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# *Appendix D*

# Los Coches High-Rise

Transportation Impact Analysis

*Prepared for:*

Barry Swenson Builder

*Prepared by:*

Hexagon Transportation Consultants, Inc.

March 21, 2005

BAW, RG
Los Coches Report (6). doc

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# Executive Summary

This report presents the results of the traffic impact analysis conducted for the Los Coches High-Rise development in Milpitas, California. The project site is located at 905 Los Coches Street. The site, formerly used as a lumber yard, is currently vacant. The project as proposed would consist of 195 residential units. Access to the site will be provided via Los Coches Street and East Calaveras Boulevard. Parking would be provided onsite. The proposed project would require a change in the existing General Plan designation of the project site from Highway Services to Residential.

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Milpitas and the Congestion Management Program (CMP) of Santa Clara County. The study included an analysis of AM and PM peak-hour traffic conditions for seven signalized intersections, two unsignalized intersections, three freeway segments, and twelve roadway segments.

## Project Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the development the applicable trip generation rates. On the basis of the trip generation rates recommended by the San Diego Association of Governments (SANDAG), it is estimated that the project would generate 125 trips during the AM peak hour and 156 trips during the PM peak hour. The trip distribution pattern for the proposed project was estimated based on existing travel patterns in the area and the locations of complementary land uses.

## Project Impacts & Recommendations

Project impacts were determined based on the appropriate significance criteria. The results of the intersection level of service analysis show one of the signalized study intersections would be impacted by the project. None of the freeway segments analyzed would be impacted by the project according to County CMP standards for freeways.

**Significant Impact:** The intersection of E. Calaveras Boulevard and Milpitas Boulevard would operate at LOS F under background conditions. The project would add more than 4 seconds of critical delay and increase the V/C by more than 0.01. According to CMP guidelines, this would constitute a significant impact.

**Mitigation:** The intersection of E Calaveras Boulevard and Milpitas Boulevard is nearly built-out. To mitigate this impact, Calaveras Boulevard would need to be widened at Milpitas Boulevard. This would require widening the Calaveras Boulevard bridge over Main Street. It would not be feasible for a single project to fund this improvement. Therefore, this intersection impact should be considered significant and unavoidable. As partial mitigation for this impact, the project should make a fair share contribution to the widening of Calaveras Boulevard.

### *Unsignalized Intersection Impacts*

The result of the peak-hour volume signal warrant check shows that none of the unsignalized study intersections would operate at *unacceptable* levels of service with the addition of project traffic. However, the City of Milpitas is currently considering placing a traffic signal at the Hillview Drive and Los Coches Street intersection. The project would add traffic to this intersection.

Recommendation: The Hillview Drive/Los Coches Street four-way stop controlled intersection is on the City signal priority list. The developer shall contribute its "fair share" toward future design and construction of a traffic signal system at this location.

### *Intersection Operational Impacts*

The intersection operations analysis, based on the TRAFFIX level of service methodology, indicates that the intersection of Calaveras Boulevard and Hillview Drive would continue to have inadequate storage capacity to accommodate the estimated maximum vehicle queues during both the AM and PM peak hours. The storage capacity at this left-turn pocket is deficient under existing and background conditions. The addition of project traffic would increase the inadequacy of the vehicle queue storage during the PM peak hour.

In addition to queuing concerns, there are also weaving concerns on Calaveras Boulevard westbound between the I-680 ramps and the westbound left-turn pocket at Hillview Drive/Calaveras Boulevard. The distance between the southbound I-680 off-ramp and the westbound left turn pocket is sub-standard for vehicles to comfortably merge across three lanes of traffic.

Recommendation. The project proponent should make a "fair share" contribution to the extension of the westbound left-turn pocket at the intersection of Hillview Drive/E. Calaveras Boulevard and any necessary "weaving" improvements on the subject roadway segment. Design and funding should be coordinated with the City of Milpitas.

### *Other Transportation Impacts*

The project would not adversely impact existing bicycle or transit facilities in the vicinity of the site, although improved transit and bike facilities would be beneficial. The project would create a need for a sidewalk along Los Coches Street in the vicinity of the project site.

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

| | Existing | | | | | | Background | | | | | | Project | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | Delay | V/C | LOS | Delay | V/C | LOS | Delay | V/C | LOS | Delay | V/C | LOS | Delay | V/C | LOS | Delay | V/C | LOS |
| W. Calaveras & I-880 NB Ramps | 13.5 | 0.78 | B | 25.9 | 0.91 | C | 15.8 | 0.85 | B | 43.8 | 1.04 | D | 16.1 | 0.86 | B | 47.5 | 1.06 | D |
| W. Calaveras & Abbott Avenue | 30.3 | 0.81 | C | 31.3 | 0.81 | C | 32.6 | 0.88 | C | 32.4 | 0.86 | C | 33.1 | 0.89 | C | 32.5 | 0.86 | C |
| W. Calaveras & Serra Way | 19.4 | 0.70 | B | 24.4 | 0.66 | C | 21.4 | 0.78 | C | 26.4 | 0.74 | C | 21.6 | 0.79 | C | 26.4 | 0.75 | C |
| W. Calaveras & Abel Street* | 31.3 | 0.73 | C | 34.0 | 0.84 | C | 36.4 | 0.87 | D | 34.3 | 0.83 | C | 37.0 | 0.88 | D | 34.7 | 0.84 | C |
| E. Calaveras & Milpitas Boulevard* | 55.8 | 1.01 | E | 40.4 | 0.67 | D | 82.3 | 1.13 | F | 42.0 | 0.77 | D | 85.9 | 1.15 | F | 42.2 | 0.78 | D |
| E. Calaveras & Hillview Drive | 27.4 | 0.64 | C | 34.2 | 0.73 | C | 28.5 | 0.71 | C | 35.6 | 0.82 | D | 29.9 | 0.74 | C | 37.0 | 0.84 | D |
| E. Calaveras & Park Victoria Drive | 32.9 | 0.70 | C | 32.2 | 0.75 | C | 33.2 | 0.71 | C | 32.7 | 0.76 | C | 33.2 | 0.71 | C | 32.7 | 0.76 | C |
| Hillview Dr. & Los Coches St. (unsignalized) | 13.2 | 0.66 | B | 11.7 | 0.46 | B | 14.2 | 0.70 | B | 11.8 | 0.46 | B | 16.2 | 0.75 | C | 13.4 | 0.51 | B |
| Horizon Dr. & Los Coches St. (unsignalized) | 11.3 | n/a | B | 10.9 | n/a | B | 11.3 | n/a | B | 10.9 | n/a | B | 12.6 | n/a | B | 12.8 | n/a | B |

*denotes CMP Intersection
Note: The delay and level of service at Horizon Drive and Los Coches Street reflects the worst intersection leg.
☐ = denotes unacceptable LOS according to applicable standard, LOS D or better for City of Milpitas, LOS E or better for CMP

Recommendation. The project proponent should provide a sidewalk along the north side of Los Coches along the project frontage. This improvement should be coordinated with the City of Milpitas.

### *Site Access, On-site Circulation, and Parking Impacts*

General design recommendations are stated below.

Recommendation. The project proponent should conduct a speed survey to determine if speeding is a problem at the corner of Sinclair Frontage Road and Los Coches Street. If the survey determines speeding to be a problem, the City should coordinate traffic safety measures.

Recommendation. Should the project proponent place gates on Horizon Drive, 50 feet of vehicle queuing space should be provided.

Recommendation: Clear signing and striping are needed at the southernmost onsite intersection. If possible, the size of the intersection should be reduced to eliminate potential sight distance issues.

Recommendation. The project proponent should comply with the City of Milpitas parking standards for very high-density multi-family districts (R4), ***or*** demonstrate that the proposed parking would be sufficient given the project characteristics.

## Year 2030 Traffic Impacts

The proposed project would require a change in the existing General Plan designation of the project site from Highway Services to Residential. Currently, the site is vacant. However, for the purposes of estimating the change in the General Plan designation, the traffic impacts of the project were evaluated relative to current General Plan designation, as opposed to what is currently occupying the site. Although the current Highway Services designation includes a wide range of potential uses, it was assumed for this analysis that the site would be developed as a 134-room hotel. This land use is consistent with the existing General Plan designation and was actually being considered for the site in 1999.

Relative to the existing General Plan, the proposed General Plan change would increase the trip generation from the site by 50 trips during the AM peak hour and 71 trips during the PM peak hour.

The LOS standard for Calaveras Boulevard is LOS E. For all other study segments, the LOS standard is LOS D. Under the existing General Plan, Calaveras Boulevard, Milpitas Boulevard, and Abel Street would all operate at unacceptable levels under year 2030 conditions.

The proposed General Plan change would not result in any study segments degrading from acceptable levels to below their respective LOS standards. For the study segments that are projected to operate below their LOS standards under existing General Plan year 2030 conditions, the proposed project would not add traffic greater than 1% of the roadway capacity.

Recommendation. To mitigate long term cumulative impacts, the project should make a "fair share" contribution towards the east-west corridor improvements planned for Calaveras Boulevard/SR 237.

# 1. Introduction

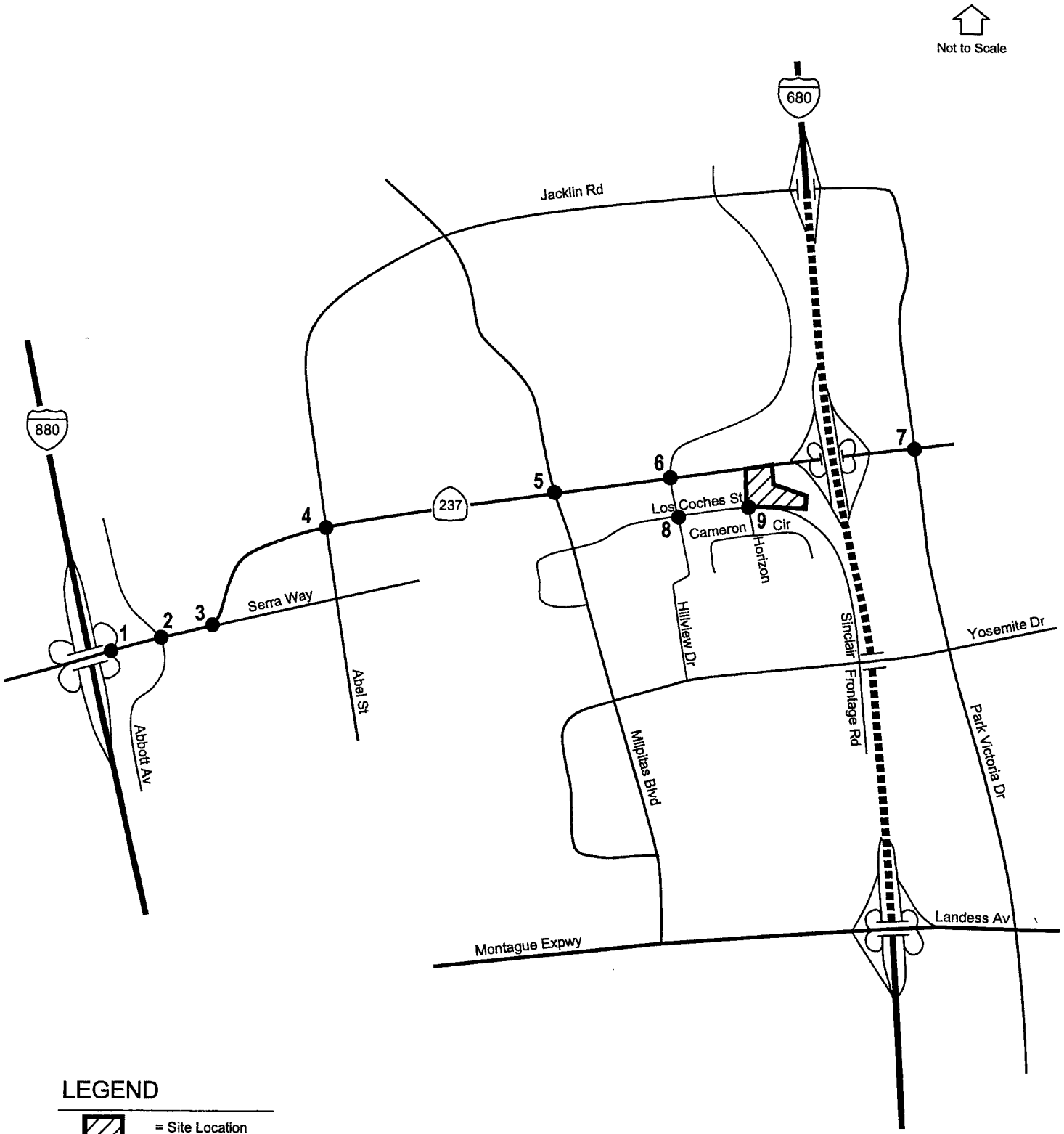
This report presents the results of the traffic impact analysis conducted for the Los Coches High-Rise development in Milpitas, California. The project site is located at 905 Los Coches Street. The site, formerly used as a lumber yard, is currently vacant. The project as proposed would consist of 195 residential units. Access to the site will be provided via Los Coches Street and East Calaveras Boulevard. Parking will be provided onsite. The proposed project would require a change in the existing General Plan designation of the project site from Highway Services to Residential. The project site and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

## Scope of Study

This study was conducted for the purpose of identifying the potential traffic impacts related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the City of Milpitas and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the county Congestion Management Program (CMP). The traffic analysis is based on peak-hour levels of service for the study intersections and freeway segments. The traffic analysis also includes an evaluation of a peak-hour signal warrant for the unsignalized intersection and a peak-hour vehicle queuing analysis for the westbound left-turn at the intersection of E. Calaveras Boulevard and Hillview Drive. The study intersections are identified below.

1. W. Calaveras Boulevard and I-880 NB Ramps
2. W. Calaveras Boulevard and Abbott Avenue
3. W. Calaveras Boulevard and Serra Way
4. W. Calaveras Boulevard and Abel Street*
5. E. Calaveras Boulevard and Milpitas Boulevard*
6. E. Calaveras Boulevard and Hillview Drive
7. E. Calaveras Boulevard and Park Victoria Drive
8. Hillview Drive and Los Coches Street (unsignalized)
9. Los Coches Street and Project Driveway/Horizon Drive (unsignalized)

CMP intersections are denoted with an asterisk (*).




LEGEND

= Site Location

= Study Intersection

= Study Freeway Segment

Figure 1

# SITE LOCATION AND STUDY INTERSECTIONS

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Los Coches High Rise

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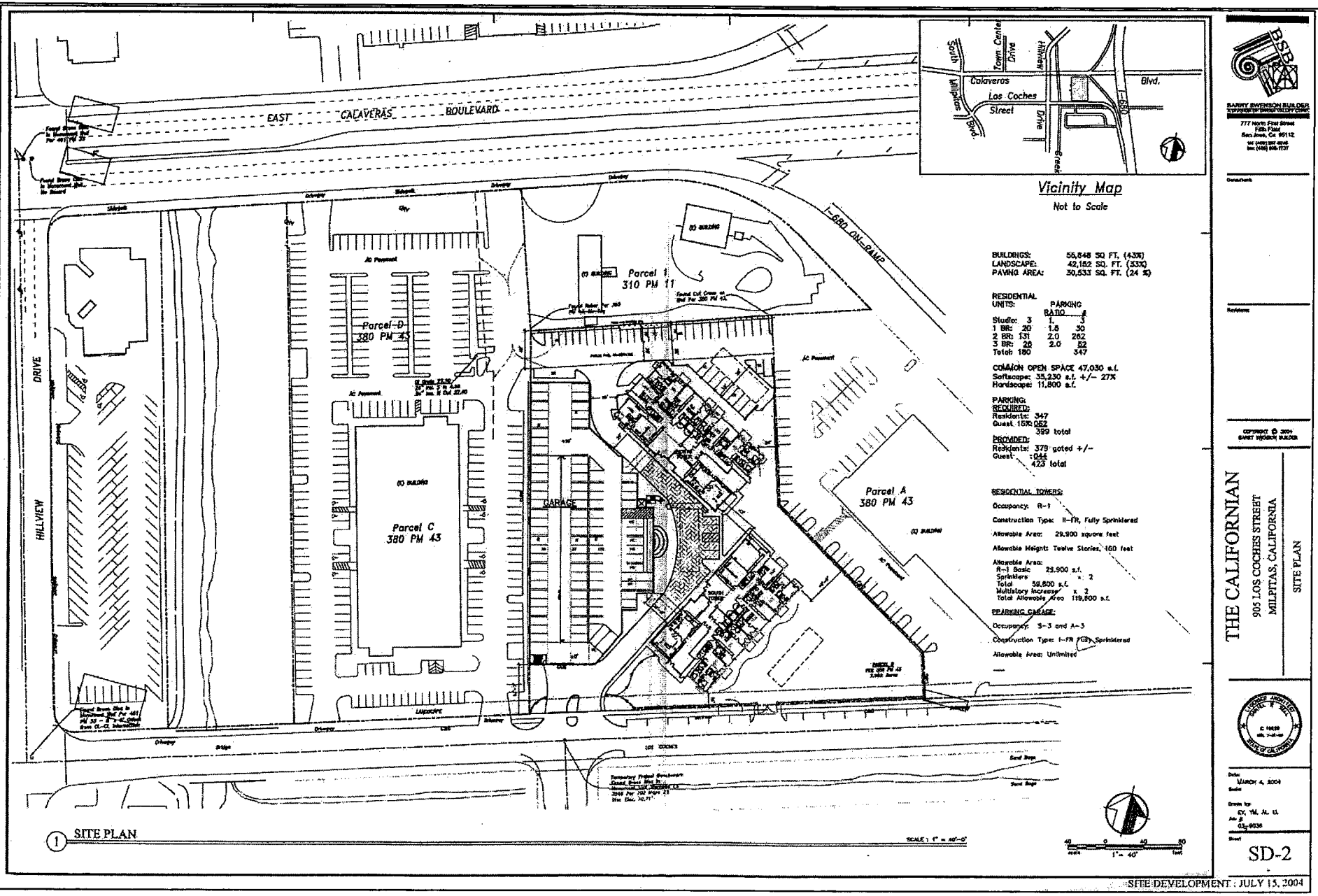


Figure 2

**SITE PLAN**

Los Coches High Rise

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The CMP's requirements regarding the need to study freeway segments for the proposed project were also evaluated. According to CMP guidelines, a freeway segment should be studied when a proposed development would add traffic to a segment greater than one percent of its capacity. Table 1 shows this comparison. (The methods used to assign project traffic to the roadway network are described in the "Project Impacts and Recommendations" chapter of this report.) The capacity of a mixed-flow lane as specified by the *2000 Highway Capacity Manual* is 2,200 vehicles per hour (vph) on four-lane facilities, and 2,300 vph on facilities with six or more lanes. The capacity of high occupancy vehicle lanes (HOV) were not included in this calculation. Based on this comparison, none of the surrounding freeways segments require study.

## Table 1
## Freeway Segment Evaluation

| Freeway | Segment | Direction | # of Lanes[1] | Capacity[2] (vphpl) | 1% of Capacity | Peak Hour | Project Trips |
|---|---|---|---|---|---|---|---|
| I-680 | Jacklin Road to Calaveras Blvd | SB | 3.5 | 8050 | 81 | AM | 3 |
| | | | | | | PM | 14 |
| I-680 | Calaveras Blvd to Yosemite Drive | SB | 4 | 9200 | 92 | AM | 17 |
| | | | | | | PM | 8 |
| I-680 | Yosemite Drive to Montague Expressway | SB | 4 | 9200 | 92 | AM | 17 |
| | | | | | | PM | 8 |
| I-680 | Calaveras Blvd to Jacklin Road | NB | 3.5 | 8050 | 81 | AM | 13 |
| | | | | | | PM | 6 |
| I-680 | Yosemite Drive to Calaveras Blvd | NB | 4 | 9200 | 92 | AM | 4 |
| | | | | | | PM | 19 |
| I-680 | Montague Expressway to Yosemite Drive | NB | 4 | 9200 | 92 | AM | 4 |
| | | | | | | PM | 19 |

1. Decimal number of lanes due to auxiliary lanes on freeway.
2. Capacity was based on the ideal capacity cited in the *1994 Highway Capacity Manual.*

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

**Scenario 1:** *Existing Conditions.* Existing conditions were represented by existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from recent traffic counts and the City of Milpitas.

**Scenario 2** *Background Conditions.* Background conditions were represented by future background traffic volumes on the near-term future roadway network. Background traffic volumes were estimated by adding to existing peak-hour volumes the projected volumes from approved but not yet completed developments. The latter component is contained in the City of Milpitas Approved Trips Inventory (ATI).

**Scenario 3** *Project Conditions.* Project conditions were represented by future traffic volumes, with the project, on the near-term future roadway network. Future traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by adding to background traffic volumes the additional traffic generated by the project. Project

conditions were evaluated relative to background conditions in order to determine potential project impacts.

**Scenario 4** *Cumulative Conditions.* Cumulative conditions were represented by year 2030 traffic volumes on the roadway network. Traffic volumes were obtained from the City of Milpitas. Impacts for cumulative conditions were evaluated relative to the existing Milpitas General Plan. Per City of Milpitas requirements, roadway segments were evaluated for cumulative conditions.

## Methodology

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

### *Data Requirements*

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the City of Milpitas, and the CMP annual Monitoring Report. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing (for signalized intersections only)

### *Analysis Methodologies and Level of Service Standards*

Traffic conditions at the study locations 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 City of Milpitas and CMP level of service methodologies utilize TRAFFIX software using CMP default settings. TRAFFIX is based on the *Highway Capacity Manual* (HCM) method for intersections, and evaluates intersection operations on the basis of average delay for all vehicles at the intersection. The correlation between average delay and level of service is shown in Tables 2 and 3. For the unsignalized intersection that is stop controlled on the minor street approach only (Los Coches Street and Project Driveway/Horizon Drive), the reported level of service was for the worst intersection approach.

For cumulative conditions, the traffic operations at the study segments were calculated based on the volume-to-capacity ratio, which can be correlated to a level of service. Table 4 shows the roadway types, capacity assumptions, and LOS thresholds that were used for this analysis.

For CMP intersections and roadway segments, the minimum acceptable level of service is LOS E. At intersections and roadway segments in Milpitas that are not CMP intersections, the minimum acceptable level of service is LOS D.

**Table 2**
**Signalized Intersection Level of Service Definitions Based on Delay**

| Level of Service | Description | Average Control Delay Per Vehicle (seconds) |
|---|---|---|
| A | Operations with very low delay occurring with favorable progression and/or short cycle lengths. | 10.0 or less |
| B | Operations with low delay occurring with good progression and/or short cycle lengths. | 10.1 to 20.0 |
| C | Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. | 20.1 to 35.0 |
| D | Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. | 35.1 to 55.0 |
| E | Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay. | 55.1 to 80.0 |
| F | Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths. | Greater than 80.0 |

Source: Transportation Research Board, *Highway Capacity Manual 2000,* Exhibit 16-2.

**Table 3**
**Unsignalized Intersection Level of Service Definitions Based on Delay**

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

Source: Transportation Research Board, *Highway Capacity Manual 2000*.

**Table 4**
**City of Milpitas Roadway Segment LOS**

| Facility | Lane Capacity | Level of Service A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| Freeway | 2,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | >2,000 |
| Expressway | 1,100 | 660 | 770 | 880 | 990 | 1,100 | >1,100 |
| Major Arterial | 1,000 | 600 | 700 | 800 | 900 | 1,000 | >1,100 |
| Arterial | 900 | 540 | 630 | 720 | 810 | 900 | >900 |

### Signal Warrants Intersections

In addition to the level of service evaluation, for unsignalized intersections an assessment is made of the need for signalization of the intersection. This assessment is made on the basis of the Peak-hour Volume Signal Warrant, Warrant #11 described in the Caltrans *Traffic Manual.* This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes 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 turning movements at intersections. The basis of the analysis is as follows: (1) the TRAFFIX intersection analysis software 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.

## Report Organization

The remainder of this report is divided into six chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the intersection and freeway operations under background conditions. Chapter 4 describes the method used to estimate project traffic and its impact on the transportation system. Chapter 5 discusses the traffic conditions resulting from cumulative traffic.

# 2.
# Existing Conditions

This chapter describes the existing conditions for all 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 I-880, I-680, and SR 237/Calaveras Boulevard. These facilities are described below.

*I-680* is a north/south freeway traversing the eastern portion of Milpitas. This freeway connects the inland East Bay communities to the north with San Jose to the south. I-680 has six mixed flow lanes north of SR 237 and eight mixed flow lanes south of SR 237. A southbound HOV lane is currently in operation north of Calaveras Boulevard.

*I-880* is a north/south freeway providing regional access from East Bay cities to San Jose, where it becomes SR 17. Within the City of Milpitas, I-880 is a six-to-eight lane freeway. The initial construction phases of the SR 237/I-880 interchange have recently been completed. South of Montague Expressway, I-880 has recently been widened to six lanes.

*State Route 237/Calaveras Boulevard* is an east/west arterial between I-880 and I-680 and generally provides six travel lanes (four on the Union Pacific overcrossing). West of I-880, this facility becomes a freeway with four mixed flow lanes and two High Occupancy Vehicle (HOV) lanes. Calaveras Boulevard accommodates a significant amount of regional through traffic during the peak commute hours. Milpitas staff estimate that approximately 50 percent of the peak hour traffic between I-680 and I-880 is generated outside of Milpitas. The predominate direction of travel is westbound in the morning and eastbound during the afternoon.

Local access to the site is provided by Hillview Drive, Los Coches Street, and Sinclair Frontage Road. These roadways are described below.

*Hillview Drive* is a two-lane collector street, which runs north from Yosemite Drive to Calaveras Boulevard. North of Calaveras Boulevard, Hillview Drive is a residential collector along I-680.

*Los Coches Street* is a two-lane east-west collector street that provides access to local businesses and residential areas.

*Sinclair Frontage Road* is a two-lane frontage road that extends south from Los Coches Street. It runs north-south parallel to I-680, which is directly to the east.

## Existing Bicycle and Pedestrian Facilities

There are a number of county-designated bikeways within the vicinity of the project site. Bike lanes are provided on Milpitas Boulevard north of Yosemite Drive, on Main Street south of Calaveras Boulevard, Jacklin Road between Milpitas Boulevard and Park Victoria Drive, Park Victoria Drive north of Jacklin Road, and Yosemite Drive from Milpitas Boulevard to Park Victoria Drive. Bike routes are provided along Yosemite Drive east of Park Victoria Drive, on Park Victoria between Jacklin Road and Landess Avenue, Abel Street between Milpitas Boulevard and Marylinn Drive, Marylinn Drive between Abel Street and Main Street, and E. Calaveras Boulevard east of Park Victoria. The existing bicycle facilities within the study area are shown on Figure 3.

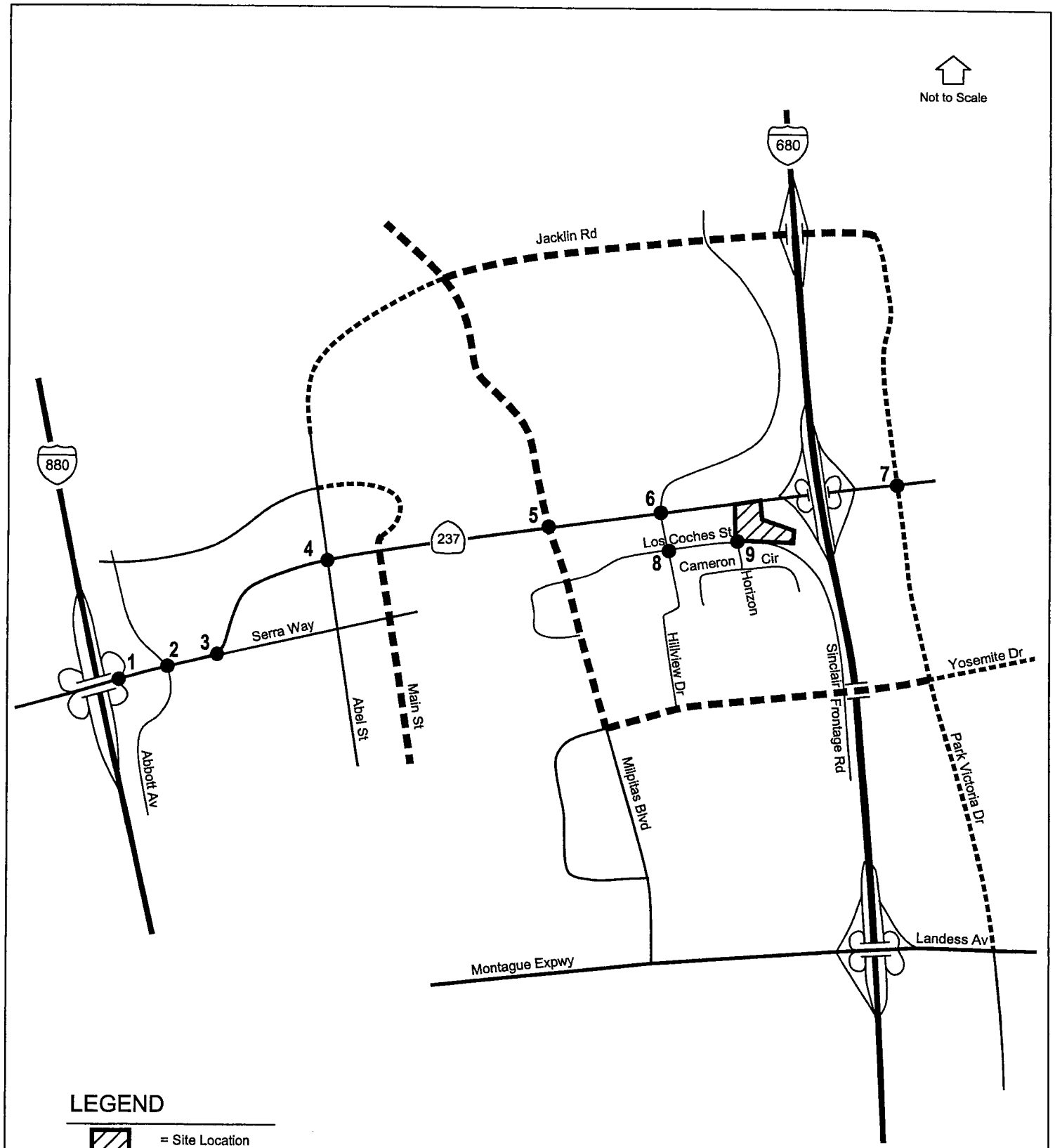
Sidewalks are available on the south side of Los Coches Street across from the project site. Sidewalks are also available on Sinclair Frontage Road, Hillview Drive, and Calaveras Boulevard. Sidewalks are not available on the north side of Los Coches next to the project site, nor along the adjacent parcels.

## Existing Transit Service

Existing transit service to the study area is provided directly by VTA local buses. The #77 line provides service between the Eastridge Mall and the City of Milpitas via Milpitas Boulevard, with 15 to 30-minute headways during commute hours. The #47 line provides service between the Great Mall LRT station and the North/East Milpitas via Calaveras Boulevard, with 15 to 30-minute headways during commute hours. These routes, and other nearby VTA bus routes, are shown on Figure 4.

## Existing Intersection Lane Configurations & 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 the City of Milpitas and supplemented with manual turning-movement counts at intersections where counts were either unavailable or outdated (more than two years old). The existing peak-hour intersection volumes are shown on Figure 6. The traffic count data are included in Appendix A.




LEGEND

= Site Location

= Study Intersection

= Bike Lane

= Bike Route

Figure 3

# EXISTING BICYCLE FACILITIES

Los Coches High Rise

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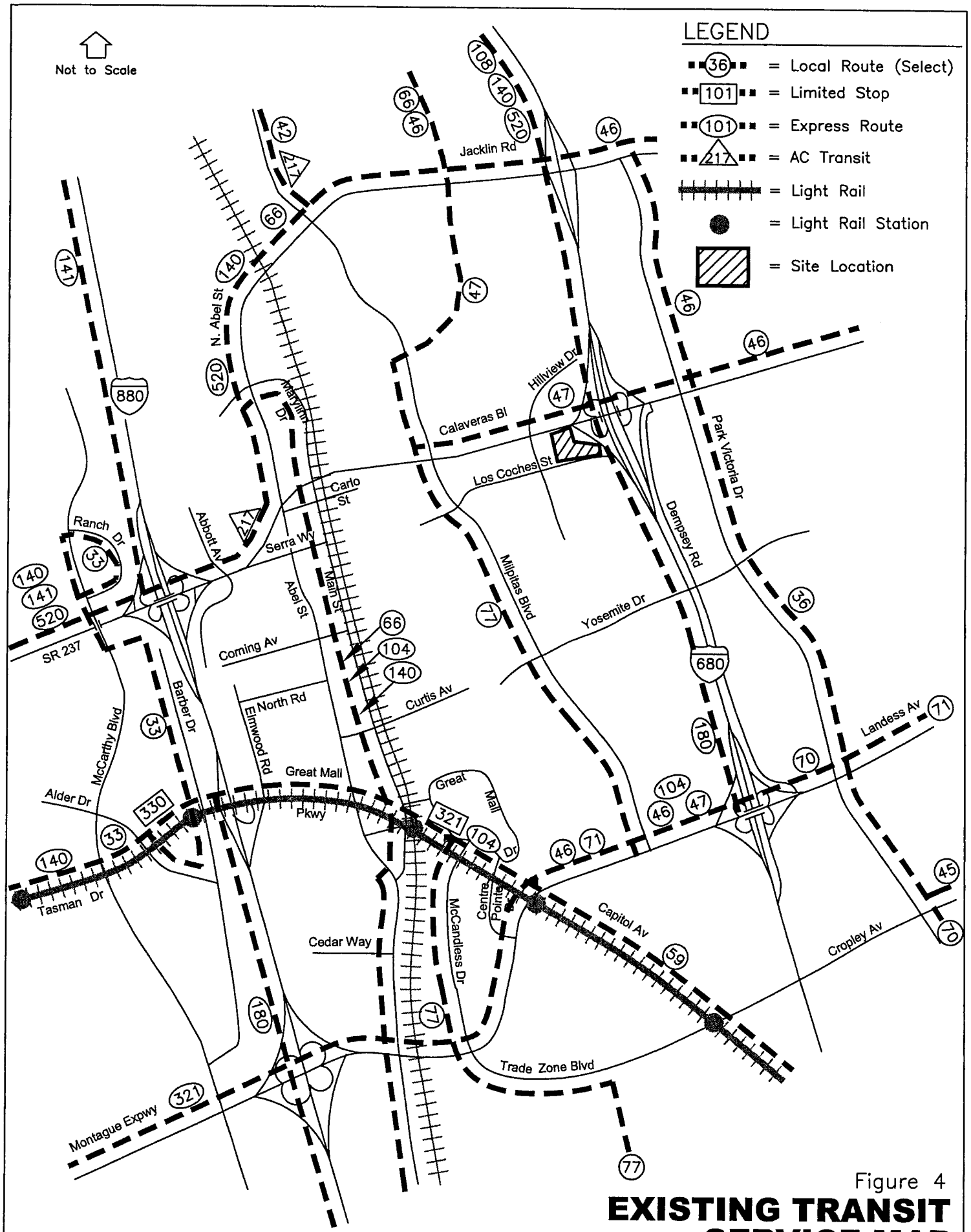


Figure 4

# EXISTING TRANSIT SERVICE MAP

Los Coches High Rise

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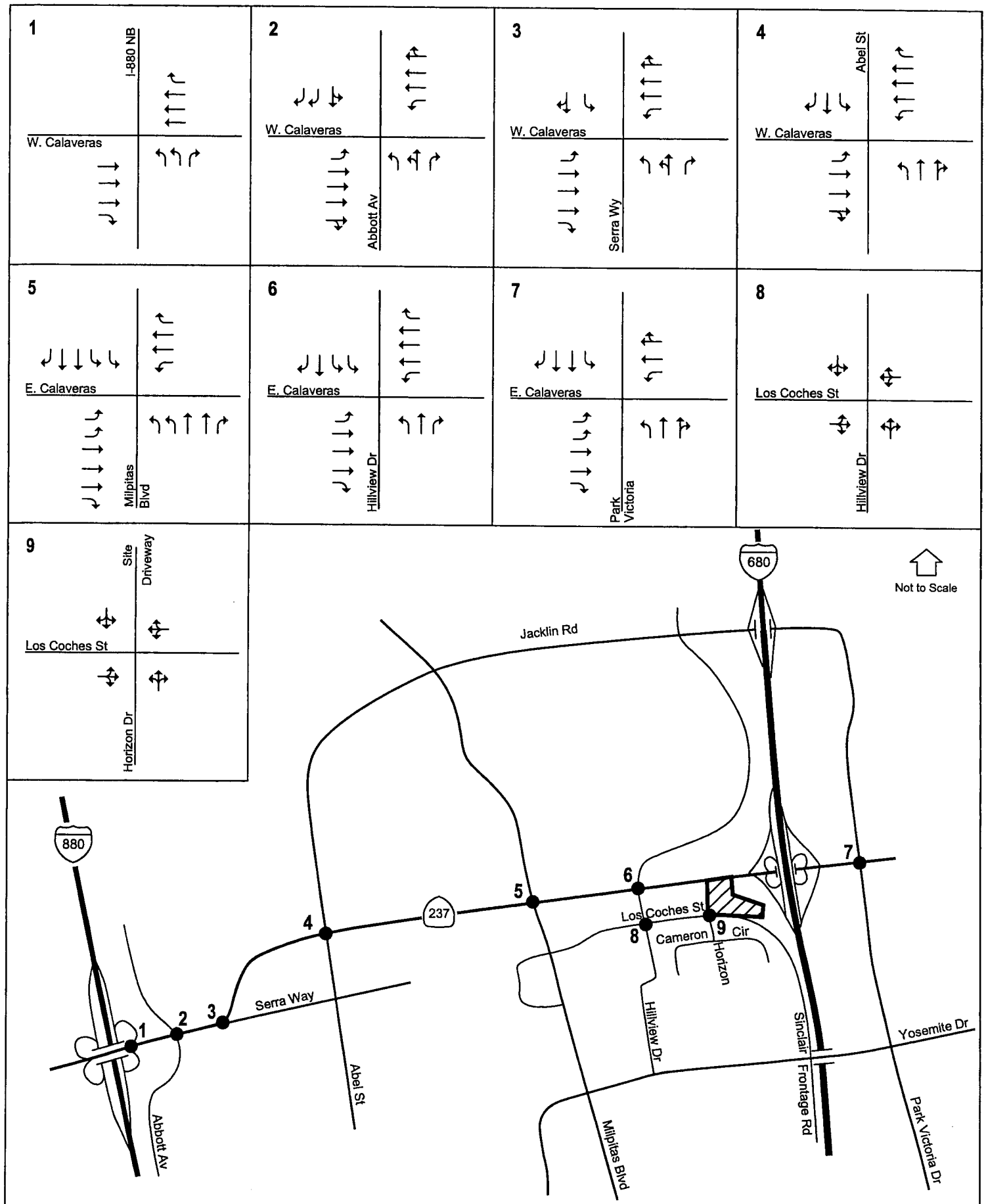


Figure 5

# EXISTING LANE CONFIGURATIONS

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Los Coches High Rise

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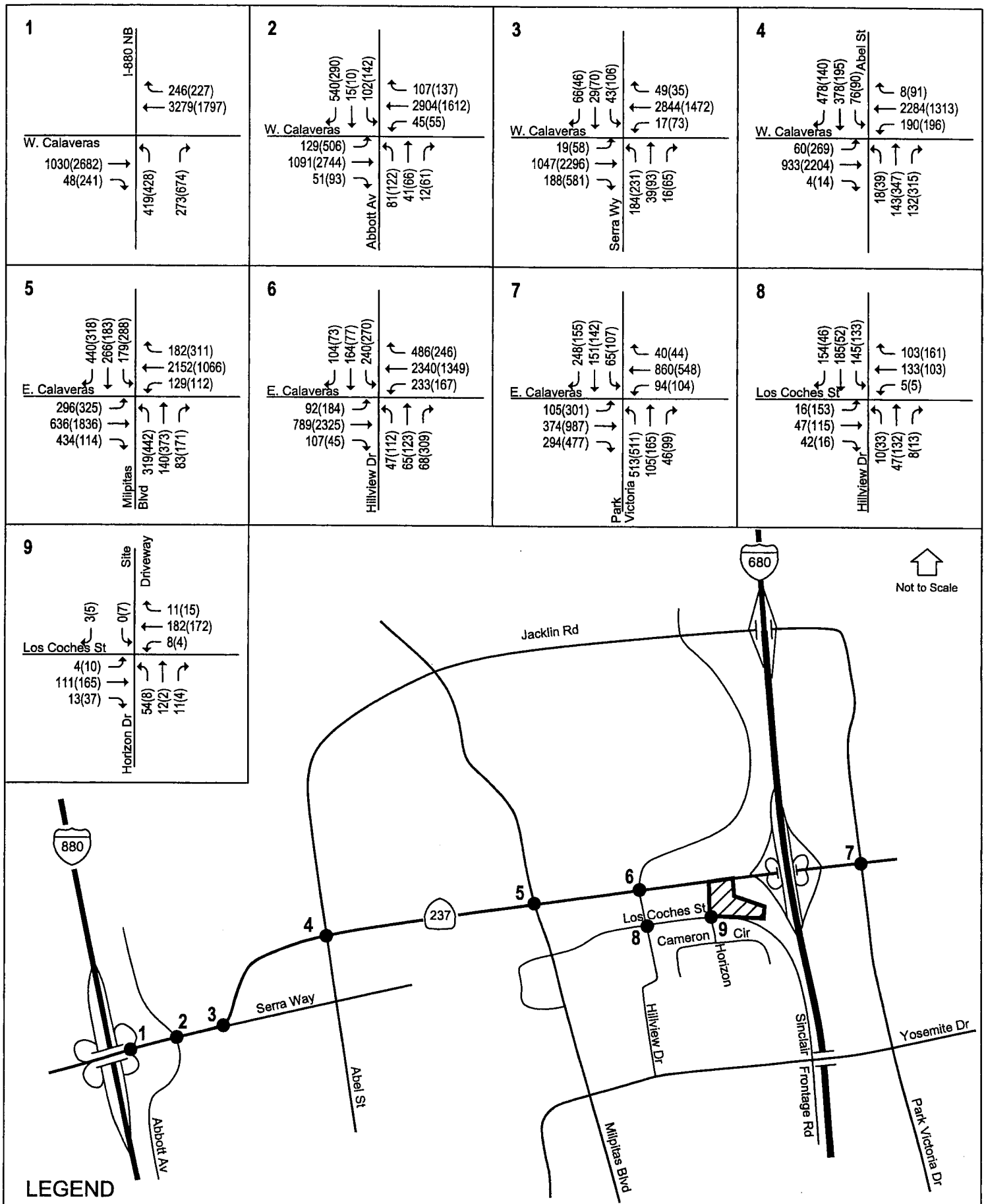


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Figure 6

# EXISTING TRAFFIC VOLUMES

Los Coches High Rise

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## Existing Intersection Analysis

The results of the level of service analysis under existing conditions are summarized in Table 5. The results show that, measured against the appropriate level of service standards, none of the study intersections currently operate at an unacceptable level of service. The level of service calculation sheets are included in Appendix D.

### Table 5
### Existing Intersection Levels of Service

| | Existing | | | | | |
|---|---|---|---|---|---|---|
| | AM Peak Hour | | | PM Peak Hour | | |
| | Delay | Crit. V/C | LOS | Delay | Crit. V/C | LOS |
| W. Calaveras & I-880 NB Ramps | 13.5 | 0.78 | B | 25.9 | 0.91 | C |
| W. Calaveras & Abbott Avenue | 30.3 | 0.81 | C | 31.3 | 0.81 | C |
| W. Calaveras & Serra Way | 19.4 | 0.70 | B | 24.4 | 0.66 | C |
| W. Calaveras & Abel Street* | 31.3 | 0.73 | C | 34.0 | 0.84 | C |
| E. Calaveras & Milpitas Boulevard* | 55.8 | 1.01 | E | 40.4 | 0.67 | D |
| E. Calaveras & Hillview Drive | 27.4 | 0.64 | C | 34.2 | 0.73 | C |
| E. Calaveras & Park Victoria Drive | 32.9 | 0.70 | C | 32.2 | 0.75 | C |
| Hillview Dr. & Los Coches St. (unsignalized) | 13.2 | 0.66 | B | 11.7 | 0.46 | B |
| Horizon Dr. & Los Coches St. (unsignalized) | 11.3 | n/a | B | 10.9 | n/a | B |

*denotes CMP Intersection
Note: The delay and level of service at Horizon Drive and Los Coches Street reflects the worst intersection leg.
☐ = denotes unacceptable LOS according to applicable standard, LOS D or better for City of Milpitas, LOS E or better for CMP

## Existing Signal Warrants

The peak-hour signal warrant (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) was checked for the unsignalized intersection of Hillview/Los Coches and Los Coches/Project Driveway to determine whether signalization would be justified on the basis of existing peak-hour volumes. The analysis showed that the peak-hour volume signal warrant is not satisfied under existing conditions at the intersections. The signal warrant analysis sheets are included in Appendix E.

## Existing Intersection Operations

The westbound left-turn lane at the intersection of Hillview and Calaveras was evaluated for storage capacity. Under existing conditions, the 95$^{th}$ percentile queue is 12 vehicles during both the AM and PM peak hours while the available storage capacity is 200 feet, or approximately 8 cars. Thus, it can be stated that the existing storage capacity of the westbound left-turn lane is insufficient by 100 feet.

# 3.
# Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed development. Traffic volumes for background conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions.

## Background Transportation Network & Traffic Volumes

It is assumed in this analysis that the future near-term roadway network under background conditions would be the same as the existing roadway network, with one exception. An exclusive northbound right turn lane is planned for the intersection of Abel Street/Calaveras Boulevard. Bicycle, transit, and pedestrian facilities under background conditions were assumed to remain unchanged from existing conditions.

Background peak-hour traffic volumes were calculated by adding to existing volumes the estimated traffic from approved but not yet constructed developments. The added traffic from approved but not yet constructed developments were provided by the city in the form of the Approved Trips Inventory (ATI). Background traffic volumes are shown on Figure 7. A partial list of approved projects that would add traffic to the study intersections is provided below. A full description of the ATI are included in Appendix B.

- Apton Plaza
- Peery R&D on Tasman Drive
- Irvine Company R&D in McCarthy Ranch
- Cisco Systems
- Great Mall Redevelopment
- Hillview Center
- Milpitas Town Center

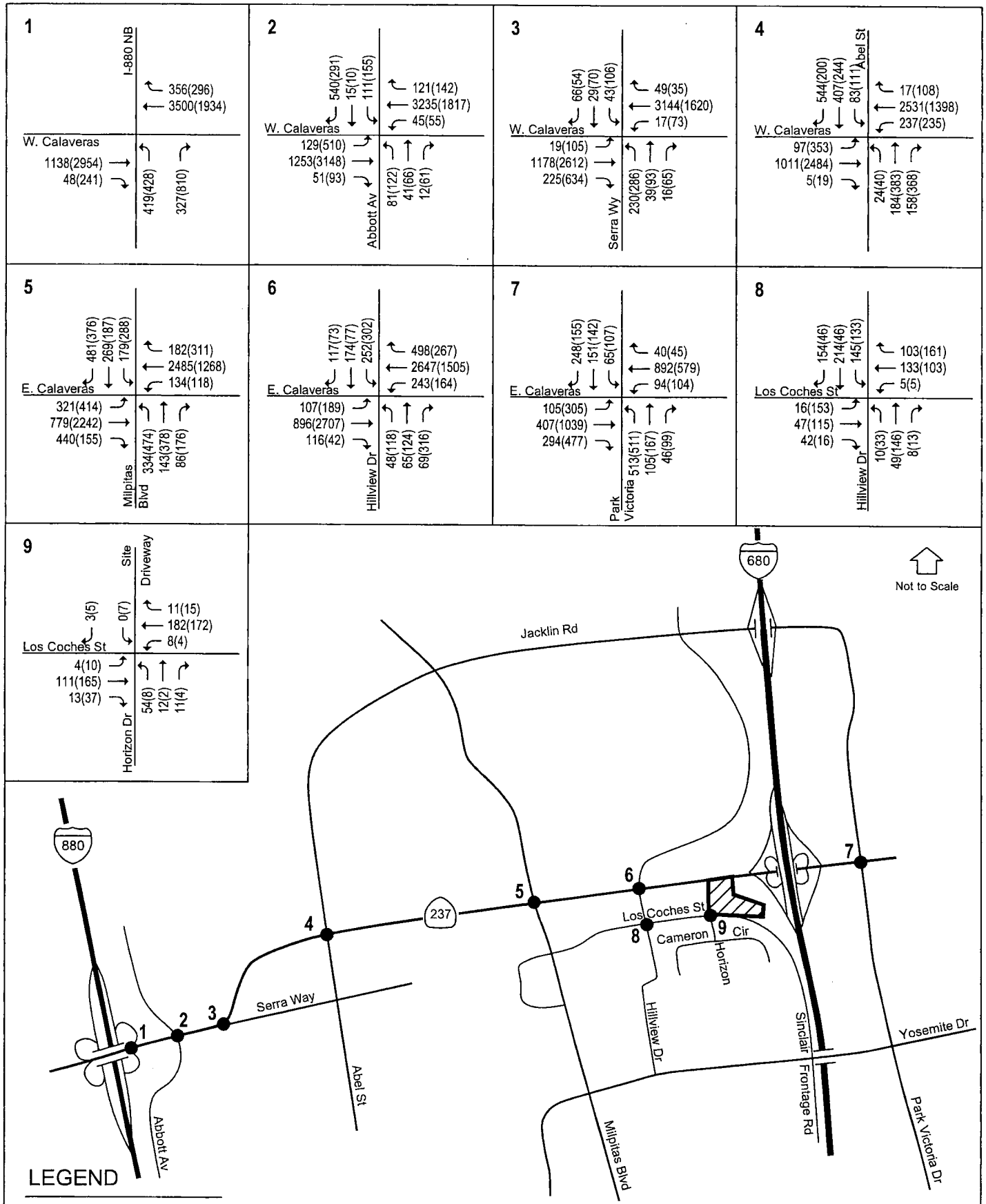


Figure 7

# BACKGROUND TRAFFIC VOLUMES

Los Coches High Rise

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Transportation Consultants, Inc.

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- Lockheed Residential
- KB Homes Residential
- North Main Street EIR

## Background Intersection Analysis

The results of the intersection level of service analysis under background conditions are summarized in Table 5. The results show that, measured against the appropriate level of service standard, all of the signalized study intersections would operate at an acceptable level of services under background conditions, with one exception. The intersection of E. Calaveras Boulevard and Milpitas Boulevard is projected to degrade to LOS F during the AM peak hour as a result of approved project traffic.

### Table 6
### Background Intersection Levels of Service

| | Background | | | | | |
|---|---|---|---|---|---|---|
| | AM Peak Hour | | | PM Peak Hour | | |
| | Delay | Crit. V/C | LOS | Delay | Crit. V/C | LOS |
| W. Calaveras & I-880 NB Ramps | 15.8 | 0.85 | B | 43.8 | 1.04 | D |
| W. Calaveras & Abbott Avenue | 32.6 | 0.88 | C | 32.4 | 0.86 | C |
| W. Calaveras & Serra Way | 21.4 | 0.78 | C | 26.4 | 0.74 | C |
| W. Calaveras & Abel Street* | 36.4 | 0.87 | D | 34.3 | 0.83 | C |
| E. Calaveras & Milpitas Boulevard* | 82.3 | 1.13 | F | 42.0 | 0.77 | D |
| E. Calaveras & Hillview Drive | 28.5 | 0.71 | C | 35.6 | 0.82 | D |
| E. Calaveras & Park Victoria Drive | 33.2 | 0.71 | C | 32.7 | 0.76 | C |
| Hillview Dr. & Los Coches St. (unsignalized) | 14.2 | 0.70 | B | 11.8 | 0.46 | B |
| Horizon Dr. & Los Coches St. (unsignalized) | 11.3 | n/a | B | 10.9 | n/a | B |

*denotes CMP Intersection
Note: The delay and level of service at Horizon Drive and Los Coches Street reflects the worst intersection leg.
[ ] = denotes unacceptable LOS according to applicable standard, LOS D or better for City of Milpitas, LOS E or better for CMP

## Background Intersection Operations

Under background conditions, the westbound left-turn lane at the Hillview/Calaveras intersection would continue to be deficient. The 95$^{th}$ percentile queues would be 13 vehicles during the AM peak hour and 12 vehicles during the PM peak hour. The existing left-turn lane only provides storage for 8 vehicles.

## Background Signal Warrants

The peak-hour signal warrant (*Caltrans Traffic Manual*, Chapter 9, Warrant 11) was checked for the unsignalized intersection of Hillview/Los Coches and Los Coches/Project Driveway to determine whether signalization would be justified on the basis of background peak-hour volumes. The analysis showed that the peak-hour volume signal warrant is not satisfied under background conditions at the intersections. The signal warrant analysis sheets are included in Appendix E.

# 4.
# Project Impacts and Mitigation Measures

This chapter describes project traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Project conditions are represented by background traffic conditions with the addition of traffic generated by the project.

## Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis there are two sets of relevant criteria for impacts on intersections and freeways. These are based on: (1) the City of Milpitas intersection Level of Service standards and (2) the CMP intersection Level of Service standards. Project impacts on other transportation facilities, such as bicycle facilities and transit, were determined on the basis of engineering judgment.

### *City of Milpitas Definition of Significant Intersection LOS Impacts*

The project is said to create a significant adverse LOS impact on traffic conditions at an intersection in the City of Milpitas if for either peak-hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, <u>or</u>

2. The level of service at the intersection is an unacceptable LOS E or F under background conditions ***and*** the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by .01 or more.

An exception to this rule applies when the addition of project traffic reduces the amount of average stopped delay for critical movements (i.e. the change in average stopped delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by .01 or more.

A significant impact by City of Milpitas standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection level of service to background conditions or better.

### *CMP Definition of Significant Intersection Impacts*

The definition of a significant impact at a CMP intersection is the same as for the City of Milpitas, except that the CMP standard for acceptable level of service at a CMP intersection is LOS E or better. A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection conditions to background conditions or better.

## Transportation Network Under Project Conditions

It is assumed in this analysis that the near-term roadway network under project conditions would be the same as described under background conditions. The intersection lane configurations, bicycle, transit, and pedestrian facilities under project conditions were assumed to remain unchanged from existing conditions.

## Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described further in the following sections.

### *Trip Generation*

Through empirical research, data have been collected that correlate to common land uses 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. The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates to the size of the development. The standard trip generation rates for condominium developments are based on those recommended by the San Diego Association of Governments (SANDAG). The project trip generation estimates are presented in Table 7.

**Table 7**
**Project Trip Generation Estimates**

| | | AM Peak Hour[1] | | | | | | PM Peak Hour[1] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rate | | | Trips | | | Rate | | | Trips | | |
| Use | units | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total |
| Residential | 195 | 0.13 | 0.51 | 0.64 | 25 | 100 | 125 | 0.56 | 0.24 | 0.80 | 109 | 47 | 156 |

1) Based on San Diego Association of Governments (SANDAG) Traffic Generation Rate for Condominium Land Uses *(1996)*

### *Trip Distribution & Assignment*

The trip distribution pattern for the proposed project was estimated based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The trip distribution pattern is shown graphically on Figure 8. The peak-hour trips generated by the proposed development were assigned to the roadway system in accordance with the trip distribution pattern discussed above. Figure 9 shows the project trip assignment.

## Project Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to background traffic volumes to obtain background plus project traffic volumes. Background traffic volumes plus project trips are typically referred to simply as *project traffic volumes*; this is contrasted with the term *project trips*, which is used to signify the traffic that is produced specifically by the project. The project traffic volumes are shown graphically on Figure 10. Traffic volumes for all components of traffic are tabulated in Appendix C.

## Project Intersection Analysis

### *Level of Service Analysis*

The results of the level of service analysis under project conditions are summarized in Table 8. The level of service calculation sheets are included in Appendix D. The results show that, measured against the appropriate level of service standard, all of the study intersections would operate at acceptable levels of service under project conditions, with one exception.

**Significant Impact:** The intersection of E. Calaveras Boulevard and Milpitas Boulevard would operate at LOS F under background conditions. The project would add more than 4 seconds of critical delay and increase the V/C by more than 0.01. According to CMP guidelines, this would constitute a significant impact.

**Mitigation:** The intersection of E Calaveras Boulevard and Milpitas Boulevard is nearly built-out. To mitigate this impact, Calaveras Boulevard would need to be widened at Milpitas Boulevard. This would require widening the Calaveras Boulevard bridge over Main Street. It would not be feasible for a single project to fund this improvement. Therefore, this intersection impact should be considered significant and unavoidable. As partial mitigation for this impact, the project should make a fair share contribution to the widening of Calaveras Boulevard.

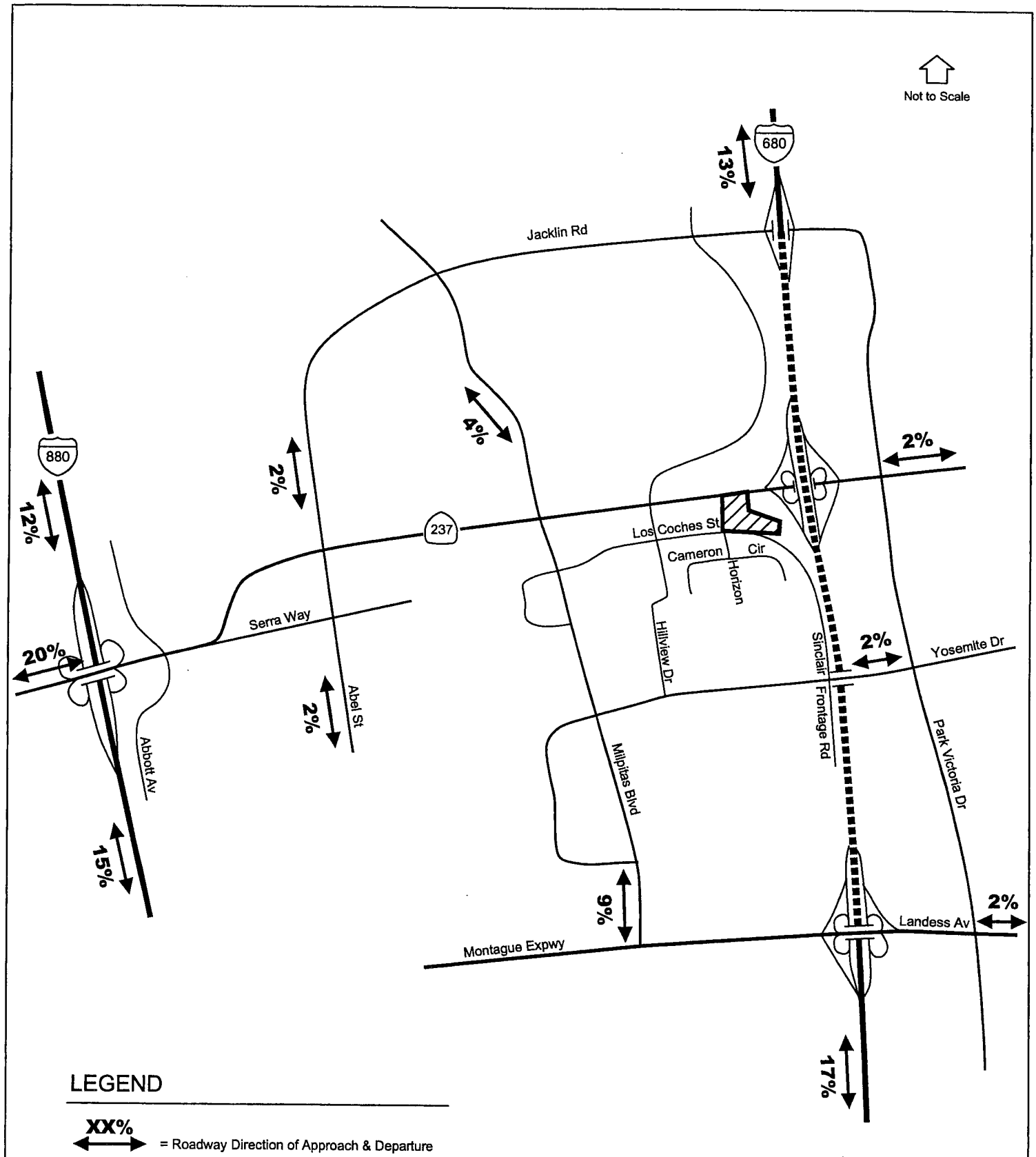


Figure 8

# PROJECT TRIP DISTRIBUTION

Los Coches High Rise

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Transportation Consultants, Inc.

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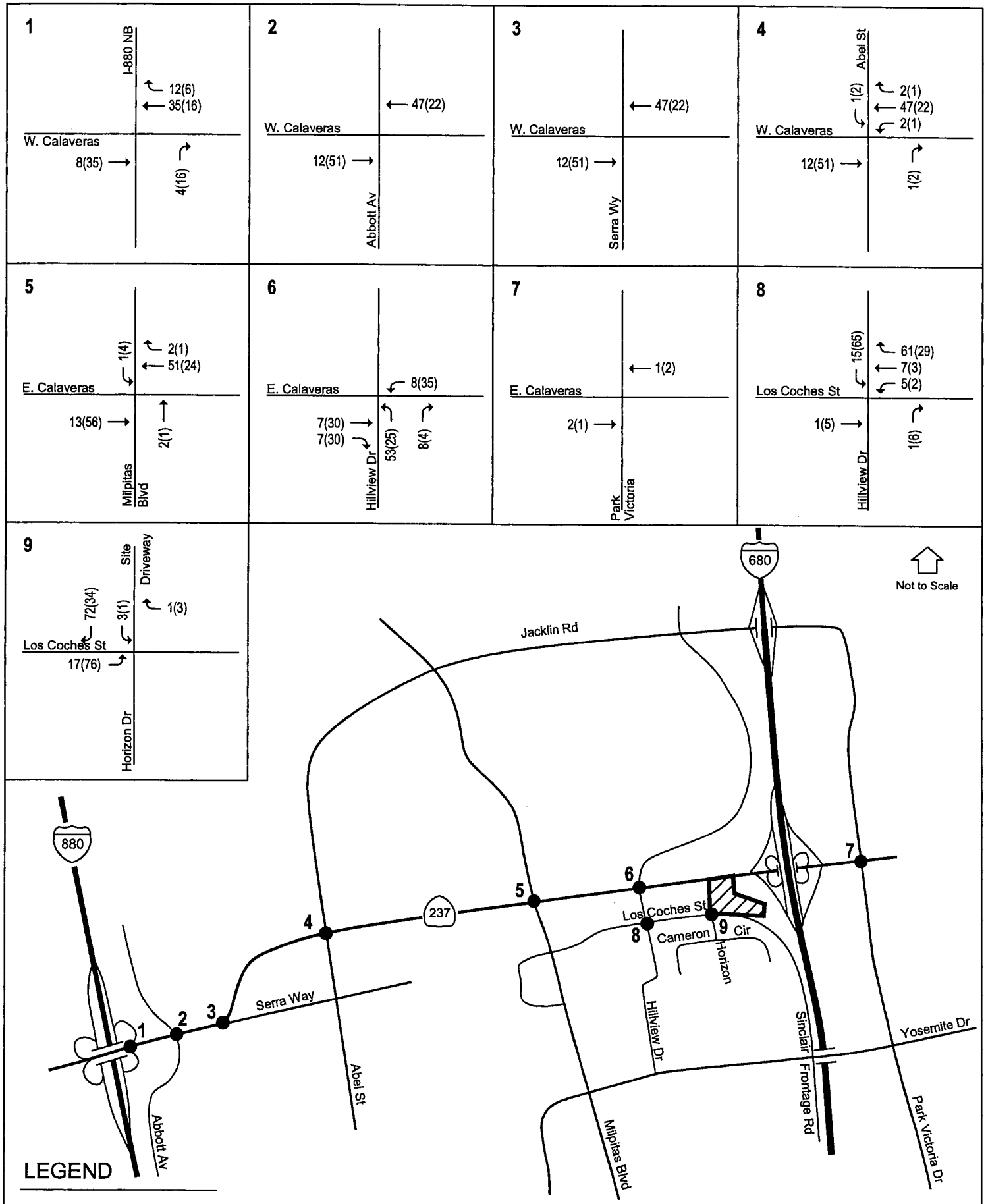


Figure 9

# PROJECT TRIP ASSIGNMENT

Los Coches High Rise

Hexagon Transportation Consultants, Inc.

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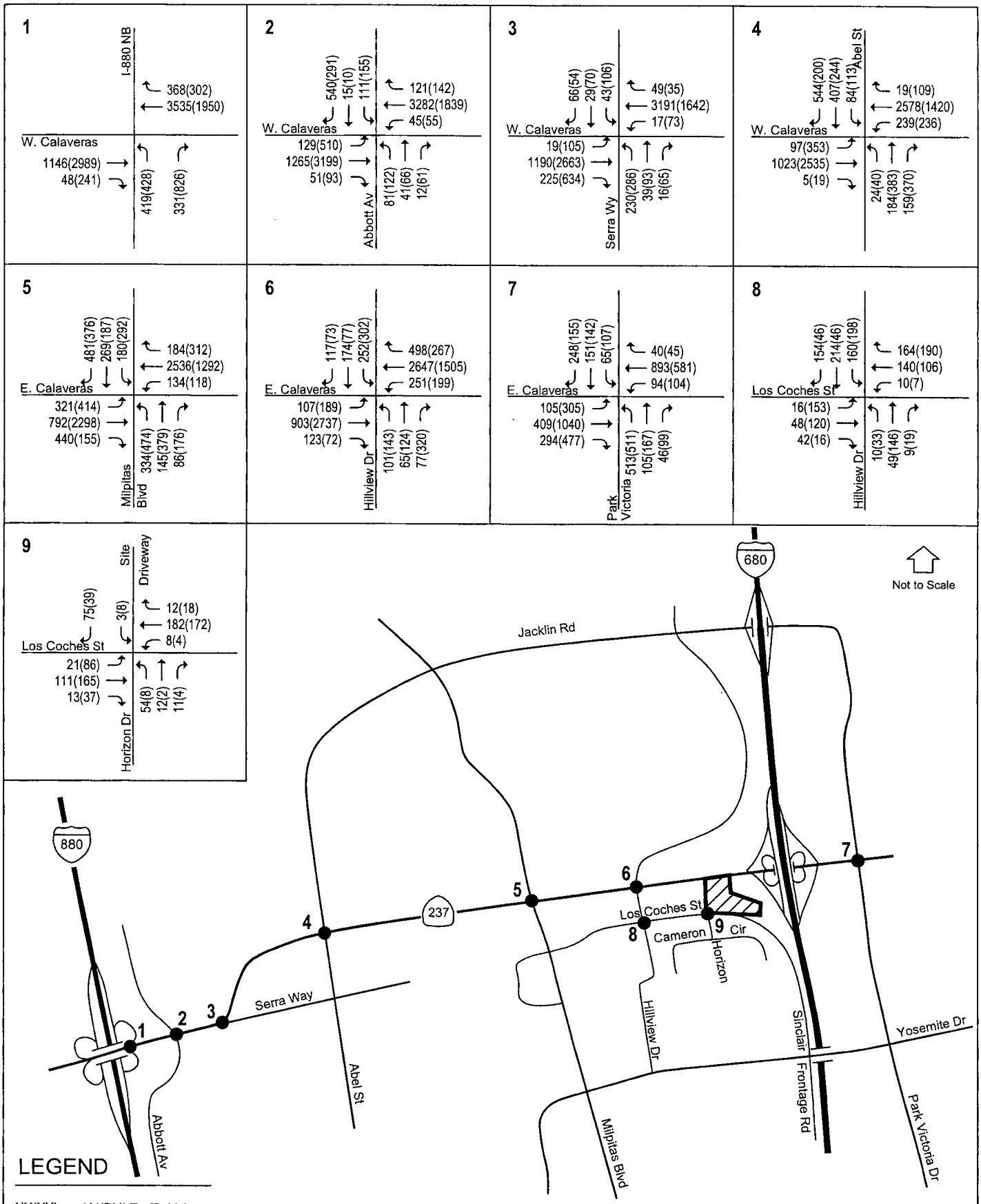


Figure 10

# PROJECT CONDITIONS TRAFFIC VOLUMES

Hexagon
Transportation Consultants, Inc.

Los Coches High Rise

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## Table 8
## Project Intersection Levels of Service

| | Background | | | | | | Project | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | | | PM Peak Hour | | | | |
| | Delay | Crit. V/C | LOS | Delay | Crit. V/C | LOS | Delay | Δ Crit. Delay | Crit. V/C | Δ V/C | LOS | Delay | Δ Crit. Delay | Crit. V/C | Δ V/C | LOS |
| W. Calaveras & I-880 NB Ramps | 15.8 | 0.85 | B | 43.8 | 1.04 | D | 16.1 | 0.5 | 0.86 | 0.01 | B | 47.5 | 5.7 | 1.06 | 0.02 | D |
| W. Calaveras & Abbott Avenue | 32.6 | 0.88 | C | 32.4 | 0.86 | C | 33.1 | 0.8 | 0.89 | 0.01 | C | 32.5 | 0.2 | 0.86 | 0.00 | C |
| W. Calaveras & Serra Way | 21.4 | 0.78 | C | 26.4 | 0.74 | C | 21.6 | 0.3 | 0.79 | 0.01 | C | 26.4 | 0.0 | 0.75 | 0.01 | C |
| W. Calaveras & Abel Street* | 36.4 | 0.87 | D | 34.3 | 0.83 | C | 37.0 | 0.9 | 0.88 | 0.01 | D | 34.7 | 0.6 | 0.84 | 0.01 | C |
| E. Calaveras & Milpitas Boulevard* | 82.3 | 1.13 | F | 42.0 | 0.77 | D | 85.9 | 5.6 | 1.15 | 0.02 | F | 42.2 | 0.2 | 0.78 | 0.01 | D |
| E. Calaveras & Hillview Drive | 28.5 | 0.71 | C | 35.6 | 0.82 | D | 29.9 | 1.7 | 0.74 | 0.03 | C | 37.0 | 1.6 | 0.84 | 0.02 | D |
| E. Calaveras & Park Victoria Drive | 33.2 | 0.71 | C | 32.7 | 0.76 | C | 33.2 | 0.0 | 0.71 | 0.00 | C | 32.7 | 0.0 | 0.76 | 0.00 | C |
| Hillview Dr. & Los Coches St. (unsignalized) | 14.2 | 0.70 | B | 11.8 | 0.46 | B | 16.2 | 2.0 | 0.75 | 0.05 | C | 13.4 | 1.6 | 0.51 | 0.05 | B |
| Horizon Dr. & Los Coches St. | 11.3 | n/a | B | 10.9 | n/a | B | 12.6 | n/a | n/a | n/a | B | 12.8 | n/a | n/a | n/a | B |

*denotes CMP Intersection
Note: The delay and level of service at Horizon Drive and Los Coches Street reflects the worst intersection leg.
[ ] = denotes unacceptable LOS according to applicable standard, LOS D or better for City of Milpitas, LOS E or better for CMP

## *Signal Warrant Analysis*

The peak-hour signal warrant was checked for the unsignalized intersections of Hillview Drive/Los Coches Street and Los Coches Street/Project Driveway to determine whether signalization would be justified on the basis of project peak-hour volumes. The analysis showed that the peak-hour volume warrant would not be satisfied at either of the unsignalized intersections. However, the warrant used for the analysis is only one potential check out of 11 possible warrants. The City of Milpitas currently is considering signalizing the intersection of Los Coches Street/Hillview Drive. The project would add significant traffic to this intersection during peak hours.

> Recommendation: The Hillview Drive/Los Coches Street four-way stop controlled intersection is on the City signal priority list. The developer shall contribute its "fair share" toward future design and construction of a traffic signal system at this location.

## *Intersection Operations Analysis*

The analysis of project intersection level of service was supplemented with an analysis of intersection *operations* for the signalized intersection of Calaveras Boulevard and Hillview Drive. The operations analysis is based on vehicle queuing for high-demand turning movements at intersections. The basis of the analysis is as follows: (1) the TRAFFIX intersection analysis software 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 available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections.

The results of the queuing analysis are shown in Table 9. The analysis indicates that the estimated maximum vehicle queues for the westbound left-turn movement would continue to exceed the existing vehicle storage capacity. Under background conditions for the AM and PM peak hours, the 95$^{th}$ percentile queue will be 13 vehicles and 12 vehicles, respectively. There is currently 200 feet of storage space in the westbound left-turn lane, which can accommodate approximately 8 vehicles. The proposed project would result in a queue of 13 vehicles during the AM peak hour and 14 vehicles during the PM peak hour.

In addition to queuing concerns, there are also weaving concerns on Calaveras Boulevard westbound between the I-680 ramps and the westbound left-turn pocket at Hillview Drive/Calaveras Boulevard. The distance between the southbound I-680 off-ramp and the westbound left turn pocket is sub-standard for vehicles to comfortably merge across three lanes of traffic.

> Recommendation. The project proponent should make a "fair share" contribution to the extension of the westbound left-turn pocket at the intersection of Hillview Drive/E. Calaveras Boulevard and any necessary "weaving" improvements on the subject roadway segment. Design and funding should be coordinated with the City of Milpitas.

**Table 9**
**Queuing Analysis**

| Intersection | Movement | Peak Period | Scenario: Existing | Scenario: Background | Scenario: Project |
|---|---|---|---|---|---|
| Hillview & E. Calaveras | WB Left-Turn | AM | 12 | 13 | 13 |
| | | PM | 12 | 12 | 14 |

☐ = exceeds capacity - available storage capacity is 200', or 8 cars (25' per car)

## Site Access, On-Site Circulation, & Parking

The proposed site plan was evaluated for site access, on-site circulation, and parking. Findings are described below.

### Site Access

Site access is provided along Los Coches Street and East Calaveras Boulevard. The project would have one full access driveway on Los Coches Street, directly opposite Horizon Drive, and one right-turn only driveway on Calaveras Boulevard, through the adjacent medical office property to the west. The full access driveway on Los Coches is projected to operate at LOS B during peak hours under project conditions. The Los Coches project driveway would approximately line-up across from Horizon Drive. The Los Coches Driveway would be located approximately 20 feet east of an existing driveway to the medical office building.

Residents in the area have raised concerns regarding existing perceived speeding problems on Los Coches Street.

> Recommendation. The project proponent should conduct a speed survey to determine if speeding is a problem at the corner of Sinclair Frontage Road and Los Coches Street. If the survey determines speeding to be a problem, the City should coordinate traffic safety measures.

To insure that the proposed project does not contribute to this "perceived" problem, the project is proposing "bulb-outs" on Los Coches Street at the project driveway. Bulb-outs have the effect of narrowing the street, which tends to slow traffic.

Residents also have raised concerns regarding potential project traffic and parking impacts in the neighborhood to the south. It is highly unlikely that project traffic would use these streets because there are no complementary land uses (retail/employment) within the neighborhood. In addition, the neighborhood street network would not be conducive to cut-through traffic, as residents could more quickly reach their destinations via Los Coches Street and Sinclair Frontage Road.

The project proponent is considering constructing a gate on Horizon Drive at Los Coches Street in order to prohibit any potential parking and traffic impacts by the project. Based on recent traffic counts, the peak hour vehicle demand is 41 vehicle trips entering Horizon Drive (PM peak hour), which translates to approximately 1 vehicle trip every 90 seconds. Assuming a gate saturation flow rate of 275 vehicles per hour (Source: *Parking* by Weant and Levinson - Key Card Gate Operation) and a normally distributed

vehicle arrival pattern, the probability of each potential vehicle queue is summarized as follows (see also Appendix E):

**Entering Vehicle Queues – Gated Operation - Horizon Drive – PM Peak hour**

| | | |
|---|---|---|
| 0 Vehicles | = | 0.8509 |
| 1 Vehicle or less | = | 0.9778 |
| 2 Vehicles or less | = | 0.9967 |
| 3 Vehicles or less | = | 0.9995 |

Generally, the standard for roadway design is the 95th percentile queue, which in this case would be 1 vehicle or less. However, because vehicles sometimes do not arrive randomly (i.e. vehicles follow one another), it is prudent to provide vehicle queuing space for at least two vehicles, or 50 feet, inbound on Horizon Drive.

Recommendation. Should the project proponent place gates on Horizon Drive, 50 feet of vehicle queuing space should be provided.

## On-Site Circulation

The proposed project would provide one main onsite roadway that leads from the Los Coches Street driveway to an east/west parking aisle. This roadway would run between the proposed parking structure and the proposed residential building. In front of the proposed building entrance, loading would be permitted. The parking structure would be gated and used for resident parking only. Guest parking would be provided in the surface parking lot. Approximately 30 feet north of the Los Coches Street driveway, there would be an onsite three-legged intersection. The intersection legs would not align at 90 degrees and the parking garage could obstruct the sight lines between vehicles. However, due to low traffic volumes onsite, the number of vehicle conflicts would be relatively low.

Recommendation: Clear signing and striping are needed at this onsite intersection. If possible, the size of the intersection should be reduced to eliminate potential sight distance issues.

On-site parking would be provided at 90-degrees to drive aisles. The project would contain several dead-end parking aisles. Dead end aisles are undesirable because drivers can enter the aisle, and upon discovering that there is no available parking, must back out or conduct three-point turns. However, in areas where parking spaces are designated for specific individuals, dead end aisles are less problematic. The dead-end aisles on the northeast corner of the site would be less than 50 feet and drivers should have little problem turning around in the space provided between the two dead-end aisles.

## Parking

Parking for the proposed project would be provided onsite in a parking garage and in a surface parking lot. On-street parallel parking also is proposed by the project on Los Coches Street. On-street parking is typically provided in residential areas. Due to the insufficient details on the site plan provided, it could not be reviewed for parking compliance with the City of Milpitas code. However, either of the following are recommended.

Recommendation (1): The project proponent should comply with the City of Milpitas parking standards for very high-density multi-family districts (R4). The City of Milpitas Zoning Ordinance 8.06-1 states that a high-density development requires the following number of parking spaces:

- a.) Studio: one (1) covered automobile stall per unit.
- b.) One (1) bedroom: one and one-half (1½) covered automobile stalls per unit.
- c.) Two (2) or more bedrooms: two (2) covered automobile stalls per unit.
- d.) Guest parking: fifteen percent (15%) of automobile stalls required in (a) through (c) above. May be covered or uncovered.
- e.) Bicycle parking: five percent (5%) of automobile stalls required in (a) through (d) above.

Recommendation (2): The project proponent should demonstrate that the proposed parking would be sufficient given the project characteristics.

## Bicycle, Pedestrian and Transit Impacts

The project would not adversely impact existing bicycle or transit facilities in the vicinity of the site, although improved transit and bike facilities would be beneficial. The project would create a need for a sidewalk along Los Coches Street in the vicinity of the project site.

Recommendation. The project proponent should provide a sidewalk along the north side of Los Coches along the project frontage. This improvement should be coordinated with the City of Milpitas.

# 5. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. The analysis of cumulative conditions was conducted based on projected roadway link volumes using year 2030 land use data. AM and PM peak hour volumes were developed using the Valley Transportation Authority (VTA) Congestion Management Program (CMP) year 2030 Travel Demand Forecast (TDF) model. All *Existing General Plan* traffic volumes for year 2030 were supplied by the City of Milpitas. The year 2030 forecast volumes were refined by City staff to reflect the approval of the *Milpitas Midtown Specific Plan* and other approved projects.

## Project Impact Criteria

For cumulative conditions, the traffic operations at the study segments were evaluated based on the volume-to-capacity ratio, which can be correlated to a level of service. Under cumulative conditions, a project is said to adversely impact a roadway segment if:

- The roadway segment is projected to operate below its LOS standard under the existing general plan and the proposed general plan change is projected to cause an increase in traffic of at least one percent of its capacity. **Or**

- The roadway segment is projected to operate at or better than its LOS standard under the existing general plan and the proposed general plan change is projected to degrade the level of service to less than acceptable levels.

On roadway segments under cumulative conditions, a project is said to benefit a roadway segment if:

- The roadway segment is projected to operate below its LOS standard under the existing general plan and the proposed general plan change is projected to cause a decrease in traffic of at least one percent of its capacity.

For CMP roadway segments, the minimum acceptable level of service is LOS E. At roadway segments in Milpitas that are not CMP roadway segments, the minimum acceptable level of service is LOS D. Calaveras Boulevard is the only CMP roadway analyzed for this study.

## 2030 Traffic Volumes

The proposed project would require a change in the existing General Plan designation of the project site from Highway Services to Residential. Currently, the site is vacant. However, for the purposes of estimating the change in the General Plan designation, the traffic impacts of the project were evaluated relative to current General Plan designation, as opposed to what is currently occupying the site. Although the current Highway Services designation includes a wide range of potential uses, it was assumed for this analysis that the site would be developed as a 134-room hotel. This land use is consistent with the existing General Plan designation and was actually being considered for the site in 1999.

A comparison of the trip generation between the proposed residential project and the 134-room hotel is shown on Table 11. The proposed General Plan change would increase the trip generation from the site by 50 trips during the AM peak hour and 71 trips during the PM peak hour.

Since residential trips and hotel trips would have very similar trip distributions, the net difference between the two uses was assigned using "hand" methods to the roadway network based on the trip distribution developed for the proposed project.

### Table 10
### Trip Generation - Proposed General Plan Change

| | | AM Peak Hour[1] | | | | | | PM Peak Hour[1] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rate | | | Trips | | | Rate | | | Trips | | |
| Use | units | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total |
| ***Project*** | | | | | | | | | | | | | |
| Residential | 195 | 0.13 | 0.51 | 0.64 | 25 | 100 | 125 | 0.56 | 0.24 | 0.80 | 109 | 47 | 156 |
| ***Existing General Plan*** | | | | | | | | | | | | | |
| Hotel | 134 | | | | 30 | 45 | 75 | | | | 51 | 34 | 85 |
| **Net Project** | | | | | -5 | 55 | 50 | | | | 58 | 13 | 71 |

Based on San Diego Association of Governments (SANDAG) Traffic Generation Rate for Condominium Land Uses *(1996)* and the Hilton Residential Inn Traffic Analysis (11/8/99).

## 2030 Network Assumptions

The year 2030 roadway network includes planned transportation improvements. The improvements included in the CUA model have a high probability of receiving funding in the future. Within the City of Milpitas, the following improvements were included:

- **I-880 Widening Projects.** I-880 will be widened to include a high occupancy vehicle lane and auxiliary lane in each direction from Montague Expressway north into Alameda County.

- **Fremont Boulevard Extension to Dixon Landing Road.** Fremont Boulevard will be extended southward from its current terminus near Lakeview Drive to Dixon Landing Road. The Fremont Boulevard extension will include two lanes in each direction and will form the forth leg of the McCarthy Boulevard/Dixon Landing Road intersection.

## Year 2030 Traffic Impacts

The impacts of the proposed General Plan change are summarized on Tables 11, 12, 13 and 14. The LOS standard for Calaveras Boulevard is LOS E. For all other study segments, the LOS standard is LOS D. Under the existing General Plan, Calaveras Boulevard, Milpitas Boulevard, and Abel Street would all operate at unacceptable levels under year 2030 conditions.

The proposed General Plan change would not result in any study segments degrading from acceptable levels to below their respective LOS standards. For the study segments that are projected to operate below their LOS standards under existing General Plan year 2030 conditions, the proposed project would not add traffic greater than 1% of the roadway capacity.

> Recommendation. To mitigate long term cumulative impacts, the project should make a "fair share" contribution towards the east-west corridor improvements planned for Calaveras Boulevard/SR 237.

## Table 11
## Year 2030 - Northbound/Eastbound AM Peak Hour Volumes and LOS

| | | | volumes | | | | | v/c | | LOS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment | From | To | Existing 2030 GP | Proposed GPA | GPA Trips | percent[1] | 2030 capacity | Existing 2030 GP | Proposed GPA | Existing 2030 GP | Proposed GPA |
| ***Calaveras Blvd.*** [2] | | | | | | | | | | | |
| 1 | I-880 | Abbott Avenue | 1580 | 1606 | 26 | 0.7% | 3600 | 0.44 | 0.45 | A | A |
| 2 | Abbott Avenue | Abel Avenue | 1550 | 1576 | 26 | 0.7% | 3600 | 0.43 | 0.44 | A | A |
| 3 | Abel Avenue | Milpitas Boulevard | 1440 | 1468 | 28 | 1.6% | 1800 | 0.80 | 0.82 | D | D |
| 4 | Milpitas Boulevard | Hillview Drive | 1570 | 1605 | 35 | 1.3% | 2700 | 0.58 | 0.59 | A | A |
| 5 | Hillview Drive | I-680 | 1300 | 1298 | -2 | -0.1% | 2700 | 0.48 | 0.48 | A | A |
| ***Milpitas Boulevard*** | | | | | | | | | | | |
| 6 | Jacklin Road | Calaveras Blvd. | 1220 | 1222 | 2 | 0.1% | 1400 | 0.87 | 0.87 | D | D |
| 7 | Calaveras Blvd. | Yosemite Drive | 830 | 830 | 0 | 0.0% | 1400 | 0.59 | 0.59 | A | A |
| ***Abel Street*** | | | | | | | | | | | |
| 8 | N. Milpitas Boulevard | Calaveras Blvd. | 480 | 481 | 1 | 0.1% | 1400 | 0.34 | 0.34 | A | A |
| 9 | Calaveras Blvd. | Great Mall Parkway | 770 | 770 | 0 | 0.0% | 1400 | 0.55 | 0.55 | A | A |
| ***Los Coches Street*** | | | | | | | | | | | |
| 10 | S. Milpitas Boulevard | Hillview Drive | 190 | 190 | 0 | 0.0% | 650 | 0.29 | 0.29 | A | A |
| 11 | Hillview Drive | Yosemite Drive | 320 | 317 | -3 | -0.5% | 650 | 0.49 | 0.49 | A | A |

Notes:

1. Trips as a percentage of 2030 capacity.
2. CMP routes.

▭ - Denotes adverse impacts.

▭ - Denotes beneficial impacts in bold.

## Table 12
## Year 2030 - Southbound/Westbound AM Peak Hour Volumes and LOS

| | | | volumes | | | | | v/c | | LOS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment | From | To | Existing 2030 GP | Proposed GPA | GPA Trips | percent[1] | 2030 capacity | Existing 2030 GP | Proposed GPA | Existing 2030 GP | Proposed GPA |
| ***Calaveras Blvd.*** [2] | | | | | | | | | | | |
| 1 | I-880 | Abbott Avenue | 3790 | 3787 | -3 | -0.1% | 2700 | 1.40 | 1.40 | F | F |
| 2 | Abbott Avenue | Abel Avenue | 3300 | 3297 | -3 | -0.1% | 2700 | 1.22 | 1.22 | F | F |
| 3 | Abel Avenue | Milpitas Boulevard | 3030 | 3027 | -3 | -0.2% | 1800 | 1.68 | 1.68 | F | F |
| 4 | Milpitas Boulevard | Hillview Drive | 2710 | 2707 | -3 | -0.1% | 2700 | 1.00 | 1.00 | F | F |
| 5 | Hillview Drive | I-680 | 3240 | 3258 | 18 | 0.7% | 2700 | 1.20 | 1.21 | F | F |
| ***Milpitas Boulevard*** | | | | | | | | | | | |
| 6 | Jacklin Road | Calaveras Blvd. | 1000 | 1000 | 0 | 0.0% | 1400 | 0.71 | 0.71 | C | C |
| 7 | Calaveras Blvd. | Yosemite Drive | 1180 | 1185 | 5 | 0.4% | 1400 | 0.84 | 0.85 | D | D |
| ***Abel Street*** | | | | | | | | | | | |
| 8 | N. Milpitas Boulevard | Calaveras Blvd. | 1140 | 1140 | 0 | 0.0% | 1400 | 0.81 | 0.81 | D | D |
| 9 | Calaveras Blvd. | Great Mall Parkway | 850 | 851 | 1 | 0.1% | 1400 | 0.61 | 0.61 | B | B |
| ***Los Coches Street*** | | | | | | | | | | | |
| 10 | S. Milpitas Boulevard | Hillview Drive | 350 | 350 | 0 | 0.0% | 650 | 0.54 | 0.54 | A | A |
| 11 | Hillview Drive | Yosemite Drive | 300 | 353 | 53 | 8.2% | 650 | 0.46 | 0.54 | A | A |

Notes:

1. Trips as a percentage of 2030 capacity.
2. CMP routes.

▭ - Denotes adverse impacts.

▭ - Denotes beneficial impacts in bold.

## Table 13
## Year 2030 - Northbound/Eastbound PM Peak Hour Volumes and LOS

| | | | volumes | | | | | v/c | | LOS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment | From | To | Existing 2030 GP | Proposed GPA | GPA Trips | percent[1] | 2030 capacity | Existing 2030 GP | Proposed GPA | Existing 2030 GP | Proposed GPA |
| ***Calaveras Blvd.*** [2] | | | | | | | | | | | |
| 1 | I-880 | Abbott Avenue | 4200 | 4207 | 7 | 0.2% | 3600 | 1.17 | 1.17 | F | F |
| 2 | Abbott Avenue | Abel Avenue | 4150 | 4157 | 7 | 0.2% | 3600 | 1.15 | 1.15 | F | F |
| 3 | Abel Avenue | Milpitas Boulevard | 3550 | 3557 | 7 | 0.4% | 1800 | 1.97 | 1.98 | F | F |
| 4 | Milpitas Boulevard | Hillview Drive | 3400 | 3409 | 9 | 0.3% | 2700 | 1.26 | 1.26 | F | F |
| 5 | Hillview Drive | I-680 | 3700 | 3719 | 19 | 0.7% | 2700 | 1.37 | 1.38 | F | F |
| ***Milpitas Boulevard*** | | | | | | | | | | | |
| 6 | Jacklin Road | Calaveras Blvd. | 1610 | 1611 | 1 | 0.1% | 1400 | 1.15 | 1.15 | F | F |
| 7 | Calaveras Blvd. | Yosemite Drive | 1320 | 1325 | 5 | 0.4% | 1400 | 0.94 | 0.95 | E | E |
| ***Abel Street*** | | | | | | | | | | | |
| 8 | N. Milpitas Boulevard | Calaveras Blvd. | 1660 | 1660 | 0 | 0.0% | 1400 | 1.19 | 1.19 | F | F |
| 9 | Calaveras Blvd. | Great Mall Parkway | 1450 | 1451 | 1 | 0.1% | 1400 | 1.04 | 1.04 | F | F |
| ***Los Coches Street*** | | | | | | | | | | | |
| 10 | S. Milpitas Boulevard | Hillview Drive | 350 | 350 | 0 | 0.0% | 650 | 0.54 | 0.54 | A | A |
| 11 | Hillview Drive | Yosemite Drive | 400 | 456 | 56 | 8.6% | 650 | 0.62 | 0.70 | B | C |

Notes:

1. Trips as a percentage of 2030 capacity.
2. CMP routes.

▭ - Denotes adverse impacts.
▭ - Denotes beneficial impacts in bold.

## Table 14
## Year 2030 - Southbound/Westbound PM Peak Hour Volumes and LOS

| | | | volumes | | | | | v/c | | LOS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment | From | To | Existing 2030 GP | Proposed GPA | GPA Trips | percent[1] | 2030 capacity | Existing 2030 GP | Proposed GPA | Existing 2030 GP | Proposed GPA |
| ***Calaveras Blvd.*** [2] | | | | | | | | | | | |
| 1 | I-880 | Abbott Avenue | 2170 | 2198 | 28 | 1.0% | 2700 | 0.80 | 0.81 | D | D |
| 2 | Abbott Avenue | Abel Avenue | 1850 | 1878 | 28 | 1.0% | 2700 | 0.69 | 0.70 | B | B |
| 3 | Abel Avenue | Milpitas Boulevard | 1630 | 1660 | 30 | 1.7% | 1800 | 0.91 | 0.92 | E | E |
| 4 | Milpitas Boulevard | Hillview Drive | 1700 | 1737 | 37 | 1.4% | 2700 | 0.63 | 0.64 | B | B |
| 5 | Hillview Drive | I-680 | 2000 | 2004 | 4 | 0.1% | 2700 | 0.74 | 0.74 | C | C |
| ***Milpitas Boulevard*** | | | | | | | | | | | |
| 6 | Jacklin Road | Calaveras Blvd. | 1300 | 1302 | 2 | 0.1% | 1400 | 0.93 | 0.93 | E | E |
| 7 | Calaveras Blvd. | Yosemite Drive | 830 | 831 | 1 | 0.1% | 1400 | 0.59 | 0.59 | A | A |
| ***Abel Street*** | | | | | | | | | | | |
| 8 | N. Milpitas Boulevard | Calaveras Blvd. | 1000 | 1001 | 1 | 0.1% | 1400 | 0.71 | 0.72 | C | C |
| 9 | Calaveras Blvd. | Great Mall Parkway | 1340 | 1340 | 0 | 0.0% | 1400 | 0.96 | 0.96 | E | E |
| ***Los Coches Street*** | | | | | | | | | | | |
| 10 | S. Milpitas Boulevard | Hillview Drive | 280 | 280 | 0 | 0.0% | 650 | 0.43 | 0.43 | A | A |
| 11 | Hillview Drive | Yosemite Drive | 350 | 365 | 15 | 2.3% | 650 | 0.54 | 0.56 | A | A |

Notes:

1. Trips as a percentage of 2030 capacity.
2. CMP routes.

▭ - Denotes adverse impacts.

▭ - Denotes beneficial impacts in bold.