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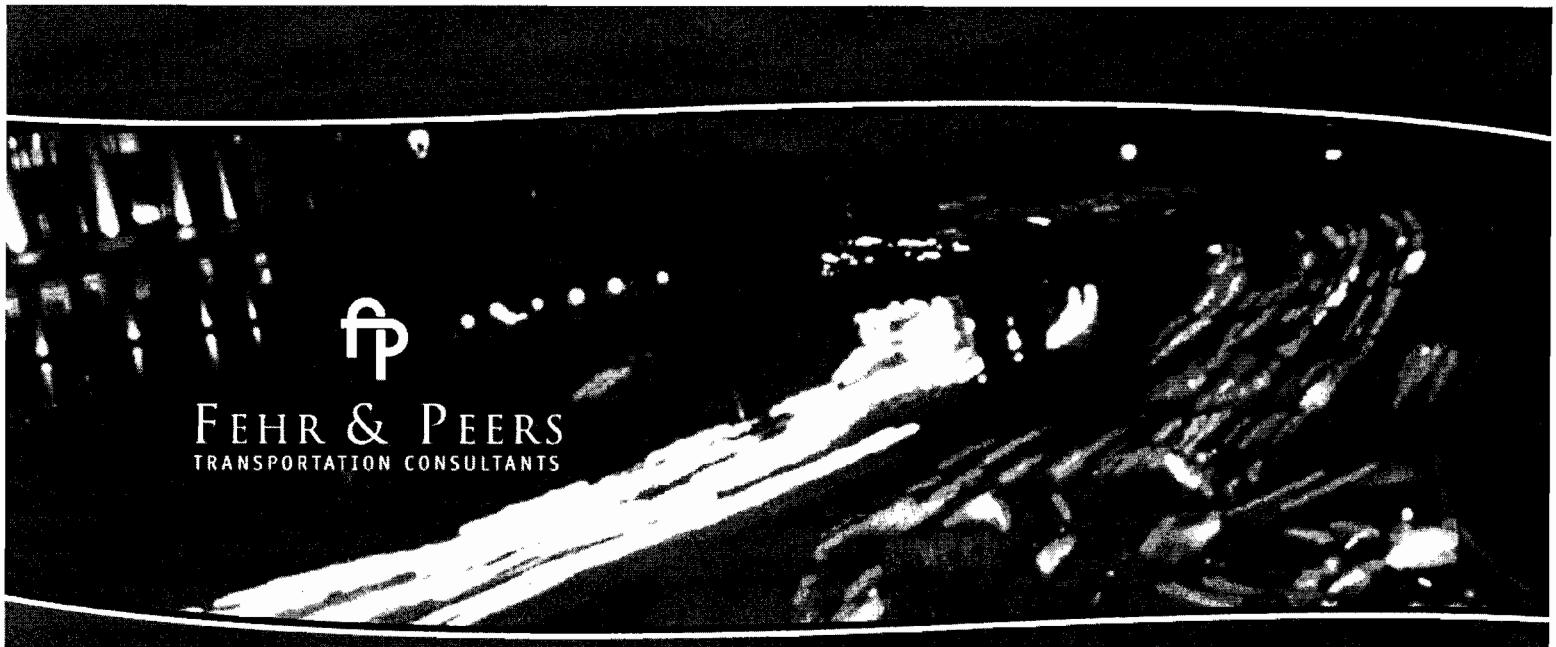
TRANSPORTATION AND TRAFFIC



Final Transportation Impact Analysis

San Jose Flea Market

October 2006

Prepared for:
David J. Powers & Associates

Prepared by:
Fehr & Peers

Final Report

San Jose Flea Market
Transportation Impact Analysis

Prepared for:

David J. Powers & Associates, Inc.

Prepared by:

Fehr & Peers

October 2006

1035-641

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EXECUTIVE SUMMARY

This transportation impact analysis (TIA) report presents the potential transportation impacts, proposed mitigation, and operational issues for the proposed 120 acre mixed-use development on the existing San Jose Flea Market site. The project site, located in the northeastern area of San Jose, is generally bounded by single-family homes to the north, Mabury Road to the south, Coyote Creek to the west, Union Pacific railroad to the east, and is bisected by Berryessa Road. Proposed project land uses include 215,622 square feet of office space, 152,700 square feet of retail use, and 2,818 dwelling units with development distributed on both sides of Berryessa Road.

Based on the conceptual site plan, primary access to the project site includes two new signalized intersections and two right-turn only driveways on the north side of Berryessa Road. The conceptual plan also includes the construction of a new north leg at the Mabury Road/Mabury Yard intersection. The project sponsor will widen Berryessa Road to six lanes and Mabury Road to four lanes. Secondary access is provided via a connection to Sierra Road at the northern end of the site.

The widening of Berryessa and Mabury Roads will require modifications and/or reconstruction of existing bicycle, pedestrian and transit facilities to provide safe and effective transportation connections. Bicycle lanes will be maintained on both Berryessa Road and Mabury Road, and continuous sidewalks will be provided along the entire project frontage on both streets. The widening of Berryessa Road and Mabury Road and the construction of new street and driveway intersections may require relocation of existing bus stops or installation of new stops. All stops will be designed and reviewed by the VTA to ensure concurrence with their standards. No bicycle, pedestrian or transit impacts were identified because the project implementation will not conflict with any existing or planned facilities; however, City staff should verify that any new bicycle, pedestrian or transit facilities will meet or exceed minimum City of San Jose design standards.

The proposed project is estimated to generate a net increase of 22,942 daily trips, 2,392 AM peak-hour trips (987 inbound and 1,405 outbound), and a net increase of 2,421 PM peak-hour trips (1,491 inbound and 930 outbound). Trip reductions were applied to account for walk and bicycle trips between each use, as well as pass-by trips to the proposed retail development.

Existing, Background, and Project Conditions were evaluated with level of service calculations for the key intersections near the project site. Project impacts were estimated following the guidelines of the City of San Jose and the Santa Clara Valley Transportation Authority (VTA), which is the Congestion Management Agency (CMP) for Santa Clara County.

PROJECT IMPACTS AND MITIGATION

Intersections

Table ES-1 presents the level of service results for all study intersections under Existing, Background, Project, and Project with Mitigation. Based on the City of San Jose project impact criteria, the proposed project would have a **significant impact** at the following intersections (mitigation sub-listed):

12. Commercial Street / Oakland Road (AM and PM peak hour)
    a. Add second westbound left-turn lane.
13. US 101 / Oakland Road (N) (AM and PM peak hour)
    a. Convert southbound outside through lane to a shared through-right lane.
    b. Add second northbound left-turn lane.

14. US 101 / Oakland Road (S) (PM peak hour)
    a. Add second eastbound right-turn lane.
19. Hedding Street / 10th Street (AM and PM peak hour)
    a. No proposed mitigation because of Protected Intersection designation.
21. Hedding Street / Oakland Road (AM peak hour)
    a. Add separate westbound right-turn lane.
    b. Add second southbound left-turn lane.
32. Taylor Street / 1st Street (PM peak hour)
    a. No proposed mitigation because of Protected Intersection designation.
35. Taylor Street / 11th Street (AM and PM peak hour)
    a. No proposed mitigation because of Protected Intersection designation.
38. Mabury Road /Mabury Road (AM and PM peak hour)
    b. New signal with existing geometry.

For impacts at Protected Intersections, City policy requires the project sponsor to propose physical improvements to other elements of the citywide transportation system to improve system capacity and/or enhance non-auto travel modes. The location and types of improvements will be determined through neighborhood outreach. These enhancements include pedestrian, bicycle and transit facilities and services that increase other travel opportunities, while supporting the City of San Jose's smart growth policies. The project sponsor will contribute a negotiated amount per peak hour trip for off-setting improvements.

Based on the CMP project impact criteria, the proposed project would have a **significant impact** at the following intersections (same project intersection mitigation as above):

13. US 101 / Oakland Road (N) (AM peak hour)
14. US 101 / Oakland Road (S) (PM peak hour)

Freeways

The results of the freeway level of service analysis indicate that the proposed project would create a **significant impact** on the mixed-flow and HOV lanes of the following freeway segments:

a. US 101 between SR 87 and Tully Road (9 segments)
b. I-880 between Montague Expressway and The Alameda (3 segments)
c. I-280 between McLaughlin Avenue and Bird Street (3 segments)
d. I-680 between Montague Expressway and Berryessa Road (3 segments)
e. Southbound SR 87 between I-280 and Alma Avenue (1 segment)

The mitigation for project impacts to the freeway segments is the project sponsor's implementation of items in the "Immediate Actions" list in Appendix D of the Draft Countywide Deficiency Plan (CDP). A number of items on the

list are included in the proposed project such as sidewalks, crosswalks, and multi-use paths. However, these actions are not expected to reduce the project impact to less than significant level because they would not reduce the project's contribution to all freeway segments to less than one percent of capacity. Therefore, the impact to the freeway segments listed above is considered **significant and unavoidable**.

OPERATIONAL ISSUES

Arterial Roadway/Corridor Operations

The TRAFFIX LOS calculations do not address corridor operation issues or interaction of closely-spaced intersections. Thus, an analysis of corridor operations using SimTraffic was prepared to determine if additional improvements are required to complement the proposed mitigation improvements to provide additional capacity. Analysis results were used to identify the recommended roadway modifications listed below.

- Oakland Road Corridor
    1. Add two northbound storage lanes in the existing median at the US 101/Oakland Road (S) intersection.
    2. Widen Oakland Road between the northbound ramps and Commercial Street to provide two southbound storage lanes at the US 101/Oakland Road (S) intersection. This improvement requires widening Oakland Road north of Commercial Street.
    3. Add a second westbound right-turn lane at the US 101 and Oakland Road (N) intersection, which requires right-of-way.
- Berryessa Road Corridor
    1. Extend the westbound widening of Berryessa Road to Commercial Street.
    2. Extend the Berryessa Road widening to the existing lane drop east of the railroad tracks.
    3. Convert the westbound shared through-right lane at the Berryessa Road and Mabury Road intersection to a shared left-through-right lane and lengthen westbound left turn pocket on Mabury Road. This improvement requires conversion to eastbound and westbound split phasing.
- Mabury Road Corridor
    1. Coordinate the signal timings of the Mabury Road intersections at Mabury Road and Mabury Yard.
    2. Add an eastbound left-turn lane with a short storage pocket at the intersection of Mabury Road and Mabury Road.
    3. Extend Mabury Road widening to the existing lane drop east of the railroad tracks.

Left-Turn Queues

Implementation of the proposed project will add substantial traffic volumes to several left-turn movements at intersections near the project site. Results from the TRAFFIX analysis were used to determine future vehicle storage needs or required modifications to existing storage pocket lengths. The results of the queuing analysis show that traffic from the proposed project without additional improvements would cause left turn queues to exceed the available storage at three intersections (Berryessa Road/Commercial Street, Berryessa Road/Lundy Avenue, and Mabury Road/King Road) during the AM and/or PM peak hours. Lengthening of pockets by up to 75 feet was recommended at each location.

Site Access and On-Site Circulation

As stated previously, the conceptual project plan includes five access points to two major roadways and an additional access point to a collector street. Daily traffic volumes were estimated for all of the public street connections. Based on these estimated daily volumes the number of access points is sufficient to serve the site. All public street access points are projected to operate acceptably, and signals located on Berryessa and Mabury Roads will be interconnected to facilitate arterial flow.

With the exception of the designated general plan streets, the current site plan does not present a detailed street network. Thus, it is not possible to evaluate the on-site circulation. It was noted that the proposed connection of Sierra Road to Berryessa Road could encourage "cut-through" traffic. San Jose City staff will review the final site plan to minimize the number of public street conflict points while still providing adequate access to each parcel. Also, City staff should include community involvement into the design of the Sierra Road extension to ensure that any concerns are addressed related to potential for diverted and/or cut-through traffic.

Parking

The proposed project does not currently include adequate detail to provide a final evaluation of the parking supply. We prepared an initial estimate of required parking supply based on the proposed land uses and City code requirements. In summary, the project is required to provide 7,304 vehicle parking spaces to serve the site, which includes 679 retail, 5,762 residential, and 863 office off-street parking spaces. Potential parking reductions for proximity to transit and participation in the VTA's EcoPass program may be applied based on input from City staff.

Neighborhood Traffic

The proposed project will be developed in an area that is primarily commercial and industrial in nature except for the residential neighborhood located on Sierra Road north of the site. Thus, implementation of the project is not expected cause diversion to any other local, neighborhood streets. In addition, project traffic will directly access Berryessa Road and Mabury Road, two higher-capacity roadways that provide relatively direct access to regional facilities including US 101, I-680 and SR 87 (via Taylor Street).

In the case of Sierra Road, added traffic will come from three sources: 1) project residents in the northern portion of the site who are traveling to and from the north on Lundy Avenue; 2) Sierra Road residents that currently travel to and from the west on Berryessa Road will use the new street connections through the project site instead of using the Berryessa Avenue/Lundy Avenue intersection; and 3) some drivers (other than Sierra Road residents) who now make eastbound left-turns and southbound right-turns at Berryessa Avenue/Lundy Avenue intersection may use the new street connections to bypass real or perceived intersection delays. City staff should review the final site plan and involve the community to ensure an acceptable design of the Sierra Road extension that addresses diverted and cut-through traffic. Even with this design, the added traffic may change the operating characteristics of traffic on Sierra Road. Accordingly, annual monitoring after project occupancy is recommended to evaluate potential neighborhood impacts and identify possible traffic management solutions.

EFFECT OF FUTURE BART STATION

The proposed BART station located immediately east of the project site would affect most of the Project Conditions analysis including the estimated trip generation, parking requirements, site access and circulation, and the local transit network. The station itself would also generate additional vehicle traffic by BART riders driving to on-site structures, those using the kiss-and ride area, and those arriving via new bus transit and shuttle trips. However, the station is not expected to be constructed prior to 2015, and this analysis was conducted to identify impacts irrespective of BART station construction and operation. Effects of the station and the new regional transit system will be addressed separately.

TABLE ES-1
INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour[1]	Existing		Background		Project				Project w/ Mitigation	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]	Delay[2]	LOS[3]
1. Montague Expressway / Oakland Road[6]	AM	79.7	E-	58.6	E+	58.8	E+	+0.5	+0.004		
	PM	>80	F	68.4	E	69.5	E	+1.3	+0.011		
2. Montague Expressway / Trade Zone Boulevard[6]	AM	57.8	E+	55.5	E+	56.2	E+	+0.9	+0.009		
	PM	>80	F	55.6	E+	56.6	E+	+2.1	+0.005		
3. Trade Zone Boulevard / Lundy Avenue	AM	25.2	C	35.5	D+	36.7	D+	+1.7	+0.011		
	PM	34.1	C-	40.1	D	40.3	D	+5.6	+0.004		
4. Hostetter Road / Flickinger Avenue	AM	26.3	C	27.4	C	27.6	C	+0.1	+0.007		
	PM	23.2	C	22.4	C+	23.3	C	+1.4	+0.018		
5. Hostetter Road / I-680	AM	26.0	C	21.2	C+	21.0	C+	-0.1	+0.006		
	PM	17.0	B	15.5	B	15.4	B	-0.1	+0.005		
6. Hostetter Road / Capitol Avenue	AM	48.2	D	48.6	D	49.4	D	+1.1	+0.020		
	PM	42.2	D	42.5	D	42.4	D	+0.2	+0.010		
7. Townsend Avenue / Lundy Avenue	AM	13.7	B	14.6	B	14.4	B	+0.0	+0.043		
	PM	11.9	B+	12.3	B	11.9	B+	+0.1	+0.045		
8. Sierra Road / Lundy Avenue	AM	29.6	C	31.5	C	33.6	C-	+4.0	+0.066		
	PM	21.0	C+	21.9	C+	23.4	C	+2.2	+0.076		
9. Gish Road / Oakland Road	AM	13.5	B	17.5	B	17.5	B	+0.1	+0.009		
	PM	13.9	B	19.5	B-	19.8	B-	+0.5	+0.014		
10. Younger Avenue / 1st Street	AM	13.1	B	13.2	B	12.9	B	-0.1	+0.011		
	PM	21.0	C+	18.2	B-	18.0	B-	0.0	+0.014		
11. Commercial Street / 10th Street	AM	25.7	C	24.2	C	24.5	C	+0.3	+0.009		
	PM	24.8	C	22.8	C+	22.9	C+	+0.2	+0.009		
12. Commercial Street / Oakland Road	AM	37.6	D+	72.5	E	**>80**	**F**	**+68.8**	**+0.158**	46.1	D
	PM	35.4	D+	47.4	D	**63.5**	**E**	**+24.9**	**+0.095**	41.8	D
13. US 101 / Oakland Road (N)[6]	AM	60.2	E	>80	F	**>80**	**F**	**+100.2**	**+0.229**	60.7	E
	PM	24.0	C	41.7	D	**79.3**	**E-**	**+52.4**	**+0.143**	43.0	D
14. US 101 / Oakland Road (S)[6]	AM	26.9	C	21.6	C+	27.3	C	+8.4	+0.118		
	PM	26.2	C	68.6	E	**>80**	**F**	**+50.7**	**+0.122**	50.3	D
15. Hedding Street / San Pedro Street	AM	27.5	C	31.2	C	31.1	C	+0.1	+0.008		
	PM	26.8	C	25.1	C	24.9	C	-0.3	+0.008		
16. Hedding Street / 1st Street	AM	34.9	C-	38.0	D+	39.5	D	+2.4	+0.037		
	PM	35.5	D+	36.2	D+	37.2	D+	+8.1	+0.032		
17. Hedding Street / 4th Street	AM	36.1	D+	47.6	D	50.4	D	+3.3	+0.033		
	PM	39.3	D	43.8	D	45.6	D	+2.5	+0.038		

TABLE ES-1 (CONTINUED)

INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour[1]	Existing		Background		Project				Project w/ Mitigation	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]	Delay[2]	LOS[3]
18. Hedding Street / 7th Street	AM	11.7	B+	11.5	B+	11.4	B+	0.0	+0.032		
	PM	8.9	A	9.2	A	8.9	A	-0.5	+0.036		
19. Hedding Street / 10th Street	AM	13.8	B	>80	F	**>80**	**F**	**+16.0**	**+0.038**	Protected Int. No Mitigation	
	PM	28.3	C	51.3	D-	**60.4**	**E**	**+15.9**	**+0.053**		
20. Hedding Street / 11th Street	AM	21.4	C+	20.6	C+	21.0	C+	+0.4	+0.038		
	PM	10.9	B+	9.4	A	9.9	A	+0.7	+0.006		
21. Hedding Street / Oakland Road	AM	47.4	D	61.5	E	**>80**	**F**	**+47.8**	**+0.171**	57.4	E+
	PM	41.9	D	45.3	D	51.0	D	+9.1	+0.159		
22. Hedding Street / Mabury Road	AM	19.9	B-	20.7	C+	21.0	C+	+0.6	+0.082		
	PM	18.6	B-	17.3	B	18.0	B	+1.1	+0.130		
23. Berryessa Road / Commercial Street	AM	15.8	B	10.5	B+	13.2	B	+6.5	+0.167		
	PM	22.9	C+	17.2	B	18.7	B-	+2.8	+0.157		
24. Berryessa Road / Lundy Avenue[6]	AM	41.7	D	42.6	D	45.5	D	+4.8	+0.080		
	PM	44.8	D	43.0	D	46.5	D	+7.2	+0.112		
25. Berryessa Road / Farragut Way	AM	23.7	C	23.7	C	22.7	C+	-0.1	+0.038		
	PM	9.5	A	9.4	A	9.7	A	-0.4	+0.015		
26. Berryessa Road / Flickinger Avenue	AM	39.7	D	42.3	D	43.9	D	+2.9	+0.049		
	PM	37.8	D+	40.6	D	41.6	D	+1.3	+0.030		
27. Berryessa Road / I-680	AM	13.0	B	12.9	B	12.8	B	-0.1	+0.006		
	PM	15.1	B	15.0	B	15.0	B	-0.1	+0.004		
28. Berryessa Road / Capitol Avenue	AM	50.7	D	52.8	D-	53.3	D-	+0.7	+0.007		
	PM	45.2	D	46.5	D	46.7	D	+0.3	+0.006		
29. Commodore Drive / King Street	AM	19.9	B-	19.6	B-	20.1	C+	+1.7	+0.072		
	PM	21.7	C+	23.5	C	33.4	C-	+18.8	+0.100		
30. Taylor Street / SR 87	AM	45.7	D	74.4	E	77.1	E-	+1.9	+0.014		
	PM	39.5	D	58.7	E+	60.7	E	+3.0	+0.010		
31. Taylor Street / San Pedro Street	AM	34.5	C-	32.4	C-	33.4	C-	+0.1	0.000		
	PM	39.7	D	38.4	D+	38.3	D+	+0.1	+0.012		
32. Taylor Street / 1st Street	AM	48.8	D	52.7	D-	53.6	D-	+1.3	+0.019	Protected Int. No Mitigation	
	PM	54.3	D-	>80	F	**>80**	**F**	**+6.8**	**+0.022**		
33. Taylor Street / 4th Street	AM	35.7	D+	41.8	D	43.5	D	+2.9	+0.040		
	PM	36.1	D+	34.8	C-	36.5	D+	+2.6	+0.049		
34. Taylor Street / 10th Street	AM	8.7	A	47.5	D	54.5	D-	+9.9	+0.038		
	PM	13.4	B	33.3	C-	37.3	D+	+6.8	+0.041		

TABLE ES-1 (CONTINUED)

INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour[1]	Existing		Background		Project				Project w/ Mitigation	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]	Delay[2]	LOS[3]
35. Taylor Street / 11th Street	AM	14.3	B	50.3	D	**58.0**	**E+**	**+12.9**	**+0.043**	Protected Int. No Mitigation	
	PM	9.4	A	>80	F	**>80**	**F**	**+24.4**	**+0.060**		
36. Taylor Street / 13th Street	AM	12.0	B+	13.9	B	15.0	B	+2.4	+0.077		
	PM	14.0	B	16.3	B	18.0	B	+3.1	+0.054		
37. Taylor Street / 17th Street	AM	12.6	B	15.2	B	14.8	B	+0.3	+0.075		
	PM	12.8	B	18.4	B-	19.7	B-	+2.5	+0.076		
38. Mabury Road / Mabury Road	AM	39.2	E	43.9	E	**>50**	**F**	**N/A**	**N/A**	10.4	B+
	PM	>50	F	>50	F	**>50**	**F**	**N/A**	**N/A**	18.6	B-
39. Mabury Road / Mabury Yard	AM	8.2	A	8.2	A	29.4	C	+29.1	+0.268		
	PM	7.8	A	6.9	A	17.6	B	+6.0	+0.094		
40. Mabury Road / King Road	AM	37.2	D+	35.6	D+	38.5	D+	+7.0	+0.095		
	PM	35.9	D+	35.9	D+	37.7	D+	+2.9	+0.077		
41. Mabury Road / Education Park Drive	AM	14.1	B	14.0	B	14.7	B	+0.5	+0.015		
	PM	12.7	B	17.5	B	18.2	B-	+1.1	+0.026		
42. Mabury Road / Jackson Avenue	AM	37.6	D+	35.8	D+	36.2	D+	+0.8	+0.020		
	PM	33.0	C-	36.3	D+	36.5	D+	+0.2	+0.007		
43. Mabury Road / Capitol Avenue	AM	41.1	D	42.2	D	42.3	D	+0.1	+0.003		
	PM	41.3	D	42.3	D	42.6	D	+0.5	+0.011		
44. Las Plumas Avenue / King Road	AM	14.4	B	13.5	B	14.1	B	+0.4	+0.054		
	PM	16.1	B	16.7	B	16.1	B	-0.7	+0.039		
45. Julian Street / 24th Street	AM	17.2	B	18.1	B-	18.1	B-	0.0	0.000		
	PM	13.5	B	12.4	B	12.5	B	+0.1	+0.001		
46. Julian Street (W) / US 101	AM	19.4	B-	18.1	B-	19.1	B-	+1.7	+0.052		
	PM	20.4	C+	27.2	C	28.8	C	+2.9	+0.033		
47. McKee Road (E) / US 101	AM	19.7	B-	20.5	C+	21.6	C+	+4.2	+0.015		
	PM	23.9	C	24.3	C	25.0	C	0.0	0.000		
48. McKee Road / 33rd Street	AM	24.9	C	26.7	C	26.4	C	-0.1	+0.025		
	PM	23.9	C	21.3	C+	21.1	C+	0.0	+0.024		
49. McKee Road / King Road	AM	44.1	D	42.9	D	48.4	D	+7.3	+0.066		
	PM	45.9	D	42.1	D	45.5	D	+5.7	+0.059		
50. McKee Road / Jose Figueres Avenue	AM	13.4	B	25.2	C	25.4	C	+0.2	+0.008		
	PM	15.7	B	26.4	C	26.8	C	+0.5	+0.012		
51. McKee Road / Jackson Avenue	AM	39.6	D	42.0	D	42.5	D	+0.7	+0.013		
	PM	39.5	D	44.5	D	44.8	D	+0.4	+0.006		

TABLE ES-1 (CONTINUED)

INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour[1]	Existing		Background		Project				Project w/ Mitigation	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]	Delay[2]	LOS[3]
52. McKee Road / Capitol Avenue	AM	41.6	D	42.9	D	43.0	D	+0.2	+0.003		
	PM	39.4	D	39.5	D	39.7	D	+0.2	+0.006		
53. Santa Clara Street / 24th Street	AM	28.4	C	28.1	C	28.2	C	+0.1	+0.002		
	PM	29.3	C	29.7	C	29.8	C	+0.2	+0.003		
54. Alum Rock Road / King Road[6]	AM	31.1	C	31.9	C	32.5	C-	+0.8	+0.018		
	PM	32.9	C-	35.4	D+	35.9	D+	+0.3	+0.006		
55. Alum Rock Road / Capitol Avenue[6]	AM	31.6	C	30.6	C	30.7	C	+0.2	+0.004		
	PM	33.1	C-	28.7	C	28.9	C	+0.2	+0.004		
56. San Antonio Street / King Road	AM	24.6	C	25.0	C	25.0	C	0.0	+0.008		
	PM	29.2	C	28.3	C	28.2	C	-0.1	+0.006		
57. San Antonio Street / Jackson Avenue	AM	32.5	C-	41.5	D	41.6	D	+0.2	+0.006		
	PM	30.4	C	39.3	D	39.4	D	+0.1	+0.001		
58. Capitol Avenue / Capitol Expressway[6]	AM	29.1	C	30.8	C	30.9	C	+0.3	+0.003		
	PM	56.7	E+	64.0	E	64.9	E	+1.6	+0.004		
59. Story Road / Capitol Expressway[6]	AM	54.3	D-	62.4	E	63.1	E	+1.3	+0.004		
	PM	54.9	D-	57.0	E+	57.3	E+	0.0	+0.004		
60. I-280 / McLaughlin Avenue[6]	AM	9.9	A	11.0	B+	11.1	B+	+0.3	+0.004		
	PM	15.4	B	16.3	B	16.3	B	0.0	0.000		
61. I-680 / King Road (N)[6]	AM	26.5	C	24.6	C	24.5	C	+0.2	+0.008		
	PM	35.7	D+	32.0	C	31.8	C	0.0	+0.004		
62. I-680 / King Road (S)[6]	AM	17.8	B	21.6	C+	21.7	C+	+0.2	+0.002		
	PM	34.5	C-	29.4	C	29.5	C	+0.3	+0.007		

Notes:

1 AM = morning peak-hour, PM = evening peak-hour.

2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. For two-way stop controlled unsignalized intersections, total control delay for the worst movement, expressed in seconds per vehicle, is presented. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 LOS = Level of service

4 Change in critical movement delay between Background and Project Conditions. A decrease in the critical delay indicates project trips were added to movements with low delays thus causing a decrease in the overall critical delay.

5 Change in the critical volume-to-capacity ratio (V/C) between Background and Project Conditions.

6 Designated CMP intersection.

Bold type indicates significant impact.

1. INTRODUCTION

This report presents the results of the transportation impact analysis (TIA) for the proposed 120-acre mixed-use development on the existing San Jose Flea Market site. The proposed project includes 215,622 square feet of office space, 152,700 square feet of retail uses, and 2,818 dwelling units. The project site, located in the northeastern area of San Jose, is generally bounded by single family homes to the north, Mabury Road to the south, Coyote Creek to the west, Union Pacific railroad to the east, and is bisected by Berryessa Road.

The purpose of the analysis is to identify potential transportation impacts of the proposed development on the surrounding roadway system, and recommend appropriate improvements to mitigate these significant impacts. A map of the project site location is presented in **Figure 1**. **Figure 2** shows the preliminary site plan of the proposed project with access to the site from Berryessa Road, Mabury Road, and Sierra Road.

Existing and future conditions were evaluated with level of service calculations for the key intersections near the project site. Freeway segments were analyzed based on the amount of project traffic added and the theoretical capacity of each segment. Project impacts were estimated following the guidelines of the City of San Jose and the Santa Clara Valley Transportation Authority (VTA), which is the Congestion Management Agency (CMP) for Santa Clara County.

The analysis evaluated the operations of the following key intersections:

1. Montague Expressway / Oakland Road*
2. Montague Expressway / Trade Zone Boulevard*
3. Trade Zone Boulevard / Lundy Avenue
4. Hostetter Road / Flickinger Avenue
5. Hostetter Road / I-680
6. Hostetter Road / Capitol Avenue
7. Townsend Avenue / Lundy Avenue
8. Sierra Road / Lundy Avenue
9. Gish Road / Oakland Road
10. Younger Avenue / 1st Street
11. Commercial Street / 10th Street
12. Commercial Street / Oakland Road
13. US 101 / Oakland Road (N)*
14. US 101 / Oakland Road (S)*
15. Hedding Street / San Pedro Street
16. Hedding Street / 1st Street
17. Hedding Street / 4th Street
18. Hedding Street / 7th Street
19. Hedding Street / 10th Street
20. Hedding Street / 11th Street
21. Hedding Street / Oakland Road
22. Hedding Street / Mabury Road
23. Berryessa Road / Commercial Street
24. Berryessa Road / Lundy Avenue*
25. Berryessa Road / Farragut Way
26. Berryessa Road / Flickinger Avenue
27. Berryessa Road / I-680
28. Berryessa Road / Capitol Avenue
29. Commodore Drive / King Road
30. Taylor Street / SR 87
31. Taylor Street / San Pedro Street
32. Taylor Street / 1st Street
33. Taylor Street / 4th Street
34. Taylor Street / 10th Street
35. Taylor Street / 11th Street
36. Taylor Street / 13th Street
37. Taylor Street / 17th Street
38. Mabury Road / Mabury Road
39. Mabury Road / Mabury Yard

40. Mabury Road / King Road
41. Mabury Road / Education Park Drive
42. Mabury Road / Jackson Avenue
43. Mabury Road / Capitol Avenue
44. Las Plumas Avenue / King Road
45. Julian Street / 24th Street
46. Julian Street (W) / US 101
47. McKee Road (E) / US 101
48. McKee Road / 33rd Street
49. McKee Road / King Road
50. McKee Road / Jose Figueres Avenue
51. McKee Road / Jackson Avenue
52. McKee Road / Capitol Avenue
53. Santa Clara Street / 24th Street
54. Alum Rock Road / King Road*
55. Alum Rock Road / Capitol Avenue*
56. San Antonio Street / King Road
57. San Antonio Street / Jackson Avenue
58. Capitol Avenue / Capitol Expressway*
59. Story Road / Capitol Expressway*
60. I-280 / McLaughlin Avenue*
61. I-680 / King Road (N)*
62. I-680 / King Road (S)*

* Designated CMP Intersection

The analysis also evaluated the operations of the following key freeway segments:

1. SR 87, Alma Avenue to I-280
2. SR 87, I-280 to Julian Street
3. SR 87, Julian Street to Coleman Road
4. US 101, Tully Road to Story Road
5. US 101, Story Road to I-280
6. US 101, I-280 to Santa Clara Street
7. US 101, Santa Clara Street to McKee Road
8. US 101, McKee Road to Oakland Road
9. US 101, Oakland Road to I-880
10. US 101, I-880 to Old Bayshore Highway
11. US 101, Old Bayshore Highway to 1st Street
12. US 101, 1st Street to SR 87
13. I-280, US 101 to McLaughlin Avenue
14. I-280, McLaughlin Avenue to 10th Street
15. I-280, 10th Street to SR 87
16. I-280, SR 87 to Bird Avenue
17. I-680, King Road to US 101
18. I-680, Capitol Expressway to King Road
19. I-680, Alum Rock Avenue to Capitol Expressway
20. I-680, McKee Road to Alum Rock Avenue
21. I-680, Berryessa Road to McKee Road
22. I-680, Hostetter Road to Berryessa Road
23. I-680, Capitol Avenue to Hostetter Road
24. I-680, Montague Expressway to Capitol Avenue
25. I-880, The Alameda to Coleman Avenue
26. I-880, Coleman Avenue to SR 87
27. I-880, SR 87 to 1st Street
28. I-880, 1st Street to US 101
29. I-880, US 101 to Brokaw Road
30. I-880, Brokaw Road to Montague Expressway
31. I-880, Montague Expressway to Great Mall Parkway

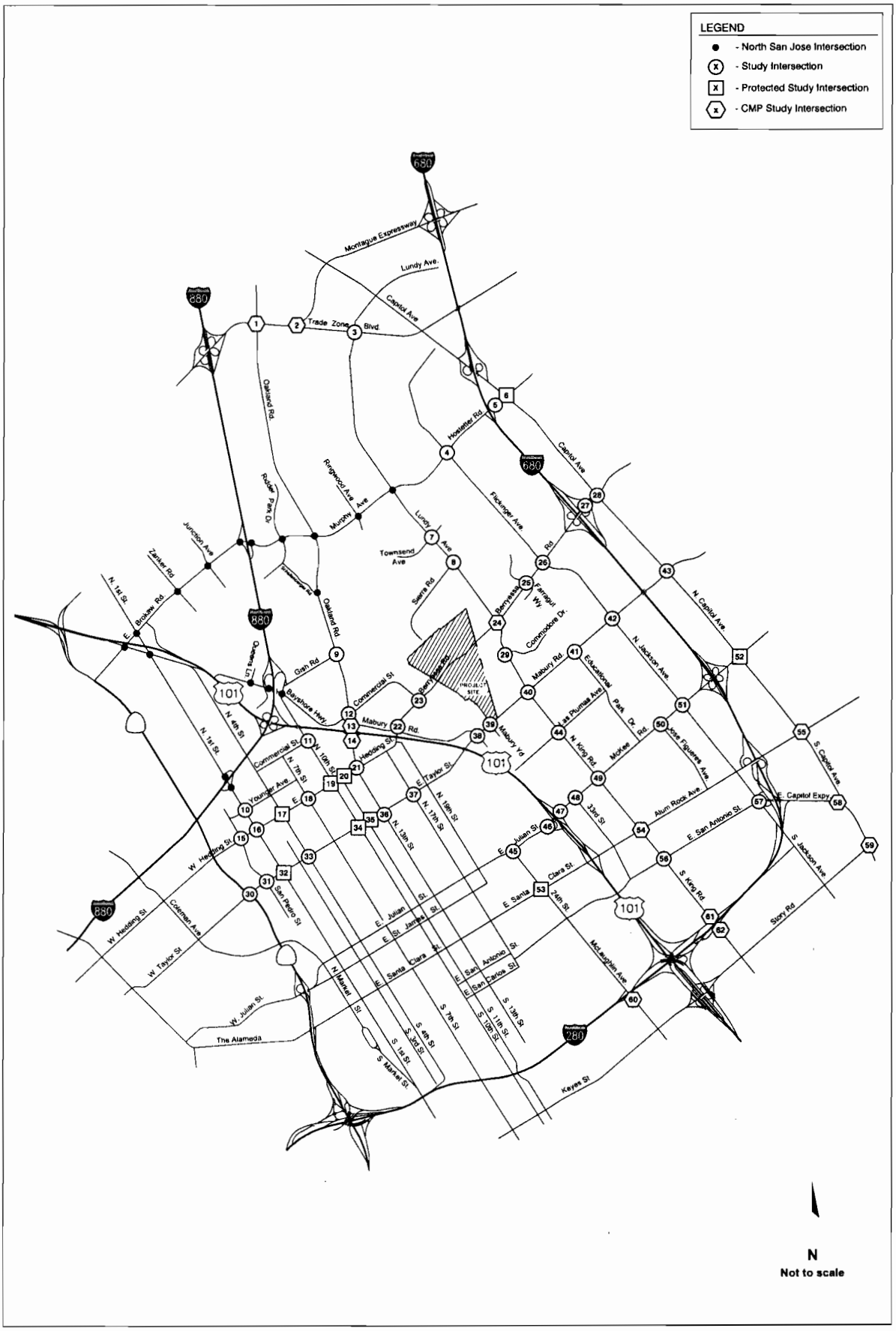
The operations of the study intersections were evaluated during the weekday morning (7:00 to 9:00 am) and evening (4:00 to 6:00 pm) peak periods. Each intersection was evaluated for the following scenarios:

Scenario 1: *Existing Conditions* – Existing volumes obtained from counts representing peak one-hour conditions during the morning and evening commute peak traffic periods.

Scenario 2: *Background Conditions* – Historic traffic volumes (provided by the City of San Jose) plus traffic from approved but not constructed developments in the area. The historic volumes are generally from the year 2000-2001 to account for the vacancy of office space in the area. This methodology is required by the City of San Jose.

Scenario 3: *Project Conditions* – Background plus project trips from the proposed office development alternative.

The four remaining chapters are divided into Existing Conditions, Background Conditions, Project Conditions, and Operational Issues. The existing transportation system serving the project site and the current operating conditions of the key intersections and freeway segments are described in Chapter 2. Chapter 3 evaluates traffic operations under Background Conditions for approved but not constructed developments. Chapter 4 describes the method used to estimate the amount of traffic added to the surrounding roadways by the proposed project and its impacts on the transportation system under Project Conditions. This chapter also includes a discussion of site access, and on-site circulation issues. Chapter 5 includes all operational issues and those items that do not directly relate to the environmental impacts. These items include roadway/corridor operations (Oakland Road, Berryessa Road, and Mabury Road corridors), vehicle queues, parking, and neighborhood traffic.



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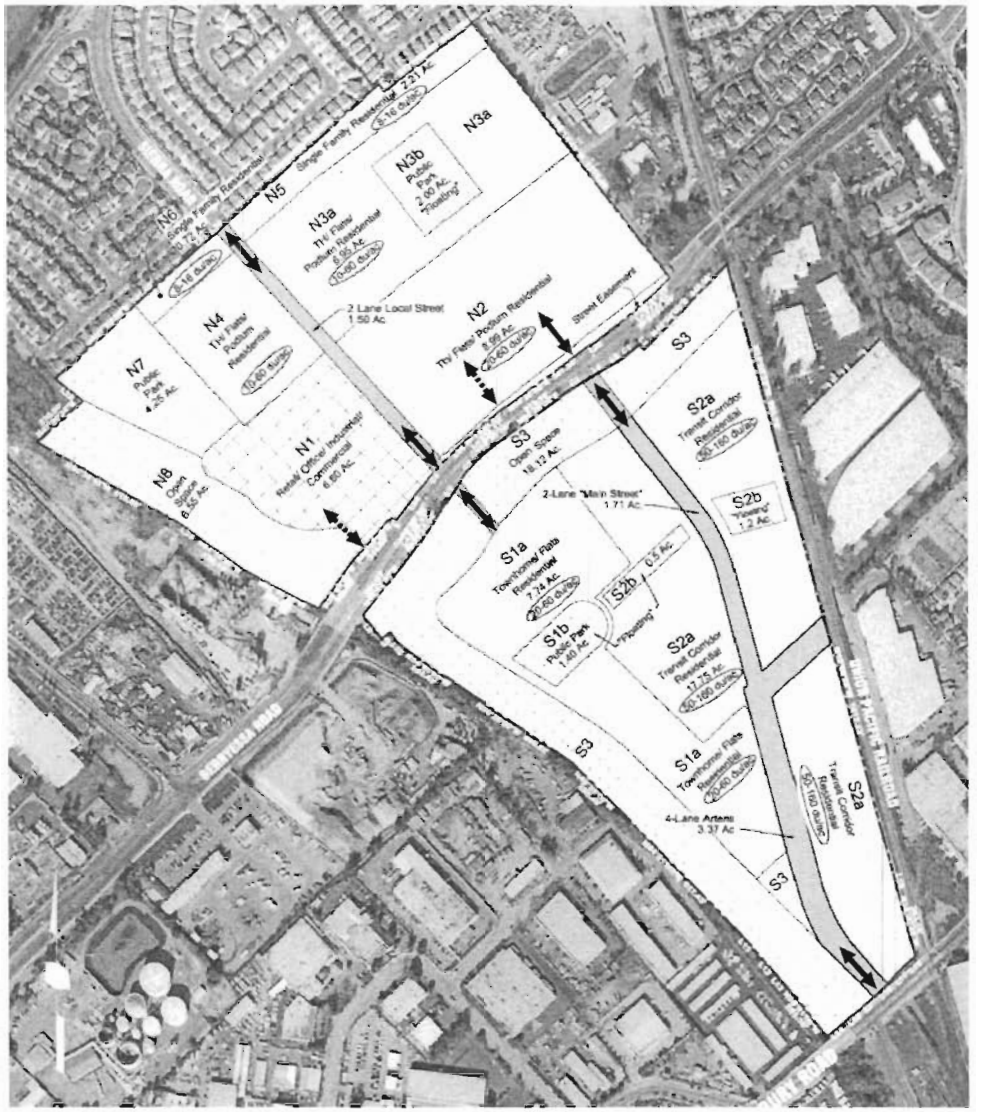
STUDY INTERSECTIONS

FIGURE 1



LEGEND

- Conceptual Full Access Points
- Conceptual Right-In-Right-Out Access Points

N

Not to scale

Source: Calthorpe
May 1, 2006 Site Plan

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PRELIMINARY SITE PLAN

FIGURE 2

2. EXISTING CONDITIONS

This chapter describes the existing roadway facilities, pedestrian and bicycle facilities, transit service, traffic volumes, and intersection operations. This chapter also includes a discussion of the methodology used to calculate intersection levels of service and the corresponding results for Existing Conditions.

ROADWAY NETWORK

The project site location and the surrounding roadway network are presented on **Figure 1**. US 101, Interstate 280 (I-280), I-680, I-880, and State Route 87 (SR 87) provide regional access to the project site. Local access is provided by Oakland Road, Commercial Street, Hedding Street, King Road, and Lundy Avenue. Berryessa Road, Mabury Road, and Sierra Road provide direct access to the project site. All of these roadways are described in detail below:

US 101 is an eight-lane north-south freeway with three mixed-flow lanes and one high occupancy vehicle (HOV) lane in each direction near the project site. US 101 begins south of Los Angeles and extends northward, through San Jose and San Francisco, to Oregon. Access to the project site is provided via interchanges at Oakland Road, McKee Road-Julian Street, and Alum Rock Avenue-Santa Clara Street. Northbound ramps are also provided at Old Bayshore Highway north of the site.

I-280 extends southward from San Francisco to its terminus in San Jose. At its interchange with US 101 in San Jose, I-280 becomes I-680. Near the project site, I-280 includes four lanes in each direction with auxiliary lanes at various interchanges. Interchanges at US 101, McLaughlin Avenue, 10th Street/11th Street, and SR 87 provide access to local roads near the project site.

I-680 is an eight-lane freeway that extends northward from San Jose, through Fremont and Walnut Creek, to its terminus in Fairfield. Near the project site, I-680 includes four lanes in each direction. Interchanges at Capitol Avenue, Hostetter Road, Berryessa Road, McKee Road, and Alum Rock Avenue provide access to local roads near the project site.

I-880 is a north-south freeway located west of the project site extending north through the City of Fremont to the City of Oakland and south through the City of San Jose. Near the project site, this freeway includes three mixed-flow lanes in each direction. Access to the project site is provided via interchanges at Brokaw Road, Old Bayshore Highway, and 1st Street.

SR 87 is a north-south freeway located west of the project site extending north through San Jose from SR 85 to US 101. Near the project site this freeway has two mixed-flow lanes in each direction and HOV lanes north of Taylor Street. Completion of the HOV lanes south of Taylor Street is expected during the winter of 2006. Interchanges at Taylor Street, Julian Street, and Santa Clara Street provide access to local roads near the project site.

Oakland Road is a two- to four-lane north-south arterial roadway near the project site. Oakland Road begins at Hedding Street and extends north where it becomes Main Street north of Montague Expressway. South of Hedding Street, Oakland Road becomes 13th Street and extends south to its terminus near I-280. Near the project site, the posted speed limit on this street is 35 miles per hour.

Commercial Street is a two-lane collector street near the project site. Commercial Street begins at Oakland Road and extends east to its terminus at Berryessa Road. Near the project site, the posted speed limit is 35 miles per hour in the westbound direction (i.e., towards Oakland Road) and 30 miles per hour in the eastbound direction.

Hedding Street is a four-lane east-west arterial roadway near the project site. Hedding Street begins at Winchester Boulevard and extends to the east where it becomes Berryessa Road east of US 101. The posted speed limit on Hedding Street west of US 101 is 35 miles per hour.

Berryessa Road is a two- to four-lane east-west arterial roadway that will provide primary access to the proposed project site. Berryessa Road extends eastward from US 101 to East San Jose, and is known as Berryessa Road west of US 101 and continues north of downtown San Jose. Through the project site, the posted speed limit is 40 miles per hour.

King Road is a two- to four-lane north-south arterial roadway near the project site. King Road begins at Aborn Road in south San Jose and extends northward to Berryessa Road. North of Berryessa Road, King Road becomes Lundy Avenue. Near the project site, the posted speed limit on King Road is 40 miles per hour.

Lundy Avenue is a four-lane north-south arterial roadway that extends north past Hostetter Road-Murphy Avenue, where it terminates at Trade Zone Boulevard. Near the project site, the posted speed limit is 40 miles per hour.

Mabury Road is a four-lane east-west arterial roadway extending between US 101 and East San Jose. Just east of US 101, Mabury Road becomes a two-lane north-south collector street until it terminates at Oakland Road. Mabury Road also connects with Taylor Street west of US 101. The project site will have direct access to Mabury Road. Near the project site, the posted speed limit is 35 miles per hour.

Sierra Road is a two-lane, generally east-west collector street near the project site. Sierra Road starts west of I-680 and the western end of this street bends to the south terminating at the northern project site boundary. Near the project site, the posted speed limit is 25 miles per hour.

EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities comprise sidewalks and pedestrian signals at signalized intersections. The location of pedestrian facilities near the project site was obtained during field visits to the study area.

With two exceptions, sidewalks are provided on both sides of Sierra Road, Berryessa Road, and Mabury Road near the project site. However, there is a gap in the sidewalk on the north side of Berryessa Road along the project frontage between Coyote Creek and the railroad tracks. Also, no sidewalk is provided on the south side of Berryessa Road between Coyote Creek and the railroad tracks. Currently, pedestrians are served by a dirt trail at this location. A narrow sidewalk begins on the south side of Berryessa Road east of the railroad tracks.

Sidewalks are provided on both sides of King Road except for a segment on the west side of the Penitencia Creek bridge. Although the sidewalks are generally in good condition on King Road, a section on the west side of the street near Berryessa Road and a midblock section on the east side of the street were observed to be uneven and in poor condition near the Penitencia Creek bridge.

Near the project site, signalized pedestrian crossings are provided at the King Road intersections at Berryessa Road, and Mabury Road. To the west, signalized pedestrian crossings are provided at the Berryessa Road and Commercial Street intersection. Most of the study intersections provide signalized pedestrian crossings with crosswalks.

EXISTING BICYCLE FACILITIES

The location of bicycle facilities near the project site was obtained during field visits to the study area and referenced by the VTA's *Santa Clara Valley Bikeways Map* (October 2005) and City of San Jose's *Draft Bicycle Plan Update* (February 2005). Bicycle facilities include multi-use, off-street paths, bike lanes, and bike routes. Multi-use paths are paved pathways for use by bicycles and other users that are separated from roadways. Bike

lanes are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes are designated for bicycle travel with signs only but do not include a separate travel lane.

Facilities near the site include bike lanes on Berryessa Road, Mabury Road, and Lundy Avenue, while King Road south of Berryessa Road is a designated bike route. The City maintains a multi-use path along Penitencia Creek. The path begins at Mabury Road west of Jackson Avenue, and extends eastward toward Alum Rock Park. **Figure 3** illustrates the location of bicycle facilities within approximately a 1.5-mile radius of the project site.

EXISTING TRANSIT SERVICE

The Santa Clara Valley Transportation Authority (VTA) operates bus service in Santa Clara County. **Figure 4** shows the existing transit facilities near the project site.

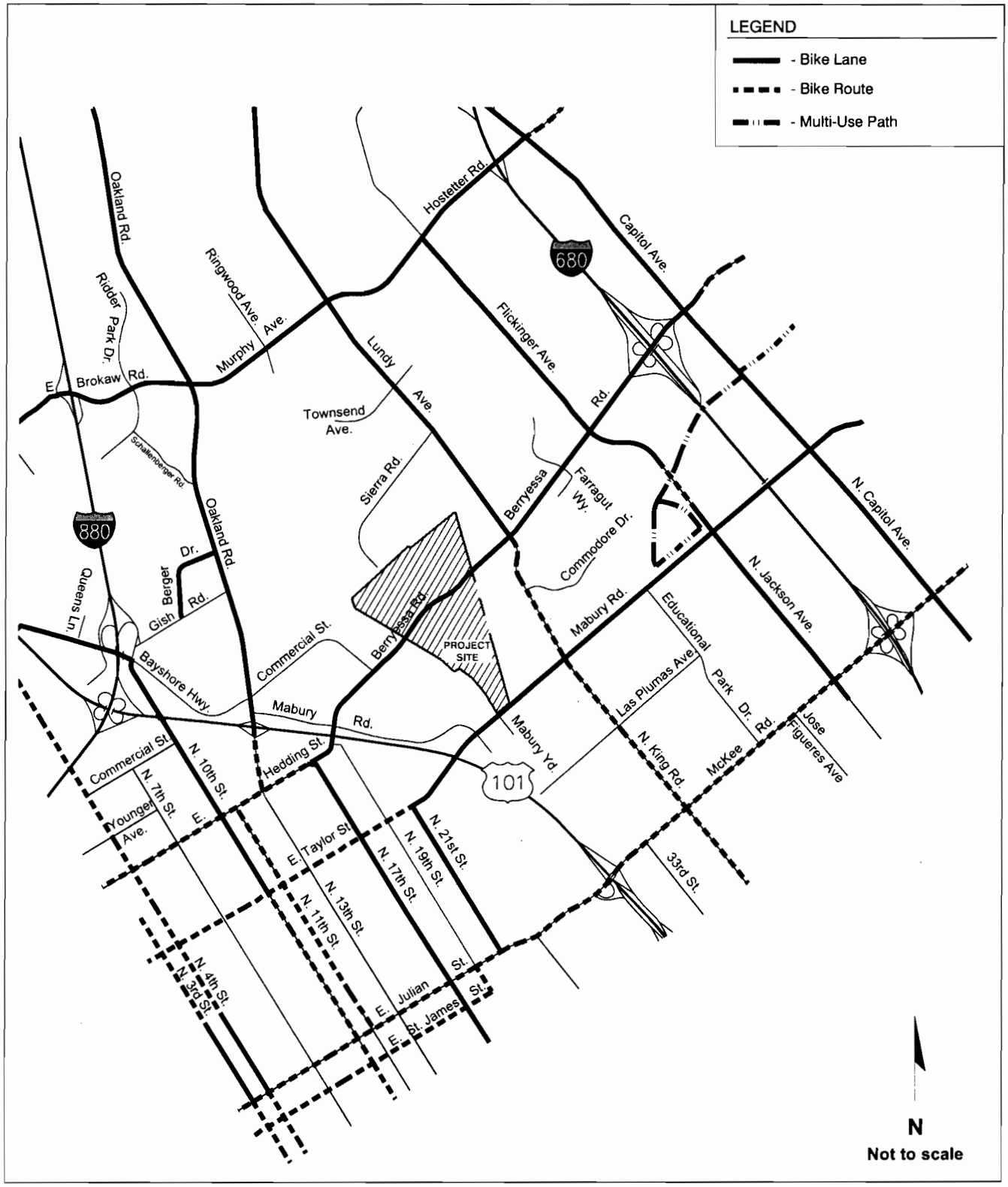
Route 12 is a local bus route that provides service between the Civic Center Light Rail Station and the Eastridge Transit Center. The hours of operation are from 9:30 am to 7:00 am with 30-minute headways on weekends. Near the project site, this route operates on Berryessa Road and King Road near the project site.

Route 36 is a local bus route that provides local service between Penitencia Creek Transit Center and Valley Fair/Vallco Fashion Park. Near the project site, weekday hours of operation are from 6:00 am to 7:15 pm with 30-minute headways. Only on weekdays, this route extends to Vallco Fashion Park from 6:00 am to 9:00 am and from 3:00 pm to 7:00 pm with 60-minute headways. On weekends, this route operates on 30-minute headways from 8:30 am to 8:00 pm. Near the project site, this route operates on Berryessa Road, King Road, and Mabury Road. The entire Route 36 load factors are 0.19 eastbound and 0.18 westbound. At the bus stops on Berryessa along Flea Market frontage the load factors are 0.17 eastbound and 0.16 westbound.

Route 62 is a local bus route between Penitencia Creek Transit Center and Good Samaritan Hospital. The hours of operation are from 5:15 am to 10:45 pm with 20- to 60-minute headways. Weekend operations are provided on 30- to 60-minute headways between 6:15 am and 10:00 pm. Near the project site, this route operates on Berryessa Road, King Road, Mabury Road, and Taylor Street. The entire Route 62 load factors are 0.36 northbound and 0.44 southbound. At the bus stops near Mabury Road and King Road the load factors are 0.15 northbound and 0.18 southbound.

Route 77 is a local bus route between Eastridge Transit Center and Main Transit Center. The hours of operation are 5:00 am to 9:00 pm on weekdays with 15- to 60-minute headways. This route operates on 30- to 60-minute headways between 6:45 am and 9:00 pm on Saturdays and Sundays. Route 77 operates on Lundy Avenue and King Road near the project site. The entire Route 77 load factors are 0.34 northbound and 0.35 southbound. At the bus stop and Berryessa Road and King Road the load factors are 0.23 northbound and 0.22 southbound.

The Alum Rock-Santa Teresa light rail line currently provides service from the Alum Rock station, west through Milpitas and south through Downtown San Jose to the Santa Teresa station. Passengers can transfer to the Mountain View-Winchester light rail line between the Tasman and Convention Center stations. These light rail lines can be reached via automobile, bus, or bicycle, but are greater than a mile walking distance from the project site. The Berryessa station is the closest eastern station, located at Berryessa Road and Capitol Avenue. Hostetter and Penitencia Creek stations are the nearest park-and-ride stations with bicycle lockers. The closest western station is the Civic Center station at Mission Street and 1st Street. None of the light rail stations between the River Oaks and Tamien stations have park-and-ride facilities. However, the Civic Center station is connected to the project site by local bus routes 12 and 36, and bicycle facilities along Berryessa Road/Hedding Street, and Mabury Road/Taylor Street.



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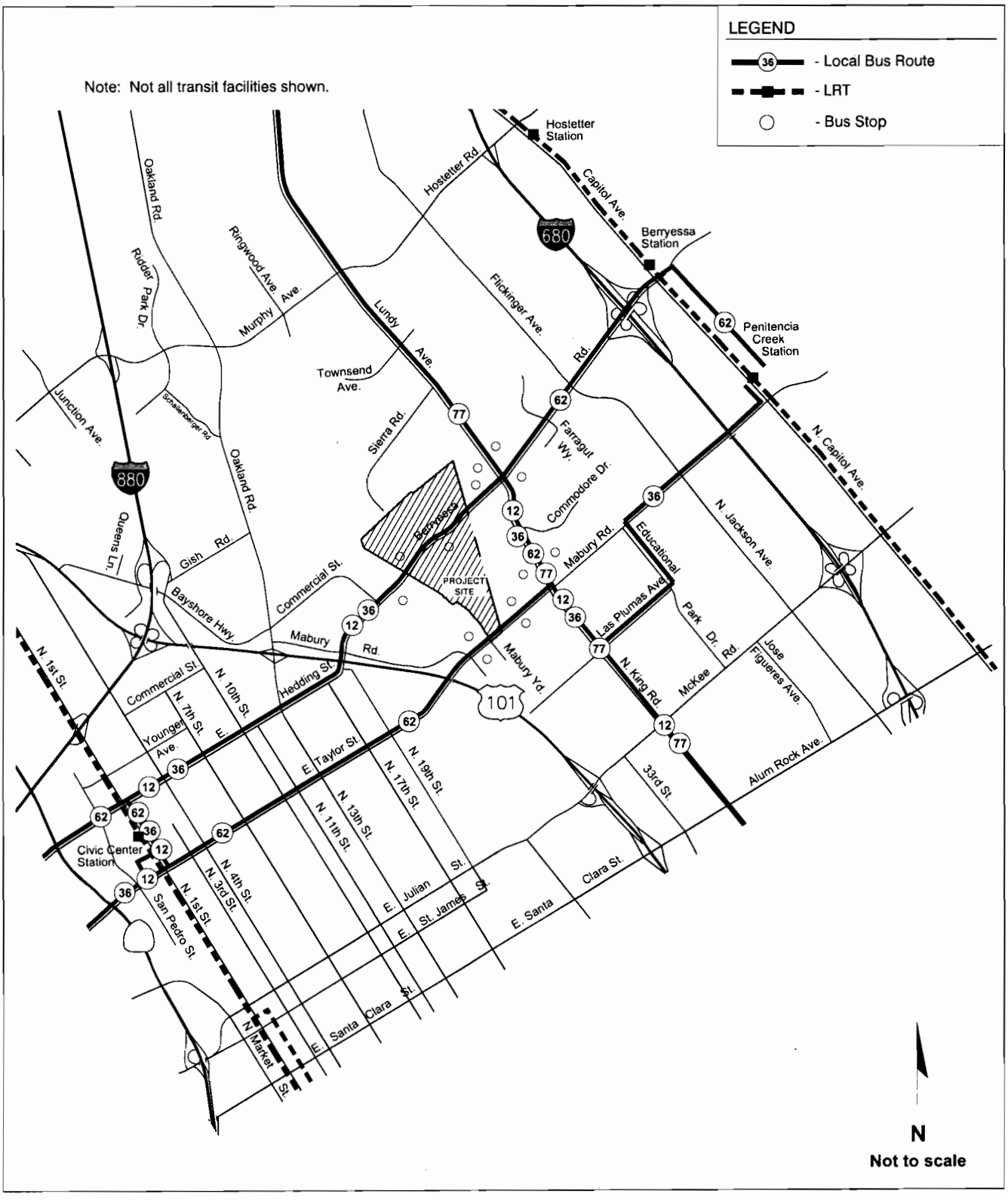
EXISTING BICYCLE FACILITIES

FIGURE 3



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EXISTING TRANSIT FACILITIES

FIGURE 4

EXISTING INTERSECTION VOLUMES AND LANE CONFIGURATIONS

The operations of the key intersections were evaluated during weekday morning (AM) and evening (PM) peak hours. Per the City of San Jose's *TIA Guidelines*, the AM and PM peak periods occur from 7:00 am to 9:00 am and 4:00 pm to 6:00 pm, respectively. Intersection operations were evaluated for the highest one-hour volume counted during each period.

The City of San Jose staff provided existing peak hour turning movement counts at the study intersections. New November and December 2005 traffic counts replaced AM and PM peak periods for intersections with counts older than January 2004 (See **Appendix A**). **Figure 5** presents the existing AM and PM peak-hour turning movement volumes at the study intersections. Existing intersection lane configurations and traffic control devices are also shown on **Figure 5**.

LEVEL OF SERVICE METHODOLOGY

The operations of roadway facilities are described with the term level of service. Level of Service (LOS) is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, as the best operating conditions, to LOS F, or the worst operating conditions. LOS E represents "at-capacity" operations. When volumes exceed capacity, stop-and-go conditions result, and operations are designated as LOS F.

Signalized Intersections

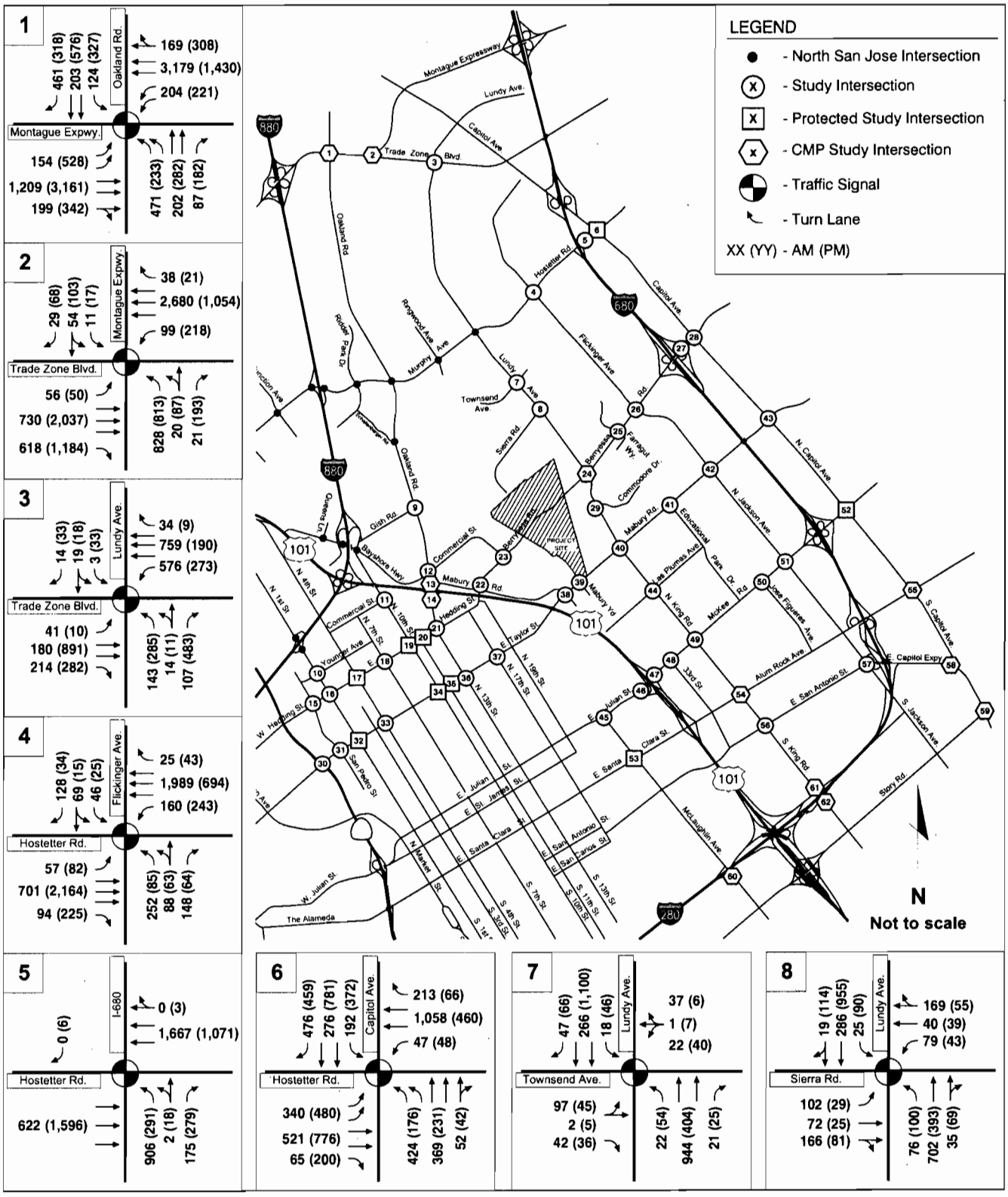
The level of service methodology approved by the City of San Jose, and the VTA analyzes a signalized intersection's operation based on average control vehicular delay calculated using the method described in Chapter 16 of the *2000 Highway Capacity Manual (HCM)* (Special Report 209, Transportation Research Board) with adjusted saturation flow rates to reflect conditions in Santa Clara County. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using TRAFFIX analysis software and is correlated to a LOS designation as shown in **Table 1**.

The level of service standard (i.e., minimum acceptable operations) for all of the signalized study intersections in the City of San Jose is LOS D.

The same operations methodology is used by the Valley Transportation Authority (VTA) to analyze traffic impacts for Congestion Management Program (CMP) facilities. The level of service standard for CMP-designated intersections is LOS E. However, in San Jose, the City's thresholds are used to identify intersection impacts.

Unsignalized Intersections

Operations of the unsignalized study intersection of Mabury Road and Mabury Road (intersection 38) were evaluated using the methodology contained in Chapter 17 of the *2000 HCM*. LOS ratings, for stop-sign controlled intersections, are based on the average control delay expressed in seconds per vehicle. At two-way or side street-controlled intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. For all-way stop-controlled locations, a weighted average delay for the entire intersection is presented. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections. LOS D is the minimum acceptable level of service for unsignalized intersections.



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EXISTING CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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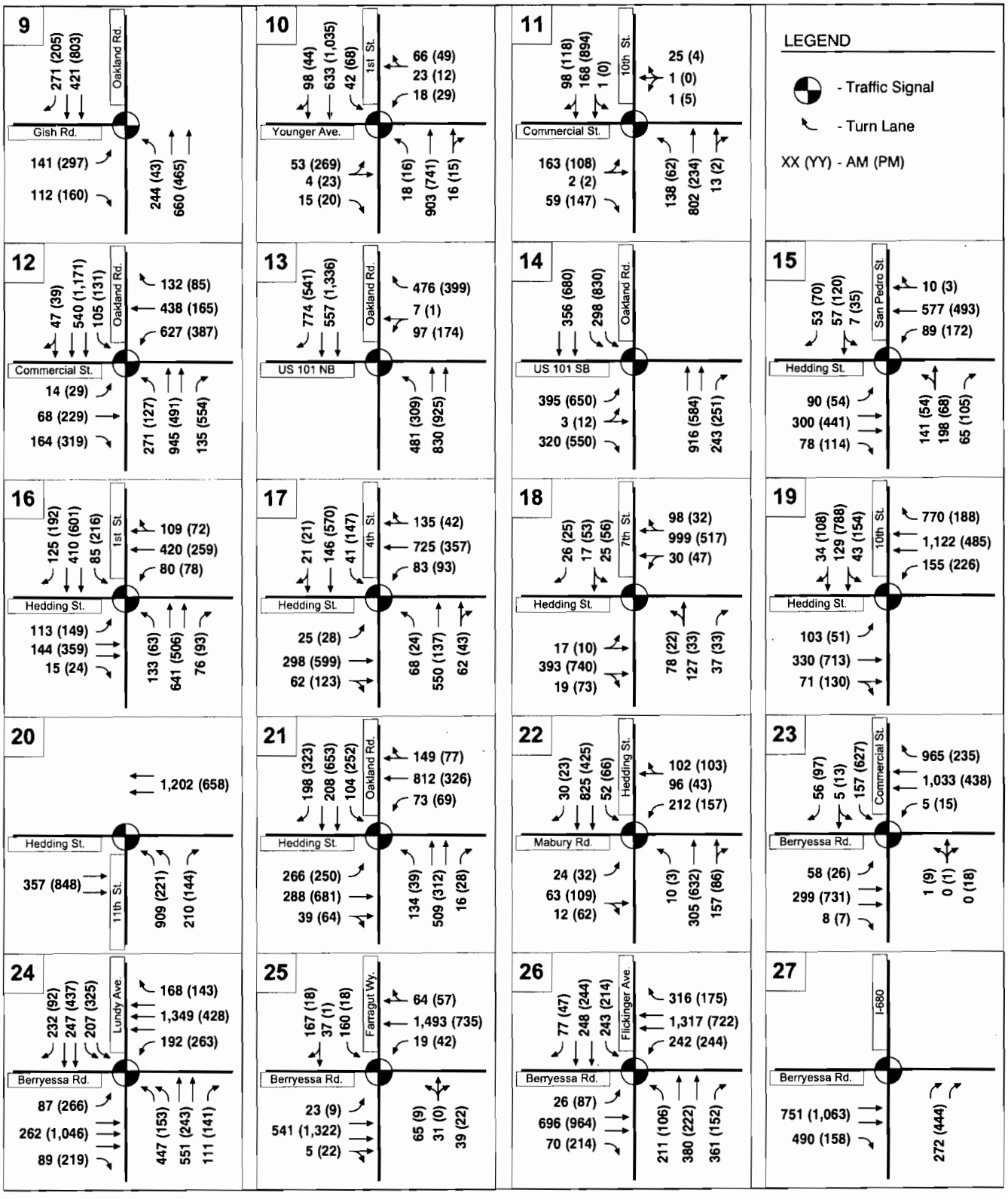
FIGURE 5A



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EXISTING CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 5B

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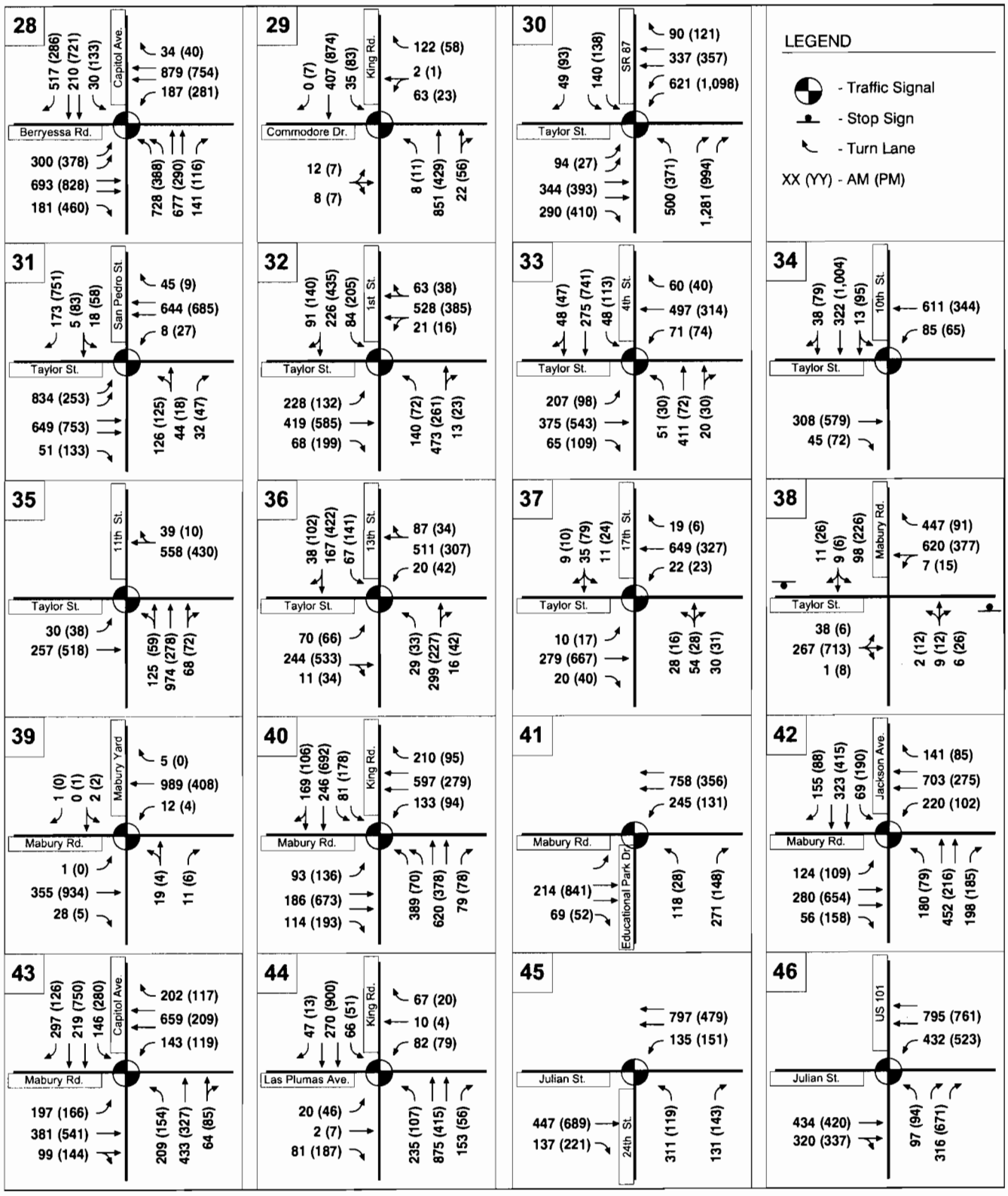

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EXISTING CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 5C

Sep 26, 2006 PLC
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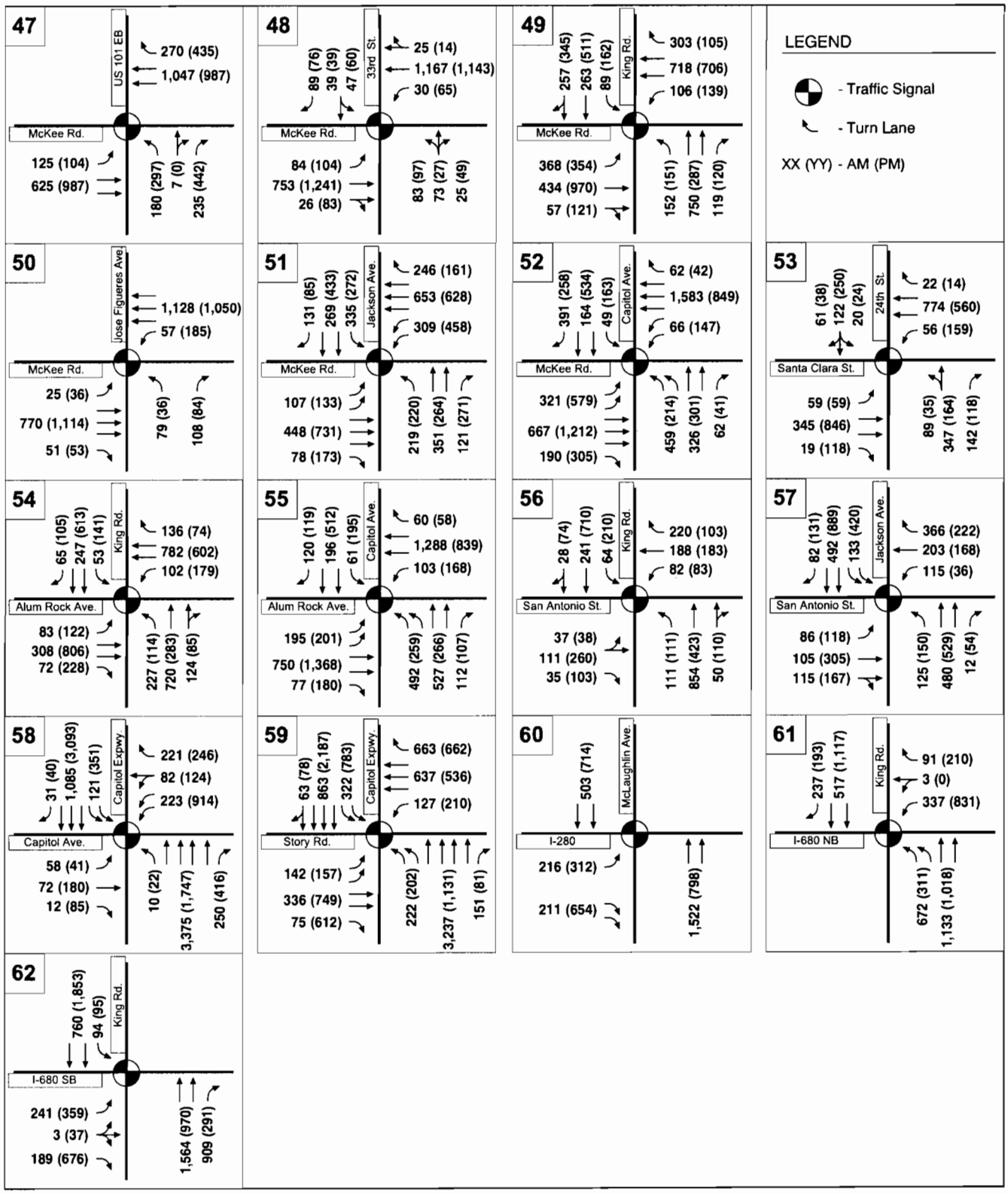

San Jose Flea Market

FEHR & PEERS
TRANSPORTATION CONSULTANTS

EXISTING CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 5D

Oct 02, 2006 PLC
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TABLE 1

SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS USING AVERAGE CONTROL VEHICULAR 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
B+	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 12.0
B		12.1 to 18.0
B-		18.1 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 23.0
C		23.1 to 32.0
C-		32.1 to 35.0
D+	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0
D		39.1 to 51.0
D-		51.1 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.	55.1 to 60.0
E		60.1 to 75.0
E-		75.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: VTA's CMP Traffic Level of Service Analysis Guidelines, June 2003, and Transportation Research Board, Highway Capacity Manual, 2000.

TABLE 2

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS USING AVERAGE CONTROL DELAY

Level of Service	Description	Average Control Delay per Vehicle (Seconds)
A	Little or no delay	≤ 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

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

Freeway Segments

Freeway segments were evaluated using VTA's analysis procedure, which is based on the density of the traffic flow using methods described in the *2000 Highway Capacity Manual*. Density is expressed in passenger cars per mile per lane. The CMP range of densities for freeway segment level of service is shown in **Table 3**. These ranges are based on the *2000 HCM* level of service threshold with adjustments to reflect local (Santa Clara County) conditions. According to CMP guidelines, the level of service standard for freeway segments is LOS E and freeway segments to which a proposed development will add trips equal to or greater than one percent of the freeway segment's capacity must be evaluated.

TABLE 3

DENSITY-BASED FREEWAY LEVEL OF SERVICE

Level of Service	Density (vehicles/mile/lane)
A	≤ 11
B	11.0 to 18.0
C	18.1 to 26.0
D	26.1 to 46.0
E	46.1 to 58.0
F	> 58.0

Source: VTA's CMP *Traffic Level of Service Analysis Guidelines*, June 2003.

EXISTING INTERSECTION LEVELS OF SERVICE

Existing intersection lane configurations and peak-hour turning movement volumes in **Figure 5** were used to calculate the levels of service for the key intersections during each peak hour. The results of the LOS analysis for Existing Conditions are presented in **Table 4**. The corresponding calculation sheets are included in **Appendix B**.

Measured against the City of San Jose level of service standards, the following signalized study intersections operate at an unacceptable LOS E or worse during one or both of the peak hours under Existing Conditions:

1. Montague Expressway and Oakland Road (AM and PM peak hours)
2. Montague Expressway and Trade Zone Boulevard (AM and PM peak hours)
58. Capitol Avenue and Capitol Expressway (PM peak hour)

With one exception, the remaining study intersections operate at an acceptable LOS D or better under Existing Conditions based on City standards. The unsignalized intersection of Mabury Road and Mabury Road (intersection 38) operates at an unacceptable level of service (LOS E or worse) during both peak hours.

TABLE 4

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Count Date	Intersection Control	Delay[2]	LOS[3]
1. Montague Expressway / Oakland Road[4]	AM	2004	Signal	79.7	E-
	PM	09/05		>80	F
2. Montague Expressway / Trade Zone Boulevard[4]	AM	2004	Signal	57.8	E+
	PM	09/05		>80	F
3. Trade Zone Boulevard / Lundy Avenue	AM	11/05	Signal	25.2	C
	PM	11/05		34.1	C-
4. Hostetter Road / Flickinger Avenue	AM	03/04	Signal	26.3	C
	PM	03/04		23.2	C
5. Hostetter Road / I-680	AM	11/05	Signal	26.0	C
	PM	11/05		17.0	B
6. Hostetter Road / Capitol Avenue	AM	10/05	Signal	48.2	D
	PM	10/05		42.2	D
7. Townsend Avenue / Lundy Avenue	AM	11/05	Signal	13.7	B
	PM	11/05		11.9	B+
8. Sierra Road / Lundy Avenue	AM	11/05	Signal	29.6	C
	PM	11/05		21.0	C+
9. Gish Road / Oakland Road	AM	11/04	Signal	13.5	B
	PM	11/04		13.9	B
10. Younger Avenue / 1st Street	AM	11/05	Signal	13.1	B
	PM	11/05		21.0	C+
11. Commercial Street / 10th Street	AM	11/05	Signal	25.7	C
	PM	11/05		24.8	C
12. Commercial Street / Oakland Road	AM	11/05	Signal	37.6	D+
	PM	11/05		35.4	D+
13. US 101 / Oakland Road (N)[4]	AM	10/04	Signal	60.2	E
	PM	10/04		24.0	C
14. US 101 / Oakland Road (S)[4]	AM	10/04	Signal	26.9	C
	PM	10/04		26.2	C
15. Hedding Street / San Pedro Street	AM	11/05	Signal	27.5	C
	PM	11/05		26.8	C
16. Hedding Street / 1st Street	AM	03/05	Signal	34.9	C-
	PM	03/05		35.5	D+
17. Hedding Street / 4th Street	AM	09/04	Signal	36.1	D+
	PM	09/04		39.3	D

TABLE 4 (CONTINUED)

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Count Date	Intersection Control	Delay[2]	LOS[3]
18. Hedding Street / 7th Street	AM	11/05	Signal	11.7	B+
	PM	11/05		8.9	A
19. Hedding Street / 10th Street	AM	11/05	Signal	13.8	B
	PM	11/05		28.3	C
20. Hedding Street / 11th Street	AM	11/05	Signal	21.4	C+
	PM	11/05		10.9	B+
21. Hedding Street / Oakland Road	AM	10/04	Signal	47.4	D
	PM	10/04		41.9	D
22. Hedding Street / Mabury Road	AM	03/04	Signal	19.9	B-
	PM	03/04		18.6	B-
23. Berryessa Road / Commercial Street	AM	03/04	Signal	15.8	B
	PM	03/04		22.9	C+
24. Berryessa Road / Lundy Avenue[4]	AM	10/04	Signal	41.7	D
	PM	10/04		44.8	D
25. Berryessa Road / Farragut Way	AM	03/04	Signal	23.7	C
	PM	03/04		9.5	A
26. Berryessa Road / Flickinger Avenue	AM	03/04	Signal	39.7	D
	PM	03/04		37.8	D+
27. Berryessa Road / I-680	AM	11/05	Signal	13.0	B
	PM	11/05		15.1	B
28. Berryessa Road / Capitol Avenue	AM	09/04	Signal	50.7	D
	PM	09/04		45.2	D
29. Commodore Drive / King Street	AM	12/05	Signal	19.9	B-
	PM	12/05		21.7	C+
30. Taylor Street / SR 87	AM	03/05	Signal	45.7	D
	PM	03/05		39.5	D
31. Taylor Street / San Pedro Street	AM	11/04	Signal	34.5	C-
	PM	10/04		39.7	D
32. Taylor Street / 1st Street	AM	10/04	Signal	48.8	D
	PM	10/04		54.3	D-
33. Taylor Street / 4th Street	AM	10/04	Signal	35.7	D+
	PM	10/04		36.1	D+
34. Taylor Street / 10th Street	AM	09/04	Signal	8.7	A
	PM	09/04		13.4	B
35. Taylor Street / 11th Street	AM	09/04	Signal	14.3	B
	PM	09/04		9.4	A

TABLE 4 (CONTINUED)

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Count Date	Intersection Control	Delay[2]	LOS[3]
36. Taylor Street / 13th Street	AM	09/04	Signal	12.0	B+
	PM	09/04		14.0	B
37. Taylor Street / 17th Street	AM	10/05	Signal	12.6	B
	PM	11/05		12.8	B
38. Mabury Road / Mabury Road	AM	11/05	Side-Street	39.2	E
	PM	11/05	Stop Control	>50	F
39. Mabury Road / Mabury Yard	AM	03/05	Signal	8.2	A
	PM	03/05		7.8	A
40. Mabury Road / King Road	AM	11/05	Signal	37.2	D+
	PM	11/05		35.9	D+
41. Mabury Road / Education Park Drive	AM	11/05	Signal	14.1	B
	PM	11/05		12.7	B
42. Mabury Road / Jackson Avenue	AM	10/05	Signal	37.6	D+
	PM	11/05		33.0	C-
43. Mabury Road / Capitol Avenue	AM	10/04	Signal	41.1	D
	PM	11/04		41.3	D
44. Las Plumas Avenue / King Road	AM	11/05	Signal	14.4	B
	PM	11/05		16.1	B
45. Julian Street / 24th Street	AM	11/05	Signal	17.2	B
	PM	11/05		13.5	B
46. Julian Street (W) / US 101	AM	11/05	Signal	19.4	B-
	PM	11/05		20.4	C+
47. McKee Road (E) / US 101	AM	11/05	Signal	19.7	B-
	PM	11/05		23.9	C
48. McKee Road / 33rd Street	AM	11/05	Signal	24.9	C
	PM	11/05		23.9	C
49. McKee Road / King Road	AM	11/04	Signal	44.1	D
	PM	11/04		45.9	D
50. McKee Road / Jose Figueres Avenue	AM	11/05	Signal	13.4	B
	PM	11/05		15.7	B
51. McKee Road / Jackson Avenue	AM	06/05	Signal	39.6	D
	PM	06/05		39.5	D
52. McKee Road / Capitol Avenue	AM	09/04	Signal	41.6	D
	PM	09/04		39.4	D
53. Santa Clara Street / 24th Street	AM	11/05	Signal	28.4	C
	PM	11/05		29.3	C

TABLE 4 (CONTINUED)

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Count Date	Intersection Control	Delay[2]	LOS[3]
54. Alum Rock Road / King Road[4]	AM	09/04	Signal	31.1	C
	PM	09/04		32.9	C-
55. Alum Rock Road / Capitol Avenue[4]	AM	09/04	Signal	31.6	C
	PM	09/04		33.1	C-
56. San Antonio Street / King Road	AM	11/05	Signal	24.6	C
	PM	11/05		29.2	C
57. San Antonio Street / Jackson Avenue	AM	06/05	Signal	32.5	C-
	PM	06/05		30.4	C
58. Capitol Avenue / Capitol Expressway[4]	AM	04/05	Signal	29.1	C
	PM	10/04		56.7	E+
59. Story Road / Capitol Expressway[4]	AM	06/05	Signal	54.3	D-
	PM	09/04		54.9	D-
60. I-280 / McLaughlin Avenue[4]	AM	10/04	Signal	9.9	A
	PM	10/04		15.4	B
61. I-680 / King Road (N)[4]	AM	10/04	Signal	26.5	C
	PM	10/04		35.7	D+
62. I-680 / King Road (S)[4]	AM	10/04	Signal	17.8	B
	PM	10/04		34.5	C-

Notes:

1 AM = morning peak-hour, PM = evening peak-hour.

2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. For two-way stop controlled unsignalized intersections, total control delay for the worst movement, expressed in seconds per vehicle, is presented. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 LOS = Level of service

4 Designated CMP intersection.

Measured against the CMP level of service standards, the following two signalized intersections operate at an unacceptable LOS F during the PM peak hour:

1. Montague Expressway and Oakland Road
2. Montague Expressway and Trade Zone Boulevard

The remaining study intersections operate at an acceptable LOS E or better under Existing Conditions based on CMP standards.

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Table 5 presents the existing AM and PM peak-hour freeway segment levels of service based on the segment densities reported in the CMP's *2004 Monitoring and Conformance Report*. Based on the monitored freeway

segment densities, the following mixed-flow and/or HOV segments operate at an unacceptable level of service (LOS F):

AM peak hour

a. Northbound US 101 between I-280 and SR 87 (7 segments)

b. HOV Northbound US 101 between I-880 and SR 87 (4 segments)

c. Westbound I-280 between US 101 and Bird Avenue (4 segments)

d. Northbound I-680 between Alum Rock Avenue and McKee Road (1 segment)

e. Southbound I-680 between Alum Rock Avenue and US 101 (3 segments)

f. Northbound I-880 between The Alameda and Coleman Avenue (1 segment)

PM peak hour

a. Southbound SR 87 between Coleman Avenue and Alma Avenue (3 segments)

b. Southbound US 101 between SR 87 and Santa Clara Street (7 segments)

c. Southbound US 101 between Story Road and Tully Road (1 segment)

d. HOV Southbound US 101 between Old Bayshore Road and I-280 (1 segment)

e. HOV Southbound US 101 between Santa Clara Street and I-280 (1 segment)

f. Eastbound I-280 between Bird Avenue and 10th Street (2 segments)

g. Westbound I-280 between SR 87 and Bird Avenue (1 segment)

h. Southbound I-680 between Montague Expressway and Berryessa Road (3 segments)

i. Southbound I-880 between Montague Expressway and SR 87 (3 segments)

TABLE 5

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
NB SR 87	I-280	Alma Ave.	AM	2	0	32	N/A	D	N/A
			PM	2	0	31	N/A	D	N/A
	Julian St.	I-280	AM	2	0	25	N/A	C	N/A
			PM	2	0	14	N/A	B	N/A
	Coleman Ave.	Julian St.	AM	2	0	44	N/A	D	N/A
			PM	2	0	17	N/A	B	N/A
SB SR 87	Alma Ave.	I-280	AM	2	0	30	N/A	D	N/A
			PM	2	0	**93**	N/A	**F**	N/A
	I-280	Julian St.	AM	2	0	15	N/A	B	N/A
			PM	2	0	**120**	N/A	**F**	N/A
	Julian St.	Coleman Ave.	AM	2	0	13	N/A	B	N/A
			PM	2	0	**89**	N/A	**F**	N/A
NB US 101	Story Rd.	Tully Rd.	AM	3	1	43	28	D	D
			PM	3	1	27	10	D	A
	I-280	Story Rd.	AM	3	1	18	21	B	C
			PM	3	1	20	13	C	B
	Santa Clara St.	I-280	AM	3	1	**66**	53	**F**	E
			PM	3	1	25	5	C	A
	McKee Rd.	Santa Clara St.	AM	3	1	**85**	56	**F**	E
			PM	3	1	22	15	C	B
	Oakland Rd.	McKee Rd.	AM	3	1	**92**	52	**F**	E
			PM	3	1	36	11	D	A
	I-880	Oakland Rd.	AM	3	1	**80**	**75**	**F**	**F**
			PM	3	1	24	10	C	A
	Old Bayshore Hwy.	I-880	AM	3	1	**107**	**80**	**F**	**F**
			PM	3	1	22	12	C	B
	1st St.	Old Bayshore Hwy.	AM	3	1	**91**	**85**	**F**	**F**
			PM	3	1	32	12	D	B
	SR 87	1st St.	AM	3	1	**74**	**68**	**F**	**F**
			PM	3	1	22	9	C	A
SB US 101	Tully Rd.	Story Rd.	AM	3	1	24	6	C	A
			PM	3	1	**77**	43	**F**	D

TABLE 5 (CONTINUED)

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
SB US 101	Story Rd.	I-280	AM	3	1	14	7	B	A
			PM	3	1	57	34	E	D
	I-280	Santa Clara St.	AM	3	1	19	6	C	A
			PM	3	1	**79**	**64**	**F**	**F**
	Santa Clara St.	McKee Rd.	AM	3	1	21	5	C	A
			PM	3	1	**67**	41	**F**	D
	McKee Rd.	Oakland Rd.	AM	3	1	16	3	B	A
			PM	3	1	**62**	35	**F**	D
	Oakland Rd.	I-880	AM	3	1	17	5	B	A
			PM	3	1	**95**	50	**F**	E
	I-880	Old Bayshore Hwy.	AM	3	1	16	4	B	A
			PM	3	1	**114**	**68**	**F**	**F**
	Old Bayshore Hwy.	1st St.	AM	3	1	17	8	B	A
			PM	3	1	**102**	54	**F**	E
	1st St.	SR 87	AM	3	1	15	6	B	A
			PM	3	1	**81**	50	**F**	E
EB I-280	McLaughlin Ave.	US 101	AM	4	0	23	N/A	C	N/A
			PM	4	0	33	N/A	D	N/A
	10th St.	McLaughlin Ave.	AM	4	0	27	N/A	D	N/A
			PM	4	0	48	N/A	E	N/A
	SR 87	10th St.	AM	4	0	20	N/A	C	N/A
			PM	4	0	**65**	N/A	**F**	N/A
	Bird Ave.	SR 87	AM	4	0	17	N/A	B	N/A
			PM	4	0	**76**	N/A	**F**	N/A
WB I-280	US 101	McLaughlin Ave.	AM	4	0	**111**	N/A	**F**	N/A
			PM	4	0	22	N/A	C	N/A
	McLaughlin Ave.	10th St.	AM	4	0	**74**	N/A	**F**	N/A
			PM	4	0	28	N/A	D	N/A
	10th St.	SR 87	AM	4	0	**86**	N/A	**F**	N/A
			PM	4	0	29	N/A	D	N/A
	SR 87	Bird Ave.	AM	4	0	**102**	N/A	**F**	N/A
			PM	4	0	**85**	N/A	**F**	N/A

TABLE 5 (CONTINUED)

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
NB I-680	King Rd.	US 101	AM	4	0	26	N/A	C	N/A
			PM	4	0	25	N/A	C	N/A
	Capitol Expwy.	King Rd.	AM	4	0	23	N/A	C	N/A
			PM	4	0	40	N/A	D	N/A
	Alum Rock Ave.	Capitol Expwy.	AM	4	0	44	N/A	D	N/A
			PM	4	0	26	N/A	C	N/A
	McKee Rd.	Alum Rock Ave.	AM	4	0	**61**	N/A	**F**	N/A
			PM	4	0	29	N/A	D	N/A
	Berryessa Rd.	McKee Rd.	AM	4	0	44	N/A	D	N/A
			PM	4	0	26	N/A	C	N/A
	Hostetter Rd.	Berryessa Rd.	AM	4	0	34	N/A	D	N/A
			PM	4	0	28	N/A	D	N/A
	Capitol Ave.	Hostetter Rd.	AM	4	0	33	N/A	D	N/A
			PM	4	0	22	N/A	C	N/A
	Montague Expwy.	Capitol Ave.	AM	4	0	29	N/A	D	N/A
			PM	4	0	21	N/A	C	N/A
SB I-680	US 101	King Rd.	AM	4	0	**108**	N/A	**F**	N/A
			PM	4	0	25	N/A	C	N/A
	King Rd.	Capitol Expwy.	AM	5	0	**85**	N/A	**F**	N/A
			PM	5	0	22	N/A	C	N/A
	Capitol Expwy.	Alum Rock Ave.	AM	4	0	**78**	N/A	**F**	N/A
			PM	4	0	27	N/A	D	N/A
	Alum Rock Ave.	McKee Rd.	AM	4	0	53	N/A	E	N/A
			PM	4	0	53	N/A	E	N/A
	McKee Rd.	Berryessa Rd.	AM	4	0	24	N/A	C	N/A
			PM	4	0	55	N/A	E	N/A
	Berryessa Rd.	Hostetter Rd.	AM	4	0	21	N/A	C	N/A
			PM	4	0	**68**	N/A	**F**	N/A
	Hostetter Rd.	Capitol Ave.	AM	4	0	28	N/A	D	N/A
			PM	4	0	**90**	N/A	**F**	N/A
	Capitol Ave.	Montague Expwy.	AM	4	0	22	N/A	C	N/A
			PM	4	0	**66**	N/A	**F**	N/A

TABLE 5 (CONTINUED)

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
NB I-880	Coleman Ave.	The Alameda	AM	3	0	**72**	N/A	**F**	N/A
			PM	3	0	32	N/A	D	N/A
	SR 87	Coleman Ave.	AM	3	0	47	N/A	E	N/A
			PM	3	0	39	N/A	D	N/A
	1st St.	SR 87	AM	3	0	34	N/A	D	N/A
			PM	3	0	25	N/A	C	N/A
	US 101	1st St.	AM	3	0	41	N/A	D	N/A
			PM	3	0	37	N/A	D	N/A
	Brokaw Rd.	US 101	AM	3	0	36	N/A	D	N/A
			PM	3	0	32	N/A	D	N/A
	Montague Expwy.	Brokaw Rd.	AM	3	0	30	N/A	D	N/A
			PM	3	0	22	N/A	C	N/A
	Great Mall Pkwy.	Montague Expwy.	AM	3	0	26	N/A	C	N/A
			PM	3	0	26	N/A	C	N/A
SB I-880	The Alameda	Coleman Ave.	AM	3	0	34	N/A	D	N/A
			PM	3	0	53	N/A	E	N/A
	Coleman Ave.	SR 87	AM	3	0	35	N/A	D	N/A
			PM	3	0	52	N/A	E	N/A
	SR 87	1st St.	AM	3	0	30	N/A	D	N/A
			PM	3	0	90	N/A	F	N/A
	1st St.	US 101	AM	3	0	28	N/A	D	N/A
			PM	3	0	**114**	N/A	**F**	N/A
	US 101	Brokaw Rd.	AM	3	0	26	N/A	C	N/A
			PM	3	0	**83**	N/A	**F**	N/A
	Brokaw Rd.	Montague Expwy.	AM	3	0	25	N/A	C	N/A
			PM	3	0	**81**	N/A	**F**	N/A
	Montague Expwy.	Great Mall Pkwy.	AM	3	0	27	N/A	D	N/A
			PM	3	0	53	N/A	E	N/A

Notes:

1 Density based on volume from VTA's *2004 CMP Monitoring Data* (March 2005).

2 NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound.

3 **Bold** text indicates unacceptable operations (LOS F).

FIELD OBSERVATIONS

Field observations of the study intersections were conducted during the morning and evening peak periods between August 2005 and May 2006. The intersections were generally observed to operate at the calculated levels of service for each peak hour.

The predominant freeway travel pattern on US 101, I-680, and I-880 during the morning commute period is northbound. The local street travel pattern is towards the freeways – northbound and westbound. During AM peak hour observations, the US 101 Northbound on-ramp at Oakland Road metering lights were operating. Vehicle queues at this metering light included less than 10 vehicles per lane and did not extend back to Oakland Road.

Vehicles in the northbound left-turn pocket on Oakland Road at the US 101 Northbound on-ramp intersection queued back to the US 101 Southbound Ramps and Oakland Road intersection on an irregular basis during the AM peak hour. Thus, through vehicles destined for Oakland Road north of the freeway used the second through lane to avoid the queue from the northbound left-turn at the US 101 Northbound Ramps and Oakland Road intersection. The signal timings at these two intersections allowed enough green time for the northbound left-turn movement at the US 101 Northbound Ramps and Oakland Road intersection to clear.

Near the project site, the primary direction of travel is westbound on Berryessa Road and Mabury Road, and northbound on King Road/Lundy Avenue during the AM peak hour. During the PM peak hour, the primary direction of travel is reversed. The mid-block signal across Berryessa Road at the main entrance to the San Jose Flea Market was not activated during either peak hour. However, on the weekends, this signalized pedestrian crossing does periodically stop vehicle traffic on Berryessa Road.

The closest intersections to the project site (Berryessa Road at Commercial Street and King Road/Lundy Avenue; and Mabury Road at Mabury Yard and King Road) were observed to operate acceptably during each peak hour with one exception. Field observations during the AM peak hour indicate that the westbound through movement on Berryessa Road at Lundy Avenue does not always clear each cycle – the maximum observed queue was approximately 20 vehicles per lane.

During the AM peak hour, vehicles in the northbound left-turn and eastbound left-turn lanes at the Hedding Street and Oakland Road intersection periodically queued out of the pocket, but these queues typically cleared in one cycle. The westbound approach queue at the Commercial Street/Oakland Road intersection typically required more than one cycle to clear with queues irregularly extending to Berryessa Road.

During the PM peak hour, the predominant travel pattern on US 101, I-680 and I-880 is southbound. Operations of Southbound US 101 north and south of Oakland Road were highly congested during the evening commute period such that vehicles were delayed entering the freeway mainline. Metering lights were present but not in operation on the southbound on-ramp from Oakland Road. Both the on- and off-ramps in the southbound direction provide enough storage for vehicles such that queues did not back up onto the mainline segment of the freeway or to the intersection to affect operations of the US 101 Southbound Ramps and Oakland Road intersection.

Congestion also occurs on Oakland Road north of the US 101/Oakland Road interchange during the PM peak hour. This congestion sometimes delays access to Oakland Road from side streets and driveways. Sometimes southbound left-turns at the US 101 Southbound Ramps and Oakland Road intersection queued back to the US 101 Northbound Ramps and Oakland Road intersection. The green time for this movement was usually long enough to clear all vehicles in one signal cycle.

The southbound left-turn pocket at the Hedding Street and Oakland Road intersection usually queued out of the pocket during the PM peak hour. Recent construction work on the median of Oakland Road reduced the available pocket length; however, queues typically cleared in one signal cycle.

3. BACKGROUND CONDITIONS

This chapter discusses the operations of the key intersections under Background Conditions. Background Conditions are defined as conditions prior to completion of the proposed development and serve as the basis to identify project impacts. Traffic volumes for Background Conditions comprise existing volumes plus traffic generated by approved developments within the study area. In some cases, intersections will be modified based on programmed improvements. The results of the level of service analysis for Background Conditions are presented in this chapter.

BACKGROUND TRAFFIC ESTIMATES

Normally, Background Condition traffic volumes consist of existing volumes plus Approved Trip Inventory (ATI) volumes (See **Appendix C**). ATI volumes are traffic projections generated by approved but not yet constructed projects in the study area that are assigned to the roadway system. For areas north and west of I-280/I-680, however, the City of San Jose uses year 2000 or 2001 traffic counts as a baseline under Background Conditions to include traffic volumes that may not be included in more recent counts. This methodology takes into account the overall reduced traffic volumes in the North San Jose area because of the high vacancy rate in office space, as well as overall reduced employment levels, due to the economic downturn that occurred after 2001.

The traffic volumes for Background Conditions for this TIA were estimated by adding ATI volumes to historic 2000-2001 traffic volumes. City staff provided the ATI volumes. The background volumes include Phase 1 of the North San Jose development, Phase 1 of the Downtown San Jose development, and the couplet conversion reassignment on 10th and 11th Streets. These counts replace the existing counts described in Chapter 2. The resulting background volumes are shown on **Figure 6**.

BACKGROUND ROADWAY IMPROVEMENTS

The Tier 1A roadway improvements in the *Comprehensive County Expressway Planning Study* and those in the North San Jose Deficiency Plan were included under Background Conditions. City of San Jose staff also provided the traffic mitigation log (April 11, 2001), and the proposed couplet conversion changes of 3rd, 4th, 10th, and 11th Streets. These improvements are listed below and presented in **Figure 6**.

1. Montague Expressway and Oakland Road
    a. Add 2nd Southbound left-turn lane
    b. Widen Montague Expressway to 8-lanes
2. Montague Expressway and Trade Zone Boulevard
    a. Add 2nd northbound and southbound left-turn lanes
    b. Add eastbound free right on Montague Expressway

19. Hedding Street and 10th Street
    a. Couplet conversion
20. Hedding Street and 11th Street
    a. Couplet conversion
21. Hedding Street and Oakland Road
    a. Add 2nd eastbound and westbound left-turn lanes

34. Taylor Street and 10th Street
    a. Couplet conversion
35. Taylor Street and 11th Street
    a. Couplet conversion
49. McKee Road and King Road
    a. Add 2nd eastbound and westbound left-turn lanes
59. Story Road and Capitol Expressway
    a. Add 3rd eastbound through lane

BACKGROUND INTERSECTION LEVELS OF SERVICE

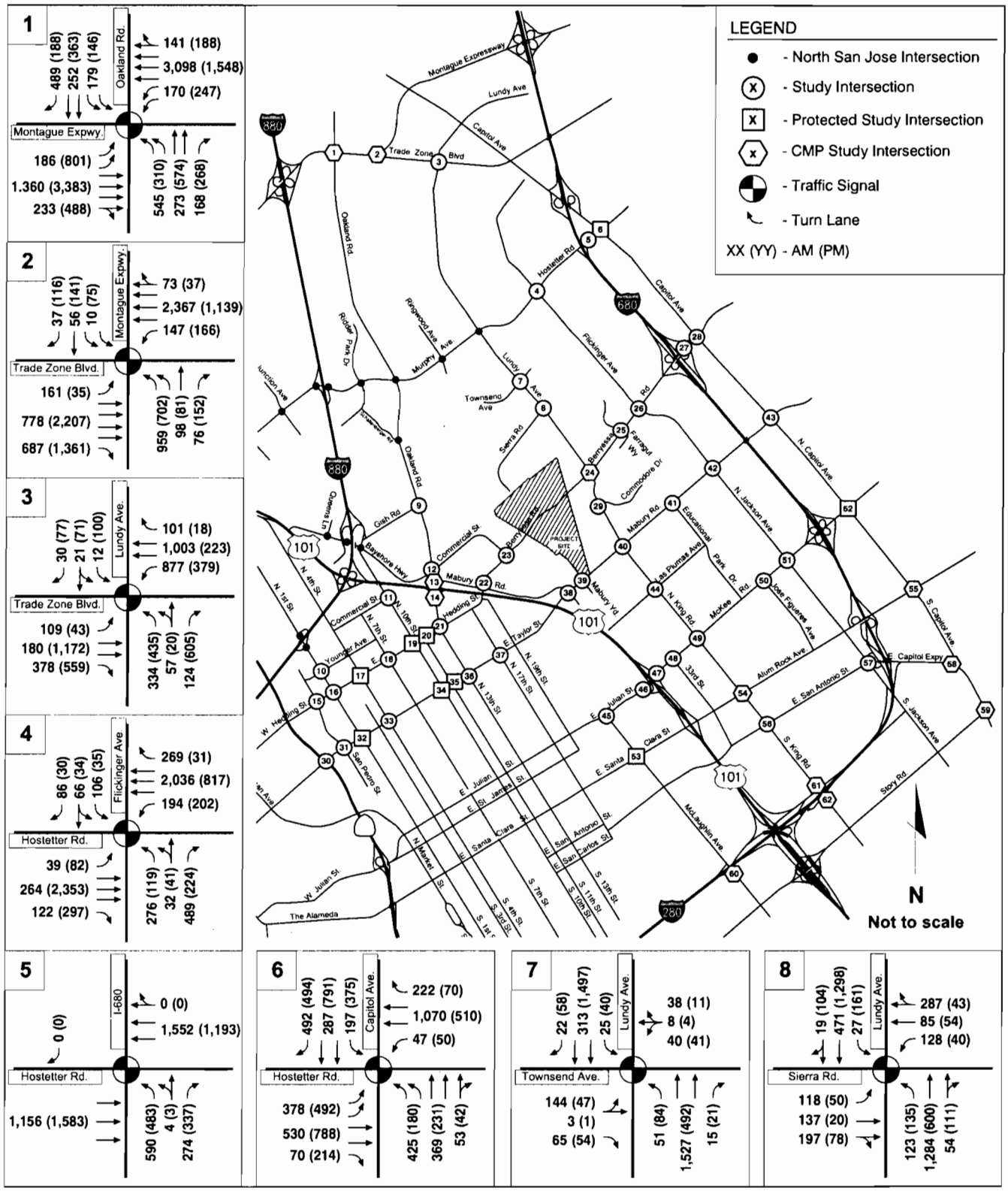
Background intersection lane configurations and peak-hour turning movement volumes were used to calculate the levels of service for the key intersections during each peak hour. The results of the LOS analysis for Background Conditions are presented in **Table 6**. The corresponding calculation sheets are contained in **Appendix B**.

Measured against the City of San Jose level of service standards, the following signalized study intersections would operate at an unacceptable LOS E or worse during one or both of the peak hours under Background Conditions:

1. Montague Expressway and Oakland Road (AM and PM peak hour)
2. Montague Expressway and Trade Zone Boulevard (AM and PM peak hour)
12. Commercial Street and Oakland Road (AM peak hour)
13. US 101 and Oakland Road (N) (AM peak hour)
14. US 101 and Oakland Road (S) (PM peak hour)
19. Hedding Street and 10th Street (AM peak hour)
21. Hedding Street and Oakland Road (AM peak hour)
30. Taylor Street and SR 87 (AM and PM peak hour)
32. Taylor Street and 1st Street (PM peak hour)
35. Taylor Street and 11th Street (PM peak hour)
58. Capitol Avenue and Capitol Expressway (PM peak hour)
59. Story Road and Capitol Expressway (AM and PM peak hour)

The unsignalized intersection of Mabury Road and Mabury Road will continue to operate at an unacceptable level of service (LOS E or F) during both peak hours under Background Conditions. The remaining study intersections will operate at an acceptable LOS D or better under this scenario based on City standards.

None of the signalized intersections would operate at an unacceptable LOS F during either peak hour when measured against the CMP level of service standards. The background improvements on Montague Expressway at Oakland Road and Trade Zone Boulevard will improve these intersections to acceptable levels of service during both peak hours under Background Conditions.



San Jose Flea Market

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BACKGROUND CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 6A

Sep 26, 2006 PLC
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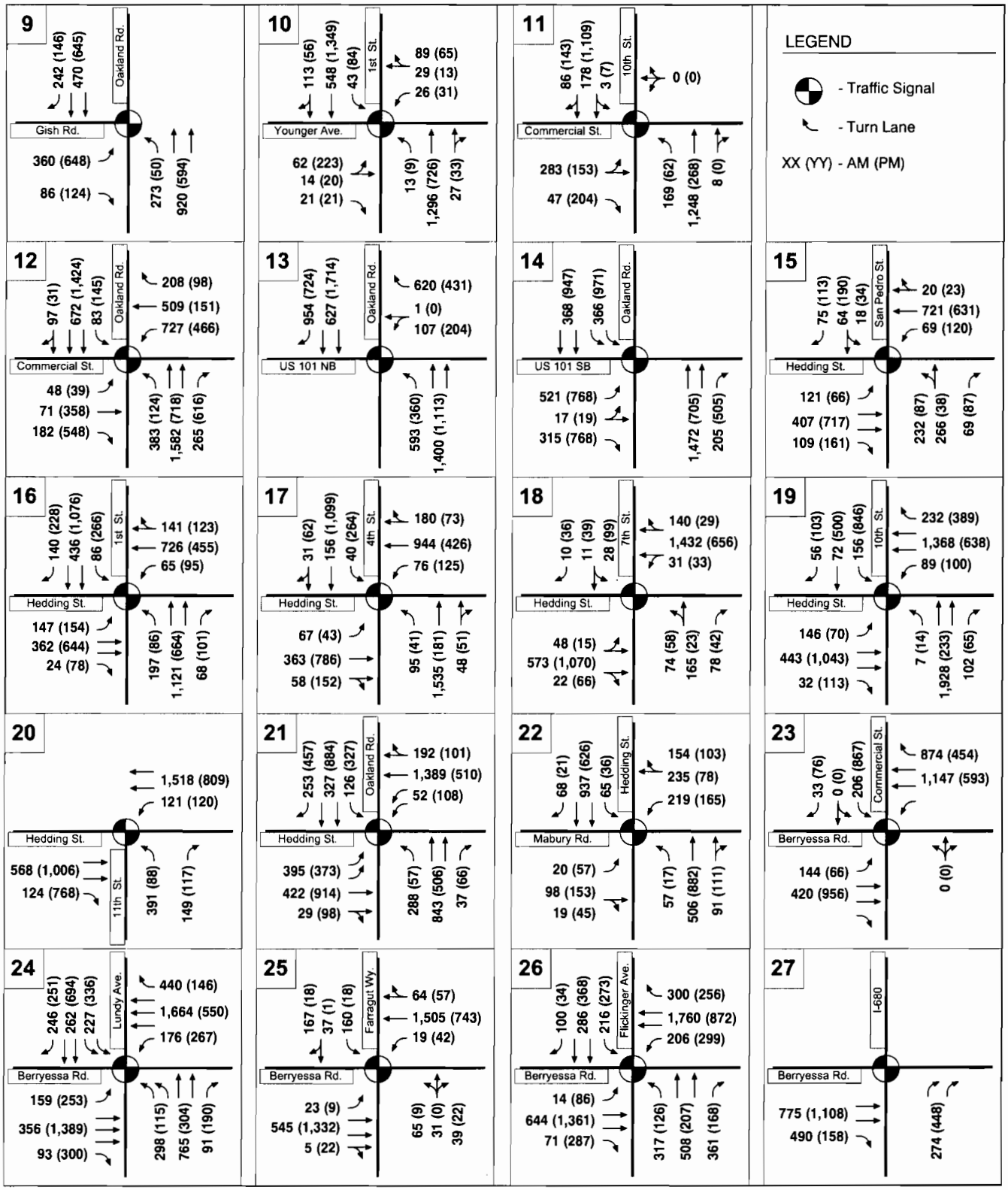

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BACKGROUND CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Sep 26, 2006 PLC
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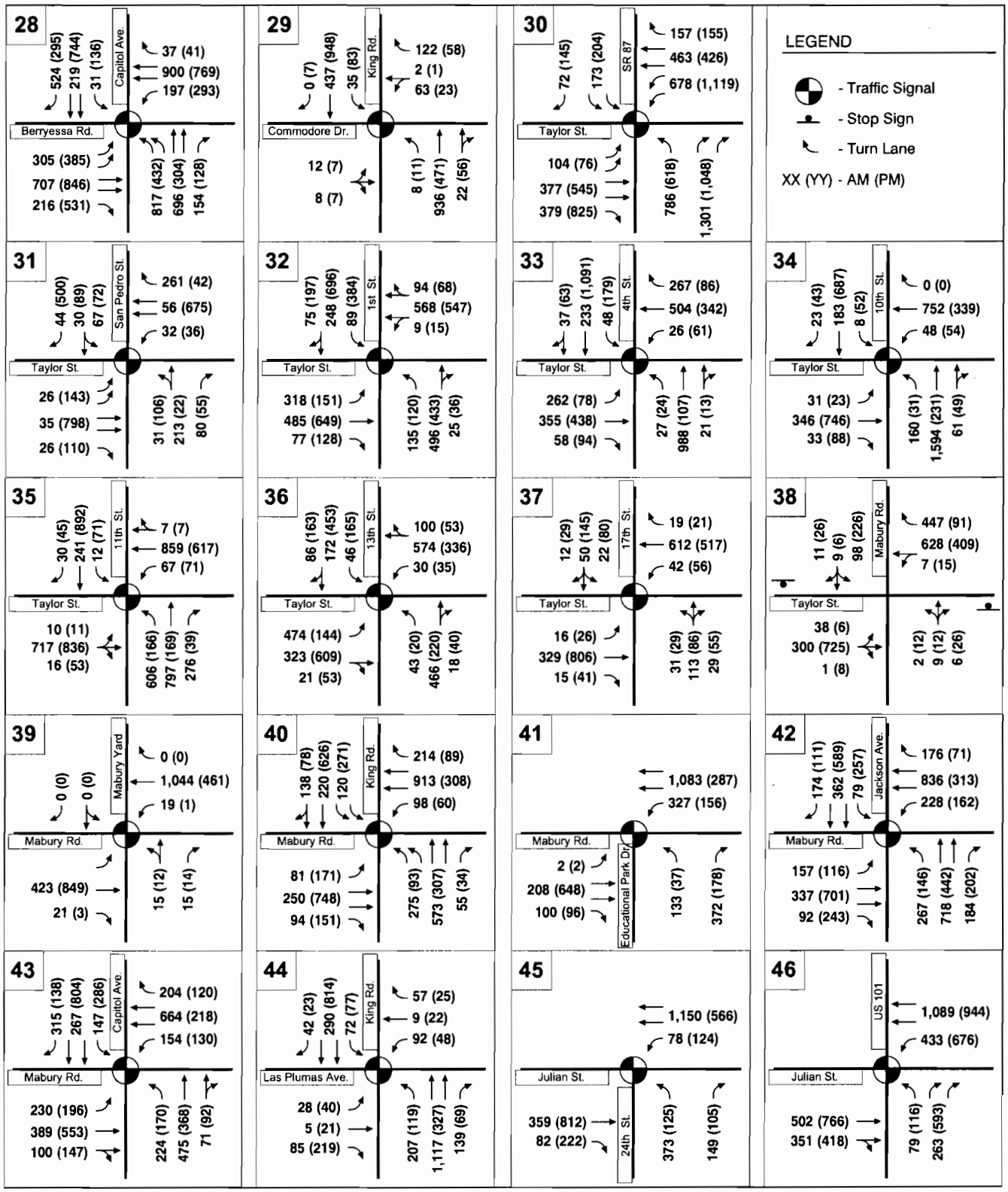
FIGURE 6B



San Jose Flea Market

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BACKGROUND CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 6C

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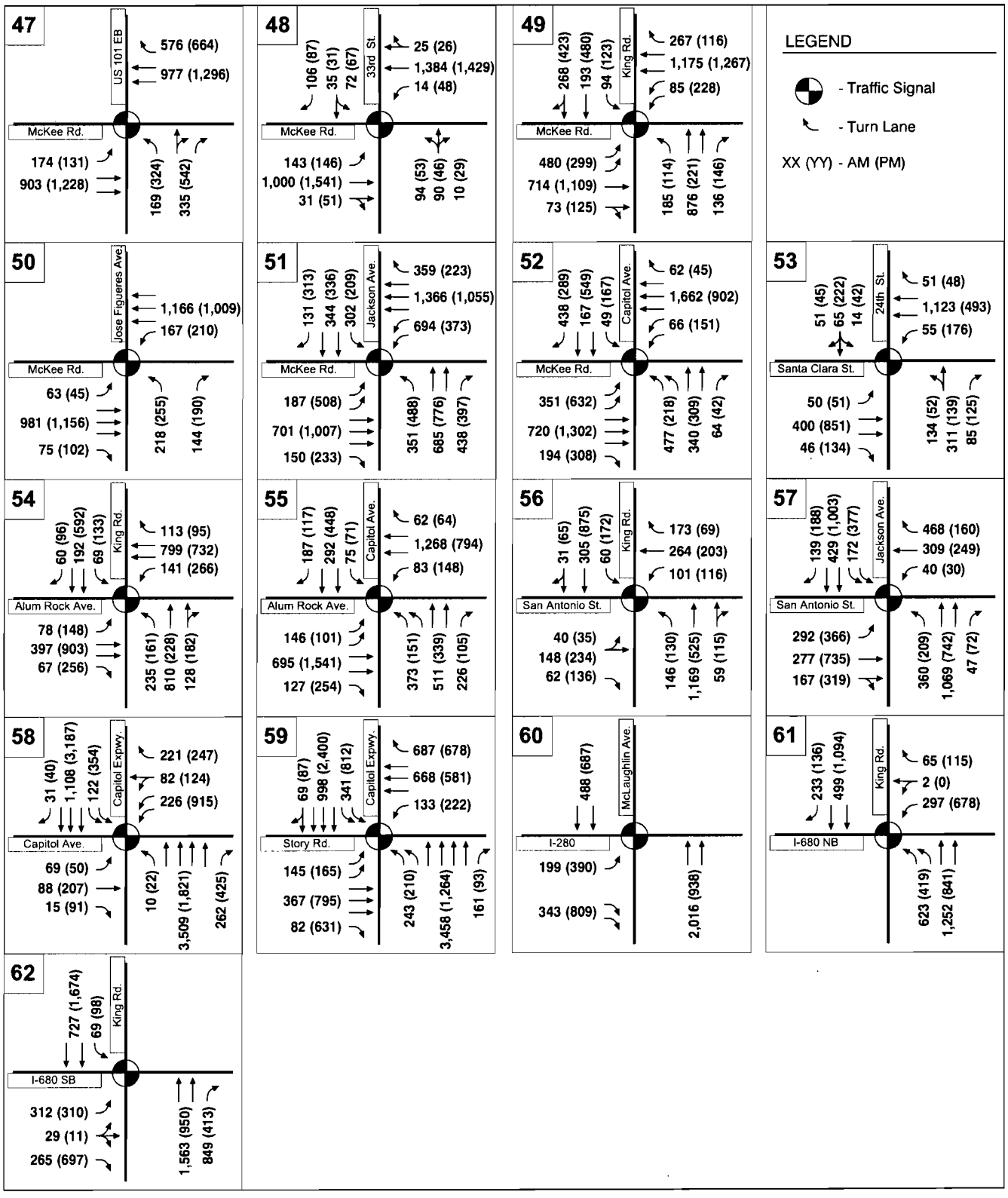

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San Jose Flea Market

BACKGROUND CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 6D

TABLE 6

BACKGROUND INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Intersection Control	Delay[2]	LOS[3]
1. Montague Expressway / Oakland Road[4]	AM PM	Signal	58.6 68.4	E+ E
2. Montague Expressway / Trade Zone Boulevard[4]	AM PM	Signal	55.5 55.6	E+ E+
3. Trade Zone Boulevard / Lundy Avenue	AM PM	Signal	35.5 40.1	D+ D
4. Hostetter Road / Flickinger Avenue	AM PM	Signal	27.4 22.4	C C+
5. Hostetter Road / I-680	AM PM	Signal	21.2 15.5	C+ B
6. Hostetter Road / Capitol Avenue	AM PM	Signal	48.6 42.5	D D
7. Townsend Avenue / Lundy Avenue	AM PM	Signal	14.6 12.3	B B
8. Sierra Road / Lundy Avenue	AM PM	Signal	31.5 21.9	C C+
9. Gish Road / Oakland Road	AM PM	Signal	17.5 19.5	B B-
10. Younger Avenue / 1st Street	AM PM	Signal	13.2 18.2	B B-
11. Commercial Street / 10th Street	AM PM	Signal	24.2 22.8	C C+
12. Commercial Street / Oakland Road	AM PM	Signal	72.5 47.4	E D
13. US 101 / Oakland Road (N)[4]	AM PM	Signal	>80 41.7	F D
14. US 101 / Oakland Road (S)[4]	AM PM	Signal	21.6 68.6	C+ E
15. Hedding Street / San Pedro Street	AM PM	Signal	31.2 25.1	C C
16. Hedding Street / 1st Street	AM PM	Signal	38.0 36.2	D+ D+
17. Hedding Street / 4th Street	AM PM	Signal	47.6 43.8	D D

TABLE 6 (CONTINUED)

BACKGROUND INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Intersection Control	Delay[2]	LOS[3]
18. Hedding Street / 7th Street	AM PM	Signal	11.5 9.2	B+ A
19. Hedding Street / 10th Street	AM PM	Signal	>80 51.3	F D-
20. Hedding Street / 11th Street	AM PM	Signal	20.6 9.4	C+ A
21. Hedding Street / Oakland Road	AM PM	Signal	61.5 45.3	E D
22. Hedding Street / Mabury Road	AM PM	Signal	20.7 17.3	C+ B
23. Berryessa Road / Commercial Street	AM PM	Signal	10.5 17.2	B+ B
24. Berryessa Road / Lundy Avenue[4]	AM PM	Signal	42.6 43.0	D D
25. Berryessa Road / Farragut Way	AM PM	Signal	23.7 9.4	C A
26. Berryessa Road / Flickinger Avenue	AM PM	Signal	42.3 40.6	D D
27. Berryessa Road / I-680	AM PM	Signal	12.9 15.0	B B
28. Berryessa Road / Capitol Avenue	AM PM	Signal	52.8 46.5	D- D
29. Commodore Drive / King Street	AM PM	Signal	19.6 23.5	B- C
30. Taylor Street / SR 87	AM PM	Signal	74.4 58.7	E E+
31. Taylor Street / San Pedro Street	AM PM	Signal	32.4 38.4	C- D+
32. Taylor Street / 1st Street	AM PM	Signal	52.7 >80	D- F
33. Taylor Street / 4th Street	AM PM	Signal	41.8 34.8	D C-
34. Taylor Street / 10th Street	AM PM	Signal	47.5 33.3	D C-

TABLE 6 (CONTINUED)

BACKGROUND INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Intersection Control	Delay[2]	LOS[3]
35. Taylor Street / 11th Street	AM PM	Signal	50.3 >80	D F
36. Taylor Street / 13th Street	AM PM	Signal	13.9 16.3	B B
37. Taylor Street / 17th Street	AM PM	Signal	15.2 18.4	B B-
38. Mabury Road / Mabury Road	AM PM	Side-Street Stop Control	43.9 >50	E F
39. Mabury Road / Mabury Yard	AM PM	Signal	8.2 6.9	A A
40. Mabury Road / King Road	AM PM	Signal	35.6 35.9	D+ D+
41. Mabury Road / Education Park Drive	AM PM	Signal	14.0 17.5	B B
42. Mabury Road / Jackson Avenue	AM PM	Signal	35.8 36.3	D+ D+
43. Mabury Road / Capitol Avenue	AM PM	Signal	42.2 42.3	D D
44. Las Plumas Avenue / King Road	AM PM	Signal	13.5 16.7	B B
45. Julian Street / 24th Street	AM PM	Signal	18.1 12.4	B- B
46. Julian Street (W) / US 101	AM PM	Signal	18.1 27.2	B- C
47. McKee Road (E) / US 101	AM PM	Signal	20.5 24.3	C+ C
48. McKee Road / 33rd Street	AM PM	Signal	26.7 21.3	C C+
49. McKee Road / King Road	AM PM	Signal	42.9 42.1	D D
50. McKee Road / Jose Figueres Avenue	AM PM	Signal	25.2 26.4	C C
51. McKee Road / Jackson Avenue	AM PM	Signal	42.0 44.5	D D

TABLE 6 (CONTINUED)

BACKGROUND INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Intersection Control	Delay[2]	LOS[3]
52. McKee Road / Capitol Avenue	AM	Signal	42.9	D
	PM		39.5	D
53. Santa Clara Street / 24th Street	AM	Signal	28.1	C
	PM		29.7	C
54. Alum Rock Road / King Road[4]	AM	Signal	31.9	C
	PM		35.4	D+
55. Alum Rock Road / Capitol Avenue[4]	AM	Signal	30.6	C
	PM		28.7	C
56. San Antonio Street / King Road	AM	Signal	25.0	C
	PM		28.3	C
57. San Antonio Street / Jackson Avenue	AM	Signal	41.5	D
	PM		39.3	D
58. Capitol Avenue / Capitol Expressway[4]	AM	Signal	30.8	C
	PM		64.0	E
59. Story Road / Capitol Expressway[4]	AM	Signal	62.4	E
	PM		57.0	E+
60. I-280 / McLaughlin Avenue[4]	AM	Signal	11.0	B+
	PM		16.3	B
61. I-680 / King Road (N)[4]	AM	Signal	24.6	C
	PM		32.0	C
62. I-680 / King Road (S)[4]	AM	Signal	21.6	C+
	PM		29.4	C

Notes:

1 AM = morning peak-hour, PM = evening peak-hour.

2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. For two-way stop controlled unsignalized intersections, total control delay for the worst movement, expressed in seconds per vehicle, is presented. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 LOS = Level of service

4 Designated CMP intersection.

4. PROJECT CONDITIONS

The impacts of the proposed project development on the surrounding roadway system are discussed in this chapter. First, the methodology used to estimate the amount of traffic generated by the project is described. Then, the results of the level of service calculations for Project Conditions are presented. Project Conditions are defined as Background Conditions plus net new traffic generated by the proposed project. A comparison of the intersection operating levels under Background and Project Conditions are presented, and the impacts of the project on the study intersections are discussed. Also, this chapter discusses site access, and on-site circulation under Project Conditions.

The proposed BART station located immediately east of the project site would affect most of the Project Conditions analysis including the estimated trip generation, parking requirements, site access and circulation, and the local transit network. The station itself would also generate additional vehicle traffic by BART riders driving to on-site structures, those using the kiss-and ride area, and those arriving via new bus transit and shuttle trips. However, the station is not expected to be constructed prior to 2015. Thus, this analysis was conducted to identify impacts irrespective of BART station construction and operation. Effects of the station and the new regional transit system will be addressed separately.

PROJECT TRAFFIC ESTIMATES

The amount of traffic added to the roadway system by a proposed project development is estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of added traffic to the roadway network. The amount of traffic generated by the existing flea market uses is subtracted from the proposed project traffic volumes to determine the net new traffic added to the roadway system. The second step estimates the direction of travel to and from the project site. The trips are assigned to specific street segments and intersection turning movements during the third step. The project traffic estimation for the proposed project development is described in the following sections.

Trip Generation

The proposed project consists of 120 acres of mixed-use development, including 215,622 square feet of office space, 152,700 square feet of retail uses, and 2,818 residential units. The amount of traffic added to the surrounding roadway system by the proposed development was estimated by applying the appropriate AM and PM peak hour trip generation rates – residential and retail rates from *Interim Guidelines for Traffic Impact Analysis of Land Developments* (City of San Jose, June 1994), and office rates from *Trip Generation* (7th Edition) by the Institute of Transportation Engineers (ITE).

The gross number of trips generated by the overall project site will be reduced due to linked vehicle trips and pedestrian/bicycle trips made between each of the proposed uses. The mixed-use internalization reduction pairs include residential-retail, and office-residential. In addition, some of the vehicle trips generated by the proposed retail uses are pass-by trips. Pass-by trips represent vehicles that are already on the adjacent street (i.e., Berryessa Road) and are not new trips on the overall street system. Drivers simply stop off at the project site on their way to/from their origin/destination. We used the mixed-use reductions published in VTA's *Transportation Impact Analysis Guidelines* (1998) and pass-by reduction from ITE's *Trip Generation* (7th Edition). A pass-by trip reduction of 25 percent was applied to the retail trip estimates that use the project driveways on Berryessa Road.

Driveway counts were conducted to determine the amount of traffic generated by the existing San Jose Flea Market facility. From the driveway counts, the existing site generates 127 AM peak-hour trips (104 inbound and 23 outbound), 294 PM peak-hour trips (79 inbound and 215 outbound) (**See Appendix A**). The estimated gross combined AM and PM peak hour retail volume represents approximately 11 percent of the daily traffic volume. Thus, the daily traffic volume for the existing flea market was estimated using a 11 percent factor.

The peak-hour trip generation rates and trip estimates are presented in **Table 7**. The net-added trip generation for the project site was estimated by subtracting traffic generated from the existing Flea Market site, pass-by trips for the retail use, and mixed-use reductions from the estimates for the proposed project. The amount of net-added traffic by the project is estimated to be 22,942 daily trips, 2,392 AM peak-hour trips (987 inbound and 1,405 outbound), and 2,421 PM peak-hour trips (1,491 inbound and 930 outbound).

TABLE 7

PROJECT TRIP GENERATION RATES AND ESTIMATES

Item	Daily		AM Peak Hour				PM Peak Hour			
	Rate	Trips	Rate	In	Out	Total	Rate	In	Out	Total
Existing[1]										
San Jose Flea Market (A)		**3,807**		**104**	**23**	**127**		**79**	**215**	**294**
Proposed Retail[2]										
North of Berryessa (none)	N/A	0	N/A	0	0	0	N/A	0	0	0
South of Berryessa (152,700-square foot)	40.00	6,108	0.80	85	37	122	3.60	275	275	550
Total Gross Retail		***6,108***		***85***	***37***	***122***		***275***	***275***	***550***
Residential-Retail Mixed-Use Reduction[4,5]		*-794*		*-11*	*-5*	*-16*		*-36*	*-36*	*-72*
Pass-By Trip Reduction[3]		*-1,329*		*-19*	*-8*	*-27*		*-60*	*-60*	*-120*
Net Retail Subtotal (B)		**3,985**		**55**	**24**	**79**		**179**	**179**	**358**
Proposed Residential[2]										
Condos										
North of Berryessa (none)	N/A	0	N/A	0	0	0	N/A	0	0	0
South of Berryessa (1,836-dwelling units)	7.5	13,770	0.75	482	895	1,377	0.75	895	482	1,377
Live/Work Units										
North of Berryessa (none)	N/A	0	N/A	0	0	0	N/A	0	0	0
South of Berryessa (64-dwelling units)	7.5	480	0.75	17	31	48	0.75	31	17	48
Townhomes										
North of Berryessa (470-dwelling units)	7.5	3,525	0.75	124	228	352	0.75	228	124	352
South of Berryessa (313-dwelling units)	7.5	2,347	0.75	82	153	235	0.75	153	82	235
Single Family Homes										
North of Berryessa (135-dwelling units)	9.9	1,337	0.99	47	87	134	0.99	87	47	134
South of Berryessa (none)	N/A	0	N/A	0	0	0	N/A	0	0	0
Total Gross Residential		***21,459***		***752***	***1,394***	***2,146***		***1,394***	***752***	***2,146***
Live/Work Reduction[7]		*-168*		*-6*	*-11*	*-17*		*-11*	*-6*	*-17*
Residential-Retail Mixed-Use Reduction[4,5]		*-794*		*-5*	*-11*	*-16*		*-36*	*-36*	*-72*
Office-Residential Mixed-Use Reduction[4,6]		*-72*		*-1*	*-9*	*-10*		*-8*	*-2*	*-10*
Net Residential Subtotal (C)		**20,425**		**740**	**1,363**	**2,103**		**1,339**	**708**	**2,047**

TABLE 7 (CONTINUED)

PROJECT TRIP GENERATION RATES AND ESTIMATES

Item	Daily		AM Peak Hour				PM Peak Hour			
	Rate	Trips	Rate	In	Out	Total	Rate	In	Out	Total
Proposed Office[3]										
North of Berryessa (215,622-square foot)	11.18	2,411	1.61	305	42	347	1.48	54	266	320
South of Berryessa (none)	N/A	0	N/A	0	0	0	N/A	0	0	0
Total Gross Office		***2,411***		***305***	***42***	***347***		***54***	***266***	***320***
Office-Residential Mixed-Use Reduction[4,6]		*-72*		*-9*	*-1*	*-10*		*-2*	*-8*	*-10*
Net Office Subtotal (D)		**2,339**		***296***	***41***	***337***		***52***	***258***	***310***
Net Proposed Use Only (B + C+ D)		**26,749**		**1,091**	**1,428**	**2,519**		**1,570**	**1,145**	**2,715**
Net New Project Trips (B + C + D - A)		**22,942**		**987**	**1,405**	**2,392**		**1,491**	**930**	**2,421**

Notes:

1 Existing trip generation from driveway counts conducted on June 9 and June 16, 2001. The estimated gross combined AM and PM peak hour retail volume represents approximately 11 percent of the daily traffic volume. Thus, the daily traffic volume for the existing flea market was estimated using a 11 percent factor.

2 Retail and residential trip generation rates from the City of San Jose's *Interim Guidelines for Traffic Impact Analysis of Land Developments*, June 1994.

3 Office trip generation rates and pass-by reduction (25% off net-retail for daily and peak hour) the Institute of Transportation Engineers' *Trip Generation, 7th Edition*, 2003.

4 Mixed-use development trip reductions from VTA's *Transportation Impact Analysis Guidelines*, 1998. Mixed-use reduction pairs grouped north or south of Berryessa Road.

5 Residential-Retail mixed-use reduction is 13% off smaller trip generator south of Berryessa Road (retail).

6 Office-Residential mixed-use reduction is 3% off smaller trip generator north of Berryessa Road (office).

7 Live/Work reduction is 35% off live/work units. Metropolitan Transportation Commission's (MTC) data indicates that trips between home and work represent up to 35% of the trips generated in the peak hours.

Trip Distribution

The directions of approach and departure for the project traffic were estimated based on the existing travel patterns in the area and the relative locations of employment centers. The distribution for each land use type (e.g., retail, residential, and office) was further refined using the City of San Jose's Travel Demand Model and input from city staff. The major directions of approach and departure form the trip distribution pattern for vehicles generated by the project development. **Figure 7** shows the vehicle trip distribution pattern for each project use.

Trip Assignment

The project trips generated from the project development were assigned to the roadway system based on the directions of approach and departure discussed above. City staff also provided additional input regarding the project trip assignment based on knowledge from previous studies and the travel patterns in the area. **Figure 8** shows the project trips assigned to each turning movement by intersection. The peak-hour trip assignments for the proposed project were added to the background traffic volumes to establish intersection volumes under Project Conditions shown on **Figure 9**.

PROJECT TRANSPORTATION IMPROVEMENTS

The project sponsor will widen Berryessa Road to six lanes. **Figure 2** illustrates the conceptual location of two full access signalized intersections and two right-in-right-out north side driveways on the north side of Berryessa Road. **Figure 9** presents the conceptual driveway geometry and volume on Berryessa Road under Project Conditions. Mabury Road will also be widened to four lanes. The Mabury Road and Mabury Yard intersection maintains its existing lane configuration and alignment (not indicated on Calthorpe's May 1, 2006 site plan), but requires lengthening of the eastbound left turn pocket to approximately 300 feet and the southbound shared left-through lane to approximately 200 feet. The southbound shared left-through lane could be a trap lane; however the estimated southbound right turn volume is expected to be higher than the left turn volume during both peak hours. The widening of Berryessa and Mabury roads will require modifications and/or reconstruction of existing bicycle, pedestrian and transit facilities to provide safe and effective transportation connections.

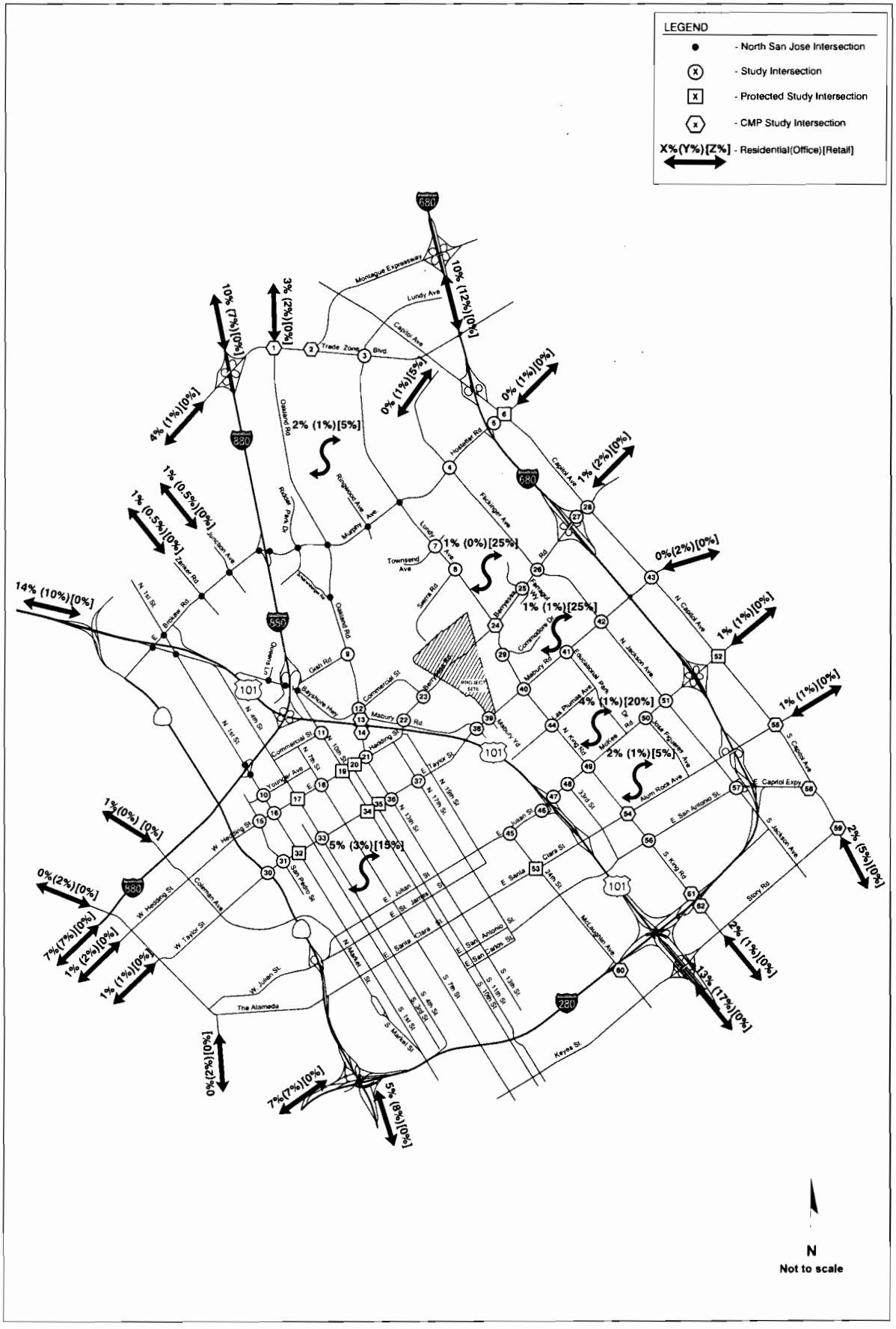
Bicycle lanes will be maintained on both Berryessa Road and Mabury Road, and continuous sidewalks will be provided along the entire project frontage on both streets. Additional bicycle improvements discussed in the on-site circulation section include the Coyote Creek and Penitencia Creek multi-use paths. The widening of Berryessa Road and Mabury Road and the construction of new street and driveway intersections may require relocation of existing bus stops or installation of new stops. All stops will be designed and reviewed by the VTA to ensure concurrence with their standards.

PROJECT INTERSECTION LEVEL OF SERVICE

Intersection levels of service were calculated with the net traffic added by the project to evaluate the operating conditions of the intersections and identify potential impacts to the local roadway system. Project intersection lane configurations and traffic control devices are the same under Background Conditions for all off-site locations. The results of the intersection level of service calculations for Background and Project Conditions are presented in **Table 8**. This table also shows the changes in critical delay and critical volume-to-capacity ratio (V/C) due to the addition of project traffic. The level of service calculation sheets are included in the **Appendix B**.

Measured against the City of San Jose level of service standards the following signalized study intersections would operate at an unacceptable LOS E or worse during one or both of the peak hours:

1. Montague Expressway and Oakland Road (AM and PM peak hour)
2. Montague Expressway and Trade Zone Boulevard (AM and PM peak hour)
12. Commercial Street and Oakland Road (AM and PM peak hour)
13. US 101 and Oakland Road (N) (AM and PM peak hour)
14. US 101 and Oakland Road (S) (PM peak hour)
19. Hedding Street and 10th Street (AM and PM peak hour)
21. Hedding Street and Oakland Road (AM peak hour)
30. Taylor Street and SR 87 (AM and PM peak hour)
32. Taylor Street and 1st Street (PM peak hour)
35. Taylor Street and 11th Street (AM and PM peak hour)
58. Capitol Avenue and Capitol Expressway (PM peak hour)
59. Story Road and Capitol Expressway (AM and PM peak hour)



San Jose Flea Market

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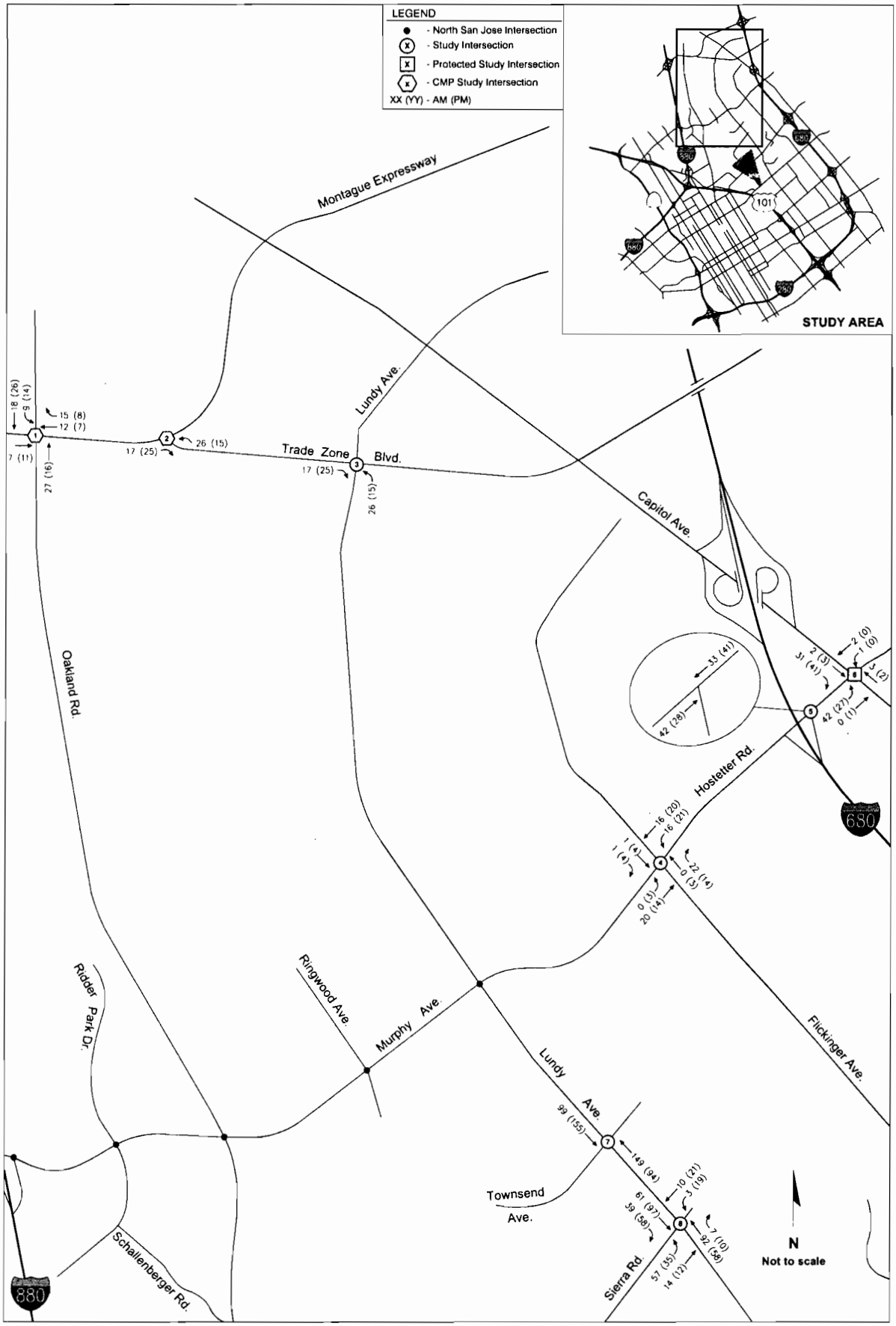
PROJECT TRIP DISTRIBUTION

FIGURE 7



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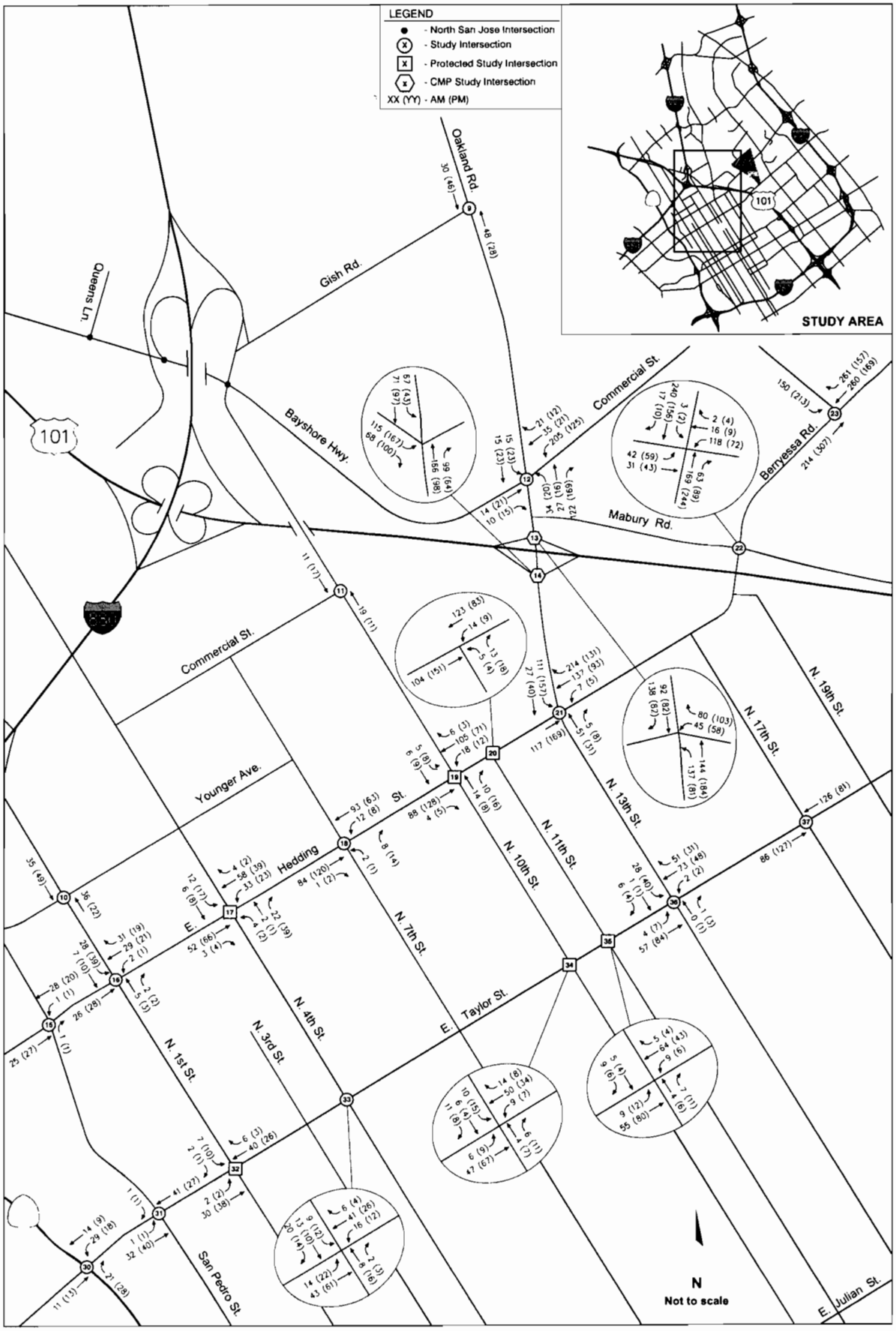
PROJECT TRIP ASSIGNMENT

FIGURE 8A



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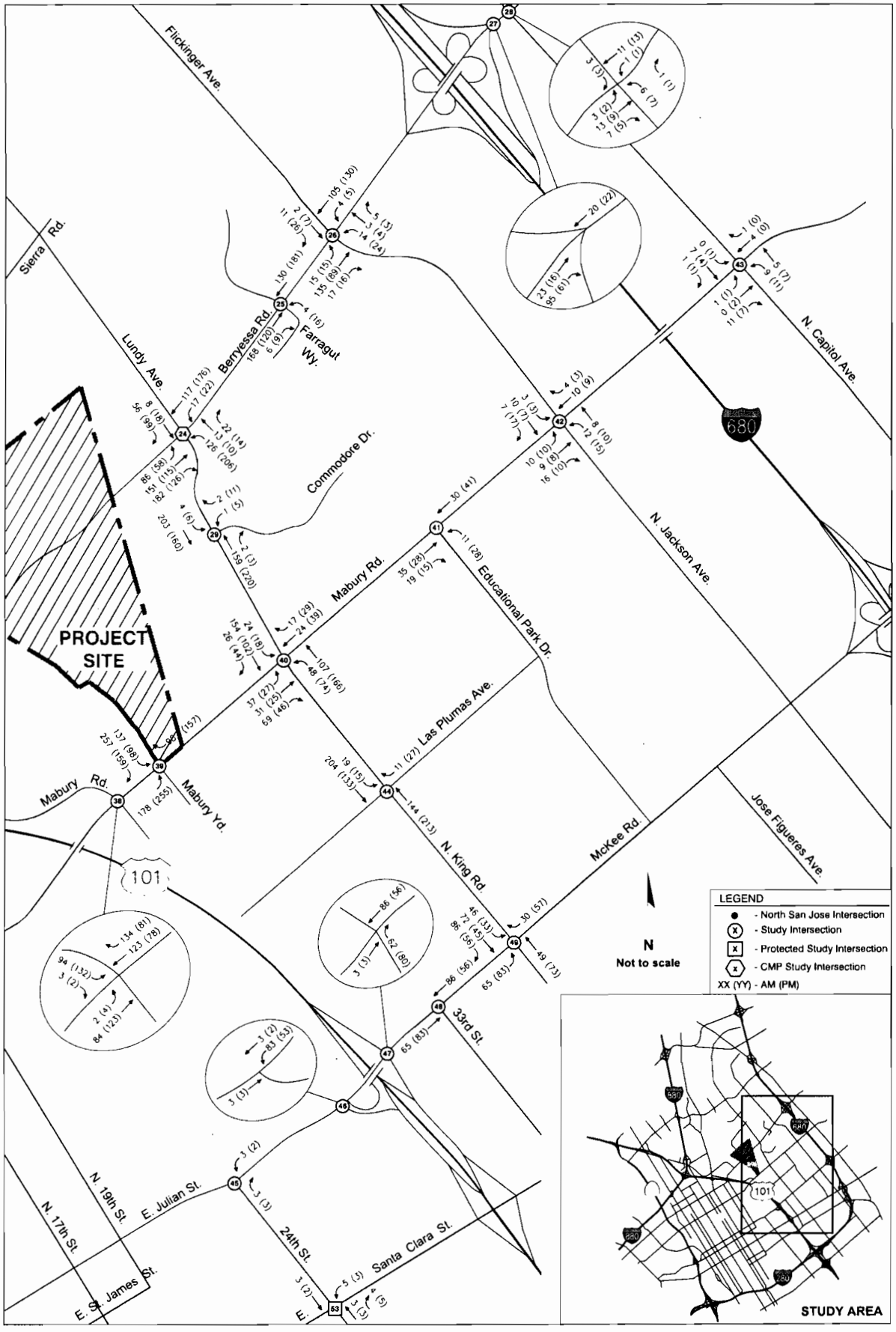
PROJECT TRIP ASSIGNMENT

FIGURE 8B



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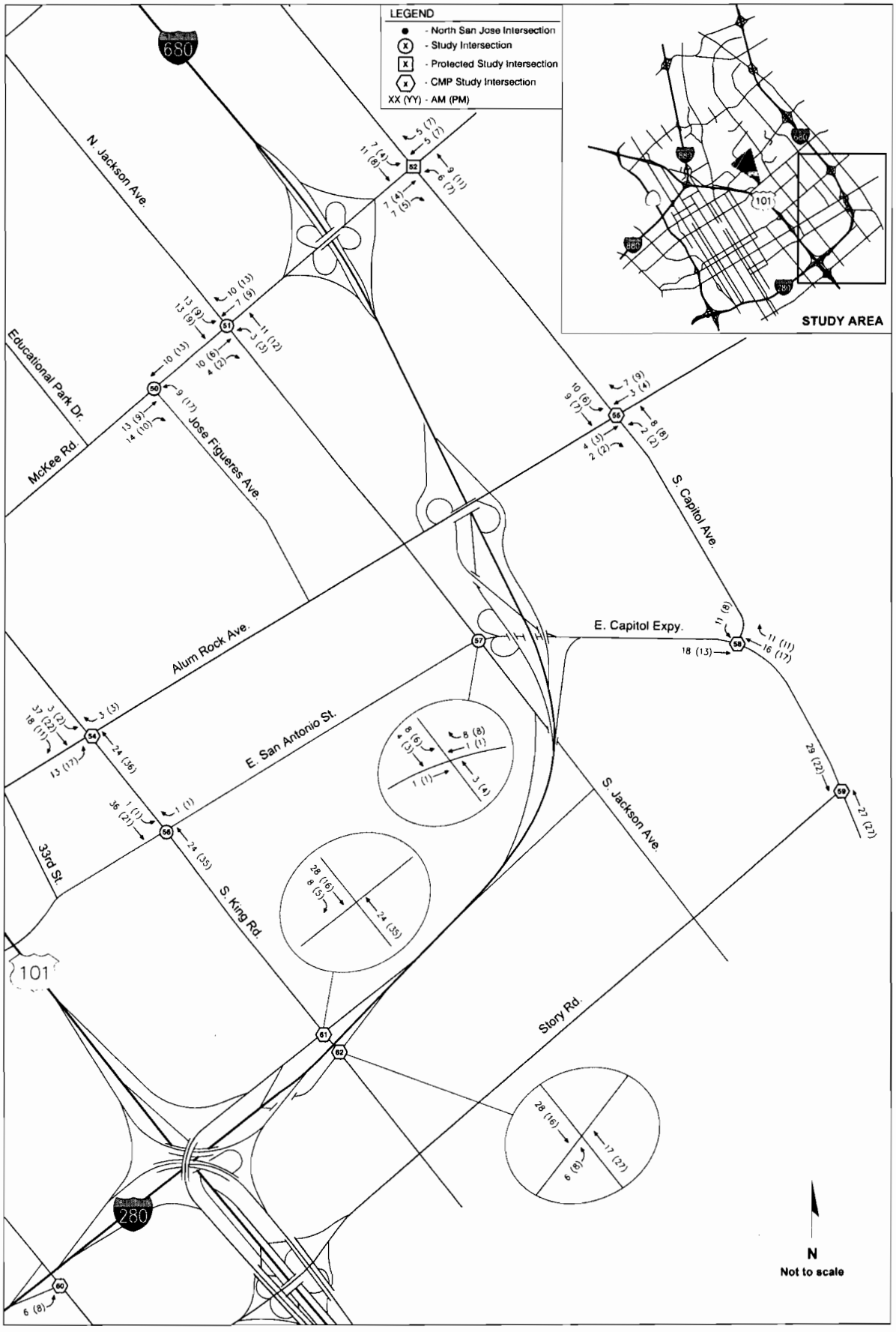
PROJECT TRIP ASSIGNMENT

FIGURE 8C



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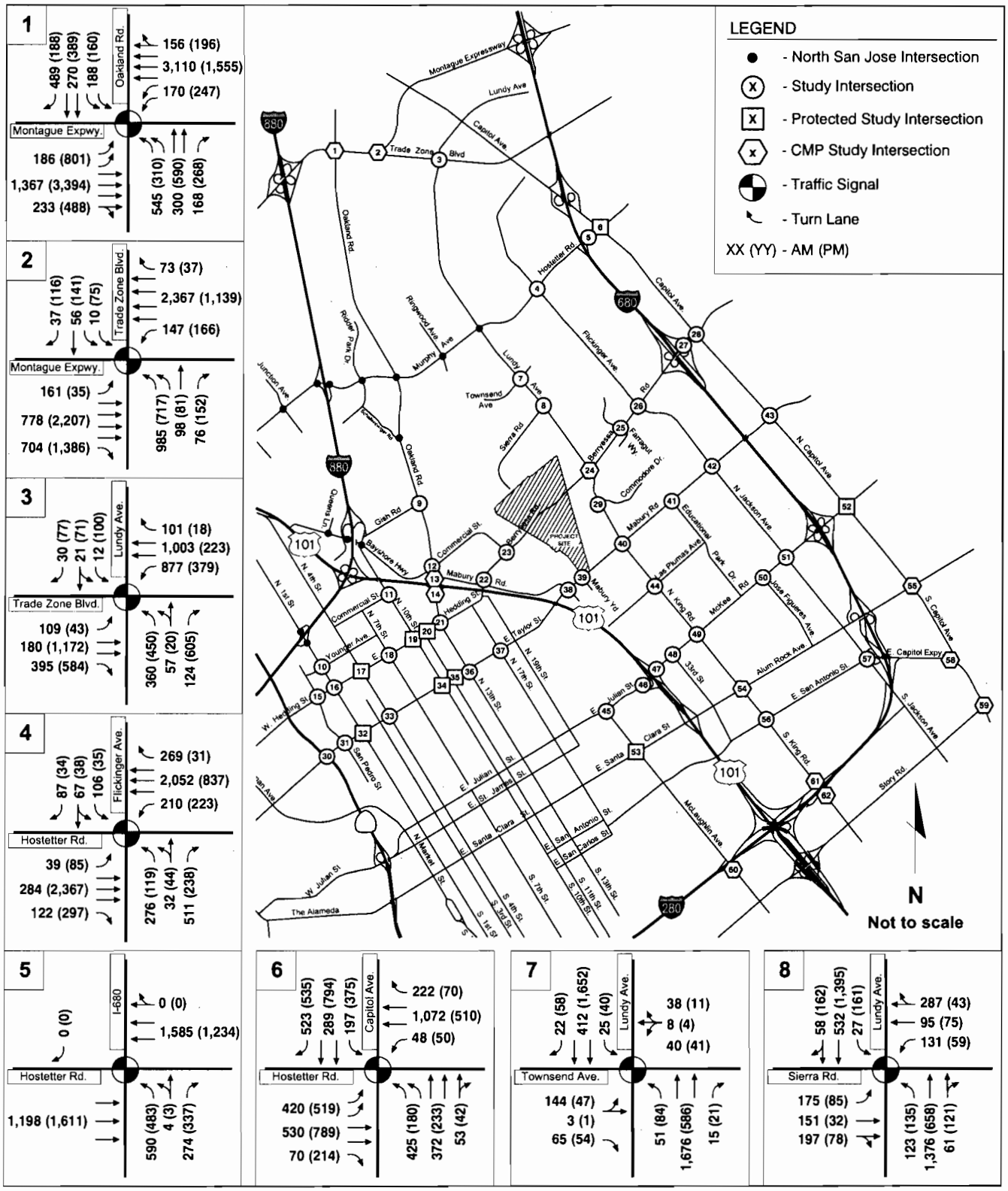
PROJECT TRIP ASSIGNMENT

FIGURE 8D



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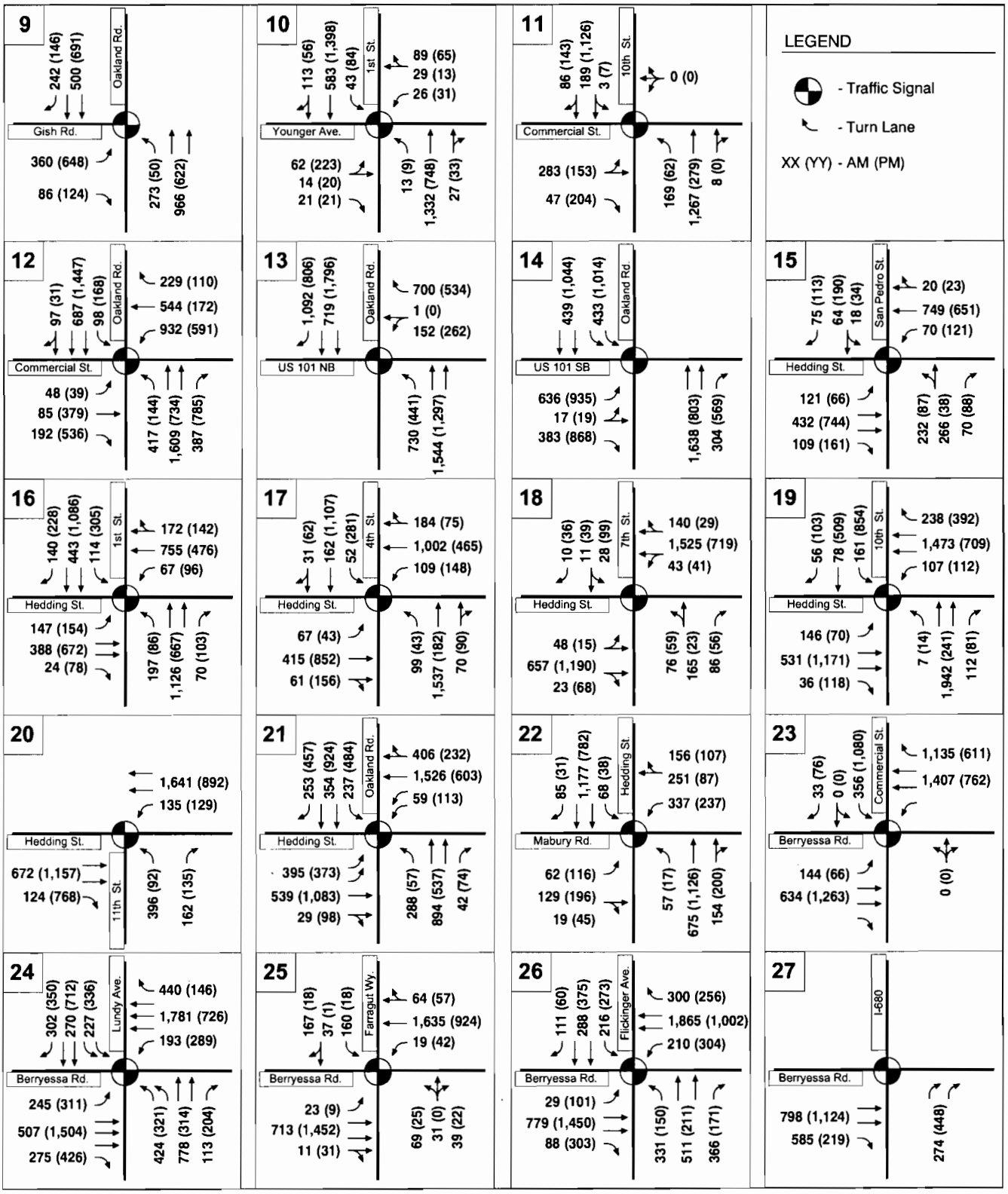
San Jose Flea Market

PROJECT CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 9A



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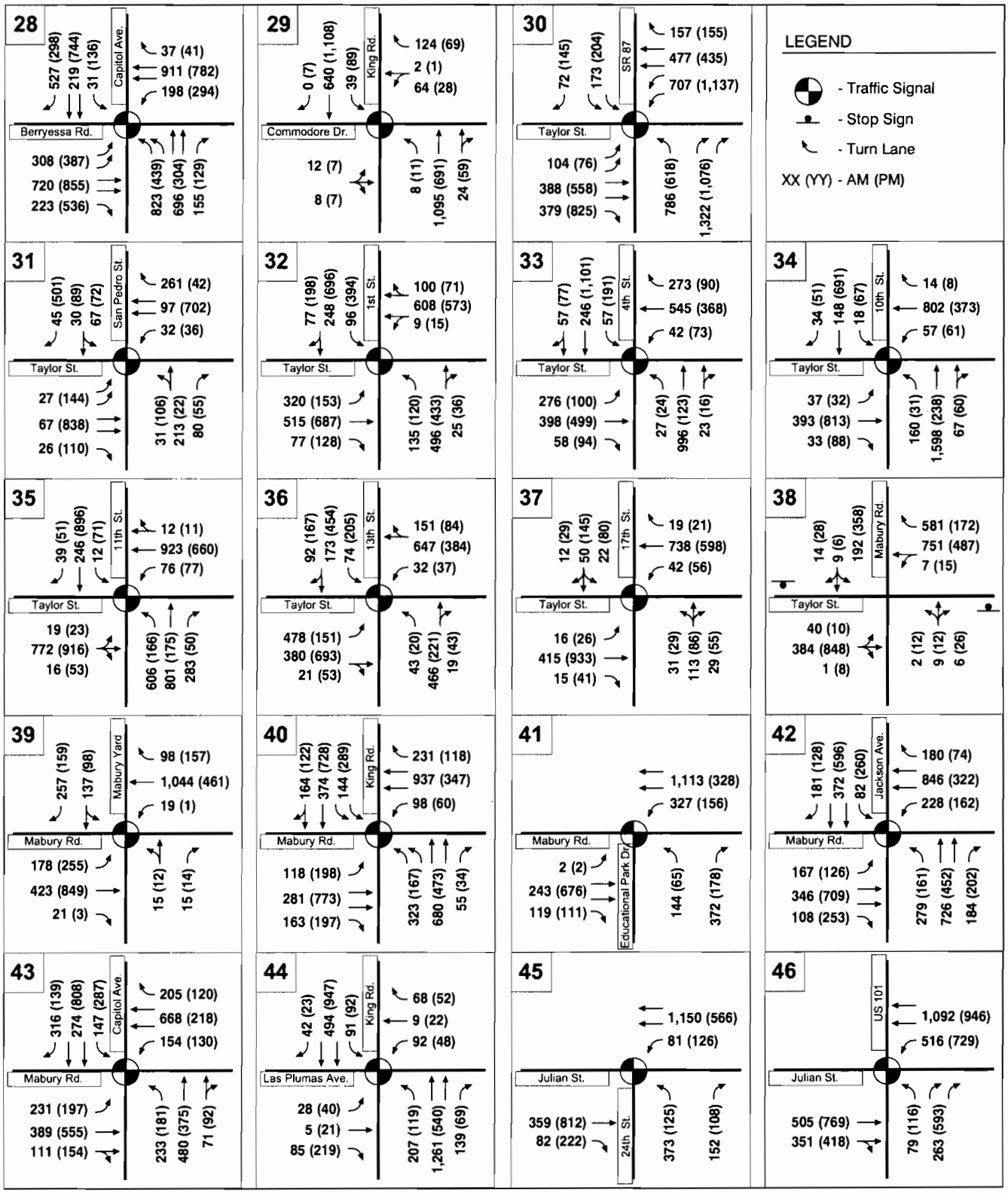
San Jose Flea Market

PROJECT CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 9B



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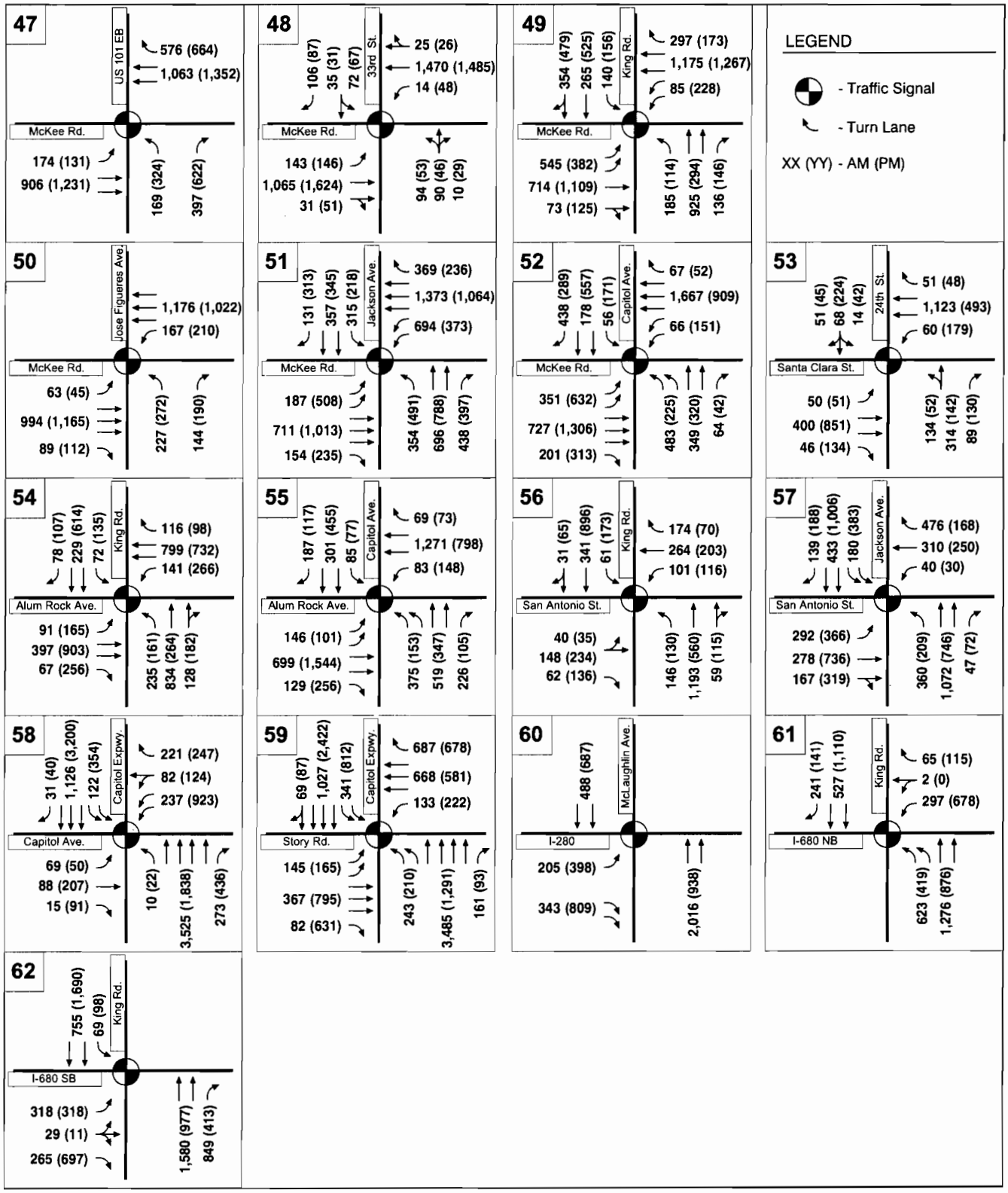
San Jose Flea Market

PROJECT CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 9C



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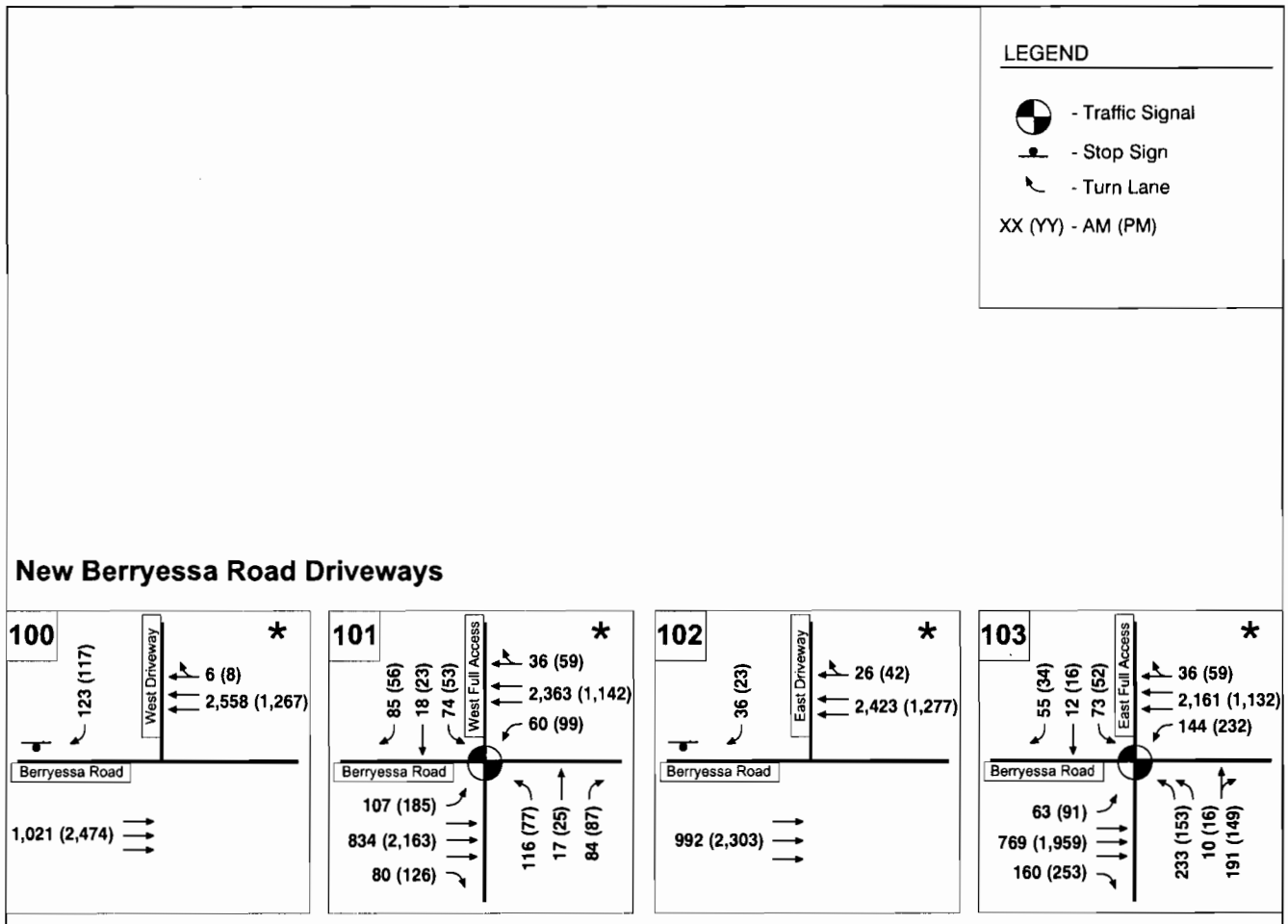
San Jose Flea Market

PROJECT CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 9D



* Conceptual peak-hour traffic volumes and lane configurations.

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San Jose Flea Market

PROJECT CONDITIONS
PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

FIGURE 9E

TABLE 8

BACKGROUND AND PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Background		Project			
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]
1. Montague Expressway / Oakland Road[6]	AM	58.6	E+	58.8	E+	+0.5	+0.004
	PM	68.4	E	69.5	E	+1.3	+0.011
2. Montague Expressway / Trade Zone Boulevard[6]	AM	55.5	E+	56.2	E+	+0.9	+0.009
	PM	55.6	E+	56.6	E+	+2.1	+0.005
3. Trade Zone Boulevard / Lundy Avenue	AM	35.5	D+	36.7	D+	+1.7	+0.011
	PM	40.1	D	40.3	D	+5.6	+0.004
4. Hostetter Road / Flickinger Avenue	AM	27.4	C	27.6	C	+0.1	+0.007
	PM	22.4	C+	23.3	C	+1.4	+0.018
5. Hostetter Road / I-680	AM	21.2	C+	21.0	C+	-0.1	+0.006
	PM	15.5	B	15.4	B	-0.1	+0.005
6. Hostetter Road / Capitol Avenue	AM	48.6	D	49.4	D	+1.1	+0.020
	PM	42.5	D	42.4	D	+0.2	+0.010
7. Townsend Avenue / Lundy Avenue	AM	14.6	B	14.4	B	+0.0	+0.043
	PM	12.3	B	11.9	B+	+0.1	+0.045
8. Sierra Road / Lundy Avenue	AM	31.5	C	33.6	C-	+4.0	+0.066
	PM	21.9	C+	23.4	C	+2.2	+0.076
9. Gish Road / Oakland Road	AM	17.5	B	17.5	B	+0.1	+0.009
	PM	19.5	B-	19.8	B-	+0.5	+0.014
10. Younger Avenue / 1st Street	AM	13.2	B	12.9	B	-0.1	+0.011
	PM	18.2	B-	18.0	B-	0.0	+0.014
11. Commercial Street / 10th Street	AM	24.2	C	24.5	C	+0.3	+0.009
	PM	22.8	C+	22.9	C+	+0.2	+0.009
12. Commercial Street / Oakland Road	AM	72.5	E	**>80**	**F**	**+68.8**	**+0.158**
	PM	47.4	D	**63.5**	**E**	**+24.9**	**+0.095**
13. US 101 / Oakland Road (N)[6]	AM	>80	F	**>80**	**F**	**+100.2**	**+0.229**
	PM	41.7	D	**79.3**	**E-**	**+52.4**	**+0.143**
14. US 101 / Oakland Road (S)[6]	AM	21.6	C+	27.3	C	+8.4	+0.118
	PM	68.6	E	**>80**	**F**	**+50.7**	**+0.122**
15. Hedding Street / San Pedro Street	AM	31.2	C	31.1	C	+0.1	+0.008
	PM	25.1	C	24.9	C	-0.3	+0.008
16. Hedding Street / 1st Street	AM	38.0	D+	39.5	D	+2.4	+0.037
	PM	36.2	D+	37.2	D+	+8.1	+0.032
17. Hedding Street / 4th Street	AM	47.6	D	50.4	D	+3.3	+0.033
	PM	43.8	D	45.6	D	+2.5	+0.038

TABLE 8 (CONTINUED)

BACKGROUND AND PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Background		Project			
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]
18. Hedding Street / 7th Street	AM	11.5	B+	11.4	B+	0.0	+0.032
	PM	9.2	A	8.9	A	-0.5	+0.036
19. Hedding Street / 10th Street	AM	>80	F	**>80**	**F**	**+16.0**	**+0.038**
	PM	51.3	D-	**60.4**	**E**	**+15.9**	**+0.053**
20. Hedding Street / 11th Street	AM	20.6	C+	21.0	C+	+0.4	+0.038
	PM	9.4	A	9.9	A	+0.7	+0.006
21. Hedding Street / Oakland Road	AM	61.5	E	**>80**	**F**	**+47.8**	**+0.171**
	PM	45.3	D	51.0	D	+9.1	+0.159
22. Hedding Street / Mabury Road	AM	20.7	C+	21.0	C+	+0.6	+0.082
	PM	17.3	B	18.0	B	+1.1	+0.130
23. Berryessa Road / Commercial Street	AM	10.5	B+	13.2	B	+6.5	+0.167
	PM	17.2	B	18.7	B-	+2.8	+0.157
24. Berryessa Road / Lundy Avenue[6]	AM	42.6	D	45.5	D	+4.8	+0.080
	PM	43.0	D	46.5	D	+7.2	+0.112
25. Berryessa Road / Farragut Way	AM	23.7	C	22.7	C+	-0.1	+0.038
	PM	9.4	A	9.7	A	-0.4	+0.015
26. Berryessa Road / Flickinger Avenue	AM	42.3	D	43.9	D	+2.9	+0.049
	PM	40.6	D	41.6	D	+1.3	+0.030
27. Berryessa Road / I-680	AM	12.9	B	12.8	B	-0.1	+0.006
	PM	15.0	B	15.0	B	-0.1	+0.004
28. Berryessa Road / Capitol Avenue	AM	52.8	D-	53.3	D-	+0.7	+0.007
	PM	46.5	D	46.7	D	+0.3	+0.006
29. Commodore Drive / King Street	AM	19.6	B-	20.1	C+	+1.7	+0.072
	PM	23.5	C	33.4	C-	+18.8	+0.100
30. Taylor Street / SR 87	AM	74.4	E	77.1	E-	+1.9	+0.014
	PM	58.7	E+	60.7	E	+3.0	+0.010
31. Taylor Street / San Pedro Street	AM	32.4	C-	33.4	C-	+0.1	0.000
	PM	38.4	D+	38.3	D+	+0.1	+0.012
32. Taylor Street / 1st Street	AM	52.7	D-	53.6	D-	+1.3	+0.019
	PM	>80	F	**>80**	**F**	**+6.8**	**+0.022**
33. Taylor Street / 4th Street	AM	41.8	D	43.5	D	+2.9	+0.040
	PM	34.8	C-	36.5	D+	+2.6	+0.049
34. Taylor Street / 10th Street	AM	47.5	D	54.5	D-	+9.9	+0.038
	PM	33.3	C-	37.3	D+	+6.8	+0.041

TABLE 8 (CONTINUED)

BACKGROUND AND PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Background		Project			
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]
35. Taylor Street / 11th Street	AM	50.3	D	**58.0**	**E+**	**+12.9**	**+0.043**
	PM	>80	F	**>80**	**F**	**+24.4**	**+0.060**
36. Taylor Street / 13th Street	AM	13.9	B	15.0	B	+2.4	+0.077
	PM	16.3	B	18.0	B	+3.1	+0.054
37. Taylor Street / 17th Street	AM	15.2	B	14.8	B	+0.3	+0.075
	PM	18.4	B-	19.7	B-	+2.5	+0.076
38. Mabury Road / Mabury Road	AM	43.9	E	**>50**	**F**	**N/A**	**N/A**
	PM	>50	F	**>50**	**F**	**N/A**	**N/A**
39. Mabury Road / Mabury Yard	AM	8.2	A	29.4	C	+29.1	+0.268
	PM	6.9	A	17.6	B	+6.0	+0.094
40. Mabury Road / King Road	AM	35.6	D+	38.5	D+	+7.0	+0.095
	PM	35.9	D+	37.7	D+	+2.9	+0.077
41. Mabury Road / Education Park Drive	AM	14.0	B	14.7	B	+0.5	+0.015
	PM	17.5	B	18.2	B-	+1.1	+0.026
42. Mabury Road / Jackson Avenue	AM	35.8	D+	36.2	D+	+0.8	+0.020
	PM	36.3	D+	36.5	D+	+0.2	+0.007
43. Mabury Road / Capitol Avenue	AM	42.2	D	42.3	D	+0.1	+0.003
	PM	42.3	D	42.6	D	+0.5	+0.011
44. Las Plumas Avenue / King Road	AM	13.5	B	14.1	B	+0.4	+0.054
	PM	16.7	B	16.1	B	-0.7	+0.039
45. Julian Street / 24th Street	AM	18.1	B-	18.1	B-	0.0	0.000
	PM	12.4	B	12.5	B	+0.1	+0.001
46. Julian Street (W) / US 101	AM	18.1	B-	19.1	B-	+1.7	+0.052
	PM	27.2	C	28.8	C	+2.9	+0.033
47. McKee Road (E) / US 101	AM	20.5	C+	21.6	C+	+4.2	+0.015
	PM	24.3	C	25.0	C	0.0	0.000
48. McKee Road / 33rd Street	AM	26.7	C	26.4	C	-0.1	+0.025
	PM	21.3	C+	21.1	C+	0.0	+0.024
49. McKee Road / King Road	AM	42.9	D	48.4	D	+7.3	+0.066
	PM	42.1	D	45.5	D	+5.7	+0.059
50. McKee Road / Jose Figueres Avenue	AM	25.2	C	25.4	C	+0.2	+0.008
	PM	26.4	C	26.8	C	+0.5	+0.012
51. McKee Road / Jackson Avenue	AM	42.0	D	42.5	D	+0.7	+0.013
	PM	44.5	D	44.8	D	+0.4	+0.006

TABLE 8 (CONTINUED)

BACKGROUND AND PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Background		Project			
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]
52. McKee Road / Capitol Avenue	AM	42.9	D	43.0	D	+0.2	+0.003
	PM	39.5	D	39.7	D	+0.2	+0.006
53. Santa Clara Street / 24th Street	AM	28.1	C	28.2	C	+0.1	+0.002
	PM	29.7	C	29.8	C	+0.2	+0.003
54. Alum Rock Road / King Road[6]	AM	31.9	C	32.5	C-	+0.8	+0.018
	PM	35.4	D+	35.9	D+	+0.3	+0.006
55. Alum Rock Road / Capitol Avenue[6]	AM	30.6	C	30.7	C	+0.2	+0.004
	PM	28.7	C	28.9	C	+0.2	+0.004
56. San Antonio Street / King Road	AM	25.0	C	25.0	C	0.0	+0.008
	PM	28.3	C	28.2	C	-0.1	+0.006
57. San Antonio Street / Jackson Avenue	AM	41.5	D	41.6	D	+0.2	+0.006
	PM	39.3	D	39.4	D	+0.1	+0.001
58. Capitol Avenue / Capitol Expressway[6]	AM	30.8	C	30.9	C	+0.3	+0.003
	PM	64.0	E	64.9	E	+1.6	+0.004
59. Story Road / Capitol Expressway[6]	AM	62.4	E	63.1	E	+1.3	+0.004
	PM	57.0	E+	57.3	E+	0.0	+0.004
60. I-280 / McLaughlin Avenue[6]	AM	11.0	B+	11.1	B+	+0.3	+0.004
	PM	16.3	B	16.3	B	0.0	0.000
61. I-680 / King Road (N)[6]	AM	24.6	C	24.5	C	+0.2	+0.008
	PM	32.0	C	31.8	C	0.0	+0.004
62. I-680 / King Road (S)[6]	AM	21.6	C+	21.7	C+	+0.2	+0.002
	PM	29.4	C	29.5	C	+0.3	+0.007

Notes:

1 AM = morning peak-hour, PM = evening peak-hour.

2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. For two-way stop controlled unsignalized intersections, total control delay for the worst movement, expressed in seconds per vehicle, is presented. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 LOS = Level of service

4 Change in critical movement delay between Background and Project Conditions. A decrease in the critical delay indicates project trips were added to movements with low delays thus causing a decrease in the overall critical delay.

5 Change in the critical volume-to-capacity ratio (V/C) between Background and Project Conditions.

6 Designated CMP intersection.

Bold type indicates significant impact.

The unsignalized intersection of Mabury Road and Mabury Road will continue to operate at an unacceptable level of service during both peak hours. The remaining study intersections are expected to operate at an acceptable LOS D or better under Project Conditions based on City of San Jose standards.

Measured against the CMP level of service standards of the following signalized intersections would operate at an unacceptable LOS F during one or both of the peak hours:

13. US 101 and Oakland Road (N) (AM peak hour)
14. US 101 and Oakland Road (S) (PM peak hour)

The remaining study intersections operate at an acceptable LOS E or better under Project Conditions based on CMP standards.

PROJECT INTERSECTION IMPACT CRITERIA

Signalized Intersections

The City of San Jose's new Transportation Impact Policy (2005) designates certain exempt intersections as *Protected Intersections*. These intersections are built to the planned maximum capacity, or further expansion of the intersection would cause an unacceptable impact on other transportation facilities such as bicycle, pedestrian and transit systems and facilities. Protected Intersections within the study area are indicated in **Figure 1** and include different impact criteria than other signalized intersections in the city. As discussed under Project Intersection Mitigation, a Protected Intersection with a significant impact can exceed LOS D if offsetting Transportation System Improvements enhance other transportation facilities within the community.

Implementation of the proposed project would result in a significant impact at a signalized intersection if the addition of project traffic causes:

1. The level of service at any City of San Jose intersection operating at LOS D or better under Background Conditions to deteriorate to LOS E or F; or
2. An increase in the critical movement delay at any Non-Protected City of San Jose intersection operating at LOS E or F under Background Conditions by four (4) or more seconds and an increase in the critical V/C ratio by 0.01 or more; or
3. An increase in the critical movement delay at any Protected City of San Jose intersection operating at LOS E or F under Background Conditions by two (2) or more seconds and an increase in the critical V/C ratio by 0.005 or more; or
4. Degradation of the level of service at a CMP-monitored intersection operating at LOS E or better under Background Conditions to LOS F; or
5. An increase in the critical movement delay at any CMP-monitored intersection operating at LOS F under Background Conditions by four (4) or more seconds and an increase in the critical V/C ratio by 0.01 or more.

Unsignalized Intersections

For this analysis, traffic impacts at unsignalized intersections are defined to occur when the addition of project traffic causes:

1. Intersection operations to deteriorate from an acceptable level under Background Conditions (LOS D or better) to an unacceptable level (LOS E or worse) and the MUTCD Peak Hour Volume Warrant is met under Project Conditions; or
2. The exacerbation of operations at an unsignalized intersection already operating at an unacceptable level (LOS E or worse) under Background Conditions and the MUTCD Peak Hour Volume Warrant is met under Project Conditions.

PROJECT INTERSECTION IMPACTS

Based on the City of San Jose project impact criteria listed above, the proposed project would have a **significant impact** at the following intersections:

12. Commercial Street / Oakland Road (AM and PM peak hour)
13. US 101 / Oakland Road (N) (AM and PM peak hour)
14. US 101 / Oakland Road (S) (PM peak hour)
19. Hedding Street / 10th Street (AM and PM peak hour) – Protected Intersection
21. Hedding Street / Oakland Road (AM peak hour)
32. Taylor Street / 1st Street (PM peak hour) – Protected Intersection
35. Taylor Street / 11th Street (AM and PM peak hour) – Protected Intersection
38. Mabury Road /Mabury Road (AM and PM peak hour)

During the AM peak hour, the proposed project will exacerbate unacceptable signalized intersection operations on Oakland Road at the Commercial Street and northbound US 101 ramps intersections; and on Hedding Street at the 10th Street and Oakland Road intersections. Based on the criteria described above, this is considered a ***significant impact***.

During the PM peak hour, the proposed project will exacerbate unacceptable signalized intersection operations under Project Conditions at the US 101 and Oakland Road (S) intersection, and the Taylor Street intersections at 1st Street and 11th Street. The project will cause several intersections to degrade to unacceptable operations during the PM peak hour including the Oakland Road intersections at Commercial Street and the northbound US 101 ramps, and at the Hedding Street/11th Street intersection. Based on the criteria described above this is considered a ***significant impact***.

The proposed project would also cause a **significant impact** at the unsignalized Mabury Road/Mabury Road intersection. This intersection meets the peak hour signal warrant during the AM and PM peak hours (see **Appendix D**) and will operate unacceptably under Project Conditions.

Based on the CMP project impact criteria listed above, the proposed project would have a **significant impact** at the following intersections:

13. US 101 / Oakland Road (N) (PM peak hour)
14. US 101 / Oakland Road (S) (PM peak hour)

PROJECT INTERSECTION MITIGATION

As noted above, the results of the transportation impact analysis indicates that the proposed project will have significant impacts. The proposed mitigation improvements are described below and presented in **Figure 10**.

Appendix E contains the TRAFFIX Level of Service calculations for these mitigation improvements. The conceptual project intersection mitigation drawings are included in **Appendix F**.

City of San Jose staff has identified operational problems at the US 101/Oakland Road interchange. The deficiencies are primarily due to the capacity constraints of the interchange. The current configuration is inadequate to serve existing vehicle demand due to its function as the main gateway into the Oakland Road area and a primary route across US 101. Significant impacts caused by several projects in process have been identified at the interchange ramps. Most notably, the traffic studies for both the North San Jose and Downtown San Jose Strategy 2000 projects identified impacts at this location. The identified mitigation for those projects was the complete reconstruction of the interchange including the widening of the bridge structure over US 101. However, reconstruction of the interchange is not required until the latter phases of each development, which are expected to occur over the next 30 to 50 years. This timing does not coincide with the near-term development of the Flea Market project.

12. Commercial Street and Oakland Road

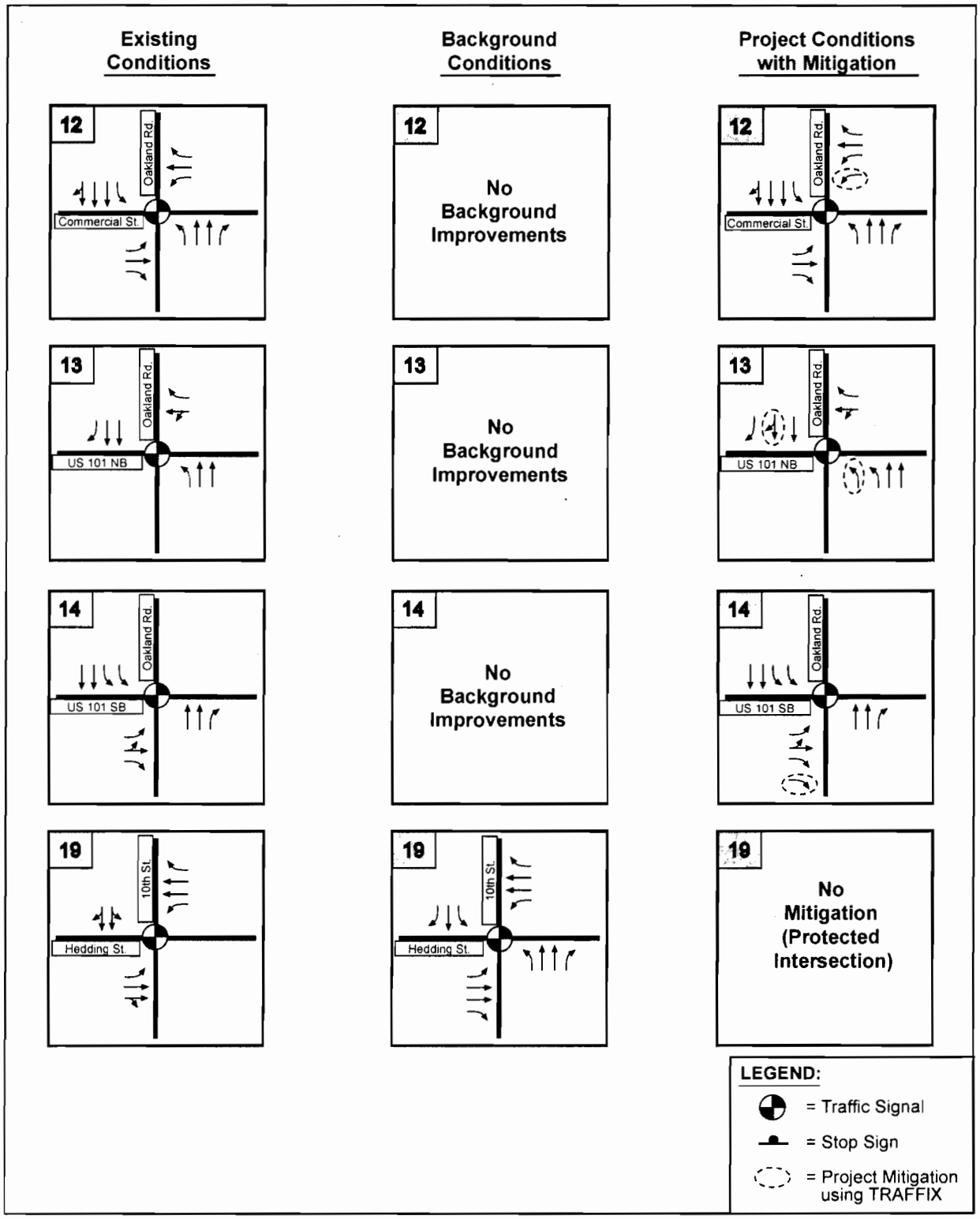
Mitigation of the project's impact at Commercial Street and Oakland Road requires a second westbound left-turn lane. During the AM peak hour, this improvement would reduce the change in average critical delay and critical volume-to-capacity (V/C) below the defined thresholds. During the PM peak hour, the second westbound left-turn lane would provide acceptable traffic operations (LOS D 41.8 seconds per vehicle). To accommodate eastbound and westbound left-turning vehicles with this lane addition requires implementation of lead-lag phasing. Also, this lane addition may require right-of-way, and removal of on-street parking.

13. US 101 and Oakland Road (N)

The improvements required to mitigate the project's impact to a less than significant level during both peak hours include the conversion of a southbound through lane to a shared through-right lane, and the addition of a second northbound left-turn lane. A no-right-turn-on-red condition on the southbound approach is recommended with the second right-turn lane to minimize the potential for vehicle-pedestrian conflicts. Adding the second left-turn lane will require widening of the bridge structure. During the AM peak hour, the improvements would reduce the increase of the average critical delay and the critical volume-to-capacity (V/C) below the impact thresholds. During the PM peak hour, the improvements would provide acceptable traffic operations (LOS D 43.0 seconds per vehicle). The conversion of the southbound through lane to a shared through-right lane requires the removal of the existing right-turn median island and elimination of the existing free right turn movement. The lane reconfiguration for the shared southbound through/right-turn lane can be completed within the existing right-of-way, but provision of the second northbound left-turn lane requires the widening of the Oakland Road bridge structure over the freeway. The City is currently preparing a traffic study with the possibility of creating an Area Development Policy (ADP) for the Oakland/Mabury/US 101 Corridor. The intent of the policy will be to facilitate building out the transit hub surrounding the future BART station by providing the necessary regional traffic capacity. This project may have an opportunity to participate in the ADP in the future.

14. US 101 and Oakland Road (S)

During the PM peak hour, a second eastbound right-turn lane is needed to mitigate the project's impact to a less than significant level. During the PM peak hour, this improvement reduces the increase of the average critical delay and the critical volume-to capacity (V/C) below the impact thresholds. Based on field measurements and observations, the additional eastbound right-turn lane might need additional right-of-way. A no-right-turn-on-red condition on the eastbound approach is recommended with the second right-turn lane to minimize the potential for vehicle-pedestrian conflicts and to reduce the potential sight distance issue for drivers in vehicles on the off-ramp. (See reference under Intersection 13 above regarding possible participation in an Area Development Policy.



San Jose Flea Market

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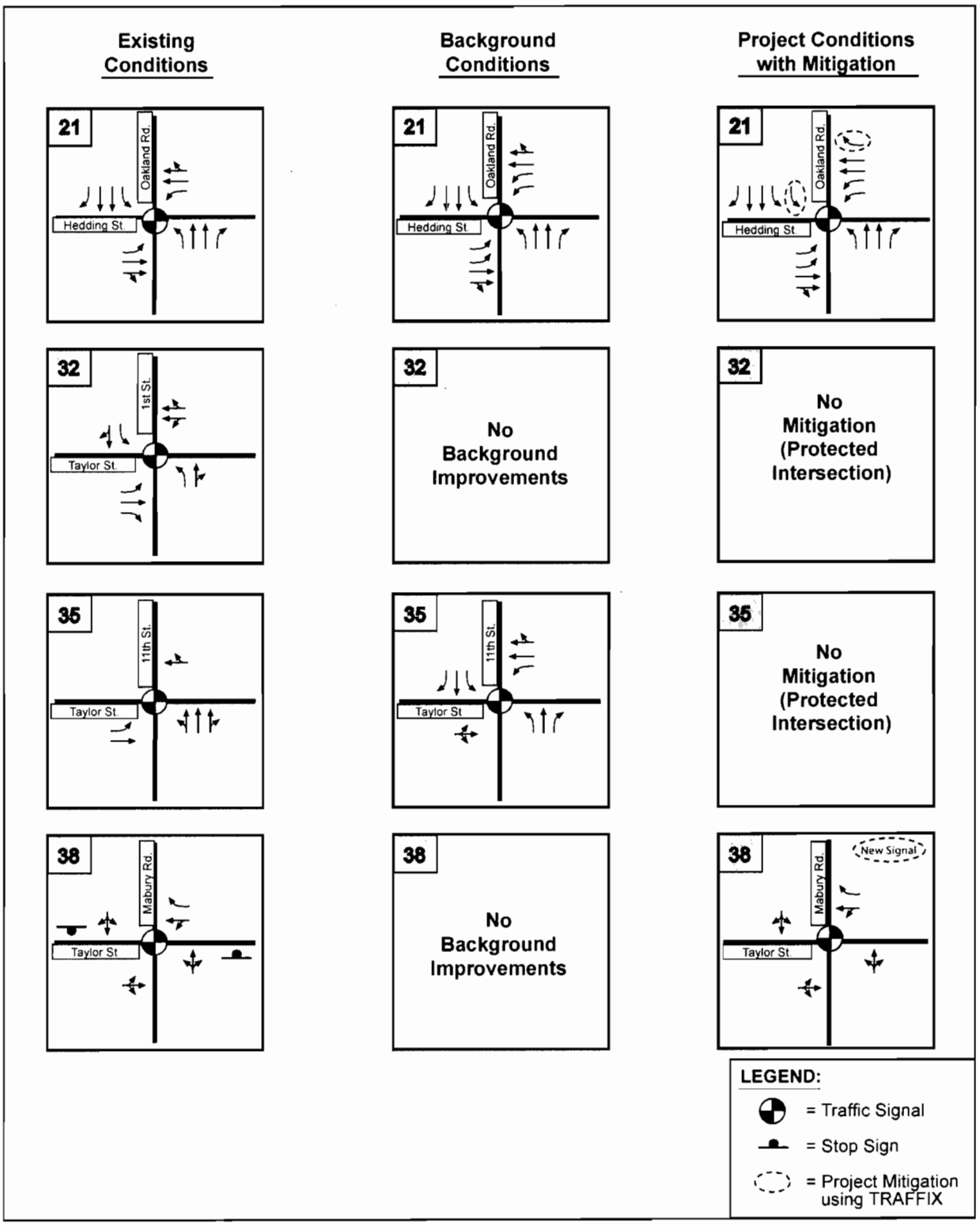
TRANSPORTATION CONSULTANTS

PROPOSED INTERSECTION MITIGATION

September 2006
1035-641\641-10A_mitigation

FIGURE 10A



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PROPOSED INTERSECTION MITIGATION

September 2006
1035-641\641-10B_mitigation

FIGURE 10B

21. Hedding Street and Oakland Road

The improvements required to mitigate the project's impact to a less than significant level during the AM peak hour are the addition of a separate westbound right-turn lane and a second southbound left-turn lane. During theAM peak hour these modifications would reduce the increase in average critical delay and critical volume-to-capacity (V/C) below the impact thresholds. The conversion of the southbound approach requires modification to the northbound and southbound approaches and signal modification to accommodate the northbound-southbound left-turns within the intersection. Implementing both of these lane additions will require the acquisition of private property, which may require condemnation by the City of San Jose. The other option to address this impact is to designate this location as a "Protected Intersection" (see discussion below). City staff recommends that the project propose the new designation, and only implement physical mitigation as an alternative.

38. Mabury Road and Mabury Road

The improvement required to mitigate the project's impact to a less than significant level during each peak hour is signalization of the intersection. The signalization of the Mabury Road and Mabury Road intersection would provide acceptable traffic operations, LOS B+ (10.4 seconds per vehicle) and LOS B- (18.6 seconds per vehicle), during the AM and PM peak hours, respectively. This intersection also meets MUTCD's peak hour warrants for the AM and PM peak hours under Project Conditions (**Appendix D**). The Mabury Road and Mabury Road signalization should be phased in a manner to accommodate the construction of the US 101/Mabury Road interchange and other local improvements. Further engineering studies are required to determine the feasibility of these improvements, especially at the US 101/Mabury Road interchange. The Operational Issues Chapter also discusses the need to coordinate signal operations with Mabury Road and Mabury Yard intersection and the addition of an eastbound left-turn lane, which may require right-of-way.

Protected Intersections

Under the City of San Jose's *Transportation Impact Policy*, the significantly impacted protected intersections (Hedding Street/10th Street, Taylor Street/1st Street, and Taylor Street/11th Street) do not require physical intersection mitigation improvements. Rather, the project sponsor will propose physical improvements to other elements of the citywide transportation system to improve system capacity and/or enhance non-auto travel modes. The location and types of improvements will be determined through neighborhood outreach. The system improvements do not need to be finalized during the CEQA process. However, as indicated in the City of San Jose's *Transportation Impact Policy*, the project sponsor should present the value, location, and type of potential offsetting improvements (i.e., bicycle, pedestrian and/or transit facility) during the community outreach process. The City of San Jose's Transportation Impact Policy recommends that the project sponsor and city staff negotiate an improvement cost per peak hour project trip.

The offsetting improvements are not mitigation as defined by CEQA. Since the offsetting improvements do not address the intersection impact at Protected Intersections it is possible for secondary impacts (i.e., diversion of motor vehicles) to occur. However, due to the limited alternate routes north of Hedding Street it is not expected that localized diversion will occur near the Protected Intersections. Furthermore, the grid street pattern between Hedding Street and Taylor Street promotes the even distribution of motor vehicles among the signalized intersections of San Pedro, 1st, 4th, 7th, 10th, 11th, and 13th Street, which limits the potential for localized diversion.

PROJECT FREEWAY SEGMENT LEVEL OF SERVICE

According to CMP guidelines, freeway segments with project traffic equal to or greater than one percent of the freeway segment's capacity must be evaluated. Segments of US 101 were reviewed during the AM and PM peak hours to determine if a significant amount of project traffic would be added to these freeway segments. Capacities of 2,300 and 1,900 vehicles per hour per lane (vphpl) were used for the mixed-flow, and HOV lanes, respectively. **Tables 9 and 10** present the results of the freeway segment analysis for mixed-flow and HOV lanes, respectively.

PROJECT FREEWAY IMPACT CRITERIA

Implementation of the proposed project would result in a significant impact if the addition of project traffic on a freeway segment exceeded one of the following thresholds:

1. The addition of project traffic causes the operating level of a freeway segment to deteriorate from LOS E or better under Existing Conditions to LOS F; or
2. The number of new trips added by a proposed project to a segment already operating at LOS F under Existing Conditions is more than one percent of the freeway segment capacity.

PROJECT FREEWAY IMPACTS

The results of the freeway level of service analysis indicate that the proposed project would create a **significant impact** on the following mixed-flow and HOV freeway segments:

AM peak hour

a. Northbound US 101 between I-280 and SR 87 (7 segments)

b. HOV Northbound US 101 between Oakland Road and SR 87 (4 segments)

c. Westbound I-280 between McLaughlin Avenue and Bird Street (3 segments)

d. Northbound I-880 between The Alameda and Coleman Avenue (1 segment)

PM peak hour

a. Southbound SR 87 between I-280 and Alma Avenue (1 segment)

b. Southbound US 101 between SR 87 and Tully Road (9 segments)

c. HOV Southbound US 101 between Santa Clara Street and I-280 (1 segment)

d. Eastbound I-280 between Bird Avenue and 10th Street (2 segments)

e. Southbound I-680 between Montague Expressway and Berryessa Road (3 segments)

f. Southbound I-880 between Montague Expressway and US 101 (2 segments)

TABLE 9

MIXED-FLOW LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
NB SR 87	I-280	Alma Ave.	4,400	AM	32	D	57	32	D	1.30
				PM	31	D	68	32	D	1.55
	Julian St.	I-280	4,400	AM	25	C	25	25	C	0.57
				PM	14	B	32	14	B	0.73
	Coleman Ave.	Julian St.	4,400	AM	44	D	21	44	D	0.48
				PM	17	B	28	17	B	0.64
SB SR 87	Alma Ave.	I-280	4,400	AM	30	D	71	31	D	1.61
				PM	93	F	**47**	**95**	**F**	**1.07**
	I-280	Julian St.	4,400	AM	15	B	34	15	B	0.77
				PM	120	F	22	121	F	0.50
	Julian St.	Coleman Ave.	4,400	AM	13	B	29	13	B	0.66
				PM	89	F	18	89	F	0.41
NB US 101	Story Rd.	Tully Rd.	6,900	AM	43	D	117	44	D	1.70
				PM	27	D	156	28	D	2.27
	I-280	Story Rd.	6,900	AM	18	B	117	19	C	1.70
				PM	20	C	144	21	C	2.09
	Santa Clara St.	I-280	6,900	AM	66	F	**167**	**68**	**F**	**2.43**
				PM	25	C	237	26	D	3.43
	McKee Rd.	Santa Clara St.	6,900	AM	85	F	**106**	**87**	**F**	**1.54**
				PM	22	C	131	23	C	1.89
	Oakland Rd.	McKee Rd.	6,900	AM	92	F	**106**	**95**	**F**	**1.54**
				PM	36	D	145	37	D	2.10
	I-880	Oakland Rd.	6,900	AM	80	F	**234**	**84**	**F**	**3.39**
				PM	24	C	143	25	C	2.07
	Old Bayshore Hwy.	I-880	6,900	AM	107	F	**104**	**110**	**F**	**1.50**
				PM	22	C	61	22	C	0.88
	1st St.	Old Bayshore Hwy.	6,900	AM	91	F	**133**	**94**	**F**	**1.93**
				PM	32	D	82	32	D	1.19
	SR 87	1st St.	6,900	AM	74	F	**165**	**77**	**F**	**2.39**
				PM	22	C	100	23	C	1.45
SB US 101	Tully Rd.	Story Rd.	6,900	AM	24	C	168	25	C	2.43
				PM	77	F	**84**	**79**	**F**	**1.21**

TABLE 9 (CONTINUED)

MIXED-FLOW LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
SB US 101	Story Rd.	I-280	6,900	AM	14	B	156	15	B	2.26
				PM	57	E	**88**	**58**	**F**	**1.27**
	I-280	Santa Clara St.	6,900	AM	19	C	237	20	C	3.43
				PM	79	F	**123**	**82**	**F**	**1.79**
	Santa Clara St.	McKee Rd.	6,900	AM	21	C	154	22	C	2.24
				PM	67	F	**77**	**68**	**F**	**1.11**
	McKee Rd.	Oakland Rd.	6,900	AM	16	B	157	17	B	2.28
				PM	62	F	**78**	**63**	**F**	**1.14**
	Oakland Rd.	I-880	6,900	AM	17	B	166	18	B	2.41
				PM	95	F	**179**	**101**	**F**	**2.60**
	I-880	Old Bayshore Hwy.	6,900	AM	16	B	75	16	B	1.08
				PM	114	F	**77**	**118**	**F**	**1.12**
	Old Bayshore Hwy.	1st St.	6,900	AM	17	B	70	17	B	1.01
				PM	102	F	**79**	**105**	**F**	**1.14**
	1st St.	SR 87	6,900	AM	15	B	113	16	B	1.64
				PM	81	F	**134**	**84**	**F**	**1.94**
EB I-280	McLaughlin Ave.	US 101	9,200	AM	23	C	26	23	C	0.28
				PM	33	D	34	33	D	0.37
	10th St.	McLaughlin Ave.	9,200	AM	27	D	92	27	D	1.00
				PM	48	E	119	49	E	1.29
	SR 87	10th St.	9,200	AM	20	C	100	20	C	1.09
				PM	65	F	**130**	**66**	**F**	**1.41**
	Bird Ave.	SR 87	9,200	AM	17	B	69	17	B	0.75
				PM	76	F	**95**	**77**	**F**	**1.03**
WB I-280	US 101	McLaughlin Ave.	9,200	AM	111	F	35	112	F	0.38
				PM	22	C	23	22	C	0.25
	McLaughlin Ave.	10th St.	9,200	AM	74	F	**124**	**75**	**F**	**1.35**
				PM	28	D	79	28	D	0.86
	10th St.	SR 87	9,200	AM	86	F	**134**	**88**	**F**	**1.46**
				PM	29	D	86	29	D	0.93
	SR 87	Bird Ave.	9,200	AM	102	F	**98**	**104**	**F**	**1.07**
				PM	85	F	60	86	F	0.65

TABLE 9 (CONTINUED)

MIXED-FLOW LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
NB I-680	King Rd.	US 101	9,200	AM	26	C	26	26	D	0.28
				PM	25	C	34	25	C	0.37
	Capitol Expwy.	King Rd.	9,660	AM	23	C	20	23	C	0.21
				PM	40	D	26	40	D	0.27
	Alum Rock Ave.	Capitol Expwy.	9,200	AM	44	D	24	44	D	0.26
				PM	26	C	30	26	D	0.33
	McKee Rd.	Alum Rock Ave.	9,200	AM	61	F	24	61	F	0.26
				PM	29	D	30	29	D	0.33
	Berryessa Rd.	McKee Rd.	9,200	AM	44	D	18	44	D	0.20
				PM	26	C	21	26	D	0.23
	Hostetter Rd.	Berryessa Rd.	9,200	AM	34	D	95	34	D	1.03
				PM	28	D	61	28	D	0.66
	Capitol Ave.	Hostetter Rd.	9,200	AM	33	D	95	33	D	1.03
				PM	22	C	60	22	C	0.65
	Montague Expwy.	Capitol Ave.	9,200	AM	29	D	140	30	D	1.52
				PM	21	C	89	21	C	0.97
SB I-680	US 101	King Rd.	9,200	AM	108	F	35	109	F	0.38
				PM	25	C	23	25	C	0.25
	King Rd.	Capitol Expwy.	11,500	AM	85	F	27	78	F	0.23
				PM	22	C	17	20	C	0.15
	Capitol Expwy.	Alum Rock Ave.	9,200	AM	78	F	23	78	F	0.25
				PM	27	D	15	27	D	0.16
	Alum Rock Ave.	McKee Rd.	9,200	AM	53	E	31	53	E	0.34
				PM	53	E	21	53	E	0.23
	McKee Rd.	Berryessa Rd.	9,200	AM	24	C	22	24	C	0.24
				PM	55	E	15	55	E	0.16
	Berryessa Rd.	Hostetter Rd.	9,200	AM	21	C	71	21	C	0.77
				PM	68	F	**92**	**69**	**F**	**1.00**
	Hostetter Rd.	Capitol Ave.	9,200	AM	28	D	70	28	D	0.76
				PM	90	F	**92**	**91**	**F**	**1.00**
	Capitol Ave.	Montague Expwy.	9,200	AM	22	C	103	22	C	1.12
				PM	66	F	**135**	**67**	**F**	**1.47**

TABLE 9 (CONTINUED)

MIXED-FLOW LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
NB I-880	Coleman Ave.	The Alameda	6,900	AM	72	F	**69**	**73**	**F**	**1.00**
				PM	32	D	95	32	D	1.38
	SR 87	Coleman Ave.	6,900	AM	47	E	69	48	E	1.00
				PM	39	D	95	40	D	1.38
	1st St.	SR 87	6,900	AM	34	D	69	34	D	1.00
				PM	25	C	95	25	C	1.38
	US 101	1st St.	6,900	AM	41	D	52	41	D	0.75
				PM	37	D	71	37	D	1.03
	Brokaw Rd.	US 101	6,900	AM	36	D	125	37	D	1.81
				PM	32	D	72	32	D	1.04
	Montague Expwy.	Brokaw Rd.	6,900	AM	30	D	182	31	D	2.64
				PM	22	C	105	23	C	1.52
	Great Mall Pkwy.	Montague Expwy.	6,900	AM	26	C	138	27	D	2.00
				PM	26	C	81	26	D	1.17
SB I-880	The Alameda	Coleman Ave.	6,900	AM	34	D	98	35	D	1.42
				PM	53	E	60	54	E	0.87
	Coleman Ave.	SR 87	6,900	AM	35	D	98	36	D	1.42
				PM	52	E	60	53	E	0.87
	SR 87	1st St.	6,900	AM	30	D	98	31	D	1.42
				PM	90	F	60	91	F	0.87
	1st St.	US 101	6,900	AM	28	D	73	28	D	1.06
				PM	114	F	45	116	F	0.65
	US 101	Brokaw Rd.	6,900	AM	26	C	79	26	D	1.14
				PM	83	F	**122**	**85**	**F**	**1.77**
	Brokaw Rd.	Montague Expwy.	6,900	AM	25	C	116	26	C	1.68
				PM	81	F	**177**	**84**	**F**	**2.57**
	Montague Expwy.	Great Mall Pkwy.	6,900	AM	27	D	91	27	D	1.32
				PM	53	E	135	54	E	1.96

Notes:

1 Density based on volume from VTA's *2004 CMP Monitoring Data* (March 2005).

2 NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound.

Bold type indicates significant impact.

TABLE 10

HOV LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
NB US 101	Story Rd.	Tully Rd.	1,800	AM	28	D	21	28	D	1.15
				PM	10	A	20	10	A	1.09
	I-280	Story Rd.	1,800	AM	21	C	21	21	C	1.15
				PM	13	B	26	13	B	1.47
	Santa Clara St.	I-280	1,800	AM	53	E	30	54	E	1.64
				PM	5	A	16	5	A	0.90
	McKee Rd.	Santa Clara St.	1,800	AM	56	E	19	57	E	1.04
				PM	15	B	24	15	B	1.34
	Oakland Rd.	McKee Rd.	1,800	AM	52	E	19	52	E	1.04
				PM	11	A	16	11	B	0.90
	I-880	Oakland Rd.	1,800	AM	75	F	**41**	**77**	**F**	**2.29**
				PM	10	A	20	10	A	1.12
	Old Bayshore Hwy.	I-880	1,800	AM	80	F	**18**	**81**	**F**	**1.02**
				PM	12	B	11	12	B	0.60
	1st St.	Old Bayshore Hwy.	1,800	AM	85	F	**24**	**87**	**F**	**1.31**
				PM	12	B	11	12	B	0.60
	SR 87	1st St.	1,800	AM	68	F	**29**	**69**	**F**	**1.62**
				PM	9	A	14	9	A	0.77
SB US 101	Tully Rd.	Story Rd.	1,800	AM	6	A	14	6	A	0.79
				PM	43	D	18	43	D	0.98
	Story Rd.	I-280	1,800	AM	7	A	26	7	A	1.45
				PM	34	D	18	34	D	0.98
	I-280	Santa Clara St.	1,800	AM	6	A	25	6	A	1.40
				PM	64	F	**25**	**65**	**F**	**1.41**
	Santa Clara St.	McKee Rd.	1,800	AM	5	A	13	5	A	0.70
				PM	41	D	16	41	D	0.89
	McKee Rd.	Oakland Rd.	1,800	AM	3	A	10	3	A	0.54
				PM	35	D	16	35	D	0.89
	Oakland Rd.	I-880	1,800	AM	5	A	17	5	A	0.92
				PM	50	E	40	51	E	2.23
	I-880	Old Bayshore Hwy.	1,800	AM	4	A	6	4	A	0.35
				PM	68	F	18	69	F	0.99

TABLE 10 (CONTINUED)

HOV LANES: PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Direction	From/To	From/To	Capacity (Veh.)	Peak Hour	Existing Conditions		Project Conditions			
					Density	LOS	Project Trips	Density	LOS	Percent Impact
SB US 101	Old Bayshore Hwy.	1st St.	1,800	AM	8	A	11	8	A	0.61
				PM	54	E	18	54	E	0.99
	1st St.	SR 87	1,800	AM	6	A	15	6	A	0.83
				PM	50	E	28	51	E	1.58

Notes:

1 Density based on volume from VTA's *2004 CMP Monitoring Data* (March 2005).

2 NB - Northbound; SB - Southbound; EB - Eastbound; WB - Westbound.

Bold type indicates significant impact.

PROJECT FREEWAY SEGMENT MITIGATION MEASURES

The recommended mitigation for project impacts to the freeway segments is the project sponsor's participation in the Countywide Deficiency Plan (CDP). According the CMP *TIA Guidelines*, pending adoption of the CDP, if a project causes a freeway impact that cannot be reduced to a less-than-significant level, the Lead Agency (the City of San Jose) must implement, or require the project's sponsor to implement, the "Immediate Actions" list in Appendix D of the Draft Countywide Deficiency Plan as part of the project's approval (See **Appendix G**). A number of items on the list are included in the proposed project such as sidewalks, crosswalks, multi-use paths, and bicycle lanes.

These actions encourage the use of non-automobile modes and help to maximize the efficiency of the existing transportation system. They will also reduce the number of peak hour vehicle trips and minimize the project's impact. However, these actions are not expected to reduce the project impact to less than significant level because they would not reduce the project's contribution to the freeway segment to be less than one percent of existing peak hour capacity. Therefore, the impact to the freeway segments listed above is considered **significant and unavoidable**.

OTHER TRANSPORTATION IMPACTS

The City of San Jose's *Transportation Impact Policy 5-3* adopted on June 21, 2005 defines an unacceptable impact on other transportation facilities "...as reducing any physical dimension of a transportation facility below the City's stated minimum design standard, or causing a substantial deterioration in the quality of any other planned or existing transportation facilities, including pedestrian, bicycle, and transit systems and facilities, as determined by the Director of Transportation."

Bicycle Impacts

The proposed network of on-street bicycle lanes and off-street multi-use paths will encourage bicycle travel, provide appropriate linkages to the existing bicycle lanes on Berryessa Road and Mabury Road, and connect with future multi-use paths along Coyote Creek and Penitencia Creek. Important bicycle design elements include the crossings of the new full-access signalized intersections, the Penitencia Creek multi-use path crossings of the new public streets, and the crossing at Mabury Road and Mabury Yard. Overall, the project will enhance bicycle travel and will not conflict with any existing or planned facilities and operations. Accordingly, **no unacceptable bicycle impacts** were identified.

Pedestrian Impacts

All public streets are planned to include sidewalks on both sides of the street and a separate multi-use path will link parcels adjacent to the riparian easements of Penitencia Creek and Coyote Creek. The existing pedestrian under crossing of Berryessa Road next to Coyote Creek will be maintained and new signalized crosswalks will be provided at the full-access signalized intersections.

At several study intersections, proposed mitigation measures call for the addition of turn lanes, which will increase crossing distances and increase the exposure of pedestrians to vehicle traffic. However, signal timings and crossing times will be adjusted to account for the additional crossing distances, and no uncontrolled turning movements (e.g., a free right-turn lane) are being proposed by the project or as mitigation. Since project implementation will enhance the pedestrian environment and will not conflict with any existing or planned pedestrian facilities and operations, **no unacceptable pedestrian impacts** were identified.

Transit Impacts

The widening of Berryessa Road and Mabury Road and the construction of new street and driveway intersections may require relocation of existing bus stops or installation of new stops. The new bus stop locations should have safe and direct access for bicyclist and pedestrians, incorporate best design practices approved by the VTA, and include amenities such as shelters. All stops should be designed and reviewed by the VTA to ensure concurrence with their standards or include explanations as to design exceptions. In general, implementation of the proposed project is not expected to conflict with other off-site existing or planned transit facilities and operations; thus, **no unacceptable transit impacts** were identified.

The proposed project is adjacent to the proposed BART station that will accommodate VTA bus and shuttle service. However, detailed design guidelines and a station master plan have not been finalized at this time. Thus, evaluation of transit facility conflicts related to BART and the VTA bus transfer station were not identified at this time.

SITE ACCESS AND ON-SITE CIRCULATION

The proposed project includes the development of public streets and bicycle and pedestrian facilities to accommodate vehicle and non-automobile circulation through the project site. **Figure 2** presents the preliminary site plan for the proposed project. To ensure that emergency vehicles can negotiate required turning movements, City of San Jose staff should review the street widths and curb radii on final detailed site plans. The local fire department should also review the final site plan to ensure the provision of adequate emergency access and circulation throughout the site. An initial assessment of site access and on-site circulation is provided below.

Site Access

Primary access to the project site will be provided via Berryessa Road and Mabury Road. Conceptual access to both sides of Berryessa Road will include two full-access signalized driveways, while access to uses on the north side of Berryessa Road will also include two right-turn only driveways. The new signalized driveways meet the peak hour signal warrants based on the estimated trip assignment (**Appendix D**) and operate at an acceptable level of service (**Appendix H**). The right-in-right-out driveways will also operate at an acceptable level of service (**Appendix H**). The only access point on Mabury Road is the existing signalized intersection, which will operate acceptably with construction of a new north leg serving the site. Finally, Sierra Road will provide secondary access via the extension through the northern portion of the project site.

The estimated daily traffic volumes at the conceptual project site access points are illustrated on **Figure 11**. These volumes represent the net new daily traffic volumes on each segment and include pass-by traffic to the retail uses as well as vehicles crossing to and from the northern portion of the project development to access Mabury Road. Due to the extension of Sierra Road, the estimated daily traffic volumes also include the diversion of existing residential trips south to Berryessa Road and diversion of traffic from the Berryessa Road/Lundy Avenue intersection. The estimated gross combined AM and PM peak hour project volume represents approximately 18 percent of the daily traffic volume. Thus, the daily traffic volume for each street segment was generated using an 18 percent factor. These volumes represent a conservative estimate of traffic for the new streets through the project site. As noted previously, this analysis does not include traffic generated by the future BART station and the associated uses including VTA bus and shuttle service. Street sections would have to be reanalyzed with BART-generated traffic.

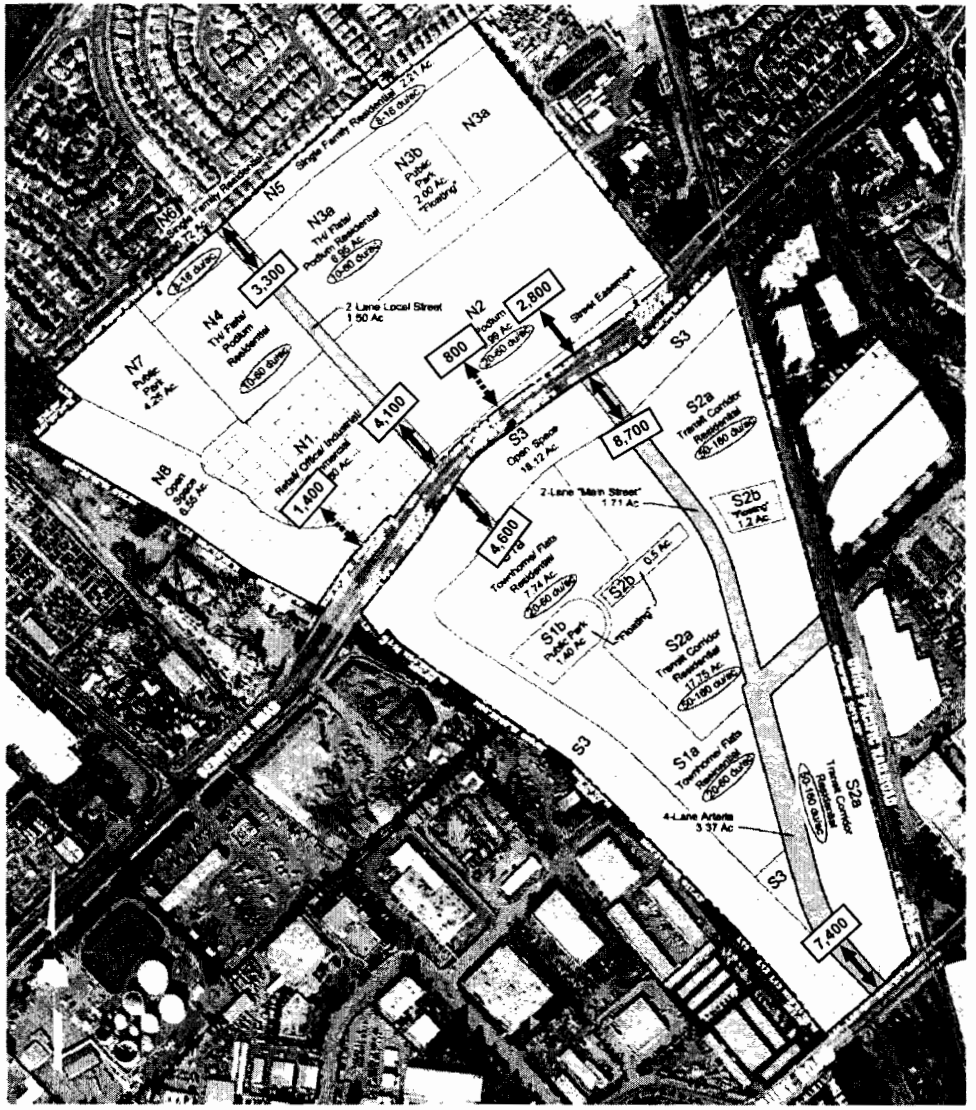
Based on the volumes at each location, the number of conceptual site access points is considered adequate. The highest daily volumes of 7,400 to 8,700 vehicles per day (vpd) adjacent to Mabury Road and Berryessa Road, respectively, could easily be served by two lane segments as long as appropriate turn lanes are provided at each adjacent intersection. In addition, no driveway access points to adjacent parcels should be permitted within 500 feet of Berryessa Road and Mabury Road to ensure adequate flow through the signalized intersections. The

future extension of Sierra Road at the north end of the site is expected to serve 3,300 vpd, which could also be easily accommodated by a two-lane collector street. All other streets are expected to serve volumes of less than 2,000 vpd.

On-site Circulation

Vehicle circulation will be provided by a network of local and collector streets that will link adjacent neighborhoods and provide access to higher-capacity facilities such as Berryessa and Mabury Roads. The northern portion of the site will be served by an extension of Sierra Road. The Neighborhood Traffic section discusses the need to involve the community to ensure an acceptable design of the Sierra Road extension that will address diversion of existing residential trips south to Berryessa Road, and diversion of some traffic from the Berryessa Road/Lundy Avenue intersection. The southern section of the site includes a collector "spine" street extending between Berryessa and Mabury Roads. San Jose city staff should review the final site plan to minimize the number of public street conflict points while still providing adequate access to each parcel.

The Bicycle Circulation Diagram, **Figure 12,** shows the planned location of the Coyote Creek and Penitencia Creek multi-use paths. These multi-use path corridors (Coyote Creek and Penitencia Creek) were identified in Santa Clara County's *Santa Clara County Trails Master Plan Update* (November 1995). The north-south multi-use path along Coyote Creek will require modification of the existing pedestrian undercrossing of Berryessa Road and proper alignment with the future multi-use path extensions at the north and south project boundaries along Coyote Creek. If a multi-use path under crossing of Mabury Road is not built, the modifications to the Mabury Road and Mabury Yard signalized intersection should accommodate a multi-use path crossing on the west leg of the intersection. The Penitencia Creek multi-use path should align with the future multi-use path extension to the existing path near the Mabury Road and Jackson Avenue intersection.



LEGEND

X,XXX - Estimated Average Daily Volumes

- Conceptual Full Access Points

- Conceptual Right-In-Right-Out Access Points

N

Not to scale

Source: Calthorpe
May 9, 2006 Site Plan

San Jose Flea Market

FEHR & PEERS
TRANSPORTATION CONSULTANTS

ESTIMATED AVERAGE DAILY ACCESS POINT VOLUMES

FIGURE 11

Oct 12, 2006 MJC
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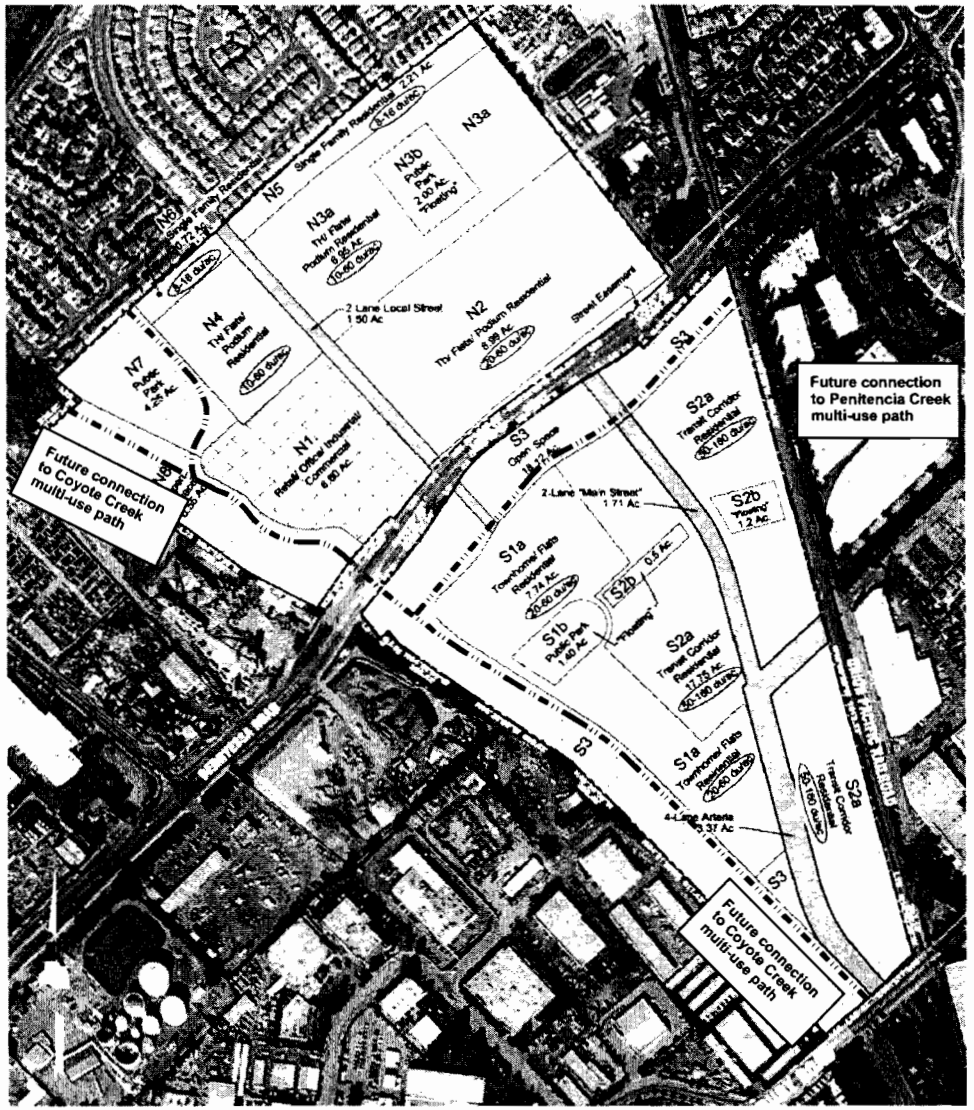

LEGEND

- Multi-Use Path

N

Not to scale

Source: Calthorpe
May 9, 2006 Site Plan

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TRANSPORTATION CONSULTANTS

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San Jose Flea Market

BICYCLE CIRCULATION DIAGRAM

FIGURE 12

5. OPERATIONAL ISSUES

All operational issues and those items that do not directly relate to environmental impacts are included in this chapter. These items include arterial roadway/corridor operations, vehicle queues, parking, and neighborhood traffic issues.

ARTERIAL ROADWAY/CORRIDOR OPERATIONS

The TRAFFIX LOS calculations do not address corridor operation issues or interaction of closely-spaced intersections, which include the following:

- Spillback queues from turn lanes at intersections that block through traffic.
- Queues from one intersection that extend back and affect operations at adjacent intersections.
- Queues from bottleneck locations such as lane drops that affect the operation/flow of the facility.
- Spillback queues on ramps that affect surface street or freeway operations.

Thus, San Jose city staff requested an analysis of corridor operations to determine if additional improvements are required to complement the proposed mitigation improvements discussed in Chapter 4 and provide additional capacity. We used the SimTraffic simulation software package for the Oakland Road, Berryessa Road, and Mabury Road corridors under Existing, Background, and Project Conditions with Mitigation to identify operational issues and improvements that focus primarily on queues between intersections and ramp metering effects (i.e., the second and fourth items listed above).

Oakland Road Corridor

The Oakland Road corridor includes the intersections at Commercial Street and the US 101 ramps. During the "dot-com boom" of the late 1990's into 2001, regional travel patterns and the resulting diversion to arterial roadways caused congestion in this corridor that was not supported by the current San Jose street system. With development approved under the North San Jose Development Policy, other local projects, and the proposed project, the existing street system would not be able to accommodate the projected traffic demand. During initial runs of the SimTraffic simulation, the existing lane drop on northbound Oakland Road caused the entire system to break down. Accordingly, the SimTraffic simulation assumed that Oakland Road included two lanes north of Commercial Street to determine the need for additional improvements. Provision of the second northbound through lane is assumed in the City's General Plan.

During the AM peak hour, the predominant travel pattern is towards the northbound US 101 on-ramp (northbound left turn and southbound right-turn) and from the northbound US 101 off-ramp (mostly westbound right turns). The simulation showed that the queue on the metered northbound US 101 on-ramp will be contained on the ramp. The mitigation improvements discussed in Chapter 4 include the conversion of the southbound through lane to a shared through-right lane and a second northbound left-turn lane at the US 101 and Oakland Road (N) intersection. Typically, a no-right-turn-on-red condition is used with dual right turns to minimize the vehicle-pedestrian conflicts. The no-right-turn-on-red condition on the southbound approach at US 101/Oakland Road (N) causes queuing between the northbound ramp and Commercial Street, which affects queuing of Commercial Street and Oakland Road intersection approaches during both peak hours. This observation has important implications for the configuration of the westbound approach of the Commercial Street and Oakland Road intersection. In particular, the westbound left turn vehicles block the through and right turn movements, which limits the effectiveness of a separate westbound right turn storage pocket. Adding the second northbound left-turn lane requires widening of the bridge structure. However, these improvements do not address the northbound left

turn queue that extends through the US 101/Oakland Road (S) intersection and blocks northbound through traffic. Nor do the mitigation improvements from Chapter 4 address the anticipated spillback of the westbound right turn queue at the US 101/Oakland Road (N) intersection back onto the freeway mainline.

The first recommended improvement is to construct two additional northbound lanes in the existing median at the US 101/Oakland Road (S) intersection; these lanes would lead directly into the northbound left-turn lanes at the US 101/Oakland Road (N) intersection and improve northbound through progression on the overpass. The second capacity enhancement is to widen Oakland Road between the northbound ramps and Commercial Street to provide two southbound lanes that lead directly into the southbound left-turn lanes at the US 101/Oakland Road (S) intersection. This improvement would also require widening of Oakland Road north of Commercial Street such that only one of the southbound through lanes becomes a "trap" lane to southbound US 101.

The third recommended improvement based on the simulation results is the addition of a second westbound right-turn lane at the US 101 and Oakland Road (N) intersection. During the AM peak hour, northbound vehicles queue back from Commercial Street across the US 101/Oakland Road overpass and onto the northbound US 101 off-ramp. Thus, the second westbound right turn lane will provide additional storage and minimize the potential for queuing back onto the US 101 mainline. A no-right-turn-on-red condition is recommended with the second westbound right-turn lane to provide a safer pedestrian environment and to address potential sight distance limitations caused by the bridge structure for drivers on the ramp. **Figure 13** shows a snapshot of the Project Conditions simulation during the AM peak hour with all of the proposed improvements in place.

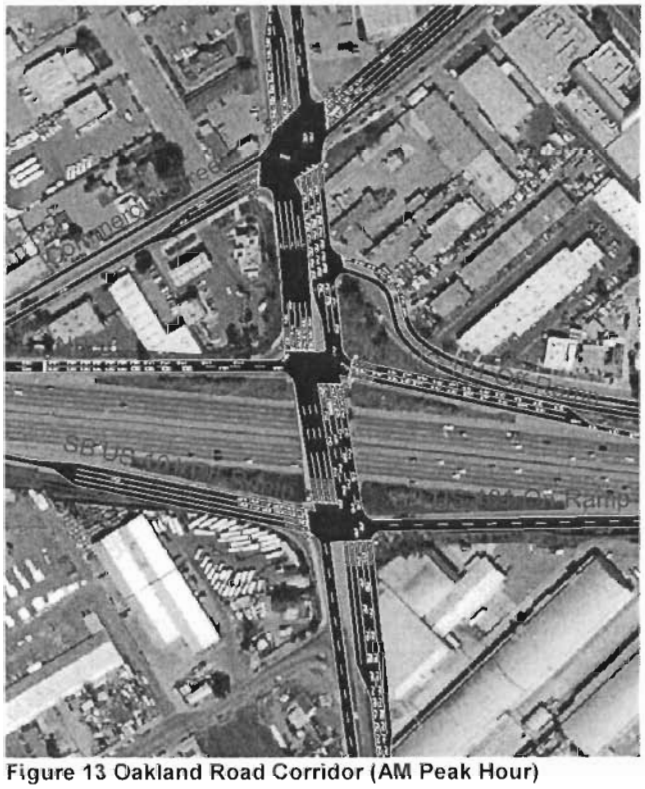


Figure 13 Oakland Road Corridor (AM Peak Hour)

During the PM peak hour, the predominate travel pattern reverses – towards the southbound US 101 on-ramp and from the southbound US 101 off-ramp. As a result, the southbound left turn queue at the US 101 and Oakland Road (S) intersection extends through the Oakland Road intersections at the northbound US 101 ramps and Commercial Street, and the eastbound vehicles on the southbound US 101 off-ramp spillback onto US 101. Finally, The primary travel pattern towards the US 101/Oakland Road interchanges creates long queues on the southbound and westbound approaches at the Commercial Street and Oakland Road intersection. The two southbound left turn trap lanes between the northbound US 101 ramps and Commercial Street provide additional storage for the southbound left turns at the US 101 and Oakland Road (S) intersection and improves southbound through progression over the US 101/Oakland Road overpass. **Figure 13** shows the southbound storage lanes extending north from the US 101/Oakland Road overpass to Commercial Street with one of these lanes extending north of Commercial Street to minimize the crossing distance for bicyclist and pedestrians.

In summary, the Oakland Road corridor improvements include:

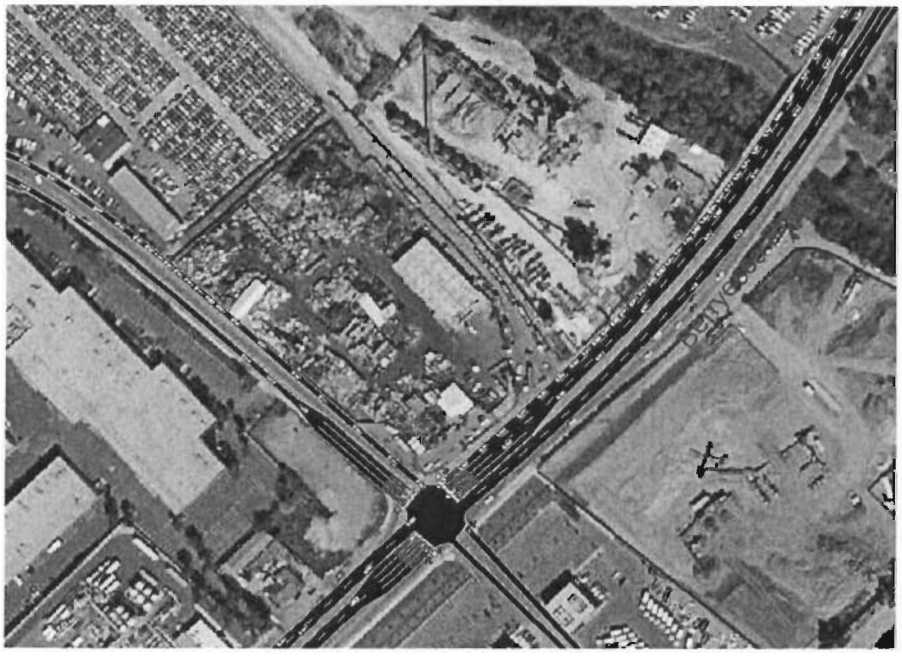
1. Add two northbound storage lanes in the existing median at the US 101/Oakland Road (S) intersection.
2. Widen Oakland Road between the northbound ramps and Commercial Street to provide two southbound storage lanes at the US 101/Oakland Road (S) intersection. This improvement requires widening Oakland Road north of Commercial Street.
3. Add a second westbound right-turn lane at the US 101 and Oakland Road (N) intersection, which requires right-of-way.

Berryessa Road Corridor

The Berryessa Road corridor includes the intersections at Lundy Avenue, the new project driveways, Commercial Street, and Mabury Road. During the AM peak hour, the predominant travel pattern is westbound on Berryessa Road. **Figure 14** shows the project improvement widening to a six lane arterial along the project frontage with the new north side right-in-right-out driveways and full access signalized intersections on Berryessa Road. We assumed the widening of Berryessa Road extends from the western project driveway to the existing lane drop east of the railroad tracks. The westbound right turn on Berryessa Road at Commercial Street extends back to the project frontage. Thus, an extension of the westbound widening of Berryessa Road to Commercial Street will provide storage for the westbound right turns and minimize the blocking of westbound through traffic. **Figure 15** shows the third westbound through lane on Berryessa Road terminating at Commercial Street as a westbound right-turn trap lane. This improvement requires restriping of Berryessa Road west of the project frontage and potential modifications to the median island on the existing Berryessa Road bridge over Coyote Creek.

Figure 14 Berryessa Road Corridor Along Project Frontage (PM Peak Hour)

Also, during the AM peak hour the westbound left turn from Mabury Road onto Berryessa Road has a long queue that extends to the Mabury Road and Mabury Road intersection. Converting the westbound shared through-right lane to a shared left-through-right lane is the best option with the existing cross-section. This increases the left turn capacity but requires conversion to eastbound and westbound split phasing. Also, lengthening the westbound left turn pocket to the existing office driveway adds storage.



During the PM peak hour, the predominate travel pattern is eastbound on Berryessa Road and southbound on Lundy Avenue, which causes spillback of eastbound through traffic to the eastern edge of the project frontage. Widening Berryessa Road to 6-lanes along the project frontage will best address this queuing impact. The addition of the second eastbound and westbound left turns from Phase 4 of the North San Jose improvements will help manage queues at the Berryessa Road and Lundy Avenue intersection.

Figure 15 Berryessa Road Corridor at Commercial Street (AM Peak Hour)

In summary, the Berryessa Road corridor improvements include:

1. Extend the westbound widening of Berryessa Road to Commercial Street.
2. Extend the Berryessa Road widening to the existing lane drop east of the railroad tracks.
3. Convert the westbound shared through-right lane at the Berryessa Road and Mabury Road intersection to a shared left-through-right lane and lengthen westbound left turn pocket on Mabury Road. This improvement requires conversion to eastbound and westbound split phasing.

Mabury Road Corridor

The Mabury Road corridor includes the intersections at King Road, Mabury Yard, and Mabury Road. **Figure 16** shows the widening of Mabury Road to 4-lanes along the project frontage with the modified Mabury Road and Mabury Yard signalized intersections. We assumed the widening of Mabury Road extends from the southern driveway (Mabury Yard) to the existing lane drop east of the railroad tracks. The second westbound through lane on Mabury Road terminates at Mabury Yard as a westbound right turn trap lane. The second eastbound lane is added east of Mabury Yard to avoid widening the Mabury Road bridge over Coyote Creek. Other modifications to the Mabury Road and Mabury Yard intersection include lengthening of the eastbound left turn pocket to approximately 300 feet and the southbound shared left-through lane to approximately 200 feet. The southbound right turn lane could have a storage pocket; however the estimated southbound right turn volume is expected to be higher than the left turn volume during both peak hours. Thus, the southbound right turn lane could be a trap lane and the southbound shared left-through lane could have a 200 foot storage pocket. During the AM peak hour, the predominant travel pattern is westbound on Mabury Road. The westbound right turn and through vehicles at the Mabury Road and Mabury Road intersection spillback through the Mabury Road and Mabury Yard intersection. Coordination of the Mabury Road intersections at Mabury Road and Mabury Yard better manages the queues between these intersections. However, with the signal timing coordination, the 2-lane bridge over

Coyote Creek and the US 101/Mabury Road overpass remains a bottleneck, which creates a queue that reaches approximately two-thirds of the way to King Road.

During both peak hours, an eastbound left turn at the Mabury Road and Mabury Road intersection blocks eastbound through traffic. Thus, a short left-turn pocket at this intersection allows eastbound through traffic to proceed unimpeded through the intersection. This improvement may require right-of-way and modification to the eastern approach of the US 101/Mabury Road overpass.

During the PM peak hour, the predominate travel pattern is eastbound on Mabury Road. The eastbound left turn at the Mabury Road and Mabury Yard intersection infrequently exceeds the turn pocket length and blocks eastbound through traffic. This blocking of eastbound through traffic is minimized with coordination of signal timings at the Mabury Road and Mabury Yard intersections on Mabury Road. Further geometry improvements on the west leg of the intersection of Mabury Road and Mabury Yard was not considered because the spillback is infrequent and the narrow Mabury Road bridge would likely be widened with additional improvements.

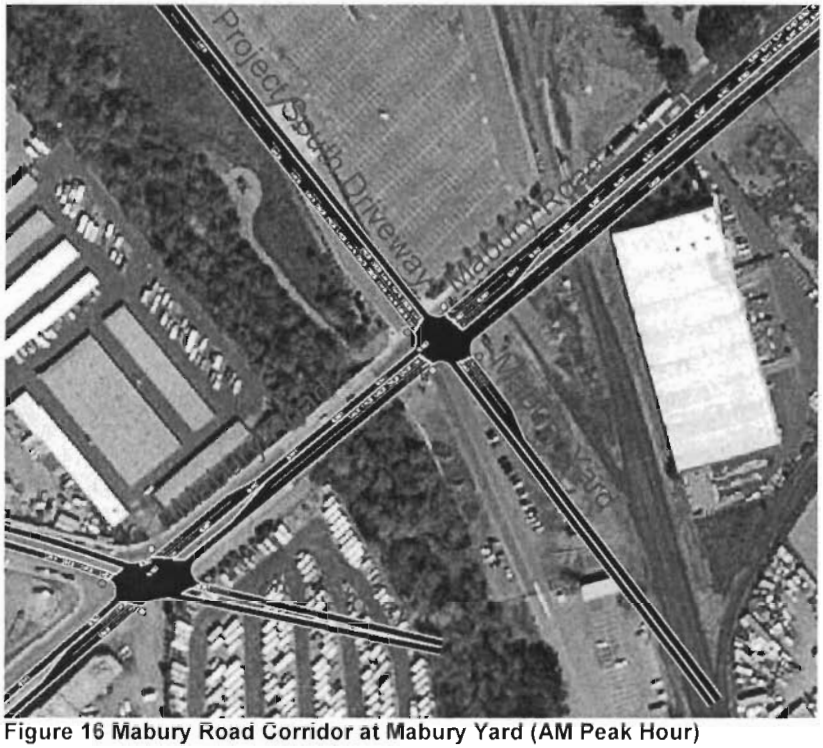


Figure 16 Mabury Road Corridor at Mabury Yard (AM Peak Hour)

The mitigation improvements in Chapter 4 and the Mabury Road corridor improvements should be phased in a manner to accommodate the construction of the US 101/Mabury Road interchange and other local improvements.

In summary, the Mabury Road corridor improvements include:

1. Coordinate the signal timings of the Mabury Road intersections at Mabury Road and Mabury Yard.
2. Add an eastbound left-turn lane with a short storage pocket at the intersection of Mabury Road and Mabury Road.
3. Extend Mabury Road widening to the existing lane drop east of the railroad tracks.

LEFT-TURN QUEUE ANALYSIS

Implementation of the proposed project will add substantial traffic volumes to several left-turn movements at intersections near the project site. This queue analysis is a general guide for sizing future storage pocket lengths or modifying existing storage pocket lengths. The 95th percentile back-of-queue method presented in Chapter 16 of the *2000 Highway Capacity Manual (HCM)* (Special Report 209, Transportation Research Board) was used to estimate the left-turn queues for the subject movements during the red signal indication for Background and Project Conditions. **Table 11** presents the estimated queue lengths per lane. Queues were obtained directly from

the TRAFFIX calculations and are presented by lane group (**see Appendix B and H**), which requires multi-lane left turn pockets to be divided by the number of lanes to determine the queue length per lane.

TABLE 11

LEFT-TURN VEHICLE QUEUE ANALYSIS

Intersection	Left-Turn Movement	Available Storage (Veh./lane)	Background Conditions		Project Conditions	
			Queue (Veh./lane)[1]	Adequate Storage?[1]	Queue (Veh./lane)[1]	Adequate Storage?[1]
23. Berryessa Road / Commercial Street	SB[3]	6[2]	3/8	Yes/No	7/12	No/No
24. Berryessa Road / Lundy Avenue	NB[3]	12	6/3	Yes/Yes	8/7	Yes/Yes
	EB	11	13/15	No/No	20/20	No/No
	WB	8	11/20	No/No	12/23	No/No
39. Mabury Road / Mabury Yard	SB	8	N/A	N/A	8/6	Yes/Yes
	EB	12	N/A	N/A	11/11	Yes/Yes
40. Mabury Road / King Road	NB[3]	10	5/2	Yes/Yes	6/3	Yes/Yes
	SB[3]	11	3/4	Yes/Yes	3/5	Yes/Yes
	EB	8	6/10	Yes/No	9/13	No/No
New Intersections						
Berryessa Road / West Full Access	NB	N/A	N/A	N/A	12/10	N/A
	SB	N/A	N/A	N/A	8/6	N/A
	EB	N/A	N/A	N/A	11/14	N/A
	WB	N/A	N/A	N/A	5/10	N/A
Berryessa Road / East Full Access	NB[3]	N/A	N/A	N/A	6/5	N/A
	SB	N/A	N/A	N/A	9/7	N/A
	EB	N/A	N/A	N/A	8/8	N/A
	WB	N/A	N/A	N/A	10/19	N/A

Notes:

1 Notation is (AM/PM)

2 The southbound storage refers to the left-turn lane. The southbound approach has a left, shared left-through, and right lane.

3 TRAFFIX lane group queue divided by number of lanes to get queue length (vehicles) per lane.

4 One vehicle length equals 25 feet.

5 Queues represent vehicles per lane using the HCM 2000 95th percentile back-of-queue output from TRAFFIX.

The results of the queuing analysis show that traffic from the proposed project without additional improvements would cause left-turn queues to exceed the available storage at the following intersections during the AM and/or PM peak hours:

23. Berryessa Road and Commercial Street – Southbound left-turn by 1 to 8 vehicles
24. Berryessa Road and Lundy Avenue – Eastbound, and westbound left-turn by 3 to 15 vehicles
40. Mabury Road and King Road – Eastbound left-turn by 2 to 5 vehicles

We recommend lengthening the left-turn storage pockets by up to 75 feet at each location.

Table 11 also presents the approximate storage requirement under Project Conditions for the new full access intersections on Berryessa Road along the project frontage. Both full access intersections require approximately the same storage pocket length for northbound and southbound left turns. However, the westbound left-turn lane at the east full access driveway is expected to be longer than the westbound left-turn lane at the west full access driveway due to the denser land use pattern and the direct connection to the southernmost part of the site.

The Sierra Road extension will divert some existing residential trips south through the project site to Berryessa Road and some traffic using the Berryessa Road/Lundy Avenue intersection traveling to and from the west will divert through the neighborhood. As a result, the 95th percentile back-of-queue for the eastbound left-turn lane at the west full access driveway is expected to be longer than the same movement at the east full access driveway.

The queuing analysis will have to be re-assessed with development of the proposed BART station and the addition of traffic to various project streets and intersections on Berryessa and Mabury Roads.

PARKING

The proposed project does not currently include adequate detail to provide a final evaluation of the parking supply. We prepared an initial estimate of required parking supply based on the proposed land uses and City code requirements. **Table 12** presents the off-street parking requirements per the *City of San Jose's Municipal Parking Code* (Chapter 20.90 Parking and Loading, 2005) that includes the following off-street parking rates: 2 spaces for each condominium, townhome, or single family home unit; 1 space per 250 square feet of office or live/work commercial space; and 1 space per 225 square feet of retail space.

In summary, the City code requires 7,304 vehicle parking spaces to serve the site, which includes 679 retail, 5,762 residential and 863 office off-street parking spaces. Potential parking reductions include the "Alternate Transportation" reduction for land uses within 2,000 feet of a proposed or existing rail station, and participation in EcoPass.

City of San Jose's Municipal Code defines the following motorcycle parking space requirements:

- Retail land use – 1 motorcycle space per 20 code required auto parking spaces, which is approximately 34 motorcycle spaces (based on gross auto parking requirement).
- Office land use – 1 motorcycle space for every 50 code required auto parking space, which is approximately 18 motorcycle spaces (based on gross auto parking requirement).
- Multi-dwelling land use – 1 motorcycle space per 4 units, which is approximately 459 motorcycle spaces for the condominium units. The live-work, townhome, and single family dwelling units were not include in the motorcycle space requirement.

To accommodate demand and encourage bicycle transportation use, bicycle parking should be conveniently located near on-site bicycle and pedestrian routes. Class I facilities are long-term parking spaces that protect the entire bicycle and accessories from theft. These long-term facilities include bicycle lockers, restricted access rooms, and constantly monitored enclosed cages. Class II facilities are short-term parking spaces within constant view of adjacent buildings or located at street floor level. The Class II facilities consist of a stationary object that users can secure the frame and both wheels with either U-shaped locks or padlocks. City of San Jose's Municipal Code does not specify a minimum number of Class II parking spaces, thus these facilities would be in addition to the minimum Class I requirements.

TABLE 12

PROJECT OFF-STREET PARKING REQUIREMENTS

Use	Rate	Spaces
Proposed Retail[1]		
South of Berryessa (152,700-square foot)	1 per 225 s.f.	679
Total Gross Retail (A)	---	***679***
Proposed Residential		
Condos[2]		
South of Berryessa (1,835-dwelling units)	2.0 per d.u.	3,670
Live/Work Units[3]		
South of Berryessa (64-dwelling units)	1 per 250 s.f.	256
Townhomes[4]		
North of Berryessa (470-dwelling units)	2.0 per d.u. (covered)	940
South of Berryessa (313-dwelling units)		626
Single Family Homes[4]		
North of Berryessa (135-dwelling units)	2.0 per d.u. (covered)	270
Total Gross Residential (B)	---	***5,762***
Proposed Office[5]		
North of Berryessa (215,622-square foot)	1 per 250 s.f.	863
Total Gross Office (C)	---	***863***
Net Project Total (A + B + C)	---	***7,304***

Notes:

1 Applied City of San Jose's neighborhood shopping center (minimum 100,000 square feet) parking requirement rate for the proposed mixed use/ground floor retail with residential above, which allows a mix of permitted and conditional uses.

2 Applied an average parking rate of 2.0 per dwelling unit (d.u.), but final parking requirement for condos depends on parking facility type and living unit size (number of bedrooms),

3 The City of San Jose's parking requirement for live/work units is based on size of commercial space. Thus, we assumed 1,000-square foot of commercial space in the live/work units, and used the office parking rate to represent the services provided from the live/work units.

4 The City of San Jose's parking requirement for townhomes and single family homes requires covered parking facility that is intended for the sole use of the occupants of the dwelling unit.

5 For the proposed office, applied the City of San Jose's offices, business, and administrative parking requirement rate.

Source: City of San Jose. *City of San Jose Municipal Code: Chapter 20.90 Parking and Loading*, 2005.

Per City of San Jose Municipal Code, the final number of bicycle parking spaces also depends on the number of required parking spaces. Based on the proposed number of condominium dwelling units (1,835 d.u.), the project sponsor should provide 459 Class I bicycle parking spaces for residents of condominiums (0.25 Class I bicycle spaces per condominium). Using the gross automobile vehicle space estimate in **Table 12**, the project sponsor should also provide 34 Class I bicycle parking spaces for retail customers (0.05 Class I bicycle spaces per auto retail space), 18 Class I bicycle parking spaces for office workers (0.02 Class I bicycle spaces per auto office

parking space), and 5 Class I bicycle parking spaces for live/work patrons (0.02 Class I bicycle spaces per auto live/work parking space).

The City of San Jose guidelines also require proper shower and changing facilities for office/R&D land uses depending on the size of the building – 2 showers for buildings between 30,000 and 150,000 square feet, 3 showers for buildings between 150,001 and 250,000 square feet, and more than 3 showers are needed for larger buildings.

The project is not expected to employ any extensive shared parking strategies because the project is primarily residential in nature with some office and retail uses that will likely be served by their own lots. However, the potential for shared parking can be better assessed once additional detail is provided. Thus, final off-street parking requirements will be established at a later stage of permit processing by the City of San Jose.

NEIGHBORHOOD TRAFFIC

The proposed project will be developed in an area that is primarily commercial and industrial in nature except for the residential neighborhood located on Sierra Road north of the site. Thus, implementation of the project is not expected to cause diversion to any other local, neighborhood streets. In addition, project traffic will directly access Berryessa Road and Mabury Road, two higher-capacity roadways that provide relatively direct access to regional facilities including US 101, I-680 and SR 87 (via Taylor Street).

In the case of Sierra Road, added traffic will come from three sources: 1) project residents in the northern portion of the site who are traveling to and from the north on Lundy Avenue; 2) Sierra Road residents that currently travel to and from the west on Berryessa Road will use the new street connections through the project site instead of using the Berryessa Avenue/Lundy Avenue intersection; and 3) some drivers (other than Sierra Road residents) who now make eastbound left-turns and southbound right-turns at Berryessa Avenue/Lundy Avenue intersection may use the new street connections to bypass real or perceived intersection delays. The current site plan (Calthorpe: May 1, 2006) indicates the direct connection of Sierra Road to Berryessa Road. City staff should review the final site plan and involve the community to ensure an acceptable design of the Sierra Road extension that addresses diverted and cut-through traffic. Even with this design, the added traffic may change the operating characteristics of traffic on Sierra Road. Accordingly, annual monitoring after project occupancy is recommended to evaluate potential neighborhood impacts and identify possible traffic management solutions.

We estimated the amount of traffic for each of the scenarios described above using existing turning movement counts, future traffic volumes, the project trip assignment, and projected delays at existing and future signalized intersections. First, an estimated 42 and 48 vehicles driven by existing residents are expected to use the new Sierra Road extension to travel to and from Berryessa Road under Project Conditions during the AM and PM peak hours, respectively. This volume does not represent brand new trips to Sierra Road, but most of these vehicles do not currently travel to the western end of the street. This reassignment equates to a vehicle every 90 seconds during the AM peak hour and 75 seconds during the PM peak hour.

The number of non-project vehicles from outside the neighborhood estimated to "cut-through" Sierra Road and the northern part of the project site neighborhood is 118 during the AM peak hour and 151 vehicles during the PM peak hour. These volumes equate to an additional vehicle every 30 seconds during the AM peak hour and 25 seconds during the PM peak hour. A lower frequency is expected during other hours of the day.

Finally, the number of project-generated vehicles estimated to use Sierra Road to access Lundy Avenue to and from the north is 119 and 125 during the AM and PM peak hours, respectively. This volume translates to an additional vehicle every 30 seconds during each peak hour.

The resulting total volume added to the western end of Sierra Road is estimated to be 279 vehicles during the AM peak hour and 324 vehicles during the PM peak hour. Thus, approximately 603 vehicles during the peak hours

and approximately 3,300 daily trips – assuming a combined AM and PM peak hour factor of 18 percent – are added to the western end of Sierra Road. These peak hour volumes equate to a vehicle at the western end of Sierra Road every 11 to 13 seconds.

Based on the assessment described above and the fact that traffic will be added to Sierra Road with development of the San Jose Flea Market site, the project is expected to result in a potentially significant impact. Thus, City staff should involve the community to ensure an acceptable design of the Sierra Road extension that addresses diverted and cut-through traffic. Even with this design, the added traffic may change the operating characteristics of traffic on Sierra Road. Accordingly, annual monitoring after project occupancy is recommended to evaluate potential neighborhood impacts and identify possible traffic management solutions..

Neighborhood Traffic Mitigation

Mitigation of neighborhood traffic impacts is typically achieved through implementation of traffic calming or management measures. In the case of potential traffic impacts to Sierra Road, the need for volume and speed control devices may be warranted with the addition of traffic from the proposed project and the new connection to Berryessa Road. The project sponsor should work with City of San Jose staff to evaluate neighborhood traffic impacts and implementing mitigation by developing and maintaining the following program:

- Monitor two-way traffic volume and travel speed (average and critical speeds) on Sierra Road annually for five years after the opening of the extension.
- Provide data to City staff and prepare a report summarizing data. Monitoring and data preparation should be performed by an independent third party.
- Per City recommendation(s), install traffic calming devices on residential streets with a not to exceed design and construction cost amount to be negotiated with City staff. Devices could include, but are not limited to, turn restrictions, diverters, speed humps, chokers, gateway features, etc.

APPENDIX A:
INTERSECTION AND EXISTING FLEA MARKET DRIVEWAY TURNING MOVEMENT COUNTS

APPENDIX B:
TRAFFIX LEVEL OF SERVICE CALCULATIONS

APPENDIX C:
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APPENDIX D:
PEAK HOUR SIGNAL WARRANT ANALYSIS

APPENDIX E:
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APPENDIX F:
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TRAFFIX LEVEL OF SERVICE CALCULATIONS FOR NEW BERRYESSA ROAD PROJECT DRIVEWAYS

APPENDIX I:
PROJECT ASSIGNMENT AT NORTH SAN JOSE INTERSECTIONS

TRAFFIC IMPACT ANALYSIS:

BERRYESSA FLEA MARKET GENERAL PLAN AMENDMENT

PROPOSED AMENDMENT TO THE CITY OF SAN JOSE'S GENERAL PLAN

GP06-04-01

PREPARED FOR:

David J. Powers and Associates

PREPARED BY:

Fehr & Peers

DECEMBER 2006

Proposed Amendment to the City of San Jose's General Plan

GP06-04-01

BERRYESSA FLEA MARKET GENERAL PLAN AMENDMENT TRAFFIC IMPACT ANALYSIS

Prepared for:
David J. Powers and Associates, Inc.

Prepared by:
Fehr & Peers

DECEMBER 2006

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EXECUTIVE SUMMARY

The purpose of this study is to evaluate the long-term impacts of the proposed Berryessa Flea Market General Plan Amendment (GPA) on the transportation system in the vicinity of the site. The proposed (GPA) includes a land use and network change. The project site is located in the northern section of San Jose, California, east of US 101 and west of King Road.

The GPA is proposing to downgrade Sierra Road from Lundy Avenue to Berryessa Road from a four-lane to a two-lane major collector. The land use change includes the conversion of 24.4 acres of land from combined industrial/commercial to transit corridor residential. This analysis was separated into the following three parts: land use change only, network change only, and a combination of both the land use and network change.

Long-Term Analysis

Model Overview

The City of San Jose's traffic forecasting model, developed to project peak-hour traffic impacts attributable to proposed changes to the city's General Plan, was used to evaluate the proposed GPA. The model is implemented using the CUBE transportation planning software system. The San Jose model includes the four elements traditionally associated with models of this kind: trip generation, trip distribution, mode choice, and traffic assignment. This analysis measures the affect that the proposed project will have on the volume-to-capacity (V/C) ratios and vehicle miles traveled (VMT) on roadways in the vicinity of the project.

Significance Criteria

Based on the City of San Jose General Plan Land Use Amendment Guidelines, the significance impact of a GPA land use and network change occurring during either the AM or PM peak hour is based on the following impact criteria:

- The aggregated V/C ratios (all links) of nearby regional screenlines (within approximately 2 mile) increase in the peak direction by at least 0.01 and total volumes on the same links increase in the peak direction by at least 5% of average link capacity; or
- The aggregated E/F link V/C ratios of nearby regional screenlines increase in the peak direction by at least 0.005, and total volumes on the same E/F links increase in the peak direction by at least 2.5% of average congested link capacity; or
- The overall VMT (all links) increases by at least 1% and 200 vehicle-miles in proximity area of proposed amendment; or
- The congested E/F link VMT increases by at least one-half (1/2) of increase of overall proximity VMT and 100 vehicle-miles in proximity of proposed amendment; or
- VMT and VHT both increase by 0.10 percent for all roadways in the Santa Clara County (Network change only)

Land Use Only

The following significant impacts were identified in the land use only scenario:

Aggregated Screenline Analysis

- Link Set 1 – East of US 101 all links during the AM peak hour
- Link Set 1 – East of US 101 E/F links during the AM peak hour
- Link Set 1 – East of US 101 all links during the PM peak hour
- Link Set 1 – East of US 101 E/F links during the PM peak hour

Proximity Analysis

- All links during the AM peak hour
- All links during the PM peak hour
- Congested links during the AM peak hour
- Congested links during the PM peak hour

Network Only

The following significant impacts were identified in the network only scenario:

Proximity Analysis

- All links during the PM peak hour
- Congested links during the PM peak hour

Land Use and Network Combination

The following significant impacts were identified in the combination land use and network scenario:

VMT and VHT Aggregated Screenline Analysis

- Link Set 1 – East of US 101 – all links during the AM peak hour
- Link Set 1 – East of US 101 E/F links during the AM peak hour
- Link Set 1 – East of US 101 all links during the PM peak hour
- Link Set 1 – East of US 101 E/F links during the PM peak hour

Proximity Analysis

- All links during the AM peak hour
- All links during the PM peak hour
- Congested links during the AM peak hour
- Congested links during the PM peak hour

Cumulative Analysis

A cumulative scenario was also analyzed to identify significant impacts that include all proposed GPAs throughout the City for the Winter 2007. The Winter 2007 cumulative analysis is presented in two sections that include Coyote Valley Specific Plan (CVSP) Partial Build-out and Coyote Valley Specific Plan (CVSP) Full Build-out scenarios. These two scenarios are provided because of the uncertain nature of the Evergreen area development plan. The cumulative analysis includes the proposed project together with all other GPAs in the City.

Impact Criteria/Thresholds of Significance

Cumulative impacts are considered significant if any of the following occurs during either the AM or PM peak hour:

- Total peak hour trips increase by 0.10 percent or more for all trips originating in and/or destined for the Santa Clara County; or
- Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) both increase by 0.10 percent for all roadways in the Santa Clara County; or
- Peak direction volumes across any one of the special subarea cordon lines shown on Figure 5 increases by the percentage shown in Table 15 below; or
- The aggregated V/C ratios of nearby regional screenlines increase in peak direction by at least 0.01 and total volumes on the same links increase in peak direction by at least 5% of average link capacity, as indicated in Table 1; or
- The aggregated E/F link V/C ratios of nearby regional screenlines increase in peak direction by at least 0.005, and total volumes on the same E/F links increase in peak direction by at least 2.5% of average congested link capacity, as indicated in Table 1; or
- The values for overall VMT or congested VMT within the proximity area of any of the proposed amendments increase by at least the percentage shown in Table 2.

<u>Coyote Valley Specific Plan Partial Build-out Scenario</u>

The following significant impacts were identified in the CVSP Partial Build-out scenario:

Cordon Analysis

- North San Jose Cordon line during both peak hours

Cumulative Aggregated Screenline Analysis

- Link Set 1 – East of US 101 all links during the AM peak hour
- Link Set 1 – East of US 101 E/F links during the AM peak hour
- Link Set 1 – East of US 101 all links during the PM peak hour
- Link Set 1 – East of US 101 E/F links during the PM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road all links during the AM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road E/F links during the AM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road all links during the PM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road E/F links during the PM peak hour

- Link Set 3 – West of US 101 all links during the AM peak hour
- Link Set 3 – West of US 101 E/F links during the AM peak hour
- Link Set 3 – West of US 101 all links during the PM peak hour
- Link Set 3 – West of US 101 E/F links during the PM peak hour
- Link Set 4 – West of I-680 all links during the AM peak hour
- Link Set 4 – West of I-680 E/F links during the AM peak hour
- Link Set 4 – West of I-680 all links during the PM peak hour
- Link Set 4 – West of I-680 E/F links during the PM peak hour

Cumulative Proximity Analysis

- TAZ 543 - All links during the AM peak hour
- TAZ 543 - All links during the PM peak hour
- TAZ 543 - Congested links during the AM peak hour
- TAZ 543 - Congested links during the PM peak hour
- TAZ 1008 - All links during the AM peak hour
- TAZ 1008 - All links during the PM peak hour
- TAZ 1008 - Congested links during the AM peak hour
- TAZ 1008 - Congested links during the PM peak hour

Coyote Valley Specific Plan Full Build-out Scenario

The following significant impacts were identified in the CVSP Full Build-out scenario:

Cordon Analysis

- North San Jose Cordon line during both peak hours

Cumulative Aggregated Screenline Analysis

- Link Set 1 – East of US 101 all links during the AM peak hour
- Link Set 1 – East of US 101 E/F links during the AM peak hour
- Link Set 1 – East of US 101 all links during the PM peak hour
- Link Set 1 – East of US 101 E/F links during the PM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road all links during the AM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road E/F links during the AM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road all links during the PM peak hour
- Link Set 2 – South of Jackson Street and Mabury Road E/F links during the PM peak hour
- Link Set 3 – West of US 101 all links during the AM peak hour
- Link Set 3 – West of US 101 E/F links during the AM peak hour
- Link Set 3 – West of US 101 all links during the PM peak hour
- Link Set 3 – West of US 101 E/F links during the PM peak hour
- Link Set 4 – West of I-680 all links during the AM peak hour
- Link Set 4 – West of I-680 all links during the PM peak hour
- Link Set 4 – West of I-680 E/F links during the PM peak hour

Cumulative Proximity Analysis

- TAZ 543 - All links during the AM peak hour
- TAZ 543 - All links during the PM peak hour
- TAZ 543 - Congested links during the AM peak hour
- TAZ 543 - Congested links during the PM peak hour
- TAZ 1008 - All links during the AM peak hour
- TAZ 1008 - All links during the PM peak hour
- TAZ 1008 - Congested links during the AM peak hour
- TAZ 1008 - Congested links during the PM peak hour

CHAPTER 1 - INTRODUCTION

The purpose of this study is to evaluate the impacts of the proposed Berryessa Flea Market General Plan Amendment (GPA) on the surrounding transportation system. The proposed (GPA) includes a land use and network change. The GPA is proposing to downgrade Sierra Road from Flickinger Avenue to Mabury Road from a four-lane to a two-lane major collector. The land use change includes the conversion of 24.4 acres of land from combined industrial/commercial to transit corridor residential. The study area expected to be affected by the proposed amendment is presented on Figure 1.

General Plan Amendment Site Description

The project site is located in the northeastern section of San Jose, California, east of US 101 and west of King Road. Berryessa Road bisects the project site and Mabury Road provides the southern boundary. The existing land use on the site is the Berryessa Flea Market. Existing land uses adjacent to the project site include: residential developments to the north, and industrial space on all other frontages.

Sierra Road currently extends southwest from Woodranch Road just past Bellemeade Street. The proposed development at the Berryessa Flea Market would provide a roadway network connection from Sierra Road through the site, across Berryessa Road, and terminating at Mabury Road. The result of this General Plan Amendment would minimize the width of Sierra Road so as not to encourage vehicles to cut through the proposed Berryessa Flea Market project.

The land use change includes 24.4 acres changing to transit corridor residential. The Berryessa Flea Market project site is divided into two sections: on the north side of Berryessa Road and the south side of Berryessa Road. The GPA land use change proposes changing 4.4 acres on the north side and 20 acres on the south side of Berryessa Road.

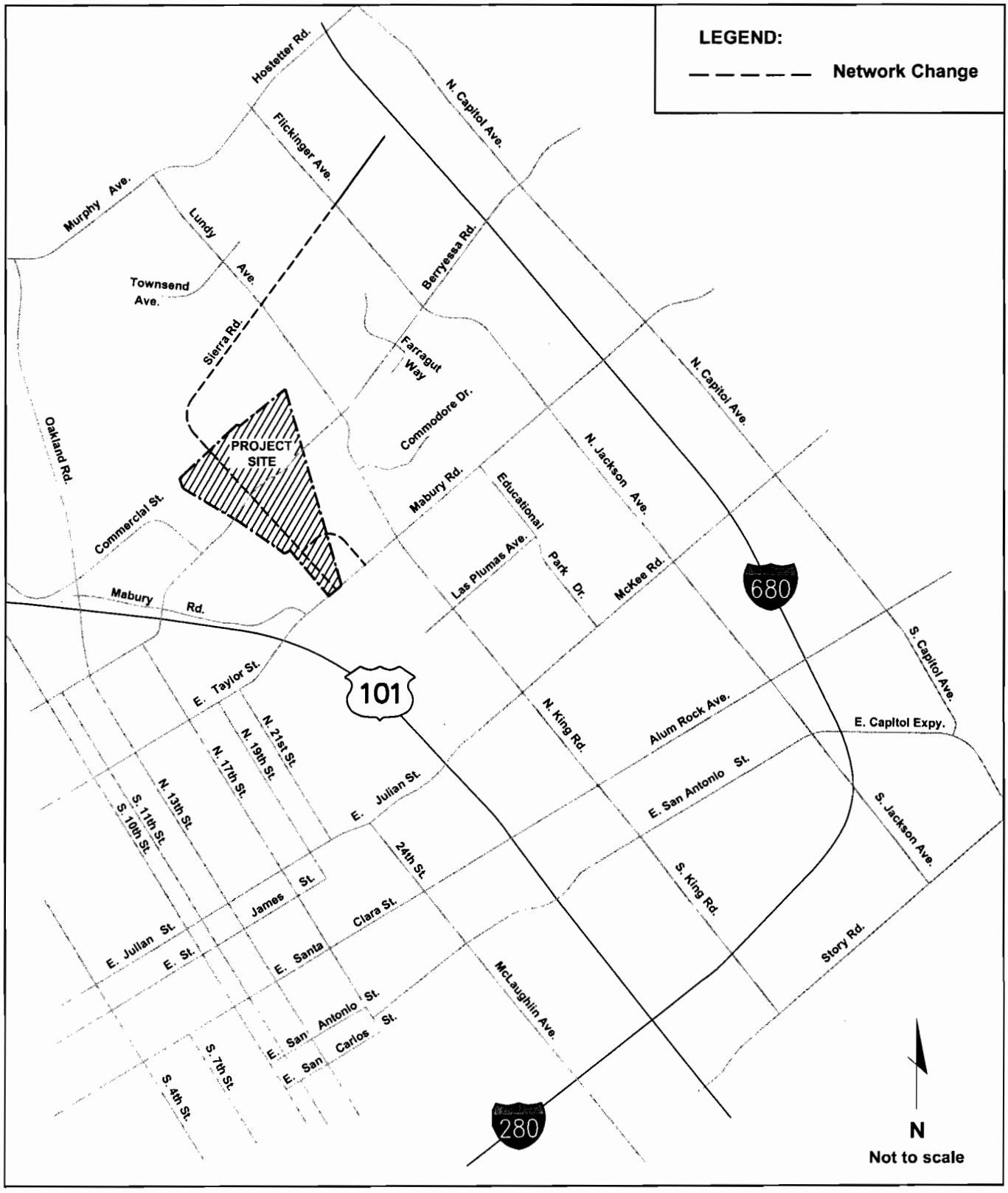
Study Methodology

The City of San Jose maintains guidelines for analyzing the impacts of General Plan Amendments which are documented in *Methodology for Preparing Long Term Traffic Impact Assessments City of San Jose Department of Transportation* (July 2005). Per these guidelines, an analysis of the modified land use and network connection was conducted using the City's CUBE traffic model. This method is described in detail below.

LONG-TERM ANALYSIS

This section summarizes use of the CUBE model, the purpose of the analysis, and any unusual or unique circumstances or factors that were taken into account in the analysis.

The City of San Jose's traffic forecasting model was developed to help the city identify peak-hour traffic impacts attributable to proposed changes to the City's General Plan. The model is implemented using the CUBE transportation planning software system and is consistent with the structures of the Metropolitan Transportation Commission's (MTC) BAYCAST regional model and VTA's VTP2030 model. The San Jose model includes the four elements traditionally associated with models of this kind. These elements include:



BERRYESSA FLEA MARKET

FEHR & PEERS
TRANSPORTATION CONSULTANTS

SITE LOCATION

FIGURE 1

December 2006
1035-641\Graphics\GPA Graphics\Site Location

- Trip Generation,
- Trip Distribution,
- Mode Choice, and
- Traffic Assignment.

The fundamental structure of the model includes a computer readable representation of the street system (highway network) that defines street segments (links) identified by end points (nodes). Each roadway link is further represented by key characteristics (link attributes) that describe the length, travel speeds, and vehicular capacity of the roadway segment. Small geographic areas (traffic analysis zones also called TAZ's) are used to quantify the planned land use activity throughout the city's planning area. The boundaries of these small geographic areas are typically defined by the modeled street system, as well as natural and man-made barriers that have an effect on traffic access to the modeled network. Transit systems are represented in the model by transit networks that are also identifiable by links and nodes.

The socioeconomic data for each TAZ in the model includes information about the number of households (stratified by household income and structure type), population, average income, population age distribution, and employment (stratified by groupings of the Standard Industrial Codes). The worker per household ratios and auto ownership within a TAZ are calculated based on these factors and the types and densities of residences. The model projects trip generation rates and the traffic attributable to residents and resident workers, categorized by trip purposes, using a set trip generation formula. The trip generation formulae were originally created by the Metropolitan Transportation Commission in 1997 based on 1990 U.S. Census data and 1994 San Francisco Bay Region Travel Survey, and are calibrated to 2000 U.S. Census data to more accurately reflect travel frequency for Bay Area residents.

Travel times within and between TAZ's (intra-zonal and inter-zonal, and terminal times) are developed from the network being modeled. Travel times within zones (intra-zonal travel times) are derived from each zone based on half its average travel time to the nearest three adjacent zones. Time to walk to and from the trip maker's car (terminal times) are also added.

The projected daily trips are distributed using a standard gravity model and friction factors calibrated for the modeling region, which presently consists of 13 counties. Shares of transportation modes are assigned to the daily trip distributions (or trip tables) utilizing a nested-Logit methodology. The City of San Jose CUBE Model is capable of estimating up to 7 modes of transportation – auto drive alone, auto shared ride 2 occupants, auto shared ride 3+ passengers, rail transit, bus transit, bicycle, and walk. For school trip purposes, auto driver and auto passenger are assumed for automobile travel. Time-of-day factors and directionality factors are applied to automobile trips occurring during the AM peak hour, AM 3-hour peak period, PM peak hour, and PM 3-hour peak period before the traffic is assigned to the roadway networks.

The assignment of the trip tables to the roadway network uses a route selection procedure based on minimum travel time paths (as opposed to minimum travel distance paths) between TAZ's and is done using a capacity-constrained user equilibrium-seeking process. This capacity-constrained traffic assignment process enables the model to reflect diversion of traffic around congested areas of the overall street system. High Occupancy Vehicle (HOV) lanes on freeways, expressways, and on-ramps are specifically dealt with in the model network, with access restricted to auto-shared-ride mode trips only, similar to real world operations of roadway facilities with HOV lanes.

Transit use is modeled for peak and non-peak periods, only based on computed transit levels of services (speeds and wait times). The model includes a feedback loop. Based on the conditions that influence transit speeds and wait times (such as traffic congestion), transit use numbers are

modified to reflect the likelihood of transit use, based on the constraints to the system. This loop is an enhancement in the model to address the dynamics of transit ridership related to the expansion or contraction of roadway capacities. The model is also validated to project freight truck and delivery truck traffic in 2-axle, 3-axle, and 4+ axle categories. Truck volumes are assigned to those segments of the roadway network where truck traffic is permitted.

In addition to providing projected peak hour and peak period volumes and ratios comparing projected traffic volume to available roadway capacity (V/C ratios) on each roadway segment, the model provides information on vehicle-miles and vehicle-hours of travel by facility type (freeway, expressways, arterial streets, etc.). These informational reports can be used to compare projected conditions under the current General Plan with the impacts of proposed land use amendments. The San Jose traffic forecasting model is intended for use as a "macro analysis tool," that projects probable future conditions and is best used when comparing alternative future scenarios. It is not designed to answer "micro analysis level" operational questions such as the need for turn lanes at an intersection.

Report Organization

The remainder of this report is divided into two chapters. Chapter 2 describes the long-range effects on the transportation system due to the proposed Berryessa Flea Market General Plan Amendment. Chapter 3 presents the analysis of cumulative conditions with all currently proposed General Plan amendments plus the GPA analyzed in this study.

CHAPTER 2 - LONG-RANGE ANALYSIS

This chapter presents the long-term traffic impacts on the transportation system associated with the Berryessa Flea Market GPA. The analysis is presented in three sections that address the impacts due to: 1) land use changes, 2) network changes, and 3) a combination of land use and network changes.

Impact Criteria/Thresholds of Significance

Based on the City of San Jose General Plan Land Use Amendment Guidelines for amendments outside special subareas, the significance impact of a GPA network and/or land use change is based on the following impact criteria:

- Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) both increase by 0.10 percent for all roadways in the Santa Clara County **(this applies only to analyses that include Network changes)**; or
- The aggregated V/C ratios (all links) of nearby regional screenlines increase in either direction by at least 0.01 and total volumes on the same links increase in either direction by at least 5% of average link capacity, as indicated in Table 1; or
- The aggregated E/F link V/C ratios of nearby regional screenlines increase in either direction by at least 0.005, and total volumes on the same E/F links increase in either direction by at least 2.5% of average congested link capacity, as indicated in Table 1; or
- Overall proximity area VMT and congested proximity area VMT increase by at least the values shown in Table 2.

Table 1

Aggregated Volume-To-Capacity Ratio Impact Thresholds

Link Set	Impact Thresholds	
	V/C Increase	Volume Increase
All Links	0.01, and	5% average link capacity
E/F Links	0.005, and	2.5% average congested link capacity

Source: City of San Jose General Plan Land Use Amendment Guidelines.

Table 2

Proximity Vehicle-Mile-Traveled Impact Thresholds

VMT Measurement	Impact Thresholds
Overall VMT	1% and 200 vehicle-miles
Congested VMT	½ of proximity VMT increase and 100 vehicle-miles

Source: City of San Jose General Plan Land Use Amendment Guidelines.

Land Use Only

The City of San Jose's General Plan designates 120.3 acres of land that is currently the site of the Berryessa Flea Market into the following three categories: transit corridor residential (20+ dwelling units/acre), medium density residential (8-16 dwelling units/acre), combined industrial/commercial, and public park/open space. The 120.3 acres is bisected by Berryessa Road and is divided into a North of Berryessa section (57.05 acres) and South of Berryessa

section (63.25 acres). The proposed land use change includes converting 4.4 acres of the land north of Berryessa Road and 20 acres of the land south of Berryessa Road from combined industrial/commercial to transit corridor residential. To analyze the long-term impacts, the proposed GPA land use change was incorporated into the City's CUBE traffic model without any other network or land use changes. This is referred to as the "Project" scenario.

AGGREGATED SCREENLINE ANALYSIS (LAND USE ONLY)

The screenline analysis identifies the volume-to-capacity (V/C) ratios of links at the regional screenline (approximately 2.5 miles from the project site) that may be affected by the proposed GPA. V/C is defined as a ratio of the volume of traffic on a roadway segment or link to its capacity. For the purposes of a Cube model analysis, volume-to-capacity ratios (V/C) for roadway links are defined as the equivalent of levels of service for intersections. Screenline analysis measures the area-wide tendencies and impacts of the proposed project by aggregating the V/C ratios of the identified links. The segment analysis divides the links into the following two groups for analysis: 1) all links and 2) those links that are operating at LOS E or F. A 2.5-mile radius around the project site is used to identify links to be used in the aggregated V/C computation. Figures 2a and 2b present the links included in the analysis and the volume and V/C ratios that are outlined in Tables 3 and 4.

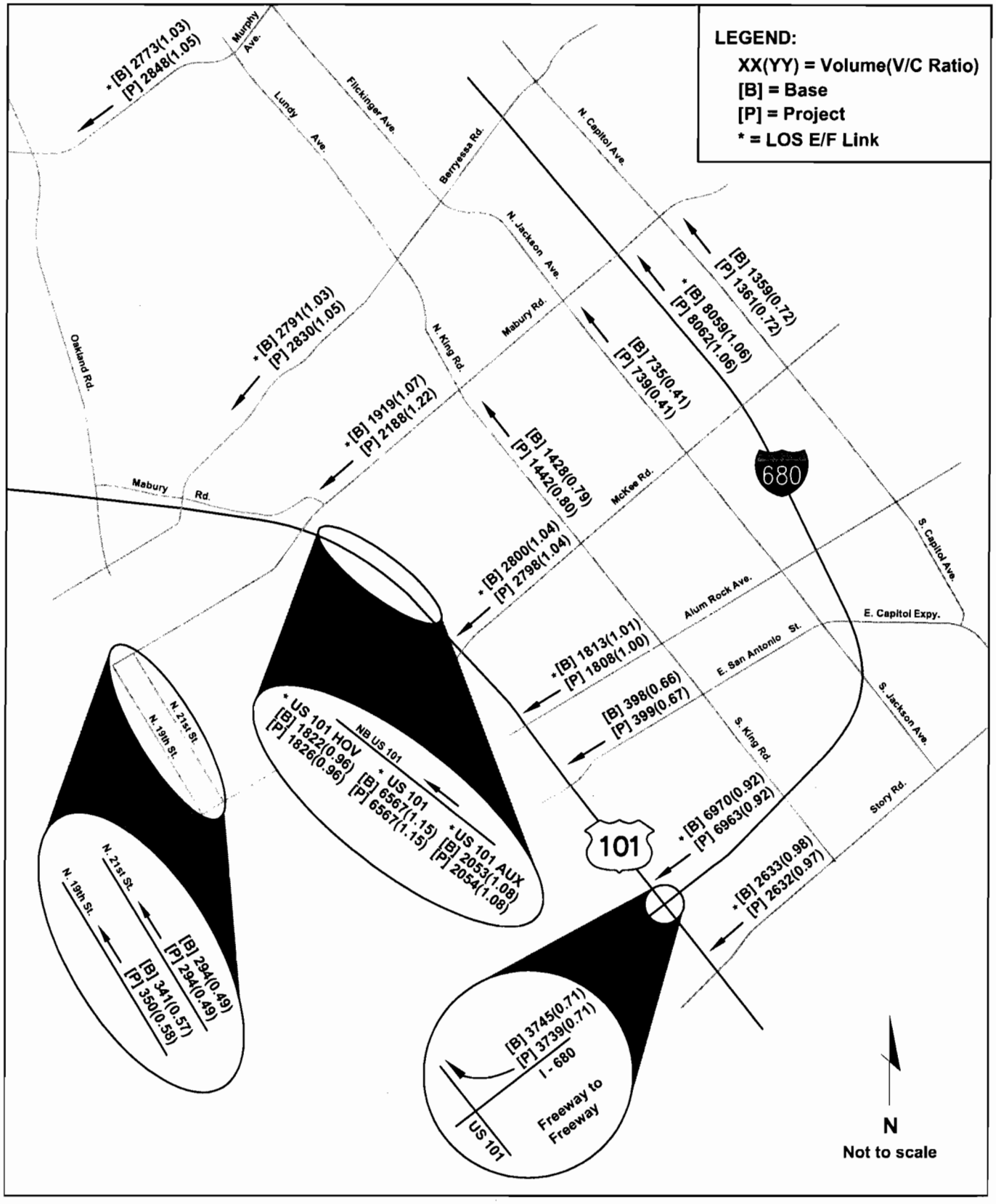
The GPA analysis identified two sets of links for evaluation. The first set of links (Link Set 1) are east of US 101. For Link Set 1 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The second set of links (Link Set 2) are south of Jackson Street and Mabury Road. For Link Set 2 the peak direction of travel is northbound during the AM peak hour and southbound during the PM peak hour.

During the AM peak hour, the results of the Aggregated V/C analysis for the land use only scenario showed that for all links in Link Set 1 there is an increase in the V/C ratio by 0.013 and an increase in the volume of 365 vehicles. The LOS E/F links (Link Set 1) showed an increase in the V/C ratio of 0.017 and an increase in the volume of 369 vehicles. Both analyses of Link Set 1 exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways during the AM peak hour.

The results of the Link Set 2 analysis during the AM peak hour showed that for all links there is an increase in the V/C ratio of 0.002 and an increase in the volume of 38 vehicles. For the LOS E/F links there was no change in the V/C ratio and a small increase in the volume of 8 vehicles. For Link Set 2, these changes do not exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **less than significant impact**.

During the PM peak hour, the results of the Aggregated V/C analysis for the land use only scenario show that for Link Set 1 there would be an increase in the V/C ratio of 0.013 and an increase in the volume of 361 vehicles. The LOS E/F links there would be an increase in the V/C ratio of 0.016 and an increase in the volume of 366 vehicles. Both of these increases exceed the impact criteria described in Table 1 and are considered a **significant impact** to all study roadways in the first set during the PM peak hour.

The results for Link Set 2 during the PM peak hour shows that for all links there is an increase in the V/C ratio of 0.003 and an increase in the volume of 78 vehicles, respectively. For the LOS E/F links there is an increase in the V/C ratio of 0.003 and an increase in the volume of 49 vehicles. Both of these changes do not exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **less than significant impact**.



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AM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR LAND USE ONLY

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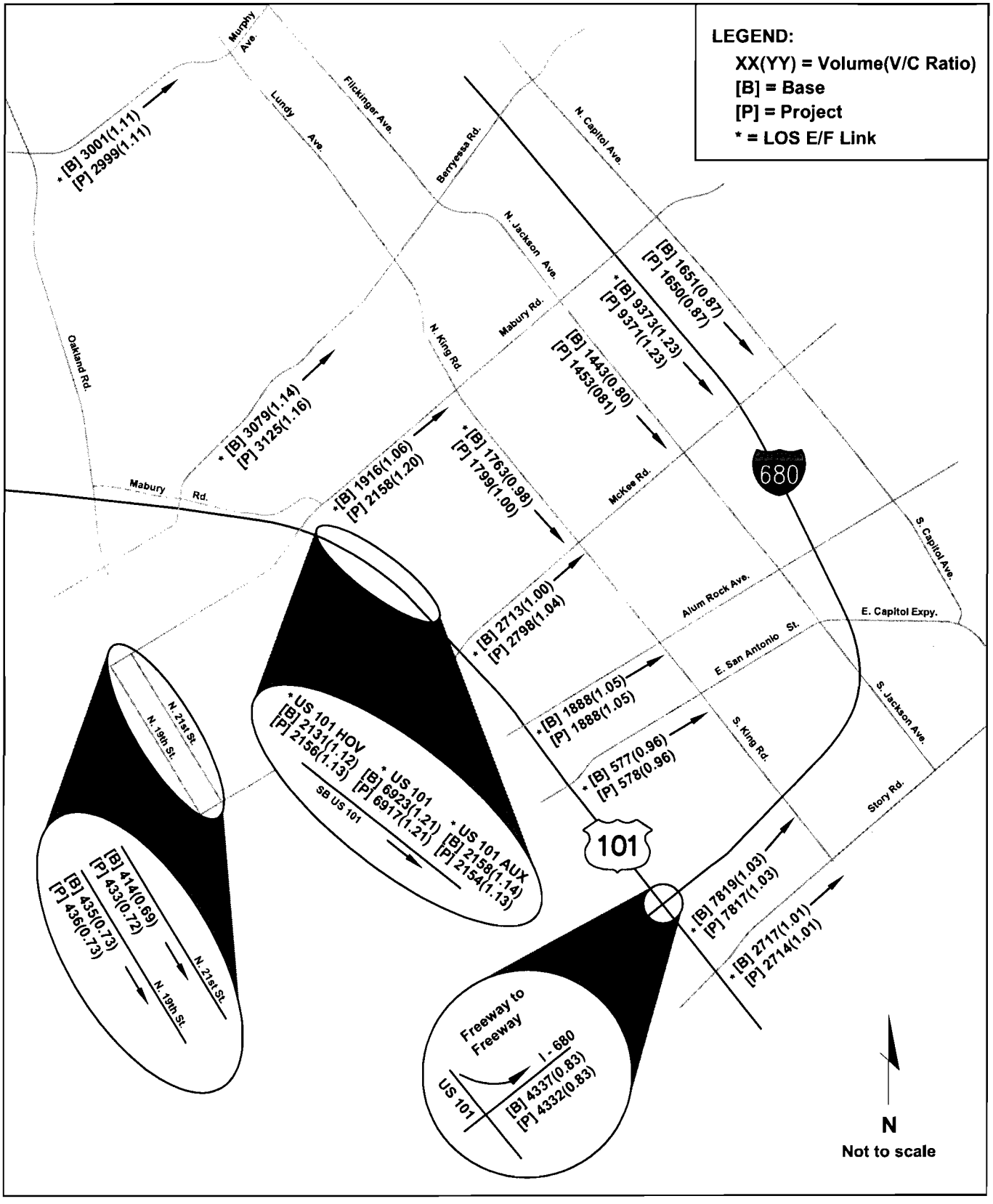
FIGURE 2a



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PM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR LAND USE ONLY

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FIGURE 2b

Table 3

AM Peak Direction Aggregated Screenline Analysis for Land Use Only

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2633	0.98	2632	0.97
I-680	Y	7600	6970	0.92	6963	0.92
Freeway to Freeway	N	5250	3745	0.71	3739	0.71
San Antonio	N	600	398	0.66	399	0.67
Alum Rock	Y	1800	1813	1.01	1808	1.00
McKee	Y	2700	2800	1.04	2798	1.04
Mabury	Y	1800	1919	1.07	2188	1.22
Berryessa	Y	2700	2791	1.03	2830	1.05
Murphy	Y	2700	2773	1.03	2848	1.05
Total Volume		27,850	25,842	0.928	26,206	0.941
Total E/F Links Volume		22,000	21,699	0.986	22,068	1.003
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		3,143	2.5% of 3,143 = *78*			
			All Links		**E/F Links**	
Change in V/C			0.013		0.017	
Change in Volume			365		369	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 78 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	341	0.57	350	0.58
N. 21st	N	600	294	0.49	294	0.49
US-101HOV	Y	1900	1822	0.96	1826	0.96
US-101	Y	5700	6567	1.15	6567	1.15
US-101 Aux	Y	1900	2053	1.08	2054	1.08
King	N	1800	1428	0.79	1442	0.80
Jackson	N	1800	735	0.41	739	0.41
I-680	Y	7600	8059	1.06	8062	1.06
Capitol	N	1900	1359	0.72	1361	0.72
Total Volume		23,800	22,656	0.952	22,694	0.954
Total E/F Links Volume		17,100	18,500	1.082	18,508	1.082
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		4,275	2.5% of 4,275 = *106*			
			All Links		**E/F Links**	
Change in V/C			0.002		0.000	
Change in Volume			38		8	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 106 Vol.	
Significant Impact			**NO**		**NO**	

Source: City of San Jose CUBE model run results June 2006.

Table 4

PM Peak Direction Aggregated Screenline Analysis for Land Use Only

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2717	1.01	2714	1.01
Freeway to Freeway	N	5250	4337	0.83	4332	0.83
I-680	Y	7600	7819	1.03	7817	1.03
San Antonio	Y	600	577	0.96	578	0.96
Alum Rock	Y	1800	1888	1.05	1888	1.05
McKee	Y	2700	2713	1.00	2798	1.04
Mabury	Y	1800	1916	1.06	2158	1.20
Berryessa	Y	2700	3079	1.14	3125	1.16
Murphy	Y	2700	3001	1.11	2999	1.11
Total Volume		27,850	28,047	1.007	28,408	1.020
Total E/F Links Volume		22,600	23,710	1.049	24,076	1.065
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		2,825	2.5% of 2,825 = *70*			
			All Links		**E/F Links**	
Change in V/C			0.013		0.016	
Change in Volume			361		366	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 70 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	435	0.73	436	0.73
N. 21st	N	600	414	0.69	433	0.72
US-101Aux	Y	1900	2158	1.14	2154	1.13
US-101	Y	5700	6923	1.21	6917	1.21
US-101 HOV	Y	1900	2131	1.12	2156	1.13
King	Y	1800	1763	0.98	1799	1.00
Jackson	N	1800	1443	0.80	1453	0.81
I-680	Y	7600	9373	1.23	9371	1.23
Capitol	N	1900	1651	0.87	1650	0.87
Total Volume		23,800	26,292	1.105	26,370	1.108
Total E/F Links Volume		18,900	22,349	1.182	22,397	1.185
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		3,780	2.5% of 3,780 = *94*			
			All Links		**E/F Links**	
Change in V/C			0.003		0.003	
Change in Volume			78		49	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 94 Vol.	
Significant Impact			**NO**		**NO**	

Source: City of San Jose CUBE model run results June 2006.

PROXIMITY ANALYSIS (LAND USE ONLY)

The proximity analysis provides specific information on traffic operations within the area surrounding the proposed General Plan amendment site. The proximity area may vary from 0.5 to 1.5 miles, depending on the density of the roadway network and travel activity near the project site. For the analysis, specific quantitative differences are identified, including overall VMT, congested VMT, and the number of congested links that would occur under the project condition compared to the existing General Plan base case.

The proximity analysis provides information on traffic changes near the Berryessa Flea Market site. The change in VMT for all links as well as the congested links was determined by comparing the project model run to the base model run results. The results are presented in Table 5.

The results of the proximity analysis show that the all links analysis increase by 364 vehicle miles during the AM peak hour and 498 vehicle miles during the PM peak hour. These values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours on the all links proximity analysis.

Table 5

VMT Proximity Analysis for Land Use Only

	AM	PM
All Links		
Project	20,676.07	21,710.3
Base	20,311.98	21,211.97
Growth	**364.09**	**498.33**
Growth %	**1.79%**	**2.35%**
Congested Links		
Project	11,710	10,708.3
Base	11,288.02	10,343.85
Growth	**421.98**	**364.45**
Growth %	3.74%	3.52%
½ of all link VMT growth	182	249

Proximity Radius = 0.6 miles
Source: City of San Jose CUBE model run results June 2006.

The congested links analysis would also result in a **significant impact** during both peak hours because the growth with the proposed GPA would result in an increase of approximately 422 and 364 vehicle miles during the AM and PM peak hours, respectively. This exceeds the threshold of one half the all links VMT and 100 vehicle miles described in Table 2.

Network Only

Currently the City of San Jose's General Plan designates Sierra Road as a four-lane major collector between Flickinger Avenue and Berryessa Street. This network configuration is included in the City's CUBE model and represents the "Base" scenario. The proposed Flea Market project is expected to provide a connection between Sierra Road and Mabury Road. To discourage cut-

through traffic that could be created by this connection, the downgrading of Sierra Road to two-lanes is proposed. Therefore, the proposed GPA would designate this section of Sierra Road as two-lanes.

To analyze the long-term impacts, the proposed GPA network change was incorporated into the City's CUBE traffic model without any other network or land use changes. This is referred to as the "Project" scenario. A proximity analysis, aggregated V/C ratio analysis, and VMT and VHT comparison analysis was performed to determine the impacts of the proposed network change to the transportation system.

VMT AND VHT COMPARISON (NETWORK ONLY)

Changes in VMT and VHT are indicators of changes in the amount of travel on the roadway system caused by the proposed network only GPA. The changes in VMT and VHT are dependent on the size (number of lanes) and location of the roadway network change being added or subtracted. VMT and VHT may increase or decrease with the addition of a new arterial roadway depending on travel patterns, speed and capacity, and if it is oriented in the peak direction of travel. Table 6 presents the VMT and VHT comparison within Santa Clara County for the network only GPA analysis.

Table 6

VMT and VHT Comparison Within Santa Clara County for Network Only

	VMT		**VHT**	
	AM	PM	AM	PM
Project	3,893,312	4,540,678	193,941	344,320
Base	3,899,745	4,547,567	197,569	344,436
Growth	*-6,434*	*-6,889*	*-3,628*	*-116*
Project Growth %	***-0.165%***	***-0.151%***	***-1.836%***	***-0.034%***

Source: City of San Jose CUBE model run results June 2006.

The results of the VMT and VHT analysis show the projected growth with the network only change would result in a decrease during both peak hours for the vehicle miles and vehicle hours traveled. Therefore, the proposed network only change would result in a **less than significant impact** to the transportation system.

AGGREGATED SCREENLINE ANALYSIS (NETWORK ONLY)

The screenline analysis identifies the volume-to-capacity (V/C) ratios of links at the regional screenline that may be affected by the proposed network only GPA. V/C is defined as a ratio of the volume of traffic on a roadway segment or link to its capacity. For the purposes of a Cube model analysis, volume-to-capacity ratios (V/C) for roadway links are defined as the equivalent of levels of service for intersections. Screenline analysis measures the area-wide tendencies and impacts of the proposed project by aggregating the V/C ratios of the identified links. The segment analysis divides the links into the following two groups for analysis: 1) all links and 2) those links that are operating at LOS E or F. A 2.5 mile radius around the project site is used to identify links to be used in the aggregated V/C computation. Figure 3a 3b present the links included in the analysis and the volume and V/C ratios that are outlined in Tables 7 and 8.

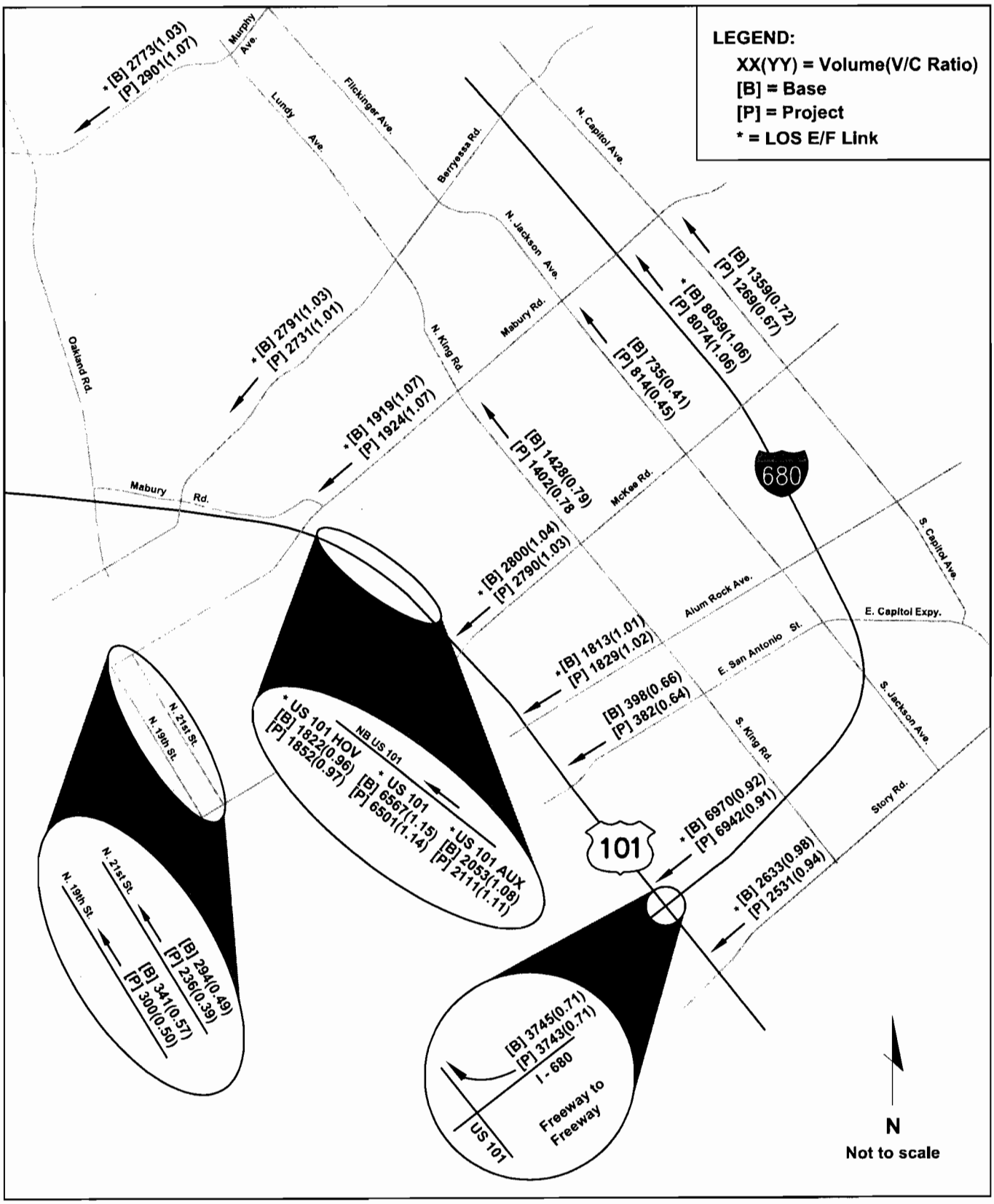
The GPA analysis identified two sets of links for evaluation. The first set of links (Link Set 1) are east of US 101. For Link Set 1 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The second set of links (Link Set 2) are south of Jackson Street and Mabury Road. For Link Set 2 the peak direction of travel is northbound during the AM peak hour and southbound during the PM peak hour.

During the AM peak hour, the results of the Aggregated V/C analysis for the land use only scenario show that for Link Set 1 there is a decrease in the V/C ratio of -0.002 and in the volume of -69 vehicles. The LOS E/F links show a decrease in the V/C ratio of -0.002 and a decrease in the volume of -52 vehicles. The Link Set 1 changes would not exceed the impact criteria described in Table 1 and would be considered **less than significant**.

The results of Link Set 2 during the AM peak hour show that for all links there is a decrease in the V/C ratio of -0.004 and in the volume of -97 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.002 and in the volume of 38 vehicles. The Link Set 2 changes do not exceed the impact criteria described in Table 1 and the impact to this set of links would be considered **less than significant impact**.

During the PM peak hour, the results of the Aggregated V/C analysis for the land use only scenario show that for Link Set 1 there is an increased in the V/C ratio of 0.002 and in the volume of 44 vehicles. The LOS E/F links for Link Set 2 shows an increase in the V/C ratio of 0.003 and in the volume of 70 vehicles. The Link Set 2 changes do not exceed the impact criteria described in Table 1 and the impact would be considered **less than significant**.

The results of Link Set 2 during the PM peak hour show that for all links there is an increase in the V/C ratio of 0.003 and in the volume of 74 vehicles. The LOS E/F links showed a decrease the V/C ratio of -0.004 and in the volume of -84 vehicles. These changes do not exceed the impact criteria described in Table 1 and the impact to this set of links would be considered **less than significant impact**.



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AM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR NETWORK ONLY

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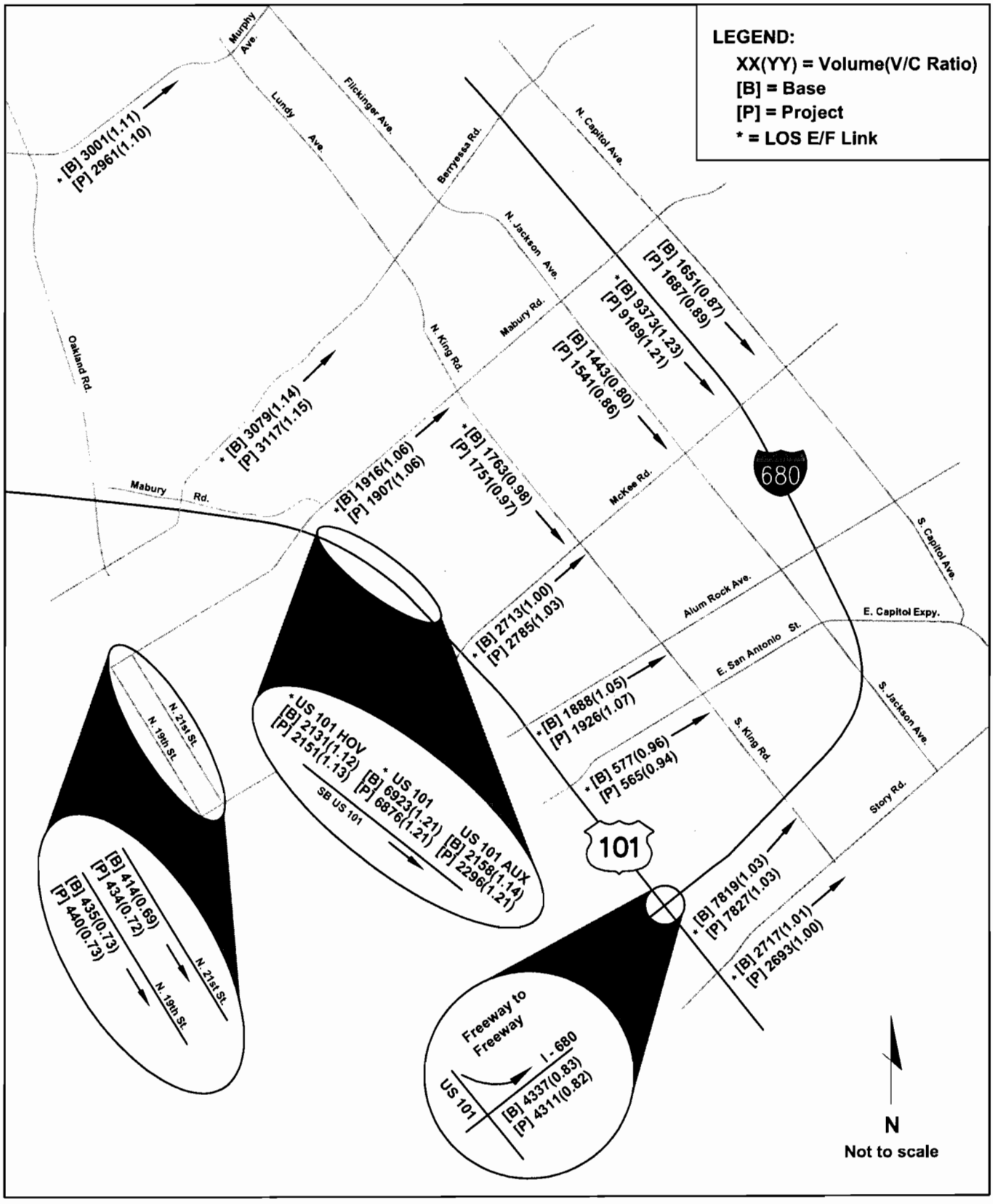
FIGURE 3a



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PM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR NETWORK ONLY

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FIGURE 3b

Table 7

AM Peak Direction Aggregated Screenline Analysis for Network Only

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2633	0.98	2531	0.94
I-680	Y	7600	6970	0.92	6942	0.91
Freeway to Freeway	N	5250	3745	0.71	3743	0.71
San Antonio	N	600	398	0.66	382	0.64
Alum Rock	Y	1800	1813	1.01	1829	1.02
McKee	Y	2700	2800	1.04	2790	1.03
Mabury	Y	1800	1919	1.07	1924	1.07
Berryessa	Y	2700	2791	1.03	2731	1.01
Murphy	Y	2700	2773	1.03	2901	1.07
Total Volume		27,850	25,842	0.928	25,773	0.925
Total E/F Links Volume		22,000	21,699	0.986	21,647	0.984
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		3,143	2.5% of 3,143 = *78*			
			All Links		**E/F Links**	
Change in V/C			-0.002		-0.002	
Change in Volume			-69		-52	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 78 Vol.	
Significant Impact			**NO**		**NO**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	341	0.57	300	0.50
N. 21st	N	600	294	0.49	236	0.39
US-101HOV	Y	1900	1822	0.96	1852	0.97
US-101	Y	5700	6567	1.15	6501	1.14
US-101 Aux	Y	1900	2053	1.08	2111	1.11
King	N	1800	1428	0.79	1402	0.78
Jackson	N	1800	735	0.41	814	0.45
I-680	Y	7600	8059	1.06	8074	1.06
Capitol	N	1900	1359	0.72	1269	0.67
Total Volume		23,800	22,656	0.952	22,559	0.948
Total E/F Links Volume		17,100	18,500	1.082	18,538	1.084
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		4,275	2.5% of 4,275 = *106*			
			All Links		**E/F Links**	
Change in V/C			-0.004		0.002	
Change in Volume			-97		38	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 106 Vol.	
Significant Impact			**NO**		**NO**	

Source: City of San Jose CUBE model run results June 2006.

Table 8

PM Peak Direction Aggregated Screenline Analysis for Network Only

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2717	1.01	2693	1.00
Freeway to Freeway	N	5250	4337	0.83	4311	0.82
I-680	Y	7600	7819	1.03	7827	1.03
San Antonio	Y	600	577	0.96	565	0.94
Alum Rock	Y	1800	1888	1.05	1926	1.07
McKee	Y	2700	2713	1.00	2785	1.03
Mabury	Y	1800	1916	1.06	1907	1.06
Berryessa	Y	2700	3079	1.14	3117	1.15
Murphy	Y	2700	3001	1.11	2961	1.10
Total Volume		27,850	28,047	1.007	28,091	1.009
Total E/F Links Volume		22,600	23,710	1.049	23,781	1.052
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		2,825	2.5% of 2,825 = *70*			
			All Links		**E/F Links**	
Change in V/C			0.002		0.003	
Change in Volume			44		70	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 70 Vol.	
Significant Impact			**NO**		**NO**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	435	0.73	440	0.73
N. 21st	N	600	414	0.69	434	0.72
US-101 Aux	Y	1900	2158	1.14	2296	1.21
US-101	Y	5700	6923	1.21	6876	1.21
US-101 HOV	Y	1900	2131	1.12	2151	1.13
King	Y	1800	1763	0.98	1751	0.97
Jackson	N	1800	1443	0.80	1541	0.86
I-680	Y	7600	9373	1.23	9189	1.21
Capitol	N	1900	1651	0.87	1687	0.89
Total Volume		23,800	26,292	1.105	26,366	1.108
Total E/F Links Volume		18,900	22,349	1.182	22,264	1.178
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		3,780	2.5% of 3,780 = *94*			
			All Links		**E/F Links**	
Change in V/C			0.003		-0.004	
Change in Volume			74		-84	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 94 Vol.	
Significant Impact			**NO**		**NO**	

Source: City of San Jose CUBE model run results June 2006.

PROXIMITY ANALYSIS (NETWORK ONLY)

The proximity analysis provides specific information on traffic operations within the area surrounding the proposed General Plan amendment site. The proximity area may vary from 0.5 to 1.5 miles, depending on the density of the roadway network and travel activity near the project site. For the analysis, specific quantitative differences are identified, including overall VMT, congested VMT, and the number of congested links that would occur under the project condition compared to the existing General Plan base case.

The proximity analysis provides information on traffic changes near the Berryessa Flea Market site. The change in VMT for all links as well as the congested links was determined by comparing the project model run to the base model run results. The results are presented in Table 9.

The results of the proximity analysis show that the all links analysis decrease by -81 vehicle miles during the AM peak hour and increase 478 vehicle miles during the PM peak hour. The PM peak-hour value exceeds the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during the PM peak hour on the all links proximity analysis.

The congested links analysis would also result in a **significant impact** during the PM peak hour because the growth with the proposed GPA would result in a decrease of -62 during the AM peak hour and an increase of 520 vehicle miles during the PM peak hour. This exceeds the threshold of one half the all links VMT and 100 vehicle miles during the PM peak hour.

Table 9

VMT Proximity Analysis for Network Only

	AM	PM
All Links		
Project	20,231.01	21,689.78
Base	20,311.98	21,211.97
Growth	**-80.97**	**477.81**
Growth %	**-0.40%**	**2.25%**
Congested Links		
Project	11,226	10,864.26
Base	11,288.02	10,343.85
Growth	**-62.02**	**520.41**
Growth %	-0.55%	5.03%
½ of all link VMT growth	100	238

Proximity Radius = 0.6 miles
Source: City of San Jose CUBE model run results June 2006.

Land Use and Network Combination

The final scenario evaluates both the land use and network change together. The effects of changing the 24.4 acres of land use from industrial/commercial to transit corridor residential and the change in designation from four lanes to two lanes are presented below.

To analyze the long-term impacts, the proposed GPA network change was incorporated into the City's CUBE traffic model without any other network or land use changes. This is referred to as the "Project" scenario. A proximity analysis, aggregated V/C ratio analysis, and VMT and VHT comparison analysis was performed to determine the impacts of the proposed network change to the transportation system.

VMT AND VHT COMPARISON (LAND USE AND NETWORK)

Changes in VMT and VHT are indicators of changes in the amount of travel on the roadway system caused by the proposed GPA. The changes in VMT and VHT are dependent on the sizes and locations of the land use and network changes. VMT and VHT may increase or decrease with a change in size or location of a particular land use or the addition of a new arterial roadway depending on travel patterns, speed and capacity, and if it is oriented in the peak direction of travel. Table 10 presents the VMT and VHT comparison within Santa Clara County.

The VMT analysis showed an increase of vehicle miles during the AM and PM peak hours, however the increase during the PM peak hour was less than 0.1%. Therefore, the proposed land use and network change would result in a **less than significant impact** to the transportation system.

The VHT analysis showed a decrease of vehicle hours during the AM peak hour, but an increase during the PM peak hour. The decrease of -0.730% in vehicle hours traveled during the AM peak hour would result in a **less than significant impact** to the transportation system.

Table 10

VMT and VHT Comparison Within Santa Clara County for Land Use Only

	VMT		VHT	
	AM	PM	AM	PM
Project	3,906,179	4,548,839	196,127	349,084
Base	3,899,745	4,547,567	197,569	344,436
Growth	*6,434*	*1,272*	*-1,442*	*4,649*
Project Growth %	***0.165%***	***0.028%***	***-0.730%***	***1.350%***

SOURCE: CITY OF SAN JOSE CUBE MODEL RUN RESULTS JUNE 2006.

AGGREGATED SCREENLINE ANALYSIS (LAND USE AND NETWORK)

The screenline analysis identifies the volume-to-capacity (V/C) ratios of links at the regional screenline that may be affected by the proposed GPA. V/C is defined as a ratio of the volume of traffic on a roadway segment or link to its capacity. For the purposes of a Cube model analysis, volume-to-capacity ratios (V/C) for roadway links are defined as the equivalent of levels of service for intersections. Screenline analysis measures the area-wide tendencies and impacts of the proposed project by aggregating the V/C ratios of the identified links. The segment analysis divides the links into the following two groups for analysis: 1) all links and 2) those links that are

operating at LOS E or F. A 2.5 mile radius around the project site is used to identify links to be used in the aggregated V/C computation. Figures 4a and 4b present the links included in the analysis and the volume and V/C ratios that are outlined in Tables 11 and 12.

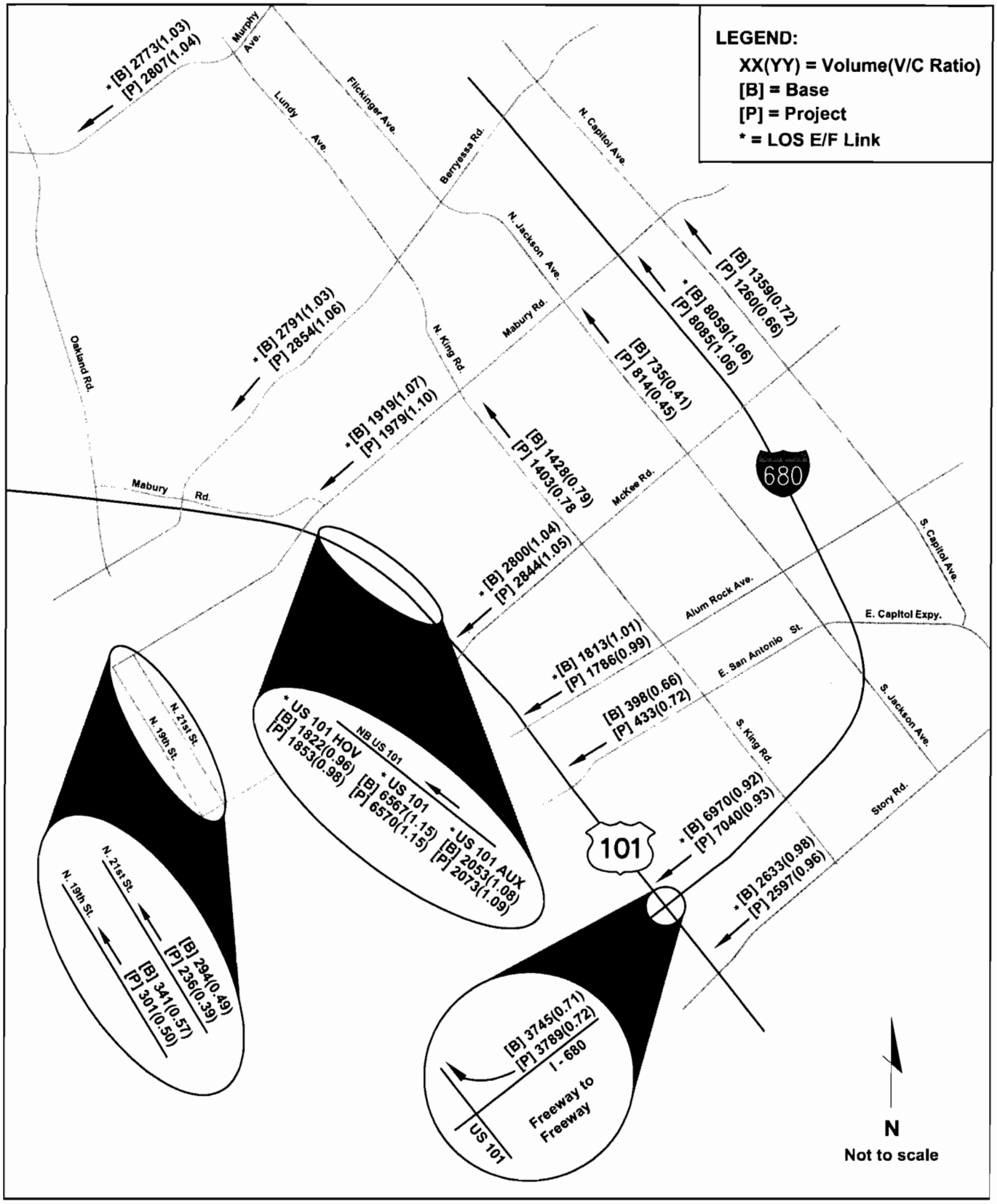
The GPA analysis identified two sets of links for evaluation. The first set of links (Link Set 1) are east of US 101. For Link Set 1 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The second set of links (Link Set 2) are south of Jackson Street and Mabury Road. For Link Set 2 the peak direction of travel is northbound during the AM peak hour and southbound during the PM peak hour.

During the AM peak hour, the results of the Aggregated V/C analysis for the land use and network scenario show that all links in Link Set 1 increase the V/C ratio by 0.010 and the volume by 287 vehicles. The LOS E/F links increase the V/C ratio by 0.009 and the volume by 208 vehicles. Both of these changes exceed the impact criteria described in Table 1 and would be considered a **significant impact** to all study roadways in the first set during the AM peak hour.

The analysis results for Link Set 2 during the AM peak hour shows that for all links there is a decrease in the V/C ratio of -0.003 and in the volume of -61 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.005 and in the volume of 82 vehicles. Both of these changes do not exceed the impact criteria described in Table 1 and the impact would be considered **less than significant impact**.

During the PM peak hour, the results of the Aggregated V/C analysis for the land use and network scenario show that for all links in Link Set 1 increase in the V/C ratio by 0.013 and the volume by 356 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.012 and the volume by 269 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the proposed project would create a **significant impact** to all study roadways in the first set during the PM peak hour.

The results of Link Set 2 during the PM peak hour shows that all links there is an increase in the V/C ratio of 0.013 and in the volume of 312 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.006 and the volume of 116 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **significant impact** to all study roadways in the second set during the PM peak hour.



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AM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR LAND USE & NETWORK

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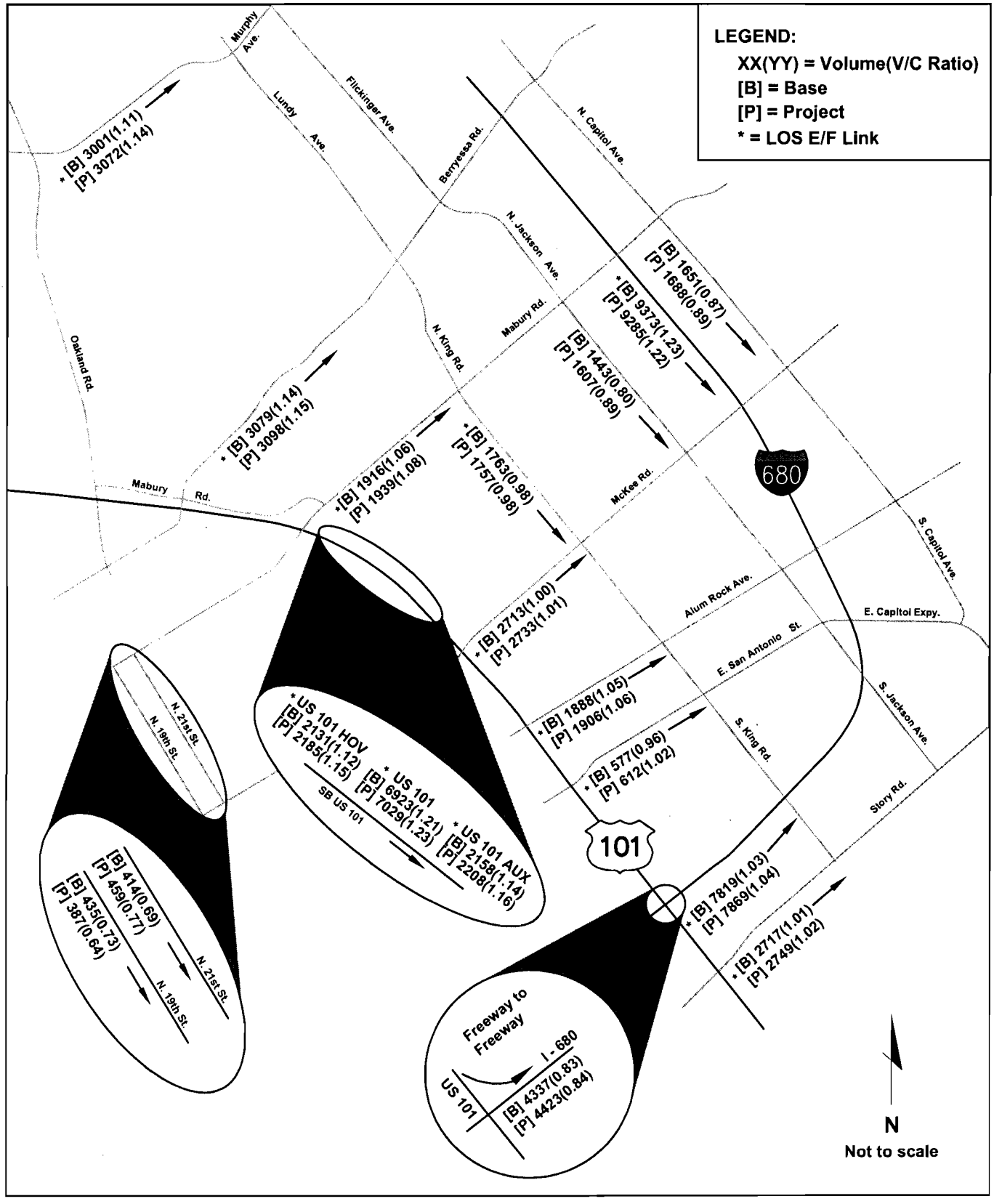
FIGURE 4a



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PM PEAK-HOUR DIRECTION VOLUMES AND VOLUME-TO-CAPACITY RATIOS FOR LAND USE & NETWORK

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FIGURE 4b

Table 11

AM Peak Direction Aggregated Screenline Analysis for Land Use & Network

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2633	0.98	2597	0.96
I-680	Y	7600	6970	0.92	7040	0.93
Freeway to Freeway	N	5250	3745	0.71	3789	0.72
San Antonio	N	600	398	0.66	433	0.72
Alum Rock	Y	1800	1813	1.01	1786	0.99
McKee	Y	2700	2800	1.04	2844	1.05
Mabury	Y	1800	1919	1.07	1979	1.10
Berryessa	Y	2700	2791	1.03	2854	1.06
Murphy	Y	2700	2773	1.03	2807	1.04
Total Volume		27,850	25,842	0.928	26,129	0.938
Total E/F Links Volume		22,000	21,699	0.986	21,907	0.996
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		3,143	2.5% of 3,143 = *78*			
			All Links		**E/F Links**	
Change in V/C			0.010		0.009	
Change in Volume			287		208	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 78 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	341	0.57	301	0.50
N. 21st	N	600	294	0.49	236	0.39
US-101HOV	Y	1900	1822	0.96	1853	0.98
US-101	Y	5700	6567	1.15	6570	1.15
US-101 Aux	Y	1900	2053	1.08	2073	1.09
King	N	1800	1428	0.79	1403	0.78
Jackson	N	1800	735	0.41	814	0.45
I-680	Y	7600	8059	1.06	8085	1.06
Capitol	N	1900	1359	0.72	1260	0.66
Total Volume		23,800	22,656	0.952	22,595	0.949
Total E/F Links Volume		17,100	18,500	1.082	18,582	1.087
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		4,275	2.5% of 4,275 = *106*			
			All Links		**E/F Links**	
Change in V/C			-0.003		0.005	
Change in Volume			-61		82	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 106 Vol.	
Significant Impact			**NO**		**NO**	

Source: City of San Jose CUBE model run results June 2006.

Table 12

PM Peak Direction Aggregated Screenline Analysis for Land Use & Network

Link Name	LOS E/F Link	Capacity	Base		Project	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Story	Y	2700	2717	1.01	2749	1.02
Freeway to Freeway	N	5250	4337	0.83	4423	0.84
I-680	Y	7600	7819	1.03	7869	1.04
San Antonio	Y	600	577	0.96	612	1.02
Alum Rock	Y	1800	1888	1.05	1906	1.06
McKee	Y	2700	2713	1.00	2733	1.01
Mabury	Y	1800	1916	1.06	1939	1.08
Berryessa	Y	2700	3079	1.14	3098	1.15
Murphy	Y	2700	3001	1.11	3072	1.14
Total Volume		27,850	28,047	1.007	28,403	1.020
Total E/F Links Volume		22,600	23,710	1.049	23,980	1.061
Average Link Capacity		3,094	5% of 3,094 = *154*			
Average E/F Link Capacity		2,825	2.5% of 2,825 = *70*			
			All Links		**E/F Links**	
Change in V/C			0.013		0.012	
Change in Volume			356		269	
Impact Criteria			0.01 V/C & 154 Vol.		0.005 V/C & 70 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
N. 19th	N	600	435	0.73	387	0.64
N. 21st	N	600	414	0.69	459	0.77
US-101 Aux	Y	1900	2158	1.14	2208	1.16
US-101	Y	5700	6923	1.21	7029	1.23
US-101 HOV	Y	1900	2131	1.12	2185	1.15
King	Y	1800	1763	0.98	1757	0.98
Jackson	N	1800	1443	0.80	1607	0.89
I-680	Y	7600	9373	1.23	9285	1.22
Capitol	N	1900	1651	0.87	1688	0.89
Total Volume		23,800	26,292	1.105	26,604	1.118
Total E/F Links Volume		18,900	22,349	1.182	22,464	1.189
Average Link Capacity		2,644	5% of 2,644 = *132*			
Average E/F Link Capacity		3,780	2.5% of 3,780 = *94*			
			All Links		**E/F Links**	
Change in V/C			0.013		0.006	
Change in Volume			312		116	
Impact Criteria			0.01 V/C & 132 Vol.		0.005 V/C & 94 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose CUBE model run results June 2006.

PROXIMITY ANALYSIS (LAND USE AND NETWORK)

The proximity analysis provides specific information on traffic operations within the area surrounding the proposed General Plan amendment site. The proximity area may vary from 0.5 to 1.5 miles, depending on the density of the roadway network and travel activity near the project site. For the analysis, specific quantitative differences are identified, including overall VMT, congested VMT, and the number of congested links that would occur under the project condition compared to the existing General Plan base case.

The proximity analysis provides information on traffic changes near the Berryessa Flea Market site. The change in VMT for all links as well as the congested links was determined by comparing the project model run to the base model run results. The results are presented in Table 13.

The results of the proximity analysis show that for all links the vehicle miles traveled increase by 259 and 402 vehicle miles during the AM and PM peak hours, respectively. The changes in both peak-hour values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours for the all links proximity analysis.

The congested links analysis also results in a **significant impact** during both peak hours. The change in traffic due to the proposed GPA would result in an increase of 490 vehicle miles during the AM peak hour and an increase of 948 vehicle miles during the PM peak hour. These changes exceed the threshold of one half the all links VMT and 100 vehicle miles during both peak hours.

Table 13

VMT Proximity Analysis for Land Use & Network

	AM	PM
All Links		
Project	20,571.36	21,613.67
Base	20,311.98	21,211.97
Growth	**259.38**	**401.7**
Growth %	**1.28%**	**1.89%**
Congested Links		
Project	11,777.85	11,292.24
Base	11,288.02	10,343.85
Growth	**489.83**	**948.39**
Growth %	4.34%	9.17%
½ of all link VMT growth	129	200

Proximity Radius = 0.6 miles
Source: City of San Jose CUBE model run results June 2006.

CHAPTER 3 - CUMULATIVE ANALYSIS

This chapter presents the long-term cumulative impacts on the transportation system associated with the Berryessa Flea Market GPA. The Winter 2007 cumulative analysis is presented in two sections that include Coyote Valley Specific Plan (CVSP) Partial Build-out and Coyote Valley Specific Plan (CVSP) Full Build-out scenarios. These two scenarios are provided because of the uncertain nature of the Evergreen area development plan. The cumulative analysis includes the proposed project together with all other GPAs in the City.

Summary of Cumulative GPA

The cumulative changes in households and jobs are summarized in Table 14 for CVSP Partial Build-out and CVSP Full Build-out scenarios.

Table 14

Description of Cumulative Winter 2007 GPA

	Change in Households	Change in Jobs
CVSP Partial Build-out	26,275	25,984
CVSP Full Build-out	40,975	5,772

Source: City of San Jose

Impact Criteria/Thresholds of Significance

Cumulative impacts are considered significant if any of the following occurs during either the AM or PM peak hour:

- Total peak hour trips increase by 0.10 percent or more for all trips originating in and/or destined for the Santa Clara County; or
- Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) both increase by 0.10 percent for all roadways in the Santa Clara County; or
- Peak direction volumes across any one of the special subarea cordon lines shown on Figure 5 increases by the percentage shown in Table 15 below; or
- The aggregated V/C ratios of nearby regional screenlines increase in peak direction by at least 0.01 and total volumes on the same links increase in peak direction by at least 5% of average link capacity, as indicated in Table 1; or
- The aggregated E/F link V/C ratios of nearby regional screenlines increase in peak direction by at least 0.005, and total volumes on the same E/F links increase in peak direction by at least 2.5% of average congested link capacity, as indicated in Table 1; or
- The values for overall VMT or congested VMT within the proximity area of any of the proposed amendments increase by at least the percentage shown in Table 2.

Table 15

Impact Thresholds for Cordon Line Impact

Subarea	Percentage Change
Evergreen	0.05%
North San Jose	0.15%
South San Jose	0.15%

Source: City of San Jose General Plan Land Use Amendment Guidelines.

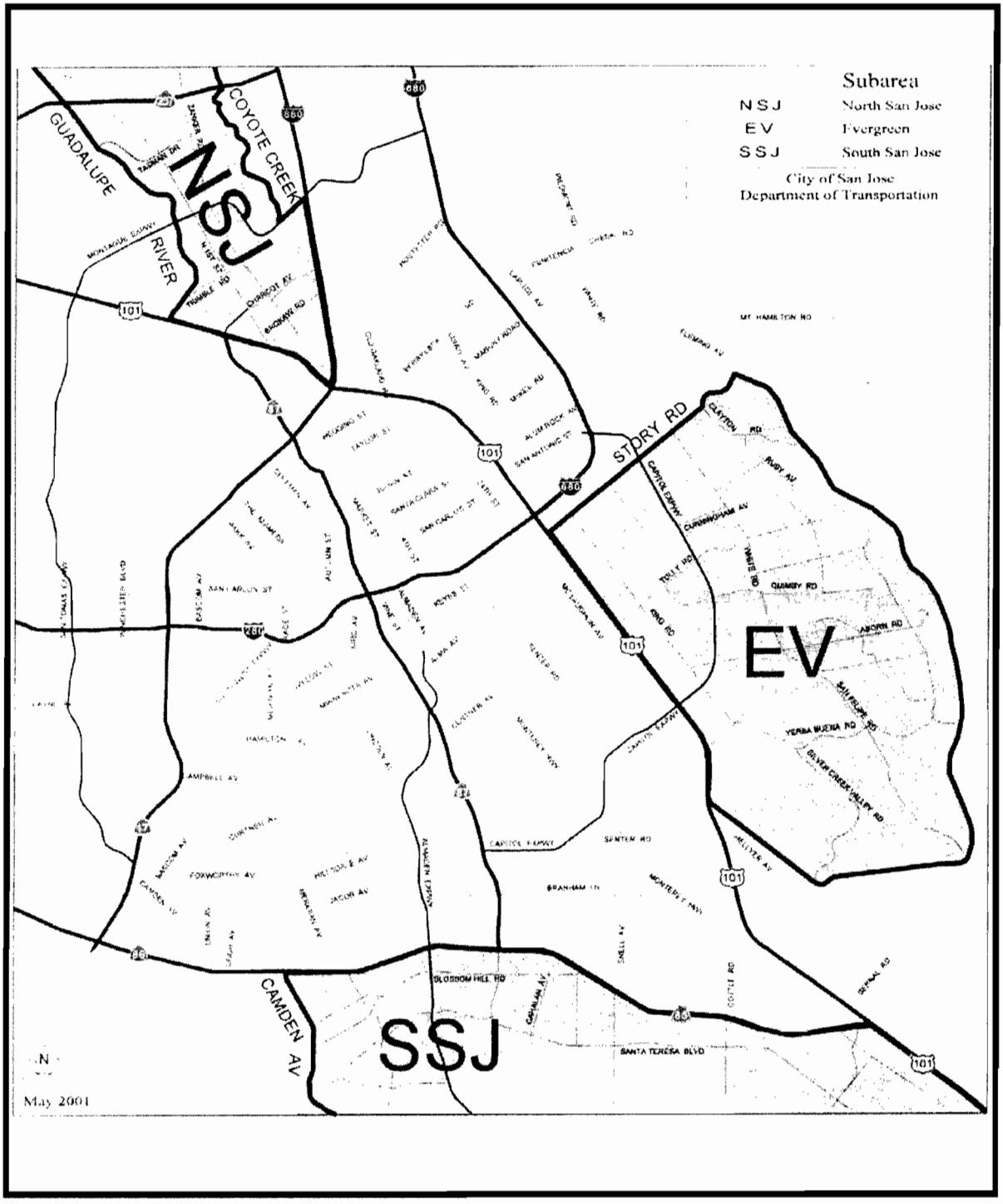

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Figure 5

1035-641\Graphics\GPA Graphics\Fig 5 - GP Sub-Areas

Coyote Valley Specific Plan Partial Build-out Scenario

VMT AND VHT COMPARISON (CVSP PARTIAL BUILD-OUT SCENARIO)

The changes in VMT and VHT are dependent on the size and location of any proposed roadway network changes and/or land use changes being added to or subtracted from the transportation system. VMT and VHT may increase or decrease with the addition of a new arterial roadway depending on travel patterns, speed and capacity, and if it is oriented in the peak direction of travel. Table 16 presents the VMT and VHT comparison within Santa Clara County for the CVSP Partial Build-out scenario.

The results of the VMT and VHT analysis show the projected growth under the CVSP Partial Build-out scenario would result in an increase during both peak hours for the vehicle miles and vehicle hours traveled. While this increase exceeds the impact criteria, this significant impact is mostly attributable to GP05-08-01 and the Coyote Valley Specific Plan. Therefore, the CVSP Partial Build-out scenario for GP06-04-01 would result in a **less than significant impact** to the transportation system.

Table 16

VMT and VHT Comparison Within Santa Clara County for CVSP Partial Build-out Scenario

	VMT		**VHT**	
	AM	PM	AM	PM
Cumulative	4,012,697	4,632,292	218,684	375,512
Base	3,867,924	4,524,689	190,829	335,123
Growth	*144,773*	*107,603*	*27,855*	*40,389*
Project Growth %	***3.743%***	***2.378%***	***14.597%***	***12.052%***

Source: City of San Jose Cumulative CUBE model October 2006.

CORDON ANALYSIS (CVSP PARTIAL BUILD-OUT SCENARIO)

The cordon analysis was conducted to evaluate the increase in AM and PM peak-hour peak directional traffic volumes crossing the boundaries for the special subareas of Evergreen, North San Jose, and South San Jose. Figure 5 illustrates each subarea and cordon line locations. The total AM peak-hour volumes across the cordon lines for base conditions, cumulative conditions, and the changes are summarized in Table 17.

Table 17

Total AM Peak Hour Cordon Analysis Summary for CVSP Partial Build-out Scenario

Subarea	Base	Winter 2007 Cumulative	Change	%
Evergreen	16,807	19,024	2,217	13.190%
North San Jose	32,313	32,599	286	0.890%
South San Jose	17,379	19,219	1,840	10.590%
Countywide	358,236	366,385	8,149	2.275%

Source: City of San Jose Cumulative CUBE model October 2006

The change in volume ranges from an increase of 286 vehicles to an increase of 2,217 vehicles. The percentage change ranges from 0.890% to 13.190%. The percent increases across the Evergreen and South San Jose cordon lines indicate significant impacts, but this impact is mostly attributable to GP05-08-01 and the Coyote Valley Specific Plan according to City of San Jose staff. Therefore, the proposed project contributions are not cumulatively considerable and would result in a **less than significant traffic impact** under the CVSP Partial Build-out scenario. The percent increase across the North San Jose cordon line results in a **significant traffic impact** according to the cordon line impact criteria shown in Table 15 and the project contribution is considerable. The more detailed AM peak-hour cordon analysis for the Winter 2007 GPA is presented in Table 18.

Table 18

Detailed AM Peak Hour Cordon Analysis for CVSP Partial Build-out Scenario

Base		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	4,024	350	320	4,065	6,419	2,823	152	18,153	
	2	1,517	7,153	967	7,346	4,818	1,931	227	23,960	**16,807**
	3	1,506	755	6,403	7,978	5,388	1,317	435	23,782	**17,379**
	4	10,852	6,116	7,268	72,811	44,382	11,646	1,556	154,632	
	5	9,999	2,059	3,327	29,128	113,285	25,032	4,211	187,041	
	6	7,909	1,114	1,181	11,772	37,351	929,035	3,362	991,725	
	7	529	233	649	2,261	4,900	2,744	66,775	78,091	
	Total	**36,336**	**17,779**	**20,115**	**135,362**	**216,543**	**974,529**	**76,718**	**1,477,383**	
	Inbound	**32,313**								

Cumulative		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	4,140	338	320	4,084	6,552	2,937	157	18,528	
	2	1,756	7,364	1,063	8,068	5,560	2,320	257	26,388	**19,024**
	3	1,610	787	6,961	8,689	6,072	1,547	514	26,180	**19,219**
	4	11,186	5,833	7,815	74,812	46,470	12,722	1,723	160,559	
	5	9,894	1,857	3,377	28,838	112,941	25,701	4,340	186,947	
	6	7,649	897	1,087	11,275	36,614	934,070	3,281	994,873	
	7	505	187	611	2,113	4,765	2,779	67,244	78,204	
	Total	**36,738**	**17,262**	**21,234**	**137,879**	**218,975**	**982,075**	**77,516**	**1,491,680**	
	Inbound	**32,599**								

Change	**8,149**
Percent Change	**2.275%**

Source: City of San Jose.

District 1 North San Jose
District 2 Evergreen
District 3 South San Jose
District 4 Remainder of City
District 5 Remainder of County
District 6 North Counties
District 7 South Counties

The total PM peak-hour volumes across the cordon lines for base conditions, cumulative conditions, and the changes are summarized in Table 19.

Table 19

Total PM Peak Hour Cordon Analysis Summary for CVSP Partial Build-out Scenario

Subarea	**Base**	**Winter 2007 Cumulative**	**Change**	**%**
Evergreen	18,413	20,357	1,944	10.560%
North San Jose	36,619	36,858	239	0.650%
South San Jose	19,105	21,004	1,899	9.940%
Countywide	439,639	448,139	8,500	1.933%

Source: City of San Jose Cumulative CUBE model October 2006.

The change in volume ranges from an increase of 239 vehicles to an increase of 1,944 vehicles. The percentage change ranges from 0.650% to 10.560%. The percent increases across the Evergreen and South San Jose cordon lines indicate significant impacts, but this impact is mostly attributable to GP05-08-01 and the Coyote Valley Specific Plan according to City of San Jose staff. Therefore, the proposed project contributions are not cumulatively considerable and would result in a **less than significant traffic impact** under the CVSP Partial Build-out scenario. The

percent increase across the North San Jose cordon line results in a **significant traffic impact** according to the cordon line impact criteria shown in Table 15 and the project contribution is considerable. The more detailed PM peak-hour cordon analysis for the Winter 2007 GPA is presented in Table 20.

Table 20

Detailed PM Peak Hour Cordon Analysis for CVSP Partial Build-out Scenario

Base		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	6,264	1,525	1,475	11,996	12,455	8,571	597	42,883	**36,619**
	2	532	8,963	839	7,106	2,612	1,425	308	21,785	
	3	465	1,143	8,540	9,023	4,214	1,478	790	25,653	
	4	5,848	8,697	9,475	91,025	36,712	13,374	2,774	167,905	
	5	8,436	4,892	5,604	48,386	143,412	41,567	6,276	258,573	
	6	3,540	1,994	1,412	12,523	29,944	1,092,614	3,645	1,145,672	
	7	84	162	301	1,065	2,927	2,426	59,751	66,717	
	Total	**25,169**	**27,376**	**27,645**	**181,124**	**232,277**	**1,161,454**	**74,141**	**1,729,186**	
	Inbound		**18,413**	**19,105**						

Cumulative		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	6,396	1,734	1,574	12,312	12,348	8,313	578	43,254	**36,858**
	2	523	9,108	875	6,907	2,449	1,214	266	21,342	
	3	468	1,240	9,222	9,661	4,318	1,392	770	27,071	
	4	5,900	9,328	10,262	93,262	36,595	12,896	2,669	170,912	
	5	8,559	5,532	6,297	50,300	142,970	40,862	6,159	260,679	
	6	3,648	2,334	1,635	13,515	30,528	1,097,122	3,666	1,152,448	
	7	86	189	362	1,192	3,027	2,362	60,170	67,389	
	Total	**25,581**	**29,464**	**30,226**	**187,151**	**232,234**	**1,164,161**	**74,278**	**1,743,094**	
	Inbound		**20,357**	**21,004**						

Change	**8,500**
Percent Change	**1.933%**

Source: City of San Jose.

District 1 North San Jose
District 2 Evergreen
District 3 South San Jose
District 4 Remainder of City
District 5 Remainder of County
District 6 North Counties
District 7 South Counties

AGGREGATED SCREENLINE ANALYSIS (CVSP PARTIAL BUILD-OUT SCENARIO)

The screenline analysis identifies the volume-to-capacity (V/C) ratios of links at the regional screenline that may be affected by the proposed GPA. V/C is defined as a ratio of the volume of traffic on a roadway segment or link to its capacity. For the purposes of a Cube model analysis, volume-to-capacity ratios (V/C) for roadway links are defined as the equivalent of levels of service for intersections. Screenline analysis measures the area-wide tendencies and impacts of the proposed project by aggregating the V/C ratios of the identified links. The segment analysis divides the links into the following two groups for analysis: 1) all links and 2) those links that are operating at LOS E or F. A 2.5-mile radius around the project site is used to identify links to be used in the aggregated V/C computation.

The GPA analysis identified four sets of links for evaluation. The first set of links (Link Set 1) are east of US 101. For Link Set 1 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The second set of links (Link Set 2) are south of Jackson Street and Mabury Road. For Link Set 2 the peak direction of travel is northbound during the AM peak hour and southbound during the PM peak hour. The third set of links (Link Set 3) are west of US 101. For Link Set 3 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The fourth set of links (Link Set 4) are west of I-680. For Link Set 4 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. Included in the GPA analysis are GP06-03-01 and GP06-04-05 screenlines.

During the AM peak hour, the results of the Aggregated V/C analysis (shown in Table 21) for the CVSP Partial Build-out scenario show that for all links in Link Set 1 there is an increase in the V/C ratio of 0.051 and in the volume of 1,281 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.045 and in the volume of 859 vehicles. Both of these changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the first set during the AM peak hour.

The results of Link Set 2 during the AM peak hour show that for all links there is an increase in the V/C ratio of 0.051 and in the volume of 1,059 vehicles. For the LOS E/F links there is an increase in the V/C ratio of 0.037 and in the volume of 640 vehicles. Both of these changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the second set during the AM peak hour.

During the AM peak hour, the results of the Aggregated V/C analysis (shown in Table 22) for the CVSP Partial Build-out scenario show that for all links in Link Set 3 there is an increase in the V/C ratio of 0.065 and in the volume of 1,049 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.066 and in the volume of 680 vehicles. Both of these changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the third set during the AM peak hour.

The results of Link Set 4 during the AM peak hour show that for all links there is an increase in the V/C ratio of 0.022 and in the volume of 541 vehicles. For the LOS E/F links there is an increase in the V/C ratio of 0.049 and in the volume of 509 vehicles. Both of these changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the fourth set during the AM peak hour.

Table 21

AM Peak Direction Aggregated Screenline Analysis for CVSP Partial Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
I-280	Y	7,600	6,818	0.90	7,248	0.95
Freeway to Freeway 680 to 101	N	5,250	3,706	0.71	3,974	0.76
San Antonio	N	600	382	0.64	537	0.90
Alum Rock	Y	1,800	1,833	1.02	2,001	1.11
McKee	Y	2,700	2,792	1.03	2,802	1.04
Mabury	Y	1,800	1,928	1.07	2,031	1.13
Berryessa	Y	2,700	2,790	1.03	2,917	1.08
Murphy	Y	2,700	2,806	1.04	2,828	1.05
Total Volume		25,150	23,056	0.917	24,337	0.968
Total E/F Links Volume		19,300	18,967	0.983	19,826	1.027
Average Link Capacity		3,144	5% of 3,144 = *157*			
Average E/F Link Capacity		3,217	2.5% of 3,217 = *80*			
			All Links		**E/F Links**	
Change in V/C			0.051		0.045	
Change in Volume			1,281		859	
Impact Criteria			0.01 V/C & 157 Vol.		0.005 V/C & 80 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
US-101HOV	Y	1,900	1,862	0.98	1,949	1.03
US-101	Y	5,700	6,465	1.13	6,723	1.18
US-101 Aux	Y	1,900	2,172	1.14	2,081	1.10
King	N	1,800	1,432	0.80	1,603	0.89
Jackson	N	1,800	730	0.41	979	0.54
I-680	Y	7,600	8,031	1.06	8,417	1.11
Total Volume		20,700	20,692	1.000	21,751	1.051
Total E/F Links Volume		17,100	18,530	1.084	18,867	1.103
Average Link Capacity		3,450	5% of 3,450 = *172*			
Average E/F Link Capacity		4,275	2.5% of 4,275 = *106*			
			All Links		**E/F Links**	
Change in V/C			0.051		0.037	
Change in Volume			1,059		640	
Impact Criteria			0.01 V/C & 172 Vol.		0.005 V/C & 106 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

Table 22

AM Peak Direction Aggregated Screenline Analysis for CVSP Partial Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 3 – W. of US-101						
Taylor	Y	900	747	0.83	853	0.95
Julian	Y	1,800	1,521	0.84	1,664	0.92
Santa Clara	N	1,800	1,475	0.82	1,601	0.89
San Antonio	N	600	382	0.64	537	0.90
I-280	N	3,500	2,266	0.65	2,354	0.67
I-280	Y	7,600	6,818	0.90	7,248	0.95
Total Volume		16,200	13,208	0.815	14,257	0.880
Total E/F Links Volume		10,300	9,085	0.882	9,766	0.948
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		3,433	2.5% of 3,433 = *85*			
			All Links		**E/F Links**	
Change in V/C			0.065		0.066	
Change in Volume			1,049		680	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 85 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 4 – W. of I-680						
Hostetter	N	2,700	2,413	0.89	2,348	0.87
Sierra	N	600	384	0.32	333	0.56
Berryessa	N	2,700	2,335	0.86	2,369	0.88
Mabury	N	1,800	1,004	0.56	966	0.54
McKee	Y	2,700	2,410	0.89	2,493	0.92
Alum Rock	N	1,800	1,468	0.82	1,539	0.85
San Antonio	N	600	202	0.34	283	0.47
I-680	N	3,800	3,314	0.87	3,313	0.87
I-680	Y	7,600	6,543	0.86	6,969	0.92
Total Volume		24,300	20,073	0.826	20,614	0.848
Total E/F Links Volume		10,300	8,953	0.869	9,462	0.919
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		5,150	2.5% of 5,150 = *128*			
			All Links		**E/F Links**	
Change in V/C			0.022		0.049	
Change in Volume			541		509	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 128 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

During the PM peak hour, the results of the Aggregated V/C analysis (shown in Table 23) for the CVSP Partial Build-out scenario show that for all links in Link Set 1 there is an increase in the V/C ratio of 0.027 and in the volume of 690 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.021 and in the volume of 417 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the proposed project would create a **significant impact** to all study roadways in the first set during the PM peak hour.

The results of Link Set 2 during the PM peak hour show that for all links there is an increase in the V/C ratio of 0.046 and in the volume of 960 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.045 and in the volumes of 857 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **significant impact** to all study roadways in the second set during the PM peak hour.

Table 23

PM Peak Direction Aggregated Screenline Analysis for CVSP Partial Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Freeway to Freeway	N	5,250	4,274	0.81	4,623	0.88
I-280	Y	7,600	7,889	1.04	8,097	1.07
San Antonio	Y	600	575	0.96	639	1.06
Alum Rock	Y	1,800	1,917	1.06	1,972	1.10
McKee	Y	2,700	2,777	1.03	2,874	1.06
Mabury	Y	1,800	1,951	1.08	2,042	1.13
Berryessa	Y	2,700	3,122	1.16	3,235	1.20
Murphy	Y	2,700	2,867	1.06	2,984	1.11
Total Volume		25,150	25,372	1.009	26,465	1.052
Total E/F Links Volume		19,900	21,098	1.060	19,900	1.098
Average Link Capacity		3,144	5% of 3,144 = *157*			
Average E/F Link Capacity		2,843	2.5% of 2,843 = *71*			
			All Links		**E/F Links**	
Change in V/C			0.043		0.037	
Change in Volume			1,093		743	
Impact Criteria			0.01 V/C & 157 Vol.		0.005 V/C & 71 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
US-101Aux	Y	1,900	2,203	1.16	2,329	1.23
US-101	Y	5,700	7,007	1.23	7,220	1.27
US-101 HOV	Y	1,900	2,167	1.14	2,243	1.18
King	Y	1,800	1,693	0.94	1,778	0.99
Jackson	N	1,800	1,511	0.84	1,586	0.88
I-680	Y	7,600	9,298	1.22	9,916	1.30
Total Volume		20,700	23,878	1.154	25,072	1.211
Total E/F Links Volume		18,900	22,367	1.183	23,487	1.243
Average Link Capacity		3,450	5% of 3,450 = *172*			
Average E/F Link Capacity		3,780	2.5% of 3,780 = *94*			
			All Links		**E/F Links**	
Change in V/C			0.046		0.045	
Change in Volume			960		857	
Impact Criteria			0.01 V/C & 172 Vol.		0.005 V/C & 94 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

Table 24

PM Peak Direction Aggregated Screenline Analysis for CVSP Partial Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 3 – W. of US-101						
Taylor	Y	900	956	1.06	927	1.03
Julian	Y	1,800	1,784	0.99	1,760	0.98
Santa Clara	Y	1,800	1,905	1.06	1,872	1.04
San Antonio	Y	600	575	0.96	639	1.06
I-280	Y	7,600	8,109	1.07	8,331	1.10
I-280	N	3,500	1,503	0.43	1,629	0.47
Total Volume		16,200	14,833	0.916	15,156	0.936
Total E/F Links Volume		12,700	13,330	1.050	13,528	1.065
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		2,540	2.5% of 2,540 = *63*			
			All Links		**E/F Links**	
Change in V/C			0.020		0.016	
Change in Volume			323		198	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 63 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 4 – W. of I-680						
Hostetter	N	2,700	2,402	0.89	2,414	0.89
Sierra	N	600	689	0.57	499	0.83
Berryessa	N	2,700	2,584	0.96	2,520	0.93
Mabury	N	1,800	1,151	0.64	1,341	0.75
McKee	Y	2,700	2,446	0.91	2,573	0.95
Alum Rock	N	1,800	1,464	0.81	1,440	0.80
San Antonio	N	600	318	0.53	374	0.62
I-680	N	7,600	7,918	1.04	8,211	1.08
I-680	Y	1,900	2,094	1.10	2,061	1.08
Total Volume		22,400	21,068	0.941	21,435	0.957
Total E/F Links Volume		14,900	15,043	1.010	15,366	1.031
Average Link Capacity		2,489	5% of 2,489 = *124*			
Average E/F Link Capacity		3,725	2.5% of 3,725 = *93*			
			All Links		**E/F Links**	
Change in V/C			0.016		0.022	
Change in Volume			367		323	
Impact Criteria			0.01 V/C & 124 Vol.		0.005 V/C & 93 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

During the PM peak hour, the results of the Aggregated V/C analysis (shown in Table 24) for the CVSP Partial Build-out scenario show that for all links in Link Set 3 there is an increase in the V/C ratio of 0.020 and in the volume of 323 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.016 and in the volume of 198 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the proposed project would create a **significant impact** to all study roadways in the third set during the PM peak hour.

The results of Link Set 4 during the PM peak hour show that for all links there is an increase in the V/C ratio of 0.016 and in the volume of 367 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.022 and in the volumes of 323 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **significant impact** to all study roadways in the fourth set during the PM peak hour.

PROXIMITY ANALYSIS (CVSP PARTIAL BUILD-OUT SCENARIO)

The proximity analysis provides specific information on traffic operations within the area surrounding the proposed General Plan amendment site. The proximity area may vary from 0.5 to 1.5 miles, depending on the density of the roadway network and travel activity near the project site. For the analysis, specific quantitative differences are identified, including overall VMT, congested VMT, and the number of congested links that would occur under the project condition compared to the existing General Plan base case.

The proximity analysis provides information on traffic changes near the Berryessa Flea Market site. Traffic analysis zones (TAZ's) 543 and 1008 were identified and used to quantify the planned land use activity in this area. The change in VMT for all links as well as the congested links was determined by comparing the cumulative model run to the base model run results for the CVSP Partial Build-out scenario. The results are presented in Tables 25 and 26.

For TAZ 543, the all links analysis increase by 1,735 and 1,149 vehicle miles during the AM and PM peak hours, respectively. Both peak-hour values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours for the all links proximity analysis.

The congested links analysis would also result in a **significant impact** during both peak hours within TAZ 543. The change in traffic due to the proposed GPA would result in an increase of 1,095 vehicle miles during the AM peak hour and an increase of 453 vehicle miles during the PM peak hour. These changes exceed the threshold of one half the all links VMT and 100 vehicle miles during both peak hours.

For TAZ 1008, the all links analysis increase by 2,021 and 1,669 vehicle miles during the AM and PM peak hours, respectively. Both peak-hour values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours for the all links proximity analysis.

The congested links analysis would also result in a **significant impact** during both peak hours within TAZ 1008. The change in traffic due to the proposed GPA would result in an increase of 2,783 vehicle miles during the AM peak hour and an increase of 2,978 vehicle miles during the PM peak hour. These changes exceed the threshold of one half the all links VMT and 100 vehicle miles during both peak hours.

Table 25

AM VMT Proximity Analysis for CVSP Partial Build-out Scenario

	Base	Cumulative	Growth	Growth %
GP06-04-01[1]				
All Links	20,117.42	21,852.78	1,735.36	8.63%
Congested Links	11,131.46	13,035.66	1,094.20	17.11%
	½ of all link VMT Growth		867	
GP06-04-01[2]				
All Links	15,252.05	17,273.20	2,021.15	13.25%
Congested Links	4,151.84	6,934.62	2,782.78	67.03%
	½ of all link VMT Growth		1,010	

Source: City of San Jose Cumulative CUBE model run results October 2006.
[1] Traffic Analysis Zone (TAZ) 543, Proximity Radius = 0.6 miles
[2] Traffic Analysis Zone (TAZ) 1008, Proximity Radius = 0.8 miles

Table 26

PM VMT Proximity Analysis for CVSP Partial Build-out Scenario

	Base	Cumulative	Growth	Growth %
GP06-04-01[1]				
All Links	21,246.49	22,395.36	1,148.87	5.41%
Congested Links	10,795.27	11,247.67	452.40	4.19%
	½ of all link VMT Growth		574	
GP06-04-01[2]				
All Links	19,424.41	21,093.22	1,668.81	8.59%
Congested Links	10,139.20	13,117.31	2,978.11	29.37%
	½ of all link VMT Growth		834	

Source: City of San Jose Cumulative CUBE model run results October 2006.
[1] Traffic Analysis Zone (TAZ) 543, Proximity Radius = 0.6 miles
[2] Traffic Analysis Zone (TAZ) 1008, Proximity Radius = 0.8 miles

Coyote Valley Specific Plan Full Build-out Scenario

VMT AND VHT COMPARISON (CVSP FULL BUILD-OUT SCENARIO)

The changes in VMT and VHT are dependent on the sizes and locations of the roadway network change being added or subtracted. VMT and VHT may increase or decrease with the addition of a new arterial roadway depending on travel patterns, speed and capacity, and if it is oriented in the peak direction of travel. Table 27 presents the VMT and VHT comparison within Santa Clara County for the CVSP Full Build-out scenario.

The results of the VMT and VHT analysis show the projected growth under the CVSP Full Build-out scenario would result in an increase during both peak hours for the vehicle miles and vehicle hours traveled. While this increase exceeds the impact criteria, this significant impact is mostly attributable to GP05-08-01 and the Coyote Valley Specific Plan. Therefore, the CVSP Full Build-out scenario for GP06-04-01 would result in a **less than significant impact** to the transportation system.

Table 27

VMT and VHT Comparison Within Santa Clara County for CVSP Full Build-out Scenario

	VMT		VHT	
	AM	PM	AM	PM
Cumulative	4,078,787	4,688,260	228,397	361,263
Base	3,867,924	4,524,689	190,829	335,123
Growth	*210,863*	*163,571*	*37,568*	*26,140*
Project Growth %	***5.452%***	***3.615%***	***19.687%***	***7.800%***

Source: City of San Jose Cumulative CUBE model October 2006.

CORDON ANALYSIS (CVSP FULL BUILD-OUT SCENARIO)

The cordon analysis was conducted to evaluate the increase in AM and PM peak-hour peak directional traffic volumes crossing the boundaries for the special subareas of Evergreen, North San Jose, and South San Jose. Figure 5 illustrates each subarea and cordon line locations. The total AM peak-hour volumes across the cordon lines for base conditions, cumulative conditions, and the changes are summarized in Table 28.

Table 28

Total AM Peak Hour Cordon Analysis Summary for CVSP Full Build-out Scenario

Subarea	Base	Cumulative	Change	%
Evergreen	16,807	19,114	2,307	13.730
North San Jose	32,313	32,415	102	0.320
South San Jose	17,379	19,839	2,460	14.160
Countywide	358,236	374,422	16,186	4.518

Source: City of San Jose Cumulative CUBE model October 2006

The change in volume ranges from an increase of 102 vehicles to an increase of 2,460 vehicles. The percentage change ranges from 0.320% to 14.160%. The percent increases across the Evergreen and South San Jose cordon lines indicate significant impacts, but this impact is mostly attributable to GP05-08-01 and the Coyote Valley Specific Plan according to City of San Jose staff. Therefore, the proposed project contributions are not cumulatively considerable and would result in a **less than significant traffic impact** under the CVSP Full Build-out scenario. The percent increase across the North San Jose cordon line results in a **significant traffic impact** according to the cordon line impact criteria shown in Table 15 and the project contribution is considerable. The more detailed AM peak-hour cordon analysis for the Winter 2007 GPA is presented in Table 29.

Table 29

Detailed AM Peak Hour Cordon Analysis for CVSP Full Build-out Scenario

Base	To								Outbound
From District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
1	4,024	350	320	4,065	6,419	2,823	152	18,153	
2	1,517	7,153	967	7,346	4,818	1,931	227	23,960	**16,807**
3	1,506	755	6,403	7,978	5,388	1,317	435	23,782	**17,379**
4	10,852	6,116	7,268	72,811	44,382	11,646	1,556	154,632	
5	9,999	2,059	3,327	29,128	113,285	25,032	4,211	187,041	
6	7,909	1,114	1,181	11,772	37,351	929,035	3,362	991,725	
7	529	233	649	2,261	4,900	2,744	66,775	78,091	
Total	**36,336**	**17,779**	**20,115**	**135,362**	**216,543**	**974,529**	**76,718**	**1,477,383**	
Inbound	**32,313**								

Cumulative	To								Outbound
From District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
1	4,123	334	330	4,120	6,528	2,929	155	18,520	
2	1,719	7,279	1,134	8,271	5,453	2,283	253	26,393	**19,114**
3	1,575	778	7,053	9,448	5,983	1,537	518	26,892	**19,839**
4	11,293	5,991	9,319	79,180	47,559	12,947	1,895	168,184	
5	9,789	1,821	3,552	29,653	112,137	25,588	4,303	186,843	
6	7,544	888	1,142	11,378	36,339	934,253	3,241	994,785	
7	495	183	656	2,288	4,685	2,725	67,152	78,183	
Total	**36,538**	**17,274**	**23,186**	**144,339**	**218,684**	**982,262**	**77,517**	**1,499,799**	
Inbound	**32,415**								

Change	**16,186**
Percent Change	**4.518%**

Source: City of San Jose.
District 1 North San Jose
District 2 Evergreen
District 3 South San Jose
District 4 Remainder of City
District 5 Remainder of County
District 6 North Counties
District 7 South Counties

The total PM peak-hour volumes across the cordon lines for base conditions, cumulative conditions, and the changes are summarized in Table 30.

Table 30

Total PM Peak Hour Cordon Analysis Summary for CVSP Full Build-out Scenario

Subarea	Base	Cumulative	Change	%
Evergreen	18,413	20,474	2,061	11.190%
North San Jose	36,619	36,708	89	0.240%
South San Jose	19,105	21,943	2,838	14.860%
Countywide	439,639	457,880	18,241	4.149%

Source: City of San Jose Cumulative CUBE model October 2006.

The change in volume ranges from an increase of 89 vehicles to an increase of 2,838 vehicles. The percentage change ranges from 0.240% to 14.860%. The percent increase across the Evergreen and South San Jose cordon lines indicate a significant impact mostly attributable to GP05-08-01 and therefore, would result in a **less than significant traffic impact** for the CVSP Full Build-out scenario. The percent increases across the North San Jose cordon line indicates a

significant impact according to the cordon line impact criteria shown in Table 15. The more detailed PM peak-hour cordon analysis for the Winter 2007 GPA is presented in Table 31.

Table 31

Detailed PM Peak Hour Cordon Analysis for CVSP Full Build-out Scenario

Base		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	6,264	1,525	1,475	11,996	12,455	8,571	597	42,883	**36,619**
	2	532	8,963	839	7,106	2,612	1,425	308	21,785	
	3	465	1,143	8,540	9,023	4,214	1,478	790	25,653	
	4	5,848	8,697	9,475	91,025	36,712	13,374	2,774	167,905	
	5	8,436	4,892	5,604	48,386	143,412	41,567	6,276	258,573	
	6	3,540	1,994	1,412	12,523	29,944	1,092,614	3,645	1,145,672	
	7	84	162	301	1,065	2,927	2,426	59,751	66,717	
	Total	**25,169**	**27,376**	**27,645**	**181,124**	**232,277**	**1,161,454**	**74,141**	**1,729,186**	
	Inbound		**18,413**	**19,105**						

Cumulative		To								Outbound
	District	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Total**	
From	**1**	6,378	1,700	1,542	12,421	12,252	8,226	568	43,087	**36,708**
	2	520	9,013	865	7,066	2,417	1,213	262	21,357	
	3	479	1,304	9,321	11,421	4,468	1,452	813	29,258	
	4	5,961	9,559	11,339	98,484	37,674	13,111	2,889	179,017	
	5	8,534	5,430	6,213	51,416	142,101	40,679	6,072	260,446	
	6	3,626	2,295	1,620	13,721	30,345	1,097,398	3,602	1,152,606	
	7	86	187	363	1,311	2,997	2,335	60,088	67,365	
	Total	**25,584**	**29,487**	**31,265**	**195,841**	**232,254**	**1,164,414**	**74,293**	**1,753,136**	
	Inbound		**20,474**	**21,943**						

Change	**18,242**
Percent Change	**4.149%**

Source: City of San Jose.
District 1 North San Jose
District 2 Evergreen
District 3 South San Jose
District 4 Remainder of City
District 5 Remainder of County
District 6 North Counties
District 7 South Counties

AGGREGATED SCREENLINE ANALYSIS (CVSP FULL BUILD-OUT SCENARIO)

The screenline analysis identifies the volume-to-capacity (V/C) ratios of links at the regional screenline that may be affected by the proposed GPA. V/C is defined as a ratio of the volume of traffic on a roadway segment or link to its capacity. For the purposes of a Cube model analysis, volume-to-capacity ratios (V/C) for roadway links are defined as the equivalent of levels of service for intersections. Screenline analysis measures the area-wide tendencies and impacts of the proposed project by aggregating the V/C ratios of the identified links. The segment analysis divides the links into the following two groups for analysis: 1) all links and 2) those links that are operating at LOS E or F. A 2.5-mile radius around the project site is used to identify links to be used in the aggregated V/C computation.

The GPA analysis identified four sets of links for evaluation. The first set of links (Link Set 1) are east of US 101. For Link Set 1 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. The second set of links (Link Set 2) are south of Jackson Street and Mabury Road. For Link Set 2 the peak direction of travel is northbound during the AM peak hour and southbound during the PM peak hour. The third set of links (Link Set 3) are west of US 101. For Link Set 3 the peak direction of travel is westbound during the AM peak

hour and eastbound during the PM peak hour. The fourth set of links (Link Set 4) are west of I-680. For Link Set 4 the peak direction of travel is westbound during the AM peak hour and eastbound during the PM peak hour. Included in the GPA analysis are GP06-03-01 and GP06-04-05 screenlines.

Table 32

AM Peak Direction Aggregated Screenline Analysis for CVSP Full Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
I-280	Y	7,600	6,818	0.90	7,130	0.94
Freeway to Freeway 680 to 101	N	5,250	3,706	0.71	4,206	0.80
San Antonio	Y	600	382	0.64	549	0.91
Alum Rock	Y	1,800	1,833	1.02	1,904	1.06
McKee	Y	2,700	2,792	1.03	2,847	1.05
Mabury	Y	1,800	1,928	1.07	2,043	1.13
Berryessa	Y	2,700	2,790	1.03	2,848	1.05
Murphy	Y	2,700	2,806	1.04	2,862	1.06
Total Volume		25,150	23,056	0.917	24,388	0.970
Total E/F Links Volume		19,900	19,349	0.972	20,182	1.014
Average Link Capacity		3,144	5% of 3,144 = *157*			
Average E/F Link Capacity		2,844	2.5% of 2,844 = *71*			
			All Links		**E/F Links**	
Change in V/C			0.053		0.042	
Change in Volume			1,332		833	
Impact Criteria			0.01 V/C & 157 Vol.		0.005 V/C & 71 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
US-101HOV	Y	1,900	1,862	0.98	1,996	1.05
US-101	Y	5,700	6,465	1.13	6,770	1.19
US-101 Aux	Y	1,900	2,172	1.14	2,192	1.15
King	N	1,800	1,432	0.80	1,602	0.89
Jackson	N	1,800	730	0.41	1,034	0.57
I-680	Y	7,600	8,031	1.06	8,449	1.11
Total Volume		20,700	20,692	1.000	22,044	1.065
Total E/F Links Volume		17,100	18,530	1.084	19,407	1.135
Average Link Capacity		3,450	5% of 3,450 = *172*			
Average E/F Link Capacity		4,275	2.5% of 4,275 = *106*			
			All Links		**E/F Links**	
Change in V/C			0.065		0.051	
Change in Volume			1,352		878	
Impact Criteria			0.01 V/C & 172 Vol.		0.005 V/C & 106 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

During the AM peak hour, the results of the Aggregated V/C analysis (shown in Table 32) for the CVSP Full Build-out scenario show that all links in the first set increased the V/C ratio and volume by 0.053 and 1,332 vehicles, respectively. The LOS E/F links increased the V/C ratio and volume by 0.042 and 833 vehicles, respectively. Both of these link sets exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the first set during the AM peak hour.

Table 33

AM Peak Direction Aggregated Screenline Analysis for CVSP Full Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 3 – W. of US-101						
Taylor	N	900	747	0.83	772	0.86
Julian	Y	1,800	1,521	0.84	1,655	0.92
Santa Clara	N	1,800	1,475	0.82	1,454	0.81
San Antonio	Y	600	382	0.64	549	0.91
I-280	N	3,500	2,266	0.65	2,318	0.66
I-280	Y	7,600	6,818	0.90	7,130	0.94
Total Volume		16,200	13,208	0.815	13,877	0.857
Total E/F Links Volume		10,000	8,720	0.872	9,333	0.933
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		3,333	2.5% of 3,333 = *83*			
			All Links		**E/F Links**	
Change in V/C			0.041		0.061	
Change in Volume			669		613	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 83 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 4 – W. of I-680						
Hostetter	N	2,700	2,413	0.89	2,310	0.86
Sierra	N	600	384	0.32	300	0.50
Berryessa	N	2,700	2,335	0.86	2,312	0.86
Mabury	N	1,800	1,004	0.56	1,005	0.56
McKee	Y	2,700	2,410	0.89	2,449	0.91
Alum Rock	N	1,800	1,468	0.82	1,429	0.83
San Antonio	N	600	202	0.34	277	0.46
I-680	N	3,800	3,314	0.87	3,426	0.90
I-680	N	7,600	6,543	0.86	6,855	0.90
Total Volume		24,300	20,073	0.826	20,424	0.841
Total E/F Links Volume		2,700	2,410	0.890	2,449	0.910
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		2,700	2.5% of 2,700 = *67*			
			All Links		**E/F Links**	
Change in V/C			0.014		0.020	
Change in Volume			351		38	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 67 Vol.	
Significant Impact			**YES**		**NO**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

The results of the second set of links (shown in Table 32) during the AM peak hour show that all links increased the V/C ratio and volume 0.065 and 1,352 vehicles, respectively. The LOS E/F links increased the V/C ratio and volume 0.051 and 878 vehicles, respectively. Both of these link sets exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the second set during the AM peak hour.

During the AM peak hour, the results of the Aggregated V/C analysis (shown in Table 33) for the CVSP Full Build-out scenario show that for all links in Link Set 3 there is an increase in the V/C ratio of 0.041 and in the volume of 669 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.061 and in the volume of 613 vehicles. Both of these changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the third set during the AM peak hour.

The results of Link Set 4 during the AM peak hour show that for all links there is an increase in the V/C ratio of 0.014 and in the volume of 351 vehicles. These changes exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the fourth set during the AM peak hour. For the LOS E/F links there is an increase in the V/C ratio of 0.020 and in the volume of 38 vehicles. These changes do not exceed the impact criteria described in Table 1 and would result in a **less than significant impact**.

During the PM peak hour, the results of the Aggregated V/C analysis (shown in Table 34) for the CVSP Full Build-out scenario show that all links in the first set increased the V/C ratio and volume 0.040 and 1,009 vehicles, respectively. The LOS E/F links increased the V/C ratio and volume 0.040 and 1,009 vehicles, respectively. Both of these link sets exceed the impact criteria described in Table 1 and result in a **significant impact** to all study roadways in the first set during the PM peak hour.

The results of second set of links during the PM peak hour show that all links increased the V/C ratio and volume 0.049 and 991 vehicles, respectively. The LOS E/F links increased the V/C ratio and volume 0.049 and 991 vehicles, respectively. Both of these link sets exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **significant impact** to all study roadways in the second set during the PM peak hour.

Table 34

PM Peak Direction Aggregated Screenline Analysis for CVSP Full Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 1 – E. of US-101						
Freeway to Freeway	Y	5,250	4,274	0.81	4,803	0.91
I-680	Y	7,600	7,889	1.04	8,107	1.07
San Antonio	Y	600	575	0.96	596	0.99
Alum Rock	Y	1,800	1,917	1.06	1,881	1.04
McKee	Y	2,700	2,777	1.03	2,807	1.04
Mabury	Y	1,800	1,951	1.08	2,023	1.12
Berryessa	Y	2,700	3,122	1.16	3,229	1.20
Murphy	Y	2,700	2,867	1.06	2,936	1.09
Total Volume		25,150	25,372	1.009	26,381	1.049
Total E/F Links Volume		25,150	25,372	1.009	26,381	1.049
Average Link Capacity		3,144	5% of 3,144 = *157*			
Average E/F Link Capacity		3,144	2.5% of 3,217 = *78*			
			All Links		**E/F Links**	
Change in V/C			0.040		0.040	
Change in Volume			1,009		1,009	
Impact Criteria			0.01 V/C & 157 Vol.		0.005 V/C & 78 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 2 – S. of Jackson and Mabury						
US-101Aux	Y	1,900	2,203	1.16	2,228	1.17
US-101	Y	5,700	7,007	1.23	7,183	1.26
US-101 HOV	Y	1,900	2,167	1.14	2,282	1.20
King	Y	1,800	1,693	0.94	1,819	1.01
Jackson	Y	1,800	1,511	0.84	1,639	0.91
I-680	Y	7,600	9,298	1.22	9,742	1.28
Total Volume		20,700	23,878	1.154	24,894	1.203
Total E/F Links Volume		20,700	23,878	1.154	24,894	1.203
Average Link Capacity		3,450	5% of 3,450 = *172*			
Average E/F Link Capacity		3,450	2.5% of 3,450 = *86*			
			All Links		**E/F Links**	
Change in V/C			0.049		0.049	
Change in Volume			991		991	
Impact Criteria			0.01 V/C & 172 Vol.		0.005 V/C & 86 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

Table 35

PM Peak Direction Aggregated Screenline Analysis for CVSP Full Build-out Scenario

Link Name	LOS E/F Link	Capacity	Base		Cumulative	
			Volume	V/C	Volume	V/C
Link Set 3 – W. of US-101						
Taylor	Y	900	956	1.06	909	1.01
Julian	Y	1,800	1,784	0.99	1,793	1.00
Santa Clara	Y	1,800	1,905	1.06	1,843	1.02
San Antonio	Y	600	575	0.96	596	0.99
I-280	Y	7,600	8,109	1.07	8,370	1.10
I-280	N	3,500	1,503	0.43	1,470	0.42
Total Volume		16,200	14,833	0.916	14,981	0.925
Total E/F Links Volume		12,700	13,330	1.050	13,511	1.064
Average Link Capacity		2,700	5% of 2,700 = *135*			
Average E/F Link Capacity		2,540	2.5% of 3,333 = *63*			
			All Links		**E/F Links**	
Change in V/C			0.009		0.014	
Change in Volume			148		182	
Impact Criteria			0.01 V/C & 135 Vol.		0.005 V/C & 63 Vol.	
Significant Impact			**YES**		**YES**	
Link Set 4 – W. of I-680						
Hostetter	N	2,700	2,402	0.89	2,433	0.90
Sierra	N	600	689	0.57	507	0.84
Berryessa	Y	2,700	2,584	0.96	2,558	0.95
Mabury	N	1,800	1,151	0.64	1,280	0.71
McKee	Y	2,700	2,446	0.91	2,563	0.95
Alum Rock	N	1,800	1,464	0.81	1,347	0.75
San Antonio	N	600	318	0.53	325	0.54
I-680	Y	7,600	7,918	1.04	8,256	1.09
I-680	Y	1,900	2,094	1.10	2,171	1.14
Total Volume		22,400	21,068	0.941	21,440	0.957
Total E/F Links Volume		14,900	15,043	1.010	15,548	1.043
Average Link Capacity		2,489	5% of 2,700 = *124*			
Average E/F Link Capacity		3,725	2.5% of 2,700 = *93*			
			All Links		**E/F Links**	
Change in V/C			0.017		0.034	
Change in Volume			372		505	
Impact Criteria			0.01 V/C & 124 Vol.		0.005 V/C & 93 Vol.	
Significant Impact			**YES**		**YES**	

Source: City of San Jose Cumulative CUBE model run results October 2006.

During the PM peak hour, the results of the Aggregated V/C analysis (shown in Table 35) for the CVSP Full Build-out scenario show that for all links in Link Set 3 there is an increase in the V/C ratio of 0.009 and in the volume of 148 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.014 and in the volume of 182 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the proposed project would create a **significant impact** to all study roadways in the third set during the PM peak hour.

The results of Link Set 4 during the PM peak hour show that for all links there is an increase in the V/C ratio of 0.017 and in the volume of 372 vehicles. For the LOS E/F links, there is an increase in the V/C ratio of 0.034 and in the volumes of 505 vehicles. Both of these changes exceed the impact criteria described in Table 1 and the impact to this set of links would be considered a **significant impact** to all study roadways in the fourth set during the PM peak hour.

PROXIMITY ANALYSIS (CVSP FULL BUILD-OUT SCENARIO)

The proximity analysis provides specific information on traffic operations within the area surrounding the proposed General Plan amendment site. The proximity area may vary from 0.5 to 1.5 miles, depending on the density of the roadway network and travel activity near the project site. For the analysis, specific quantitative differences are identified, including overall VMT, congested VMT, and the number of congested links that would occur under the project condition compared to the existing General Plan base case.

The proximity analysis provides information on traffic changes near the Berryessa Flea Market site. Traffic analysis zones (TAZ's) 543 and 1008 were identified and used to quantify the planned land use activity in this area. The change in VMT for all links as well as the congested links was determined by comparing the cumulative model run to the base model run results for the CVSP Full Build-out scenario. The results are presented in Tables 36 and 37.

For TAZ 543, the all links analysis increase by 1,683 and 848 vehicle miles during the AM and PM peak hours, respectively. Both peak-hour values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours for the all links proximity analysis.

The congested links analysis would also result in a **significant impact** during both peak hours within TAZ 543. The change in traffic due to the proposed GPA would result in an increase of 1,845 vehicle miles during the AM peak hour and an increase of 397 vehicle miles during the PM peak hour. These changes exceed the threshold of one half the all links VMT and 100 vehicle miles during both peak hours.

For TAZ 1008, the all links analysis increase by 1,865 and 1,095 vehicle miles during the AM and PM peak hours, respectively. Both peak-hour values exceed the threshold of an increase of 1% and 200 vehicle miles described in Table 2. Therefore, the proposed GPA would cause a **significant impact** during both peak hours for the all links proximity analysis.

The congested links analysis would also result in a **significant impact** during both peak hours within TAZ 1008. The change in traffic due to the proposed GPA would result in an increase of 2,147 vehicle miles during the AM peak hour and an increase of 2,880 vehicle miles during the PM peak hour. These changes exceed the threshold of one half the all links VMT and 100 vehicle miles during both peak hours.

Table 36

AM VMT Proximity Analysis for CVSP Full Build-out Scenario

	Base	Cumulative	Growth	Growth %
GP06-04-01[1]				
All Links	20,117.42	21,800.26	1,682.84	8.37%
Congested Links	11,131.46	12,976.58	1,845.12	16.58%
	½ of all link VMT Growth		841	
GP06-04-01[2]				
All Links	15,252.05	17,117.05	1,865	12.23%
Congested Links	4,151.84	6,298.42	2,146.58	51.70%
	½ of all link VMT Growth		932	

Source: City of San Jose Cumulative CUBE model run results October 2006.
[1] Traffic Analysis Zone (TAZ) 543, Proximity Radius = 0.6 miles
[2] Traffic Analysis Zone (TAZ) 1008, Proximity Radius = 0.8 miles

Table 37

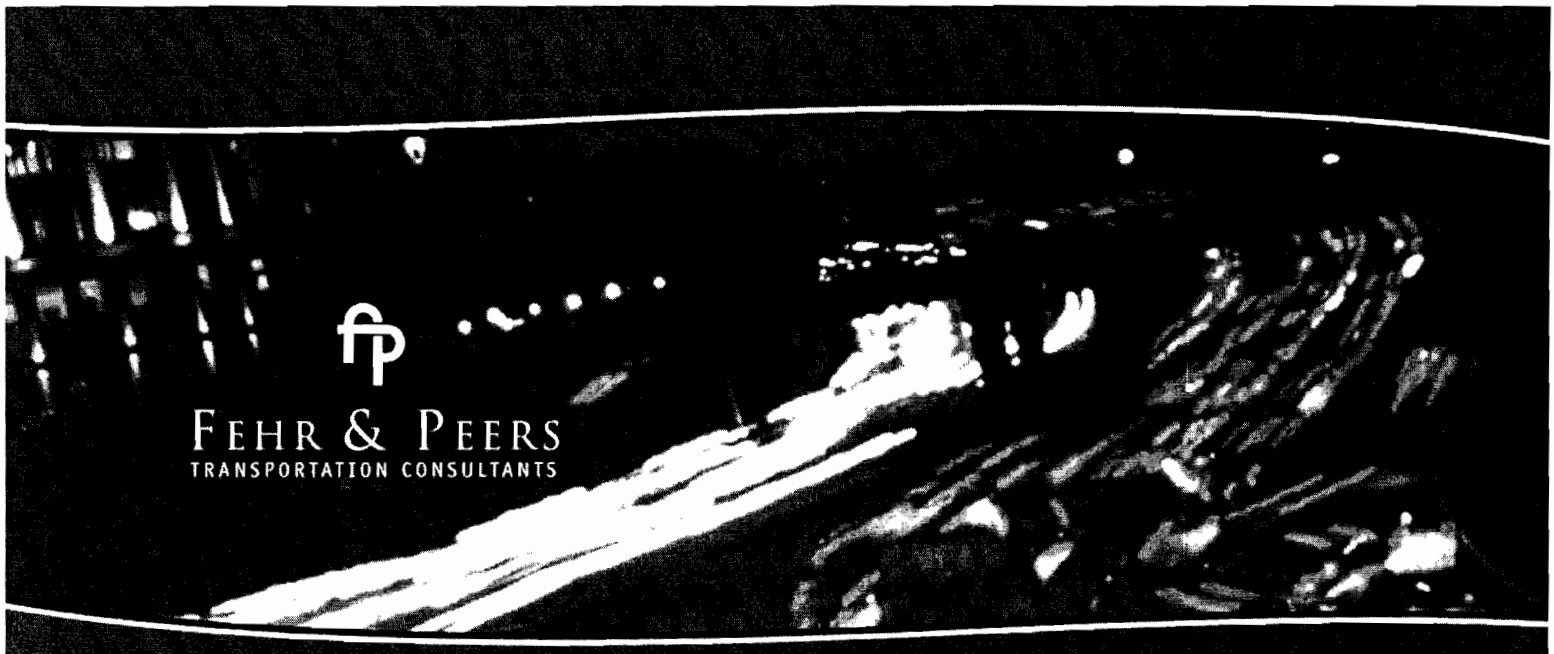
PM VMT Proximity Analysis for CVSP Full Build-out Scenario

	Base	Cumulative	Growth	Growth %
GP06-04-01[1]				
All Links	21,246.49	22,094.64	848.15	3.99%
Congested Links	10,795.27	11,192.56	397.29	3.68%
	½ of all link VMT Growth		424	
GP06-04-01[2]				
All Links	19,424.41	20,519.68	1,095.27	5.64%
Congested Links	10,139.20	13,019.32	2,880.12	28.41%
	½ of all link VMT Growth		547	

Source: City of San Jose Cumulative CUBE model run results October 2006.
[1] Traffic Analysis Zone (TAZ) 543, Proximity Radius = 0.6 miles
[2] Traffic Analysis Zone (TAZ) 1008, Proximity Radius = 0.8 miles

APPENDIX A – CUBE MODEL RUN OUTPUTS

APPENDIX B – CUMULATIVE CUBE MODEL RUN OUTPUTS



Draft Report

Hedding Street and Oakland Road Protected Intersection Analysis

October 2006

Prepared for:
David J. Powers & Associates

Prepared by:
Fehr & Peers

Draft Report

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David J. Powers & Associates, Inc.

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October, 2006

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1. INTRODUCTION

This report documents a study of the Hedding Street/Oakland Road intersection and the potential transportation impacts at this location caused by redevelopment of the San Jose Flea Market site with a mixed-use project including residences, retail, and office uses. The study documents operation of the transportation system near this intersection, the project's impact and required mitigation, and the potential for designating the intersection as "Protected" per City policy. A description of Protected Intersections and the study overview are presented in this chapter.

Protected Intersection Policy

The City of San Jose recognizes the need to provide capacity and adequate facilities for all transportation modes serving automobiles, bicyclists, pedestrians, and transit. To this end, the city has established policies and measures to ensure that accommodating traffic by increasing roadway capacity considers the potential impact to non-automobile travel modes. Specifically, the City of San Jose's *Transportation Impact Policy* promotes physical improvements to bicycle, pedestrian, and transit elements of the citywide transportation system, in lieu of mitigation at select intersections within special strategy areas (transit-oriented development corridors, neighborhood commercial districts, planned residential community areas, and downtown gateways). The *Transportation Impact Policy* designates these intersections as Protected Intersections. Traffic operations at a Protected Intersection can fall below the citywide minimum level of service threshold (LOS D) and does not require physical intersection mitigation improvements. Rather, the project sponsor must propose physical improvements to improve system capacity and/or enhance non-auto travel modes. The location and types of improvements are determined by city staff through neighborhood outreach meetings to obtain community input and recommendations. The proposed system improvements do not need to be finalized during the CEQA process. However, as indicated in the City of San Jose's *Transportation Impact Policy*, the project sponsor should present the value, location, and type of potential offsetting improvements (i.e., bicycle, pedestrian and/or transit facility) during the community outreach process. A contribution based on the number of net new peak-hour trips the proposed project is expected to generate is used to fund these improvements. For projects generating less than 400 peak-hour trips, the City of San Jose requires a contribution of $2,000 per peak-hour trip if one Protected Intersection is impacted and $3,000 per peak-hour trip if two or more Protected Intersections are impacted. The City of San Jose's Transportation Impact Policy recommends that the project sponsor and city staff negotiate an improvement cost per peak hour project trip if more than two intersections are impacted and/or the proposed project generates more than 400 peak-hour trips.

Project and Study Overview

The *San Jose Flea Market TIA* evaluated the transportation system impacts of the proposed 120-acre mixed-use development on the existing San Jose Flea Market site. The proposed project includes 215,622 square feet of office space, 152,700 square feet of retail uses, and 2,818 dwelling units. The project site, located in the northeastern area of San Jose, is generally bounded by single family homes to the north, Mabury Road to the south, Coyote Creek to the west, Union Pacific railroad to the east, and is bisected by Berryessa Road.

The *San Jose Flea Market TIA* identified a significant impact at the Hedding Street/Oakland Road intersection under Project Conditions per City guidelines. To mitigate the impact, we identified: 1) the roadway capacity improvements including additional travel lanes required to mitigate the impact to a less than significant level, and 2) the potential secondary effects on bicycle and pedestrian travel and existing right-of-way and building structures. Under the City of San Jose's *Transportation Impact Policy*, city staff can recommend one of the following options:

- Implement capacity improvements to study roadways identified during the Transportation Impact Analysis process,
- Protect the intersection and implement offsetting improvements in special strategy areas such as Jackson-Taylor Community Improvement Zone, or
- Reduce project size to a level that would not require mitigation.

Per city guidelines, designation of a new Protected Intersection requires preparation of a separate report that is used to address environmental documentation needs. A summary of the study parameters is presented below followed by the organization of the remainder of this report.

The operations of the study intersection were evaluated during the weekday morning (7:00 to 9:00 am) and evening (4:00 to 6:00 pm) peak periods. This intersection was evaluated for the following scenarios:

Scenario 1: *Existing Conditions* – Existing volumes obtained from counts representing peak one-hour conditions during the morning and evening commute peak traffic periods.

Scenario 2: *Background Conditions* – Historic traffic volumes (provided by the City of San Jose) plus traffic from approved but not constructed developments in the area. The historic volumes are generally from the year 2000-2001 to account for the vacancy of office space in the area. This methodology is required by the City of San Jose.

Scenario 3: *Project Conditions* – Background plus project trips from the proposed San Jose Flea Market development.

Scenario 4: *Near-Term Cumulative Conditions* – Project Condition traffic volumes from Scenario 3 plus traffic from pending projects in the area.

The four remaining chapters are divided into Existing Conditions, Background Conditions, Project Conditions, and Near-Term Cumulative Conditions. The existing transportation system and the operating conditions of the study intersection are described in Chapter 2. Chapter 3 evaluates traffic operations under Background Conditions for approved but not constructed developments. Chapter 4 evaluates traffic operations under Projects Conditions. Chapter 5 describes the method used to estimate the amount of traffic added from pending projects and transportation system improvements under Near-Term Cumulative Conditions.

2. EXISTING CONDITIONS

This chapter describes the existing roadway facilities, pedestrian and bicycle facilities, transit service, traffic volumes, and intersection operations. This chapter also includes a discussion of the methodology used to calculate intersection levels of service and the corresponding results for Existing Conditions.

ROADWAY NETWORK

The surrounding roadway network is presented on **Figure 1**. US 101 and I-880 provide regional access near the study intersection. Local access is provided by Oakland Road and Hedding Street. Each of these roadways is described in detail below:

US 101 is an eight-lane north-south freeway with three mixed-flow lanes and one high occupancy vehicle (HOV) lane in each direction near the project site. US 101 begins south of Los Angeles and extends northward, through San Jose and San Francisco, to Oregon. Access to the project site is provided via interchanges at Oakland Road, McKee Road-Julian Street, and Alum Rock Avenue-Santa Clara Street. Northbound ramps are also provided at Old Bayshore Highway north of the site.

I-880 is a north-south freeway located west of the project site extending north through the City of Fremont to the City of Oakland and south through the City of San Jose. Near the project site, this freeway includes three mixed-flow lanes in each direction. Access to the project site is provided via interchanges at Brokaw Road, Old Bayshore Highway, and 1st Street.

Oakland Road is a two- to four-lane north-south arterial roadway near the project site. Oakland Road begins at Hedding Street and extends north where it becomes Main Street north of Montague Expressway. South of Hedding Street, Oakland Road becomes 13th Street and extends south to its terminus near I-280. The 13th Street neighborhood commercial district extends between US 101 and Jackson Street.

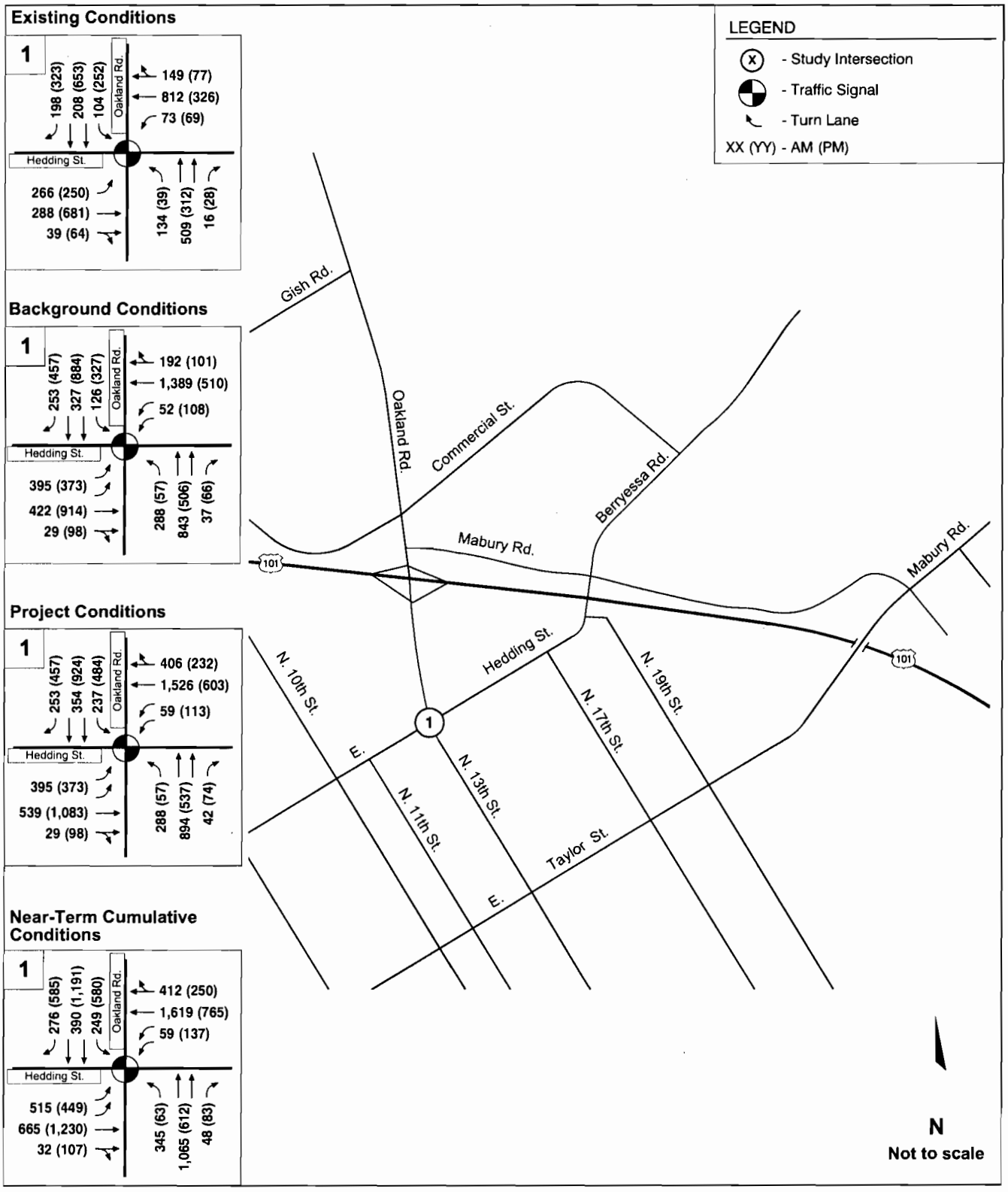
Hedding Street is a four-lane east-west arterial roadway near the project site. Hedding Street begins at Winchester Boulevard and extends to the east where it becomes Berryessa Road east of US 101. The posted speed limit on Hedding Street west of US 101 is 35 miles per hour.

EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities comprise sidewalks and pedestrian signals at signalized intersections. The location of pedestrian facilities near the project site was obtained during field visits to the study area. Sidewalks are provided at each corner of the Hedding Street and Oakland Road intersection. This intersection includes signalized pedestrian crossings with crosswalks across each leg.

EXISTING BICYCLE FACILITIES

The location of bicycle facilities near the Hedding Street and Oakland Road intersection was obtained during field visits to the study area and referenced by the VTA's *Santa Clara Valley Bikeways Map* (October 2005) and City of San Jose's *Draft Bicycle Plan Update* (February 2005). Bicycle facilities include multi-use, off-street paths, bike lanes, and bike routes. Multi-use paths are paved pathways for use by bicycles and other users that are separated from roadways. Bike lanes are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes are designated for bicycle travel with signs only but do not include a separate travel lane.



San Jose Flea Market

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PEAK-HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Oct 31, 2006 PLC
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FIGURE 1

Each leg of the Hedding Street and Oakland Road intersection is designated a bike route, except the south leg (13th Street). **Figure 2** illustrates the location of bicycle facilities within approximately a 0.25-mile radius of the study intersection.

EXISTING TRANSIT FACILITIES

The Santa Clara Valley Transportation Authority (VTA) operates bus service in Santa Clara County. **Figure 3** shows the existing transit facilities near the project site.

Route 12 is a local bus route that provides service between the Civic Center Light Rail Station and the Eastridge Transit Center. The hours of operation are from 9:30 am to 7:00 am with 30-minute headways on weekends. This route operates on Hedding Street through the study intersection with nearby stops at 12th Street and 16th Street.

Route 36 is a local bus route that provides local service between Penitencia Creek Transit Center and Valley Fair/Vallco Fashion Park. Weekday hours of operation are from 6:00 am to 7:15 pm with 30-minute headways. Only on weekdays, this route extends to Vallco Fashion Park from 6:30 am to 9:00 am and from 3:30 pm to 7:00 pm with 60-minute headways. On weekends, this route operates on 30-minute headways from 8:30 am to 8:00 pm. This route operates on Hedding Street through the study intersection with nearby stops at 12th Street and 16th Street.

Local Route 66 provides bus service between the Santa Teresa Hospital and Milpitas/Dixon Landing Road in Milpitas from 4:45 am to midnight on weekdays with 15 to 30 minute headways. On Saturdays Route 66 provides service from 5:30 am to midnight with 30 minute headways that increase to 60 minutes before 6:00 am and after 8:00 pm. On Sundays, Route 66 provides service from 5:30 am to 11:00 pm every 30 minutes except before 6:00 am and after 8:00 pm when headways increase to 60 minutes. This bus route operates on the north and west legs of the study intersection with nearby stops at Hedding Street/12th Street, and mid-block on Oakland Road between US 101 and Hedding Street.

Local Route 85 provides bus service between Lawrence Expressway/Moore Park and Hedding Street/Oakland Road from 5:45 am to 7:00 pm on weekdays only with 20 to 30 minute headways. This bus route operates on the south and west legs of the study intersection with nearby stops at the Hedding Street/12th Street intersection.

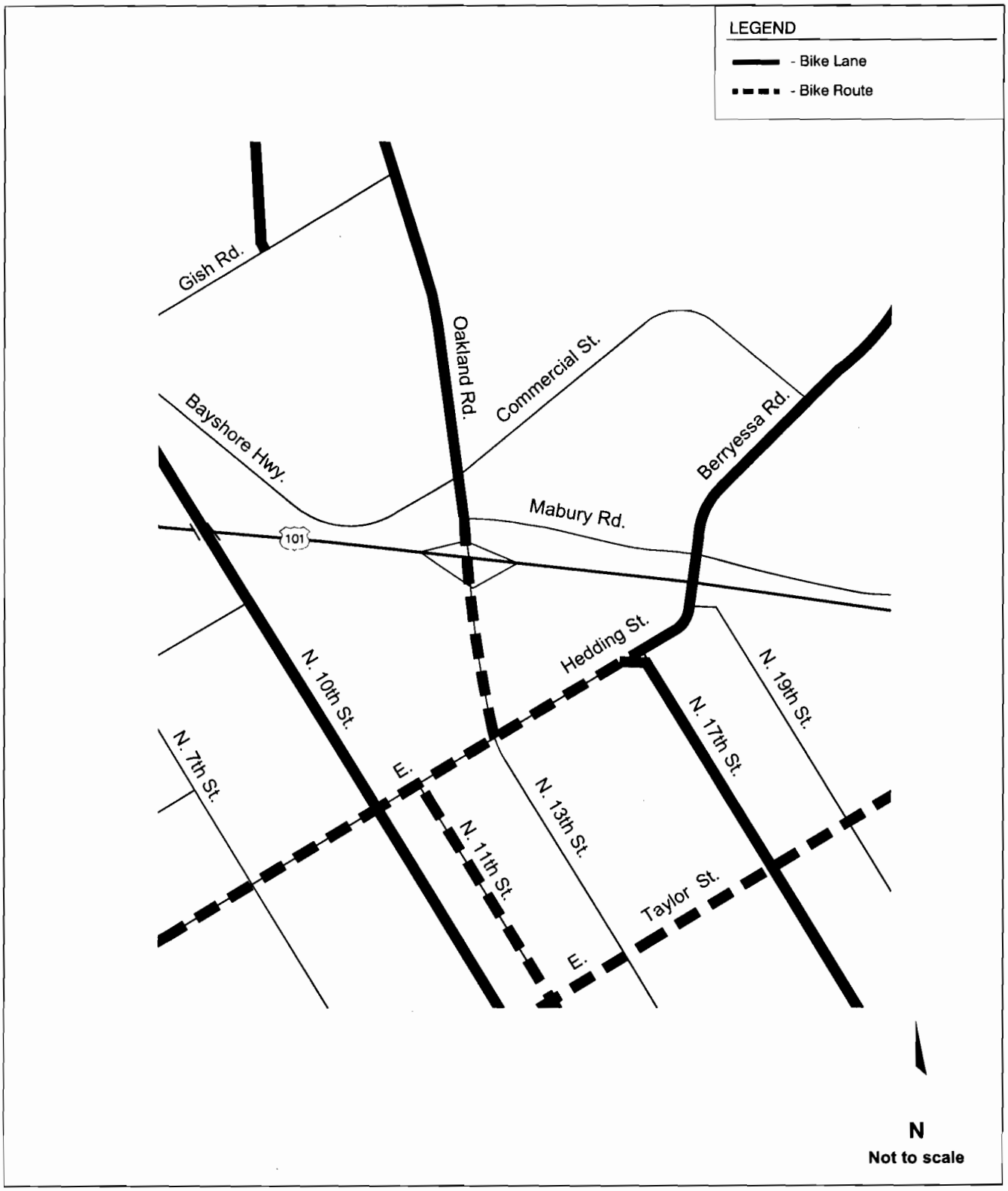
EXISTING INTERSECTION VOLUMES AND LANE CONFIGURATIONS

The operations of the intersection were evaluated during weekday morning (AM) and evening (PM) peak hours. Per the City of San Jose's *TIA Guidelines*, the AM and PM peak periods occur from 7:00 am to 9:00 am and 4:00 pm to 6:00 pm, respectively. Intersection operations were evaluated for the highest one-hour volume counted during each period.

The City of San Jose staff provided October 2004 peak hour turning movement counts at the study intersection. **Figure 1** presents the existing AM and PM peak-hour turning movement volumes at the study intersections. Existing intersection lane configurations and traffic control devices are also shown on **Figure 1**.

LEVEL OF SERVICE METHODOLOGY

Operations of roadway facilities are described with the term level of service. Level of Service (LOS) is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, as the best operating conditions, to LOS F, or the worst operating conditions. LOS E represents "at-capacity" operations. When volumes exceed capacity, stop-and-go conditions result, and operations are designated as LOS F.



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EXISTING BICYCLE FACILITIES

FIGURE 2

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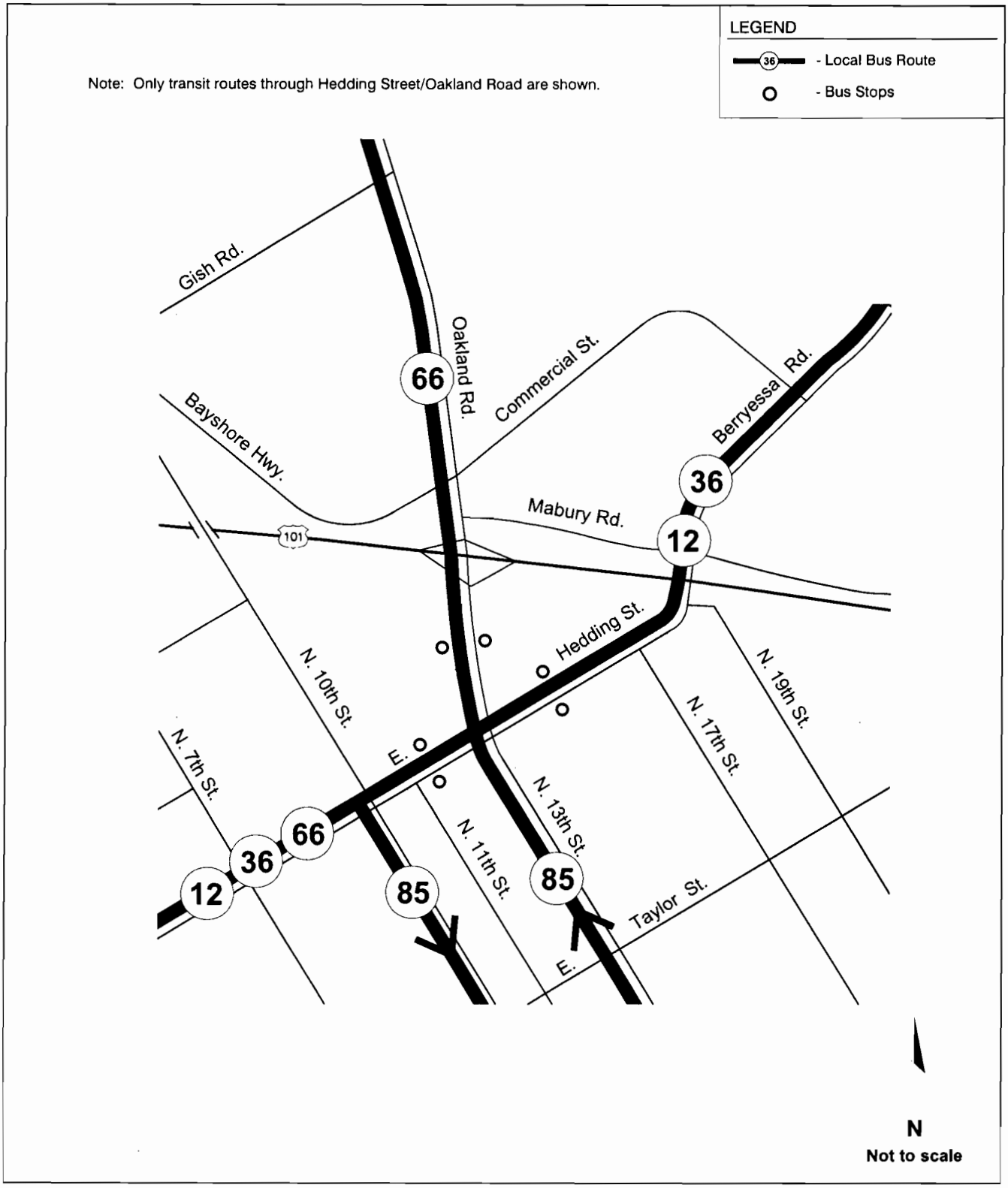

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EXISTING TRANSIT FACILITIES

FIGURE 3

Oct 26, 2006 PLC
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Signalized Intersections

The level of service methodology approved by the City of San Jose analyzes a signalized intersection's operation based on average control vehicular delay calculated using the method described in Chapter 16 of the *2000 Highway Capacity Manual (HCM)* (Special Report 209, Transportation Research Board) with adjusted saturation flow rates to reflect conditions in Santa Clara County. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using TRAFFIX analysis software and is correlated to a LOS designation as shown in **Table 1**.

The level of service standard (i.e., minimum acceptable operations) for all of the signalized intersections in the City of San Jose is LOS D with average delay of less than 55 seconds.

TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS USING AVERAGE CONTROL VEHICULAR 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
B+	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 12.0
B		12.1 to 18.0
B-		18.1 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 23.0
C		23.1 to 32.0
C-		32.1 to 35.0
D+	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0
D		39.1 to 51.0
D-		51.1 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.	55.1 to 60.0
E		60.1 to 75.0
E-		75.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: VTA's CMP Traffic Level of Service Analysis Guidelines, June 2003, and Transportation Research Board, Highway Capacity Manual, 2000.

EXISTING INTERSECTION LEVELS OF SERVICE

Existing intersection lane configurations and peak-hour turning movement volumes in **Figure 1** were used to calculate the levels of service for the study intersection during each peak hour. The results of the LOS analysis for Existing Conditions are presented in **Table 2**. The corresponding calculation sheets are included in **Appendix A**.

Measured against the City of San Jose level of service standards, the signalized study intersection operates at an acceptable LOS D or better during both peak hours under Existing Conditions.

TABLE 2
EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Count Date	Intersection Control	Delay[2]	LOS[3]
1. Hedding Street / Oakland Road	AM	10/04	Signal	47.4	D
	PM	10/04		41.9	D

Notes:

1 AM = morning peak-hour, PM = evening peak-hour.

2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 LOS = Level of service

FIELD OBSERVATIONS

Field observations of the study intersection were conducted during the morning and evening peak periods between August 2005 and May 2006. The study intersection was generally observed to operate at the calculated levels of service for each peak hour.

The predominant freeway travel pattern on US 101 during the morning commute period is northbound. The predominant movements at the Hedding Street/Oakland Road intersection are northbound and westbound during the AM peak hour. During the AM peak hour, vehicles in the northbound left-turn and eastbound left-turn lanes periodically queued out of the pocket, but these queues typically cleared in one cycle.

During the PM peak hour, the predominant travel pattern on US 101 is southbound. The southbound left-turn pocket at the Hedding Street/Oakland Road intersection usually queued out of the pocket during the PM peak hour. Recent construction work on the median of Oakland Road reduced the available pocket length; however, queues typically cleared in one signal cycle.

3. BACKGROUND CONDITIONS

As presented in the *San Jose Flea Market TIA*, this chapter summarizes the level of service of the Hedding Street/Oakland Road intersection under Background Conditions. Background Conditions are defined as conditions prior to completion of the proposed development and serve as the basis to identify project impacts. Traffic volumes for Background Conditions comprise existing volumes plus traffic generated by approved developments within the study area.

BACKGROUND TRAFFIC ESTIMATES

Normally, Background Condition traffic volumes consist of existing volumes plus Approved Trip Inventory (ATI) volumes. ATI volumes are traffic projections generated by approved but not yet constructed projects in the study area that are assigned to the roadway system. For areas north and west of I-280/I-680, however, the City of San Jose uses year 2000 or 2001 traffic counts as a baseline under Background Conditions to include traffic volumes that may not be included in more recent counts. This methodology takes into account the overall reduced traffic volumes in the North San Jose area because of the high vacancy rate in office space, as well as overall reduced employment levels, due to the economic downturn that occurred after 2001.

The traffic volumes for Background Conditions for this analysis were estimated by adding ATI volumes to historic 2000-2001 traffic volumes. City staff provided the ATI volumes. The historic counts replace the existing counts described in Chapter 2. The background volumes include Phase 1 of the North San Jose development, Phase 1 of the Downtown San Jose development, and the couplet conversion reassignment on 10th and 11th Streets. The couplet conversion involves re-configuring both 10th and 11th Streets from one-way to two-way roadways. The resulting background volumes are shown on **Figure 1**.

BACKGROUND ROADWAY IMPROVEMENTS

As presented in **Figure 1**, the North San Jose Deficiency Plan improvements were included under Background Conditions. At the Hedding Street/Oakland Road intersection, these improvements include the addition of a second left-turn lane on the eastbound and westbound approaches. The background roadway improvements also included the couplet conversion of 10th and 11th Streets as described in *Downtown Circulation and Access Study*.

BACKGROUND INTERSECTION LEVELS OF SERVICE

Background intersection lane configurations and peak-hour turning movement volumes were used to calculate the levels of service for the study intersection during each peak hour. The results of the LOS analysis for Background Conditions are presented in **Table 3**. The corresponding calculation sheets are contained in **Appendix A**.

Measured against the City of San Jose level of service standards the signalized study intersection would operate at an unacceptable LOS E or worse during the AM peak hour. The study intersection is projected to operate at an acceptable LOS D during the PM peak hour.

TABLE 3
BACKGROUND INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Delay[2]	LOS[3]
1. Hedding Street / Oakland Road	AM	**61.5**	**E**
	PM	45.3	D

Notes:

[1] AM = morning peak-hour, PM = evening peak-hour.

[2] Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. LOS calculations conducted using the TRAFFIX level of service analysis software package.

[3] LOS = Level of service

Bold type indicates an unacceptable LOS.

4. PROJECT CONDITIONS

This chapter presents the results of the level of service calculations under Project Conditions. Project Conditions are defined as Background Conditions plus net new traffic generated by the proposed project. The project volumes and planned roadway improvements are shown on **Figure 1**. The *San Jose Flea Market TIA* includes a detailed description of the project volume methodology.

PROJECT ROADWAY IMPROVEMENTS

Project intersection lane configurations and traffic control devices are the same as Background Conditions for this intersection. No other roadway improvements are planned at this location.

PROJECT INTERSECTION LEVELS OF SERVICE

Project intersection lane configurations and peak-hour turning movement volumes were used to calculate the levels of service for the study intersection during each peak hour. The results of the intersection level of service calculations for Background and Project Conditions are presented in **Table 4**. This table also shows the changes in critical delay and critical volume-to-capacity ratio (V/C) due to the addition of project traffic. The corresponding calculation sheets are contained in **Appendix A**.

Measured against the City of San Jose level of service standards the signalized study intersection would operate at an unacceptable LOS F during the AM peak hour under Project Conditions.

TABLE 4
BACKGROUND AND PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Background		Project			
		Delay[2]	LOS[3]	Delay[2]	LOS[3]	Δ in Crit Delay[4]	Δ in Crit V/C[5]
1. Hedding Street / Oakland Road	AM	61.5	E	**96.2**	**F**	**+47.8**	**+0.171**
	PM	45.3	D	51.0	D	+9.1	+0.159

Notes:
1 AM = morning peak-hour, PM = evening peak-hour.
2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. LOS calculations conducted using the TRAFFIX level of service analysis software package.
3 LOS = Level of service
4 Change in critical movement delay between Background and Project Conditions. A decrease in the critical delay indicates project trips were added to movements with low delays thus causing a decrease in the overall critical delay.
5 Change in the critical volume-to-capacity ratio (V/C) between Background and Project Conditions.
Bold type indicates significant impact.

PROJECT INTERSECTION IMPACT CRITERIA

Signalized Intersections

The City of San Jose's new Transportation Impact Policy (2005) designates certain exempt intersections as *Protected Intersections*. These intersections are built to the planned maximum capacity, or further expansion of the intersection would cause an unacceptable impact on other transportation facilities such as bicycle, pedestrian and transit systems and facilities. Protected Intersections have different impact criteria than other signalized intersections in the city. As discussed under Project Intersection Mitigation, a Protected Intersection with a significant impact can exceed LOS D if offsetting Transportation System Improvements enhance other transportation facilities within the community.

Implementation of the proposed project would result in a significant impact at a non-protected intersection if the addition of project traffic causes:

1. The level of service at any City of San Jose intersection operating at LOS D or better under Background Conditions to deteriorate to LOS E or F; or
2. An increase in the critical movement delay at any Non-Protected City of San Jose intersection operating at LOS E or F under Background Conditions by four (4) or more seconds and an increase in the critical V/C ratio by 0.01 or more.

Implementation of the proposed project would result in a significant impact at a protected intersection if the addition of project traffic causes: an increase in the critical movement delay at any Protected City of San Jose intersection operating at LOS E or F under Background Conditions by two (2) or more seconds and an increase in the critical V/C ratio by 0.005 or more.

PROJECT INTERSECTION IMPACTS

During the AM peak hour, the proposed project will exacerbate unacceptable operations at the intersection of Hedding Street and Oakland Road. Based on the City of San Jose project impact criteria described above, this is considered a ***significant impact***.

PROJECT INTERSECTION MITIGATION

The improvements required to mitigate the project's impact to a less than significant level during the AM peak hour are the addition of a separate westbound right-turn lane and a second southbound left-turn lane. During the AM peak hour these modifications would reduce the increase in average critical delay and critical volume-to-capacity (V/C) below the impact thresholds. The addition of the separate westbound right-turn lane requires additional right-of-way. The conversion of the southbound approach requires modification to the northbound and southbound approaches and signal modification to accommodate the northbound-southbound left-turns within the intersection. The conversion of the southbound approach requires right-of-way on the north and south legs. With the proposed mitigation the intersection is projected to operate at LOS E+ (57.4 seconds of delay) during the AM peak hour under Project Conditions (See Appendix B). The proposed mitigation would increase the capacity of the intersection and could attract more vehicles to these roadways over time. The addition of lanes will widen the paved section of road that pedestrians are required to cross. This increases their exposure to vehicles and the potential for conflicts. A wider crossing also increases crossing time for pedestrians which can have a negative impact on traffic flow. Similarly, additional travel lanes increase the exposure of bicyclists to vehicular conflict.

Another option is to protect this intersection. The City of San Jose staff maintains a list of Protected Intersections within special strategy areas, which are at their planned maximum capacity. Adding an intersection to the

Protected list requires analysis under Near-Term Cumulative Conditions to determine long-term transportation operations.

A third option is to reduce the project size to a level that would not incur the impact to the Hedding Street/Oakland Road intersection. Based on a preliminary estimate it is anticipated that approximately 25 percent of the project could be developed before this impact occurs at the Hedding Street/Oakland Road intersection.

Protected Intersection

The City of San Jose's *Transportation Impact Policy* promotes physical improvements to other elements of the citywide transportation system rather than implementing intersection mitigation at Protected Intersections. The project sponsor will propose physical improvements to other elements of the citywide transportation system to improve system capacity and/or enhance non-auto travel modes. The policy states that the project sponsor should present the value, location, and type of potential offsetting improvements (i.e., bicycle, pedestrian and/or transit facility) during the community outreach process. Because the proposed project generates more than 400 peak-hour trips and impacts more than one Protected Intersection, the City of San Jose's Transportation Impact Policy recommends that the project sponsor and city staff negotiate an improvement cost per peak hour project trip.

The offsetting improvements are not mitigation as defined by CEQA. Since the offsetting improvements do not address the intersection impact at Protected Intersections it is possible for secondary impacts (i.e., traffic diversion of motor vehicles) to occur. However, due to the limited alternate routes north of Hedding Street it is not expected that localized diversion will occur near the Protected Intersections (Hedding Street/10th Street, Taylor Street/1st Street, and Taylor Street/11th Street). Although the grid system helps to better distribute traffic throughout the neighborhood, the potential alternate paths (Hedding Street, Taylor Street, 7th, 10th, 11th, and 13th Street) are not attractive because access to Hedding Street is limited with uncontrolled intersections. With protection of the intersection more traffic is anticipated on the 13th Street corridor. Because this corridor is a neighborhood commercial district, it is intended to serve higher traffic volumes than the other local parallel streets.

5. NEAR-TERM CUMULATIVE CONDITIONS

This chapter presents the results of the level of service calculations under Near-term Cumulative Conditions. Traffic volumes under Near-term Cumulative Conditions comprise existing volumes plus traffic generated by approved and pending developments within the study area, plus traffic generated by the proposed project.

NEAR-TERM CUMULATIVE TRAFFIC VOLUMES

The traffic volumes under Near-Term Cumulative Conditions for this analysis were estimated by adding approved and pending volumes to historic 2000-2001 traffic volumes. City staff provided approved and pending volumes. The cumulative volumes include traffic from all of the North San Jose redevelopment, all of the Downtown San Jose development, the Goodwill redevelopment site, and the couplet conversion reassignment on 10th and 11th Streets. The resulting cumulative volumes are shown on **Figure 1**.

NEAR-TERM CUMULATIVE ROADWAY IMPROVEMENTS

No new roadway improvements were identified under Near-term Cumulative Conditions, and intersection lane configurations under this scenario are identical to Background Conditions.

NEAR-TERM CUMULATIVE INTERSECTION LEVELS OF SERVICE

Near-term Cumulative intersection lane configurations and peak-hour turning movement volumes on **Figure 1** were used to calculate the levels of service for the study intersection during each peak hour. The results of the LOS analysis for this scenario are presented in **Table 5**. The corresponding calculation sheets are included in **Appendix A**.

TABLE 5
NEAR-TERM CUMULATIVE INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Delay[2]	LOS[3]
1. Hedding Street / Oakland Road	AM	**135.0**	**F**
	PM	**66.7**	**E**

Notes:
1 AM = morning peak-hour, PM = evening peak-hour.
2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop intersections using methodology described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. LOS calculations conducted using the TRAFFIX level of service analysis software package.
3 LOS = Level of service
Bold type indicates an unacceptable LOS.

Measured against the City of San Jose level of service standards, the signalized Hedding Street/Oakland Road intersection would operate at an unacceptable LOS E or worse during the AM and PM peak hours under Near-Term Cumulative Conditions. This intersection will continue to operate unacceptably (LOS E or worse) during the AM peak hour and degrade to an unacceptable operation during the PM peak hour as compared to Project Conditions.

If the proposed mitigation identified under Project conditions were applied under this scenario, the level of service is projected to be LOS E- (77.1 seconds of delay) and LOS D (50.7 seconds of delay) during the AM and PM peak hours, respectively. Thus, the intersection would continue to operate at an unacceptable level (LOS E in the AM peak hour) even with vehicle capacity enhancements under Near-Term Cumulative Conditions.

FUTURE LONG-TERM IMPROVEMENTS

One of the long-term roadway improvements planned near the study intersection is the construction of a new Mabury Road interchange at US 101. This improvement would add another access point to US 101 and could reduce congestion by diverting traffic from streets such as Oakland Road and Hedding Street. At this time, the US 101/Mabury Road interchange is not fully funded and therefore cannot be included in the near-term cumulative analysis.

6. CONCLUSIONS

The results of the level of service analysis described in the *San Jose Flea Market TIA* for the Hedding Street/Oakland Road intersection indicate that the project has a significant impact according to the Citywide Level of Service policy. This impact could be mitigated by an improvement that would increase the vehicular capacity. Although the intersection impact would be mitigated, the operations at this intersection would still be considered deficient according to the City of San Jose's level of service policy during the AM peak hour. In addition, the enhancement of vehicle capacity would have a detrimental effect on bicycle and pedestrian travel by increasing pedestrian crossing times and creating more conflict points between vehicles and bicycles. The potential for increased volumes and operations with longer pedestrian times would affect the operations on the corridors leading to the intersection. Lastly, the planned US 101/Mabury Road interchange will re-distribute traffic in the Oakland Road and Hedding Street corridors and will help to reduce congestion at the study intersection.

APPENDIX A:
TRAFFIX LEVEL OF SERVICE CALCULATIONS

San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection	Existing (AM)				Background (AM)				Project (AM)						Near-Term Cumulative (AM)			
	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#10021 Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]	D	47.4	0.659	46.4	E	61.5	0.945	65.4	F	96.2	1.116	+ 0.171	113.2	+ 47.8	F	135.0	1.244	166.7

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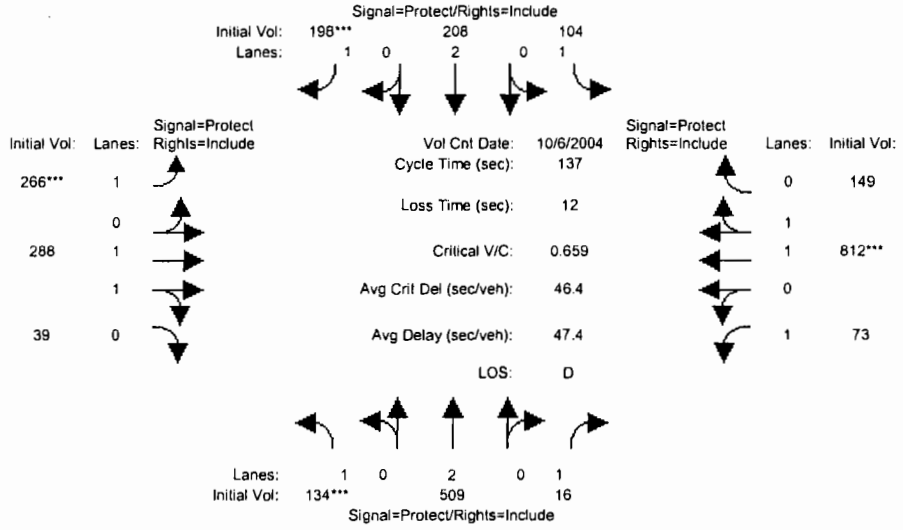
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (AM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 6 Oct 2004 << 7:30-8:30AM												
Base Vol:	134	509	16	104	208	198	266	288	39	73	812	149
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	134	509	16	104	208	198	266	288	39	73	812	149
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	134	509	16	104	208	198	266	288	39	73	812	149
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	134	509	16	104	208	198	266	288	39	73	812	149
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	134	509	16	104	208	198	266	288	39	73	812	149
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	134	509	16	104	208	198	266	288	39	73	812	149
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.75	0.25	1.00	1.68	0.32
Final Sat.:	1750	3800	1750	1750	3800	1750	1750	3258	441	1750	3126	574
Capacity Analysis Module:												
Vol/Sat:	0.08	0.13	0.01	0.06	0.05	0.11	0.15	0.09	0.09	0.04	0.26	0.26
Crit Moves:	****					****	****				****	
Green Time:	15.9	27.3	27.3	12.1	23.5	23.5	31.6	54.2	54.2	31.3	54.0	54.0
Volume/Cap:	0.66	0.67	0.05	0.67	0.32	0.66	0.66	0.22	0.22	0.18	0.66	0.66
Delay/Veh:	73.5	55.4	44.6	81.4	51.0	63.8	56.0	27.8	27.8	43.5	36.3	36.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	73.5	55.4	44.6	81.4	51.0	63.8	56.0	27.8	27.8	43.5	36.3	36.3
HCM2k95th:	12	19	1	11	8	16	19	9	9	5	28	27

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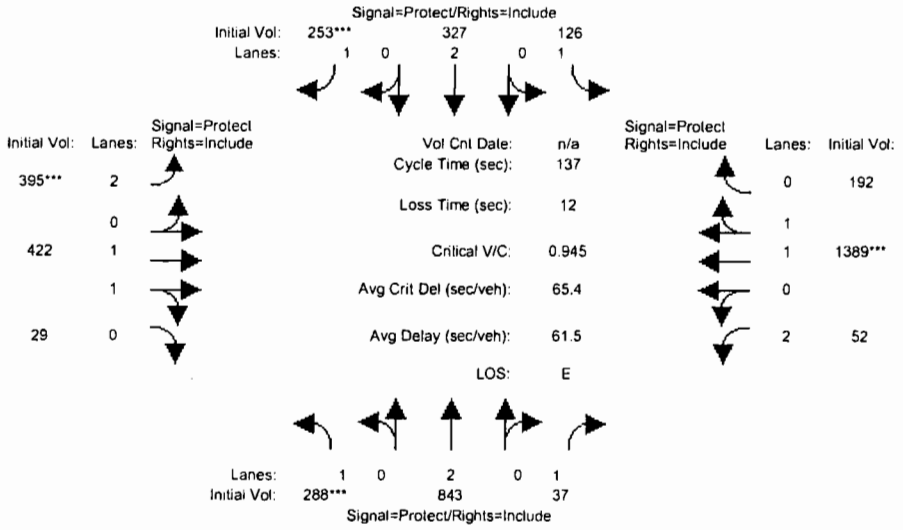
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background (AM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: AM												
Base Vol:	288	843	37	126	327	253	395	422	29	52	1389	192
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	288	843	37	126	327	253	395	422	29	52	1389	192
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	288	843	37	126	327	253	395	422	29	52	1389	192
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	288	843	37	126	327	253	395	422	29	52	1389	192
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	288	843	37	126	327	253	395	422	29	52	1389	192
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	288	843	37	126	327	253	395	422	29	52	1389	192
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.98	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.87	0.13	2.00	1.75	0.25
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3462	238	3150	3250	449
Capacity Analysis Module:												
Vol/Sat:	0.16	0.22	0.02	0.07	0.09	0.14	0.13	0.12	0.12	0.02	0.43	0.43
Crit Moves:	****					****	****				****	
Green Time:	23.9	33.8	33.8	11.0	21.0	21.0	18.2	56.5	56.5	23.7	62.0	62.0
Volume/Cap:	0.94	0.90	0.09	0.90	0.56	0.94	0.94	0.30	0.30	0.10	0.94	0.94
Delay/Veh:	95.1	63.0	40.1	115.0	57.7	99.9	91.0	27.4	27.4	48.0	48.2	48.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	95.1	63.0	40.1	115.0	57.7	99.9	91.0	27.4	27.4	48.0	48.2	48.2
HCM2k95th:	26	33	3	14	13	24	20	12	11	2	58	57

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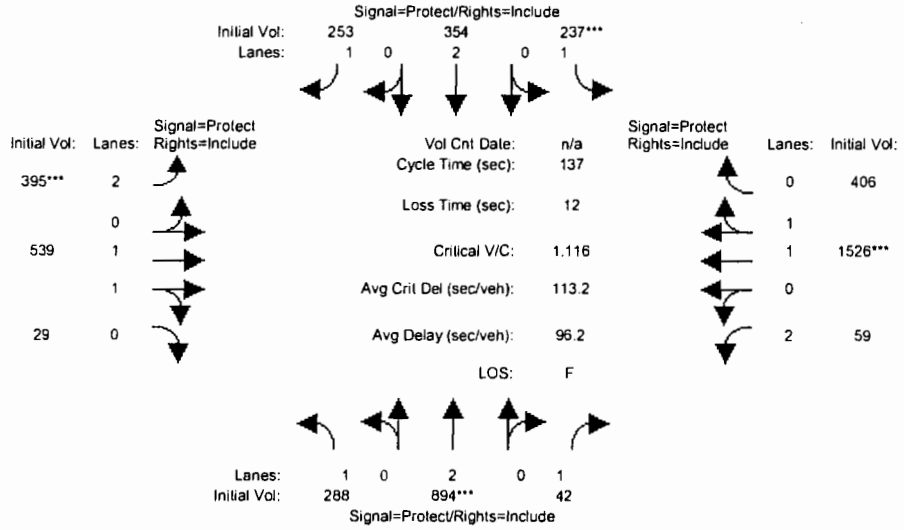
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project (AM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: AM												
Base Vol:	288	894	42	237	354	253	395	539	29	59	1526	406
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	288	894	42	237	354	253	395	539	29	59	1526	406
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	288	894	42	237	354	253	395	539	29	59	1526	406
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	288	894	42	237	354	253	395	539	29	59	1526	406
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	288	894	42	237	354	253	395	539	29	59	1526	406
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	288	894	42	237	354	253	395	539	29	59	1526	406
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.98	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.90	0.10	2.00	1.57	0.43
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3511	189	3150	2922	777
Capacity Analysis Module:												
Vol/Sat:	0.16	0.24	0.02	0.14	0.09	0.14	0.13	0.15	0.15	0.02	0.52	0.52
Crit Moves:		****		****			****				****	
Green Time:	24.2	28.9	28.9	16.6	21.3	21.3	15.4	59.6	59.6	19.9	64.1	64.1
Volume/Cap:	0.93	1.12	0.11	1.12	0.60	0.93	1.12	0.35	0.35	0.13	1.12	1.12
Delay/Veh:	91.8	123	44.3	156.6	58.4	96.5	143.8	26.4	26.4	51.6	97.3	97.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	91.8	123	44.3	156.6	58.4	96.5	143.8	26.4	26.4	51.6	97.3	97.3
HCM2k95th:	26	45	3	27	14	23	23	14	14	3	90	87

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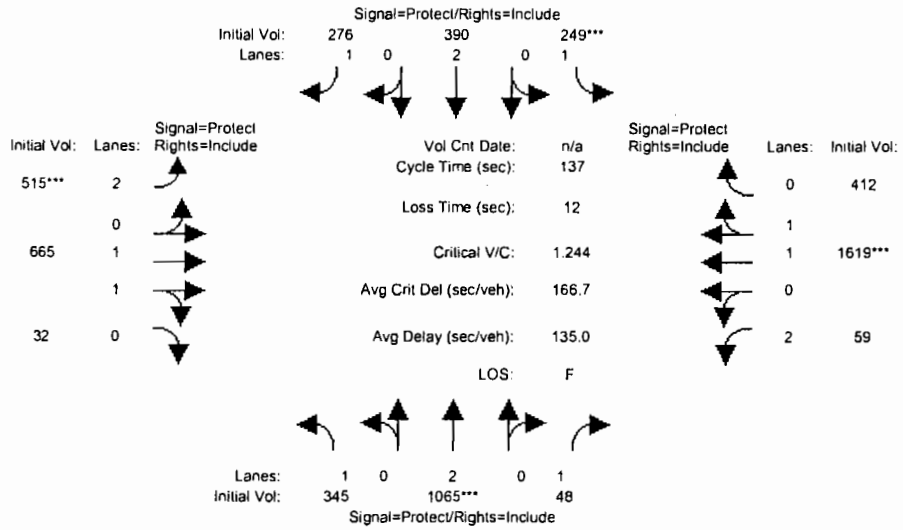
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Near-Term Cumulative (AM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	345	1065	48	249	390	276	515	665	32	59	1619	412
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	345	1065	48	249	390	276	515	665	32	59	1619	412
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	345	1065	48	249	390	276	515	665	32	59	1619	412
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	345	1065	48	249	390	276	515	665	32	59	1619	412
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	345	1065	48	249	390	276	515	665	32	59	1619	412
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	345	1065	48	249	390	276	515	665	32	59	1619	412
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.97	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.91	0.09	2.00	1.58	0.42
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3530	170	3150	2949	750
Capacity Analysis Module:												
Vol/Sat:	0.20	0.28	0.03	0.14	0.10	0.16	0.16	0.19	0.19	0.02	0.55	0.55
Crit Moves:		****		****			****				****	
Green Time:	25.9	30.9	30.9	15.7	20.7	20.7	18.0	61.7	61.7	16.7	60.5	60.5
Volume/Cap:	1.04	1.24	0.12	1.24	0.68	1.04	1.24	0.42	0.42	0.15	1.24	1.24
Delay/Veh:	117.3	173	42.9	205.3	61.4	125.7	188.2	26.3	26.3	54.6	153	153.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	117.3	173	42.9	205.3	61.4	125.7	188.2	26.3	26.3	54.6	153	153.4
HCM2k95th:	33	60	4	31	16	28	32	17	17	3	109	106

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San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Summary Scenario Comparison Report (With Average Critical Delay)
Future Volume Alternative

Intersection	Existing (PM)				Background (PM)				Project (PM)						Near-Term Cumulative (PM)			
	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)	LOS	Avg Del (sec)	Crit V/C	Crit V/C Change	Avg Crit Del (sec)	Avg Crit Del Change	LOS	Avg Del (sec)	Crit V/C	Avg Crit Del (sec)
#10021 Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]	D	41.9	0.503	45.5	D	45.3	0.688	47.3	D	51.0	0.847	+ 0.159	56.4	+ 9.1	E	66.7	0.997	85.7

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San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
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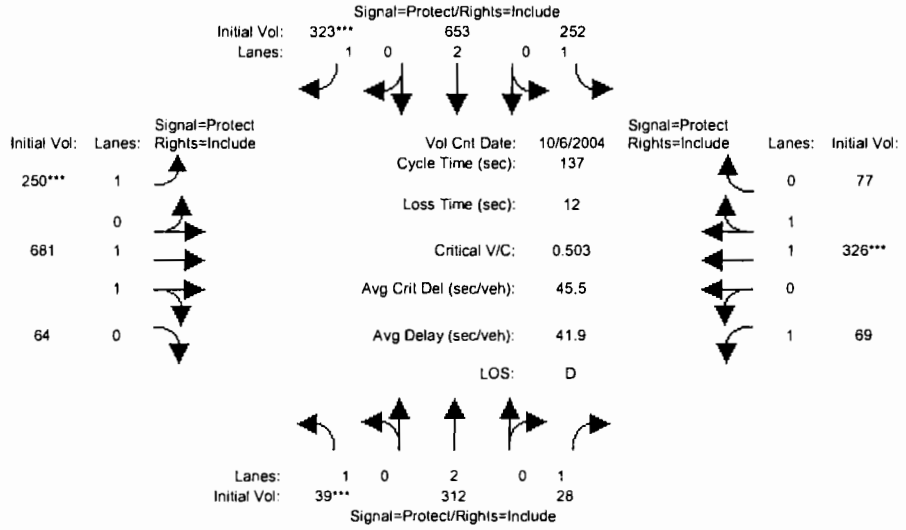
Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (PM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 6 Oct 2004 << 4:45-5:45PM												
Base Vol:	39	312	28	252	653	323	250	681	64	69	326	77
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	39	312	28	252	653	323	250	681	64	69	326	77
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	39	312	28	252	653	323	250	681	64	69	326	77
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	39	312	28	252	653	323	250	681	64	69	326	77
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	312	28	252	653	323	250	681	64	69	326	77
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	39	312	28	252	653	323	250	681	64	69	326	77
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.82	0.18	1.00	1.61	0.39
Final Sat.:	1750	3800	1750	1750	3800	1750	1750	3382	318	1750	2993	707
Capacity Analysis Module:												
Vol/Sat:	0.02	0.08	0.02	0.14	0.17	0.18	0.14	0.20	0.20	0.04	0.11	0.11
Crit Moves:	****					****	****				****	
Green Time:	7.0	20.7	20.7	36.2	49.9	49.9	38.6	54.3	54.3	13.8	29.5	29.5
Volume/Cap:	0.44	0.54	0.11	0.54	0.47	0.51	0.51	0.51	0.51	0.39	0.51	0.51
Delay/Veh:	77.8	57.5	51.0	47.8	34.6	36.8	44.9	32.5	32.5	64.1	49.7	49.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	77.8	57.5	51.0	47.8	34.6	36.8	44.9	32.5	32.5	64.1	49.7	49.7
HCM2k95th:	5	12	3	16	18	18	16	20	19	7	14	14

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San Jose Flea Market
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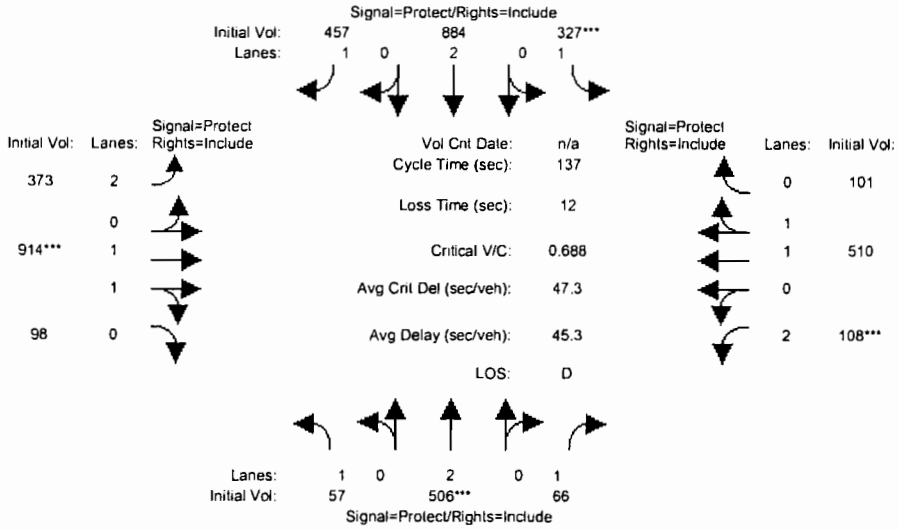
Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background (PM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: PM												
Base Vol:	57	506	66	327	884	457	373	914	98	108	510	101
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	506	66	327	884	457	373	914	98	108	510	101
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	506	66	327	884	457	373	914	98	108	510	101
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	506	66	327	884	457	373	914	98	108	510	101
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	506	66	327	884	457	373	914	98	108	510	101
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	57	506	66	327	884	457	373	914	98	108	510	101
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.98	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.80	0.20	2.00	1.66	0.34
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3341	358	3150	3088	612
Capacity Analysis Module:												
Vol/Sat:	0.03	0.13	0.04	0.19	0.23	0.26	0.12	0.27	0.27	0.03	0.17	0.17
Crit Moves:		****		****				****		****		
Green Time:	10.4	26.5	26.5	37.1	53.2	53.2	25.6	54.4	54.4	7.0	35.7	35.7
Volume/Cap:	0.43	0.69	0.20	0.69	0.60	0.67	0.63	0.69	0.69	0.67	0.63	0.63
Delay/Veh:	70.2	56.7	47.6	52.7	35.2	39.9	56.5	37.0	37.0	84.0	48.0	48.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	70.2	56.7	47.6	52.7	35.2	39.9	56.5	37.0	37.0	84.0	48.0	48.0
HCM2k95th:	6	19	5	22	25	27	15	29	29	7	20	20

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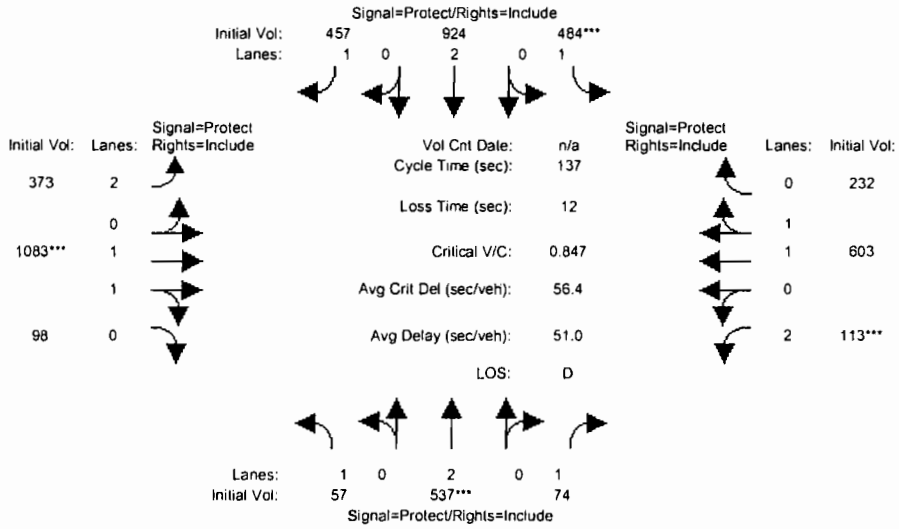
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project (PM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: PM												
Base Vol:	57	537	74	484	924	457	373	1083	98	113	603	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	537	74	484	924	457	373	1083	98	113	603	232
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	537	74	484	924	457	373	1083	98	113	603	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	537	74	484	924	457	373	1083	98	113	603	232
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	537	74	484	924	457	373	1083	98	113	603	232
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	57	537	74	484	924	457	373	1083	98	113	603	232
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.98	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.83	0.17	2.00	1.43	0.57
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3393	307	3150	2671	1028
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.04	0.28	0.24	0.26	0.12	0.32	0.32	0.04	0.23	0.23
Crit Moves:		****		****				****		****		
Green Time:	10.9	22.6	22.6	44.3	56.0	56.0	20.0	51.1	51.1	7.0	38.1	38.1
Volume/Cap:	0.41	0.86	0.26	0.86	0.60	0.64	0.81	0.86	0.86	0.70	0.81	0.81
Delay/Veh:	68.5	69.6	52.0	58.7	33.4	36.8	71.1	46.5	46.5	86.5	53.1	53.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	68.5	69.6	52.0	58.7	33.4	36.8	71.1	46.5	46.5	86.5	53.1	53.1
HCM2k95th:	6	23	6	35	25	26	17	40	39	8	30	29

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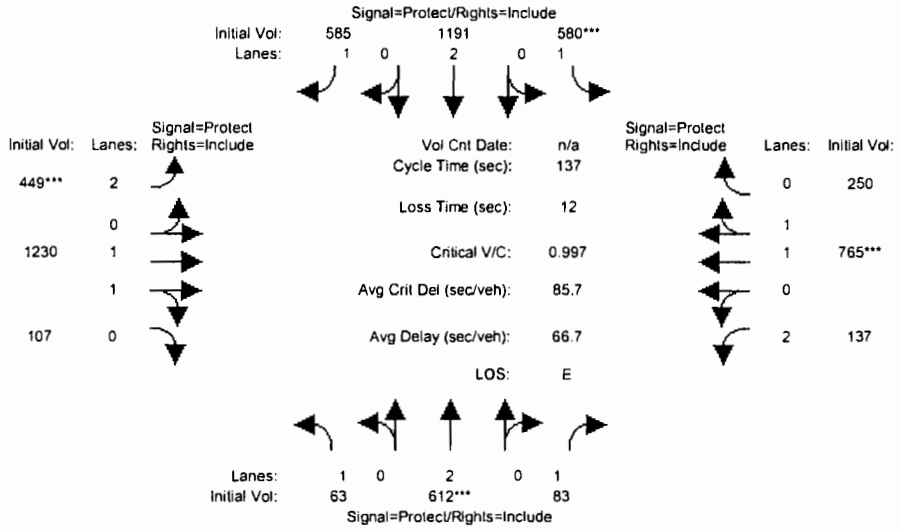
San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Near-Term Cumulative (PM)

Intersection #10021: Hedding Street / Oakland Road [CSJ 3576 - Protected Intersection Analysis]



Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	63	612	83	580	1191	585	449	1230	107	137	765	250
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	612	83	580	1191	585	449	1230	107	137	765	250
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	612	83	580	1191	585	449	1230	107	137	765	250
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	63	612	83	580	1191	585	449	1230	107	137	765	250
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	63	612	83	580	1191	585	449	1230	107	137	765	250
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	63	612	83	580	1191	585	449	1230	107	137	765	250
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.83	0.98	0.95	0.83	0.98	0.95
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.84	0.16	2.00	1.49	0.51
Final Sat.:	1750	3800	1750	1750	3800	1750	3150	3404	296	3150	2788	911
Capacity Analysis Module:												
Vol/Sat:	0.04	0.16	0.05	0.33	0.31	0.33	0.14	0.36	0.36	0.04	0.27	0.27
Crit Moves:		****		****			****				****	
Green Time:	9.0	22.1	22.1	45.6	58.7	58.7	19.6	50.2	50.2	7.1	37.7	37.7
Volume/Cap:	0.55	1.00	0.29	1.00	0.73	0.78	1.00	0.99	0.99	0.84	1.00	1.00
Delay/Veh:	79.7	92.9	53.2	82.2	35.5	41.5	100.3	64.4	64.4	102.2	77.0	77.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	79.7	92.9	53.2	82.2	35.5	41.5	100.3	64.4	64.4	102.2	77.0	77.0
HCM2k95th:	7	29	7	49	34	36	23	54	53	10	44	43

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APPENDIX B:
TRAFFIX LEVEL OF SERVICE CALCULATIONS FOR PROPOSED INTERSECTION MITIGATION IMPROVEMENTS

Add 2nd SBLT
Add separate WBRT

San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 Hedding Street / Oakland Road [CSJ 3576]

Cycle (sec): 137 Critical Vol./Cap. (X): 0.918
Loss Time (sec): 12 (Y+R = 4 sec) Average Crit Del (sec/veh): 60.6 Avg. Del. 57.4
Optimal Cycle: 140 Level Of Service: E LOS E+

Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	2 0	1	2 0	2 0	1	2 0	1 1	0	2 0	2 0	1
Volume Module: >> Count Date: 8 Feb 2000 << AM												
Base Vol:	269	763	34	117	295	213	337	388	28	50	1344	189
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	269	763	34	117	295	213	337	388	28	50	1344	189
Added Vol:	0	51	5	111	27	0	0	117	0	7	137	214
ATI:	19	80	3	9	32	40	58	34	1	2	45	3
Initial Fut:	288	894	42	237	354	253	395	539	29	59	1526	406
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	288	894	42	237	354	253	395	539	29	59	1526	406
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	288	894	42	237	354	253	395	539	29	59	1526	406
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	288	894	42	237	354	253	395	539	29	59	1526	406
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	1.00	0.92	0.83	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	2.00	1.90	0.10	2.00	2.00	1.00
Final Sat.:	1750	3800	1750	3150	3800	1750	3150	3511	189	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.16	0.24	0.02	0.08	0.09	0.14	0.13	0.15	0.15	0.02	0.40	0.23
Crit Moves:		****		****			****				****	
Green Time:	24.7	35.1	35.1	11.2	21.7	21.7	18.7	59.0	59.0	19.6	59.9	59.9
Volume/Cap:	0.91	0.92	0.09	0.92	0.59	0.91	0.92	0.36	0.36	0.13	0.92	0.53
Delay/Veh:	87.9	64.3	39.2	100.7	57.7	92.6	85.4	26.8	26.8	51.8	45.8	30.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	87.9	64.3	39.2	100.7	57.7	92.6	85.4	26.8	26.8	51.8	45.8	30.8
HCM2k95th:	22	32	3	12	13	21	17	14	14	3	54	21

Add 2nd SBLT
Add separate WBRT

AM

San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10021 Hedding Street / Oakland Road [CSJ 3576 - Protected Intersec

Cycle (sec): 137 Critical Vol./Cap. (X): 1.040
Loss Time (sec): 12 (Y+R = 4 sec) Average Crit Del (sec/veh): 88.3
Optimal Cycle: 300 Level Of Service: F

Total Avg. Del. 77.1
LOS E-

Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0	2 0	1	2 0	2 0	1	2 0	1 1	0	2 0	2 0	1
Volume Module:												
Base Vol:	345	1065	48	249	390	276	515	665	32	59	1619	412
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	345	1065	48	249	390	276	515	665	32	59	1619	412
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	345	1065	48	249	390	276	515	665	32	59	1619	412
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	345	1065	48	249	390	276	515	665	32	59	1619	412
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	345	1065	48	249	390	276	515	665	32	59	1619	412
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	345	1065	48	249	390	276	515	665	32	59	1619	412
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	1.00	0.92	0.83	0.97	0.95	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	2.00	1.91	0.09	2.00	2.00	1.00
Final Sat.:	1750	3800	1750	3150	3800	1750	3150	3530	170	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.20	0.28	0.03	0.08	0.10	0.16	0.16	0.19	0.19	0.02	0.43	0.24
Crit Moves:		****		****			****				****	
Green Time:	26.3	36.9	36.9	10.4	21.0	21.0	21.5	61.1	61.1	16.6	56.1	56.1
Volume/Cap:	1.03	1.04	0.10	1.04	0.67	1.03	1.04	0.42	0.42	0.15	1.04	0.57
Delay/Veh:	111.6	89.1	38.0	132.3	60.7	120.0	108.9	26.7	26.7	54.8	74.4	34.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	111.6	89.1	38.0	132.3	60.7	120.0	108.9	26.7	26.7	54.8	74.4	34.6
HCM2k95th:	33	48	3	16	16	28	26	17	17	3	69	22

Add 2nd SBLT
Add seperate WBRT

PM

San Jose Flea Market
From CSJ Traffix Database Update August 3, 2005
(Fehr & Peers Update September 5, 2006)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #10021 Hedding Street / Oakland Road [CSJ 3576 - Protected Intersec

Cycle (sec):	137	Critical Vol./Cap. (X):	0.850
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	50.7
Optimal Cycle:	101	Level Of Service:	D

Street Name:	Oakland Road						Hedding Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Lanes:	1 0 2	0 1		2 0 2	0 1		2 0 1	1 0		2 0 2	0 1	
Volume Module:												
Base Vol:	63	612	83	580	1191	585	449	1230	107	137	765	250
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	612	83	580	1191	585	449	1230	107	137	765	250
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	612	83	580	1191	585	449	1230	107	137	765	250
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	63	612	83	580	1191	585	449	1230	107	137	765	250
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	63	612	83	580	1191	585	449	1230	107	137	765	250
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	63	612	83	580	1191	585	449	1230	107	137	765	250
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	1.00	0.92	0.83	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	2.00	1.84	0.16	2.00	2.00	1.00
Final Sat.:	1750	3800	1750	3150	3800	1750	3150	3404	296	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.04	0.16	0.05	0.18	0.31	0.33	0.14	0.36	0.36	0.04	0.20	0.14
Crit Moves:	****					****		****		****		
Green Time:	7.0	28.2	28.2	32.2	53.3	53.3	26.8	57.7	57.7	7.0	37.9	37.9
Volume/Cap:	0.70	0.78	0.23	0.78	0.81	0.86	0.73	0.86	0.86	0.85	0.73	0.52
Delay/Veh:	101.4	59.3	46.9	57.3	42.0	51.6	59.1	42.4	42.4	104.5	49.4	45.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	101.4	59.3	46.9	57.3	42.0	51.6	59.1	42.4	42.4	104.5	49.4	45.8
HCM2k95th:	8	23	6	22	38	40	18	44	43	10	26	16