HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: August 24, 2010

To: John McMorrow, Silverstone Communities

From: Robert Del Rio

Subject: 485 Monroe Street Mixed-Use Development

This memorandum presents a review of the traffic report prepared for the proposed mixed-use development at 485 South Monroe Street in San Jose, Ca. The project as presented in the completed traffic report dated January 16, 2008, consists of 104 or fewer townhouse units and flats along with 89,342 s.f. of office space. City of San Jose staff has requested that the completed traffic report prepared for the subject project be reviewed to ensure that the analysis is still valid and that the conclusions and recommendations of the report will be unaffected by more recent traffic volume data. The review consists of a comparison of existing and approved project volume data utilized within the completed traffic study with more recent volume data at all study intersections. Additionally, intersection level of service at each of the study intersections was re-evaluated with the new volume data to ensure the effects of project traffic would be unaffected.

A comparison was made between the existing counts used in the 2008 TIA and those contained in the latest available 2010 City of San Jose database. The results indicate that nearly all counts used in 2008 study are higher than the more recent counts contained in the City's database. The existing count comparison is summarized in Table 1.

Though the comparison of volume data indicated that the analysis within the completed traffic study evaluates a worst-case scenario, intersection level of service analysis was completed to thoroughly evaluate the net effects of the project with updated volume information. The level of service analysis was updated utilizing the available information contained in the 2010 CSJ database. The updated level of service analysis results indicate that the addition of project traffic would not result in any significant impact according to the City of San Jose's standards. The levels of service are summarized in Table 2.

The completed traffic report concluded that the proposed project would have no adverse impacts on the surrounding transportation facilities. The review of the completed traffic study indicates that the conclusions and recommendations of the completed traffic study will be unaffected with the use of more recent traffic count data.

Table 1
Intersection Volume Data Comparison

Study Number		Peak Hour	2008 TIA Count Date	2008 TIA Total Volume	2010 CJS Database Count Date	2010 CJS Database Total Volume	% Change
1	Stevens Creek Boulevard and Winchester Blvd*	AM	09/27/06	4062	09/18/08	3820	-6.0%
		PM	09/27/06	5386	09/30/08	4863	-9.7%
2	Stevens Creek Boulevard and Santana Row	AM	11/15/07	3123	04/26/05	2555	-18.2%
		PM	11/15/07	4303	04/26/05	3842	-10.7%
3	Stevens Creek Boulevard and Redwood Avenue	AM	01/10/08	2629	09/27/05	2665	+1.4%
		PM	01/10/07	3986	09/27/05	4488	+12.6%
4	Stevens Creek Boulevard and Monroe Street	AM	11/15/07	3919	05/06/08	3193	-18.5%
		PM	11/15/07	5496	05/06/08	4962	-9.7%
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	09/27/06	3693	10/14/08	3692	0.0%
		PM	09/27/06	5407	10/14/08	4841	-10.5%
6	Winchester Boulevard and Olin Avenue	AM	11/14/07	1993	09/21/05	1464	-26.5%
		PM	11/14/07	2790	09/21/05	2025	-27.4%
7	Winchester Boulevard and Olsen Drive	AM	11/14/07	2017	09/22/05	1556	-22.9%
		PM	11/14/07	2726	09/22/05	2076	-23.8%
8	Winchester Boulevard and I-280 WB on-ramp	AM	02/28/07	2888	02/28/07	2888	0.0%
		PM	02/28/07	3654	02/28/07	3654	0.0%
9	Winchester Boulevard and Moorpark Avenue	AM	11/14/07	5079	03/06/07	4433	-12.7%
		PM	11/14/07	5736	05/06/08	5986	+4.4%
10	I-280 EB off-ramp and Moorpark Avenue*	AM	09/27/06	1887	10/07/08	1521	-19.4%
		PM	10/24/06	2373	10/07/08	1829	-22.9%

* Denotes CMP Intersection

Table 2
Intersection Levels of Service Summary

Study Number		Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Background Avg. Delay	Background LOS	Project Conditions Avg. Delay	Project Conditions LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Stevens Creek Boulevard and Winchester Blvd*	AM	09/18/08	35	C	37	D	37	D	0.0	0.000
		PM	09/30/08	48	D	60	E	60	E	0.0	0.000
2	Stevens Creek Boulevard and Santana Row	AM	11/15/07	16	B	22	C	22	C	0.0	0.000
		PM	11/15/07	33	C	44	D	44	D	0.0	0.000
3	Stevens Creek Boulevard and Redwood Avenue	AM	01/10/08	4	A	6	A	6	A	0.0	0.000
		PM	01/10/07	14	B	23	C	23	C	0.0	0.000
4	Stevens Creek Boulevard and Monroe Street	AM	05/06/08	26	C	35	C	36	D	1.1	0.015
		PM	05/06/08	36	D	84	F	85	F	2.3	0.006
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	10/14/08	23	C	25	C	25	C	0.1	0.000
		PM	10/14/08	23	C	27	C	28	C	0.3	0.007
6	Winchester Boulevard and Olin Avenue	AM	11/14/07	12	B	15	B	15	B	0.0	0.001
		PM	11/14/07	15	B	19	B	19	B	0.0	-0.001
7	Winchester Boulevard and Olsen Drive	AM	11/14/07	10	A	12	B	12	B	0.0	0.001
		PM	11/14/07	14	B	16	B	16	B	0.0	0.001
8	Winchester Boulevard and I-280 WB on-ramp	AM	02/28/07	20	B	21	C	22	C	0.7	0.011
		PM	02/28/07	31	C	39	D	39	D	-0.4	-0.004
9	Winchester Boulevard and Moorpark Avenue	AM	11/14/07	39	D	40	D	40	D	0.0	0.000
		PM	05/06/08	45	D	47	D	47	D	0.2	0.004
10	I-280 EB off-ramp and Moorpark Avenue*	AM	10/07/08	10	A	10	B	10	B	0.0	0.000
		PM	10/07/08	12	B	12	B	12	B	0.0	0.002

* Denotes CMP Intersection

485 South Monroe Street Mixed-Use Development

Transportation Impact Analysis

Prepared for:

SilverStone Communities

Prepared by:

HEXAGON TRANSPORTATION CONSULTANTS, INC.

January 16, 2007

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Executive Summary

This report presents the results of the traffic impact analysis conducted for the proposed 485 South Monroe Street mixed-use development in San Jose, California. The proposed project consists of 104 or fewer townhouse units and flats along with 89,342 s.f. of office space located on a parcel of land at the northwest corner of South Monroe Street and Tisch Way. A vacant commercial building of 111,000 square feet currently occupies the site and would be removed. Access to the project site would be provided via driveways on South Monroe Street and Hatton Street extension.

For transportation planning purposes, this project is analyzed as a development with 104 townhouse units, though it is expected that fewer than 104 townhouse units would be developed. Therefore, the traffic volumes reported here are greater than what would actually be generated by the development.

The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of San Jose and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the County Congestion Management Program (CMP). The study included an analysis of AM and PM peak-hour traffic conditions for 10 signalized intersections. Since the project is not projected to add one percent to any freeway segments in the area, freeway analysis for the CMP was not required. The study also includes an operations analysis, based on vehicle-storage requirements at selected intersection locations.

This project requires a General Plan Amendment in addition to specific project review. General Plan Amendment traffic studies are typically produced to evaluate the long-term traffic impacts of significant land use change. However, for this category of development (office to residential) at this location, projects that generate fewer than 250 new trips during the peak hour are exempt from the General Plan Amendment traffic study requirement. This project would generate 25 or less new trips during each of the peak hours, and thus, is qualified for the exemption.

Project Trip Generation

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. The magnitude of traffic generated by the proposed project was estimated by multiplying the applicable trip generation rates by the size of the development. The recommended trip generation rates for use in the City of San Jose are detailed in the *Interim Guidelines for Traffic Impact Analysis of Land Use Developments*, 1994. Based on the residential and office rates recommended by the City of San Jose, the project would generate 2,299 gross daily trips, with 271 trips occurring during the AM peak hour and 286 trips occurring during PM peak hour. Trips were then subtracted from the total estimated project trips, based on trip generation rates of the currently vacant (SBC) office building that would be removed. Based on the trip credits that were applied, the proposed project would generate 25 net additional AM peak hour trips and 22 net additional PM peak hour trips. Using the inbound/outbound splits recommended by the City of San Jose, the project would produce -17 inbound and 43 outbound trips during the AM peak hour, and 37 inbound and -16 outbound trips during the PM peak hour.

Intersection Level of Service Analysis

City of San Jose Level of Service Analysis

The results of the level of service analysis are summarized in Table ES 1. The results show that, measured against the City of San Jose level of service standards one study intersection, Stevens Creek Boulevard and Monroe Street, is projected to operate at an unacceptable LOS E during the PM peak hour under project conditions. The intersection would not be significantly impacted by the project according to the City of San Jose definition of impacts. All other study intersections would operate at an acceptable LOS D or better under project conditions.

CMP Level of Service Analysis

The level of service results for the CMP intersections under project conditions are summarized in Table ES 1. The results show that, measured against the CMP level of service standards, all of the CMP study intersections would operate at an acceptable LOS D or better.

Other Transportation Issues

Site Access and On-Site Circulation

A review of the project site plan was performed to determine if adequate site access and on-site circulation are provided and to identify any access or circulation issues that should be improved. This review is based on the site plan prepared by Civil Engineering Associates, dated October 3, 2007.

Site Access

The project site consists of three main areas: Parcel 1 consisting of up to 104 townhomes, Parcel 2 consisting of an 89,342 s.f. office building, and a Park Dedication. Access to Parcel 1 is provided by

South Monroe Street via its east driveway. Access to Parcel 2 is provided by the planned Hatton Street extension. There would be no connection to Santana Row. The Park Dedication parcel is east of the Hatton Street extension and would be added to the Frank Santana Park south of Parcel 1.

To determine if the site driveways are adequate for service and emergency vehicle access, the SU-30 AASHTO design vehicle turning specifications were checked against the driveway and roadway geometrics associated with the site. The SU-30 design vehicle represents a 30-foot single-unit truck (such as a garbage truck or fire truck). This procedure revealed that a 30-foot single-unit truck would be able to make all required turning movements at the project driveways assuming 26-foot driveway widths at all. The proposed driveway designs are adequate to accommodate an SU-30 truck. Large moving trucks also would be expected to access the site. The site plan does not show where large trucks could conveniently park to load and unload.

On-Site Circulation

The site has drive aisle widths of 26 feet throughout, which would allow for adequate circulation and maneuvering for 90-degree parking stalls and garage spaces. According to the site plan, the internal roadway network would contain nine dead-end drive aisles. Dead-end aisles on residential streets generally are undesirable for large trucks from a circulation standpoint because upon reaching the end of an aisle, drivers must either back out or perform a three-point turn. Thus, the dead-end aisles could pose a problem for large trucks. The design and layout of the on-site roadways is adequate to accommodate circulation of passenger vehicles and emergency vehicles. Clear sight distance triangles should be provided at the project driveways to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site.

Overall, the site plan exhibits good site access and on-site circulation for motor vehicles. The City ultimately will determine the adequacy of the proposed driveways and internal street system design.

Project Parking

Based on the City parking code requirements for multi-family dwelling, Parcel 1 is required to supply 208 on-site parking spaces and Parcel 2, 356 parking spaces. Parcel 1 and Parcel 2 would provide 268 and 74 parking spaces, respectively. Therefore, the proposed project would comply with City requirements.

Neighborhood Traffic

Speed and tube count data were taken at two locations South Monroe Street for a 24-hour period on a weekday. The count showed a volume of approximately 5,400 daily vehicles. An average of 64% of vehicles exceeded the speed limit (30 mph) at these locations. The 85th percentile speed was found to be 36 mph. The City of San Jose has implemented on-street parking and new striping to aid in the reduction of speed along Monroe Street.

South Monroe Street also was surveyed to determine the amount of cut-through traffic using Monroe Street and Tisch Way to avoid Stevens Creek Boulevard and Winchester Boulevard. Significant cut-through traffic was observed during both AM and PM the peak hours. Cut-throughs constitute about 53% of daily traffic volumes on South Monroe Street. The project is not expected to affect the percentage or volume of cut-through traffic. Even though Parcel 1 is adjacent to the Santana Row neighborhood, there will be no connection from Santana Row to this project.

Transit, Pedestrian and Bicycle Analysis

The proposed project would not have an adverse effect on the existing transit, pedestrian, and bicycle facilities in the project area and no improvements would be necessary.

Table ES 1
Intersection Level of Service Summary

Study Number		Peak Hour	Count Date	Existing Ave. Delay	Existing LOS	Background Ave. Delay	Background LOS	Project Conditions Ave. Delay	Project Conditions LOS	Project Conditions Incr. In Crit. Delay	Project Conditions Incr. In Crit. V/C	Cumulative Conditions Ave. Delay	Cumulative Conditions LOS
1	Stevens Creek Boulevard and Winchester Blvd*	AM	9/27/06	33	C	33	C	33	C	0.0	0.000	34	C
		PM	9/27/06	44	D	45	D	45	D	-0.1	-0.001	46	D
2	Stevens Creek Boulevard and Santana Row	AM	11/15/07	14	B	22	C	22	C	0.0	0.000	22	C
		PM	11/15/07	31	C	51	D	51	D	0.0	0.000	51	D
3	Stevens Creek Boulevard and Redwood Avenue	AM	1/10/08	4	A	6	A	6	A	0.0	0.000	8	A
		PM	1/10/07	13	B	22	C	22	C	0.0	0.000	27	C
4	Stevens Creek Boulevard and Monroe Street	AM	11/15/07	18	B	21	C	21	C	0.4	-0.002	21	C
		PM	11/15/07	36	D	78	E	76	E	-0.8	-0.002	76	E
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	9/27/06	21	C	22	C	22	C	0.1	0.000	21	C
		PM	9/27/06	21	C	27	C	27	C	0.3	0.007	25	C
6	Winchester Boulevard and Olin Avenue	AM	11/14/07	12	B	14	B	14	B	0.0	0.001	14	B
		PM	11/14/07	15	B	18	B	17	B	-7.8	-0.062	18	B
7	Winchester Boulevard and Olsen Drive	AM	11/14/07	10	A	12	B	12	B	0.0	0.001	11	B
		PM	11/14/07	14	B	16	B	16	B	0.0	0.001	16	B
8	Winchester Boulevard and I-280 WB on-ramp	AM	2/28/07	20	B	21	C	22	C	0.7	0.011	22	C
		PM	2/28/07	31	C	39	D	39	D	-0.4	-0.004	37	D
9	Winchester Boulevard and Moorpark Avenue	AM	11/14/07	39	D	40	D	40	D	0.0	0.000	40	D
		PM	11/14/07	43	D	45	D	45	D	0.1	0.004	45	D
10	I-280 EB off-ramp and Moorpark Avenue*	AM	9/27/06	9	A	9	A	9	A	0.0	0.000	10	A
		PM	10/24/06	24	C	24	C	25	C	0.0	0.002	24	C

* Denotes CMP Intersection

1. Introduction

This report presents the results of the traffic impact analysis conducted for the proposed 485 South Monroe Street mixed-use development in San Jose, California. The proposed project consists of 104 or fewer townhouse units and flats along with 89,342 s.f. of office space located on a parcel of land at the northwest corner of South Monroe Street and Tisch Way. A vacant commercial building of 111,000 square feet currently occupies the site and would be removed. Access to the project site would be provided via driveways on South Monroe Street and Hatton Street extension. The project site location and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

For transportation planning purposes, this project is analyzed as a development with 104 townhouse units, though it is expected that fewer than 104 townhouse units would be developed. Therefore, the traffic volumes reported here are greater than what would actually be generated by the development.

This project requires a General Plan Amendment in addition to specific project review. General Plan Amendment traffic studies are typically produced to evaluate the long-term traffic impacts of significant land use change. However, for this category of development (office to residential) at this location, projects that generate fewer than 250 new trips during the peak hour are exempt from the General Plan Amendment traffic study requirement. This project would generate 25 or less new trips during each of the peak hours, and thus, is qualified for the exemption.

Scope of Study

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose and the Congestion Management Program (CMP) of Santa Clara County. The study included an analysis of AM and PM peak-hour traffic conditions for ten signalized intersections. Since the project is not projected to add one percent to any freeway segments in the area, freeway analysis for the CMP was not required. The study also includes an operations analysis, based on vehicle-storage requirements at selected intersection locations.

Study Intersections

1 Stevens Creek Boulevard and Winchester Boulevard*
2 Stevens Creek Boulevard and Santana Row
3 Stevens Creek Boulevard and Redwood Avenue
4 Stevens Creek Boulevard and Monroe Street
5 Stevens Creek Boulevard and I-880 SB off-ramp*
6 Winchester Boulevard and Olin Avenue
7 Winchester Boulevard and Olsen Drive
8 Winchester Boulevard and I-280 WB on-ramp
9 Winchester Boulevard and Moorpark Avenue
10 I-280 EB off-ramp and Moorpark Avenue*

* Denotes CMP Intersection.

Traffic conditions at all of the intersections were analyzed for the weekday AM and PM peak hours. The three CMP signalized intersections were evaluated against the standards of both the City of San Jose and the Santa Clara County CMP. The weekday AM peak hour of traffic is generally between 7:00 and 9:00 AM and the weekday 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 a typical weekday.

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.

Scenario 2: *Background Conditions*. Background conditions were represented by future traffic volumes on the existing roadway network. Background traffic volumes were estimated by adding to existing peak-hour volumes the projected volumes from approved but not yet constructed developments in the study area. Background conditions represent the baseline conditions to which project conditions are compared for the purpose of determining project impacts.

Scenario 3: *Project Conditions.* Background plus project conditions (also referred to as *Project Conditions*) were represented by future traffic volumes with the project. Future traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by adding to background traffic volumes the trips associated with the proposed project. Project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Scenario 4: *Cumulative Conditions.* Cumulative conditions represent future traffic volumes on the future transportation network that would result from traffic growth projected to occur due to proposed but not yet approved (pending) development projects.

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.

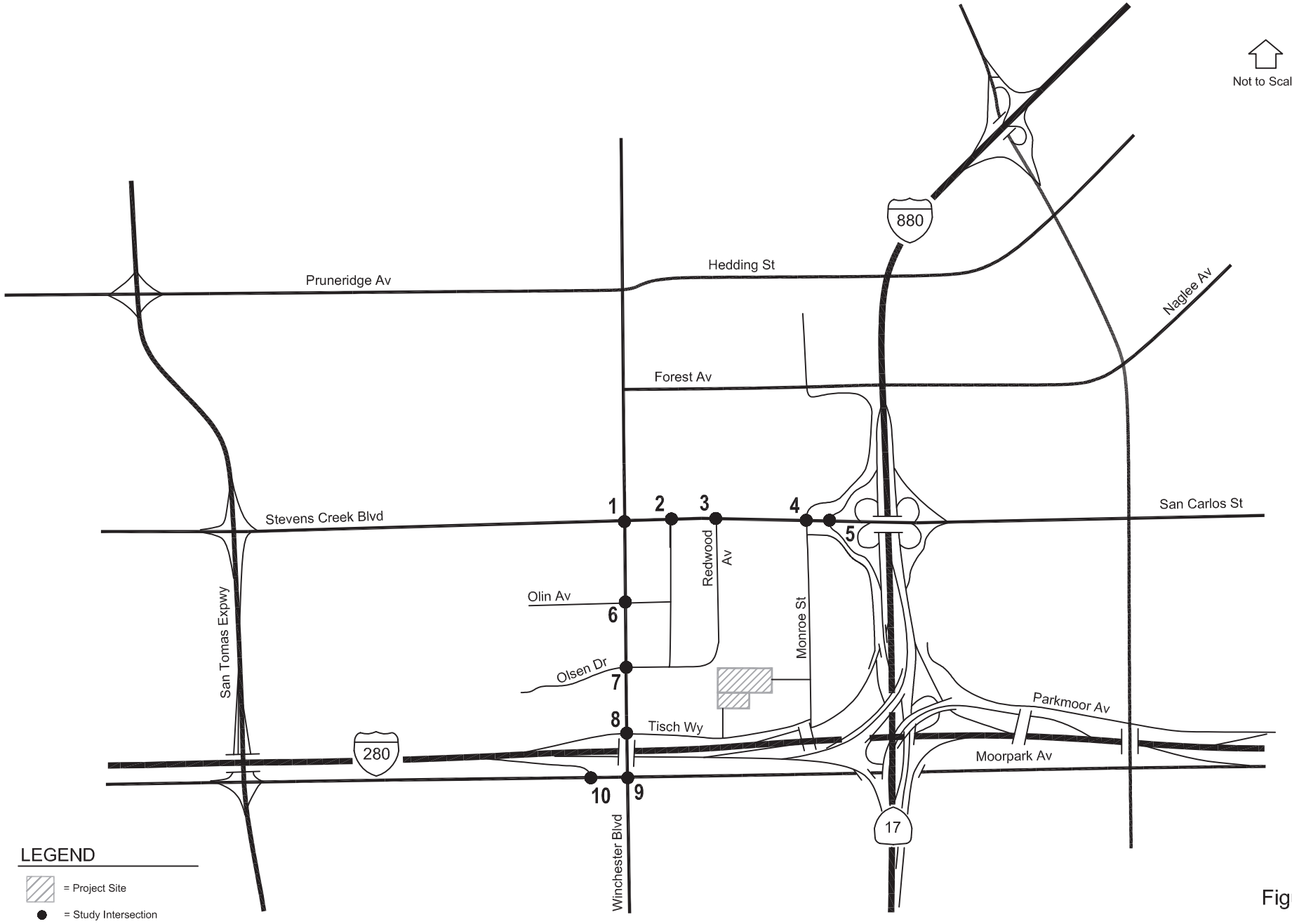

Figure 1

SITE LOCATION & STUDY INTERSECTIONS

Hexagon
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485 S. Monroe
Mixed-Use

Figure 2

SITE PLAN

485 S. Monroe
Mixed-Use

Hexagon
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Data Requirements

The data required for the analysis were obtained from previous traffic studies, the City of San Jose, and field observations. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing
- average speeds on freeway segments
- a list of approved and planned projects

Level of Service Standards and Analysis Methodologies

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

City of San Jose Signalized Intersections

All of the signalized study intersections are located in the City of San Jose and are therefore subject to the City of San Jose Level of Service standards. The City of San Jose level of service methodology is TRAFFIX, which is based on the Highway Capacity Manual (HCM) method for signalized intersections. TRAFFIX evaluates signalized intersections operations on the basis of average delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersections level of service methodology, the City of San Jose methodology employs the CMP defaults values for the analysis parameters. The City of San Jose level of service standard for signalized intersections is LOS D or better. The correlation between average delay and level of service is shown in Table 1.

CMP Intersections

Since TRAFFIX is the designated level of service methodology for both the CMP and the City of San Jose, the CMP study intersections are not analyzed separately, but rather are among the City of San Jose signalized intersections analyzed using TRAFFIX. The only difference between the San Jose and CMP analyses is that project impacts are determined on the basis of different level of service standards – the CMP level of service standard for signalized intersections is LOS E or better.

Report Organization

The remainder of this report is divided into five 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 levels of service under background conditions with the addition of traffic from approved development projects. Chapter 4 describes the method used to estimate project traffic and its impact on the transportation system and describes the recommended mitigation measures. Chapter 5 presents the analysis of other transportation related issues, including intersection operational analysis, site access and circulation, and parking. Chapter 6 presents the traffic conditions in the study area under cumulative conditions with the addition of traffic from development projects that are not yet approved. Chapter 7 presents the conclusions of the traffic impact analysis.

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

Level of Service	Description	Average Control Delay Per Vehicle (Sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Up to 10.0
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, *2000 Highway Capacity Manual*, (Washington, D.C., 2000).

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 I-880 and I-280. These facilities are described below.

I-880 is a six-lane freeway in the vicinity of the site. It extends north to Oakland and south to I-280 in San Jose, at which point it makes a transition into SR 17 to Santa Cruz. Access to the site is provided via its interchange with Stevens Creek Boulevard.

I-280 is an eight-lane freeway in the vicinity of the site. It extends northwest to San Francisco and east to King Road in San Jose, at which point it makes a transition into I-680 to Oakland. Access to the site is provided via its interchange with Winchester Boulevard.

Local access to the site is provided by Stevens Creek Boulevard, Winchester Boulevard, Tisch Way and Monroe Street. These roadways are described below.

Stevens Creek Boulevard is a divided six-lane east-west roadway in the vicinity of the project site. It extends from Cupertino eastward to I-880, at which point it makes a transition into San Carlos Street to Downtown San Jose. Access to the site is provided via South Monroe Street.

Winchester Boulevard is a divided six-lane north-south roadway that runs from Los Gatos to Lincoln Street in Santa Clara. Access to the site is provided via Tisch Way.

Tisch Way is a two-lane east-west roadway that provides access to Parcel 2 (office) of the site via a planned Hatton Street extension. The roadway extends east from Winchester Boulevard to South Monroe Street.

South Monroe Street is a two-lane north-south roadway that provides direct access to Parcel 1 (residential) of the site. The roadway extends north from Tisch Way to Stevens Creek Boulevard.

Hatton Street extension is a two-lane north-south roadway planned to be constructed to connect Tisch Way and Parcel 2. There will be no vehicular connection from Parcel 1 or South Monroe Street to any of the vehicular areas within Santana Row.

Existing Bicycle and Pedestrian Facilities

There are no county designated bike lanes in the vicinity of the project site. However, some roadways that do not provide designated bike lanes are identified bike routes.

Pedestrian facilities in the project area consist primarily of sidewalks along the streets. Sidewalks are found along virtually all previously described local roadways in the study area and along the local residential streets and collectors near the site. At South Monroe Street and Tisch Way, there is a pedestrian footbridge over I-280 to South Monroe Street and Moorpark Avenue.

Existing Transit Service

Existing transit service to the study area is provided by the VTA. The VTA bus service is described below and shown on Figure 3.

VTA Bus Service

Three bus lines are within close proximity of the project site. The 60 line provides service between the Winchester Transit Center and Great America via Winchester Boulevard, with 20-30-minute headways during commute hours. The 25 line provides service between the Alum Rock Transit Center and De Anza College, with 10-30-minute headways during commute hours. The 85 line provides service between Lawrence Expressway/Moorpark and 10th Street/Hedding Street, with 30-minute headways during commute hours.

The closest bus stops for these three lines are approximately 1,500 feet away. Line 60 stops near Winchester Boulevard and Olsen Drive. Both line 25 and 85 stop near South Monroe Street and Moorpark Avenue where pedestains can access using the footbridge over I-280 near the project site.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field, and are shown on Figure 4.

Existing Traffic Volumes

Existing peak-hour traffic volumes were obtained City of San Jose's Database and previous traffic studies. The existing peak-hour intersection volumes are shown on Figure 5. The traffic count data are included in Appendix A. Peak hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix C.

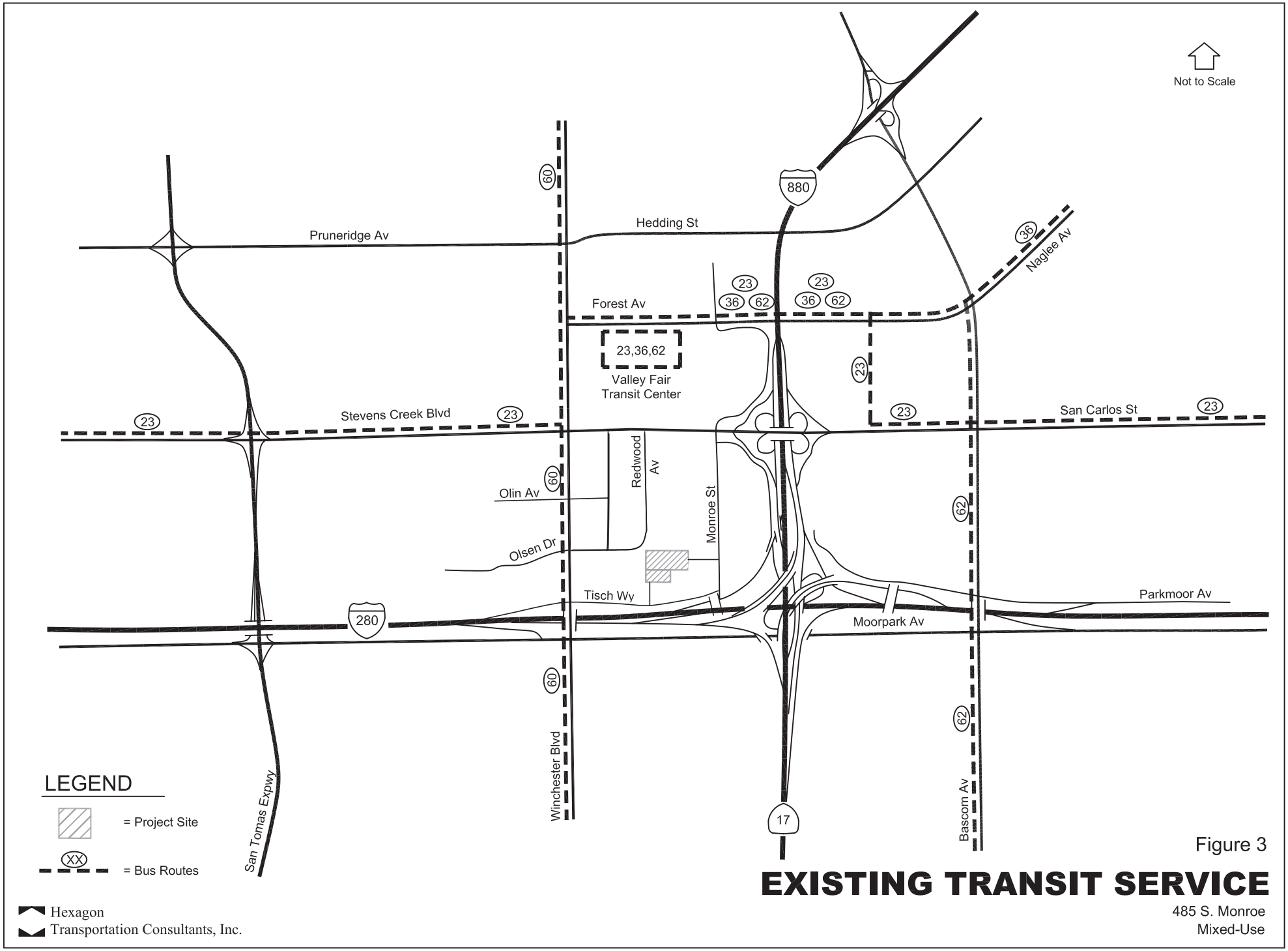

Figure 3

EXISTING TRANSIT SERVICE

485 S. Monroe
Mixed-Use

Hexagon
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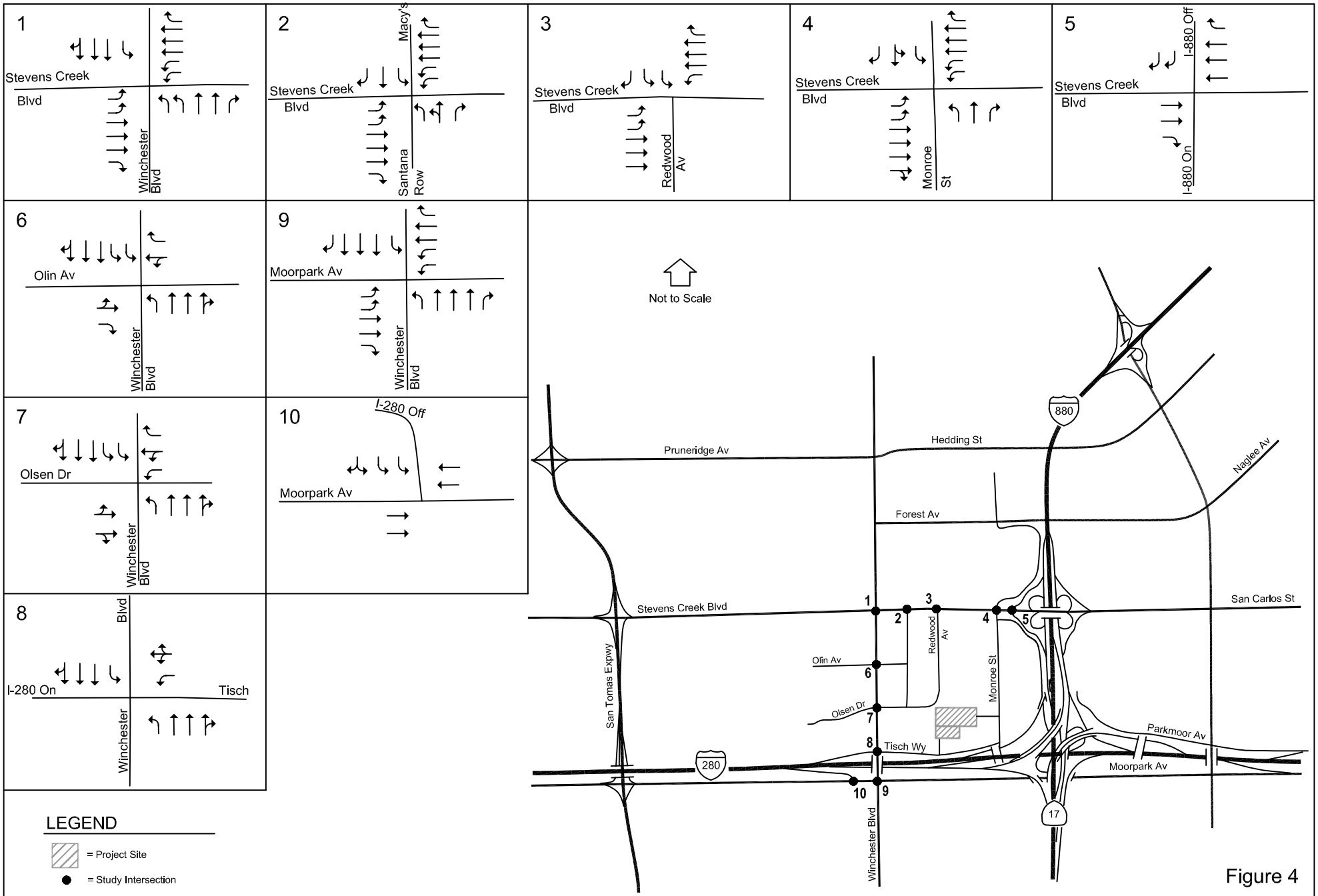

Figure 4

EXISTING LANE CONFIGURATIONS

485 S. Monroe
Mixed-Use

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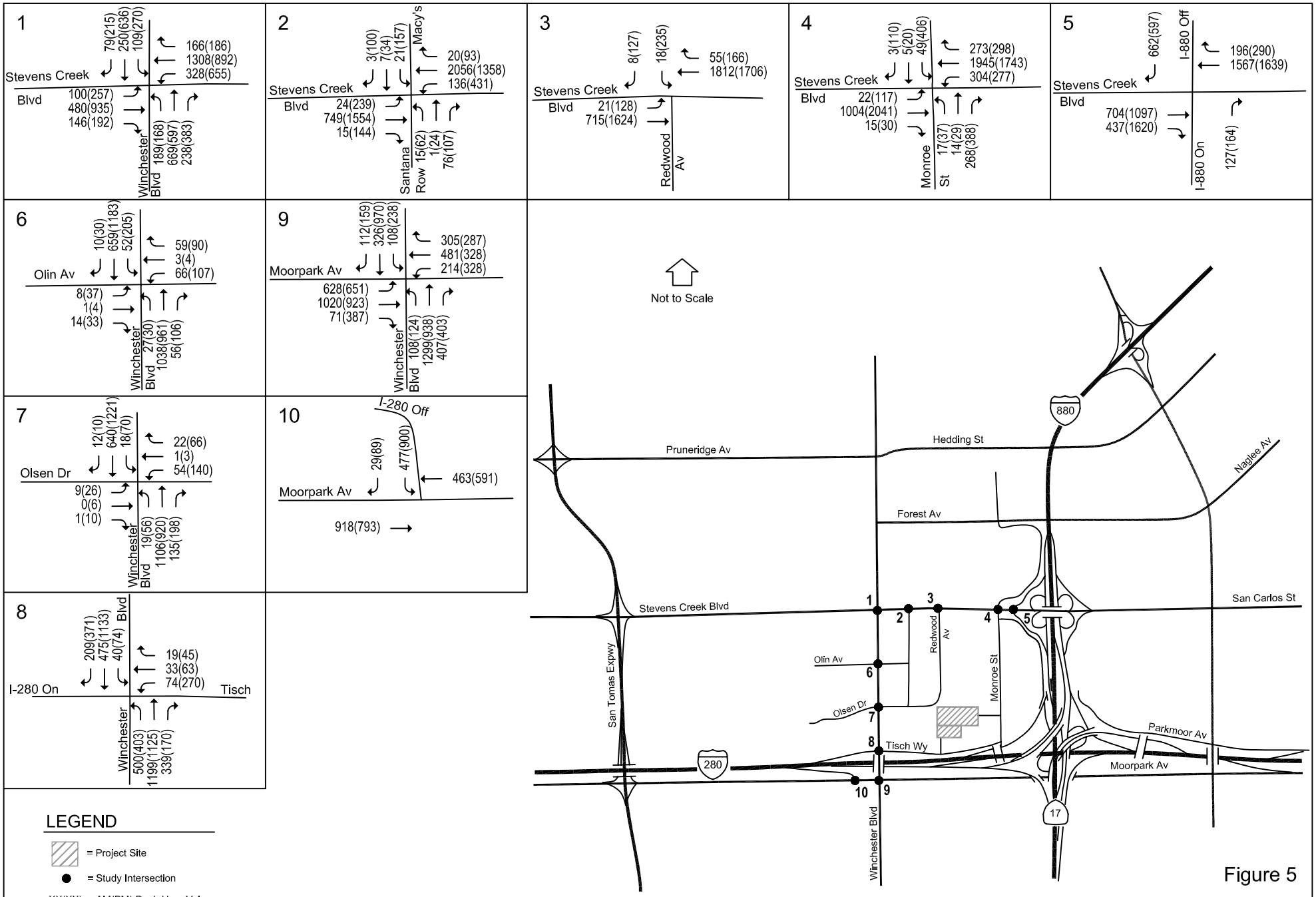

Figure 5

EXISTING TRAFFIC VOLUMES

485 S. Monroe
Mixed-Use

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Existing Intersection Levels of Service

City of San Jose Intersection Analysis

The results of the level of service analysis under existing conditions are summarized in Table 2. The results show that, measured against the City of San Jose level of service standards, all the study intersections currently operate at an acceptable LOS D or better under existing conditions. The level of service calculation sheets are included in Appendix D.

CMP Intersection Analysis

The level of service results for the CMP intersections under existing conditions are summarized in Table 2. The results show that, measured against the CMP level of service standards, all of the CMP study intersections currently operate at an acceptable LOS D or better under existing conditions.

Table 2
Existing Intersection Levels of Service

Study Number	Intersection	Peak Hour	Count Date	Ave. Delay	LOS
1	Stevens Creek Boulevard and Winchester Blvd*	AM	09/27/06	33	C
		PM	09/27/06	44	D
2	Stevens Creek Boulevard and Santana Row	AM	11/15/07	14	B
		PM	11/15/07	31	C
3	Stevens Creek Boulevard and Redwood Avenue	AM	01/10/08	4	A
		PM	01/10/07	13	B
4	Stevens Creek Boulevard and Monroe Street	AM	11/15/07	18	B
		PM	11/15/07	36	D
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	09/27/06	21	C
		PM	09/27/06	21	C
6	Winchester Boulevard and Olin Avenue	AM	11/14/07	12	B
		PM	11/14/07	15	B
7	Winchester Boulevard and Olsen Drive	AM	11/14/07	10	A
		PM	11/14/07	14	B
8	Winchester Boulevard and I-280 WB on-ramp	AM	02/28/07	20	B
		PM	02/28/07	31	C
9	Winchester Boulevard and Moorpark Avenue	AM	11/14/07	39	D
		PM	11/14/07	43	D
10	I-280 EB off-ramp and Moorpark Avenue*	AM	09/27/06	9	A
		PM	10/24/06	24	C

* Denotes CMP Intersection

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 level of service calculation does not accurately reflect level of service in the field.

Field observations revealed the following operational problems that may not be reflected in level of service calculations:

At the intersection of northbound I-280 on-ramp and Winchester Boulevard, northbound vehicles waiting to turn left onto northbound I-280 would often queue past and sometimes block the intersection of Winchester Boulevard and Moorpark Avenue. In addition, some vehicles would aggressively enter the left-turn lane at the last minute to avoid the long wait. A possible improvement is to add storage to the on-ramp at the metering lights. It is recommended that the City of San Jose work with Caltrans to study possible improvements to this on-ramp.

During the PM peak hour, a long queue would often spill out of the southbound I-880/SR17 on-ramp onto Stevens Creek Boulevard. The right lane on eastbound Stevens Creek Boulevard would be congested from I-880 to Santana Row. In addition, some vehicles would aggressively enter the right lane at the last minute to avoid the long wait. A possible improvement is to add storage to the on-ramp. Hexagon understands that there is an ongoing study on improving the I-880/Stevens Creek Boulevard/SR17 interchange system.

All other study intersections operate without any major operational problems.

Neighborhood Traffic

Speed and tube count data were taken at two locations South Monroe Street for a 24-hour period on a weekday. The count showed a volume of approximately 5,400 daily vehicles. An average of 64% of vehicles exceeded the speed limit (30 mph) at these locations. The 85th percentile speed was found to be 36 mph. The tube count data are located in Appendix A.

South Monroe Street also was surveyed to determine the amount of cut-through traffic using Monroe Street and Tisch Way to avoid Stevens Creek Boulevard and Winchester Boulevard. Significant cut-through traffic was observed during both AM and PM the peak hours.

During the AM peak hour, 67% of northbound rights at Winchester Boulevard and Tisch Way would make it through to Stevens Creek Boulevard and Monroe Street. The majority of these “northbound cut-throughs” would make a right upon reaching Stevens Creek Boulevard. During the AM peak hour, 23% of westbound lefts at Stevens Creek Boulevard and South Monroe would make it throught to Winchester Boulevard and Tisch Way. The majority of these “southbound cut-throughs” would make a left upon reaching Winchester Boulevard. In the PM hours, it is estimated that there are about 50% northbound cut-throughs and 63% southbound cut-throughs. The volume-weighted cut-through percentage during the peak hours can be calculated to 53%. Applying this same percentage to the daily traffic count yields an estimate of 2,900 cut-throughs per day.

3.
Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed project. Traffic volumes for background conditions comprise volumes from the existing traffic counts plus traffic generated by 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 Roadway Network

As part of the planned Valley Fair expansion and other Santana Row development, there are several roadway improvements planned along Stevens Creek Boulevard and Winchester Boulevard. It is assumed in this analysis that the planned improvements as outlined below will be complete under background conditions.

Stevens Creek Boulevard

- Widening of Stevens Creek Boulevard along its north side to accommodate right-turning traffic (into Valley Fair driveways).
- Lengthening of turn pockets along Stevens Creek Boulevard from Winchester Boulevard to Monroe Street by shifting of travel lanes and adjustment of medians.
- Pedestrian enhancements at the intersection of Santana Row/Stevens Creek. The intersection will be modified to provide safer pedestrian crossing by realigning the intersection, removing exclusive right-turn lanes, and improving crosswalk treatments and pedestrian waiting areas.

Winchester Boulevard

- *Stevens Creek Boulevard and Winchester Boulevard* – Addition of a second southbound left-turn lane
- *Winchester Boulevard and Olin Avenue* – Addition of second northbound left-turn lane (Already Funded by Other Development)
- *Winchester Boulevard and Olsen Drive* – Addition of second northbound left-turn lane (Already Funded by Other Development)

Background Intersection Levels of Service

Background peak-hour traffic volumes were estimated 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 was provided by the City in the form of the Approved Trips Inventory (ATI). Additional ATI was generated for the vacant office building on the project site as if it were at full occupancy. Background traffic volumes are shown on Figure 6. The City's ATI sheets are included in Appendix B.

Background Intersection Levels of Service

City of San Jose Intersection Analysis

The results of the intersection level of service analysis under background conditions are summarized in Table 3. The results show that, measured against the City of San Jose level of service standards one study intersection, Stevens Creek Boulevard and Monroe Street, is projected to operate at an unacceptable LOS E during the PM peak hour under background conditions. All other study intersections would operate at an acceptable LOS D or better under background conditions. The level of service calculation sheets are included in Appendix D.

CMP Intersection Analysis

The level of service results for the CMP intersections under background conditions are summarized in Table 3. The results show that, measured against the CMP level of service standards, all of the CMP study intersections would operate at an acceptable LOS D or better under background conditions.

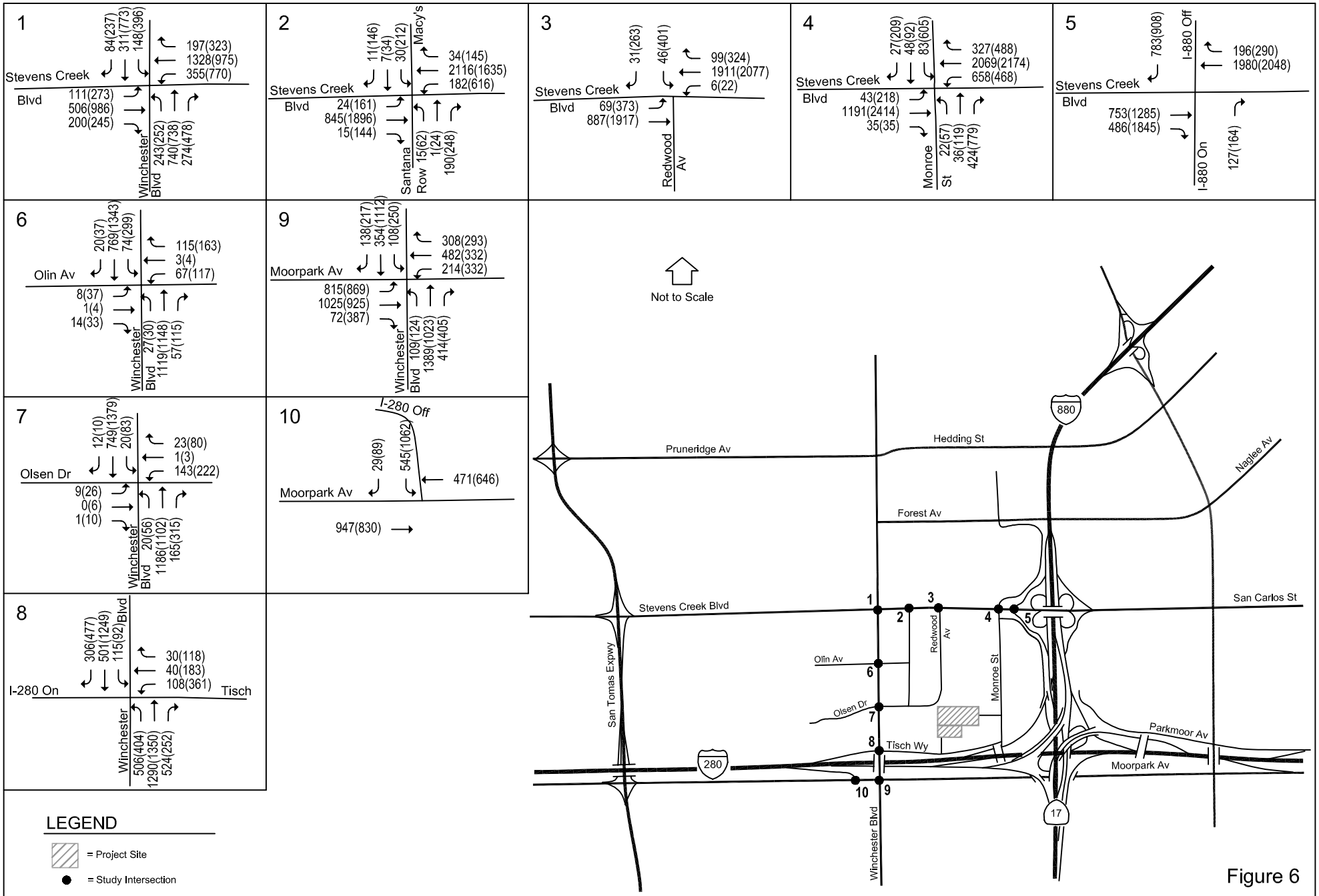

Figure 6

BACKGROUND TRAFFIC VOLUMES

485 S. Monroe
Mixed-Use

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Table 3
Background Intersection Levels of Service

Study Number	Intersection	Peak Hour	Count Date	Existing Ave. Delay	Existing LOS	Background Ave. Delay	Background LOS
1	Stevens Creek Boulevard and Winchester Blvd*	AM	09/27/06	33	C	33	C
		PM	09/27/06	44	D	45	D
2	Stevens Creek Boulevard and Santana Row	AM	11/15/07	14	B	22	C
		PM	11/15/07	31	C	51	D
3	Stevens Creek Boulevard and Redwood Avenue	AM	01/10/08	4	A	6	A
		PM	01/10/07	13	B	22	C
4	Stevens Creek Boulevard and Monroe Street	AM	11/15/07	18	B	21	C
		PM	11/15/07	36	D	78	E
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	09/27/06	21	C	22	C
		PM	09/27/06	21	C	27	C
6	Winchester Boulevard and Olin Avenue	AM	11/14/07	12	B	14	B
		PM	11/14/07	15	B	18	B
7	Winchester Boulevard and Olsen Drive	AM	11/14/07	10	A	12	B
		PM	11/14/07	14	B	16	B
8	Winchester Boulevard and I-280 WB on-ramp	AM	02/28/07	20	B	21	C
		PM	02/28/07	31	C	39	D
9	Winchester Boulevard and Moorpark Avenue	AM	11/14/07	39	D	40	D
		PM	11/14/07	43	D	45	D
10	I-280 EB off-ramp and Moorpark Avenue*	AM	09/27/06	9	A	9	A
		PM	10/24/06	24	C	24	C

* Denotes CMP Intersection

4.
Project Conditions

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 three sets of relevant criteria for impacts on intersections. These are based on: (1) the City of San Jose (CSJ) Level of Service standards, and (2) the CMP 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 San Jose Definition of Significant Intersection Impacts

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of San Jose 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 San Jose 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 San Jose, 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 LOS E or better.

Transportation Network Under Project Conditions

It is assumed in this analysis that the transportation network under project conditions would be the same as described under background conditions.

Project Traffic 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 step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. 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 generated by the proposed project was estimated by multiplying the applicable trip generation rates by the size of the development. The recommended trip generation rates for use in the City of San Jose are detailed in the *Interim Guidelines for Traffic Impact Analysis of Land Use Developments*, 1994.

Based on the residential and office rates recommended by the City of San Jose, the project would generate 2,299 gross daily trips, with 271 trips occurring during the AM peak hour and 286 trips occurring during PM peak hour. Trips were then subtracted from the total estimated project trips, based on trip generation rates of the currently vacant (SBC) office building that would be removed. Additionally, the trip estimates for each of the proposed land uses of the project were reduced to account for internalization, or interaction, between complimentary land uses. A reduction of 3 % was applied for the internalization of trips associated with residential and employment uses. Based on the trip credits and reductions that were applied, the proposed project would generate 25 net additional AM peak hour trips and 22 net additional PM peak hour trips. Using the inbound/outbound splits recommended by the City of San Jose, the project would produce -17 inbound and 43 outbound trips during the AM peak hour, and 37 inbound and -16

outbound trips during the PM peak hour. The project trip generation estimates are presented below in Table 4.

Table 4
Project Trip Generation

Land Use	Size	Daily Rate*	Daily Trips	AM Peak Hour Rate*	AM In	AM Out	AM Total	PM Peak Hour Rate*	PM In	PM Out	PM Total
Proposed Uses											
Offices	89.342 ksf	17.0	1,519	2.21	178	20	197	2.38	43	170	213
Townhouses	104 units	7.5	780	0.75	27	51	78	0.75	51	27	78
			2,299		205	70	275		93	197	291
	Mixed-use Internalization Reduction (3%)				-2	-3	-5		-3	-2	-5
					203	67	271		90	196	286
Existing Uses											
Offices (vacant)	111 ksf	17.0	1,887	2.21	221	25	245	2.38	53	211	264
Net Project Trips:			412		-17	43	25		37	-16	22

*Rates based on trips per unit and trips per ksf, respectively.
Source: City of San Jose Interim Guidelines for Traffic Impact Analysis for Land Developments, March 1994.

Trip Distribution

The trip distribution patterns for the proposed residential and office development was estimated based on traffic patterns on the surrounding roadway system and on the locations of complementary land uses. The project trip distribution pattern is shown graphically on Figure 7.

Trip Assignment

The peak-hour trips associated with the proposed project were added to the transportation network in accordance with the distribution pattern discussed above. The background trips generated by the office building that occupies the project site were then subtracted. Figure 8 shows the assignment of net project traffic on the local transportation network. A tabular summary of project traffic at each study intersection is contained in Appendix C.

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 on Figure 9.

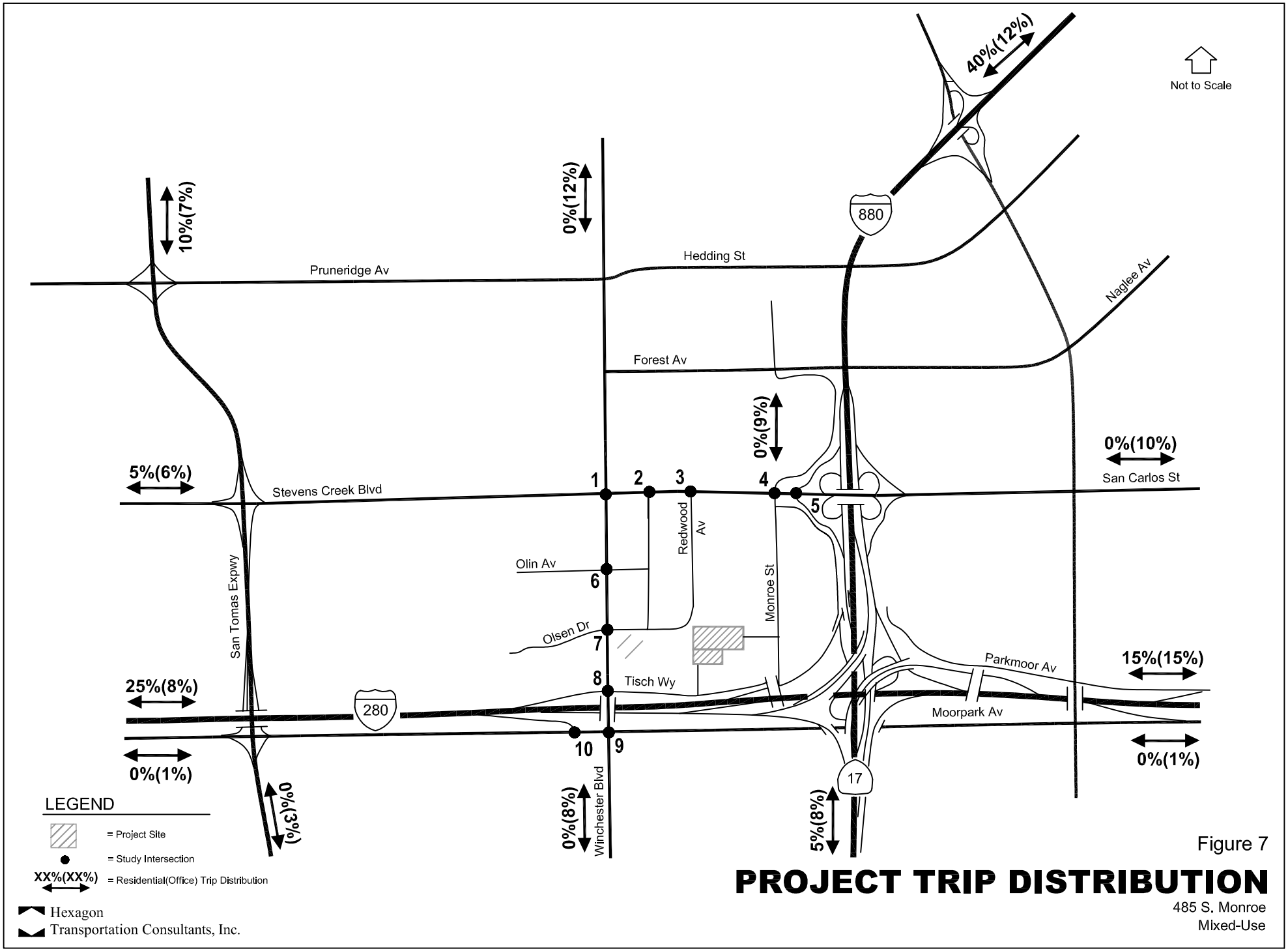

Figure 7

PROJECT TRIP DISTRIBUTION

485 S. Monroe
Mixed-Use

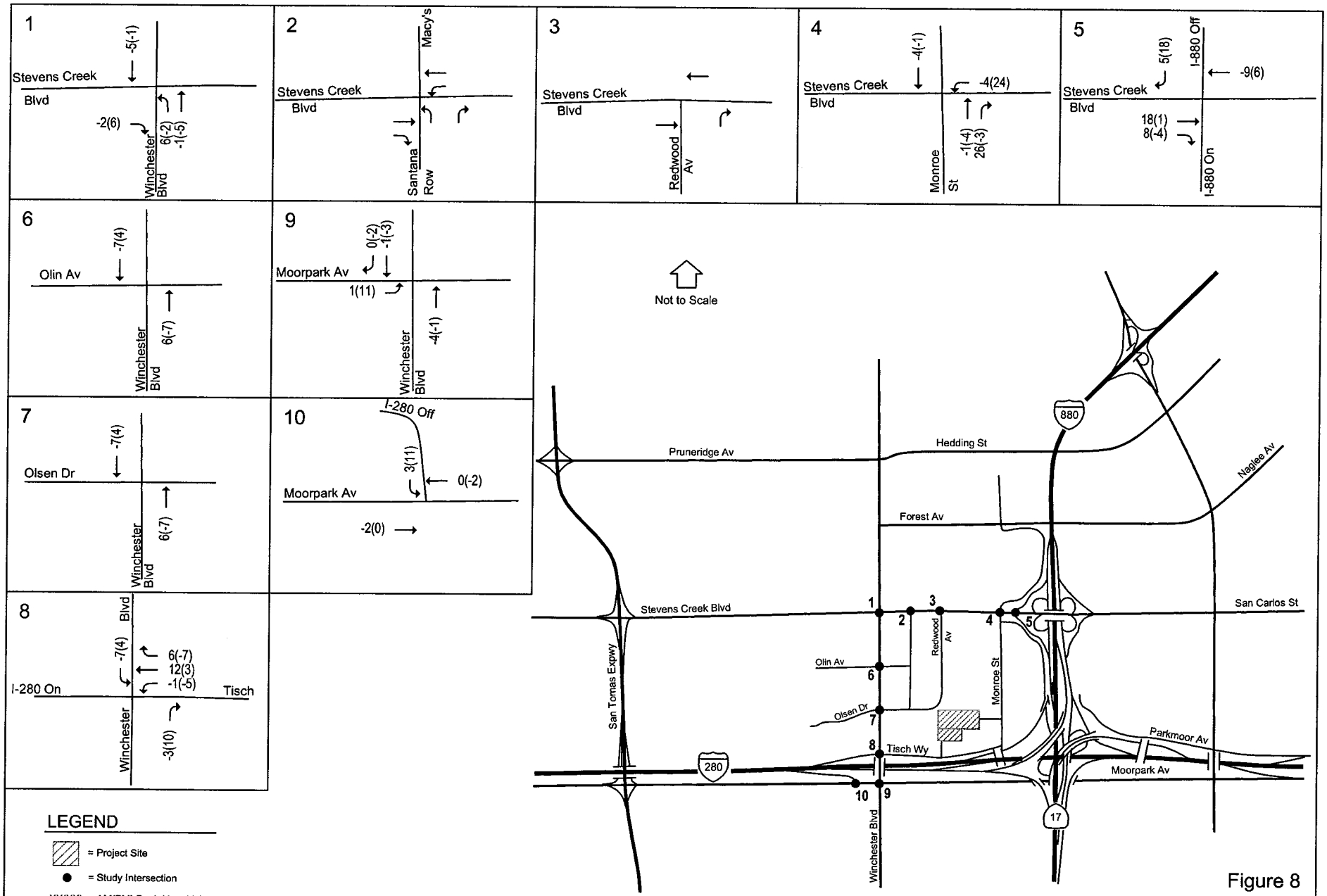

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Figure 8

PROJECT TRIP ASSIGNMENT

485 S. Monroe
Mixed-Use

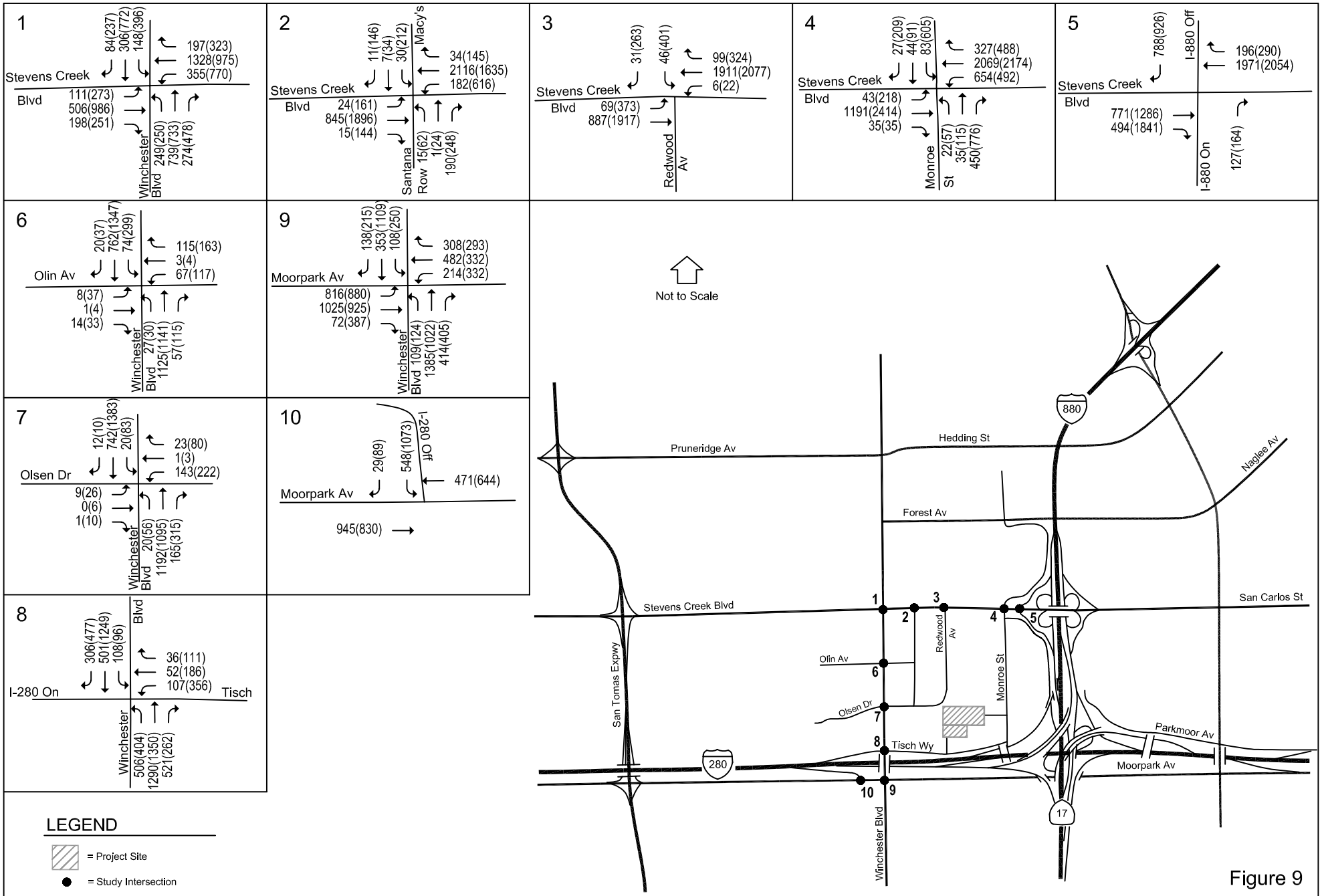

Figure 9

BACKGROUND PLUS PROJECT TRAFFIC VOLUMES

485 S. Monroe
Mixed-Use

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Project Intersection Level of Service Analysis

City of San Jose Level of Service Analysis

The results of the level of service analysis under project conditions are summarized in Table 5. The results show that, measured against the City of San Jose level of service standards one study intersection, Stevens Creek Boulevard and Monroe Street, is projected to operate at an unacceptable LOS E during the PM peak hour under project conditions. The intersection would not be significantly impacted by the project according to the City of San Jose definition of impacts. All other study intersections would operate at an acceptable LOS D or better under project conditions. The level of service calculation sheets are included in Appendix D.

CMP Level of Service Analysis

The level of service results for the CMP intersections under project conditions are summarized in Table 5. The results show that, measured against the CMP level of service standards, all of the CMP study intersections would operate at an acceptable LOS D or better under project conditions.

Table 5
Project Intersection Levels of Service

			Background		Project Conditions			
Study Number	Intersection	Peak Hour	Ave. Delay	LOS	Ave. Delay	LOS	Incr. In Crit. Delay	Incr. In Crit. V/C
1	Stevens Creek Boulevard and Winchester Blvd*	AM	33	C	33	C	0.0	0.000
		PM	45	D	45	D	-0.1	-0.001
2	Stevens Creek Boulevard and Santana Row	AM	22	C	22	C	0.0	0.000
		PM	51	D	51	D	0.0	0.000
3	Stevens Creek Boulevard and Redwood Avenue	AM	6	A	6	A	0.0	0.000
		PM	22	C	22	C	0.0	0.000
4	Stevens Creek Boulevard and Monroe Street	AM	21	C	21	C	0.4	-0.002
		PM	78	E	76	E	-0.8	-0.002
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	22	C	22	C	0.1	0.000
		PM	27	C	27	C	0.3	0.007
6	Winchester Boulevard and Olin Avenue	AM	14	B	14	B	0.0	0.001
		PM	18	B	17	B	-7.8	-0.062
7	Winchester Boulevard and Olsen Drive	AM	12	B	12	B	0.0	0.001
		PM	16	B	16	B	0.0	0.001
8	Winchester Boulevard and I-280 WB on-ramp	AM	21	C	22	C	0.7	0.011
		PM	39	D	39	D	-0.4	-0.004
9	Winchester Boulevard and Moorpark Avenue	AM	40	D	40	D	0.0	0.000
		PM	45	D	45	D	0.1	0.004
10	I-280 EB off-ramp and Moorpark Avenue*	AM	9	A	9	A	0.0	0.000
		PM	24	C	25	C	0.0	0.002

* Denotes CMP Intersection

Freeway Segment Analysis

Traffic volumes on the study freeway segments under project conditions were estimated by adding project trips to the existing volumes obtained from the 2005 CMP Annual Monitoring Report. The results of the freeway analysis are summarized in Table 6. The results show that the project would not cause a significant increase in traffic volume (more than one percent of capacity) on any of the study freeway segments.

Table 6
Freeway Segment Levels of Service

				Existing Capacity				Project Trips				
				Mixed-Flow		HOV			Mixed-Flow		HOV	
Freeway	Segment	Direction	Peak Hour	# of Lanes	Capacity (vph)	# of Lanes	Capacity (vph)	Total Volume	Volume	% Capacity	Volume	% Capacity
SR 17	Hamilton to I-280	NB	AM	3.4	7,820	--	--	-2	-2	0.0%	--	--
			PM	3.4	7,820	--	--	1	1	0.0%	--	--
I-880	I-280 to Stevens Creek	NB	AM	3	6,900	--	--	-5	-5	-0.1%	--	--
			PM	3	6,900	--	--	7	7	0.1%	--	--
I-880	Stevens Creek to Bascom	NB	AM	3	6,900	--	--	19	19	0.3%	--	--
			PM	3	6,900	--	--	5	5	0.1%	--	--
I-880	Bascom to The Alameda	NB	AM	3	6,900	--	--	19	19	0.3%	--	--
			PM	3	6,900	--	--	5	5	0.1%	--	--
I-280	Lawrence to Saratoga	EB	AM	3	6,900	1	1,800	3	3	0.0%	0	0.0%
			PM	3	6,900	1	1,800	11	8	0.1%	3	0.2%
I-280	Saratoga to Winchester	EB	AM	3	6,900	1	1,800	3	3	0.0%	0	0.0%
			PM	3	6,900	1	1,800	11	8	0.1%	3	0.2%
I-280	Winchester to I-880	EB	AM	3	6,900	1	1,800	0	0	0.0%	0	0.0%
			PM	3	6,900	1	1,800	0	0	0.0%	0	0.0%
I-280	I-880 to Meridian	EB	AM	4	9,200	1	1,800	6	5	0.1%	1	0.1%
			PM	4	9,200	1	1,800	-2	-1	0.0%	-1	0.0%
I-280	Meridian to Bird	EB	AM	4	9,200	--	--	6	6	0.1%	--	--
			PM	4	9,200	--	--	-2	-2	0.0%	--	--
I-280	Bird to Meridian	WB	AM	4	9,200	--	--	-3	-3	0.0%	--	--
			PM	4	9,200	--	--	6	6	0.1%	--	--
I-280	Meridian to I-880	WB	AM	3.7	8,510	1	1,800	-3	-2	0.0%	-1	-0.1%
			PM	3.7	8,510	1	1,800	6	5	0.1%	1	0.0%
I-280	I-880 to Winchester	WB	AM	3	6,900	1	1,800	0	0	0.0%	0	0.0%
			PM	3	6,900	1	1,800	0	0	0.0%	0	0.0%
I-280	Winchester to Saratoga	WB	AM	3	6,900	1	1,800	12	9	0.1%	3	0.2%
			PM	3	6,900	1	1,800	3	3	0.0%	0	0.0%
I-280	Saratoga to Lawrence	WB	AM	3	6,900	1	1,800	12	9	0.1%	3	0.2%
			PM	3	6,900	1	1,800	3	3	0.0%	0	0.0%
I-880	The Alameda to Bascom	SB	AM	3	6,900	--	--	5	5	0.1%	--	--
			PM	3	6,900	--	--	18	18	0.3%	--	--
I-880	Bascom to Stevens Creek	SB	AM	3	6,900	--	--	5	5	0.1%	--	--
			PM	3	6,900	--	--	18	18	0.3%	--	--
I-880	Stevens Creek to I-280	SB	AM	3	6,900	--	--	8	8	0.1%	--	--
			PM	3	6,900	--	--	-4	-4	-0.1%	--	--
SR 17	I-280 to Hamilton	SB	AM	3	6,900	--	--	2	2	0.0%	--	--
			PM	3	6,900	--	--	-2	-2	0.0%	--	--

/a/ Source: Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2005.

5.
Other Transportation Issues

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

- Vehicle queuing and left-turn storage capacity
- Vehicular site access and on-site circulation
- Truck access and circulation
- Potential impacts to bike, pedestrian and transit 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.

Signalized Intersection Operations Analysis

The operations analysis is based on vehicle queuing for high demand turning 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 per lane
n = number of vehicles in the queue per lane
λ = Average number of vehicles in the queue per lane (vehicles per hour per lane/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. This analysis thus provides a basis for estimating future storage requirements at intersections. The TRAFFIX queue estimates and a tabulated summary of the findings for the AM and PM peak hours are provided in Table 7.

Westbound Stevens Creek Boulevard and Monroe Street

As the results in Table 7 indicate, based on projected traffic volumes it is estimated that 95 percent of the time the westbound Stevens Creek Boulevard vehicle queue at Monroe Street is estimated to be 17 vehicles (425 feet) per lane during the AM peak hour under background conditions. The AM peak hour is the time period when the longest vehicle queues are expected to occur at this location. The existing storage capacity for this movement is 9 vehicles (225 feet) per lane. The project is not projected to add to the projected queue. Therefore, the deficiency will not be significantly affected by the project.

Lengthening of the turn-pocket is possible by cutting into the wide median upstream on Stevens Creek Boulevard but is not necessary. The coordinated signal system on Steven Creek Boulevard at Monroe and at the southbound I-880 off-ramp precludes the left-turn movement from blocking the through movement.

Northbound Monroe Street and Stevens Creek Boulevard

The northbound Monroe Street left-turn vehicle queue storage capacity at Stevens Creek Boulevard is 75 feet, or 3 vehicles. Based on existing traffic volumes it is estimated that 95 percent of the time during the PM peak hour under existing conditions the northbound Monroe Street vehicle queue at Stevens Creek Boulevard is 4 vehicles in length. The PM peak hour is the time period when the longest vehicle queues are expected to occur at this location. Thus, the northbound left-turn pocket has a storage inadequacy of about one vehicle, or 25 feet in the PM peak hour. Under background conditions the 95th percentile maximum queue is estimated to be 5 vehicles or 125 feet. The project is not projected to add to the projected queue. Therefore, the deficiency will not be significantly affected by the project. There is not adequate space to lengthen the northbound left-turn pocket due to the spacing of the upstream intersection.

Westbound Tisch Way and Winchester Boulevard

The westbound Tisch Way left-turn vehicle queue storage capacity at Winchester Boulevard is approximately 225 feet, or 9 vehicles. Based on existing traffic volumes it is estimated that 95 percent of the time during the PM peak hour under existing conditions the westbound Tisch Way vehicle queue at Winchester Boulevard is 11 vehicles in length. The PM peak hour is the time period when the longest vehicle queues are expected to occur at this location. Thus, the westbound left-turn pocket has a storage inadequacy of about two vehicles, or 50 feet in the PM peak hour. Under background conditions the 95th percentile maximum queue is estimated to be 14 vehicles or 350 feet. The project is not projected to add to the projected queue. Therefore, the deficiency will not be significantly affected by the project. Lengthening of the left-turn pocket is not necessary because there is adequate space for left-turning vehicles to store and not inhibit through traffic due to the split phase operations of the Tisch Way and Winchester Boulevard signal operations.

Site Access and On-Site Circulation

A review of the project site plan was performed to determine if adequate site access and on-site circulation are provided and to identify any access or circulation issues that should be improved. This review is based on the site plan prepared by Civil Engineering Associates, dated October 3, 2007.

Table 7
Intersection Operation Analysis

Measurement	Santana Row/ Stevens Creek WBL AM	Santana Row/ Stevens Creek WBL PM	Santana Row/ Stevens Creek NBL AM	Santana Row/ Stevens Creek NBL PM	Olin/ Winchester SBL AM	Olin/ Winchester SBL PM	Olin/ Winchester WBL AM	Olin/ Winchester WBL PM	Olsen/ Winchester SBL AM	Olsen/ Winchester SBL PM
Existing Conditions										
Cycle/Delay[1] (sec)	122	136	122	136	95	95	95	95	122	122
Lanes	2	2	2	2	2	2	1	1	2	2
Volume (vph)	136	431	15	62	52	205	66	107	18	70
Volume (vphpl)	68	215.5	8	31	26	102.5	66	107	9	35
Avg. Queue (veh/ln.)	2.3	8.1	0.3	1.2	0.7	2.7	1.7	2.8	0.3	1.2
Avg. Queue[2] (ft./ln)	58	204	6	29	17	68	44	71	8	30
95th %. Queue (veh/ln.)	5	13	1	3	2	6	4	6	1	3
95th %. Queue (ft./ln)	125	325	25	75	50	150	100	150	25	75
Storage (ft./ ln.)	175	175	190	190	225	225	250	250	175	175
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES
Background Conditions										
Cycle/Delay[1] (sec)	122	136	122	136	95	95	95	95	122	122
Lanes	2	2	2	2	2	2	1	1	2	2
Volume (vph)	182	616	15	62	74	299	67	117	20	83
Volume (vphpl)	91	308	8	31	37	149.5	67	117	10	41.5
Avg. Queue (veh/ln.)	3.1	11.6	0.3	1.2	1.0	3.9	1.8	3.1	0.3	1.4
Avg. Queue[2] (ft./ln)	77	291	6	29	24	99	44	77	8	35
95th %. Queue (veh/ln.)	6	18	1	3	3	7	4	6	1	4
95th %. Queue (ft./ln)	150	450	25	75	75	175	100	150	25	100
Storage (ft./ ln.)	300	300	190	190	225	225	250	250	175	175
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES
Project Conditions										
Cycle/Delay[1] (sec)	122	136	122	136	95	95	95	95	122	122
Lanes	2	2	2	2	2	2	1	1	2	2
Volume (vph)	203	597	15	58	73	294	67	115	79	66
Volume (vphpl)	102	299	8	29	36.5	147	67	115	39.5	33
Avg. Queue (veh/ln.)	3.4	11.3	0.3	1.1	1.0	3.9	1.8	3.0	1.3	1.1
Avg. Queue[2] (ft./ln)	86	282	6	27	24	97	44	76	33	28
95th %. Queue (veh/ln.)	7	17	1	3	3	7	4	6	3	3
95th %. Queue (ft./ln)	175	425	25	75	75	175	100	150	75	75
Storage (ft./ ln.)	300	300	190	190	225	225	250	250	175	175
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES

[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued

Site Access

The project site consists of three main areas: Parcel 1 consisting of up to 104 townhomes, Parcel 2 consisting of an 89,342 s.f. office building, and a Park Dedication. Access to Parcel 1 is provided by South Monroe Street via its east driveway. Access to Parcel 2 is provided by the planned Hatton Street extension. There would be no connection to Santana Row. The Park Dedication parcel is east of the Hatton Street extension and would be added to the Frank Santana Park south of Parcel 1. Net project trips associated with the proposed project at each of the project entrances is shown in Figure 10.

To determine if the site driveways are adequate for service and emergency vehicle access, the SU-30 AASHTO design vehicle turning specifications were checked against the driveway and roadway geometrics associated with the site. The SU-30 design vehicle represents a 30-foot single-unit truck (such as a garbage truck or fire truck). This procedure revealed that a 30-foot single-unit truck would be able to make all required turning movements at the project driveways assuming 26-foot driveway widths at all. The proposed driveway designs are adequate to accommodate an SU-30 truck. Large moving trucks also would be expected to access the site. The site plan does not show where large trucks could conveniently park to load and unload.

On-Site Circulation

The site has drive aisle widths of 26 feet throughout, which would allow for adequate circulation and maneuvering for 90-degree parking stalls and garage spaces. According to the site plan, the internal roadway network would contain nine dead-end drive aisles. Dead-end aisles on residential streets generally are undesirable for large trucks from a circulation standpoint because upon reaching the end of an aisle, drivers must either back out or perform a three-point turn. Thus, the dead-end aisles could pose a problem for large trucks. The design and layout of the on-site roadways is adequate to accommodate circulation of passenger vehicles and emergency vehicles. Clear sight distance triangles should be provided at the project driveways to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site.

Overall, the site plan exhibits good site access and on-site circulation for motor vehicles. The City ultimately will determine the adequacy of the proposed driveways and internal street system design.

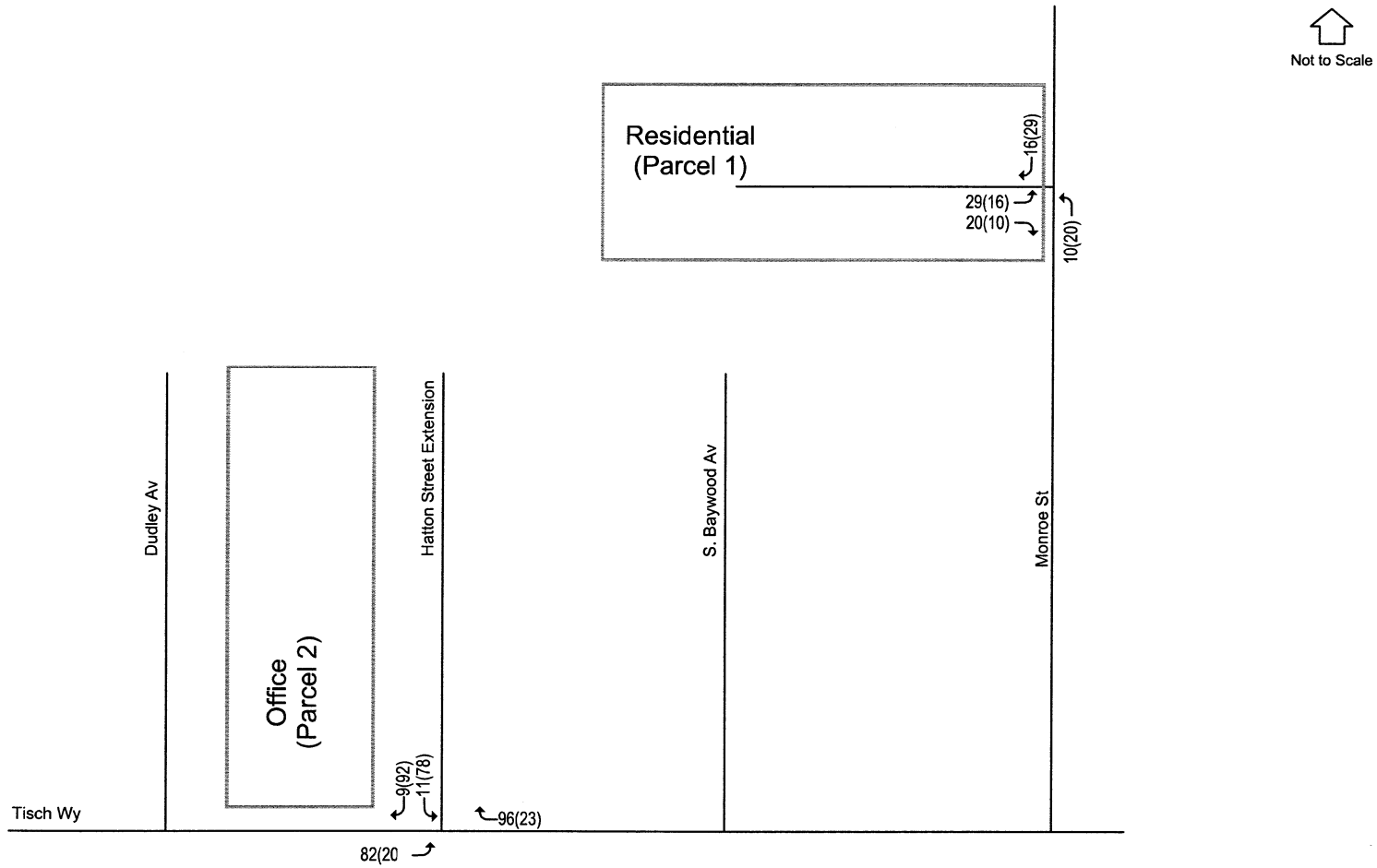
Project Parking

Based on the City parking code requirements for multi-family dwelling, Parcel 1 is required to supply 208 on-site parking spaces and Parcel 2, 356 parking spaces. Parcel 1 and Parcel 2 would provide 268 and 74 parking spaces, respectively. Therefore, the proposed project would comply with City requirements.

Neighborhood Traffic

Speed and tube count data were taken at two locations South Monroe Street for a 24-hour period on a weekday. The count showed a volume of approximately 5,400 daily vehicles. An average of 64% of vehicles exceeded the speed limit (30 mph) at these locations. The 85th percentile speed was found to be 36 mph. The City of San Jose has implemented on-street parking and new striping to aid in the reduction of speed along Monroe Street.

South Monroe Street also was surveyed to determine the amount of cut-through traffic using Monroe



LEGEND

= Project Site

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

Hexagon
Transportation Consultants, Inc.

Figure 10

TOTAL PROJECT TRIPS AT SITE DRIVEWAYS

485 S. Monroe
Mixed-Use

Street and Tisch Way to avoid Stevens Creek Boulevard and Winchester Boulevard. Significant cut-through traffic was observed during both AM and PM the peak hours. Cut-throughs constitute about 53% of daily traffic volumes on South Monroe Street. The project is not expected to affect the percentage or volume of cut-through traffic. Even though Parcel 1 is adjacent to the Santana Row neighborhood, there will be no connection from Santana Row to this project.

Transit, Pedestrian and Bicycle Analysis

It can be assumed that some of the project trips could be made by transit. Assuming up to 3% transit mode share, which is probably the highest that could be expected, yields an estimate of one transit trip during both peak hours. Given that there are nearby bus routes, these riders could be accommodated by the existing service.

Pedestrian facilities in the project area consist primarily of sidewalks along the streets. Sidewalks are found along all streets in the vicinity of the project site. Pedestrian trips could easily be accommodated by the existing pedestrian walkways within the project area. Therefore, the project would not have any impact on the need for or operation of pedestrian facilities in the area.

The bikeways within the vicinity of the project site are limited to sidewalks on most of the major roadways. These facilities would remain unchanged under project conditions.

The closest schools to the proposed project are Lynnhaven Elementary School, Monroe Middle School, and Del Mar High School with 562, 876, and 1172 students, respectively. Lynnhaven Elementary School and Del Mar High School are more than a mile away from the project site, so the students probably would be driven to these schools. Although the walking distance from the project site to Monroe Middle School is 0.7 miles and may be too far for most, a few students may choose to walk or ride their bicycles to and from school. At South Monroe Street and Tisch Way, a pedestrian footbridge over I-280 and Tisch Way provides safe access to Moorpark Avenue. To get to the residential neighborhood where the school is located, the students would need to cross Moorpark Avenue at South Monroe Street, which is a signalized intersection.

6.
Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. It includes descriptions of nearby pending developments and the procedure used to estimate traffic volumes associated with them. This chapter also presents the results of the intersection level of service calculations. The analysis of cumulative conditions was conducted at the request of the City of San Jose and is in conformance with the California Environmental Quality Act CEQA.

Transportation Network Under Cumulative Conditions

It is assumed that the roadway network under cumulative conditions would be the same as the roadway network described under project conditions.

Cumulative Traffic Volumes

Cumulative traffic volumes include trips associated with three pending developments located within the immediate proximity of the project site. City staff provided the list of cumulative developments. The projects are described below.

- *Santana Row Parcel 11 (City of San Jose)* – Replacement of a 229 residential units and 20,000 s.f. of retail space with 100,000 s.f. of office space.

- *Santana Row Parcel 2 (City of San Jose)* – Conversion of the approved 190-room hotel and 25,500 s.f. of retail space at Santana Row to 60,000 s.f. of office space with 23,000 s.f. of retail space.

- *BAREC Residential Development (City of Santa Clara)* – 110 single-family homes and 165 senior housing units, located along the west side of Winchester Boulevard at Forest Avenue

Traffic volumes for cumulative conditions were estimated by adding traffic associated with pending developments to project traffic volumes. The added traffic associated with the pending projects was obtained from their respective traffic studies.

Intersection Levels of Service Under Cumulative Conditions

City of San Jose Level of Service Analysis

The results of the level of service analysis under cumulative conditions are summarized in Table 8. The results show that, measured against the City of San Jose level of service standards one study intersection, Stevens Creek Boulevard and Monroe Street, is projected to operate at an unacceptable LOS E during the PM peak hour under cumulative conditions. The intersection is projected to operate at unacceptable levels under background conditions. All other study intersections would operate at an acceptable LOS D or better under project conditions. The level of service calculation sheets are included in Appendix D.

CMP Level of Service Analysis

The level of service results for the CMP intersections under cumulative conditions are summarized in Table 8. The results show that, measured against the CMP level of service standards, the CMP study intersections would operate at an acceptable LOS D or better under cumulative conditions. The cumulative traffic volumes and the intersection level of service calculations are included in Appendix D.

Table 8
Cumulative Intersections Levels of Service

Study Number	Intersection	Peak Hour	Ave. Delay	LOS
1	Stevens Creek Boulevard and Winchester Blvd*	AM	34	C
		PM	46	D
2	Stevens Creek Boulevard and Santana Row	AM	22	C
		PM	51	D
3	Stevens Creek Boulevard and Redwood Avenue	AM	8	A
		PM	27	C
4	Stevens Creek Boulevard and Monroe Street	AM	21	C
		PM	76	E
5	Stevens Creek Boulevard and I-880 SB off-ramp*	AM	21	C
		PM	25	C
6	Winchester Boulevard and Olin Avenue	AM	14	B
		PM	18	B
7	Winchester Boulevard and Olsen Drive	AM	11	B
		PM	16	B
8	Winchester Boulevard and I-280 WB on-ramp	AM	22	C
		PM	37	D
9	Winchester Boulevard and Moorpark Avenue	AM	40	D
		PM	45	D
10	I-280 EB off-ramp and Moorpark Avenue*	AM	10	A
		PM	24	C

* Denotes CMP intersection

7. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose and the Congestion Management Program (CMP) of Santa Clara County. The study included the analysis of AM and PM peak-hour traffic conditions for 10 signalized intersections.

The impacts of the project on intersections were identified on the basis of the following criteria: (1) the City of San Jose (CSJ) Level of Service standards, (2) the CMP Level of Service standards, and (3) the City of San Jose traffic operations requirements, based on vehicle-storage requirements at intersections.

Project impacts on other transportation facilities, such as bicycle facilities and transit, were determined on the basis of engineering judgment.

Intersection Levels of Service Impacts

Based on level of service analysis, the project is not projected to have an adverse impact on any of the 10 study intersections.