles would be feasible. Most of the drive aisles shown on the plan are relatively short or contain horizontal curves, which would help reduce vehicle speeds during peak hours. Pedestrian access to the building entrances would be provided via a series of onsite pedestrian pathways that link to the sidewalks on the adjacent public street. These pathways also link the building entrances to the parking structure, the bus stop on Stoneridge Mall Road, the BART overcrossing, and other building entrances at the Stoneridge Corporate Plaza. Crosswalks are shown in areas where the pedestrian paths cross over onsite drive aisles.

> **Recommendation:** Where pedestrian paths cross drive aisles, wheelchair ramps are not shown on the current plan. Prior to final design, the project should provide pedestrian crosswalks consistent with *Americans with Disabilities Act* (ADA) requirements.

## *Parking*

A detailed parking description is not provided on the current plan. The proposed project would provide two parking structures totaling 1,600 spaces as well as some additional surface parking. The south parking structure would be located on the Stoneridge Corporate Plaza site, which would require removal of some existing parking spaces and reconstruction of the existing parking lot. City of Pleasanton parking requirements for office uses stipulate that one parking space be provided for each 300 square feet of leasable area.

> **Recommendation:** Consistent with City of Pleasanton parking requirements, the proposed project should provide 1,433 parking spaces onsite. For the existing Stoneridge Corporate Plaza site, the proposed project should either (1) replace the parking lost due to the construction of the south parking structure or (2) demonstrate that the Stoneridge Corporate Plaza would have sufficient parking to comply with City parking requirements.This recommendation applies under both the buildout of the proposed project and during construction.

## Other Transportation Modes

According to the U.S. Census, pedestrian trips comprise approximately 3% of the total commute mode share in the City of Pleasanton. For the proposed project, this would equate to approximately 19 new pedestrian trips during the AM peak hour and approximately 17 new pedestrian trips during the PM peak hour. In addition, the project would generate some pedestrian trips to/from the BART station, the retail areas in Stoneridge Mall, and nearby transit stops (see further discussion below). Overall, the volume of pedestrian trips generated by the project would not exceed the carrying capacity of the existing sidewalks and crosswalks on streets surrounding the site. Most of the streets in the project vicinity have sidewalks and crosswalks at signalized intersections. However, Stoneridge Mall Road does not have sidewalks along the interior of the roadway, nor are there pedestrian paths between the project site and the Stoneridge Mall entrances through the parking area (pedestrians must walk in the parking drive aisles). While a pedestrian path would be highly desirable, the installation would occur on private property and may require removal of parking stalls at Stoneridge Mall. There is an existing crosswalk equipped with flashing warning beacons across Stoneridge Mall Road at the BART garage entrance. In the future, this entrance would be signalized, which would further improve pedestrian crossing safety at Stoneridge Road.

According to the U.S. Census, approximately 1% percent of the proposed project's users could be expected to ride bikes to and from the project site. For the proposed project, this would equate to approximately 7 new bike trips during the AM peak hour and approximately 6 new bike trips during the PM peak hour. The low volume of bicycle trips generated by the project would not exceed the bicycle-carrying capacity of streets surrounding the site, and the increase in bicycle trips would not by itself require new off-site bicycle facilities. Foothill Road has (1) a southbound striped bike lane from just south of Canyon Way to Moeller Ranch Drive and (2) southbound and northbound striped bike lanes from Moeller Ranch Drive to Muirwood Drive. According to the *Pleasanton Pedestrian and Bicycle Master Plan*, there are Class II bike lanes proposed along the portions of Foothill Road where bike lanes do not currently exist. Stoneridge Drive has existing eastbound and westbound Class II bicycle lanes between Foothill Road and the City limits to the east. However, there are no bike facilities located along Stoneridge Mall Road. Provisions for bike parking are not shown on the current site plan.

> **Recommendation:** According to the City of Pleasanton *Pedestrian and Bicycle Master Plan, Appendix G - 2,* bicycle parking should be required of non-residential projects. The cited example ratio is one bicycle parking space for each 20 vehicle parking stalls or per each 5,000 square feet of commercial space. Prior to final design, City staff should review the project site plan to ensure that adequate accommodations for bike parking are provided.

According the Alameda County TDF model projections, the total commute transit mode share from the project site would be on the order of 3%. For the proposed project, a 3% mode share would equate to approximately 19 new transit trips during the AM peak hour and approximately 17 new transit trips during the PM peak hour. Project transit demand would be partly served by the West Dublin/Pleasanton BART station and the Livermore-Amador Valley Transit Authority (LAVTA). BART trains provide service at 15 minute headways during peak hours to several destinations in the East Bay and San Francisco. Each BART train consists of eight cars, with a capacity of 560 seats per train. This equates to 2,240 seats (4 trains at 560 seats each) during the peak hour. According to previous studies of BART ridership in the Tri-Valley, BART ridership is on the order of 0.6 riders per seat in the project vicinity, meaning that there are hundreds of available seats for potential riders to and from the project site. In addition, the Livermore-Amador Valley Transit Authority (LAVTA) currently provides bus service in the project vicinity, including routes R, 3, 108, 53, 70XV, 603, and 604. There are several existing bus stops within the Stoneridge Shopping Mall site, with a bus duckout and shelter on Stoneridge Mall Road adjacent to the project site at the BART parking garage. According to the LAVTA Short Range Transit Plan (FY 2012 to 2021), most vehicles in the fleet have a seating capacity of 39 riders with an additional capacity of 21 standees. The bus routes that serve the project area average between 8.0 and 20.7 passengers per hour. Thus, the volume of riders generated by the project would not exceed the carrying capacity of the existing bus or BART service near the project site. Therefore, no improvements to the existing transit facilities would be necessary in conjunction with the proposed project.

# 8.
# CMA Analysis

The 2011 Alameda County Congestion Management Program (CMP) includes a Land Use Analysis component to determine the impacts of land use decisions made by local jurisdictions on the regional transportation system. The intent of this program is to:

- better tie together decisions on local land use and regional transportation facilities;
- better assess the impacts of developments in one community on another community;
- promote information sharing between local governments when decisions made by one jurisdiction will have an impact on another.

Local jurisdictions have responsibilities regarding the analysis of transportation impacts of land use decisions. Among those is an analysis of project impacts on the Metropolitan Transportation System (MTS) for the 2020 and 2035 horizon years. For projects that generate more than 100 peak-hour vehicle trips, a CMP traffic analysis is required using the Alameda Countywide Transportation Demand Model (ACTDM). In accordance with the Technical and Policy Guidelines of the Congestion Management Program, the CMP analysis requires evaluation of the traffic impacts of the project on the MTS.

The site of the Workday project is located on the vacant property off Stoneridge Mall Road, between the BART parking garage and the existing Stoneridge Corporate Plaza office buildings. The project consists of a 430,000 square feet office building. Since the ACTDM model uses employment rather than square footage to calculate trips generated by office uses, the 430,000 square foot office building was converted into jobs, using daily ITE trip generation rates for General Office per 1,000 square feet (11.03 trips per day) and per employee (3.32 trips per day). Using this relationship, the 430,000 square feet office building would provide 11.03 * 430 / 3.32 = 1,429 jobs. These 1,429 jobs were coded into Alameda County's land use data base and year 2020 and 2035 PM peak-hour constrained travels forecasts were developed with the ACTDM. The model's traffic assignments indicated that the project would add a number of new vehicle trips to the following MTS roadways in the vicinity of the site:

- I-680
- I-580
- Foothill Road
- Stoneridge Drive

The level of service standard for the CMP analysis is LOS E. The Alameda County CMA does not have a policy for determining a threshold of significance for CMP requirements and expects that professional judgment will be used to determine project impacts. Therefore, for the purpose of this traffic analysis, if a segment operates at an unacceptable LOS without the project, the impact of the project is considered significant if the contribution of project traffic results in an increase in the volume-to-capacity ratio of more than 0.03. This threshold is consistent with prior traffic impact analyses for developments in the City of Pleasanton.

The Alameda County Congestion Management Program does not require analysis of traffic impacts on the regional roadway system under existing plus project conditions. However, a traffic analysis of existing plus project conditions for freeway segments was performed to remain consistent with California Environmental Quality Act guidelines. Since the Alameda County CMA model data set does not have a 2013 forecast year, a 2013 ACTDM was developed by interpolating the land use and socio-economic data and other input variables using the 2005 and 2020 data sets.

In order to determine the impact of the project, AM and PM peak-hour traffic volumes on eight directional freeway segments (2013, 2020 and 2035) and six directional MTS roadway segments (2020 and 2035) in the vicinity of the project were analyzed. Note that the ACTDM assumes that, in the future, the project would generate fewer trips during the *peak-hour* due to increased congestion on the roadway system. As travel times increase for certain origin to destination trips, travelers are shifted to the "shoulder hours" and are not expected to begin or end their trip within the chosen peak-hour. This behavior results in "peak-spreading" and effectively reduces the number of peak-hour trips associated with the project.

## Year 2013 Freeway Traffic Conditions

The peak-direction of travel on I-580 is westbound in the morning and eastbound during the afternoon peak hours. On I-680, the prevailing commute direction is southbound in the morning and northbound in the afternoon. The model forecast shows that during the morning peak hour, traffic in the peak direction of travel operates at LOS D or E. Traffic conditions are worse during the afternoon peak hour when the freeway segments operate at LOS E or F conditions in the peak commute direction. Although the model estimates that the project would increase traffic by as much as 27 vehicles during the AM peak and by 73 vehicles during the PM peak-hour, the project would not cause a significant impact since the increase in volume-to-capacity ratio on segments that operate at LOS E or F would be less than 0.03 (see Tables 15 and 16).

## Year 2020 Roadway and Freeway Traffic Conditions

By the year 2020, several roadway improvements are assumed to be completed, such as the addition of HOV lanes along westbound I-580 and northbound I-680. Model estimates show that by the year 2020, the roadway segments would generally operate at LOS C or better traffic during both AM and PM peak hours, without and with the project. Traffic on segments of I-580 and I-680 would continue to operate at congested (LOS E or F) conditions in the peak direction of travel. Although the model estimates that the project would increase traffic on the freeway segments by as much as 27 vehicles during the AM peak and by 47 vehicles during the PM peak-hour, the project would not cause a significant impact since the increase in volume-to-capacity ratio on segments that operate at LOS E or F would be less than 0.03 (see Tables 17 and 18).

## Year 2035 Roadway and Freeway Traffic Conditions

By the year 2035, additional roadway improvements are assumed to be completed, such as the addition of an HOV lane along southbound I-680. Model estimates show that by the year 2035, the roadway segments would generally operate at LOS D or better traffic during both AM and PM peak hours, without and with the project. Compared to the year 2020 forecast, the 2035 model predicts a significant increase in eastbound commute traffic during the AM peak (and in westbound traffic during the PM peak hour) along the I-580 corridor. This change in travel pattern is the result of regional changes in the growth of households and jobs projected by the Association of Bay Area Governments (ABAG). Although the model estimates that the project would increase traffic on the freeway segments by as much as 24 vehicles during the AM peak and by 44 vehicles during the PM peak-hour, the project would not cause a significant impact since the increase in volume-to-capacity ratio on segments that operate at LOS E or F would be less than 0.03 (see Tables 19 and 20).

**Table 15**
**2013 AM Peak Hour Freeway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 9,795 | 0.890 | E | 9,797 | 0.891 | E | 2 | 0.000 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 5,526 | 0.628 | C | 5,553 | 0.631 | C | 27 | 0.003 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 8,532 | 0.862 | D | 8,549 | 0.864 | D | 17 | 0.002 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 5,145 | 0.520 | C | 5,150 | 0.520 | C | 5 | 0.001 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 6,420 | 0.834 | D | 6,433 | 0.835 | D | 13 | 0.002 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 5,932 | 0.770 | D | 5,932 | 0.770 | D | 0 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 6,212 | 0.941 | E | 6,213 | 0.941 | E | 1 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 5,227 | 0.792 | D | 5,243 | 0.794 | D | 16 | 0.002 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.

**Table 16**
**2013 PM Peak Hour Freeway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 7,436 | 0.676 | C | 7,472 | 0.679 | C | 36 | 0.003 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 9,460 | 1.075 | F | 9,471 | 1.076 | F | 11 | 0.001 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 7,167 | 0.724 | D | 7,188 | 0.726 | D | 21 | 0.002 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 9,009 | 0.910 | E | 9,082 | 0.917 | E | 73 | 0.007 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 5,844 | 0.759 | D | 5,845 | 0.759 | D | 1 | 0.000 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 7,012 | 0.911 | E | 7,018 | 0.911 | E | 6 | 0.001 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 5,334 | 0.808 | D | 5,353 | 0.811 | D | 19 | 0.003 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 6,014 | 0.911 | E | 6,020 | 0.912 | E | 6 | 0.001 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.

**Table 17**
**2020 AM Peak Hour Roadway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| Foothill Road | I-580 | Dublin Canyon Road | SB | 1100 | 4 | 2,402 | 0.546 | C | 2,490 | 0.566 | C | 88 | 0.020 |
| Foothill Road | I-580 | Dublin Canyon Road | NB | 1100 | 4 | 868 | 0.197 | A | 877 | 0.199 | A | 9 | 0.002 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | SB | 1100 | 4 | 1,723 | 0.392 | B | 1,724 | 0.392 | B | 1 | 0.000 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | NB | 1100 | 4 | 1,019 | 0.232 | A | 1,023 | 0.233 | A | 4 | 0.001 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | WB | 1100 | 3 | 1,404 | 0.425 | B | 1,447 | 0.438 | B | 43 | 0.013 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | EB | 1100 | 3 | 1,271 | 0.385 | B | 1,274 | 0.386 | B | 3 | 0.001 |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 10,380 | 0.944 | E | 10,381 | 0.944 | E | 1 | 0.000 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 6,166 | 0.701 | C | 6,193 | 0.704 | C | 27 | 0.003 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 7,750 | 0.783 | D | 7,762 | 0.784 | D | 12 | 0.001 |
| I-580 HOV | I-680 | Foothill Road | WB | 2200 | 1 | 1,600 | 0.727 | D | 1,607 | 0.730 | D | 7 | 0.003 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 5,645 | 0.570 | C | 5,648 | 0.571 | C | 3 | 0.000 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 6,623 | 0.860 | D | 6,633 | 0.861 | D | 10 | 0.001 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 6,317 | 0.820 | D | 6,317 | 0.820 | D | 0 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 6,952 | 1.053 | F | 6,952 | 1.053 | F | 0 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 4,872 | 0.738 | D | 4,883 | 0.740 | D | 11 | 0.002 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | NB | 2200 | 1 | 1,019 | 0.463 | B | 1,023 | 0.465 | B | 4 | 0.002 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.

**Table 18**
**2020 PM Peak Hour Roadway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| Foothill Road | I-580 | Dublin Canyon Road | SB | 1100 | 4 | 1,964 | 0.446 | B | 2,009 | 0.457 | B | 45 | 0.010 |
| Foothill Road | I-580 | Dublin Canyon Road | NB | 1100 | 4 | 2,439 | 0.554 | C | 2,539 | 0.577 | C | 100 | 0.023 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | SB | 1100 | 4 | 1,958 | 0.445 | B | 1,960 | 0.445 | B | 2 | 0.000 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | NB | 1100 | 4 | 1,935 | 0.440 | B | 1,940 | 0.441 | B | 5 | 0.001 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | WB | 1100 | 3 | 1,489 | 0.451 | B | 1,519 | 0.460 | B | 30 | 0.009 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | EB | 1100 | 3 | 1,849 | 0.560 | C | 1,928 | 0.584 | C | 79 | 0.024 |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 8,388 | 0.763 | D | 8,419 | 0.765 | D | 31 | 0.003 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 9,527 | 1.083 | F | 9,537 | 1.084 | F | 10 | 0.001 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 7,927 | 0.801 | D | 7,949 | 0.803 | D | 22 | 0.002 |
| I-580 HOV | I-680 | Foothill Road | WB | 2200 | 1 | 967 | 0.440 | B | 969 | 0.440 | B | 2 | 0.001 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 8,994 | 0.908 | E | 9,041 | 0.913 | E | 47 | 0.005 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 5,831 | 0.757 | D | 5,833 | 0.758 | D | 2 | 0.000 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 6,986 | 0.907 | E | 6,992 | 0.908 | E | 6 | 0.001 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 5,550 | 0.841 | D | 5,568 | 0.844 | D | 18 | 0.003 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 5,596 | 0.848 | D | 5,598 | 0.848 | D | 2 | 0.000 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | NB | 2200 | 1 | 1,082 | 0.492 | B | 1,082 | 0.492 | B | 0 | 0.000 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.

**Table 19**
**2035 AM Peak Hour Roadway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| Foothill Road | I-580 | Dublin Canyon Road | SB | 1100 | 4 | 2,773 | 0.630 | C | 2,867 | 0.652 | C | 94 | 0.021 |
| Foothill Road | I-580 | Dublin Canyon Road | NB | 1100 | 4 | 994 | 0.226 | A | 1,002 | 0.228 | A | 8 | 0.002 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | SB | 1100 | 4 | 2,076 | 0.472 | B | 2,077 | 0.472 | B | 1 | 0.000 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | NB | 1100 | 4 | 1,037 | 0.236 | A | 1,039 | 0.236 | A | 2 | 0.000 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | WB | 1100 | 3 | 1,188 | 0.360 | B | 1,224 | 0.371 | B | 36 | 0.011 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | EB | 1100 | 3 | 1,213 | 0.368 | B | 1,216 | 0.368 | B | 3 | 0.001 |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 9,635 | 0.876 | D | 9,635 | 0.876 | D | 0 | 0.000 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 7,815 | 0.888 | D | 7,839 | 0.891 | E | 24 | 0.003 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 7,423 | 0.750 | D | 7,441 | 0.752 | D | 18 | 0.002 |
| I-580 HOV | I-680 | Foothill Road | WB | 2200 | 1 | 1,535 | 0.698 | C | 1,543 | 0.701 | C | 8 | 0.004 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 7,170 | 0.724 | D | 7,174 | 0.725 | D | 4 | 0.000 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 6,988 | 0.908 | E | 6,993 | 0.908 | E | 5 | 0.001 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 5,854 | 0.760 | D | 5,854 | 0.760 | D | 0 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 5,740 | 0.870 | D | 5,741 | 0.870 | D | 1 | 0.000 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | SB | 2200 | 1 | 1,657 | 0.753 | D | 1,657 | 0.753 | D | 0 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 4,691 | 0.711 | D | 4,701 | 0.712 | D | 10 | 0.002 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | NB | 2200 | 1 | 772 | 0.351 | B | 774 | 0.352 | B | 2 | 0.001 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.

**Table 20**
**2035 PM Peak Hour Roadway Segment LOS**

| Segment | Endpoint 1 | Endpoint 2 | Direction | Lane Capacity | # of Lanes | No-Project | | | Project | | | Increase in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volume | V/C | LOS | Volume | V/C | LOS | Volume | V/C |
| Foothill Road | I-580 | Dublin Canyon Road | SB | 1100 | 4 | 1,785 | 0.406 | B | 1,827 | 0.415 | B | 42 | 0.010 |
| Foothill Road | I-580 | Dublin Canyon Road | NB | 1100 | 4 | 3,203 | 0.728 | D | 3,312 | 0.753 | D | 109 | 0.025 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | SB | 1100 | 4 | 1,555 | 0.353 | B | 1,557 | 0.354 | B | 2 | 0.000 |
| Foothill Road | Dublin Canyon Road | Laurel Creek Way | NB | 1100 | 4 | 2,774 | 0.630 | C | 2,777 | 0.631 | C | 3 | 0.001 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | WB | 1100 | 3 | 2,006 | 0.608 | C | 2,036 | 0.617 | C | 30 | 0.009 |
| Stoneridge Drive | Stoneridge Mall Road | I-680 | EB | 1100 | 3 | 1,649 | 0.500 | B | 1,713 | 0.519 | C | 64 | 0.019 |
| I-580 | Foothill Road | Palo Verde Road | WB | 2200 | 5 | 9,886 | 0.899 | E | 9,910 | 0.901 | E | 24 | 0.002 |
| I-580 | Foothill Road | Palo Verde Road | EB | 2200 | 4 | 8,828 | 1.003 | F | 8,833 | 1.004 | F | 5 | 0.001 |
| I-580 | I-680 | Foothill Road | WB | 2200 | 4.5 | 8,615 | 0.870 | D | 8,631 | 0.872 | D | 16 | 0.002 |
| I-580 HOV | I-680 | Foothill Road | WB | 2200 | 1 | 1,357 | 0.617 | C | 1,359 | 0.618 | C | 2 | 0.001 |
| I-580 | I-680 | Foothill Road | EB | 2200 | 4.5 | 8,731 | 0.882 | D | 8,775 | 0.886 | D | 44 | 0.004 |
| I-680 | I-580 | Stoneridge Drive | SB | 2200 | 3.5 | 6,018 | 0.782 | D | 6,020 | 0.782 | D | 2 | 0.000 |
| I-680 | I-580 | Stoneridge Drive | NB | 2200 | 3.5 | 7,036 | 0.914 | E | 7,038 | 0.914 | E | 2 | 0.000 |
| I-680 | Stoneridge Drive | Bernal Avenue | SB | 2200 | 3 | 4,864 | 0.737 | D | 4,880 | 0.739 | D | 16 | 0.002 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | SB | 2200 | 1 | 759 | 0.345 | B | 762 | 0.346 | B | 3 | 0.001 |
| I-680 | Stoneridge Drive | Bernal Avenue | NB | 2200 | 3 | 5,631 | 0.853 | D | 5,634 | 0.854 | D | 3 | 0.000 |
| I-680 HOV | Stoneridge Drive | Bernal Avenue | NB | 2200 | 1 | 1,059 | 0.481 | B | 1,059 | 0.481 | B | 0 | 0.000 |

Note: LOS is based on guidance provided in Exhibit 23-2, Highway Capacity Manual.