OAKS BUSINESS PARK

APPENDICES TO THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

SCH # 2001032069

VOLUME II OF II
APPENDICES B THROUGH M

Appendix A (Vol. 1)
(At the back of draft – not in separate book)

Prepared for:

CITY OF LIVERMORE
Planning Division

Prepared by:

PACIFIC MUNICIPAL CONSULTANTS

PMC
PACIFIC MUNICIPAL CONSULTANTS

SEPTEMBER 2003

DRAFT
REVISED ENVIRONMENTAL IMPACT REPORT
FOR

OAKS BUSINESS PARK

CITY OF LIVERMORE, CALIFORNIA
SCH NO. 2001032069

Prepared for:

CITY OF LIVERMORE
PLANNING DIVISION
CITY OF LIVERMORE, CA 94550-4899

Prepared by:

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SEPTEMBER 2003

VOLUME II OF II
APPENDICES B THROUGH M

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VOLUME II

Technical Appendices

Note: Appendix A, Notice of Preparation and Response Letters, is bound within Volume I of this Revised Draft Environmental Impact Report. The reports and studies listed herein were utilized from the previous EIR where applicable, and updated as necessary to reflect the current development application. The traffic and hydrology studies have been completely revised to reflect the current project description and the most current traffic data available from the City.

K. Phase I Environmental Site Assessment Report
Kleinfelder, Inc., April 27, 2000.

L. Draft Planned Development Standards for Planned Development-Industrial 01-003
Gale and Wentworth, LLC, September 15, 2003.

M. Oaks Business Park Draft Transportation Demand Management Program
TJKM Transportation Consultants, January 28, 2003.

APPENDIX B

Survey of Site Conditions

Zentner and Zentner, *178-Acre Livermore Site, Alameda County, Survey of Site Conditions*, May 2000.

178-ACRE LIVERMORE SITE
ALAMEDA COUNTY
SURVEY OF SITE CONDITIONS
MAY 2000

PREPARED FOR GALE & WENTWORTH BY ZENTNER AND ZENTNER

Introduction

Gale & Wentworth is considering the purchase of an approximately 178-acre site located in Livermore, Alameda County (Figure 1) for development of an industrial research and development facility. This site was the subject of a biological assessment completed by Zentner and Zentner in 1998 (*Biological Assessment, 178-Acre Livermore Property (Golden Gate Auto Auction), Alameda County, Prepared for: ADT Automotive, September 18, 1998, as amended October 12, 1998* ["1998 Assessment"]) which included: 1) a general mapping of site wetlands, defined as those areas subject to the jurisdiction of the Army Corps of Engineers ("Corps") under Section 404 of the Clean Water Act ("Section 404"); 2) a description of the vegetation associations found on the site; 3) an evaluation of potential habitat for special status species occurring on the site; 4) an analysis of potential project impacts to biological resources; and 5) recommended mitigation measures for affected biological resources. The purpose of this summary report is to provide a general description of current site conditions and any corresponding modifications to the 1998 Assessment.

Survey Methodology

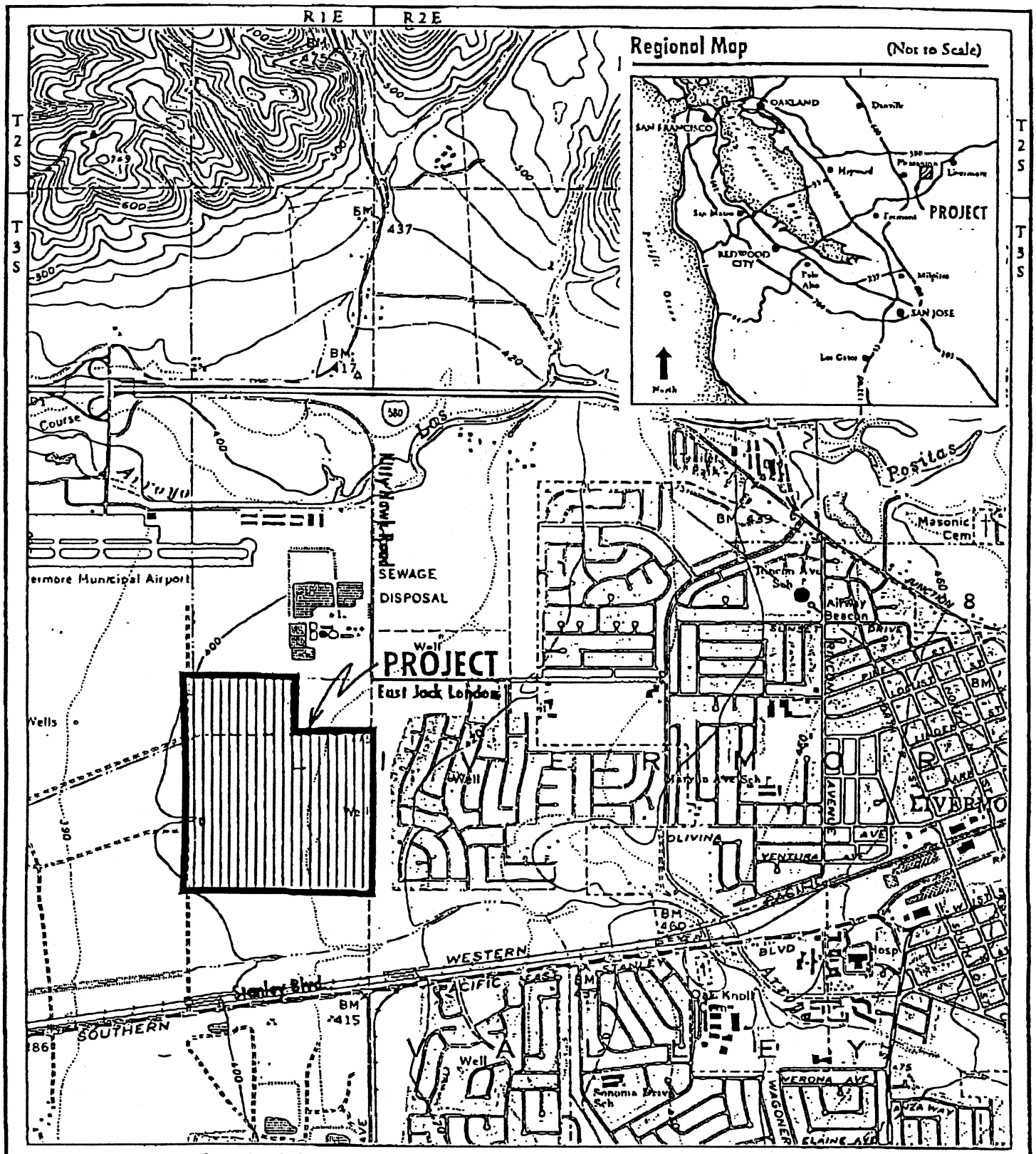
On May 11, 2000, Dr. Glen Holstein of Zentner and Zentner conducted a survey that consisted of walking the entire site, noting changes in site conditions from those observed in 1998, and listing all animals observed. Zentner and Zentner also obtained current occurrence records maintained by the California Natural Diversity DataBase ("CNDDB") and California Native Plant Society ("CNPS") for special status species for the Livermore quadrangle. Copies of those records are included as Appendix A.

Survey Results

Vegetation

Vegetation as described in this and the 1998 Assessment is identified as Areas 1, 2, 3 and 4 on Figure 2. In 1998, vegetation on the site was comprised of:

Area 1	Fallow agricultural field
Area 2	Safflower field
Area 3	Dry arroyo
Area 4	Seasonal wetland (non-jurisdictional).



Source: U.S.G.S., 7.5 Minute Quad: Livermore

0 1000 2000 3000
Scale in Feet

North

ZENTNER and ZENTNER

Figure 1
Project Location Map

APPENDIX A

CNDDB AND CNPS OCCURRENCE RECORDS

Special Status Plants

Based on the results of the 1998 Assessment where no special status plants were found or were likely to occur on the site (and considering the recent disking), no focused surveys for special status plants were conducted on May 11, 2000. The evaluation of special status plants contained in the 1998 Assessment still pertains.

Special Status Animals

The only special status species observed during the survey was white-tailed kite (*Elanus leucurus*), a California Department of Fish and Game fully protected bird. Many ground squirrels and ground squirrel burrows were observed, but western burrowing owl (*Athene cunicularia hypugea*), a federal and state species of concern, was not observed on the site. The site, however, still appears to provide good habitat for this species.

A list of all vertebrate animals observed is included as Appendix C.

Conclusion

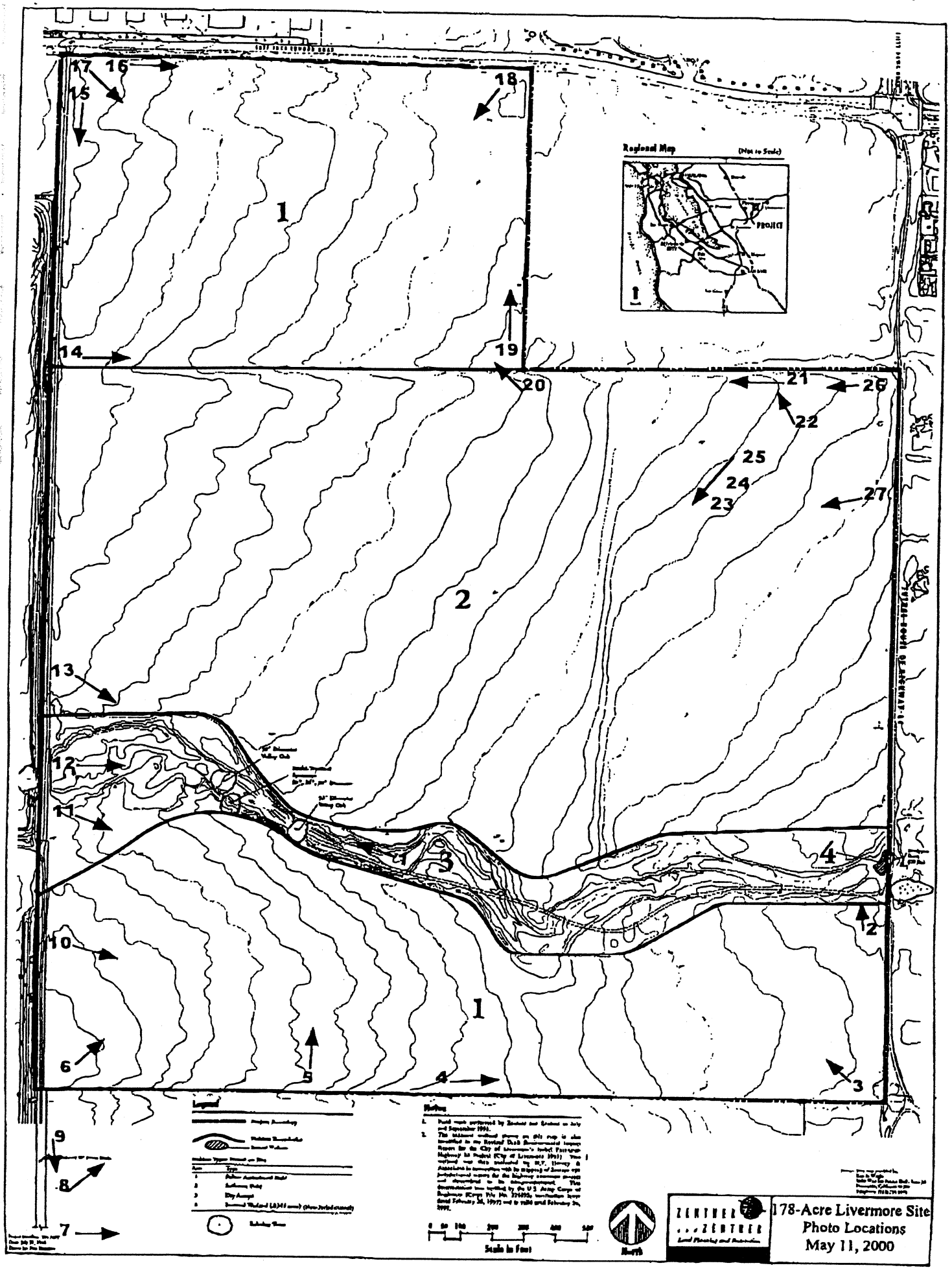
Other than the changes in site vegetation as described in this report (including the elimination of Area 4, the seasonal wetland), the 1998 Assessment still provides an accurate evaluation of site resources.[3] The discussion of impacts[4] and recommended mitigation measures contained in that assessment remain applicable to proposed development of the site by Gale & Wentworth.

[3] Since preparation of the regulatory summary contained in the 1998 Assessment, the following regulation changes have occurred: 1) the Corps Nationwide permit program has been modified, however, construction of an outfall structure in Arroyo Mocho in connection with site development may still qualify for a nationwide permit (if the structure affects jurisdictional waters); 2) the California Department of Fish and Game ("CDFG") has adopted regulations for obtaining an "incidental take" permit for project impacts to state listed species; and 3) the CDFG has adopted new procedures for obtaining a Streambed Alteration Permit (formerly Streambed Alteration Agreement) under California Fish and Game Code Section 1600 *et seq*. Further discussion of the specifics of these regulation changes is outside the scope of this report.

[4] During the 1998 surveys, one northern harrier (*Circus cyaneus*), a California species of concern, was observed foraging over the safflower field. During the May 11, 2000, survey, white-tailed kite were observed. While raptor use of the site may have been affected by the recent disking, there is an abundance of foraging habitat in the project vicinity and elimination of site vegetation would not be considered significant, as concluded in the 1998 Assessment.

APPENDIX B

SITE PHOTOGRAPHS


Regional Map
(Not to Scale)
PROJECT
1
2
3
4
Scale in Feet
North
ZENTNER ... ZENTNER
178-Acre Livermore Site
Photo Locations
May 11, 2000

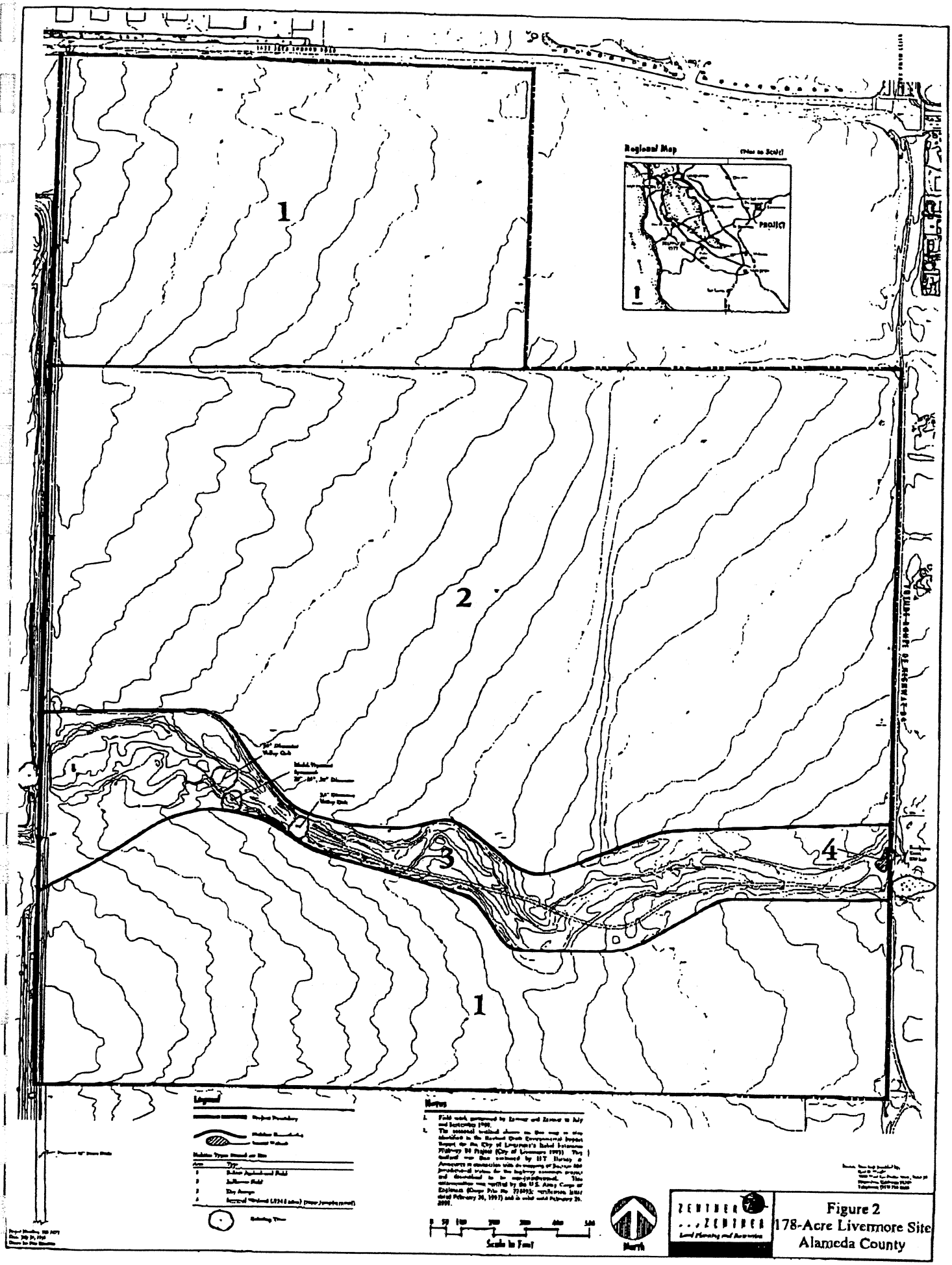


Figure 2
178-Acre Livermore Site
Alameda County

At the time of the May 11, 2000, survey, the entire site had been recently disked, and both Areas 1 and 2 were fallow agricultural fields. Area 4 was eliminated by road and fence construction on the site and the Isabel Avenue/Highway 84 expansion immediately to the east (although the adjacent *Eucalyptus* trees were still extant).[1] Areas 1, 2 and 3 are further described below. Photographs of the site along with a photo location map are included as Appendix B.

Area 1 (Northern)

Area 1 was disked but much weedy grass survived.

Area 1 (Southern)

The southern portion of Area 1 had been very lightly disked and was dominated by *Hordeum murinum*, an upright grass.[2]

Area 2

Many weedy plants also survived the disking in Area 2. A new dirt road is present at the east edge west of a new fence demarcating the property line. At the time of the survey, a small tractor and hydraulic shoring units were observed in this area, as well as a large excavated diagonal trench. The trench and associated equipment are part of a geologic investigation being conducted by Gale & Wentworth (pers. comm., May 16, 2000, John Dobrott, Gale & Wentworth,). A wheat crop is planted in the enclave northeast of Area 2.

From the fence east to the existing residential development in order are the following features associated with the Isabel Avenue/Highway 84 construction: (1) a paved but unopened road, (2) a large raised berm, and (3) an unpaved sunken road.

Area 3

Area 3, the dry arroyo, had been most thoroughly disked including up to the drip line of the large oak (*Quercus lobata*) and sycamore (*Platanus racemosa*) trees (see Figure 2). These trees were not visibly harmed by the disking.

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[1] The site did not in 1998, and does not today, contain wetlands or other waters subject to the jurisdiction of the Corps under Section 404. Area 4 had previously been determined to be non-jurisdictional (see 1998 Assessment).

[2] Just southeast of the site a large channel bend has been constructed to locally reroute Arroyo Mocho to accommodate an underpass for Isabel Avenue under Stanley Boulevard and a railroad. This information was provided by a local flood control district employee who spoke with Dr. Holstein during Dr. Holstein's survey.

Appendix C

Vertebrate Animals Observed During May 11, 2000 Survey

178-ACRE LIVERMORE SITE

VERTEBRATE ANIMALS OBSERVED
MAY 11, 2000

FISH - none

AMPHIBIANS - none

REPTILES

Western fence lizard - *Sceloporus occidentalis*

BIRDS

Great blue heron - *Ardea herodias*
Turkey vulture - *Cathartes aura*
White-tailed kite - *Elanus leucurus*
Red-tailed hawk - *Buteo jamaicensis*
American kestrel - *Falco sparverius*
Ring-necked pheasant - *Phasianus colchicus*
Rock dove - *Columba livia*
Mourning dove - *Zenaida macroura*
Barn swallow - *Hirundo rustica*
Cliff swallow - *Hirundo pyrrhonota*
Northern mockingbird - *Mimus polyglottos*
Red-winged blackbird - *Agelaius phoeniceus*
Brewer's blackbird - *Euphagus cyanocephalus*
Northern oriole - *Icterus galbula*
House finch - *Carpodacus mexicanus*

MAMMALS

Black-tailed hare - *Lepus californicus*
California ground squirrel - *Spermophilus beecheyi*
Red fox - *Vulpes vulpes*

APPENDIX C

Traffic and Circulation Study

TJKM Transportation Consultants, *Oaks Business Park EIR Section 3.3 Traffic and Circulation, City of Livermore*, July 11, 2003.

Oaks Business Park
Administrative Draft Environmental Impact Report

Section 3.3 Traffic and Circulation

In The City of Livermore

July 11, 2003

Prepared by:
TJKM Transportation Consultants
5960 Inglewood Drive, Suite 100
Pleasanton, CA 94588-8535
Tel: 925.463.0611
Fax: 925.463.3690

This section of the EIR analyzes the traffic generation and circulation issues associated with the proposed project, based on the traffic impact analysis prepared by TJKM Transportation Consultants. The analysis is based on issues identified through the Notice of Preparation (NOP) and scoping process, and has been prepared in coordination with City traffic engineering staff. The complete Traffic Study is contained within the Technical Appendices to this document.

3.3.1 EXISTING SETTING

ROADWAY NETWORK

Regional roadway access to the project site and the Livermore area is provided by Interstate 580 and State Highway 84. Streets and intersections serving the project site are shown in **Figure 3.3-1** and include the following:

Isabel Avenue

The Oaks Business Park has frontage on two public streets – Jack London Boulevard and Isabel Avenue. Both streets are important in the City's network. Isabel Avenue is expected to be a four to six lane facility, developed to expressway standards. The initial two lanes of Isabel Avenue are now constructed adjacent to the project site, as part of a series of projects providing a continuous two lane facility between Airway Boulevard and Vallecitos Road. The entire roadway is to be designated as State Highway 84. The initial project includes an underpass beneath Stanley Boulevard and the Union Pacific Railroad line, located about 1,500 feet south of the proposed Oaks Business Park.

Isabel Avenue is expected to be widened in the future, with the initial widening to four lanes between Jack London Boulevard and Vallecitos Road scheduled to be completed by 2010. $80 million in one-half cent sales tax (Measure B) funding for the widening has been approved. The funding schedule is determined in the Alameda County Transportation Improvement Authority Expenditure Plan. Other potential funding sources include the City of Livermore Traffic Impact Fee. The City is currently developing a Project Study Report (PSR) to further define the details of future improvements to the Isabel Avenue corridor.

I-580 Interchange with Isabel Avenue

The TriValley Transportation Council is currently undertaking planning, studies and design of the first phase of an interchange between I-580 and Isabel Avenue. The City staff estimates that the interchange will be completed in 2007-08.

Route 84 Transfer

The City and Caltrans are currently working on a project to transfer Route 84 from Holmes Street-First Street to Isabel Avenue-Airway Boulevard. This transfer is expected to occur in early 2004.

Limited Intersections

Because of its possible future designation as an expressway, the City of Livermore is limiting the number of intersections along Isabel Avenue. Existing major intersections along Isabel Avenue include Jack London Boulevard, Stanley Boulevard, Concannon Boulevard, Vineyard Avenue and Vallecitos Road. After the road is realigned with the Isabel/I-580 Interchange Project, there may be additional major intersections at both Isabel/Airway and Isabel/Kittyhawk. Additional intersections exist at Rickenbacker Circle North and Rickenbacker Circle South, located north of Jack London Boulevard. There are existing private access points along Isabel Avenue serving the Water Reclamation Plant north of Jack London Boulevard on the west side of the street, and two active private access points south of Concannon Boulevard on Isabel Avenue including a driveway to a concrete plant and a driveway to Orchids Orinda, an orchid nursery and retail outlet. There are several gated access points used occasionally for maintenance including access to gravel quarries, the Arroyo Mocho flood channel, the City sewer easement and the emergency vehicle access easement at Alden Lane. Intersection spacing along Isabel Avenue varies between about one-half mile and one mile. The Caltrans expressway standard for minimum intersection spacing is 800 meters (about half a mile).

Jack London Boulevard

Jack London Boulevard extends from Murrieta Boulevard to a point about one mile west of Isabel Avenue. In the future Jack London Boulevard is planned to be extended further west to El Charro Road, which is located at the border between the City of Livermore and the City of Pleasanton. At El Charro Road, Jack London Boulevard is likely to align with the proposed extension of Stoneridge Drive in the City of Pleasanton. However, there is no official plan adopted by both cities that this alignment will occur. The Jack London Boulevard/ Stoneridge Drive extension will constitute a major east-west arterial connecting the cities of Livermore and Pleasanton and will provide relief and support to I-580. It is expected to have four to six lanes. There is no imminent construction project to connect the two arterials; however, two lanes of the West Jack London Boulevard extension is funded through the City's Traffic Impact Fee Program. The remaining lanes would be constructed as development along the extension occurs.

TRANSIT NETWORK

WHEELS Bus Service

Within the project vicinity, the Livermore-Amador Valley Transit Authority (LAVTA) operates four bus routes (WHEELS); Routes 10, 12, 12X and 16J. Route 12 provides service between the Livermore Transit Center/ACE Train Station and Las Positas College via Murrieta, Portola, Airway, and North Canyons Road. Route 12X provides weekday service only between the Livermore Transit Center and the Pleasanton BART Station. WHEELS buses operates weekdays from approximately 4:30 a.m. to 1a.m., Saturdays 7 a.m. to 1 a.m., Sundays 6:30 a.m. to 11 p.m. Headways are generally 20 to 40 minutes. As a specific example, Route 10 operates at 15 minute headways from 6 a.m. to 9 a.m., 30 minutes from 9 a.m. to 3 p.m., 15 minutes from 3 to 8 p.m. and 20 minutes from 8 p.m. to midnight. Route 10 serves Stanley Boulevard and Route 16J serves the residential areas north of downtown.

Connections with other bus routes could be made at the transit center. These bus lines cover most of the City's major streets, and serve both intra-city trips to Downtown Livermore, Lawrence Livermore National Laboratory and Las Positas College, and inter-city trips to nearby cities, such as, Dublin and Pleasanton. **Figure 3.3-2** illustrates Livermore area transit routes.

ACE Commuter Train

Altamont Commuter Express (ACE) offers an alternative to the automobile for regional commute trips from Livermore to Pleasanton and the South Bay area including Fremont, Santa Clara and San Jose. Since primarily serving commute trips to the Bay area, ACE trains run westbound in the morning and eastbound in the evening. There are two ACE stations in Livermore, one in Downtown near the Livermore Avenue/Railroad Avenue intersection and the other is on Vasco Road, at the Vasco Road/Brisa Street intersection. In the morning, westbound trains stop in Livermore at approximately 5:30 a.m., 6:35 a.m., and 7:40 a.m. In the evening, eastbound trains stop in Livermore at approximately 5:20 p.m., 6:30 p.m., and 7:50 p.m.

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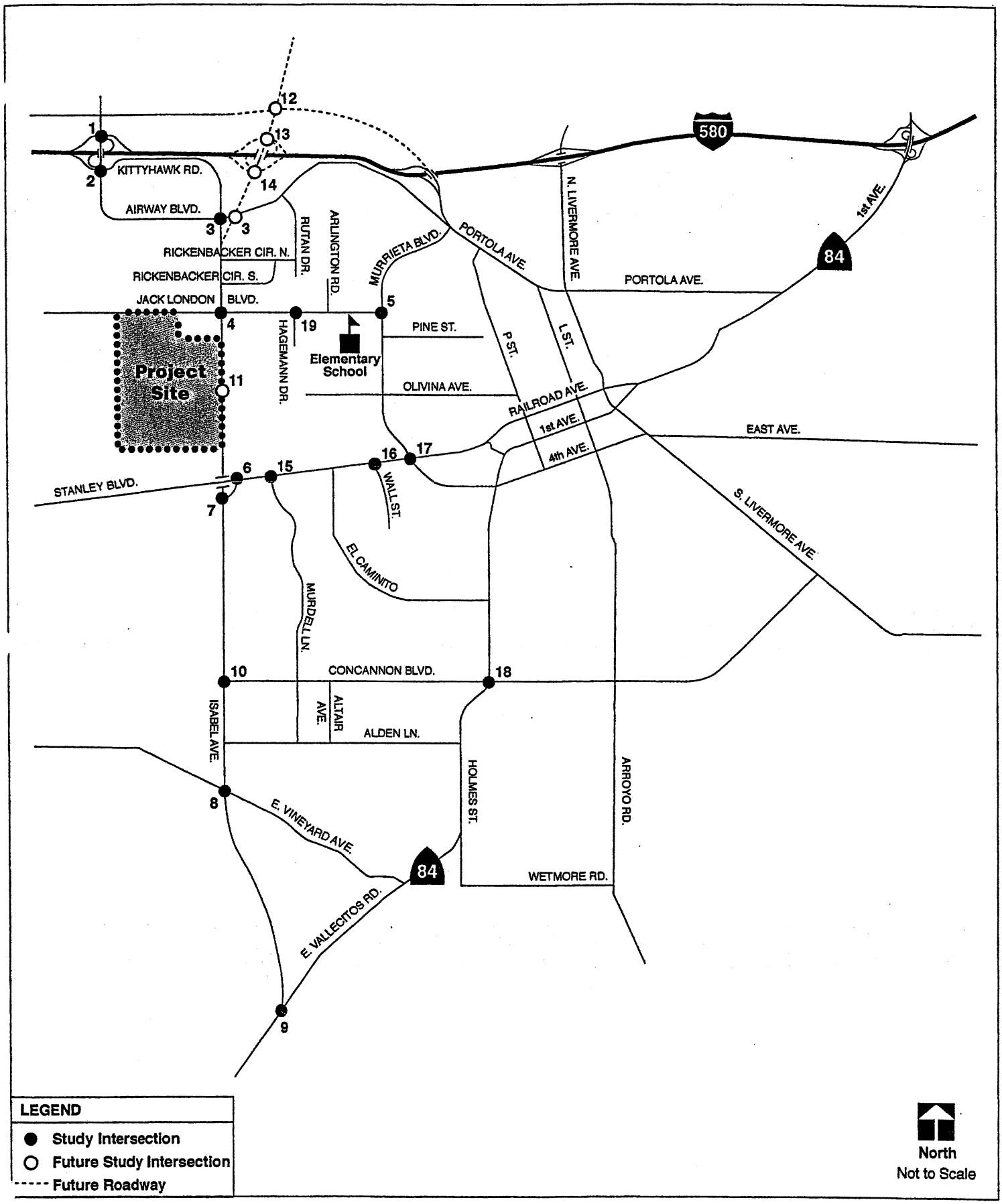

City of Livermore
Oaks Business Park

Vicinity Map

Figure
3.3-1

TJKM

Bay Area Rapid Transit

The Bay Area Rapid Transit (BART) District operates trains between the Dublin-Pleasanton station near Hacienda Drive and the Oakland-San Francisco area. The trains operate on 15-minute headways on weekdays. The Dublin-Pleasanton station is accessible by private auto, taxi cabs, buses, and private shuttles as well as by pedestrians and bicyclists. The parking lot has a capacity of approximately 3,000 parking stalls.

A new West Dublin-Pleasanton station is in the planning stages and is expected to be operational within about five years, although no specific schedule has been announced. In addition, long-range planning studies of potentially extending BART lines to Livermore are underway. The studies also will examine alternative means of improving transit service to Livermore in the BART corridor until funds are available to construct the BART extension.

PEDESTRIAN AND BICYCLE FACILITIES

Figure 3.3-3 illustrates existing and proposed bike and multi-use trails in the vicinity of the proposed project site. There is an existing multi-use trail parallel to Isabel Avenue (along the east side) between Jack London Boulevard and Alden Lane. The City of Livermore *Bikeways and Trails Master Plan*, adopted in December 2001, calls for an east-west multi-use trail connection to Pleasanton, parallel to West Jack London Boulevard, north of the project site. The trail would extend a recently completed multi-use trail with an equestrian component paralleling Isabel Avenue and terminating at the intersection of Jack London Boulevard and Kitty Hawk Road. The trail extension along West Jack London Boulevard will be constructed on the north side of the street.

Currently, sidewalks exist on the north and south side of Jack London Boulevard between Isabel Avenue and Murrieta Boulevard, and pedestrian crosswalks on all four legs of the intersection of Isabel Avenue/Jack London Boulevard.

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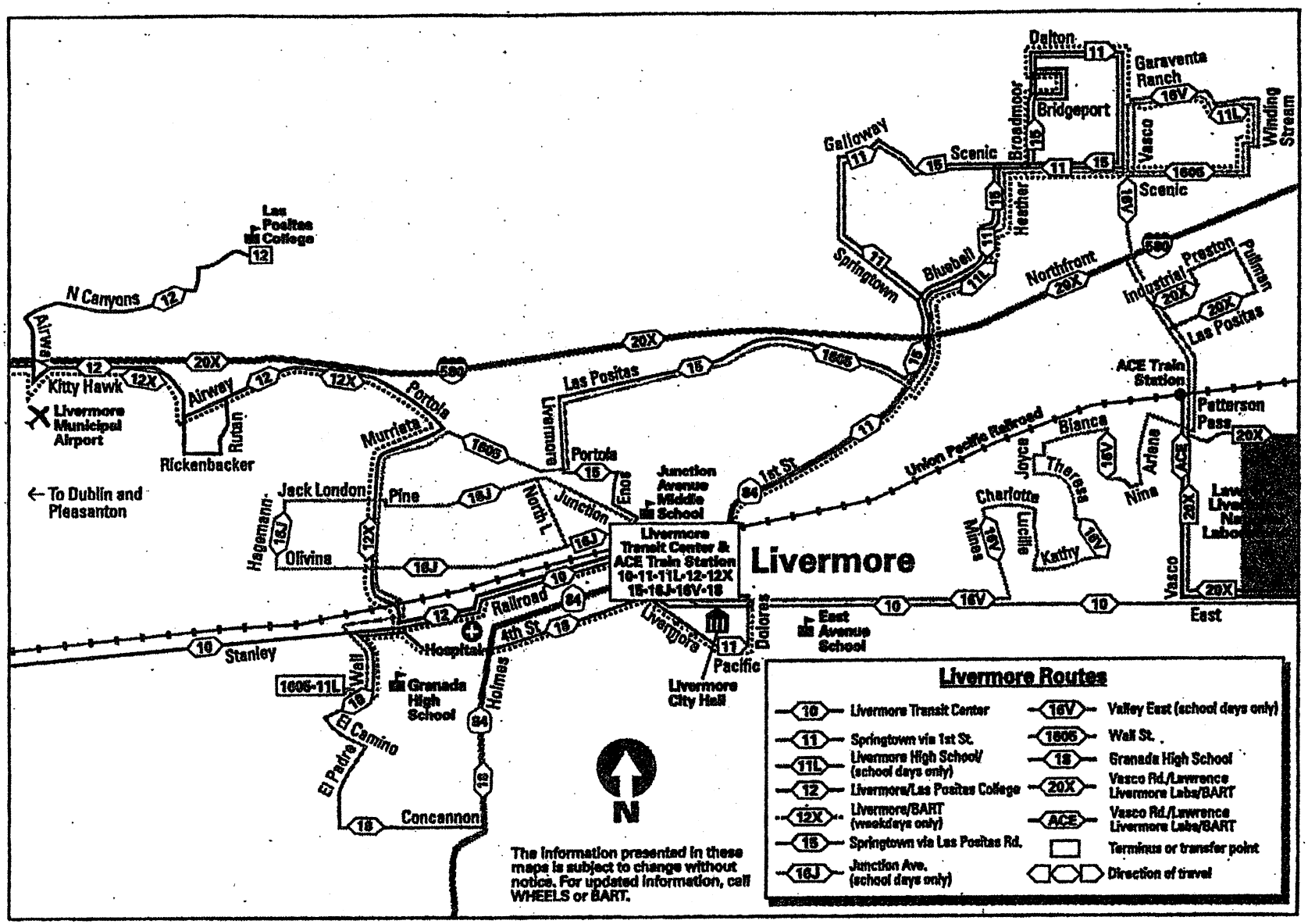
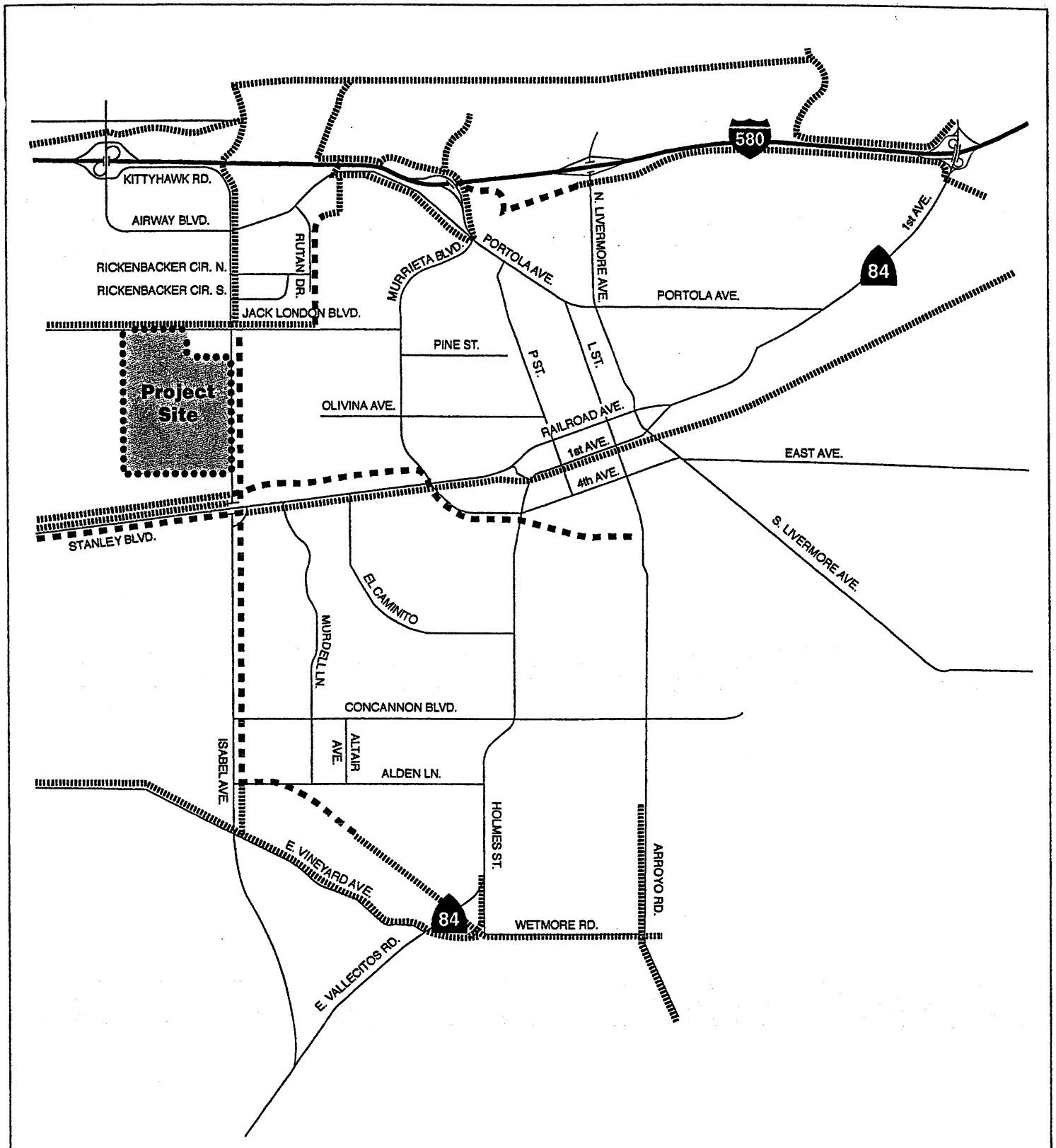


SOURCE: TJKM TRANSPORTATION CONSULTANTS

W:\LIVERMORE\OAKS BUSINESS PARK\OAKS BUSINESS PARK GRAPHICS

FIGURE 3.3-2
EXISTING TRANSIT NETWORK

PMC



LEGEND	
■ ■ ■ ■	Existing Multi-Use Trails
▪▪▪▪▪▪▪▪▪▪	Proposed Trails

Source: City of Livermore

North
Not to Scale

City of Livermore
Oaks Business Park

Bike Trails

Figure
3.3-3

TJKM

89-255 - 5/7/03 - PL

EXISTING LEVEL OF SERVICE CONDITIONS

Level of Service (LOS) ratings are qualitative descriptions of intersection operations and are reported using an 'A' through 'F' letter rating system to describe travel delay and congestion. The varying levels of service are described below in **Table 3.3-1.** Peak hour intersection conditions are reported as volume to capacity ratios (V/C) with corresponding levels of service. Levels of service are qualitative descriptions of intersection operations and are reported using an A through F letter rating system to describe travel delay and congestion.

TABLE 3.3-1

LEVEL OF SERVICE DESCRIPTION

LOS	Volume to capacity ratio	Description
A	≤ 0.60	Represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
B	0.61 – 0.70	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.
C	0.71 – 0.80	Stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
D	0.81 – 0.90	Represents high density, but stable flow.
E	0.91 – 1.00	Represents operating conditions at or near the capacity level.
F	> 1.00	Represents forced or breakdown flow.

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985.

Existing traffic volumes were collected on September 18, 2001 at the study intersections during the a.m. and p.m. peak hours. Traffic volumes from five additional study intersections were collected on February 13, 2002. **Figure 3.3-4** summarizes the existing peak hour turning movement volumes. **Table 3.3-2** summarizes the results of the intersection LOS analysis for Existing Conditions at the study intersections. The intersections that operate unacceptably, below the City's LOS "D" threshold, or volume-to-capacity ratio (v/c) greater than 0.85, are listed. The detailed LOS calculations are contained in the Technical Appendix of this document.

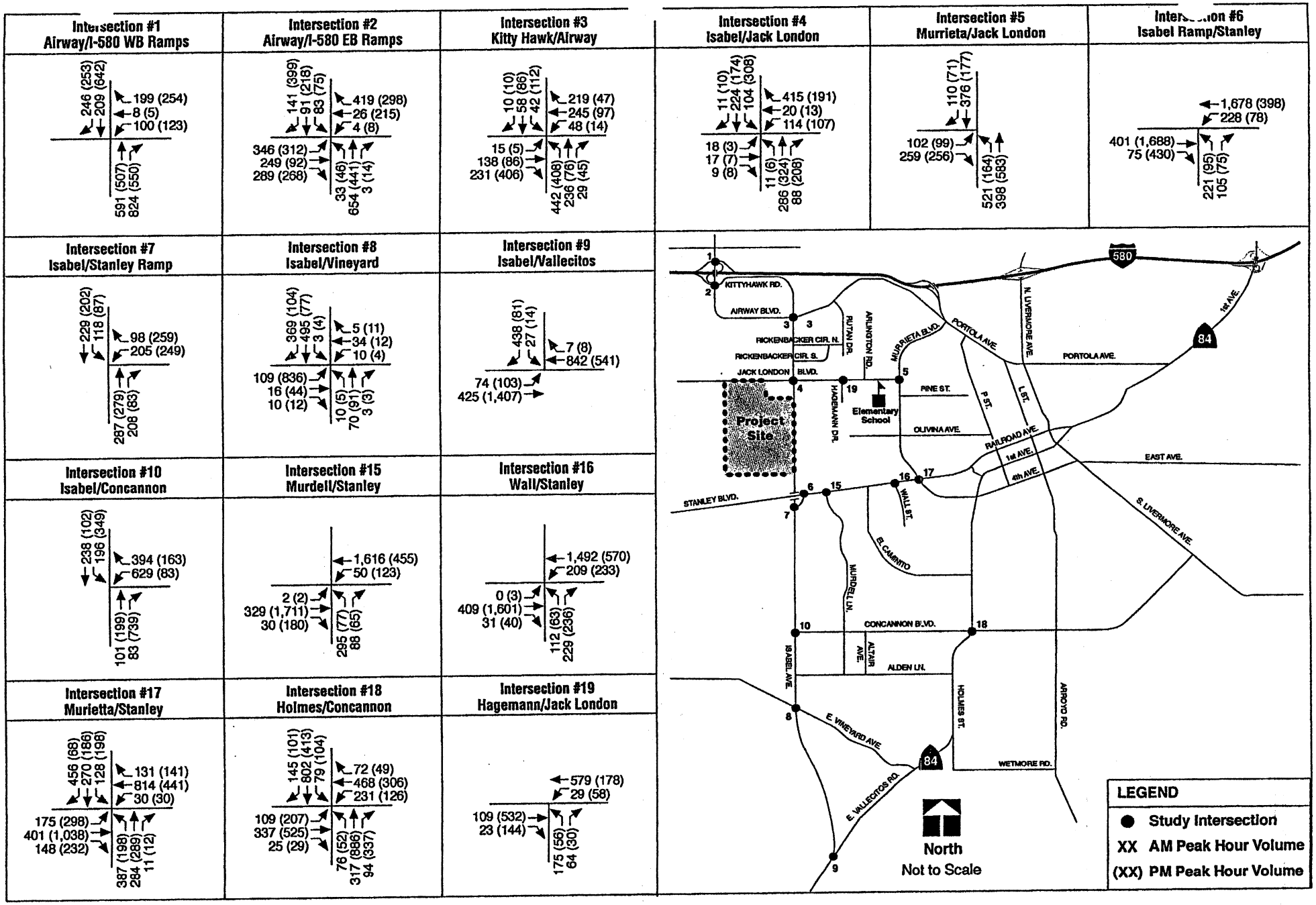
TABLE 3.3-2

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	a.m. Peak Hour		p.m. Peak Hour	
	v/c	LOS	v/c	LOS
1. Airway Blvd./I-580 WB Ramps	0.31	A	0.31	A
2. Airway Blvd./I-580 EB Ramps	0.60	A	0.52	A
3. Isabel Ave./Airway Blvd. – existing alignment	0.53	A	0.40	A
4. Isabel Ave./Jack London Blvd.	0.41	A	0.34	A
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.68	B	0.36	A
6. Isabel Ramp/Stanley Blvd.	0.66	B	0.65	B
7. Isabel Ave./Stanley Ramp	0.35	A	0.36	A
8. Isabel Ave./Vineyard Ave.	0.46	A	0.46	A
9. Isabel Ave./Vallecitos Rd.	0.81	D	0.88	D
- After re-configuration	0.85	D	0.50	A
10. Isabel Ave./Concannon Blvd.	0.62	B	0.64	B
15. Stanley Blvd./Murdell Ln.	0.67	B	0.73	C
16. Stanley Blvd./Wall St.	0.60	A	0.75	C
17. Stanley Blvd./Murietta Blvd.	0.76	C	0.71	C
18. Holmes St./Concannon Blvd.	0.67	B	0.77	C
Unsignalized Intersection	**a.m. Peak Hour**		**p.m. Peak Hour**	
	Delay	**LOS**	**Delay**	**LOS**
19. Jack London Blvd./Hagemann Dr.[1]	6.1 (22.2)	B (D)	1.6 (11.0)	A (C)

[1]X.X (X.X) = Overall intersection delay or LOS (Minor Movements Delay or LOS)

Under Existing Conditions with Isabel Avenue complete, fifteen of the sixteen existing study intersections operate acceptably. The intersection of Isabel Avenue/Vallecitos Road operates unacceptably at LOS D during the p.m. peak hour. This intersection operates unacceptably under all scenarios, with or without the project. In the future, the City of Livermore will reconfigure this intersection so that the north leg of the intersection (Isabel Avenue) will be aligned with the west leg of the intersection (Vallecitos Road.) When this occurs, existing conditions will improve to an acceptable 0.85 v/c, or mid-level LOS D.



City of Livermore
Oaks Business Park

Existing Turning Movement Volumes

Figure 3.3-4

TJKM

3.3.2 REGULATORY SETTING

Several federal, state, regional and local agencies have adopted plans and policies regulating the proposed project. These include the Metropolitan Transportation Commission Regional Transportation Plan, the Alameda County Congestion Management Agency Program and the City of Livermore Community General Plan Circulation Element. The Traffic Study for the proposed project has been prepared in consultation with City engineering staff and in accordance with all rules and regulations of the relevant adopted policies.

3.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following thresholds for measuring a project's environmental impacts are based upon CEQA Guidelines and accepted engineering and planning standards used by the City of Livermore. For the purposes of this EIR, impacts are considered significant if the following could result from implementation of the proposed project:

1) Increase traffic and degrade the level of service of roadways or intersections beyond a peak hour volume-to-capacity ratio of 0.85 (mid-LOS D, the minimum acceptable LOS is D);

2) Exacerbate existing traffic conditions that are currently experiencing an unacceptable LOS;

3) Cause the need for a signal at an unsignalized location;

4) Result in insufficient parking capacity onsite or offsite as calculated by City standards;

5) Result in roadway design inconsistent with engineering or safety standards or cause unsafe conditions for pedestrians or bicyclists;

6) Impact existing transit systems;

7) Results in a disruption of the operations of existing uses, such as schools; or

8) Contribute significantly to any cumulative traffic or circulation impact.

PROJECT DEVELOPMENT ASSUMPTIONS

The Oaks Business Park contains approximately 151 developable acres, located on the southwest quadrant of the intersection of Jack London Boulevard and Isabel Avenue. It is zoned for industrial uses. There is no specific development proposal at this time; however, the project was evaluated using a floor area ratio of 0.41 proposed by the applicant and assuming 60 percent of the site would be occupied by research and development office uses and 40 percent by light industrial and manufacturing uses. The standards of PD-I 01-003 incorporate a mechanism to regulate and monitor the level of development and to ensure that the project does not exceed the traffic generation impacts analyzed in the EIR.

Applying the FAR rates above, the total office building square footage is estimated at 1,635,493 square feet, and the total manufacturing building square footage is estimated at 1,090,329 square feet, for a total of 2,725,822 square feet. The project site is shown on **Figure 3.3-1**. The development plan described above is the best estimate by the City and the developer at this time. If the percentage of research and development were to increase, the number of trips would also increase.

Under Existing Conditions, the new Isabel Avenue interchange is not built; however, it is assumed to be in place by 2010. With the completion of the Isabel Avenue interchange, the existing Portola Avenue westbound on ramp and eastbound off ramp will be demolished at I-580. Isabel Avenue was evaluated as a four-lane roadway (two lanes in each direction) under Year 2010 Conditions, and as a six-lane expressway under Year 2025 Conditions. In the future, Isabel Avenue will be State Highway 84.

ANALYSIS METHODS AND SCENARIOS

Study Intersections

Under "Existing Conditions" and "Existing plus Project Conditions," the following 16 intersections in the vicinity of the project site were selected by the City of Livermore staff for analysis:

1. Airway Boulevard at Interstate 580 westbound ramps
2. Airway Boulevard at Interstate 580 eastbound ramps
3. Kitty Hawk Road at Airway Boulevard
4. Isabel Avenue at Jack London Boulevard
5. Jack London Boulevard/Pine Street at Murrieta Boulevard
6. Stanley Boulevard at Isabel Avenue Connector
7. Isabel Avenue at Stanley Boulevard Connector
8. Isabel Avenue at Vineyard Avenue

9. Isabel Avenue at Vallecitos Road
10. Isabel Avenue at Concannon Boulevard
11. Isabel Avenue at Discovery Drive
15. Stanley Boulevard at Murdell Lane
16. Stanley Boulevard at Wall Street
17. Stanley Boulevard at Murietta Boulevard
18. Holmes Street at Concannon Boulevard
19. Jack London Boulevard at Hagemann Drive

Under "Year 2010" and "Year 2025 Conditions," the I-580/Isabel interchange is assumed to be constructed. Therefore, the following three intersections were added:

12. Isabel Avenue at Portola Avenue
13. Isabel Avenue at Interstate 580 Westbound ramps
14. Isabel Avenue at Interstate 580 Eastbound ramps

Figure 3.3-1 illustrates the locations of the existing and future study intersections. The intersections were analyzed during the weekday a.m. and p.m. peak hours of traffic which occur from 7:00 - 9:00 a.m. and 4:00 - 6:00 p.m. These periods represent the most congested traffic conditions of an average weekday, and correspond with the peak hours of trip generation of the proposed development.

Project Conditions and Access Alternatives

The study intersections were evaluated under the six project conditions described below. The intersection of Isabel Avenue at Discovery Drive was analyzed. The project was analyzed with the following access alternatives: 1) a fully signalized Isabel Avenue/Discovery Drive intersection; 2) with right-turn in and out access at Isabel Avenue/Discovery Drive; and 3) no access on Isabel Avenue. With these access alternatives, the intersection of Isabel Avenue at Jack London Boulevard is affected as project traffic shifts. Therefore, three scenarios for this intersection were evaluated.

Condition 1: Existing Conditions. This scenario evaluates current traffic counts collected in the field at the study intersections during the peak hours on September 18, 2001 and February 13, 2002. Under this condition, the Isabel interchange is not constructed and Jack London Boulevard is not connected with El Charro Road in Pleasanton.

Condition 2: Existing plus Project Conditions. Project-generated traffic was added to the existing volumes from Condition 1 to obtain peak hour traffic volumes at the study intersections for project conditions. Roadway assumptions are the same as in Condition 1.

Condition 3: Year 2010 Conditions. Cumulative traffic for Year 2010 Conditions, with the Isabel Avenue Interchange added to the network, was evaluated by applying a two-percent per year growth rate to existing traffic. Under this condition, Jack London Boulevard is not connected with El Charro Road in Pleasanton.

Condition 4: Year 2010 plus Project Conditions. Project-generated traffic was added to the Year 2010 volumes from Condition 3 to obtain peak hour traffic volumes at the study intersections for project conditions. Roadway assumptions are the same as in Condition 3.

Condition 5: Cumulative Year 2025 Conditions using the Tri-Valley Model. Cumulative traffic for Year 2025 Conditions was evaluated using forecasts from the Tri-Valley model without the North Livermore Specific Plan. Under this condition, both the Isabel interchange and the Jack London connection with El Charro Road in Pleasanton are included in the roadway network. Isabel is assumed to have six lanes north of Stanley Boulevard and four lanes south of Stanley Boulevard.

Condition 6: Cumulative Year 2025 plus Project Conditions using Tri-Valley Model. The Tri-Valley model was used to distribute project trips on the roadway network to develop the future Year 2025 plus Project conditions. The roadway network assumptions are the same as in Condition 5.

Tri-Valley Transportation Model Description

The Year 2025 traffic projections were developed based on the updated Year 2025 Tri-Valley Transportation Model. The land use in the model was adjusted to reflect the anticipated local growth by the Year 2025. This section provides a brief description of the Tri-Valley Transportation Model including land use and roadway network assumptions.

Land Use Assumptions

The land use database for the Year 2025 was included in the Tri-Valley Transportation Model and is consistent with the land use programs developed by the City of Livermore and City of Dublin and their team of consultants. The land use database developed for Year 2025 maintains consistency with the City and County control totals as shown in the Association of Bay Area Governments (ABAG) Projections `98. Land use was adjusted to exclude development in North Livermore as mandated by the North Livermore Urban Growth Boundary Initiative, adopted in December 2002.

Traffic generated from the two future projects in the City of Livermore, Ashwell Parcel and the proposed Airport expansion, were added to the Year 2025 Tri-Valley model base volume since these land uses were not assumed in the Tri-Valley Model.

Roadway Network Assumptions

The roadway network is based on the approved Tri-Valley Transportation Model. The future assumed improvements are fully funded and are included in MTC's Regional Transportation Plan and the CMA's Countywide transportation Plan. The number of lanes assumed is provided in **Table 3.3-3**.

TABLE 3.3-3

NETWORK ASSUMPTIONS

Location	Number of Lanes		
	Existing	Year 2010	Year 2025
I-580 mainline between El Charro Road and Vasco Road*	8	8	8
I-580/Isabel interchange overpass to Airway Boulevard	n/a	4	6
Isabel Avenue between Airway Boulevard and Stanley Boulevard	2	4	6
Isabel Avenue between Stanley Boulevard and Vallecitos Road	2	4	4
Stanley Boulevard between El Charro and Isabel Avenue	4	4	4
Jack London Boulevard between El Charro and Isabel Avenue	n/a	n/a	2
Vallecitos Road southwest of Isabel Avenue	2	2	2

*no Auxiliary Lane

PROJECT TRIP GENERATION AND DISTRIBUTION

Project Trip Generation

Trip generation rates for the proposed project were obtained from *Trip Generation,* 6th Edition published by the Institute of Transportation Engineers (ITE) in 1997. The proposed project trip generation is provided in **Table 3.3-4** below. With 60 percent of the site occupied by R&D office uses and 40 percent by manufacturing uses, the proposed project would generate a total of 17,429 trips daily, 2,824 a.m. peak hour trips, and 2,573 p.m. peak hour trips. Other combinations of office, manufacturing and warehouse may result in slightly modified square footage ratios. These ratios, however, should not differ greatly from the projections calculated in **Table 3.3-4.** Existing and proposed lane configurations are presented in **Figure 3.3-5.**

TABLE 3.3-4

PROPOSED PROJECT TRIP GENERATION

Use	Size (s.f.)	Daily		a.m. Peak Hour					p.m. Peak Hour				
		Rate	Trips	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
Office	1,635,493	8.11	13,264	1.24	83:17	1,683	345	2,028	1.08	15:85	265	1,501	1,766
Manu-facturing	1,090,329	3.82	4,165	0.73	77:23	613	183	796	0.74	36:64	290	517	807
TOTAL	**2,725,822**		**17,429**			**2,296**	**528**	**2,824**			**555**	**2,018**	**2,573**

Source: *Trip Generation,* 6th Edition, by ITE

Project Trip Distribution

The estimated trip distribution and assignment was developed based on existing travel patterns and knowledge of the study area in coordination with City staff. The estimates consider cut-through traffic within Livermore due to congestion on I-580. Traffic from the proposed project is expected to travel to and from the site according to the distribution assumptions shown on **Figure 3.3-6** and described below:

- 4 percent to/from the east via I-580
- 5 percent to/from the west via Vineyard Avenue
- 5 percent to/from the southwest via Vallecitos Road
- 10 percent to/from the west via Stanley Boulevard
- 15 percent to/from the west via I-580
- 17 percent to/from the east via Concannon Boulevard

- 21 percent to/from the east via Stanley Boulevard
- 23 percent to/from the east via Jack London Boulevard
- 17 percent to/from the west via Jack London Boulevard in 2025.

These trip distributions were based on travel patterns currently existing and expected in the future. They were estimated by the traffic consultant in conjunction with the City of Livermore traffic engineering staff.

The project trips at the study intersections are shown on **Figure 3.3-7**

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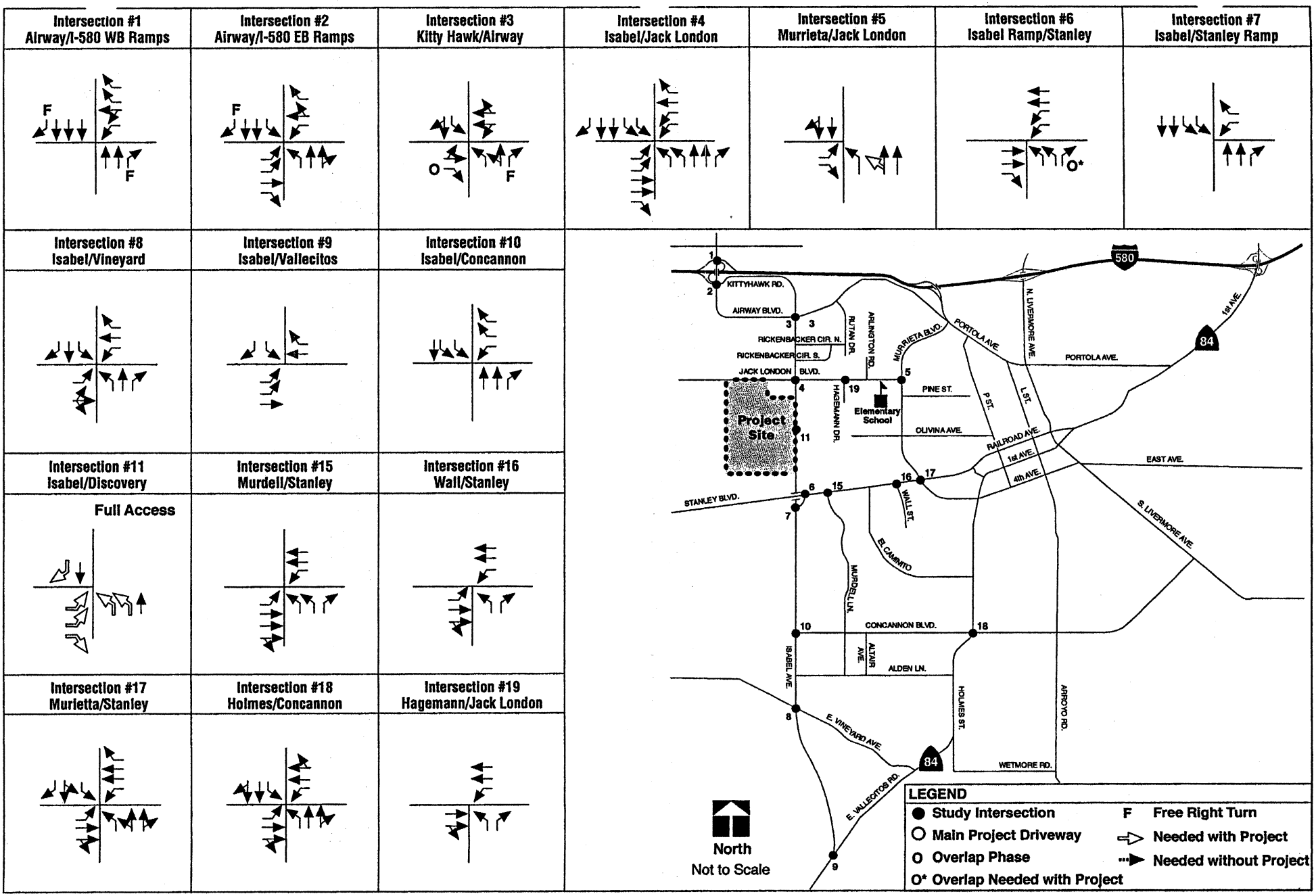

City of Livermore
Oaks Business Park

Existing and Existing + Project Lane Configurations

Figure **3.3-5**

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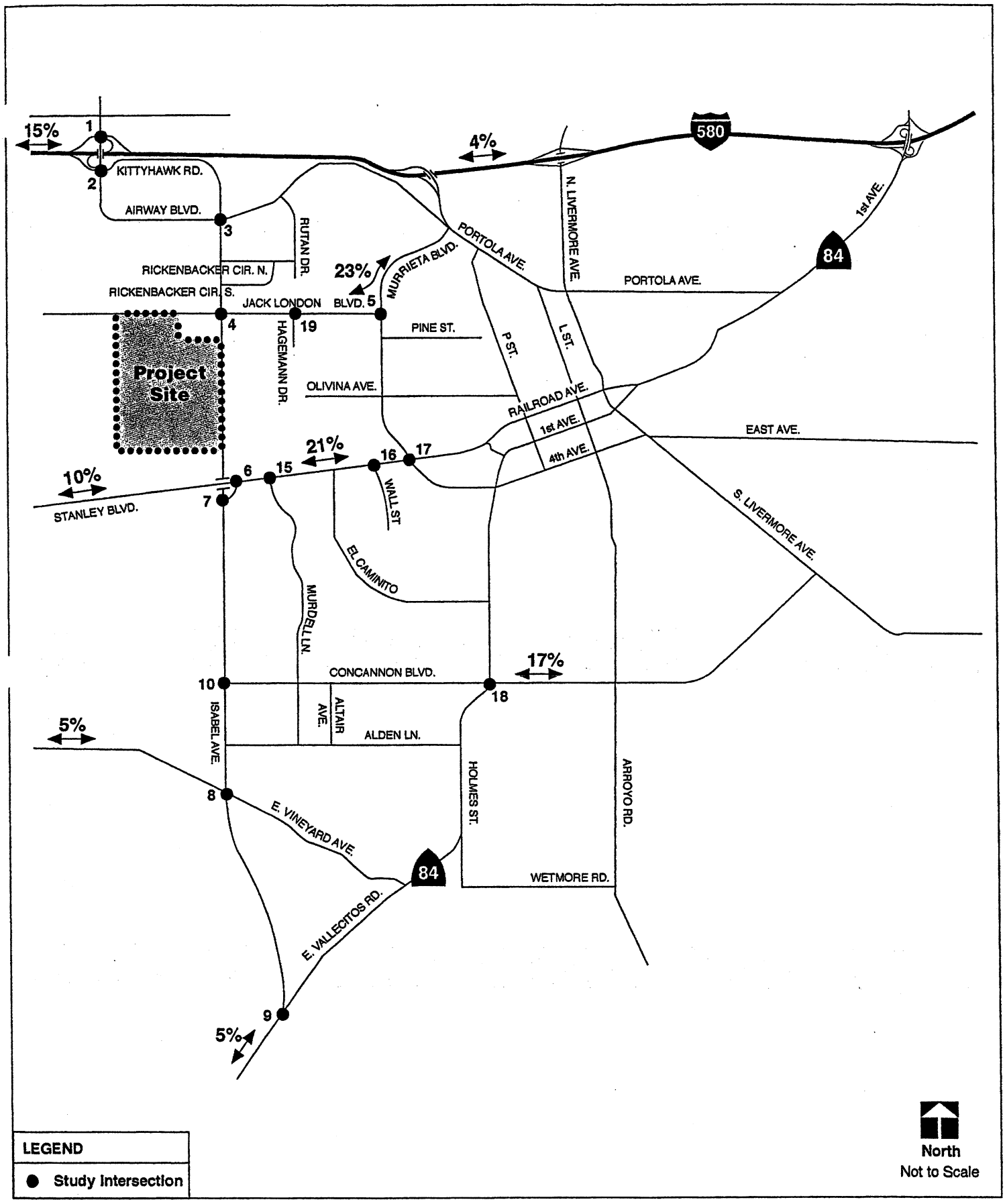
89-255 - 6/30/03 - PL



City of Livermore
Oaks Business Park

Trip Distribution

Figure
3.3-6

TJKM

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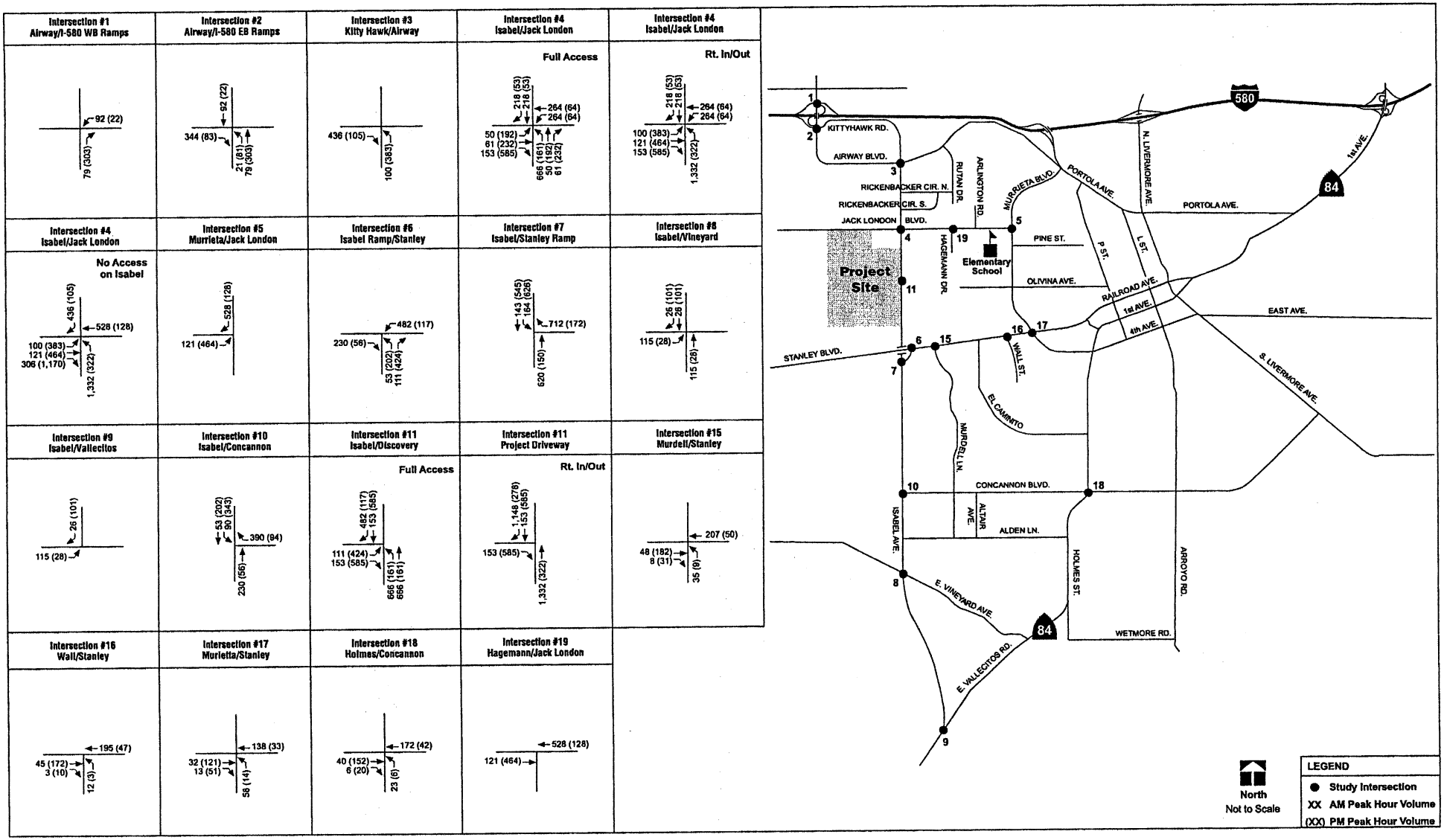

City of Livermore
Oaks Business Park

Project Only Turning Movement Volumes

Figure
3.3-7

TJKM

89-255 - 6/30/03 - PL

INTERSECTION LEVEL OF SERVICE ANALYSIS

Table 3.3-5 provides a summary and overview of intersection impacts under all study scenarios. Each scenario is analyzed in detail later in this report. The operating conditions at the study intersections were evaluated using the *Intersection Capacity Utilization (ICU)* Methodology. The peak hour intersection conditions are reported as volume-to-capacity (v/c) ratios with corresponding levels of service. All of the intersections in the project area that are expected to operate unacceptably below the City's LOS D threshold (v/c greater than 0.85) are listed.

TABLE 3.3-5

SUMMARY OF INTERSECTION IMPACTS AND MITIGATION MEASURES

Intersection	Project Scenario	Project Impact?	Mitigation Measure	Significant after Mitigation?
9. Isabel/Vallecitos	E	No	Intersection re-alignment	No
4. Isabel/Jack London (right in/out access)	E+P	Yes	Add full access on Isabel	No
4. Isabel/Jack London (no Isabel access)	E+P	Yes	Add full access on Isabel	No
5. Murrieta/Jack London/Pine	E+P	Yes	Restripe northbound lanes	No
6. Isabel Ramp/Stanley	E+P	Yes	Overlap phase on signal	No
11. Isabel/Discovery	E+P	Yes	Construct max. of 90% of project until Isabel has 4 lanes	No
19. Jack London/Hagemann	E+P	Yes	Signalize intersection	No
2010 Scenario using Tri Valley Model				
19. Jack London/Hagemann	2010	Yes	Signalize intersection	No
4. Isabel/Jack London	2010+P	Yes	Overlap Signal Phase	No
4. Isabel/Jack London (Right in/out access)	2010+P	Yes	Add full access on Isabel	No
4. Isabel/Jack London (No Isabel access)	2010+P	Yes	Add full access on Isabel	No
5. Murrieta/Jack London/Pine	2010+P	Yes	Restripe northbound lanes	No
6. Isabel Ramp/Stanley	2010+P	Yes	Overlap signal phase	No
7. Isabel/Stanley Ramp	2010+P	Yes	Overlap signal phase	No
19. Jack London/Hagemann	2010+P	Yes	Signalize intersection	No
2025 Scenario using Tri Valley Model				
4. Isabel/Jack London	2025	Yes	None	Yes
10. Isabel/Concannon	2025	Yes	Add SBT, restripe WB lanes with Overlap signal phase	Yes
3. Isabel/Airway	2025	Yes	Add SBLT, EBRT and Overlap Signal Phase	No
7. Isabel Ramp/Stanley	2025	Yes	Add NBT, WBR and Overlap Signal Phase	No
19. Jack London/Hagemann	2025	Yes	Signalize intersection	No

Intersection	Project Scenario	Project Impact	Mitigation Measure	Significant after Mitigation
4. Isabel/Jack London	2025+P	Yes	None	Yes
4. Isabel/Jack London (Right in/out access)	2025+P	Yes	Add full access on Isabel	Yes
4. Isabel/Jack London (No Isabel access)	2025+P	Yes	Add full access on Isabel	Yes
7. Isabel Ramp/Stanley	2025+P	Yes	Add NBT, WBR and Overlap Signal Phase	Yes
10. Isabel/Concannon	2025+P	Yes	Add SBT, restripe WB lanes with Overlap signal phase	Yes
3. Isabel/Airway	2025+P	Yes	Add SBLT, EBRT and Overlap Signal Phase	No
5. Murrieta/Jack London/Pine	2025+P	Yes	Restripe northbound lanes	No
19. Jack London/Hagemann	2025+ P	Yes	Signalized intersection	No

"E" and "P" denotes Existing and Project Conditions, respectively.

EVALUATION OF PROJECT ACCESS ON ISABEL AVENUE

The analysis reveals that an alternate project access on Isabel Avenue is needed under all scenarios. With a full, signalized project intersection on Isabel Avenue the intersection of Isabel Avenue/Jack London Boulevard is anticipated to operate acceptably during the peak hours under the Existing plus Project and Year 2010 plus Project Conditions. However, the new project intersection on Isabel Avenue will not accommodate the full project until after completion of planned Isabel Avenue improvements, as described in the following section. Under Year 2025 conditions, the intersection of Isabel Avenue/Jack London Boulevard would require the same lane additions under the No Project scenario and plus Project scenario with full access on Isabel Avenue. However, in both cases, the impacts would not be mitigated to acceptable levels. The new intersection on Isabel Avenue is expected to operate acceptably.

The right in and out access alternative on Isabel Avenue to serve the project would require improvements at the intersection of Isabel Avenue/Jack London Boulevard under all of the project scenarios, while the alternative with a new access intersection on Isabel Avenue is expected to operate acceptably. Similar to the full access alternative, under Year 2025, the intersection of Isabel Avenue/Jack London Boulevard would require the same lane additions under the No Project scenario and plus Project scenario with right in and out access on Isabel Avenue. Again, the impacts would not be mitigated to acceptable levels of service.

INTERSECTION ANALYSIS SUMMARY—EXISTING PLUS PROJECT

The project trips were added to the existing traffic to evaluate the impacts of the proposed project. The Existing plus Project peak hour turning movement volumes are shown on

Figure 3.3-8. The results of the LOS analysis are summarized in **Table 3.3-6**, and the detailed calculations are provided in the Traffic Study of the Technical Appendix.

The lane pattern for the intersection of Kitty Hawk and Airway Boulevard was taken from the recommendations contained in the *State Route 84 PSR Traffic Operations Report,* draft final report prepared by Dowling Associates, Inc. on April 8, 2002.

With the addition of project traffic, the intersections of Isabel Ramp/Stanley Boulevard and Murrieta Boulevard/Jack London Boulevard/Pine Street are expected to deteriorate to unacceptable service levels. This intersection at Isabel Ramp/Stanley Boulevard can be mitigated to acceptable level of service by adding the northbound overlap phasing. The intersection at Murrieta Boulevard/Jack London Boulevard/Pine Street can be mitigated to acceptable levels of service by restriping the northbound thru lane to a northbound left and thru shared lane.

Under this scenario, full access on Isabel Avenue would result in acceptable service levels at the Isabel Avenue/Jack London Boulevard intersection. However, at the Isabel Avenue Project access, the p.m. v/c ratio is 0.89, above the City's threshold of 0.85. This will improve to an acceptable 0.69 (LOS B) when Isabel is widened to four lanes. In the meantime, conditions at this intersection can be improved to an acceptable 0.85 level by constructing no more than 90 percent of the project. With right turn in/out access or no access on Isabel Avenue, the intersection of Isabel Avenue/Jack London Boulevard would need to be mitigated. See Appendix for LOS calculation sheet.

Under this scenario the proposed project would not be fully developed and is not anticipated to be completed until after 2010. Therefore, the mitigation measures outlined would likely not be needed. However, a mitigation measure to reduce the project level to a maximum of 90 percent of full build out until four lanes are available is included to ensure that the level of service threshold is not violated under any circumstances. This scenario is used to demonstrate the impacts of full project build out under current roadway conditions without the new Isabel Avenue interchange. The new I-580 interchange at Isabel Avenue is fully funded and is expected to be open to traffic by about 2010.

With the addition of project traffic, the intersection of Jack London Boulevard and Hagemann Drive operates at unacceptable levels and requires signalization. The intersection meets peak hour signal warrants. The warrant sheet is included in the Technical Appendix.

TABLE 3.3-6
INTERSECTION LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Intersection	Existing				Existing plus Project Full Access on Isabel Avenue				Change in v/c	
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour	p.m. Peak Hour
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
1. Airway Blvd./I-580 WB Ramps	0.31	A	0.31	A	0.34	A	0.31	A	0.03	0.00
2. Airway Blvd./I-580 EB Ramps	0.60	A	0.52	A	0.80	C	0.63	B	0.20	0.11
3. Isabel Ave./Airway Blvd. – existing alignment	0.53	A	0.40	A	0.61	B	0.52	A	0.08	0.12
4. Isabel Ave./Jack London Blvd.	0.41	A	0.34	A	0.66	B	0.73	C	0.25	0.39
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.68	B	0.36	A	0.92	E	0.68	B	0.24	0.32
-Mitigated: Restripe NB lanes	–	–	–	–	0.85	D	0.63	B	0.17	0.27
6. Isabel Ramp/Stanley Blvd.	0.66	B	0.65	B	0.68	B	0.86	D	0.02	0.21
-Mitigated: Add NBRT Overlap	–	–	–	–	0.68	B	0.84	D	0.02	0.19
7. Isabel Ave./Stanley Ramp	0.35	A	0.36	A	0.84	D	0.62	B	0.49	0.26
8. Isabel Ave./Vineyard Ave.	0.46	A	0.46	A	0.51	A	0.52	A	0.05	0.06
9. Isabel Ave./Vallecitos Rd.	0.81	D	0.88	D	0.82	D	0.88	D	0.01	0.00
10. Isabel Ave./Concannon Blvd.	0.62	B	0.64	B	0.67	B	0.76	C	0.05	0.12
11. Isabel Ave./Discovery Dr.	–	–	–	–	0.75	C	0.89	D	–	–
15. Stanley Blvd./Murdell Ln.	0.67	B	0.73	C	0.74	C	0.80	C	0.07	0.07
16. Stanley Blvd./Wall St.	0.60	A	0.75	C	0.66	B	0.81	D	0.06	0.06
17. Stanley Blvd./Murietta Blvd.	0.76	C	0.71	C	0.82	D	0.76	C	0.06	0.05
18. Holmes St./Concannon Blvd.	0.67	B	0.77	C	0.72	C	0.82	D	0.05	0.05

Intersection	Existing				Existing plus Project				Change in v/c	
	Full Access on Isabel Avenue									
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour	p.m. Peak Hour
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
19. Jack London Blvd./Hagemann Dr.[1]	6.1	B	1.6	A	57.0	F	4.9	A	50.9	3.3
	22.2	(D)	(11.0)	(C)	>120	F	54.6	F	>120	43.6
-Mitigated: Signalized	–	–	–	–	0.53	A	0.48	A	0.13	0.12
	Right In / Right Out on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.41	A	0.34	A	0.87	D	0.61	B	0.46	0.27
	No Access on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.41	A	0.34	A	1.01	F	0.89	D	0.60	0.55

[1]X.X (X.X) = Overall intersection delay or LOS (Minor Movements Delay or LOS)

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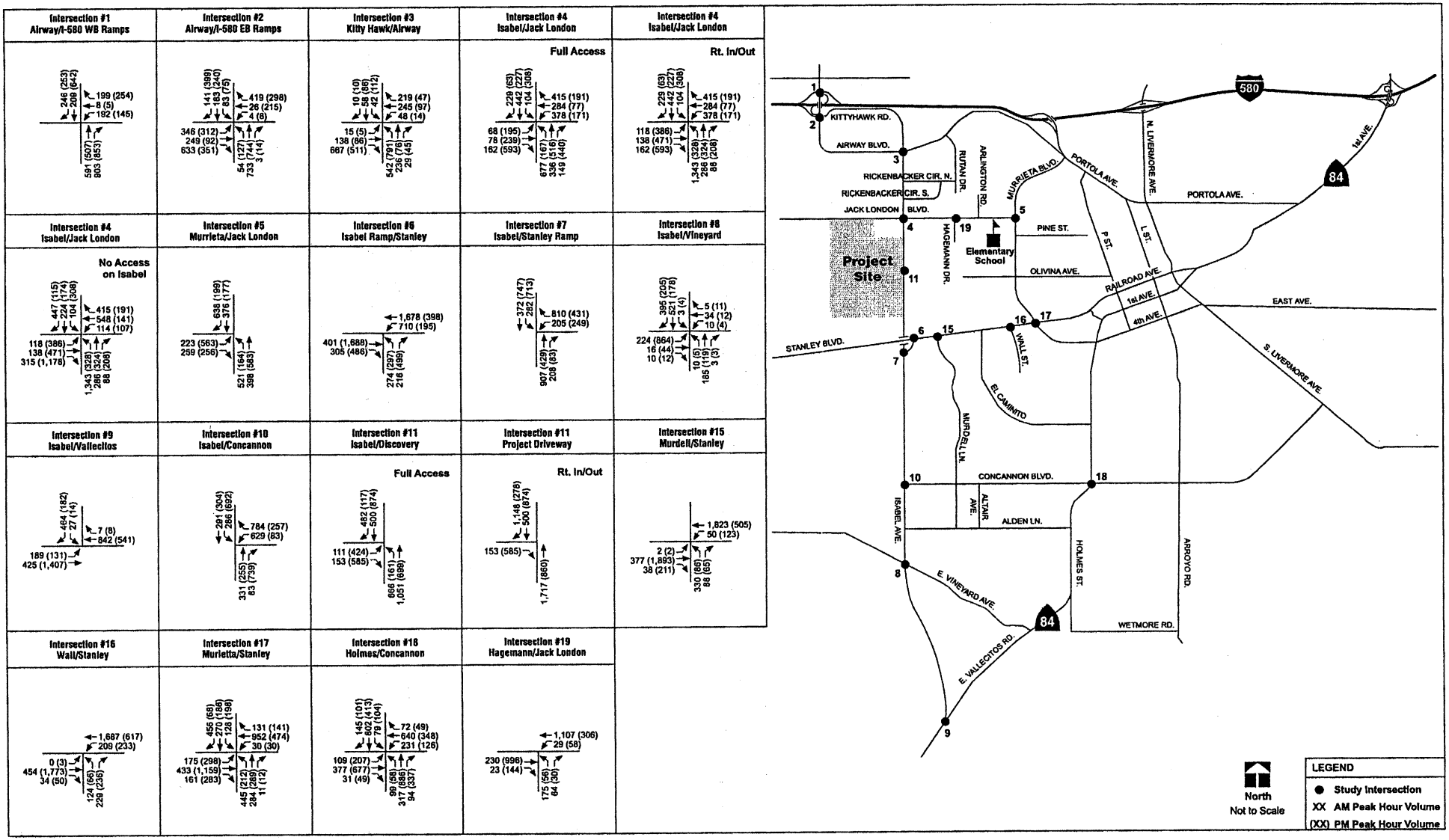

City of Livermore
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Existing + Project Turning Movement Volumes

Figure
3.3-8

89-255 - 6/30/03 - PL

INTERSECTION ANALYSIS SUMMARY - YEAR 2010 CONDITIONS

Under this scenario, Isabel Avenue between Vallecitos Road and I-580 was evaluated with four lanes (two lanes in each direction). The Jack London Boulevard/Stoneridge Drive extension to the west is not constructed.

To develop Year 2010 peak hour turning movement volumes, a growth rate of two percent per year was applied at the existing (2001 measured) study intersections. This rate was developed by the traffic consultant based on reviews of forecasted traffic volumes and recent traffic growth rates. The growth rate was approved by the City traffic engineering staff. These adjustments resulted in higher than existing traffic volumes on Isabel Avenue. The Tri-Valley Transportation Model was used to develop turning movement volumes at the new intersections, and to determine the shift in traffic from the Airway Boulevard interchange to the new Isabel Avenue interchange.

Under the Year 2010 plus Project conditions, project traffic was assigned to the roadway network using the same distribution as the Existing plus Project scenario.

Intersection Level of Service Analysis

Without the Proposed Project

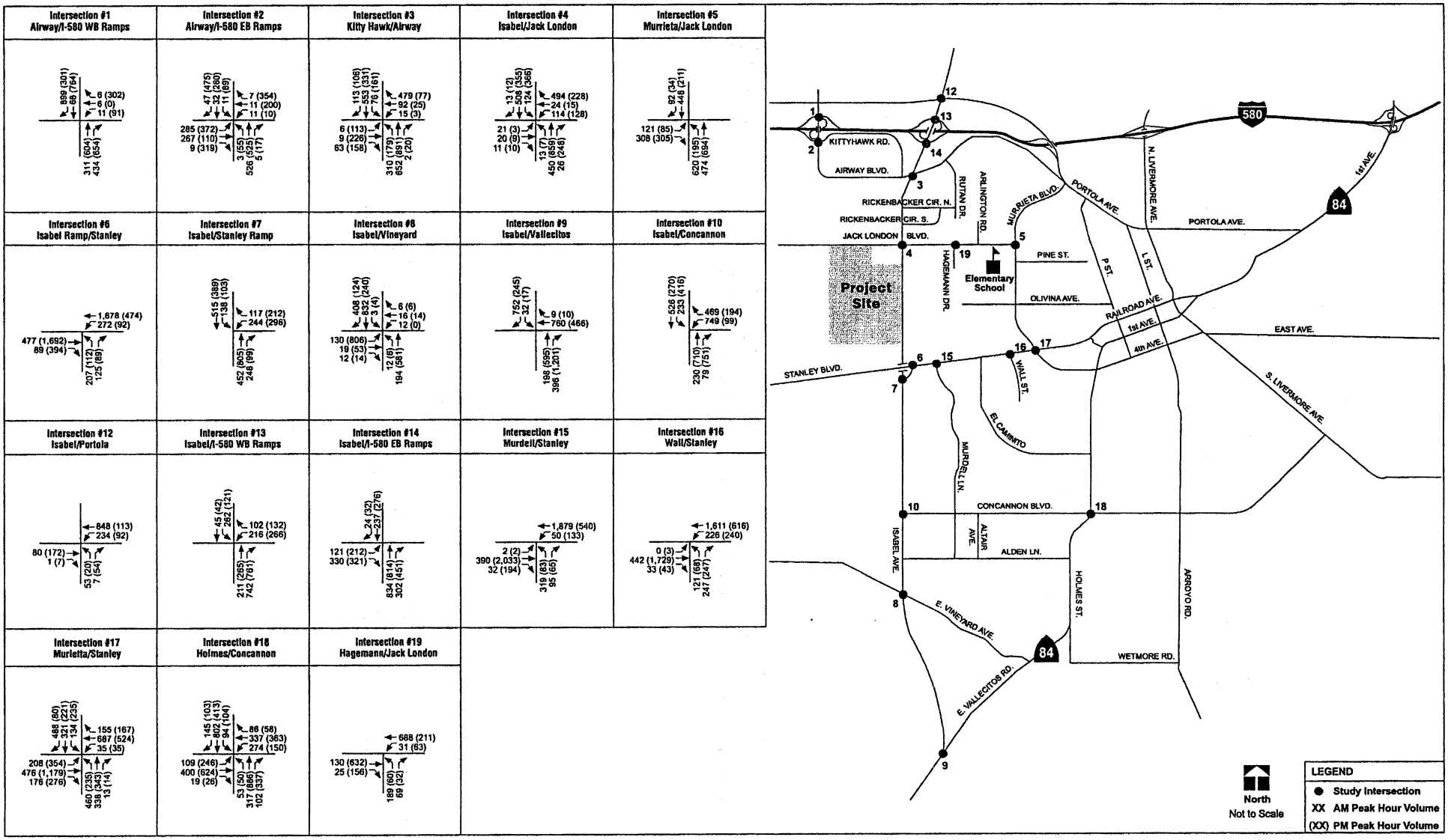
Without the proposed project, all of the study intersections are expected to operate acceptably at LOS D with v/c ratios at 0.85 or better. **Figure 3.3-9** shows the turning movement volumes under this scenario. The results of the LOS analysis are summarized in **Table 3.3-7** and detailed calculations are provided in the Technical Appendix.

TABLE 3.3-7

INTERSECTION LEVELS OF SERVICE - YEAR 2010 CONDITIONS WITHOUT PROJECT

Intersection	a.m. Peak Hour		p.m. Peak Hour	
	v/c	LOS	v/c	LOS
1. Airway Blvd./I-580 WB Ramps	0.20	A	0.35	A
2. Airway Blvd./I-580 EB Ramps	0.43	A	0.59	A
3. Isabel Ave./Airway Blvd. – new alignment	0.67	B	0.59	A
4. Isabel Ave./Jack London Blvd.	0.51	A	0.52	A
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.77	C	0.41	A
6. Isabel Ramp/Stanley Blvd	0.66	B	0.66	B
7. Isabel Ave./Stanley Ramp	0.43	A	0.55	A
8. Isabel Ave./Vineyard Ave.	0.65	B	0.74	C
9. Isabel Ave./Vallecitos Rd.	0.57	A	0.44	A
10. Isabel Ave./Concannon Blvd.	0.71	C	0.68	B
12. Isabel Ave./Portola Ave.	0.38	A	0.29	A
13. Isabel Ave./I-580 WB Ramps	0.45	A	0.41	A
14. Isabel Ave./I-580 EB Ramps	0.43	A	0.42	A
15. Stanley Blvd./Murdell Ln.	0.75	C	0.65	B
16. Stanley Blvd./Wall St.	0.64	B	0.80	C
17. Stanley Blvd./Murietta Blvd.	0.80	C	0.81	D
18. Holmes St./Concannon Blvd.	0.70	B	0.81	D
Unsignalized Intersection	**a.m. Peak Hour**		**p.m. Peak Hour**	
	Delay, seconds	**LOS**	**Delay, seconds**	**LOS**
19. Jack London Blvd./Hagemann Dr.	12.5 (49.0)	C (F)	2.1 (15.5)	A (C)

Overall intersection delay or LOS; (Minor movement delay) or (LOS).



City of Livermore
Oaks Business Park

Year 2010 (No Project) Turning Movement Volumes

Figure 3.3-9

89-255 - 5/7/03 - PL

With the Proposed Project

With the addition of project traffic, 14 of the 19 study intersections are expected to continue to operate acceptably. The intersections of 4) Isabel Avenue/Jack London Boulevard, 5 Murrieta Boulevard/Jack London Boulevard/Pine Street, 6) Isabel Ramp/Stanley Boulevard, 7) Isabel Avenue/Stanley Boulevard, 19) Jack London Boulevard/Hagemann Drive would deteriorate to unacceptable service levels. See page 3.3-89 for a discussion of mitigation requirements to improve the levels of service at the deficient intersections.

With the full access alternative on Isabel Avenue in conjunction with eastbound right turn overlap phasing, the levels of service would be acceptable at the new full access intersection and at Isabel Avenue/Jack London Boulevard. This assumes there are two northbound and two southbound through lanes at the project intersection on Isabel. The City of Livermore is scheduled to construct these lanes by 2010. The results of the LOS analysis are summarized in **Table 3.3-8** and detailed calculations are provided in the Traffic Study of the Technical Appendix.

This 2010 scenario assumes a fully developed project by Year 2010, although a full project will not be completely built by then. A discussion of mitigation requirements to improve the levels of service at the deficient intersections without and with the (full) project begins on page 3.3-96. **Figure 3.3-11** illustrates the base lane configurations for Year 2010 conditions.

TABLE 3.3-8
INTERSECTION LEVEL OF SERVICE - YEAR 2010 PLUS PROJECT CONDITIONS

Intersection	Year 2010 – No Project				Year 2010 plus Project Full Access on Isabel Avenue				Change in v/c	
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak	p.m. Peak
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
1. Airway Blvd./I-580 WB Ramps	0.20	A	0.35	A	0.20	A	0.35	A	0.00	0.00
2. Airway Blvd./I-580 EB Ramps	0.43	A	0.59	A	0.43	A	0.61	B	0.00	0.02
3. Isabel Ave./Airway Blvd. – new alignment	0.67	B	0.59	A	0.84	D	0.69	B	0.17	0.10
4. Isabel Ave./Jack London Blvd.	0.51	A	0.52	A	0.82	D	0.86	D	0.31	0.34
-Mitigated: Add EBRT Overlap	–	-	-	-	0.82	D	0.84	D	0.31	0.32
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.77	C	0.41	A	0.92	E	0.68	B	0.15	0.27
-Mitigated: Change NBT to NB thru and Left Shared	–	–	–	–	0.83	D	0.65	B	0.06	0.24
6. Isabel Ramp/Stanley Blvd. East	0.66	B	0.66	B	0.67	B	0.86	D	0.01	0.20
-Mitigated: Add NBRT Overlap	–	–	–	–	0.67	B	0.84	D	0.01	0.18
7. Isabel Ave./Stanley Ramp	0.43	A	0.55	A	0.88	D	0.80	C	0.45	0.25
-Mitigated: Add WBRT Overlap	–	–	–	–	0.85	D	0.80	C	0.42	0.25
8. Isabel Ave./Vineyard Ave.	0.65	B	0.74	C	0.71	C	0.77	C	0.06	0.03
9. Isabel Ave./Vallecitos Rd.	0.57	A	0.44	A	0.58	A	0.45	A	0.01	0.01
10. Isabel Ave./Concannon Blvd.	0.71	C	0.68	B	0.80	C	0.79	C	0.09	0.11
11. Isabel Ave./Discovery Dr.	–	–	–	–	0.60	A	0.75	C	–	–
12. Isabel Ave./Portola Ave.	0.38	A	0.29	A	0.39	A	0.29	A	0.01	0.00
13. Isabel Ave./I-580 WB Ramps	0.45	A	0.41	A	0.62	B	0.43	A	0.17	0.02
14. Isabel Ave./I-580 EB Ramps	0.43	A	0.42	A	0.60	A	0.52	A	0.17	0.10
15. Stanley Blvd./Murdell Ln.	0.75	C	0.65	B	0.82	D	0.69	B	0.07	0.04
16. Stanley Blvd./Wall St.	0.64	B	0.80	C	0.65	B	0.84	D	0.01	0.04
17. Stanley Blvd./Murietta Blvd.	0.80	C	0.81	D	0.84	D	0.85	D	0.04	0.04

Intersection*	Year 2010 – No Project				Year 2010 plus Project				Change in v/c	
					Full Access on Isabel Avenue					
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak	p.m. Peak
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
18. Holmes St./Concannon Blvd.	0.70	B	0.81	D	0.73	C	0.85	D	0.03	0.04
19. Jack London Blvd./Hagemann Dr.*	12.5	C	2.1	A	59.3	F	9.4	B	46.8	7.3
	(49.0)	(C)	(15.5)	(A)	(>120)	F	(105.9)	F	>120	90.4
-Mitigated: Signalized	–	–	–	–	0.51	A	0.52	A	–	–
	Right In / Right Out on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.51	A	0.52	A	0.93	E	0.79	C	0.42	0.27
	No Access on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.51	A	0.52	A	1.02	F	1.03	D	0.51	0.51

*X.X (X.X) = Overall intersection delay or LOS (Minor Movements Delay or LOS)

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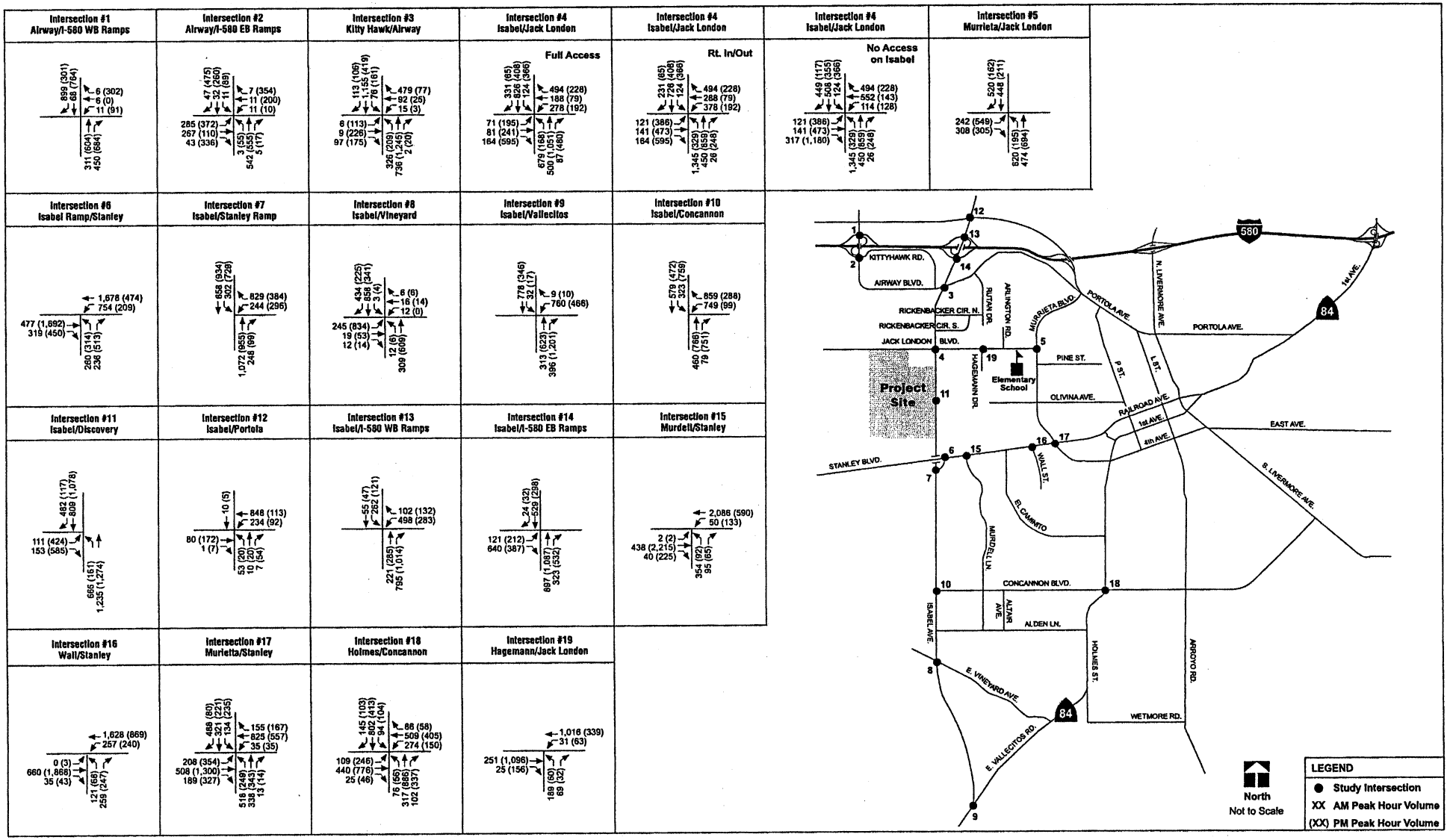
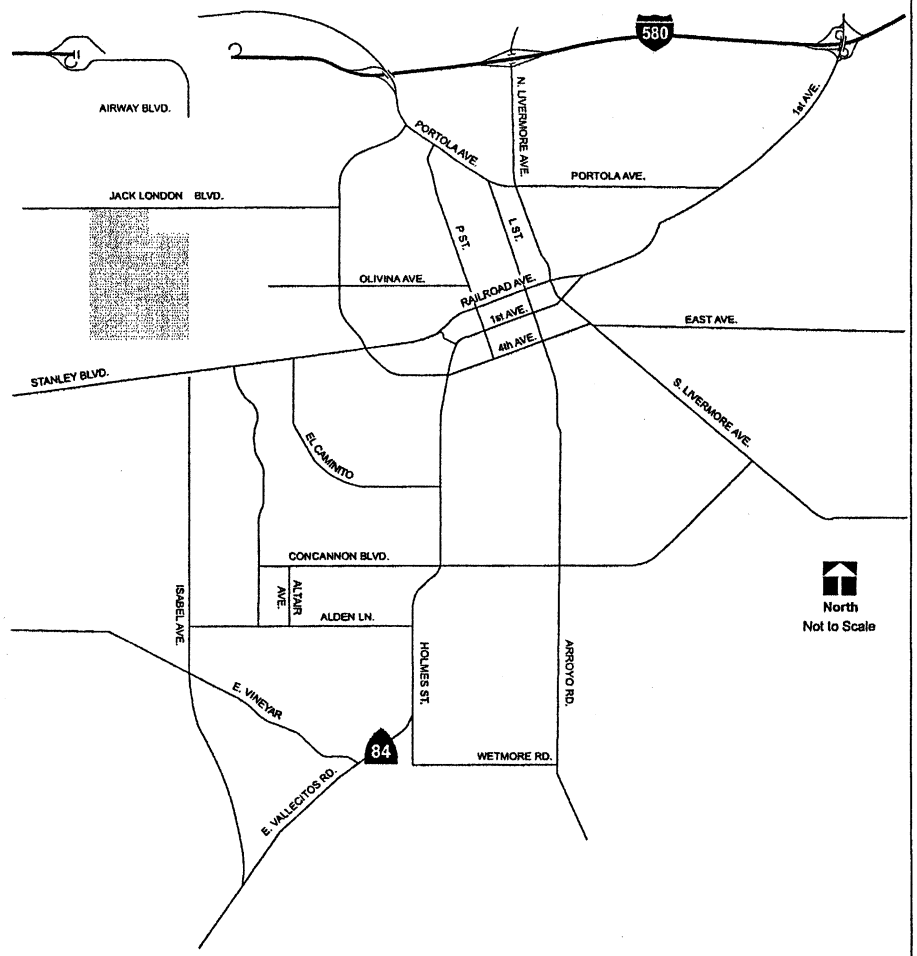


City of Livermore
Oaks Business Park

Year 2010 + Project Turning Movement Volumes

Figure
3.3-10

89-255 - 6/30/03 - PL



City of Livermore
Oaks Business Park

Year 2010 Lane Configurations

Figure
3.3-11

TJKM

89-255 - 6/30/03 - SL

INTERSECTION ANALYSIS SUMMARY—YEAR 2025 CUMULATIVE CONDITIONS (TRI-VALLEY MODEL)

Under this scenario, Isabel Avenue was evaluated as a six-lane roadway between Stanley Boulevard and I-580 (three lanes in each direction). South of Stanley Boulevard to Vallecitos Road, Isabel Avenue was evaluated with four lanes (two in each direction). Isabel Avenue, between I-580 and Vallecitos Road, is expected to be designated as part of Highway 84. The Stoneridge Drive/West Jack London Boulevard extension between Pleasanton and Livermore is assumed to be built.

In addition, the future design for the Stanley-Isabel interchange is not assumed to be built (intersection nos. 6 and 7). It would consist of an intersection on Stanley Boulevard with a connector ramp on the east side of Isabel Avenue, and an intersection on Stanley Boulevard with a connector ramp on the west side of Isabel Avenue. This future design would allow right turns to and from northbound and southbound Isabel Avenue and divide traffic between two intersections on Stanley Boulevard. This could be considered as a possible mitigation measure.

The Tri-Valley Transportation Model without the North Livermore Specific Plan was used to develop the peak hour turning movement volumes without the proposed project. Project volumes developed in the earlier scenarios were added to the 2025 volumes, with adjustments to account for the additions to the 2025 network. The 2025 lane geometry at the study intersections assumed in the model was utilized for this future scenario.

Intersection Level of Service Analysis

Without the Proposed Project

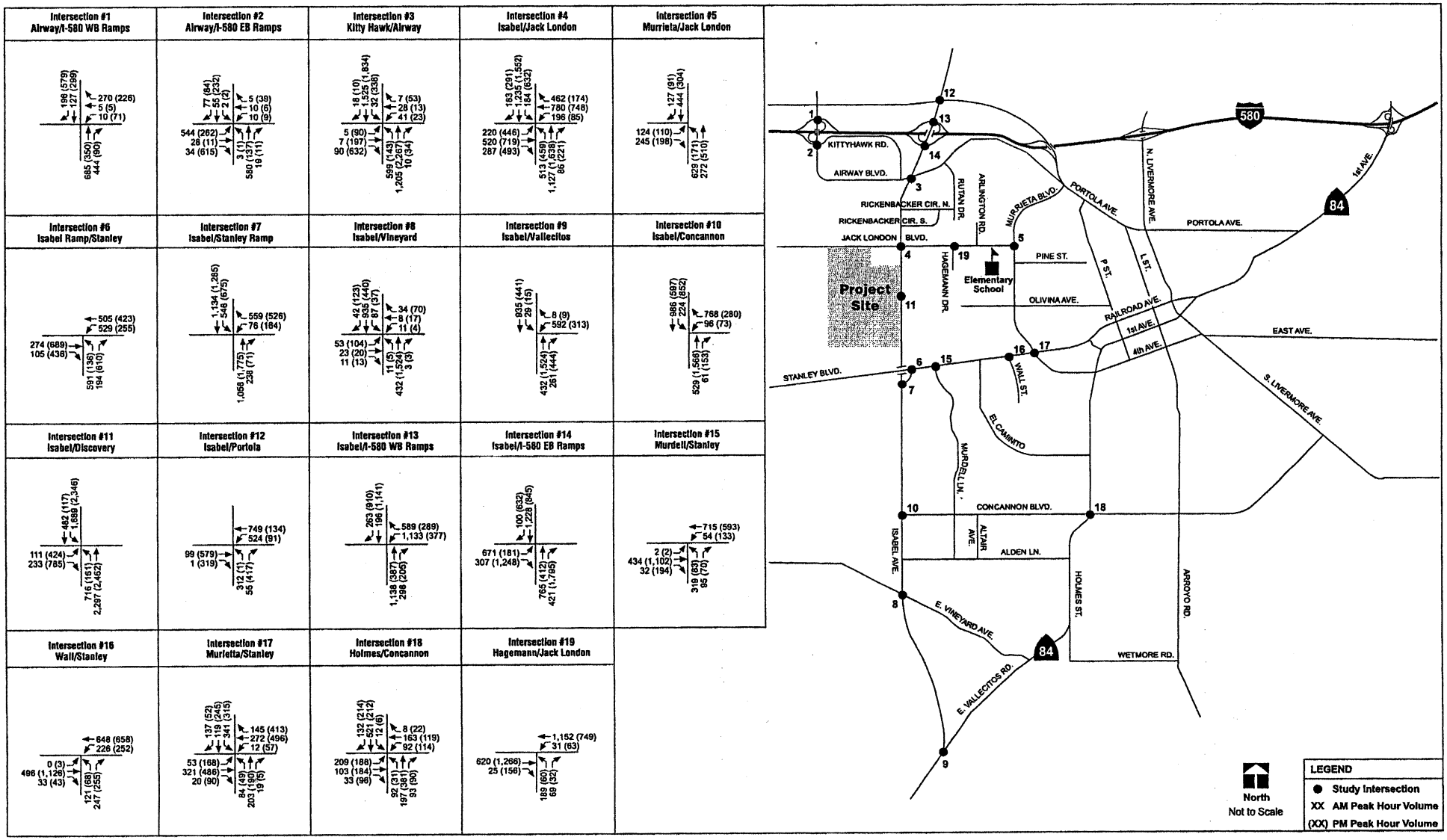
Without the proposed project, 14 of the 19 study intersections are expected to operate acceptably at LOS D with v/c ratios equal to or less than 0.85. The intersections of 3) Isabel Avenue/Airway Boulevard, 4) Isabel Avenue/Jack London Boulevard, 7) Isabel /Stanley Ramp, 10) Isabel Avenue/Concannon, and 19) Jack London Boulevard/Hagemann Drive are expected to operate unacceptably under this scenario.

Figure 3.3-12 shows the turning movement volumes under this scenario. The results of the LOS analysis are summarized in **Table 3.3-9** and detailed calculations are provided in the Technical Appendix of this document.

TABLE 3.3-9
INTERSECTION LEVELS OF SERVICE - YEAR 2025 WITHOUT PROJECT (TRI-VALLEY MODEL)

Intersection	a.m. Peak Hour		p.m. Peak Hour	
	v/c	LOS	v/c	LOS
1. Airway Blvd./I-580 WB Ramps	0.36	A	0.25	A
2. Airway Blvd./I-580 EB Ramps	0.47	A	0.50	A
3. Isabel Ave./Airway Blvd. – new alignment	0.63	B	0.98	E
4. Isabel Ave./Jack London Blvd.	0.81	D	0.92	E
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.80	C	0.40	A
6. Isabel Ramp/Stanley Blvd. East	0.56	A	0.54	A
7. Isabel Ave./Stanley Ramp	0.79	C	0.92	E
8. Isabel Ave./Vineyard Ave.	0.41	A	0.62	B
9. Isabel Ave./Vallecitos Rd.	0.57	A	0.66	B
10. Isabel Ave./Concannon	0.86	D	0.86	D
12. Isabel Ave./Portola Ave.	0.42	A	0.40	A
13. Isabel Ave./I-580 WB Ramps	0.70	B	0.45	A
14. Isabel Ave./I-580 EB Ramps	0.56	A	0.66	B
15. Stanley Blvd./Murdell Ln.	0.42	A	0.45	A
16. Stanley Blvd./Wall St.	0.46	A	0.63	B
17. Stanley Blvd./Murietta Blvd.	0.39	A	0.56	A
18. Holmes St./Concannon Blvd.	0.53	A	0.40	A
Unsignalized Intersection	**a.m. Peak Hour**		**p.m. Peak Hour**	
	Delay	**LOS**	**v/c**	**LOS**
19. Jack London Blvd./Hagemann Dr.	>120 (>120)	F (F)	33.9 (>120)	E (F)
- Mitigated: Signalized	0.55	A	0.57	A

The City of Livermore recently received a draft report *State Route 84 PSR Traffic Operations Report*, April 8, 2002, by Dowling Associates, which is developing recommendations for lanes needed on Isabel Avenue in the study area. The report notes, in effect, that forecasted traffic volumes along the Isabel Avenue corridor exceed the planned capacity of the roadway system. The report notes that Isabel needs to have more than the four lanes planned south of Stanley and more than the six lanes planned for north of Stanley for key intersections to operate satisfactorily. However, this study analyzed the ultimate expressway concept for Route 84 including 4 lanes on Vallecitos Road between Isabel Avenue and I-680, which is currently an unfunded project with an estimated cost of over $100 million. The study also assumed development in North Livermore, as it was prepared prior to adoption of the North Livermore Urban Growth Boundary Initiative. A separate environmental assessment of the ultimate Route 84 expressway will be required.



City of Livermore
Oaks Business Park

Year 2025 (No Project) Turning Movement Volumes – Tri Valley Model

Figure
3.3-12

89-255 - 5/30/03 - PL

With the Proposed Project

With the addition of project traffic, 13 of the 19 study intersections would operate acceptably, while six study intersections would operate unacceptably. The intersections of 3) Isabel Avenue/Airway Boulevard, 4) Isabel Avenue/Jack London Boulevard, 5) Murrieta Boulevard/Jack London Boulevard/Pine Street, 7) Isabel Ramp/Stanley Boulevard west, 10) Isabel Avenue/Concannon, and 19) Jack London Boulevard/Hagelmann Drive are expected to operate unacceptably with the addition of project traffic. See page 3.3-91 for a discussion of mitigation requirements to improve the levels of service at the deficient intersections.

The proposed project is results in the need for further mitigation at one additional study intersection operating at unacceptable levels in 2025 compared to without the project. This intersection, 5)Murrieta Boulevard/Jack London Boulevard/Pine Street, can be mitigated with the same improvements needed for 2010, minor restriping.

Figure 3.3-13 shows the turning movement volumes under this scenario. The results of the LOS analysis are summarized in **Table 3.3-10** and detailed calculations are provided in the Technical Appendix. Under this scenario, changes in traffic volumes and volume-to-capacity ratios are possible because the model reassigns some traffic due to the addition of the Jack London Boulevard extension to Pleasanton. **Figure 3.3-14** illustrates the base lane configurations and the proposed mitigation measures for Year 2025. The configurations are based on preliminary planning for the widening of the Isabel corridor. The configuration of these intersections will be revisited as the design of the corridor continues. As noted above, the corridor has higher traffic volumes forecasted (with or without the project) than the planned capacity will accommodate.

TABLE 3.3-10
INTERSECTION LEVEL OF SERVICE - YEAR 2025 CUMULATIVE PLUS PROJECT CONDITIONS (TRI VALLEY MODEL)

Intersection	Year 2025 – No Project				Year 2025 plus Project Full Access on Isabel Avenue				Change in v/c	
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak	p.m. Peak
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
1. Airway Blvd./I-580 WB Ramps	0.36	A	0.25	A	0.36	A	0.25	A	0.00	0.00
2. Airway Blvd./I-580 EB Ramps	0.47	A	0.50	A	0.48	A	0.59	A	0.01	0.09
3. Isabel Ave./Airway Blvd. – new alignment	0.63	B	0.98	E	0.74	C	1.06	F	0.09	0.08
-Mitigated: Add SBLT and EBRT with Overlap	0.66	B	0.85	D	0.74	C	0.85	D	0.09	-0.13
4. Isabel Ave./Jack London Blvd.	0.81	D	0.92	E	1.04	F	1.11	F	0.23	0.19
5. Murrieta Blvd./Jack London Blvd/Pine St.	0.80	C	0.40	A	0.89	D	0.72	C	0.09	0.32
-Mitigated: Restripe NB lanes	–	–	–	–	0.77	D	0.68	D	-0.03	0.28
6. Isabel Ramp/Stanley Blvd. East	0.56	A	0.54	A	0.74	C	0.71	C	0.18	0.17
7. Isabel Ave./Stanley Ramp	0.79	C	0.92	E	1.33	F	1.15	F	0.51	0.21
-Mitigated: Add NBT and WBR with Overlap	0.54	A	0.77	C	0.83	D	0.92	E	0.13	0.03
8. Isabel Ave./Vineyard Ave.	0.41	A	0.62	B	0.46	A	0.64	B	0.05	0.02
9. Isabel Ave./Vallecitos Rd.	0.57	A	0.66	B	0.58	A	0.66	B	0.01	0.00
10. Isabel Ave./Concannon Blvd.	0.60	A	0.86	D	0.64	A	0.88	D	0.04	0.02
-Mitigated: Add SBT, restripe WB lanes with Overlap	0.73	C	0.85	D	0.76	C	0.87	D	-0.10	0.01
11. Isabel Ave./Discovery Dr.	–	–	–	–	0.70	B	0.83	D	–	–
12. Isabel Ave./Portola Ave.	0.42	A	0.40	A	0.42	A	0.42	A	0.00	0.02
13. Isabel Ave./I-580 WB Ramps	0.70	B	0.45	A	0.70	B	0.46	A	0.00	0.01
14. Isabel Ave./I-580 EB Ramps	0.56	A	0.66	B	0.58	A	0.68	B	0.02	0.02
15. Stanley Blvd./Murdell Ln.	0.42	A	0.45	A	0.49	A	0.49	A	0.07	0.04
16. Stanley Blvd./Wall St.	0.46	A	0.63	B	0.48	A	0.68	B	0.02	0.05

Intersection	Year 2025 – No Project				Year 2025 plus Project				Change in v/c	
					Full Access on Isabel Avenue					
	a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak	p.m. Peak
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS		
17. Stanley Blvd./Murietta Blvd.	0.39	A	0.56	A	0.45	A	0.56	A	0.06	0.00
18. Holmes St./Concannon Blvd.	0.53	A	0.40	A	0.59	A	0.46	A	0.06	0.06
19. Jack London Blvd./Hagemann Dr.*	>120 (>120)	F (F)	33.9 (>120)	E (F)	>120 (>120)	F F	>120 (>120)	F F	-	-
-Mitigated: Signalized	0.55	A	0.57	A	0.70	B	0.71	C	–	–
	Right In / Right Out on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.81	D	0.92	E	1.30	F	1.19	F	0.49	0.27
	No Access on Isabel Avenue									
4. Isabel Ave./Jack London Blvd.	0.81	D	0.92	E	1.44	F	1.20	D	0.63	0.28

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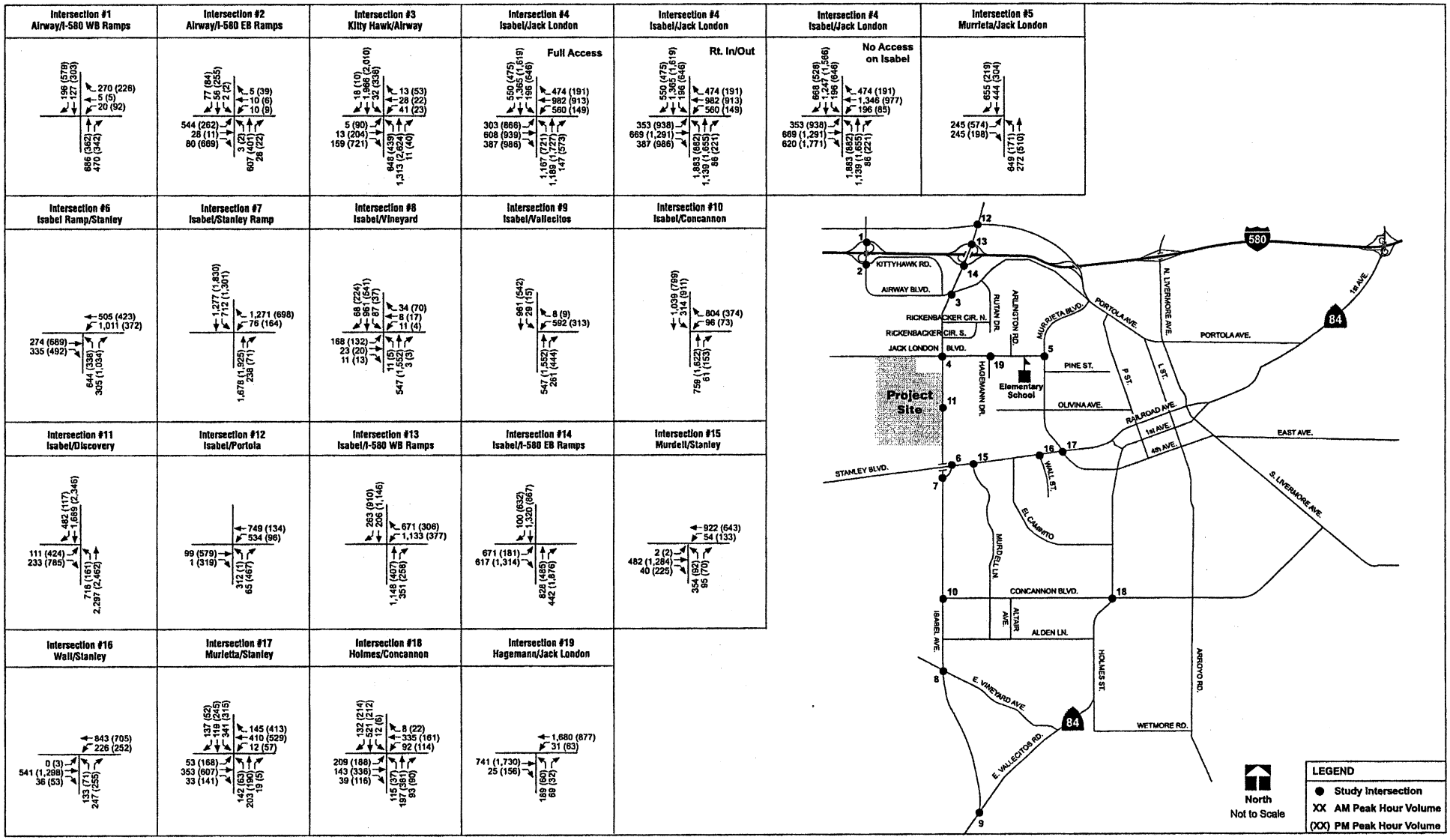
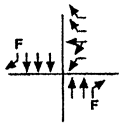
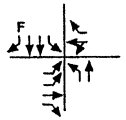
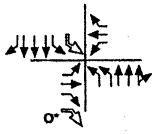
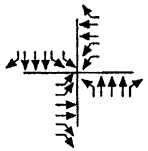
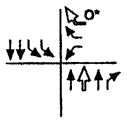
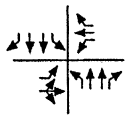
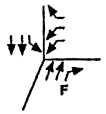
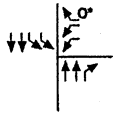
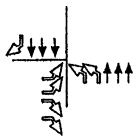
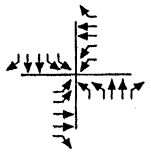
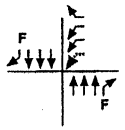
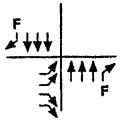
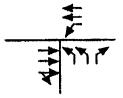
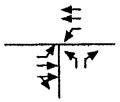
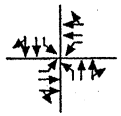
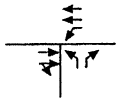


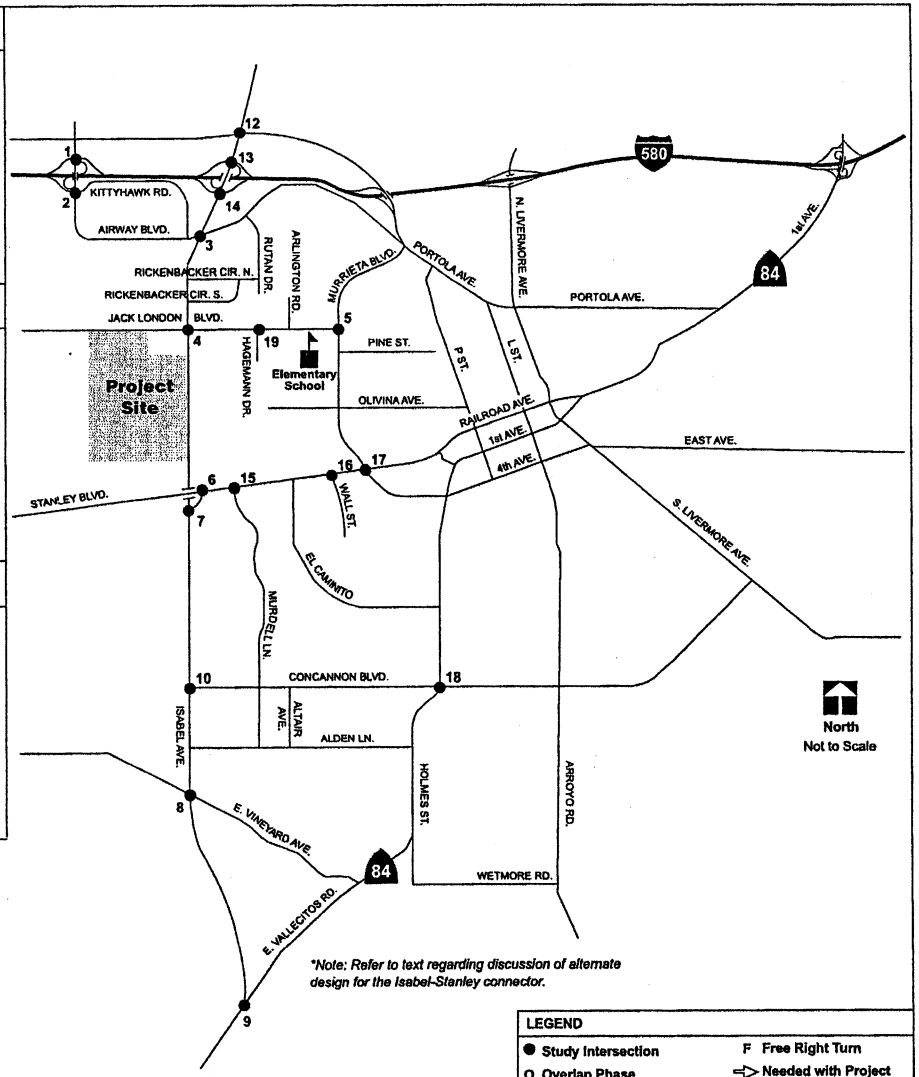
City of Livermore
Oaks Business Park

Year 2025 Plus Project Turning Movement Volumes – Tri Valley Model

Figure
3.3-13

89-255 - 6/30/03 - PL

Intersection #1 Airway/I-580 WB Ramps	Intersection #2 Airway/I-580 EB Ramps	Intersection #3 Kitty Hawk/Airway	Intersection #4 Isabel/Jack London	Intersection #5 Murrieta/Jack London
				
Intersection #6* **Isabel Ramp/Stanley**	**Intersection #7** **Isabel/Stanley Ramp**	**Intersection #8** **Isabel/Vineyard**	**Intersection #9** **Isabel/Vallecitos**	**Intersection #10** **Isabel/Concannon**
				
Intersection #11 **Isabel/Discovery**	**Intersection #12** **Isabel/Portola**	**Intersection #13** **Isabel/I-580 WB Ramps**	**Intersection #14** **Isabel/I-580 EB Ramps**	**Intersection #15** **Murdell/Stanley**
				
Intersection #16 **Wall/Stanley**	**Intersection #17** **Murietta/Stanley**	**Intersection #18** **Holmes/Concannon**	**Intersection #19** **Hagemann/Jack London**	
				



City of Livermore
Oaks Business Park

Year 2025 Lane Configurations

Figure
3.3-14

TJKM

89-255 - 6/30/03 - SL

INTERSECTION ANALYSIS SUMMARY—YEAR 2025 CUMULATIVE CONDITIONS (CITY OF LIVERMORE MODEL)

The City of Livermore is currently in the process of preparing a comprehensive General Plan update. The draft General Plan, Downtown Specific Plan, and associated Environmental Impact Report are available for public review and comment. A series of public hearings will be held between July and October, 2003. The Livermore City Council is expected to consider adoption of the proposed General Plan in October 2003. The proposed General Plan and Downtown Specific Plan include significant land use and transportation network and policy changes from the current General Plan. These changes include:

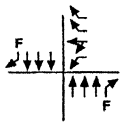
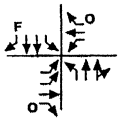
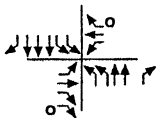
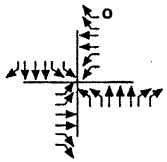
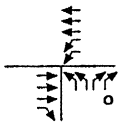
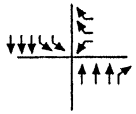
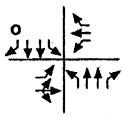
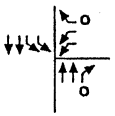
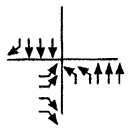
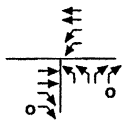
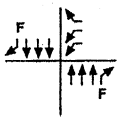
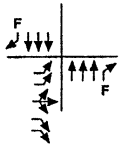
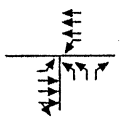
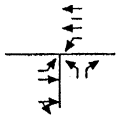
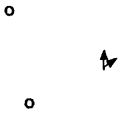
- an intensification of land use downtown;
- higher density residential in-fill development at select locations, primarily in the eastern part of the City;
- a change in level-of-service standards to no standard in the downtown, and LOS E at intersections near I-580 interchanges;
- intersection improvements to accommodate the anticipated traffic levels; and
- a recognition that certain intersections, including the intersections of Isabel/Jack London and Isabel/Airway may not meet level of service standards, because required improvements are infeasible or undesirable.

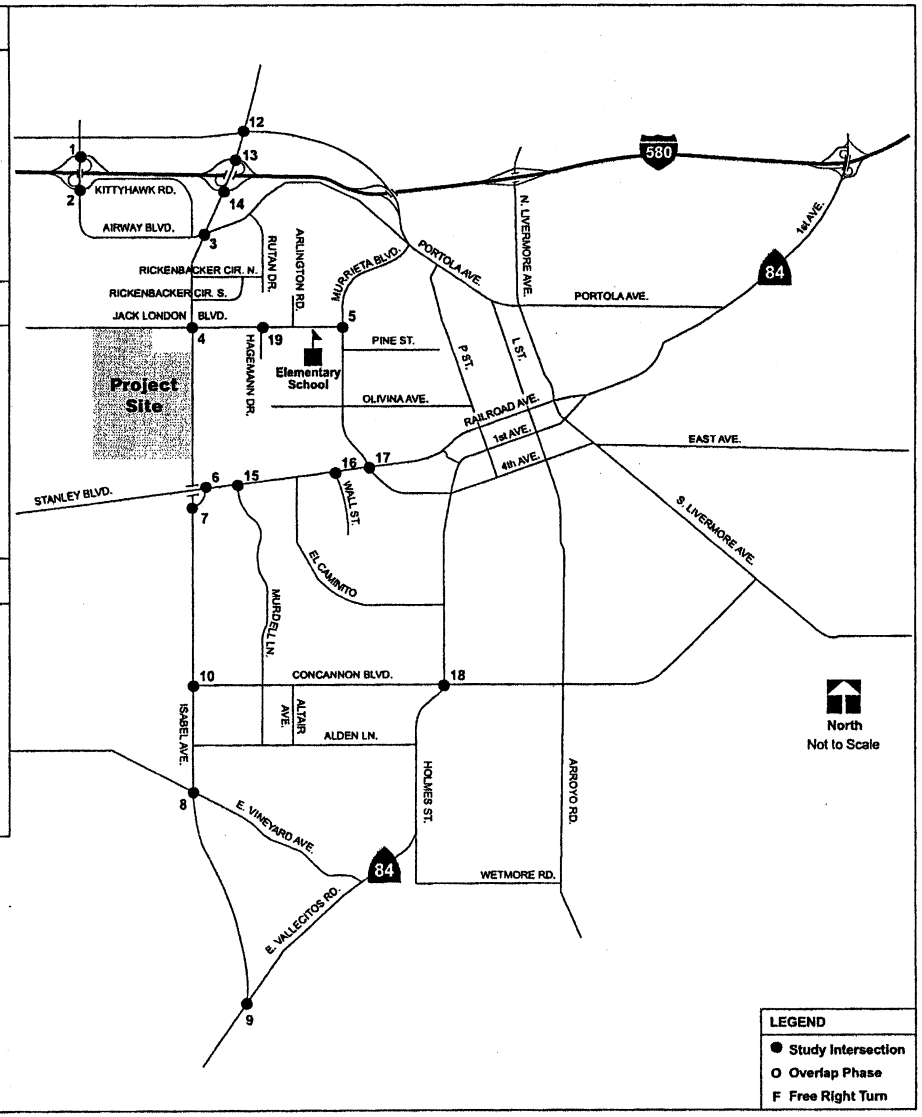
The City of Livermore Transportation Model was used to analyze the proposed General Plan. This model included land use consistent with the Oaks Business Park project. The traffic analysis for the proposed General Plan is included, because of the possibility that the proposed General Plan will be adopted in October 2002. If adopted, the significance of the traffic impacts of the Oaks Business Park will be different than under the current General Plan.

Proposed General Plan Intersection Level of Service Analysis

Based on the City model result, 3 of the 19 study intersections would exceed current LOS Standards of mid-D (delay greater than 45 seconds). The intersections of 2) Airway Boulevard/I-580 EB ramps, 3) Isabel Avenue/Airway Boulevard and 4) Isabel Avenue/Jack London Boulevard are expected to operate unacceptably with the projected traffic, even considering the changes of the LOS standards to E near I-580 interchanges proposed by the General Plan. Intersections at Isabel/Jack London and Isabel/Airway are expected to operate unacceptably. Mitigation of these intersections is considered infeasible or undesirable.

Figure 3.3-15 illustrates the lane configurations from the future General Plan. The results of the LOS analysis are summarized in **Table 3.3-11** and detailed calculations are provided in the Technical Appendix. **Figure 3.3-16** shows the turning movement volumes under this scenario.

Intersection #1 Airway/I-580 WB Ramps	Intersection #2 Airway/I-580 EB Ramps	Intersection #3 Kitty Hawk/Airway	Intersection #4 Isabel/Jack London	Intersection #5 Murrieta/Jack London
				
Intersection #6* **Isabel Ramp/Stanley**	**Intersection #7** **Isabel/Stanley Ramp**	**Intersection #8** **Isabel/Vineyard**	**Intersection #9** **Isabel/Vallecitos**	**Intersection #10** **Isabel/Concannon**
				
Intersection #11 **Isabel/Discovery**	**Intersection #12** **Isabel/Portola**	**Intersection #13** **Isabel/I-580 WB Ramps**	**Intersection #14** **Isabel/I-580 EB Ramps**	**Intersection #15** **Murdell/Stanley**
				
Intersection #16 **Wall/Stanley**	**Intersection #17** **Murietta/Stanley**	**Intersection #18** **Holmes/Concannon**	**Intersection #19** **Hagemann/Jack London**	
				



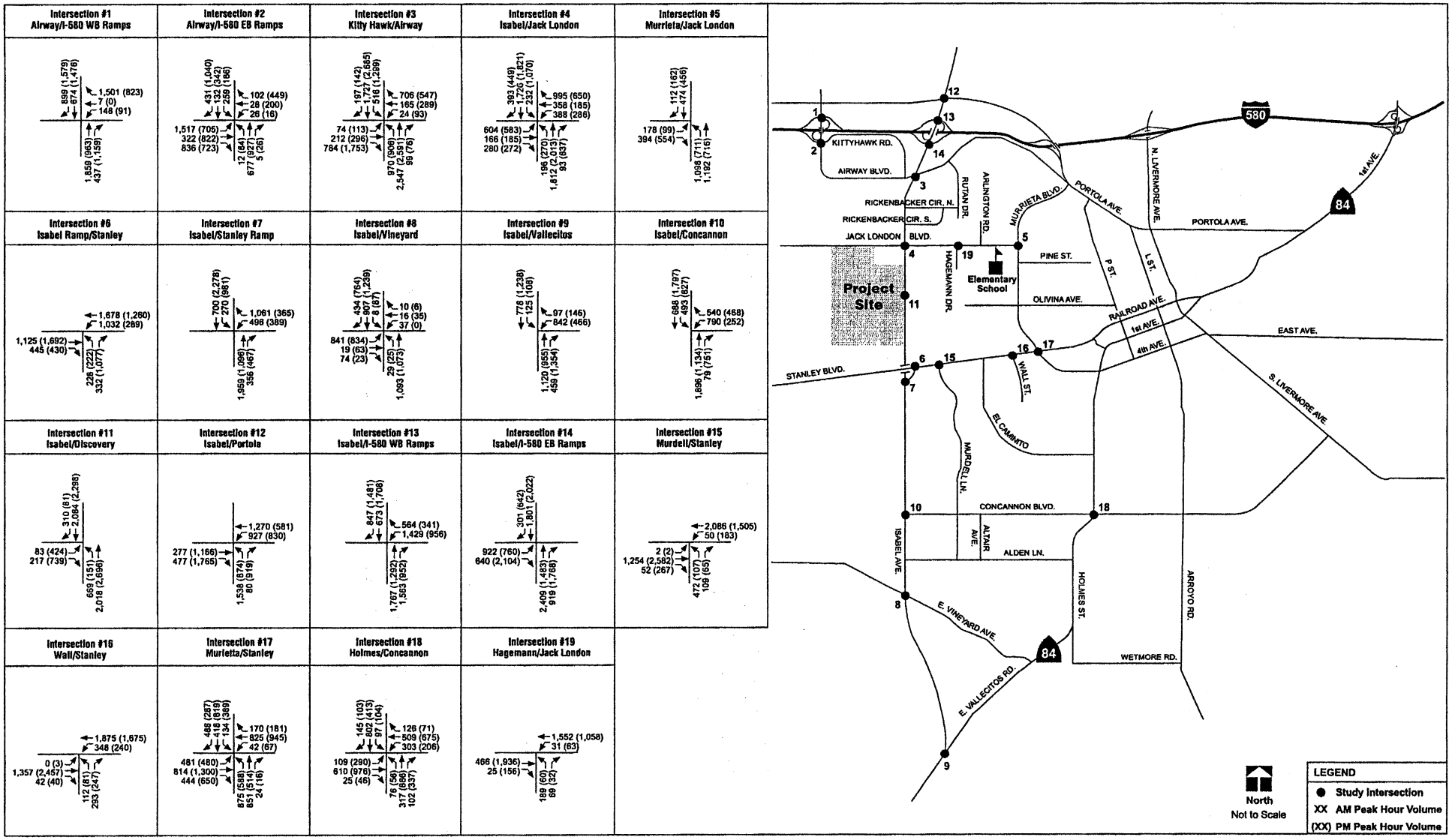
City of Livermore
Oaks Business Park

Year 2025 Lane Configurations - City General Plan Alternative

Figure
3.3-15

TJKM

89-255 - 6/30/03 - SL



City of Livermore
Oaks Business Park

Year 2025 Cumulative Turning Movement Volumes – City of Livermore Model

Figure
3.3-16

89-255 - 6/26/03 - PL

TABLE 3.3-11
INTERSECTION LEVEL OF SERVICE - YEAR 2025 PROPOSED GENERAL PLAN BUILDOUT (CITY OF LIVERMORE MODEL)

Intersection	a.m. Peak Hour		p.m. Peak Hour	
	Average Delay (veh/sec)	LOS*	Average Delay (veh/sec)	LOS*
1. Airway Blvd./I-580 WB Ramps	53.0	D	12.7	B
2. Airway Blvd./I-580 EB Ramps	39.6	D	75.1	E
3. Isabel Ave./Airway Blvd. – new alignment	44.7	D	125.7	F
4. Isabel Ave./Jack London Blvd.	49.5	D	48.8	D
5. Murrieta Blvd./Jack London Blvd/Pine St.	37.0	D	19.1	B
6. Isabel Ramp/Stanley Blvd. East	11.8	B	17.1	B
7. Isabel Ave./Stanley Ramp	30.5	C	21.4	C
8. Isabel Ave./Vineyard Ave.	13.7	B	15.3	B
9. Isabel Ave./Vallecitos Rd.	35.7	D	14.5	B
10. Isabel Ave./Concannon Rd.	42.5	D	18.1	B
11. Isabel Ave./Discovery Drive	14.2	B	20.9	C
12. Isabel Ave./Portola Ave.	13.7	B	13.4	B
13. Isabel Ave./I-580 WB Ramps	10.9	B	8.5	A
14. Isabel Ave./I-580 EB Ramps	7.5	A	14.4	B
15. Stanley Blvd./Murdell Ln.	9.1	A	8.0	A
16. Stanley Blvd./Wall St.	15.7	B	16.9	B
17. Stanley Blvd./Murietta Blvd.	35.7	D	40.9	D
18. Holmes St./Concannon Blvd.	23.3	C	38.8	D
19. Jack London Blvd./Hagemann Dr.	9.1	A	6.6	A

**Highway Capacity Manual 2000 Intersection Level of Service*

DAILY TRAFFIC VOLUMES

Figure 3.3-17 illustrates estimated daily traffic volumes on major streets near the project under all the scenarios described in this report. These volumes were calculated by multiplying the sum of the peak-hour directional link volumes at the locations indicated by a factor of five.

ANALYSIS OF SITE ACCESS ALTERNATIVES

Three project access streets are proposed: one street on Isabel Avenue and two full access streets on West Jack London Boulevard. Three access alternatives were evaluated under Existing, Year 2010, and Year 2025 Conditions with the addition of the proposed project. Full access with the installation of a traffic signal and right-turn in/out access alternatives were studied at the main project access street on Isabel Avenue. In addition, a "no access" scenario on Isabel Avenue was evaluated. With the different access alternatives, volumes at the intersection of Isabel Avenue/West Jack London Boulevard shift. Levels of service were evaluated at this intersection for the three access alternatives.

Isabel Avenue Access

Based on the estimated project volumes and the level of service analyses, it would be desirable to have a signalized intersection at the main access street on Isabel Avenue. Based on the Tentative Map, the Isabel Avenue access street is located approximately half way between Jack London Boulevard and Stanley Boulevard. The intersection spacing would be about one-half mile between the three intersections. This spacing is ideal for signals along high-speed roadways.

A signalized intersection could allow Oaks Business Park traffic from the south to not have to use the Jack London intersection. In addition, with a signalized intersection serving the Oaks Business Park, the intersection of Jack London Boulevard/Isabel Avenue intersection will be impacted to a much lesser degree.

Jack London Boulevard Access

Two access streets are proposed from Jack London Boulevard. These intersections would initially be STOP-controlled. With full and right in/out access on Isabel Avenue, the east and west intersections on Jack London Boulevard would operate adequately as one-way STOP controlled intersections. In the future, as through traffic grows on Jack London Boulevard, traffic signals will be required at both intersections. Signals will not be needed until Jack London Boulevard is connected with El Charro Road in Pleasanton.

Left-Turn Storage Lengths

Storage lengths for the left turn lanes at the study intersections in which the proposed project is expected to contribute traffic were determined. **Table 3.3-12** summarizes the results of the analysis. Existing storage lengths were measured in the field, and are presented in the table as feet per lane to the nearest five feet.

The storage lengths for Year 2010 plus Project and Year 2025 plus Project conditions were calculated based on the greater of the a.m. and p.m. peak hour traffic volumes for the left turn movement, and an estimate of one foot per vehicle. The storage requirements for these scenarios are presented as feet per lane.

For the Year 2010 with a fully developed project, the level of service analysis required additional left turn lanes as mitigation at the intersections of Isabel Avenue/Jack London Boulevard with right turn in/out access and no access on Isabel Avenue, and at Murrieta Boulevard/Jack London Boulevard. The mitigation is included in the computations for storage lengths in **Table 3.3-10.**

TABLE 3.3-12
LEFT TURN STORAGE REQUIREMENTS

Intersection	Existing		Year 2010 + Full Project		Year 2025 + Project	
	No. of Lanes	Storage per lane	No. of Lanes	Req'd Storage per lane	No. of Lanes	Req'd Storage per lane
Isabel/Jack London – Full access on Isabel						
- EBL	2	185′	2	100′	2	150′
- NBL	2	255′	2	340′	2	420′
- WBL	2	180′	2	195′	2	285′
Isabel/Jack London – Rt. in/out access on Isabel						
- EBL	2	185′	2	195′	2	195′
- NBL	2	255′	3	450′	2	500′
- WBL	2	180′	2	195′	2	235′
Isabel/Jack London – No access on Isabel						
- EBL	2	185′	2	195′	2	195′
- NBL	2	255′	3	450′	2	500′
Murrieta/Jack London						

TABLE 3.3-12
LEFT TURN STORAGE REQUIREMENTS

Intersection	Existing		Year 2010 + Full Project		Year 2025 + Project	
	No. of Lanes	Storage per Lane	No. of Lanes	Reqd Storage per Lane	No. of Lanes	Reqd Storage per Lane
- EBL	1	100′	1	285′	1	285′
Isabel Ramp/Stanley (West)*						
- NBL	2	365′	2	155′	2	325′
- WBL	2	375′	2	365′	2	315′
Isabel Ramp/Stanley (East)*						
- NBL	–	–	–	–	2	320′
- WBL	–	–	–	–	2	315′
Isabel/Stanley Ramp*						
- SBL	2	380′	2	360′	n/a	n/a
Isabel/Vineyard						
- EBL	2	295′	2	470′	2	240′
Isabel/Concannon						
- SBL	2	560′	2	360′	2	465′
Isabel/Vallecitos						
- EBL	2	335′	2	285′	n/a	n/a
Isabel/I-580 Westbound Ramps						
- WBL	–	–	2	120′	3	520′
Isabel/Project Driveway – Full Access						
- NBL	–	–	2	335′	2	335′
- EB L	–	–	2	215′	2	215′
Jack London/Access Streets						
- WBL (East Street)	–	–	1	100′	1	350′
- WBL (West Street)	–	–	1	75′	1	550′

* For Year 2025, an alternate design for the Stanley-Isabel connector ramp previously studied for the Isabel Avenue Extension Project would eliminate the southbound left turn movement on Isabel Avenue, and split the northbound and westbound left turn movements at Stanley Boulevard between two intersections.

Two access streets are proposed on Jack London Boulevard. The storage length presented in the table above is for the left turn lanes at the access streets with full access on Isabel Avenue (Year 2010). The storage requirements on Jack London Boulevard were determined based on Lengths of Left-Turn Lanes at Unsignalized Intersections published by the Transportation Research Board.

RANCHO LAS POSITAS ELEMENTARY SCHOOL

Figure 3.3-18 shows the Rancho Las Positas Elementary School, located on the south side of Jack London Boulevard across from Arlington Road. During the a.m. peak hour, traffic was evaluated on Jack London Boulevard near the school to assess the impacts of the proposed project on the school. The p.m. peak hour (one hour between 4:00 p.m. and 6:00 p.m.) was not evaluated since afternoon school traffic and the evening peak hours of the roadway do not coincide.

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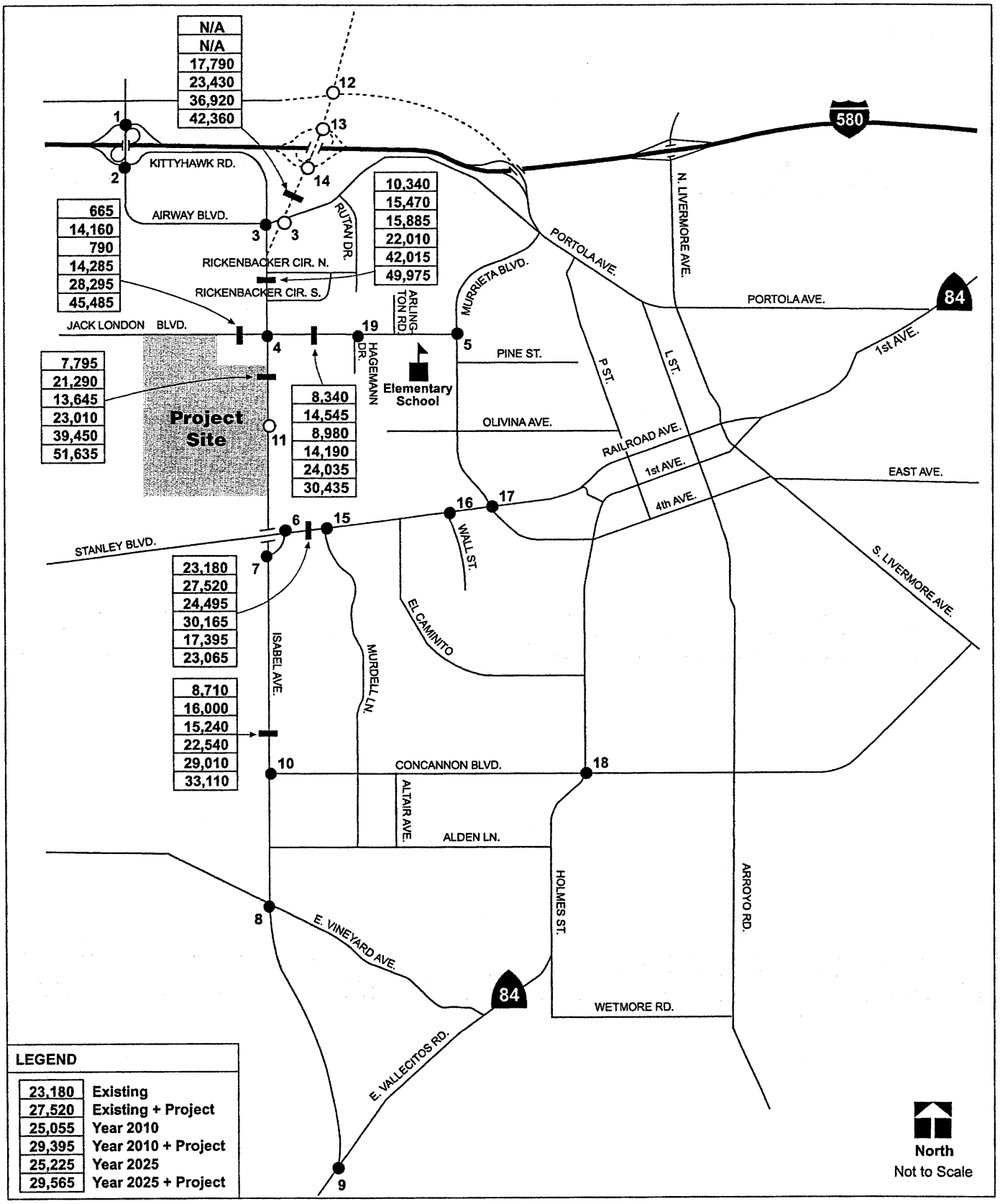
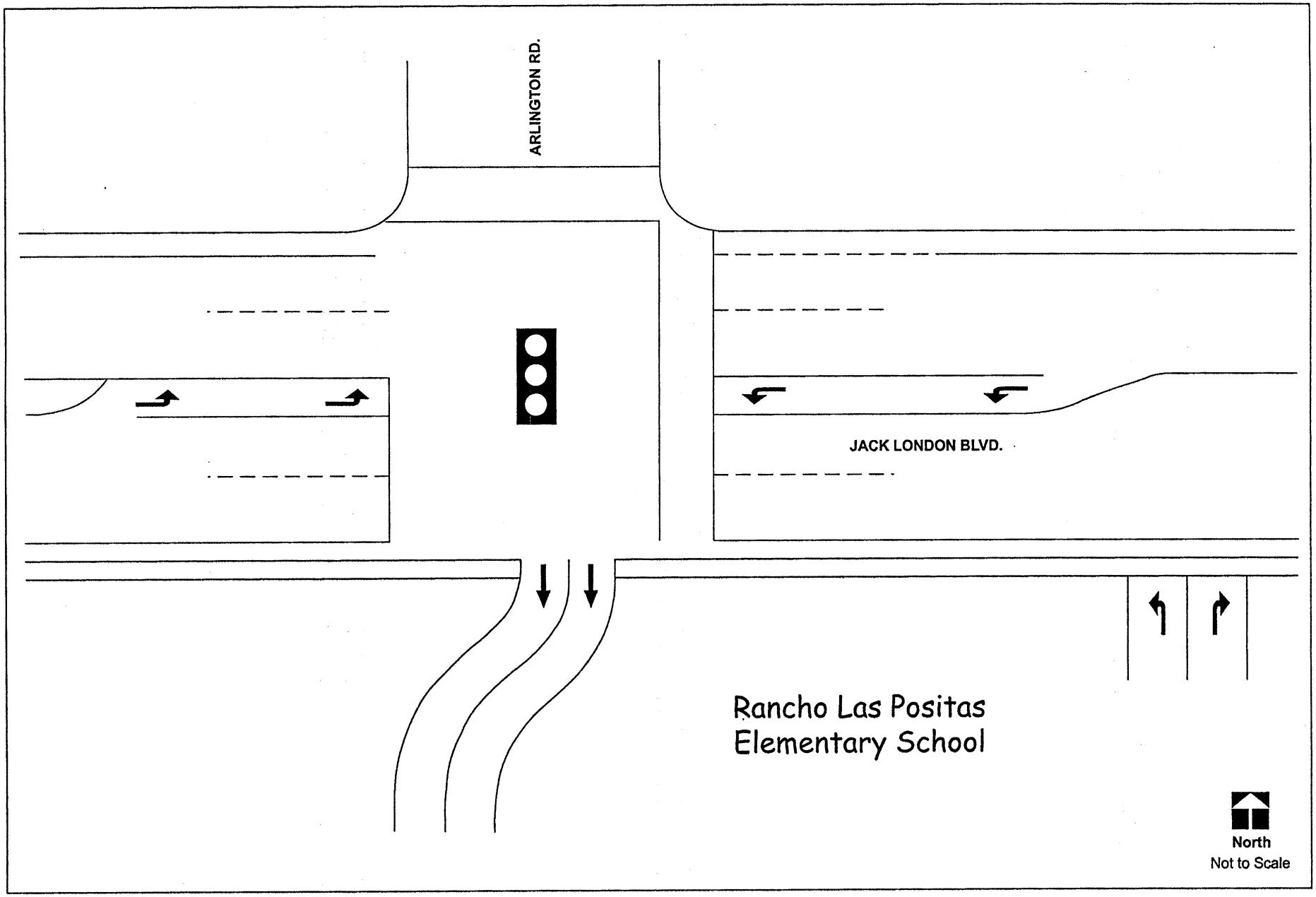


City of Livermore
Oaks Business Park

Estimated Daily Traffic Volumes

Figure 3.3-17

89-255 - 5/02 - PL



City of Livermore
Oaks Business Park

Livermore Valley Elementary School

Figure
3.3-18

TJKM

89-255 - 5/19/03 - PL

In order to understand the current traffic conditions on Jack London Boulevard near the school, traffic volumes without the proposed project were collected in the field during the a.m. peak hour. Approximately 990 two-way peak hour vehicles use Jack London Boulevard near the school, including school traffic.

With the addition of traffic from the proposed project under Existing and Year 2010 conditions, traffic on Jack London Boulevard near the school is expected to increase to 1,640 vehicles and 1,690, respectively, during the a.m. peak hour. These estimates are conservative because they assume that the project is fully developed. The proposed project is not expected to be fully occupied by Year 2010. Under Year 2025 conditions, traffic on Jack London Boulevard is expected to increase to 1,790 near the school.

The school will be served by the traffic signal at Jack London Boulevard and Arlington at the school. In addition, a crossing guard will assist students crossing Jack London Boulevard.

Table 3.3-13 summarizes the observed and expected traffic volumes on Jack London Boulevard in the vicinity of the elementary school.

TABLE 3.3-13

PEAK HOUR TRAFFIC VOLUMES ON JACK LONDON BOULEVARD

Scenario	a.m. Peak
Existing Conditions	990
Existing + Project Conditions	1,640
Year 2010 + Project with Isabel Interchange	1,690
Year 2025 + Project with Isabel Interchange	1,790

ALAMEDA COUNTY CONGESTION MANAGEMENT AGENCY ANALYSIS

The Alameda County Congestion Management Agency (CMA) requires that analysis be conducted of project impacts on the Metropolitan Transportation System (MTS) for p.m. peak hours conditions for the years 2005 and 2025, with and without project. **Table 3.3-14** is presented in this DEIR to show the volume-to-capacity ratio and the corresponding level of service. The p.m. peak hour volume projections were obtained from the 2005 and 2025 Countywide Transportation Model. As shown in **Table 3.3-14**, two mainline freeway segments and eight surface street segments were analyzed along I-580, Stanley Boulevard, Isabel Avenue, Vallecitos Road, Holmes Street, and First street in the project study area. These include the following segments:

I-580
- Between Airway Boulevard and Isabel Avenue
- Between Isabel Avenue and Livermore Avenue

Stanley Boulevard
- West of Isabel Avenue
- East of Isabel Avenue
- East of Murrieta

Isabel Avenue
- South of Las Positas
- Between Stanley and Concannon

Vallecitos Road
- South of Isabel

Holmes Street
- South of Concannon

First Street
- South of Portola

Based on the analysis and as shown in **Table 3.3-14**, the proposed project is not expected to cause changes in levels of service on I-580, Stanley Boulevard, Isabel Avenue, Vallecitos Road, Holmes Street, and First Street during the p.m. peak hour under all scenarios.

Year 2005 With and Without Project

Under Year 2005 (there is no 2010 CMA model) both with and without proposed project scenario, all roadway segments LOS would remain unchanged except Stanley Boulevard east of Isabel Avenue would change from LOS B without project to LOS C with project. All roadway segments would meet the ACCMA standard of LOS E during the p.m. peak hour, both with and without project.

Year 2025 With and Without Project

Under Year 2025 both with and without proposed project scenario, all roadway segments LOS would remain unchanged except Isabel Avenue south of Jack London Boulevard would change from LOS B without project to LOS C with project. Stanley Boulevard west of Isabel Avenue eastbound was projected at LOS F in the p.m. peak hour, with or without the project trips. This is a significant and unavoidable impact. The rest of the roadway segments would meet the ACCMA standard of LOS E during the p.m. peak hour, both with and without the project.

TABLE 3.3-14
ALAMEDA COUNTY CONGESTION MANAGEMENT AGENCY ANALYSIS

Location	YEAR 2005								YEAR 2025							
			Without Project			With Project					Without Project			With Project		
	# of Lanes	Capacity	Peak Volume	V/C	LOS	Peak Volume	V/C	LOS	# of Lanes	Capacity	Peak Volume	V/C	LOS	Peak Volume	V/C	LOS
I-580 Between Airway & Isabel																
-Eastbound	4	9200	8484	0.92	E	8487	0.92	E	4	9200	8527	0.93	E	8536	0.93	E
-Westbound	4	9200	5284	0.57	A	5306	0.58	A	4	9200	5870	0.64	B	5875	0.64	B
I-580 Between Isabel & Livermore																
-Eastbound	4	9200	8484	0.92	E	8487	0.92	E	4	9200	8484	0.92	E	8565	0.93	E
-Westbound	4	9200	5284	0.57	A	5306	0.58	A	4	9200	5876	0.64	B	5898	0.64	B
Stanley Boulevard West of Isabel																
-Eastbound	2	2400	2247	0.94	E	2303	0.96	E	2	2400	2624	1.09	F	2654	1.11	F (*)
-Westbound	2	2400	664	0.28	A	866	0.36	A	2	2400	1492	0.62	B	1602	0.67	B
Stanley Boulevard East of Isabel																
-Eastbound	2	2400	1636	0.68	B	1848	0.77	C	3	3600	1391	0.39	A	1603	0.45	A
-Westbound	2	2400	1220	0.51	A	1279	0.53	A	3	3600	1266	0.35	A	1325	0.37	A
Stanley Boulevard East of Murrieta																
-Eastbound	2	2000	731	0.37	A	852	0.43	A	2	2000	702	0.35	A	823	0.41	A
-Westbound	2	2000	464	0.23	A	497	0.25	A	2	2000	603	0.30	A	636	0.32	A
Isabel Avenue South of Las Positas																
-Northbound	2	2400	505	0.21	A	1090	0.45	A	3	3600	2153	0.60	B	2673	0.74	C
-Southbound	2	2400	342	0.14	A	1044	0.44	A	3	3600	2055	0.57	A	2475	0.69	B
Isabel Avenue between Stanley & Concannon																
-Northbound	1	1200	539	0.45	A	689	0.57	A	2	2400	1732	0.72	C	1873	0.78	C
-Southbound	1	1200	324	0.27	A	585	0.49	A	2	2400	1338	0.56	A	1599	0.67	B
Vallecitos Road South of Isabel																
-Northbound	1	2300	1406	0.61	B	1434	0.62	B	2	4600	1692	0.37	A	1720	0.37	A
-Southbound	1	2300	825	0.36	A	926	0.40	A	2	4600	1299	0.28	A	1400	0.30	A
Holmes Street South of Concannon																
-Northbound	2	2000	1044	0.52	A	1050	0.53	A	2	2000	297	0.15	A	303	0.15	A
-Southbound	2	2000	778	0.39	A	798	0.40	A	2	2000	606	0.30	A	626	0.31	A
1st Street South of Portola																
-Northbound	3	6000	1558	0.26	A	1679	0.28	A	3	6000	1236	0.21	A	1357	0.23	A
-Southbound	3	6000	1478	0.25	A	1511	0.25	A	3	6000	1555	0.26	A	1588	0.26	A

Notes: Assumes maximum service flow rate of 2,300 passenger cars per hour per lane for freeway mainlines, 1,200 for expressways and 1,000 for local streets. Peak hour volumes were based on the ACCMA Model Year and Year 2025 without project. The proposed project peak hour trips were manually added into the volumes based on the traffic study conducted by TJKM in March 2002. (*) The Traffic Analysis prepared for this EIR evaluates intersection levels of service rather than road segment levels of service. Year 2025 conditions assume that the Stanley/Isabel Interchange is fully improved, including widening of Stanley Boulevard to 6 lanes west of Isabel Avenue. Therefore, the impact to Stanley Boulevard west of Isabel Avenue is expected to be reduced to LOS "D" or better.

Transit Operations Impacts

LAVTA (Livermore-Amador Valley Transit Authority) – Wheels

Several bus lines currently provide service to the project vicinity, including Routes 10, 12, 12X and 16J. Currently, none of these lines provide service immediately adjacent to the proposed project. It is assumed that LAVTA would introduce new bus lines or reroute existing bus lines to accommodate the riders from the Project as it becomes built. It is also expected that LAVTA would provide sufficient capacity to accommodate riders, as needed.

Two percent of the residential uses are expected to use transit. A calculation is provided to estimate the number of monthly riders that would be generated by the proposed project:

(~5,000–7,500 employees) x 2% x 2 trips /day x 20 working days per month = (~4,000-6,000 monthly riders)

PROJECT IMPACTS AND MITIGATION MEASURES, EXISTING GENERAL PLAN

Existing Conditions Plus Project Level of Service

Impact 3.3-1 With the addition of project traffic, the Jack London Boulevard/Hagemann Drive intersection, the Murrieta Boulevard/Jack London Boulevard/Pine Street intersection and the Isabel Ramp/Stanley Boulevard intersection are expected to operate at unacceptable levels. This is a **potentially significant** impact.

As mentioned above, the standards of PD-I 01-003 incorporate a mechanism to regulate and monitor the level of development to ensure that the project does not exceed the traffic generation impacts analyzed in this EIR. However, with project traffic, the Jack London Boulevard/Hagemann Drive intersection is expected to operate at an unacceptable service level during the a.m. peak hour, the Murrieta Boulevard/Jack London Boulevard/Pine Street intersection is expected to operate at an unacceptable service level during the a.m. peak hour at v/c = 0.92 (LOS E) and the Isabel Ramp/Stanley Boulevard intersection is expected to operate at an unacceptable service level during the p.m. peak hour at v/c = 0.86 (LOS D) (See **Table 3.3-6.**)

Mitigation Measure - Jack London Boulevard / Hagemann Drive

MM 3.3-1a Traffic signals shall be installed at the intersection of Jack London Boulevard and Hagemann Drive. Prior to the occupancy of the first building, the project applicant shall install the traffic signal.

Mitigation Measure - Murrieta Boulevard / Jack London Boulevard / Pine Street Intersection

MM 3.3-1b A second northbound left turn lane shall be striped at this intersection, in accordance with **Figure 3.3-5**, to improve operations to v/c =0.85 (LOS D). This could be accomplished by restriping the left-most northbound through lane to also permit left turn movements. This would require split-phasing of the north-south movements at the signalized intersection. Prior to the occupancy of the first building, the project applicant shall install these striping and signal improvements.

Mitigation Measure - Isabel Ramp / Stanley Boulevard Intersection

MM 3.3-1c An overlap phase for the existing traffic signals for the northbound right turn movement of Isabel Avenue shall be implemented to reduce the v/c ratio from 0.86 to 0.84 (LOS D). Prior to occupancy of the first building, the project applicant shall be responsible for constructing the necessary traffic signal improvements. The northbound right turn would be equipped with a right turn arrow which would occur with the westbound left turn arrow. Westbound u-turns would be prohibited.

Implementation of the above mitigation measures will reduce traffic and circulation impacts resulting from Existing Conditions plus Project development to a **less than significant** level. Detailed street striping plans are shown as **Figures 3.3-19a and b**; however, the striping plans shown in this EIR are preliminary and may be subject to modification by the City after the certification of this document and during the design and plan check phase of the project. Full size plans are available for review by interested parties at the City of Livermore Planning Division.

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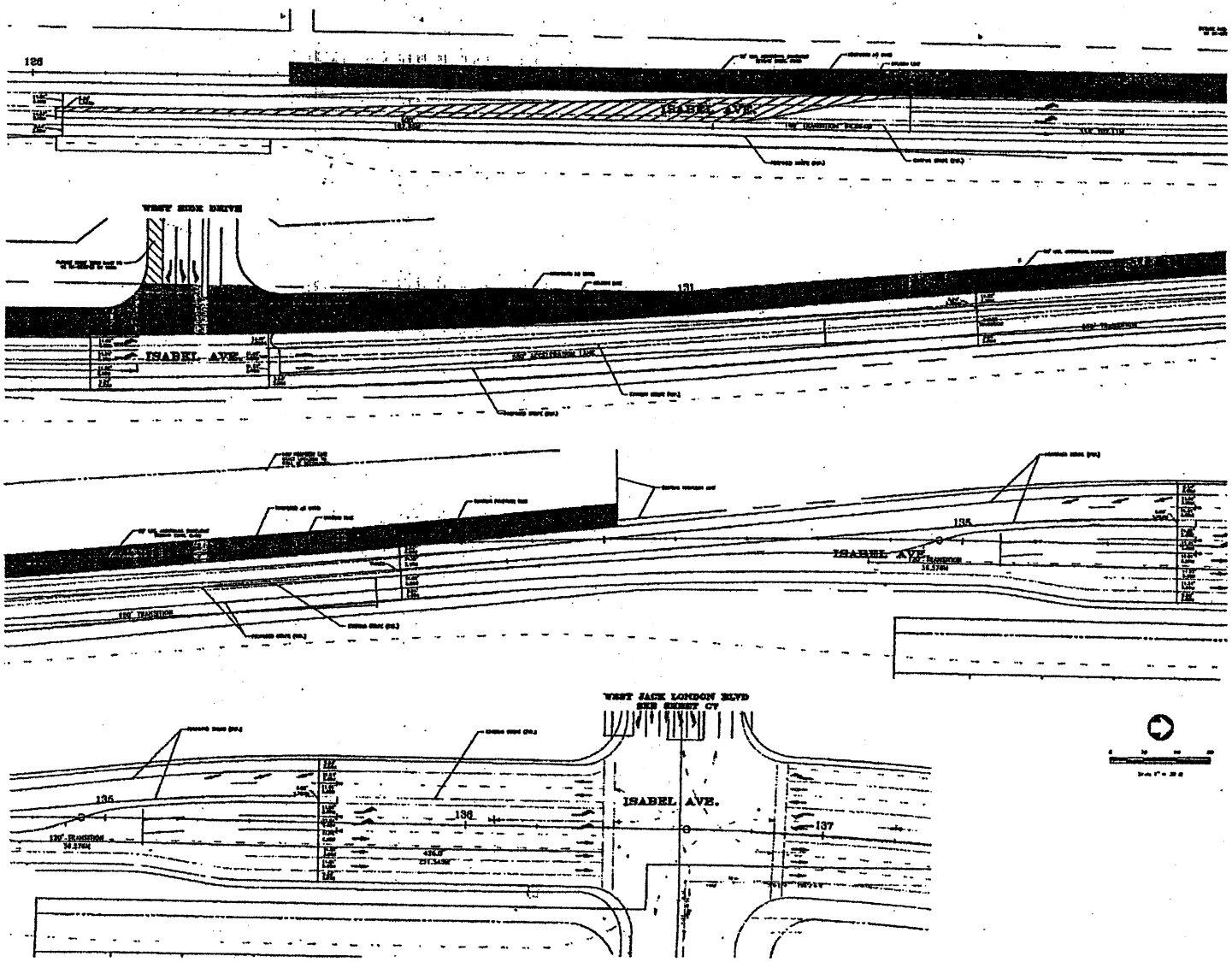
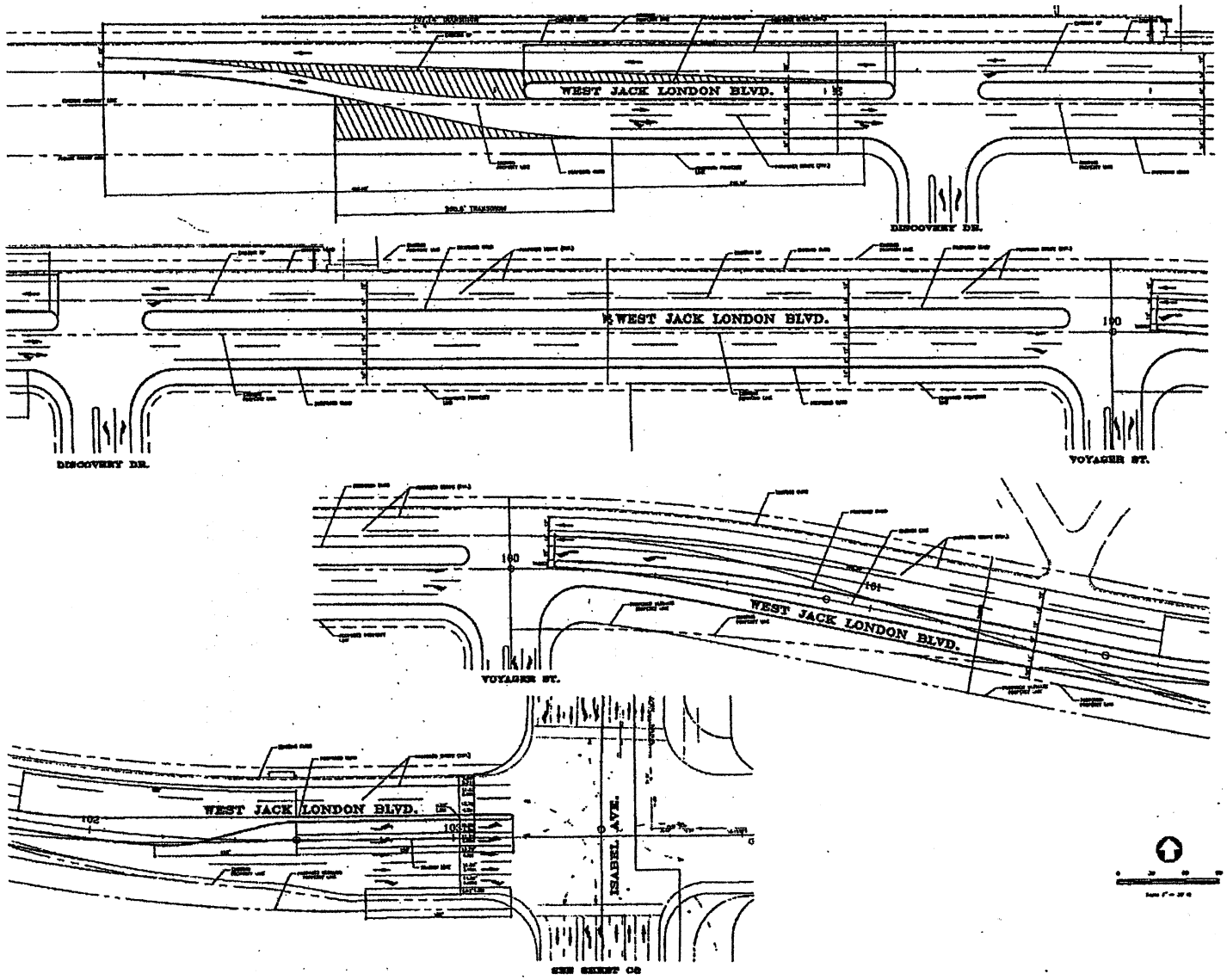


W:\LIVERMORE\OAKS BUSINESS PARK\OAKS BUSINESS PARK GRAPHICS

SOURCE: KIER & WRIGHT

FIGURE 3.3-17A
PROPOSED STRIPING PLAN: ISABEL AVENUE

PMC



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SOURCE: KIER & WRIGHT

FIGURE 3.3-17B
PROPOSED STRIPING PLAN: WEST JACK LONDON BLVD.

PMC

Project Site Access

Impact 3.3-2 Development of project ingress/egress will result in off-site impacts to the roadway system and intersections in the vicinity of the project site. This is considered a **potentially significant** impact.

Mitigation Measure - Project Site Access

MM 3.3-2 The project applicant shall construct a traffic signal at the Isabel Access intersection. In addition, dual northbound left turn lanes shall be constructed at the signalized intersection.

Implementation of the above mitigation measure will reduce project site access impacts to a **less than significant** level.

Project Site Access Level of Service

Impact 3.3-3 Development of the project will result in unacceptable levels of service (v/c = 0.89, LOS D) at the project Isabel Avenue/Discovery Drive until Isabel is widened to four lanes in this vicinity. This is considered a **potentially significant** impact.

Mitigation Measure - Project Site Access Level of Service

MM 3.3-3 The project applicant shall not construct more than 90 percent of the total project square footage until two northbound through lanes and two southbound through lanes have been constructed and opened for operation at the Isabel Avenue/Discovery Drive intersection. This development restriction shall be implemented by withholding 10 percent of the Average Daily Vehicle Trips allocated to the developer through the Planned Development Zoning for the site, until implementation of this mitigation measure is complete.

Implementation of the above mitigation measure will reduce project site access level of service impacts to the local roadway system to a **less than significant** level.

Year 2010 Level of Service

Impact 3.3-4 With the addition of project traffic, five intersections are expected to operate at unacceptable levels of service. These intersections are: Isabel Avenue/Jack London Boulevard, Murrieta Boulevard/Jack London Boulevard/Pine Street, Isabel Ramp/Stanley Boulevard, Isabel

Avenue/Stanley Ramp and Jack London Boulevard/Hagemann Drive. This is a **potentially significant** impact.

With project traffic and Year 2010 background, the Isabel Avenue/Jack London Boulevard intersection is expected to operate unacceptably during the p.m. peak hour at v/c = 0.86 (LOS D); the Murrieta Boulevard/Jack London Boulevard intersection is expected to operate unacceptably during the a.m. peak hour at v/c = 0.89 (LOS D); the Isabel Ramp/Stanley Boulevard intersection is expected to operate unacceptably during the p.m. peak hour at v/c = 0.86 (LOS D); the Isabel Avenue/Stanley Ramp intersection is expected to operate unacceptably at v/c = 0.88 (LOS D) during the a.m. peak hour, and the Jack London Boulevard/Hagemann Drive intersection will operate at LOS F during the a.m. peak hour (See **Tables 3.3-7 and 3.3-8**).

Mitigation Measure – Isabel Avenue / Jack London Boulevard Intersection

MM 3.3-4a An overlap phase for the existing traffic signals for the northbound right turn movement of Isabel Avenue shall be implemented to reduce the v/c ratio from 0.86 to 0.84 (LOS D). Prior to occupancy of the first building, the project applicant shall be responsible for constructing the necessary traffic signal improvements. The eastbound right turn would be equipped with a right turn arrow which would occur with the northbound left turn arrow. Northbound u-turns would be prohibited.

Mitigation Measure - Murrieta Boulevard / Jack London Boulevard / Pine Street Intersection

MM 3.3-4b The developer shall construct the needed traffic improvements described in MM 3.3-1b.

Mitigation Measure - Isabel Ramp / Stanley Boulevard Intersection

MM 3.3-4c An overlap phase for the northbound right turn movement shall be implemented by the project applicant to improve the volume to capacity ratio from 0.86 to 0.84 (LOS D).

Mitigation Measure – Isabel Avenue/Stanley Boulevard Ramp Intersection

MM 3.3-4d An overlap phase for the westbound right turn lane of this intersection shall be implemented to accommodate an acceptable volume-to-capacity ratio of 0.85 (LOS D). This westbound right turn movement would be equipped with a right turn arrow which would be displayed at the same time as the southbound left turn arrow. Southbound u-turns would be prohibited.

Mitigation Measure – Jack London Boulevard/Hagemann Drive Intersection

MM 3.3-4e The developer shall construct the needed traffic signals described in **MM 3.3-1a.**

Implementation of the above mitigation measures will reduce Year 2010 traffic and circulation impacts to a **less than significant** level.

Year 2025 Cumulative Level of Service (Tri-Valley Model)

Impact 3.3-5 With the addition of project traffic and cumulative growth, six study intersections would operate unacceptably. These intersections include: Isabel Avenue/Airway Boulevard, Isabel Avenue/Jack London Boulevard, Murrieta Boulevard/Jack London Boulevard/Pine Street, Isabel Avenue/Stanley ramp, Isabel Avenue/Concannon Boulevard, and the Jack London Boulevard/Hagemann Drive intersection. These are **potentially significant** impacts.

Mitigation Measure – Isabel Avenue / Airway Boulevard Intersection

MM 3.3-5a The new alignment of the Isabel Avenue/Airway Boulevard is expected to operate unacceptably during the p.m. peak hour at LOS E without and LOS F with the project. An additional southbound left turn, eastbound right turn and an overlap phase for the eastbound right turn shall be implemented to reduce the v/c ratio from 1.06 to 0.85 (LOS D). Prior to occupancy of the first building, the project applicant shall be responsible for constructing (or providing funding for, if the intersection has not yet been built) the necessary traffic signal improvements. The eastbound right turn would be equipped with a right turn arrow which would occur with the northbound left turn arrow. Northbound u-turns would be prohibited. Implementation of the above mitigation measures will reduce Year 2025 traffic and circulation impacts to a **less than significant** level.

In addition, by Year 2025, the following Isabel Avenue intersections are expected to operate at unacceptable levels of service with or without the project: Isabel Avenue/Concannon Boulevard, and Isabel Avenue/Jack London Boulevard. Other intersection with unacceptable levels of service include Jack London Boulevard/Hagemann Drive and Jack London Boulevard/Murietta Drive. The mitigation measure to signalize the Jack London/Hagemann Drive intersection, **MM 3.3-1a**, will also fully mitigate the 2025 impacts with the project. In addition, **MM 3-3-1b**, restriping the northbound approach to Jack London Drive on Murietta Drive, will also fully mitigate the 2025 impacts with the project (See **Tables 3.3-9** and **3.3-10**).

Implementation of the above mitigation measure will reduce Year 2025 traffic and circulation impacts to a **less than significant** level. However, at two intersections along Isabel Avenue and one MTS roadway segment, **significant and unavoidable** impacts cannot be mitigated. These locations include:

- Isabel Avenue at Jack London Boulevard
- Isabel Avenue at Stanley Boulevard Connector
- Isabel Avenue at Concannon
- Stanley Boulevard west of Isabel Avenue

In addition, Isabel Avenue/Stanley ramp is expected to operate at unacceptable levels of service with or without the project. The future design for the Stanley-Isabel interchange consists of an intersection on Stanley Boulevard with a connector ramp on the east side of Isabel Avenue, and an intersection on Stanley Boulevard with a connector ramp on the west side of Isabel Avenue. This design allows right turns to and from northbound and southbound Isabel Avenue and divides traffic between two intersections on Stanley Boulevard. This alternate design is already contemplated for the future improvements of Isabel Avenue and would mitigate conditions to acceptable levels. This future design could be considered as a mitigation measure.

These impacts will require a Statement of Overriding Considerations.

Year 2025 Cumulative Level of Service, Proposed General Plan (City Model)

- **Impact 3.3-6** With the addition of project traffic and cumulative growth, three study intersections would operate unacceptably. All three intersections are **significant and unavoidable** impacts that cannot be mitigated. These intersections include:

- Airway Boulevard and I-580 Eastbound ramps
- Isabel Avenue and Airway Boulevard
- Isabel Avenue and Jack London Boulevard

These impacts will require a Statement of Overriding Considerations.

Parking Facilities

The proposed project is for consideration of a Tentative and Final Map(s) only; therefore, no parking facilities for individual development sites are proposed at this time. Detailed parking plans will be required at such time that site plans are submitted for future development projects. Parking needs and facilities will be evaluated in conjunction with all future site plan proposals in accordance with CEQA and relevant City permitting requirements. Therefore, **no impact** is expected at this time and no mitigation is required. However, driveway locations and off-site parking areas for Discovery Dive have been proposed and are illustrated in **Figure 3.3-20**.

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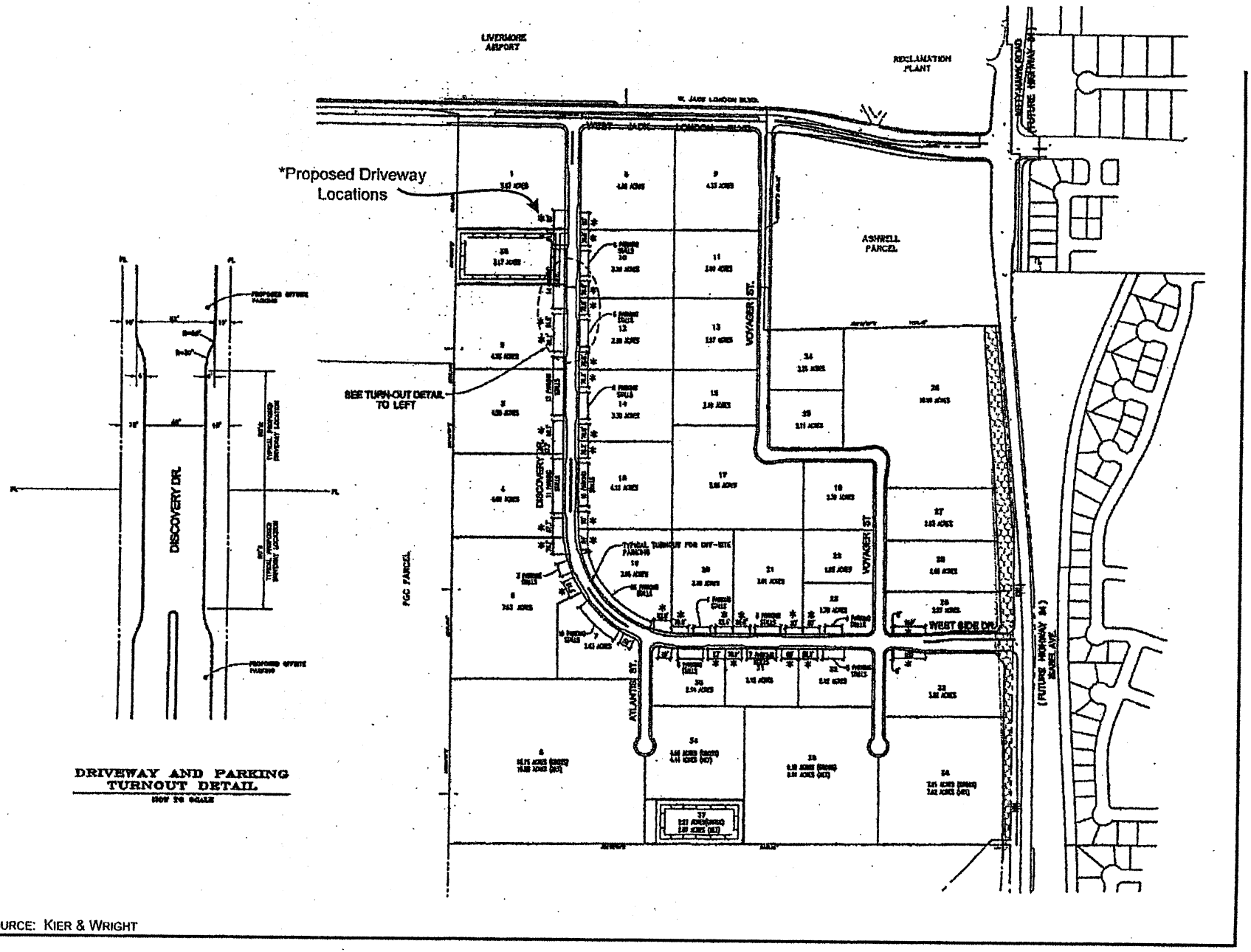

W:\LIVERMORE\OAKS BUSINESS PARK\OAKS BUSINESS PARK GRAPHICS

SOURCE: KIER & WRIGHT

FIGURE 3.3-~~18~~ 20

PROPOSED DRIVEWAY LOCATIONS AND OFFSITE PARKING AREAS

PMC

Bicycle and Pedestrian Impacts

Impact 3.3-7 Development of the project would generate a need for additional bicycle and pedestrian facilities for the purposes of personal transportation and recreation. This is a **less than significant** impact.

The project will generate an increase in employment and traffic and an increased demand for the provision of new pedestrian and bicycle facilities. The City of Livermore *Bikeways and Trails Master Plan*, adopted in December 2001, calls for an east-west multi-use trail and bike lane connecting Livermore to Pleasanton, to be aligned with W. Jack London Boulevard north of the project site. The trail would extend a recently completed multi-use trail with an equestrian component paralleling Isabel Avenue and terminating at the intersection of Jack London Boulevard and Kitty Hawk Road. Therefore, bicycle and pedestrian impacts are **less than significant.**

Public Transportation

Impact 3.3-8 Development of the project would generate additional demand for service from the regional transit authority. This is a **potentially significant** impact.

As previously described, public transportation in the vicinity of the project site include the "WHEELS" program of the Livermore-Amador Valley Transit Authority, BART and the ACE Commuter Train. WHEELS operates bus Routes 10, 12, 12X and 16J in the vicinity of the project site. BART operates trains between the Dublin-Pleasanton station near Hacienda Drive and the Oakland-San Francisco area. This station is accessible by private automobile, taxi cabs, buses, and private shuttles as well as by pedestrians and bicyclists. ACE offers an alternative to the automobile for regional commute trips from Livermore to Pleasanton and the South Bay area including Fremont, Santa Clara and San Jose. There are two ACE stations in Livermore, one in downtown, near the Livermore Avenue/Railroad Avenue intersection and the other on Vasco Road, at the Vasco Road/Brisa Street intersection.

Ridership on both BART and the ACE commuter train is expected to increase with the generation of jobs at the project site; however, the impacts are expected to be **less than significant** because the anticipated increase in ridership would be absorbed by the existing infrastructure and service levels of these regional transit systems.

Extension of existing WHEELS bus system routes would be required to serve the project site. Routes 10, 12, 12X and 16J operate adjacent to the project site and would be directly affected by the generation of additional jobs from the project.

Mitigation Measure

MM 3.3-8 The project applicant shall design the project to accommodate at least one curbside bus stop located at a central location within the proposed subdivision as well as one bus stop located on West Jack London Boulevard. The bus stops shall be constructed in locations where no parallel parking is permitted, with handicapped-accessible landing pads and sidewalks for passengers, one low maintenance/high longevity bench for each bus stop, marked as necessary with striping and a high visibility sign. The bus stops shall be constructed in accordance with all standards of the Livermore-Amador Valley Transit Authority.

Implementation of the above mitigation measure will reduce public transportation impacts to a **less than significant** level.

Transportation Demand Management

Impact 3.3-9 Development of the project will generate the need to formulate measures to reduce regional traffic impacts by encouraging ride sharing and other features that reduce the reliance on single-occupant vehicles during peak periods. This is a **potentially significant** impact.

Mitigation Measure

MM 3.3-9 Prior to the issuance of the first building permit, the project applicant shall obtain approval of a comprehensive Transportation Demand Management (TDM) program for the proposed development that reduces peak hour project traffic volumes by a minimum of five percent. The TDM program shall provide for such features as shuttle services to the Pleasanton/Dublin BART station, and incentives or subsidies to encourage the use of public transportation. On-site coordinators shall be established to provide information to employees and employers related to car pooling, bicycling to work, ride sharing and alternative transportation information, and participation in guaranteed ride home programs. The TDM program shall include annual monitoring to demonstrate on-going compliance with this mitigation measure.

Implementation of the above mitigation measure will reduce impacts related to the need for transportation demand management to a **less than significant** level. It will also help to address the **significant and unavoidable** impacts described in **Impacts 3.3-5 and 3.3-6.**

Rancho Las Positas Elementary School

Impact 3.3-10 With the addition of traffic from the proposed project under Existing and Year 2010 conditions, traffic on Jack London Boulevard near the school is expected to increase to 1,640 vehicles and 1,720, respectively, during the a.m. peak hour. This impact is considered to be **less than significant.**

The above estimates are conservative because they assume that the project is fully developed; however, the proposed project is not expected to be fully occupied by Year 2010. Traffic signals exist to aid pedestrians and motorists at the school, in addition a crossing guard is present. The need for this crossing guard will be evaluated on an annual basis. Therefore, the impact to school operations from the proposed project is **less than significant.**

Construction Traffic

Impact 3.3-11 Construction of the proposed project would cause intermittent impacts to local traffic operations and pedestrian movements. This impact is considered **less than significant.**

The project site is relatively flat and site grading is not expected to require any import or export of grading materials. Grading operations will utilize existing site materials and will therefore create minimal off-site traffic impacts. Infrastructure construction, including streets and underground utilities, will be phased.

Individual buildings will be constructed over time based on sales conditions and market demands. As each site is developed there will be separate phases for site preparation, building construction, interiors build out, and paving and landscaping of exterior areas. Delivery of construction materials, including concrete, steel and other building components, generally occurs in a.m. periods. The biggest volume of traffic related to construction activities comes from the construction workers themselves. Typically, construction activity begins prior to the morning commute period and ends prior to the evening commute. In essentially all cases, the traffic related to construction is less than the traffic volumes from the future employees of the buildings assumed in the traffic analysis for the completed project. This is in part because not all buildings are under construction at the same time, and may be spread out over several years.

Delivery trucks should be confined to major streets in the area including Isabel Avenue, Airway Boulevard, Vallecitos Road, Stanley Boulevard, and Jack London Boulevard west of Isabel. Therefore, the impact is **less than significant.** No mitigation is required.

REFERENCES/DOCUMENTATION

1) Alameda County Congestion Management Agency. *Notice of Preparation Response Letter.* April 6, 2001.

2) Caltrans. *Traffic Manual,* 1996.

3) _____. *Vesting Tentative Tract Map comment letter.* March 7, 2001.

4) City of Livermore. *Bikeways and Trails Master Plan,* December 11, 2001.

5) _____. *Bikeways and Trails Design Guidelines and Best Practices,* October 2001.

6) Institute of Transportation Engineers. *Trip Generation 5th Edition,* 1991.

7) _____. *Trip Generation 6th Edition,* 1997.

8) Metropolitan Transportation Commission. *Notice of Preparation Response Letter.* April 2, 2001.

9) State of California Department of Transportation. *Notice of Preparation Response Letter.* April 10, 2001.

10) TJKM Transportation Consultants. *Oaks Business Park Traffic Study.* June 17, 2002.

11) _____. *Oaks Business Park Final Traffic Study.* June 5, 2002.

12) Vinn, Bob. City of Livermore Engineering Division. Personal correspondence. August 7, 2002.

13) Wheels Program. *Notice of Preparation Response Letter.* March 14, 2001.

APPENDICES

Oaks Business Park
Administrative Draft Environmental Impact Report

Section 3.3 Traffic and Circulation

In The City of Livermore

July 11, 2003

Prepared by:
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Pleasanton, CA 94588-8535
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APPENDIX A – LEVEL OF SERVICE METHODOLOGY

DESCRIPTION OF SIGNALIZED INTERSECTION CAPACITY ANALYSIS
TJKM METHODOLOGY

Background

TJKM utilizes a method of intersection capacity analysis known as the Intersection Capacity Utilization (ICU) method. A variation of the TJKM method, known as the critical movement analysis, is described in Interim Materials on Highway Capacity, Transportation Research Circular 212, January 1980, published by the Transportation Research Board of the National Academy of Sciences. The TJKM method is similar to the planning applications method of Signalized Intersection analysis described in Circular 212. This method addresses the capacity of intersections as a whole. It simulates the operation of an actuated signalized intersection.

The method determines the critical movement by approach. The critical movements are determined by identifying the conflicting movements on the north-south and east-west approaches. The critical movement on an approach with split phase operation is the movement with the highest volume-to-capacity ratio since it has no conflicting movements. The method then sums the volume-to-capacity ratio of each critical movement at an intersection to produce an overall intersection volume-to-capacity ratio. When the ratio of volume to capacity reaches unity (1.00), the intersection is "at capacity" and is described as operating at Level of Service E and approaching Level of Service F conditions. If an existing intersection is found to have a volume-to-capacity ratio greater than 1.0, this indicates that the actual lane capacities are greater than those assumed in the methodology.

The advantages of this type of capacity calculation is its direct relationship to actual intersection operations and the ease with which changes in traffic volumes or intersection capacity (i.e. intersection lane configuration) or both can be analyzed. The level of accuracy of this method is comparable to that of the traffic projection processes used to determine future traffic volumes.

Level of Service

The volume-to-capacity ratio is related to the level of service. The relationship of volume-to-capacity ratio to level of service is a scale with a range of LOS A through LOS F. The table "Levels of Service for Intersections" depicts the relationship between the level of service rating and volume-to-capacity ratio.

Input Data

The input data necessary to use this methodology are:

- Lane geometrics
- Turning movement volumes
- Split phasing information

The lane configuration for the study intersections is indicated with a special nomenclature for the TJKM intersection capacity analysis. This nomenclature is explained on the attached "Description of Lane Configuration Format."

Sample

A sample calculation is shown on the accompanying computer print-out "TJKM Intersection Capacity Analysis." This example describes a hypothetical intersection of A Street and B Street, which is regulated by three phase traffic signals. The first signal phase for the northbound movements only has two lanes, both of which are shared with a turn movement. The capacity of these two lanes is 3,000 vehicles per hour. Thus, the critical movement is the combined through plus left plus right-turn movement with a volume of 563. The volume-to-capacity ratio is 0.1877.

Phase 2 is for southbound traffic only and contains three lanes. The per lane volume for the right-turn movement in the right-turn only lane (189 vehicles) is less than that in the two remaining lanes (226 vehicles per lane). Therefore, the length of this signal phase is governed by the traffic in the two left lanes - the shared through and left-turn lane and the left-turn only lane. The capacity of Phase 2 is 2,600 vehicles per hour of green, the volume is 452 vehicles, and the resulting volume-to-capacity ratio is 0.1738.

For Phase 3, the westbound through traffic cannot proceed through the intersection at the same time as the eastbound left-turn movement, even though they may be on the same signal phase, since they are conflicting movements. The same is true for the eastbound through movement and the westbound left-turn movement. In reality, the left-turning vehicles proceed through the gaps in the opposing through traffic as they occur (or in 5, 6, and 8 phase signals have exclusive left-turn signal phasing). In any case, the total east-west capacity requirement is the higher of the sum of the westbound through and/or right turn and the eastbound left turn volume-to-capacity ratios, or the sum of the eastbound through and/or right turn and the westbound left turn volume-to-capacity ratios.

In this case, the critical movement are the westbound shared through and right movement, (combined volume-to-capacity ratio = 0.2187), and the eastbound left-turn movement, (volume-to-capacity ratio = 0.0982).

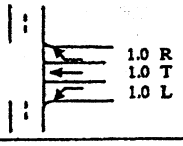
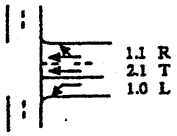
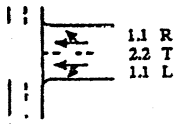
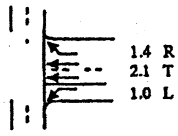
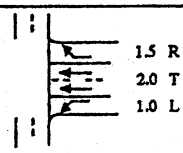
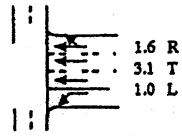
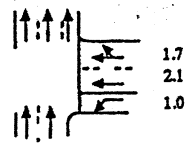
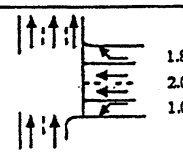
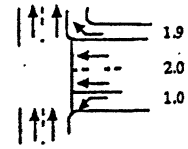
The critical movement volume-to-capacity ratios for each signal phase are summed, then rounded to two decimal places. An allowance for yellow time (assumed to be lost time for vehicle movement) is added to obtain the overall intersection volume-to-capacity rating. The amount of added yellow time depends on the degree to which the intersection is saturated as indicated on the attached "Factors for TJKM Methodology." This table also indicates the assumed lane capacities. In the example, the intersection rating of 0.78 equates to a Level of Service C designation.

DESCRIPTION OF LANE CONFIGURATION FORMAT

The number of lanes and the use of the lanes is denoted with a special nomenclature described below:

Lane Nomenclature

X.Y Where X Denotes the total number of lanes available for a particular movement.
Y Denotes how the lanes are used.

When Y is . . .	. . . The following applies:
0 	A lane used exclusively for a particular movement (i.e. exclusive left-turn lane).
1 	A lane which is shared, that is, either of two different movements can be made from a particular lane (i.e. a lane which is shared by through and right-turn traffic).
2 	Denotes two or more through lanes in which two lanes are shared, one with left-turn traffic, the other with right-turn traffic.
3	Denotes an expressway through movement.
4 	Denotes a right-turn movement from a wide outside lane where right-turn vehicles can bypass through traffic sharing the lane to make a right-turn on red.
5 	Denotes a right-turn movement from an exclusive right-turn lane with a right-turn arrow and prohibition on the conflicting U-turn movement.
6 	Denotes a right-turn movement from a shared lane with a right-turn arrow and prohibition on the conflicitng U-turn movement.
7,8,9	Denotes a turning movement which has a separate lane to turn into, as shown below:
7 	Turn lane which is shared with a through lane or left-turn lane and under signal control, and which has its own lane to turn into. There must be at least two through lanes.
8 	Exclusive turn lane which is under signal control, and which has its own lane to turn into.
9 	Exclusive turn lane not under signal control and which has an exclusive lane to turn into, often referred to as a "free" turn. Since the volumes in this lane do not conflict with other intersection movements, the V/C ratio of the free right-turn movement is not included in the sum of critical V/C ratios.

Level of Service for Signalized Intersections

Level of Service	Type of Flow	Delay	Maneuverability	V/C Ratio
A	Stable Flow	Very slight or no delay. If signalized, conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.	Turning movements are easily made, and nearly all drivers find freedom of operation.	0.00-0.60
B	Stable Flow	Slight delay. If signalized, an occasional approach phase is fully utilized.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	0.61-0.70
C	Stable Flow	Acceptable delay. If signalized, a few drivers arriving at the end of a queue may occasionally have to wait through one signal cycle.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	0.71-0.80
D	Approaching Unstable Flow	Tolerable delay. Delays may be substantial during short periods, but excessive back ups do not occur.	Maneuverability is severely limited during short periods due to temporary back ups.	0.81-0.90
E	Unstable Flow	Intolerable delay. Delay may be great—up to several signal cycles.	There are typically long queues of vehicles waiting upstream of the intersection.	0.91-1.00
F	Forced Flow	Excessive delay	Jammed conditions. Back ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>1.00[a]

Notes: [a] In general, volume-to-capacity ratios cannot be greater than 1.00, unless the lane capacity assumptions are too low. Also, if future demand projections are considered for analytical purposes, a ratio greater than 1.00 might be obtained, indicating that the projected demand would exceed the capacity.

References: *Highway Capacity Manual, Special Report No. 209*, Transportation Research Board, 1985.
Highway Capacity Manual, Special Report No. 87, Highway Research Board, 1965.
TJKM.

los_desc.tab

APPENDIX B – LEVEL OF SERVICE CALCULATIONS
EXISTING CONDITIONS

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

	RIGHT	THRU	LEFT
	246	209	0

LEFT	0	0.0	1.9	3.0	0.0	2.0	199	RIGHT	
THRU	0	0.0	(NO. OF LANES)			1.1	8	THRU	STREET NAME: I-580 WB Ramps
RIGHT	0	0.0	0.0	2.0	2.9	2.1	100	LEFT	

Split? N

N
W + E
S

0	591	824
LEFT	THRU	RIGHT

Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	824	824	3105	0.2654	
THRU (T)	591	591	3450	0.1713	0.1713
SB RIGHT (R)	246	246	1725	0.1426	
THRU (T)	209	209	5175	0.0404	
WB RIGHT (R)	199	119 *	2970	0.0401	0.0401
THRU (T)	8	8	1650	0.0048	
LEFT (L)	100	100	2970	0.0337	
T + L		108	2970	0.0364	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.21
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.31
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

	RIGHT	THRU	LEFT
	253	642	0

LEFT	0	0.0	1.9	3.0	0.0	2.0	254	RIGHT	
THRU	0	0.0	(NO. OF LANES)			1.1	5	THRU	STREET NAME: I-580 WB Ramps
RIGHT	0	0.0	0.0	2.0	2.9	2.1	123	LEFT	

Split? N

N
W + E
S

0	507	550
LEFT	THRU	RIGHT

Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	550	550	3105	0.1771	
THRU (T)	507	507	3450	0.1470	0.1470
SB RIGHT (R)	253	253	1725	0.1467	
THRU (T)	642	642	5175	0.1241	
WB RIGHT (R)	254	174 *	2970	0.0586	0.0586
THRU (T)	5	5	1650	0.0030	
LEFT (L)	123	123	2970	0.0414	
T + L		128	2970	0.0431	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.21
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.31
INTERSECTION LEVEL OF SERVICE:	A

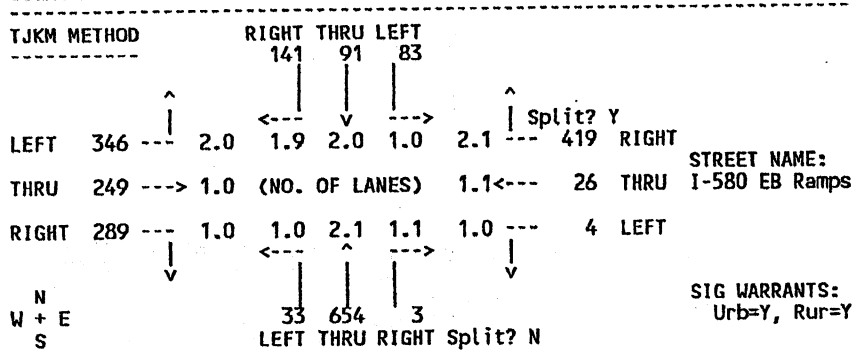
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	654	654	3375	0.1938	
	LEFT (L)	33	33	1650	0.0200	
	T + R		657	3375	0.1947	0.1947
SB	RIGHT (R)	141	141	1725	0.0817	
	THRU (T)	91	91	3450	0.0264	
	LEFT (L)	83	83	1650	0.0503	0.0503
EB	RIGHT (R)	289	193 *	1650	0.1170	
	THRU (T)	249	249	1725	0.1443	0.1443
	LEFT (L)	346	346	2970	0.1165	
WB	RIGHT (R)	419	298 *	2970	0.1003	
	THRU (T)	26	26	1650	0.0158	
	LEFT (L)	4	4	1650	0.0024	
	T + R		324	2970	0.1091	0.1091

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.50
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.60
INTERSECTION LEVEL OF SERVICE:	A

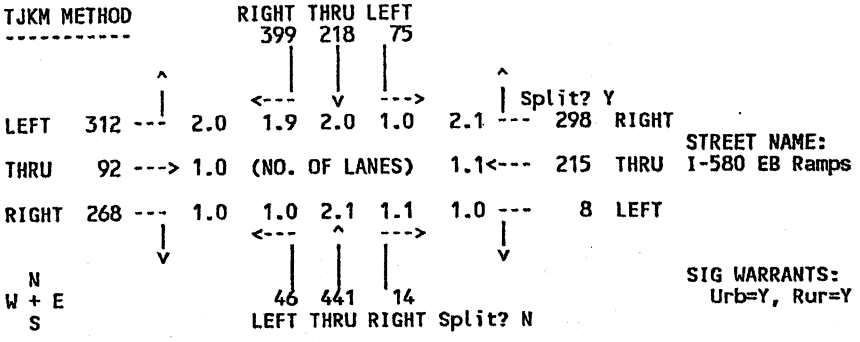
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	441	441	3375	0.1307	
	LEFT (L)	46	46	1650	0.0279	
	T + R		455	3375	0.1348	0.1348
SB	RIGHT (R)	399	399	1725	0.2313	
	THRU (T)	218	218	3450	0.0632	
	LEFT (L)	75	75	1650	0.0455	0.0455
EB	RIGHT (R)	268	165 *	1650	0.1000	
	THRU (T)	92	92	1725	0.0533	
	LEFT (L)	312	312	2970	0.1051	0.1051
WB	RIGHT (R)	298	181 *	2970	0.0609	
	THRU (T)	215	215	1650	0.1303	
	LEFT (L)	8	8	1650	0.0048	
	T + R		396	2970	0.1333	0.1333

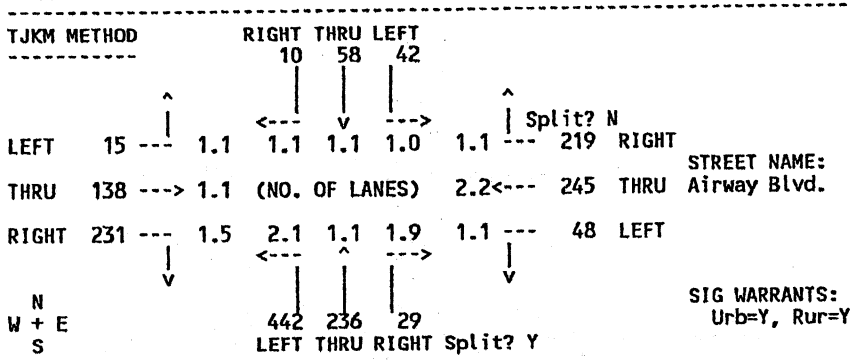
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.42
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.52
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 3 Kitty Hawk Rd./Airway Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Kitty Hawk Rd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	29	29	1725	0.0168	
	THRU (T)	236	236	1650	0.1430	
	LEFT (L)	442	442	2970	0.1488	
	T + L		678	2970	0.2283	0.2283
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	42	42	1650	0.0255	
	T + R		68	1650	0.0412	0.0412
EB	RIGHT (R)	231	0 *	1650	0.0000	
	THRU (T)	138	138	1650	0.0836	
	LEFT (L)	15	15	1650	0.0091	0.0091
	T + L		153	1650	0.0927	
WB	RIGHT (R)	219	219	1650	0.1327	
	THRU (T)	245	245	3300	0.0742	
	LEFT (L)	48	48	1650	0.0291	
	T + R		464	3300	0.1406	
	T + L		293	3300	0.0888	
	T + R + L		512	3300	0.1552	0.1552

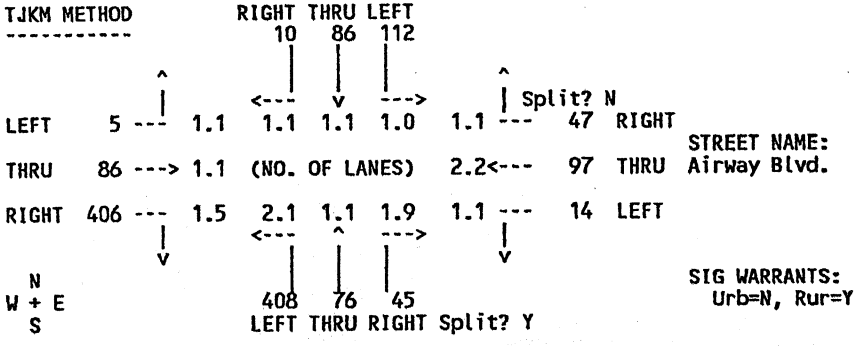
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.43
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.53
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 3 Kitty Hawk Rd./Airway Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Kitty Hawk Rd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	45	45	1725	0.0261	
	THRU (T)	76	76	1650	0.0461	
	LEFT (L)	408	408	2970	0.1374	
	T + L		484	2970	0.1630	0.1630
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	86	86	1650	0.0521	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		96	1650	0.0582	
EB	RIGHT (R)	406	99 *	1650	0.0600	0.0600
	THRU (T)	86	86	1650	0.0521	
	LEFT (L)	5	5	1650	0.0030	
	T + L		91	1650	0.0552	
WB	RIGHT (R)	47	47	1650	0.0285	
	THRU (T)	97	97	3300	0.0294	
	LEFT (L)	14	14	1650	0.0085	0.0085
	T + R		144	3300	0.0436	
	T + L		111	3300	0.0336	
	T + R + L		158	3300	0.0479	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.30
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.40
INTERSECTION LEVEL OF SERVICE:	A

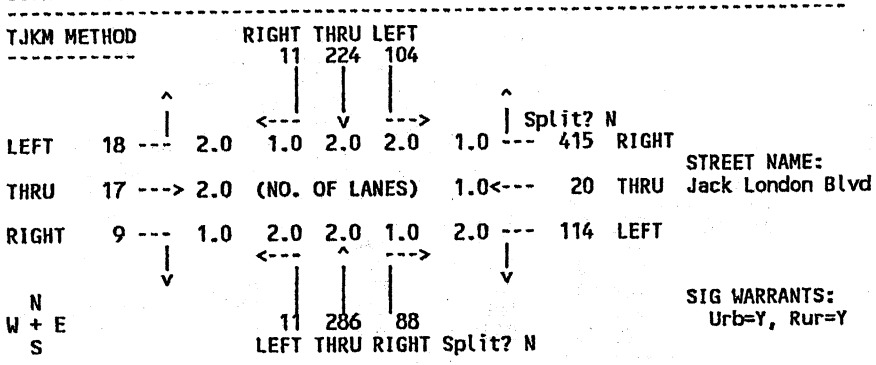
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	88	0 *	1650	0.0000	
	THRU (T)	286	286	3450	0.0829	0.0829
	LEFT (L)	11	11	2970	0.0037	
SB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	224	224	3450	0.0649	
	LEFT (L)	104	104	2970	0.0350	0.0350
EB	RIGHT (R)	9	0 *	1650	0.0000	
	THRU (T)	17	17	3450	0.0049	
	LEFT (L)	18	18	2970	0.0061	0.0061
WB	RIGHT (R)	415	306 *	1650	0.1855	0.1855
	THRU (T)	20	20	1725	0.0116	
	LEFT (L)	114	114	2970	0.0384	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.31
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.41
INTERSECTION LEVEL OF SERVICE:	A

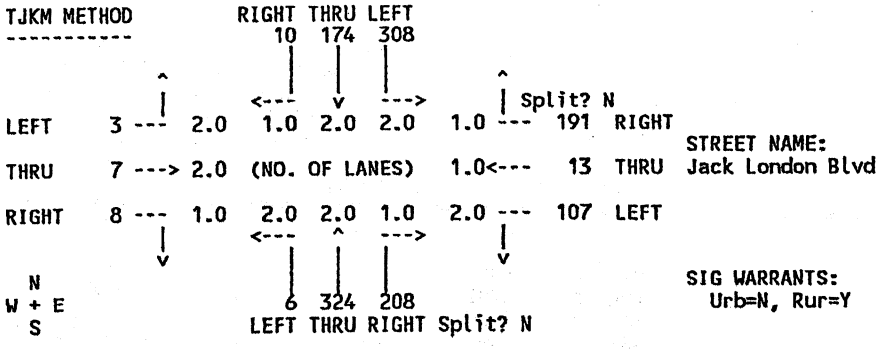
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	208	98 *	1650	0.0594	
	THRU (T)	324	324	3450	0.0939	0.0939
	LEFT (L)	6	6	2970	0.0020	
SB	RIGHT (R)	10	0 *	1650	0.0000	
	THRU (T)	174	174	3450	0.0504	
	LEFT (L)	308	308	2970	0.1037	0.1037
EB	RIGHT (R)	8	0 *	1650	0.0000	
	THRU (T)	7	7	3450	0.0020	0.0020
	LEFT (L)	3	3	2970	0.0010	
WB	RIGHT (R)	191	25 *	1650	0.0152	
	THRU (T)	13	13	1725	0.0075	
	LEFT (L)	107	107	2970	0.0360	0.0360

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.24
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.34
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 05/12/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
110 376 0

LEFT 102 --- 1.0 1.1 2.1 0.0 1.0 --- 177 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 259 --- 1.0 1.0 2.0 0.0 1.0 --- 53 LEFT

N
W + E
S
521 398 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	398	398	3450	0.1154	
LEFT (L)	521	521	1650	0.3158	0.3158
SB RIGHT (R)	110	110	1650	0.0667	
THRU (T)	376	376	3375	0.1114	
T + R		486	3375	0.1440	0.1440
EB RIGHT (R)	259	0 *	1650	0.0000	
LEFT (L)	102	102	1650	0.0618	0.0618
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.58
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 05/12/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
71 177 0

LEFT 99 --- 1.0 1.1 2.1 0.0 1.0 --- 105 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 256 --- 1.0 1.0 2.0 0.0 1.0 --- 44 LEFT

N
W + E
S
164 583 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	583	583	3450	0.1690	
LEFT (L)	164	164	1650	0.0994	0.0994
SB RIGHT (R)	71	71	1650	0.0430	
THRU (T)	177	177	3375	0.0524	
T + R		248	3375	0.0735	0.0735
EB RIGHT (R)	256	94 *	1650	0.0570	0.0570
LEFT (L)	99	99	1650	0.0600	
WB RIGHT (R)	105	25 *	1650	0.0152	
LEFT (L)	44	44	1650	0.0267	0.0267

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.26
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD              RIGHT THRU LEFT
-----------                0    0    0
                 ^         |    |    |         ^
                 |       <---   v   --->       | Split? N
LEFT      0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU    401 ---> 2.0   (NO. OF LANES)  2.0<--- 1678  THRU  Stanley Blvd.

RIGHT    75 ---  1.0   2.0  0.0  1.0   2.0 ---  228  LEFT
                 |     <---  ^  --->       |
                 v                         v
  N                       |    |    |                     SIG WARRANTS:
W + E                    221   0   105                      Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? N

             STREET NAME: Isabel Ramp
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	105	0 *	1650	0.0000	
	LEFT (L)	221	221	2970	0.0744	0.0744
EB	RIGHT (R)	75	0 *	1650	0.0000	
	THRU (T)	401	401	3450	0.1162	
WB	THRU (T)	1678	1678	3450	0.4864	0.4864
	LEFT (L)	228	228	2970	0.0768	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.56
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.66
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD              RIGHT THRU LEFT
-----------                0    0    0
                 ^         |    |    |         ^
                 |       <---   v   --->       | Split? N
LEFT      0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU   1688 ---> 2.0   (NO. OF LANES)  2.0<---  398  THRU  Stanley Blvd.

RIGHT   430 ---  1.0   2.0  0.0  1.0   2.0 ---   78  LEFT
                 |     <---  ^  --->       |
                 v                         v
  N                       |    |    |                     SIG WARRANTS:
W + E                     95   0    75                      Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? N

             STREET NAME: Isabel Ramp
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	75	0 *	1650	0.0000	
	LEFT (L)	95	95	2970	0.0320	0.0320
EB	RIGHT (R)	430	324 *	1650	0.1964	
	THRU (T)	1688	1688	3450	0.4893	0.4893
WB	THRU (T)	398	398	3450	0.1154	
	LEFT (L)	78	78	2970	0.0263	0.0263

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.55
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.65
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 229 118

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 98 RIGHT
Split? N
STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU Stanley Ramp
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 205 LEFT

N
W + E
S
0 287 208
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	208	26 *	1650	0.0158	
THRU (T)	287	287	3450	0.0832	0.0832
SB THRU (T)	229	229	3450	0.0664	
LEFT (L)	118	118	2970	0.0397	0.0397
WB RIGHT (R)	98	0 *	1650	0.0000	
LEFT (L)	205	205	1650	0.1242	0.1242

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.25
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.35
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 202 87

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 259 RIGHT
Split? N
STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU Stanley Ramp
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 249 LEFT

N
W + E
S
0 279 83
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	83	0 *	1650	0.0000	
THRU (T)	279	279	3450	0.0809	0.0809
SB THRU (T)	202	202	3450	0.0586	
LEFT (L)	87	87	2970	0.0293	0.0293
WB RIGHT (R)	259	155 *	1650	0.0939	
LEFT (L)	249	249	1650	0.1509	0.1509

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.26
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

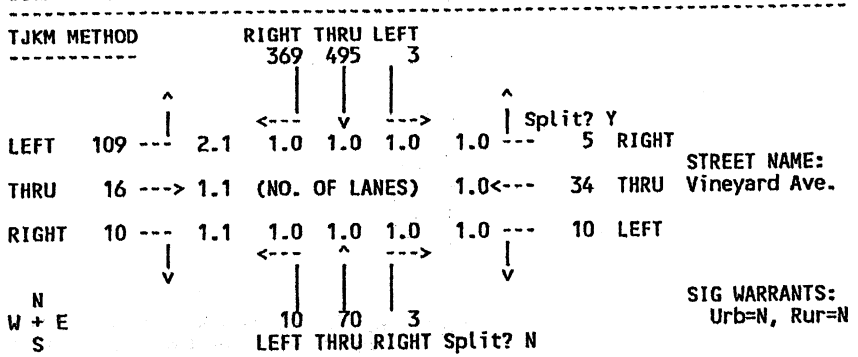
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Vineyard Ave.

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	3	0 *	1650	0.0000	
	THRU (T)	70	70	1725	0.0406	
	LEFT (L)	10	10	1650	0.0061	0.0061
SB	RIGHT (R)	369	259 *	1650	0.1570	
	THRU (T)	495	495	1725	0.2870	0.2870
	LEFT (L)	3	3	1650	0.0018	
EB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	16	16	1650	0.0097	
	LEFT (L)	109	109	2970	0.0367	
	T + R		26	1650	0.0158	
	T + L		125	2970	0.0421	
	T + R + L		135	2970	0.0455	0.0455
WB	RIGHT (R)	5	0 *	1650	0.0000	
	THRU (T)	34	34	1725	0.0197	0.0197
	LEFT (L)	10	10	1650	0.0061	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

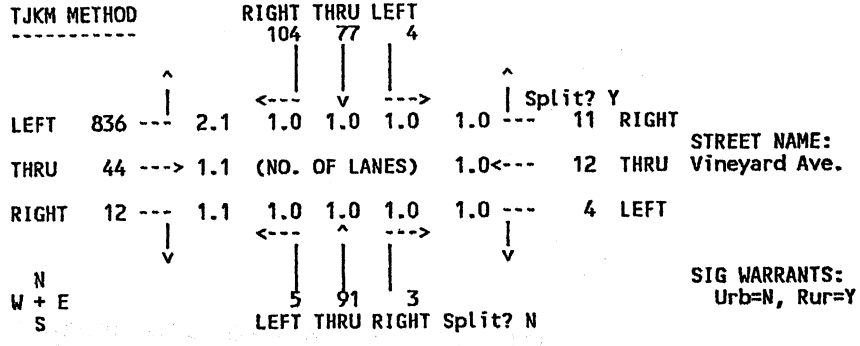
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Vineyard Ave.

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	3	0 *	1650	0.0000	
	THRU (T)	91	91	1725	0.0528	0.0528
	LEFT (L)	5	5	1650	0.0030	
SB	RIGHT (R)	104	0 *	1650	0.0000	
	THRU (T)	77	77	1725	0.0446	
	LEFT (L)	4	4	1650	0.0024	0.0024
EB	RIGHT (R)	12	12	1650	0.0073	
	THRU (T)	44	44	1650	0.0267	
	LEFT (L)	836	836	2970	0.2815	
	T + R		56	1650	0.0339	
	T + L		880	2970	0.2963	
	T + R + L		892	2970	0.3003	0.3003
WB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	12	12	1725	0.0070	0.0070
	LEFT (L)	4	4	1650	0.0024	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
438 0 27

LEFT 74 --- 2.0 1.5 0.0 1.0 1.0 --- 7 RIGHT
Split? N

THRU 425 ---> 1.0 (NO. OF LANES) 1.0<--- 842 THRU
STREET NAME: Vallecitos Rd.

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
0 0 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	438	317 *	1650	0.1921	0.1921
LEFT (L)	27	27	1650	0.0164	
EB THRU (T)	425	425	1725	0.2464	
LEFT (L)	74	74	2970	0.0249	0.0249
WB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	842	842	1725	0.4881	0.4881

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.71
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
81 0 14

LEFT 103 --- 2.0 1.5 0.0 1.0 1.0 --- 8 RIGHT
Split? N

THRU 1407 ---> 1.0 (NO. OF LANES) 1.0<--- 541 THRU
STREET NAME: Vallecitos Rd.

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
0 0 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=B

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	81	0 *	1650	0.0000	
LEFT (L)	14	14	1650	0.0085	0.0085
EB THRU (T)	1407	1407	1725	0.8157	0.8157
LEFT (L)	103	103	2970	0.0347	
WB RIGHT (R)	8	0 *	1650	0.0000	
THRU (T)	541	541	1725	0.3136	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.82
ADJUSTMENT FOR LOST YELLOW TIME: 0.06
TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

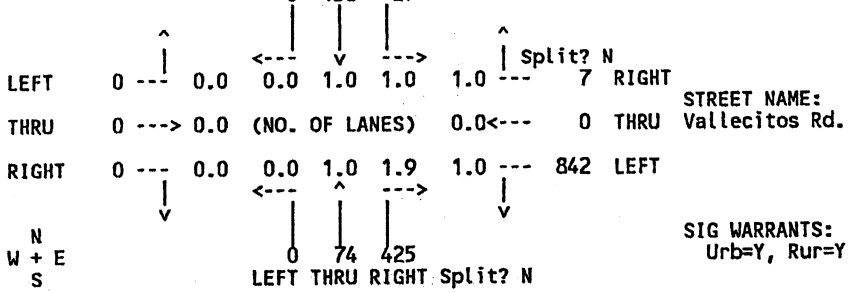
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Re-configurated Existing Conditions - AM Peak 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 438 27



STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	425	425	1725	0.2464	
THRU (T)	74	74	1725	0.0429	
SB THRU (T)	438	438	1725	0.2539	0.2539
LEFT (L)	27	27	1650	0.0164	
WB RIGHT (R)	7	0 *	1650	0.0000	
LEFT (L)	842	842	1650	0.5103	0.5103

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.76
ADJUSTMENT FOR LOST YELLOW TIME:	0.09
TOTAL VOLUME-TO-CAPACITY RATIO:	0.85
INTERSECTION LEVEL OF SERVICE:	D

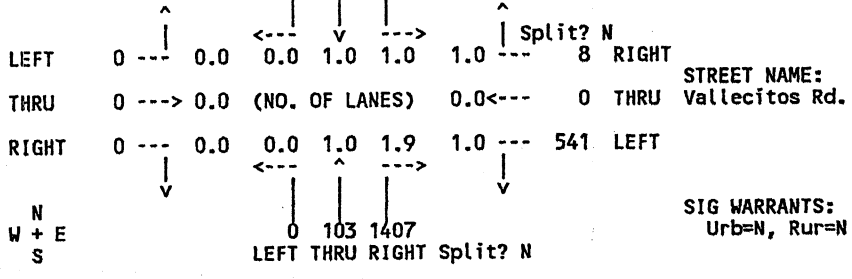
* ADJUSTED FOR RIGHT TURN ON RED
INT=MIT2.INT,VOL=RECONFIG.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Re-configurated Existing Conditions - PM Peak 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 81 14



STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1407	1407	1725	0.8157	
THRU (T)	103	103	1725	0.0597	0.0597
SB THRU (T)	81	81	1725	0.0470	
LEFT (L)	14	14	1650	0.0085	0.0085
WB RIGHT (R)	8	0 *	1650	0.0000	
LEFT (L)	541	541	1650	0.3279	0.3279

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.40
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.50
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=MIT2.INT,VOL=RECONFIG.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/06/02

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	238	196				
LEFT	0	0.0	0.0	1.0	2.0	2.0	Split? N 394	RIGHT	STREET NAME:
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	Concannon
RIGHT	0	0.0	0.0	2.0	1.0	1.0	629	LEFT	
N									SIG WARRANTS:
W + E			0	101	83				Urb=Y, Rur=Y
S			LEFT	THRU	RIGHT	Split? N			

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	83	0 *	1650	0.0000	
THRU (T)	101	101	3450	0.0293	
SB THRU (T)	238	238	1725	0.1380	0.1380
LEFT (L)	196	196	2970	0.0660	
WB RIGHT (R)	394	260 *	2970	0.0875	
LEFT (L)	629	629	1650	0.3812	0.3812

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.52
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.62
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/06/02

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	102	349				
LEFT	0	0.0	0.0	1.0	2.0	2.0	Split? N 163	RIGHT	STREET NAME:
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	Concannon
RIGHT	0	0.0	0.0	2.0	1.0	1.0	83	LEFT	
N									SIG WARRANTS:
W + E			0	199	739				Urb=Y, Rur=Y
S			LEFT	THRU	RIGHT	Split? N			

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	739	618 *	1650	0.3745	0.3745
THRU (T)	199	199	3450	0.0577	
SB THRU (T)	102	102	1725	0.0591	
LEFT (L)	349	349	2970	0.1175	0.1175
WB RIGHT (R)	163	0 *	2970	0.0000	
LEFT (L)	83	83	1650	0.0503	0.0503

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.54
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.64
INTERSECTION LEVEL OF SERVICE:	B

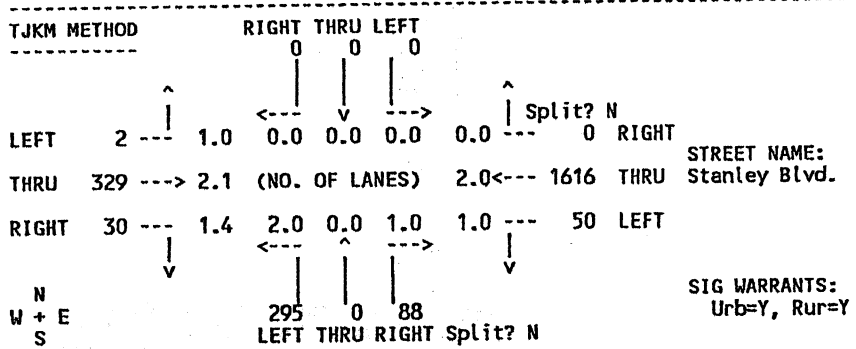
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/10/02

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	88	0 *	1650	0.0000	
	LEFT (L)	295	295	2970	0.0993	0.0993
EB	RIGHT (R)	30	0 *	1650	0.0000	
	THRU (T)	329	329	3375	0.0975	
	LEFT (L)	2	2	1650	0.0012	0.0012
	T + R		329	3375	0.0975	
WB	THRU (T)	1616	1616	3450	0.4684	0.4684
	LEFT (L)	50	50	1650	0.0303	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.57
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.67
INTERSECTION LEVEL OF SERVICE:	B

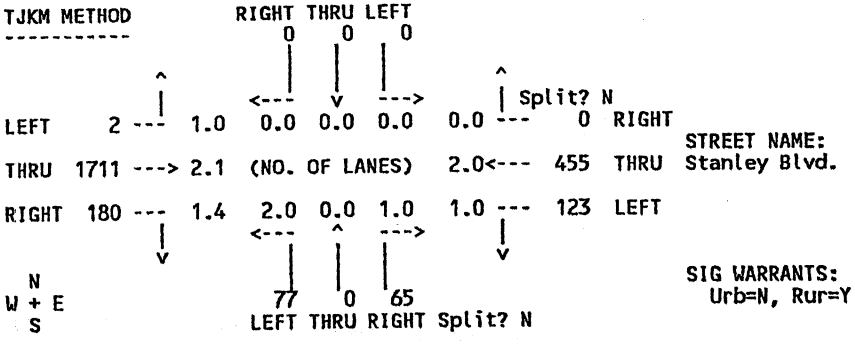
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/10/02

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour PM PEAK HOUR

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	65	0 *	1650	0.0000	
	LEFT (L)	77	77	2970	0.0259	0.0259
EB	RIGHT (R)	180	90 *	1650	0.0545	
	THRU (T)	1711	1711	3375	0.5070	
	LEFT (L)	2	2	1650	0.0012	
	T + R		1801	3375	0.5336	0.5336
WB	THRU (T)	455	455	3450	0.1319	
	LEFT (L)	123	123	1650	0.0745	0.0745

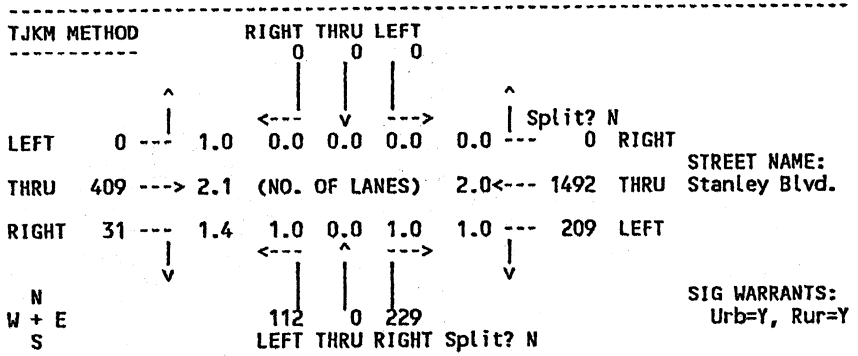
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.63
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.73
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/11/02

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR



STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	229	45 *	1650	0.0273	
LEFT (L)	112	112	1650	0.0679	0.0679
EB RIGHT (R)	31	0 *	1650	0.0000	
THRU (T)	409	409	3375	0.1212	
LEFT (L)	0	0	1650	0.0000	0.0000
T + R		409	3375	0.1212	
WB THRU (T)	1492	1492	3450	0.4325	0.4325
LEFT (L)	209	209	1650	0.1267	

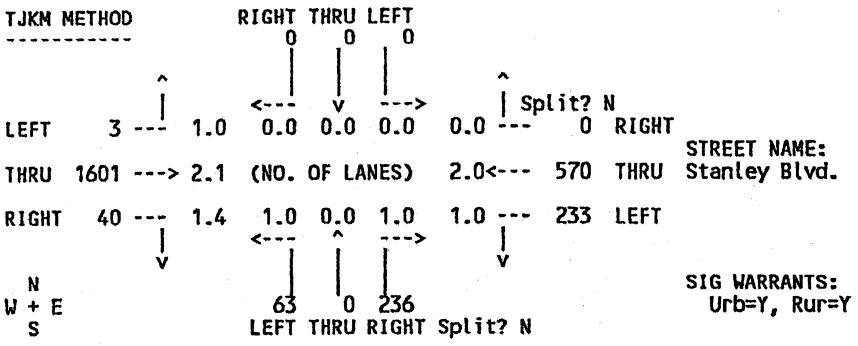
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.50
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.60
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/11/02

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	236	40 *	1650	0.0242	
LEFT (L)	63	63	1650	0.0382	0.0382
EB RIGHT (R)	40	0 *	1650	0.0000	
THRU (T)	1601	1601	3375	0.4744	0.4744
LEFT (L)	3	3	1650	0.0018	
T + R		1601	3375	0.4744	
WB THRU (T)	570	570	3450	0.1652	
LEFT (L)	233	233	1650	0.1412	0.1412

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.65
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.75
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/10/02

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
456 270 128

LEFT 175 --- 1.0 1.0 1.1 2.1 1.0 --- 131 RIGHT
THRU 401 ---> 2.1 (NO. OF LANES) 2.0<--- 814 THRU
RIGHT 148 --- 1.4 2.1 2.2 1.1 1.0 --- 30 LEFT

Split? N

STREET NAME:
Stanley Blvd.

N
W + E
S

387 284 11
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	284	284	3300	0.0861	
	LEFT (L)	387	387	2970	0.1303	
	T + R		295	3300	0.0894	
	T + L		671	4620	0.1452	
	T + R + L		682	4620	0.1476	0.1476
SB	RIGHT (R)	456	289 *	1650	0.1752	0.1752
	THRU (T)	270	270	1650	0.1636	
	LEFT (L)	128	128	2970	0.0431	
	T + L		398	2970	0.1340	
EB	RIGHT (R)	148	58 *	1650	0.0352	
	THRU (T)	401	401	3375	0.1188	
	LEFT (L)	175	175	1650	0.1061	0.1061
	T + R		459	3375	0.1360	
WB	RIGHT (R)	131	15 *	1650	0.0091	
	THRU (T)	814	814	3450	0.2359	0.2359
	LEFT (L)	30	30	1650	0.0182	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.66
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.76
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/10/02

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour PM PEAK HOUR

TJKM METHOD

RIGHT THRU LEFT
68 186 198

LEFT 298 --- 1.0 1.0 1.1 2.1 1.0 --- 141 RIGHT
THRU 1038 ---> 2.1 (NO. OF LANES) 2.0<--- 441 THRU
RIGHT 232 --- 1.4 2.1 2.2 1.1 1.0 --- 30 LEFT

Split? N

STREET NAME:
Stanley Blvd.

N
W + E
S

198 289 12
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	12	12	1650	0.0073	
	THRU (T)	289	289	3300	0.0876	
	LEFT (L)	198	198	2970	0.0667	
	T + R		301	3300	0.0912	
	T + L		487	4620	0.1054	
	T + R + L		499	4620	0.1080	0.1080
SB	RIGHT (R)	68	0 *	1650	0.0000	
	THRU (T)	186	186	1650	0.1127	
	LEFT (L)	198	198	2970	0.0667	
	T + L		384	2970	0.1293	0.1293
EB	RIGHT (R)	232	142 *	1650	0.0861	
	THRU (T)	1038	1038	3375	0.3076	
	LEFT (L)	298	298	1650	0.1806	
	T + R		1180	3375	0.3496	0.3496
WB	RIGHT (R)	141	6 *	1650	0.0036	
	THRU (T)	441	441	3450	0.1278	
	LEFT (L)	30	30	1650	0.0182	0.0182

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.61
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.71
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/10/02

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD

			RIGHT	THRU	LEFT					
			145	802	79					
LEFT	109	1.0	1.1	2.1	1.0	1.1	Split? N	72	RIGHT	
THRU	337	2.1	(NO. OF LANES)			2.1		468	THRU	STREET NAME: Concannon Blvd.
RIGHT	25	1.1	1.0	2.1	1.1	1.0		231	LEFT	
			76	317	94					SIG WARRANTS: Urb=Y, Rur=Y

N / W + E / S: LEFT THRU RIGHT Split? N

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	94	94	1650	0.0570	
	THRU (T)	317	317	3375	0.0939	
	LEFT (L)	76	76	1650	0.0461	0.0461
	T + R		411	3375	0.1218	
SB	RIGHT (R)	145	145	1650	0.0879	
	THRU (T)	802	802	3375	0.2376	
	LEFT (L)	79	79	1650	0.0479	
	T + R		947	3375	0.2806	0.2806
EB	RIGHT (R)	25	25	1650	0.0152	
	THRU (T)	337	337	3375	0.0999	
	LEFT (L)	109	109	1650	0.0661	
	T + R		362	3375	0.1073	0.1073
WB	RIGHT (R)	72	72	1650	0.0436	
	THRU (T)	468	468	3375	0.1387	
	LEFT (L)	231	231	1650	0.1400	0.1400
	T + R		540	3375	0.1600	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.57
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.67
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/10/02

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			101	413	104					
LEFT	207	1.0	1.1	2.1	1.0	1.1	Split? N	49	RIGHT	
THRU	525	2.1	(NO. OF LANES)			2.1		306	THRU	STREET NAME: Concannon Blvd.
RIGHT	29	1.1	1.0	2.1	1.1	1.0		126	LEFT	
			52	886	337					SIG WARRANTS: Urb=Y, Rur=Y

N / W + E / S: LEFT THRU RIGHT Split? N

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	337	337	1650	0.2042	
	THRU (T)	886	886	3375	0.2625	
	LEFT (L)	52	52	1650	0.0315	
	T + R		1223	3375	0.3624	0.3624
SB	RIGHT (R)	101	101	1650	0.0612	
	THRU (T)	413	413	3375	0.1224	
	LEFT (L)	104	104	1650	0.0630	0.0630
	T + R		514	3375	0.1523	
EB	RIGHT (R)	29	29	1650	0.0176	
	THRU (T)	525	525	3375	0.1556	
	LEFT (L)	207	207	1650	0.1255	
	T + R		554	3375	0.1641	0.1641
WB	RIGHT (R)	49	49	1650	0.0297	
	THRU (T)	306	306	3375	0.0907	
	LEFT (L)	126	126	1650	0.0764	0.0764
	T + R		355	3375	0.1052	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.67
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.77
INTERSECTION LEVEL OF SERVICE:	C

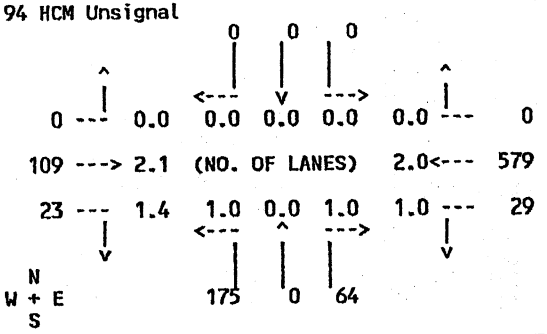
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - AM Peak Hour 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour AM PEAK HOUR

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=B

LANE FOR LT	ACCEL % SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	175	214	7.0	809	322	316	32.4	E	24.6	D
R	64	78	5.5	73	1271	1271	3.0	A		
EB T	109	133							0.0	A
R	23	28								
TR	132	161					0.0	A		
WB L	29	35	5.5	147	1430	1430	2.6	A	0.1	A
T	579	708					0.0	A		

INT TOTAL: 6.1 B
MINOR MOVEMENTS: (22.2) (D)

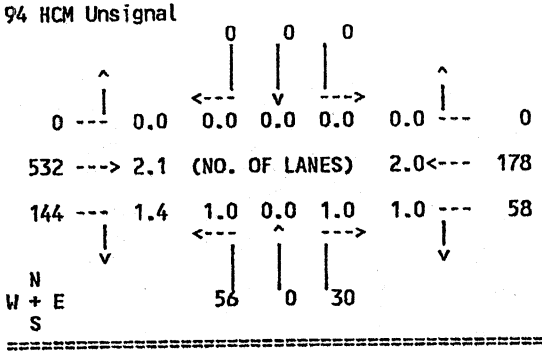
INT=EXIST.INT,VOL=EXIST.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing Conditions - PM Peak Hour 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour PM PEAK HOUR

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=N

LANE FOR LT	ACCEL % SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	56	68	7.0	933	268	246	20.1	D	14.5	C
R	30	37	5.5	376	893	893	4.2	A		
EB T	532	650							0.0	A
R	144	176								
TR	676	826					0.0	A		
WB L	58	71	5.5	751	677	677	5.9	B	1.5	A
T	178	218					0.0	A		

INT TOTAL: 1.6 A
MINOR MOVEMENTS: (11.0) (C)

INT=EXIST.INT,VOL=EXIST.PMV,CAP=...LIVCAP.TAB

APPENDIX C LEVEL OF SERVICE - EXISTING + PROJECT CONDITIONS

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
246 209 0

LEFT 0 --- 0.0 1.9 3.0 0.0 2.0 --- 199 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 1.1<--- 8 THRU

RIGHT 0 --- 0.0 0.0 2.0 2.9 2.1 --- 192 LEFT

N
W + E
S
0 591 903
LEFT THRU RIGHT Split? N

STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	903	903	3105	0.2908	
THRU (T)	591	591	3450	0.1713	0.1713
SB RIGHT (R)	246	246	1725	0.1426	
THRU (T)	209	209	5175	0.0404	
WB RIGHT (R)	199	119 *	2970	0.0401	
THRU (T)	8	8	1650	0.0048	
LEFT (L)	192	192	2970	0.0646	
T + L		200	2970	0.0673	0.0673

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.24
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.34
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
253 642 0

LEFT 0 --- 0.0 1.9 3.0 0.0 2.0 --- 254 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 1.1<--- 5 THRU

RIGHT 0 --- 0.0 0.0 2.0 2.9 2.1 --- 145 LEFT

N
W + E
S
0 507 853
LEFT THRU RIGHT Split? N

STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	853	853	3105	0.2747	
THRU (T)	507	507	3450	0.1470	0.1470
SB RIGHT (R)	253	253	1725	0.1467	
THRU (T)	642	642	5175	0.1241	
WB RIGHT (R)	254	174 *	2970	0.0586	0.0586
THRU (T)	5	5	1650	0.0030	
LEFT (L)	145	145	2970	0.0488	
T + L		150	2970	0.0505	

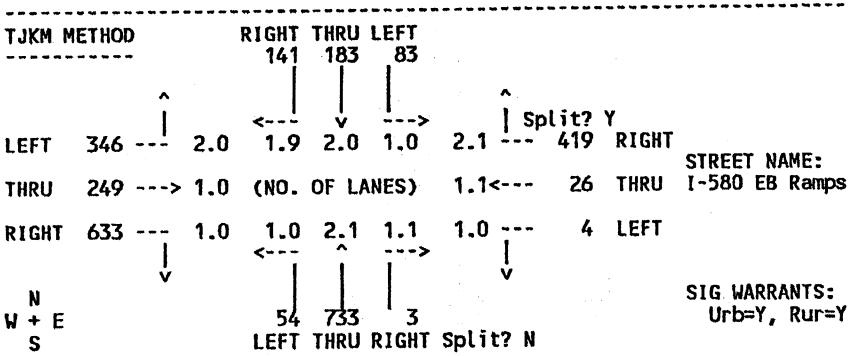
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.21
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.31
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour



STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	733	733	3375	0.2172	
	LEFT (L)	54	54	1650	0.0327	
	T + R		736	3375	0.2181	0.2181
SB	RIGHT (R)	141	141	1725	0.0817	
	THRU (T)	183	183	3450	0.0530	
	LEFT (L)	83	83	1650	0.0503	0.0503
EB	RIGHT (R)	633	526 *	1650	0.3188	0.3188
	THRU (T)	249	249	1725	0.1443	
	LEFT (L)	346	346	2970	0.1165	
WB	RIGHT (R)	419	298 *	2970	0.1003	
	THRU (T)	26	26	1650	0.0158	
	LEFT (L)	4	4	1650	0.0024	
	T + R		324	2970	0.1091	0.1091

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.70
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.80
INTERSECTION LEVEL OF SERVICE:	C

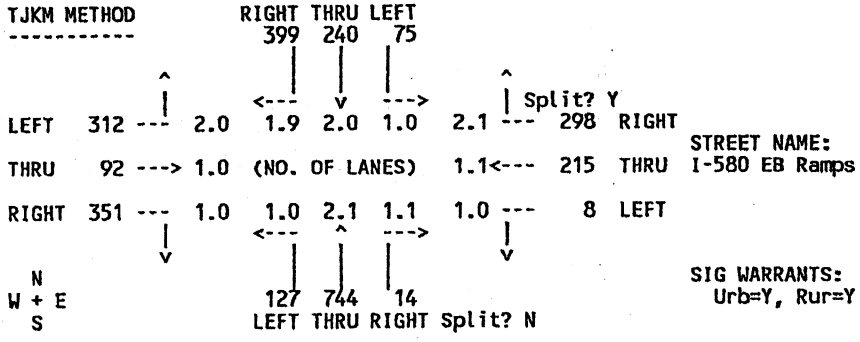
* ADJUSTED FOR RIGHT TURN ON RED

INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour



STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	744	744	3375	0.2204	
	LEFT (L)	127	127	1650	0.0770	
	T + R		758	3375	0.2246	0.2246
SB	RIGHT (R)	399	399	1725	0.2313	
	THRU (T)	240	240	3450	0.0696	
	LEFT (L)	75	75	1650	0.0455	0.0455
EB	RIGHT (R)	351	208 *	1650	0.1261	0.1261
	THRU (T)	92	92	1725	0.0533	
	LEFT (L)	312	312	2970	0.1051	
WB	RIGHT (R)	298	181 *	2970	0.0609	
	THRU (T)	215	215	1650	0.1303	
	LEFT (L)	8	8	1650	0.0048	
	T + R		396	2970	0.1333	0.1333

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.53
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.63
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 3 Kitty Hawk Rd./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
10 58 42

LEFT 15 --- 1.1 1.1 1.1 1.0 1.1 --- 219 RIGHT
THRU 138 ---> 1.1 (NO. OF LANES) 2.2<--- 245 THRU
RIGHT 667 --- 1.5 2.1 1.1 1.9 1.1 --- 48 LEFT
Split? N

STREET NAME: Airway Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

N
W + E
S

542 236 29
LEFT THRU RIGHT Split? Y

STREET NAME: Kitty Hawk Rd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	29	29	1725	0.0168	
	THRU (T)	236	236	1650	0.1430	
	LEFT (L)	542	542	2970	0.1825	
	T + L		778	2970	0.2620	0.2620
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	42	42	1650	0.0255	
	T + R		68	1650	0.0412	0.0412
EB	RIGHT (R)	667	286 *	1650	0.1733	0.1733
	THRU (T)	138	138	1650	0.0836	
	LEFT (L)	15	15	1650	0.0091	
	T + L		153	1650	0.0927	
WB	RIGHT (R)	219	219	1650	0.1327	
	THRU (T)	245	245	3300	0.0742	
	LEFT (L)	48	48	1650	0.0291	0.0291
	T + R		464	3300	0.1406	
	T + L		293	3300	0.0888	
	T + R + L		512	3300	0.1552	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.51
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.61
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 3 Kitty Hawk Rd./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
10 86 112

LEFT 5 --- 1.1 1.1 1.1 1.1 1.0 1.1 --- 47 RIGHT
THRU 86 ---> 1.1 (NO. OF LANES) 2.2<--- 97 THRU
RIGHT 511 --- 1.5 2.1 1.1 1.9 1.1 --- 14 LEFT
Split? N

STREET NAME: Airway Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

N
W + E
S

791 76 45
LEFT THRU RIGHT Split? Y

STREET NAME: Kitty Hawk Rd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	45	45	1725	0.0261	
	THRU (T)	76	76	1650	0.0461	
	LEFT (L)	791	791	2970	0.2663	
	T + L		867	2970	0.2919	0.2919
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	86	86	1650	0.0521	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		96	1650	0.0582	
EB	RIGHT (R)	511	0 *	1650	0.0000	
	THRU (T)	86	86	1650	0.0521	
	LEFT (L)	5	5	1650	0.0030	
	T + L		91	1650	0.0552	0.0552
WB	RIGHT (R)	47	47	1650	0.0285	
	THRU (T)	97	97	3300	0.0294	
	LEFT (L)	14	14	1650	0.0085	0.0085
	T + R		144	3300	0.0436	
	T + L		111	3300	0.0336	
	T + R + L		158	3300	0.0479	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.42
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.52
INTERSECTION LEVEL OF SERVICE:	A

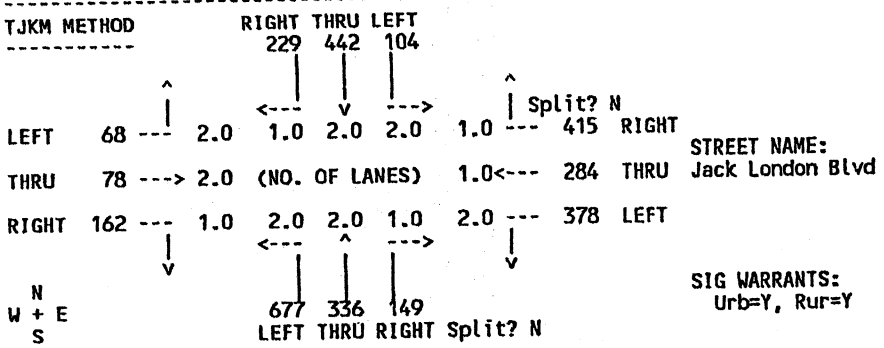
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	149	0 *	1650	0.0000	
	THRU (T)	336	336	3450	0.0974	
	LEFT (L)	677	677	2970	0.2279	0.2279
SB	RIGHT (R)	229	130 *	1650	0.0788	
	THRU (T)	442	442	3450	0.1281	0.1281
	LEFT (L)	104	104	2970	0.0350	
EB	RIGHT (R)	162	0 *	1650	0.0000	
	THRU (T)	78	78	3450	0.0226	
	LEFT (L)	68	68	2970	0.0229	0.0229
WB	RIGHT (R)	415	306 *	1650	0.1855	0.1855
	THRU (T)	284	284	1725	0.1646	
	LEFT (L)	378	378	2970	0.1273	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.56
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.66
INTERSECTION LEVEL OF SERVICE:	B

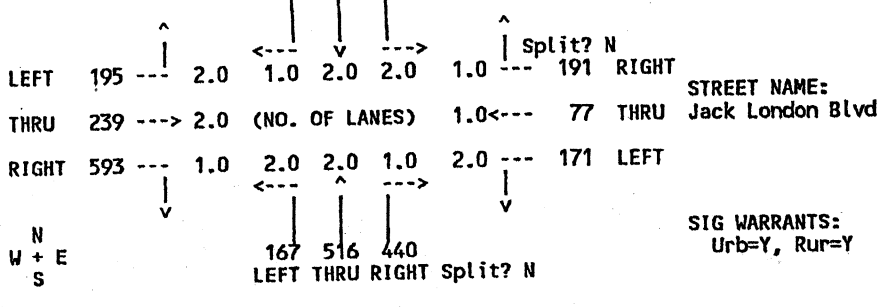
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	440	313 *	1650	0.1897	0.1897
	THRU (T)	516	516	3450	0.1496	
	LEFT (L)	167	167	2970	0.0562	
SB	RIGHT (R)	63	0 *	1650	0.0000	
	THRU (T)	227	227	3450	0.0658	
	LEFT (L)	308	308	2970	0.1037	0.1037
EB	RIGHT (R)	593	467 *	1650	0.2830	0.2830
	THRU (T)	239	239	3450	0.0693	
	LEFT (L)	195	195	2970	0.0657	
WB	RIGHT (R)	191	25 *	1650	0.0152	
	THRU (T)	77	77	1725	0.0446	
	LEFT (L)	171	171	2970	0.0576	0.0576

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.63
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.73
INTERSECTION LEVEL OF SERVICE:	C

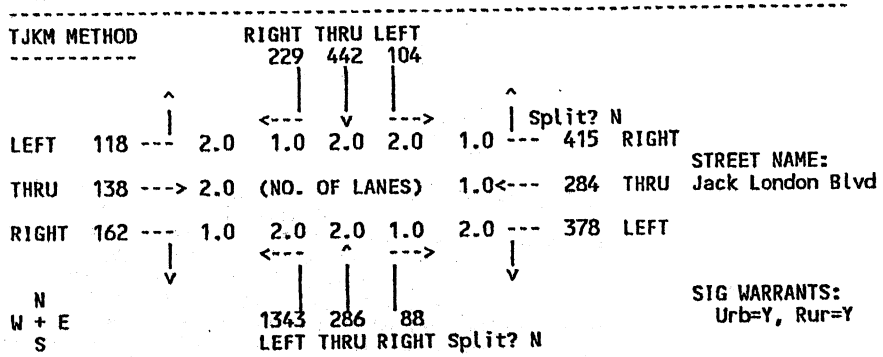
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - AM Peak (Right in/out) 03/07/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	88	0 *	1650	0.0000	
	THRU (T)	286	286	3450	0.0829	
	LEFT (L)	1343	1343	2970	0.4522	0.4522
SB	RIGHT (R)	229	116 *	1650	0.0703	
	THRU (T)	442	442	3450	0.1281	0.1281
	LEFT (L)	104	104	2970	0.0350	
EB	RIGHT (R)	162	0 *	1650	0.0000	
	THRU (T)	138	138	3450	0.0400	
	LEFT (L)	118	118	2970	0.0397	0.0397
WB	RIGHT (R)	415	306 *	1650	0.1855	0.1855
	THRU (T)	284	284	1725	0.1646	
	LEFT (L)	378	378	2970	0.1273	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.81
ADJUSTMENT FOR LOST YELLOW TIME:	0.06
TOTAL VOLUME-TO-CAPACITY RATIO:	0.87
INTERSECTION LEVEL OF SERVICE:	D

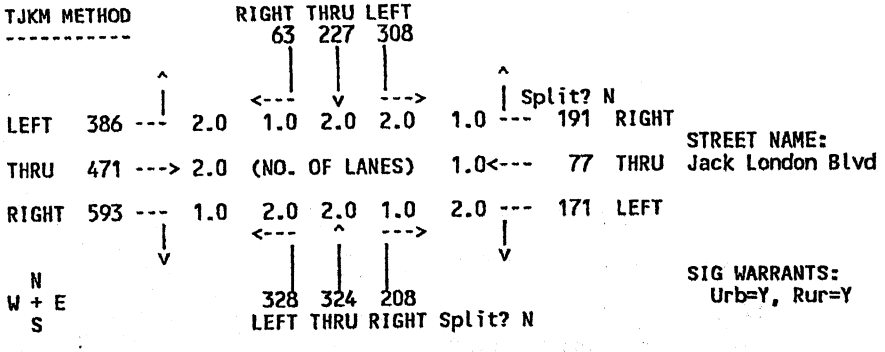
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+RIROACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - PM Peak (Right in/out) 03/07/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	208	81 *	1650	0.0491	
	THRU (T)	324	324	3450	0.0939	0.0939
	LEFT (L)	328	328	2970	0.1104	
SB	RIGHT (R)	63	0 *	1650	0.0000	
	THRU (T)	227	227	3450	0.0658	
	LEFT (L)	308	308	2970	0.1037	0.1037
EB	RIGHT (R)	593	422 *	1650	0.2558	0.2558
	THRU (T)	471	471	3450	0.1365	
	LEFT (L)	386	386	2970	0.1300	
WB	RIGHT (R)	191	25 *	1650	0.0152	
	THRU (T)	77	77	1725	0.0446	
	LEFT (L)	171	171	2970	0.0576	0.0576

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.51
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.61
INTERSECTION LEVEL OF SERVICE:	B

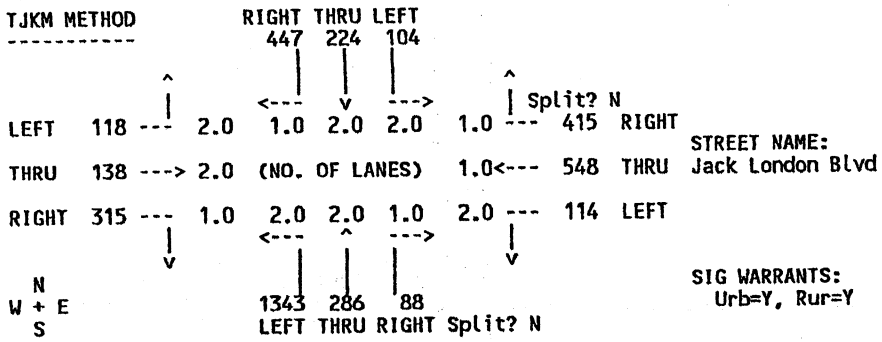
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+RIROACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - AM Peak Hour (NO Access) 03/07/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	88	0 *	1650	0.0000	
	THRU (T)	286	286	3450	0.0829	
	LEFT (L)	1343	1343	2970	0.4522	0.4522
SB	RIGHT (R)	447	334 *	1650	0.2024	0.2024
	THRU (T)	224	224	3450	0.0649	
	LEFT (L)	104	104	2970	0.0350	
EB	RIGHT (R)	315	0 *	1650	0.0000	
	THRU (T)	138	138	3450	0.0400	
	LEFT (L)	118	118	2970	0.0397	0.0397
WB	RIGHT (R)	415	306 *	1650	0.1855	
	THRU (T)	548	548	1725	0.3177	0.3177
	LEFT (L)	114	114	2970	0.0384	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	1.01
ADJUSTMENT FOR LOST YELLOW TIME:	0.00
TOTAL VOLUME-TO-CAPACITY RATIO:	1.01
INTERSECTION LEVEL OF SERVICE:	F

* ADJUSTED FOR RIGHT TURN ON RED

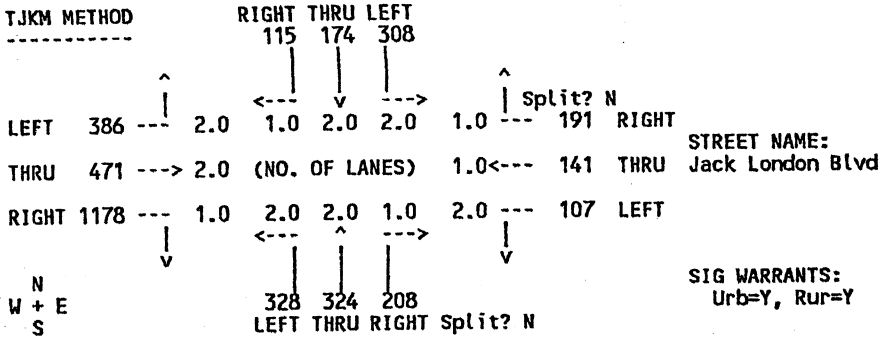
INT=EXIST.INT,VOL=EXIST.AMV+ONE_ACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - PM Peak Hour (NO Access) 03/07/02

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	208	98 *	1650	0.0594	
	THRU (T)	324	324	3450	0.0939	0.0939
	LEFT (L)	328	328	2970	0.1104	
SB	RIGHT (R)	115	0 *	1650	0.0000	
	THRU (T)	174	174	3450	0.0504	
	LEFT (L)	308	308	2970	0.1037	0.1037
EB	RIGHT (R)	1178	1007 *	1650	0.6103	0.6103
	THRU (T)	471	471	3450	0.1365	
	LEFT (L)	386	386	2970	0.1300	
WB	RIGHT (R)	191	25 *	1650	0.0152	
	THRU (T)	141	141	1725	0.0817	
	LEFT (L)	107	107	2970	0.0360	0.0360

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.84
ADJUSTMENT FOR LOST YELLOW TIME:	0.05
TOTAL VOLUME-TO-CAPACITY RATIO:	0.89
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXIST.INT,VOL=EXIST.PMV+ONE_ACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD — RIGHT THRU LEFT: 638 376 0

LEFT	223	1.0	1.1	2.1	0.0	1.0	177	RIGHT	
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Jack London Blvd
RIGHT	259	1.0	1.0	2.0	0.0	1.0	53	LEFT	

Split? N

N / W + E / S — LEFT THRU RIGHT: 521 398 0 Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	398	398	3450	0.1154	
	LEFT (L)	521	521	1650	0.3158	0.3158
SB	RIGHT (R)	638	638	1650	0.3867	0.3867
	THRU (T)	376	376	3375	0.1114	
	T + R		1014	3375	0.3004	
EB	RIGHT (R)	259	0 *	1650	0.0000	
	LEFT (L)	223	223	1650	0.1352	0.1352
WB	RIGHT (R)	177	97 *	1650	0.0588	0.0588
	LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.90
ADJUSTMENT FOR LOST YELLOW TIME:	0.02
TOTAL VOLUME-TO-CAPACITY RATIO:	0.92
INTERSECTION LEVEL OF SERVICE:	E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD — RIGHT THRU LEFT: 199 177 0

LEFT	563	1.0	1.1	2.1	0.0	1.0	105	RIGHT	
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Jack London Blvd
RIGHT	256	1.0	1.0	2.0	0.0	1.0	44	LEFT	

Split? N

N / W + E / S — LEFT THRU RIGHT: 164 583 0 Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	583	583	3450	0.1690	
	LEFT (L)	164	164	1650	0.0994	0.0994
SB	RIGHT (R)	199	199	1650	0.1206	0.1206
	THRU (T)	177	177	3375	0.0524	
	T + R		376	3375	0.1114	
EB	RIGHT (R)	256	94 *	1650	0.0570	
	LEFT (L)	563	563	1650	0.3412	0.3412
WB	RIGHT (R)	105	25 *	1650	0.0152	0.0152
	LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.58
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.68
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + Project - AM Peak Hour 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
638 376 0

LEFT 223 --- 1.0 1.1 2.1 0.0 1.0 --- 177 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 259 --- 1.0 2.1 2.1 0.0 1.0 --- 53 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

521 398 0
LEFT THRU RIGHT Split? N

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	398	398	3375	0.1179	
LEFT (L)	521	521	2970	0.1754	0.1754
T + L		919	4695	0.1957	
SB RIGHT (R)	638	638	1650	0.3867	0.3867
THRU (T)	376	376	3375	0.1114	
T + R		1014	3375	0.3004	
EB RIGHT (R)	259	34 *	1650	0.0206	
LEFT (L)	223	223	1650	0.1352	0.1352
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.76
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=02MIT.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + Project - PM Peak Hour 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
199 177 0

LEFT 563 --- 1.0 1.1 2.1 0.0 1.0 --- 105 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 256 --- 1.0 2.1 2.1 0.0 1.0 --- 44 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

164 583 0
LEFT THRU RIGHT Split? N

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	583	583	3375	0.1727	
LEFT (L)	164	164	2970	0.0552	0.0552
T + L		747	4695	0.1591	
SB RIGHT (R)	199	199	1650	0.1206	0.1206
THRU (T)	177	177	3375	0.0524	
T + R		376	3375	0.1114	
EB RIGHT (R)	256	130 *	1650	0.0788	
LEFT (L)	563	563	1650	0.3412	0.3412
WB RIGHT (R)	105	25 *	1650	0.0152	0.0152
LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.53
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

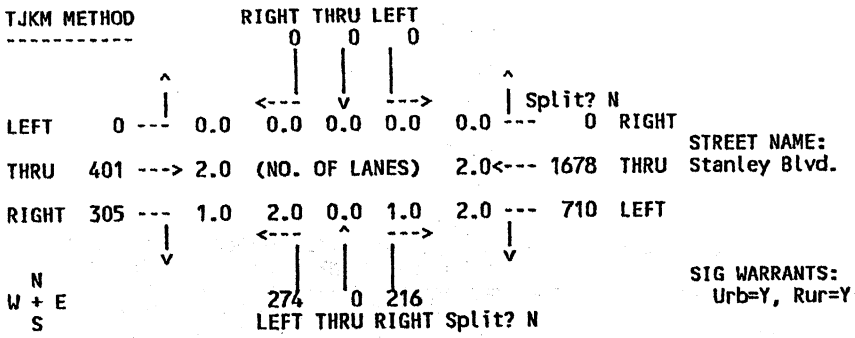
* ADJUSTED FOR RIGHT TURN ON RED
INT=02MIT.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	216	0 *	1650	0.0000	
LEFT (L)	274	274	2970	0.0923	0.0923
EB RIGHT (R)	305	149 *	1650	0.0903	
THRU (T)	401	401	3450	0.1162	
WB THRU (T)	1678	1678	3450	0.4864	0.4864
LEFT (L)	710	710	2970	0.2391	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.58
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.68
INTERSECTION LEVEL OF SERVICE:	B

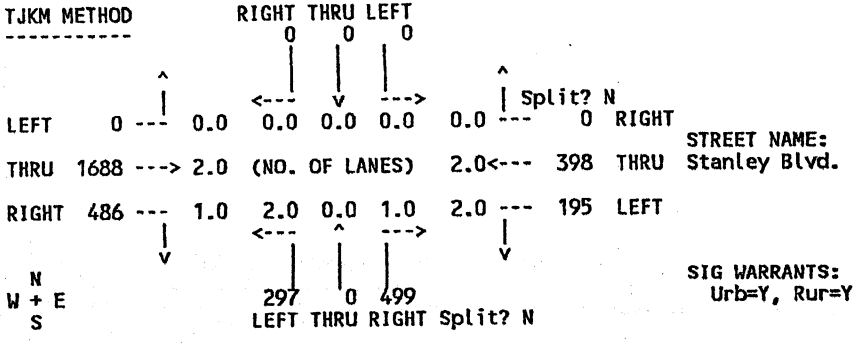
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	499	365 *	1650	0.2212	0.2212
LEFT (L)	297	297	2970	0.1000	
EB RIGHT (R)	486	324 *	1650	0.1964	
THRU (T)	1688	1688	3450	0.4893	0.4893
WB THRU (T)	398	398	3450	0.1154	
LEFT (L)	195	195	2970	0.0657	0.0657

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.78
ADJUSTMENT FOR LOST YELLOW TIME:	0.08
TOTAL VOLUME-TO-CAPACITY RATIO:	0.86
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + ~~Approved~~ - AM Peak Hour 03/07/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            0    0    0
                       |    |    |
          ^            |    |    |        ^
          |          <---   v   --->      | Split? N
LEFT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                        STREET NAME:
THRU  401 ---> 2.0   (NO. OF LANES)   2.0<--- 1678  THRU  Stanley Blvd.

RIGHT 305 ---  1.0   2.0  0.0  1.5   2.0 ---  710  LEFT
          |          <---   ^   --->      |
          v            |    |    |        v
   N                   |    |    |                      SIG WARRANTS:
 W + E                274   0   216                       Urb=Y, Rur=Y
   S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Isabel Ramp

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	216	0 *	1650	0.0000	
	LEFT (L)	274	274	2970	0.0923	0.0923
EB	RIGHT (R)	305	149 *	1650	0.0903	
	THRU (T)	401	401	3450	0.1162	
WB	THRU (T)	1678	1678	3450	0.4864	0.4864
	LEFT (L)	710	710	2970	0.2391	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.58
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.68
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=MITIG8.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + ~~Approved~~ - PM Peak Hour 03/07/02

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            0    0    0
                       |    |    |
          ^            |    |    |        ^
          |          <---   v   --->      | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                        STREET NAME:
THRU  1688 ---> 2.0   (NO. OF LANES)   2.0<---  398  THRU  Stanley Blvd.

RIGHT  486 ---  1.0   2.0  0.0  1.5   2.0 ---  195  LEFT
          |          <---   ^   --->      |
          v            |    |    |        v
   N                   |    |    |                      SIG WARRANTS:
 W + E                297   0   499                       Urb=Y, Rur=Y
   S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Isabel Ramp

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	499	311 *	1650	0.1885	0.1885
	LEFT (L)	297	297	2970	0.1000	
EB	RIGHT (R)	486	324 *	1650	0.1964	
	THRU (T)	1688	1688	3450	0.4893	0.4893
WB	THRU (T)	398	398	3450	0.1154	
	LEFT (L)	195	195	2970	0.0657	0.0657

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.74
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.84
INTERSECTION LEVEL OF SERVICE:	D

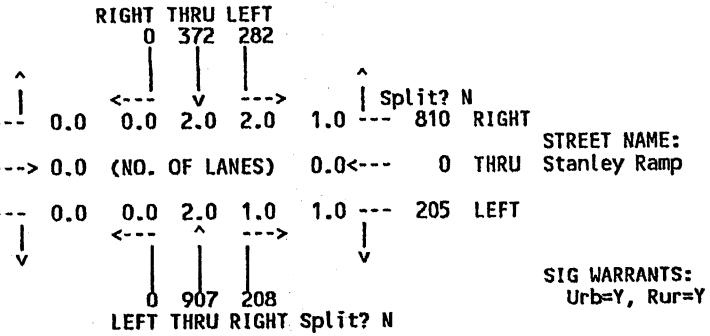
* ADJUSTED FOR RIGHT TURN ON RED
INT=MITIG8.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	208	26 *	1650	0.0158	
THRU (T)	907	907	3450	0.2629	0.2629
SB THRU (T)	372	372	3450	0.1078	
LEFT (L)	282	282	2970	0.0949	0.0949
WB RIGHT (R)	810	652 *	1650	0.3952	0.3952
LEFT (L)	205	205	1650	0.1242	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.75
ADJUSTMENT FOR LOST YELLOW TIME:	0.09
TOTAL VOLUME-TO-CAPACITY RATIO:	0.84
INTERSECTION LEVEL OF SERVICE:	D

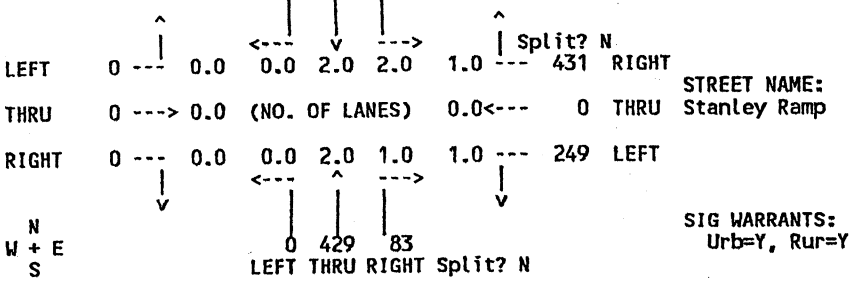
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	83	0 *	1650	0.0000	
THRU (T)	429	429	3450	0.1243	0.1243
SB THRU (T)	747	747	3450	0.2165	
LEFT (L)	713	713	2970	0.2401	0.2401
WB RIGHT (R)	431	153 *	1650	0.0927	
LEFT (L)	249	249	1650	0.1509	0.1509

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.52
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.62
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			395	521	3				
LEFT	224	2.1	1.0	1.0	1.0	1.0	5	RIGHT	STREET NAME:
THRU	16	1.1	(NO. OF LANES)			1.0	34	THRU	Vineyard Ave.
RIGHT	10	1.1	1.0	1.0	1.0	1.0	10	LEFT	
			10	185	3				SIG WARRANTS:
			LEFT	THRU	RIGHT	Split? N			Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	185	185	1725	0.1072	
LEFT (L)	10	10	1650	0.0061	0.0061
SB RIGHT (R)	395	253 *	1650	0.1533	
THRU (T)	521	521	1725	0.3020	0.3020
LEFT (L)	3	3	1650	0.0018	
EB RIGHT (R)	10	10	1650	0.0061	
THRU (T)	16	16	1650	0.0097	
LEFT (L)	224	224	2970	0.0754	
T + R		26	1650	0.0158	
T + L		240	2970	0.0808	
T + R + L		250	2970	0.0842	0.0842
WB RIGHT (R)	5	0 *	1650	0.0000	
THRU (T)	34	34	1725	0.0197	0.0197
LEFT (L)	10	10	1650	0.0061	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.41
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.51
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			205	178	4				
LEFT	864	2.1	1.0	1.0	1.0	1.0	11	RIGHT	STREET NAME:
THRU	44	1.1	(NO. OF LANES)			1.0	12	THRU	Vineyard Ave.
RIGHT	12	1.1	1.0	1.0	1.0	1.0	4	LEFT	
			5	119	3				SIG WARRANTS:
			LEFT	THRU	RIGHT	Split? N			Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	119	119	1725	0.0690	
LEFT (L)	5	5	1650	0.0030	0.0030
SB RIGHT (R)	205	0 *	1650	0.0000	
THRU (T)	178	178	1725	0.1032	0.1032
LEFT (L)	4	4	1650	0.0024	
EB RIGHT (R)	12	12	1650	0.0073	
THRU (T)	44	44	1650	0.0267	
LEFT (L)	864	864	2970	0.2909	
T + R		56	1650	0.0339	
T + L		908	2970	0.3057	
T + R + L		920	2970	0.3098	0.3098
WB RIGHT (R)	11	0 *	1650	0.0000	
THRU (T)	12	12	1725	0.0070	0.0070
LEFT (L)	4	4	1650	0.0024	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.42
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.52
INTERSECTION LEVEL OF SERVICE:	A

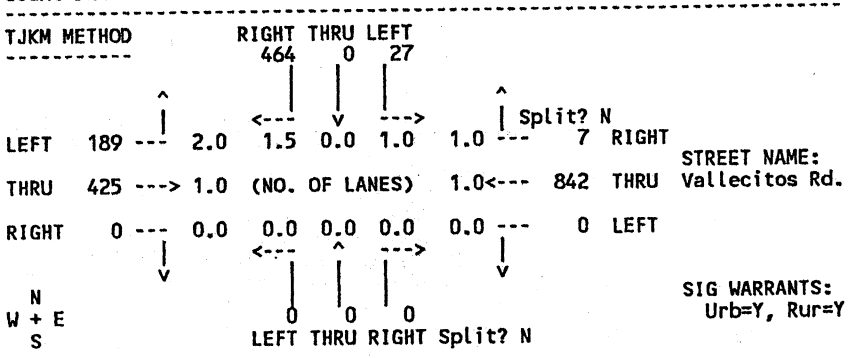
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	464	279 *	1650	0.1691	0.1691
LEFT (L)	27	27	1650	0.0164	
EB THRU (T)	425	425	1725	0.2464	
LEFT (L)	189	189	2970	0.0636	0.0636
WB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	842	842	1725	0.4881	0.4881

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.72
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.82
INTERSECTION LEVEL OF SERVICE:	D

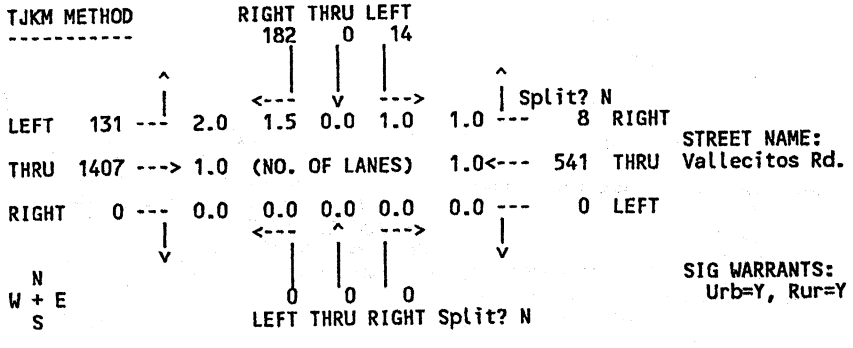
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	182	29 *	1650	0.0176	0.0176
LEFT (L)	14	14	1650	0.0085	
EB THRU (T)	1407	1407	1725	0.8157	0.8157
LEFT (L)	131	131	2970	0.0441	
WB RIGHT (R)	8	0 *	1650	0.0000	
THRU (T)	541	541	1725	0.3136	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.83
ADJUSTMENT FOR LOST YELLOW TIME:	0.05
TOTAL VOLUME-TO-CAPACITY RATIO:	0.88
INTERSECTION LEVEL OF SERVICE:	D

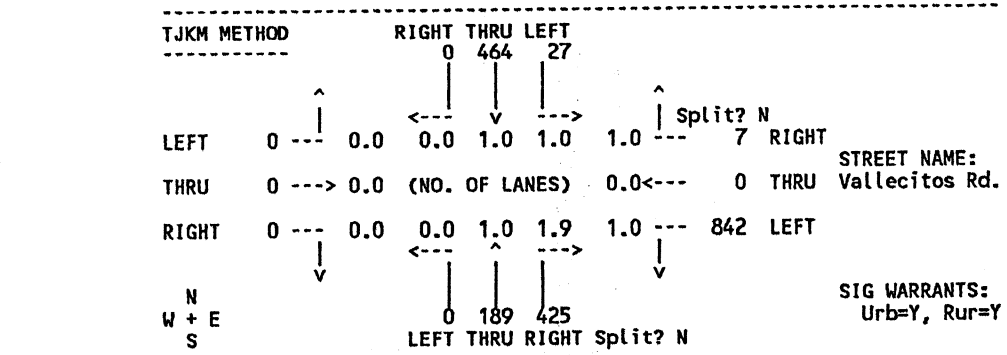
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Re-configurated Existing + Project - AM Peak 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	425	425	1725	0.2464	
THRU (T)	189	189	1725	0.1096	
SB THRU (T)	464	464	1725	0.2690	0.2690
LEFT (L)	27	27	1650	0.0164	
WB RIGHT (R)	7	0 *	1650	0.0000	
LEFT (L)	842	842	1650	0.5103	0.5103

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.78
ADJUSTMENT FOR LOST YELLOW TIME: 0.08
TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=MIT2.INT,VOL=RECONFIG.AMV+RE-PROJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Re-configurated Existing + Project - PM Peak 05/06/02

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Vallecitos Rd.

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1407	1407	1725	0.8157	
THRU (T)	131	131	1725	0.0759	
SB THRU (T)	182	182	1725	0.1055	0.1055
LEFT (L)	14	14	1650	0.0085	
WB RIGHT (R)	8	0 *	1650	0.0000	
LEFT (L)	541	541	1650	0.3279	0.3279

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.43
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.53
INTERSECTION LEVEL OF SERVICE: A

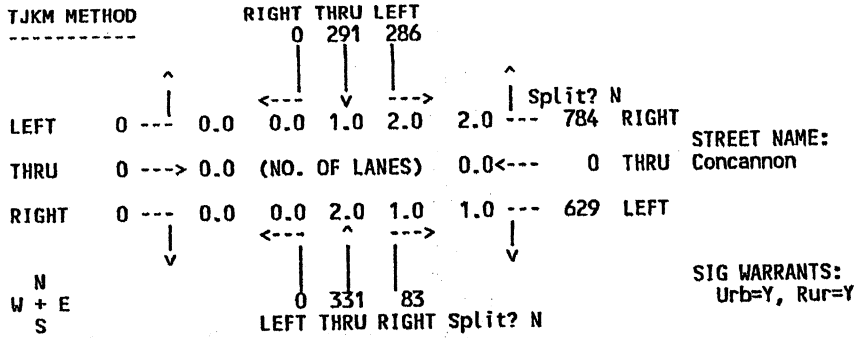
* ADJUSTED FOR RIGHT TURN ON RED
INT=MIT2.INT,VOL=RECONFIG.PMV+RE-PROJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/06/02

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Concannon

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	83	0 *	1650	0.0000	
	THRU (T)	331	331	3450	0.0959	0.0959
SB	THRU (T)	291	291	1725	0.1687	
	LEFT (L)	286	286	2970	0.0963	0.0963
WB	RIGHT (R)	784	625 *	2970	0.2104	
	LEFT (L)	629	629	1650	0.3812	0.3812

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.57
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.67
INTERSECTION LEVEL OF SERVICE:	B

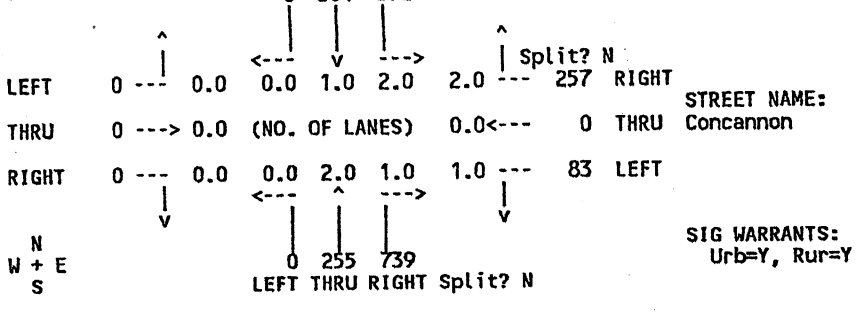
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/06/02

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Concannon

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	739	618 *	1650	0.3745	0.3745
	THRU (T)	255	255	3450	0.0739	
SB	THRU (T)	304	304	1725	0.1762	
	LEFT (L)	692	692	2970	0.2330	0.2330
WB	RIGHT (R)	257	0 *	2970	0.0000	
	LEFT (L)	83	83	1650	0.0503	0.0503

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.66
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.76
INTERSECTION LEVEL OF SERVICE:	C

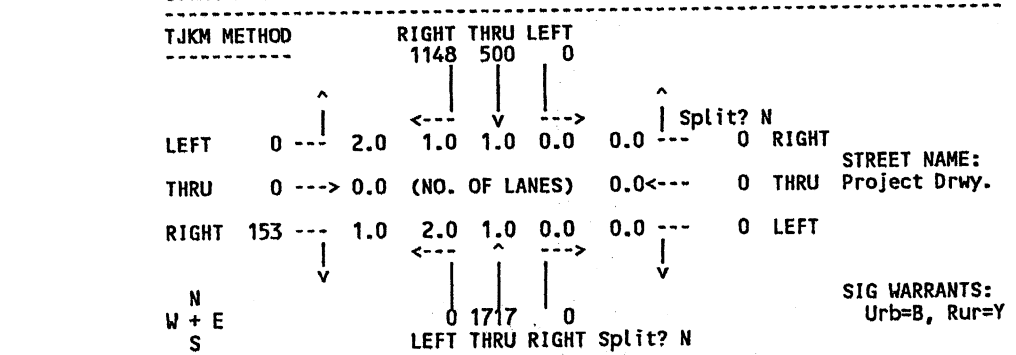
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - AM Peak (Right in/out) 05/06/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Project Drwy.

SIG WARRANTS: Urb=B, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	1717	1717	1725	0.9954 **	0.9954
LEFT (L)	0	0	2970	0.0000	
SB RIGHT (R)	1148	1068 *	1650	0.6473	
THRU (T)	500	500	1725	0.2899	
EB RIGHT (R)	153	73 *	1650	0.0442	0.0442
LEFT (L)	0	0	2970	0.0000	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	1.04
ADJUSTMENT FOR LOST YELLOW TIME:	0.00
TOTAL VOLUME-TO-CAPACITY RATIO:	1.04
INTERSECTION LEVEL OF SERVICE:	F

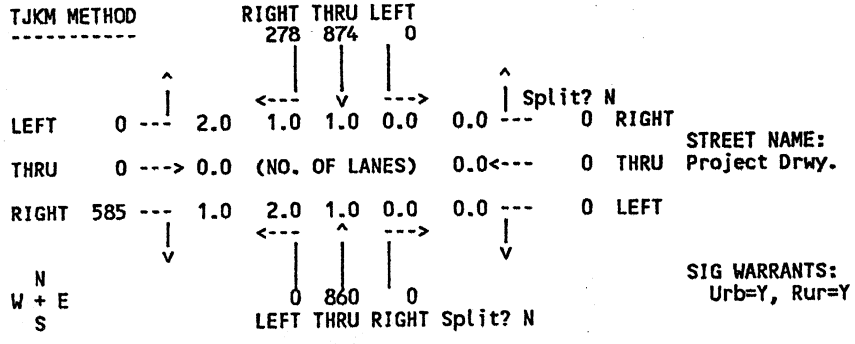
* ADJUSTED FOR RIGHT TURN ON RED ** APPROACHING OR EXCEEDING CAPACITY
INT=EXIST.INT,VOL=EXIST.AMV+RIROACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project - PM Peak (Right in/out) 05/06/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Project Drwy.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	860	860	1725	0.4986	
LEFT (L)	0	0	2970	0.0000	0.0000
SB RIGHT (R)	278	198 *	1650	0.1200	
THRU (T)	874	874	1725	0.5067	0.5067
EB RIGHT (R)	585	505 *	1650	0.3061	0.3061
LEFT (L)	0	0	2970	0.0000	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.81
ADJUSTMENT FOR LOST YELLOW TIME:	0.06
TOTAL VOLUME-TO-CAPACITY RATIO:	0.87
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+RIROACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + 90% Project Conditions - AM Peak 06/03/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
434 485 0

LEFT 100 --- 2.0 1.0 1.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 138 --- 1.0 2.0 1.0 0.0 0.0 --- 0 LEFT
Split? N

N
W + E
S
599 984 0
LEFT THRU RIGHT Split? N

STREET NAME: Project Drwy.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	984	984	1725	0.5704	0.5704
	LEFT (L)	599	599	2970	0.2017	
SB	RIGHT (R)	434	326 *	1650	0.1976	
	THRU (T)	485	485	1725	0.2812	
EB	RIGHT (R)	138	0 *	1650	0.0000	
	LEFT (L)	100	100	2970	0.0337	0.0337

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.60
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.70
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+90%FULL.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + 90% Project Conditions - PM Peak 06/03/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
105 816 0

LEFT 382 --- 2.0 1.0 1.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 527 --- 1.0 2.0 1.0 0.0 0.0 --- 0 LEFT
Split? N

N
W + E
S
145 683 0
LEFT THRU RIGHT Split? N

STREET NAME: Project Drwy.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	683	683	1725	0.3959	
	LEFT (L)	145	145	2970	0.0488	0.0488
SB	RIGHT (R)	105	0 *	1650	0.0000	
	THRU (T)	816	816	1725	0.4730	0.4730
EB	RIGHT (R)	527	407 *	1650	0.2467	0.2467
	LEFT (L)	382	382	2970	0.1286	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.77
ADJUSTMENT FOR LOST YELLOW TIME:	0.08
TOTAL VOLUME-TO-CAPACITY RATIO:	0.85
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+90%FULL.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 05/06/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
482 500 0

LEFT 111 --- 2.0 1.0 1.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 153 --- 1.0 2.0 1.0 0.0 0.0 --- 0 LEFT

Split? N

STREET NAME: Project Drwy.

N
W + E
S

666 1051 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	1051	1051	1725	0.6093	0.6093
LEFT (L)	666	666	2970	0.2242	
SB RIGHT (R)	482	371 *	1650	0.2248	
THRU (T)	500	500	1725	0.2899	
EB RIGHT (R)	153	0 *	1650	0.0000	
LEFT (L)	111	111	2970	0.0374	0.0374

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.65
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.75
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 05/06/02

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD

RIGHT THRU LEFT
117 874 0

LEFT 424 --- 2.0 1.0 1.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 585 --- 1.0 2.0 1.0 0.0 0.0 --- 0 LEFT

Split? N

STREET NAME: Project Drwy.

N
W + E
S

161 699 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	699	699	1725	0.4052	
LEFT (L)	161	161	2970	0.0542	0.0542
SB RIGHT (R)	117	0 *	1650	0.0000	
THRU (T)	874	874	1725	0.5067	0.5067
EB RIGHT (R)	585	460 *	1650	0.2788	0.2788
LEFT (L)	424	424	2970	0.1428	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.84
ADJUSTMENT FOR LOST YELLOW TIME: 0.05
TOTAL VOLUME-TO-CAPACITY RATIO: 0.89
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/10/02

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	0	0				
LEFT	2	1.0	0.0	0.0	0.0	0.0	0	RIGHT	Split? N
THRU	377	2.1	(NO. OF LANES)			2.0	1823	THRU	STREET NAME: Stanley Blvd.
RIGHT	38	1.4	2.0	0.0	1.0	1.0	50	LEFT	
			330	0	88				SIG WARRANTS: Urb=Y, Rur=Y
			LEFT	THRU	RIGHT	Split? N			

N
W + E
S

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	88	0 *	1650	0.0000	
	LEFT (L)	330	330	2970	0.1111	0.1111
EB	RIGHT (R)	38	0 *	1650	0.0000	
	THRU (T)	377	377	3375	0.1117	
	LEFT (L)	2	2	1650	0.0012	0.0012
	T + R		377	3375	0.1117	
WB	THRU (T)	1823	1823	3450	0.5284	0.5284
	LEFT (L)	50	50	1650	0.0303	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.64
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.74
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/10/02

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour PM PEAK HOUR

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	0	0				
LEFT	2	1.0	0.0	0.0	0.0	0.0	0	RIGHT	Split? N
THRU	1893	2.1	(NO. OF LANES)			2.0	505	THRU	STREET NAME: Stanley Blvd.
RIGHT	211	1.4	2.0	0.0	1.0	1.0	123	LEFT	
			86	0	65				SIG WARRANTS: Urb=B, Rur=Y
			LEFT	THRU	RIGHT	Split? N			

N
W + E
S

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	65	0 *	1650	0.0000	
	LEFT (L)	86	86	2970	0.0290	0.0290
EB	RIGHT (R)	211	121 *	1650	0.0733	
	THRU (T)	1893	1893	3375	0.5609	
	LEFT (L)	2	2	1650	0.0012	
	T + R		2014	3375	0.5967	0.5967
WB	THRU (T)	505	505	3450	0.1464	
	LEFT (L)	123	123	1650	0.0745	0.0745

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.70
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.80
INTERSECTION LEVEL OF SERVICE:	C

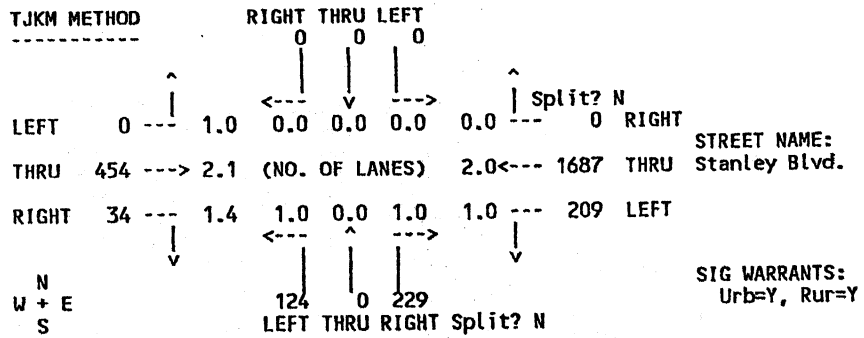
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/11/02

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Wall Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	229	45 *	1650	0.0273	
	LEFT (L)	124	124	1650	0.0752	0.0752
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	454	454	3375	0.1345	
	LEFT (L)	0	0	1650	0.0000	0.0000
	T + R		454	3375	0.1345	
WB	THRU (T)	1687	1687	3450	0.4890	0.4890
	LEFT (L)	209	209	1650	0.1267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.56
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.66
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED

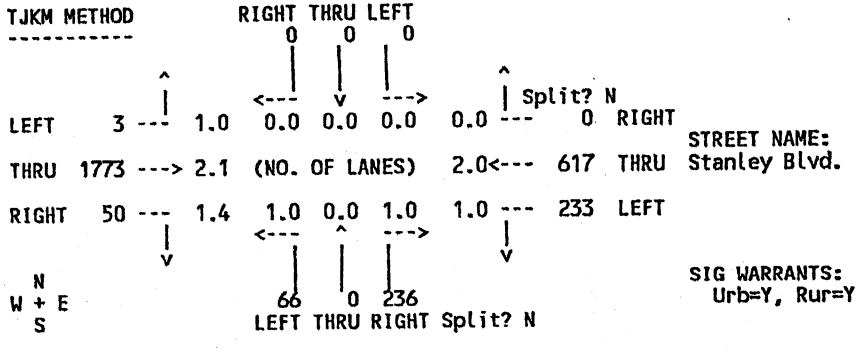
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/11/02

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Wall Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	236	40 *	1650	0.0242	
	LEFT (L)	66	66	1650	0.0400	0.0400
EB	RIGHT (R)	50	0 *	1650	0.0000	
	THRU (T)	1773	1773	3375	0.5253	0.5253
	LEFT (L)	3	3	1650	0.0018	
	T + R		1773	3375	0.5253	
WB	THRU (T)	617	617	3450	0.1788	
	LEFT (L)	233	233	1650	0.1412	0.1412

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.71
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.81
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/10/02

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD — RIGHT THRU LEFT: 456 270 128

LEFT	175	1.0	1.0	1.1	2.1	1.0	131	RIGHT	
THRU	433	2.1	(NO. OF LANES)			2.0	952	THRU	STREET NAME: Stanley Blvd.
RIGHT	161	1.4	2.1	2.2	1.1	1.0	30	LEFT	

Split? N

N / W + E / S: 445 284 11 — LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	284	284	3300	0.0861	
	LEFT (L)	445	445	2970	0.1498	
	T + R		295	3300	0.0894	
	T + L		729	4620	0.1578	
	T + R + L		740	4620	0.1602	0.1602
SB	RIGHT (R)	456	289 *	1650	0.1752	0.1752
	THRU (T)	270	270	1650	0.1636	
	LEFT (L)	128	128	2970	0.0431	
	T + L		398	2970	0.1340	
EB	RIGHT (R)	161	71 *	1650	0.0430	
	THRU (T)	433	433	3375	0.1283	
	LEFT (L)	175	175	1650	0.1061	0.1061
	T + R		504	3375	0.1493	
WB	RIGHT (R)	131	15 *	1650	0.0091	
	THRU (T)	952	952	3450	0.2759	0.2759
	LEFT (L)	30	30	1650	0.0182	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.72
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/10/02

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour PM PEAK HOUR

TJKM METHOD — RIGHT THRU LEFT: 68 186 198

LEFT	298	1.0	1.0	1.1	2.1	1.0	141	RIGHT	
THRU	1159	2.1	(NO. OF LANES)			2.0	474	THRU	STREET NAME: Stanley Blvd.
RIGHT	283	1.4	2.1	2.2	1.1	1.0	30	LEFT	

Split? N

N / W + E / S: 212 289 12 — LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	12	12	1650	0.0073	
	THRU (T)	289	289	3300	0.0876	
	LEFT (L)	212	212	2970	0.0714	
	T + R		301	3300	0.0912	
	T + L		501	4620	0.1084	
	T + R + L		513	4620	0.1110	0.1110
SB	RIGHT (R)	68	0 *	1650	0.0000	
	THRU (T)	186	186	1650	0.1127	
	LEFT (L)	198	198	2970	0.0667	
	T + L		384	2970	0.1293	0.1293
EB	RIGHT (R)	283	193 *	1650	0.1170	
	THRU (T)	1159	1159	3375	0.3434	
	LEFT (L)	298	298	1650	0.1806	
	T + R		1352	3375	0.4006	0.4006
WB	RIGHT (R)	141	6 *	1650	0.0036	
	THRU (T)	474	474	3450	0.1374	
	LEFT (L)	30	30	1650	0.0182	0.0182

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.66
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.76
INTERSECTION LEVEL OF SERVICE: C

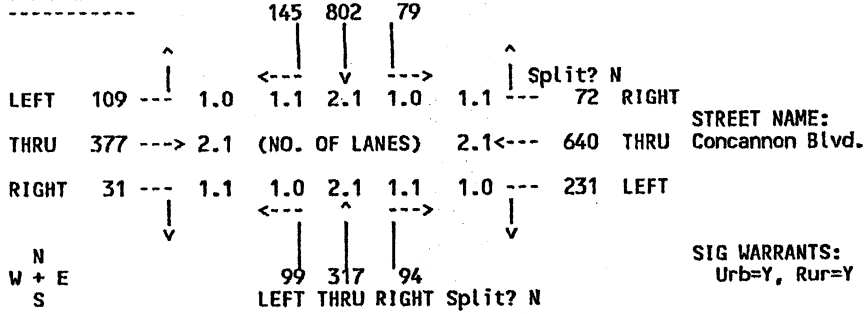
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/10/02

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD



STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	94	94	1650	0.0570	
	THRU (T)	317	317	3375	0.0939	
	LEFT (L)	99	99	1650	0.0600	0.0600
	T + R		411	3375	0.1218	
SB	RIGHT (R)	145	145	1650	0.0879	
	THRU (T)	802	802	3375	0.2376	
	LEFT (L)	79	79	1650	0.0479	
	T + R		947	3375	0.2806	0.2806
EB	RIGHT (R)	31	31	1650	0.0188	
	THRU (T)	377	377	3375	0.1117	
	LEFT (L)	109	109	1650	0.0661	0.0661
	T + R		408	3375	0.1209	
WB	RIGHT (R)	72	72	1650	0.0436	
	THRU (T)	640	640	3375	0.1896	
	LEFT (L)	231	231	1650	0.1400	
	T + R		712	3375	0.2110	0.2110

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.62
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.72
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/10/02

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	337	337	1650	0.2042	
	THRU (T)	886	886	3375	0.2625	
	LEFT (L)	58	58	1650	0.0352	
	T + R		1223	3375	0.3624	0.3624
SB	RIGHT (R)	101	101	1650	0.0612	
	THRU (T)	413	413	3375	0.1224	
	LEFT (L)	104	104	1650	0.0630	0.0630
	T + R		514	3375	0.1523	
EB	RIGHT (R)	49	49	1650	0.0297	
	THRU (T)	677	677	3375	0.2006	
	LEFT (L)	207	207	1650	0.1255	
	T + R		726	3375	0.2151	0.2151
WB	RIGHT (R)	49	49	1650	0.0297	
	THRU (T)	348	348	3375	0.1031	
	LEFT (L)	126	126	1650	0.0764	0.0764
	T + R		397	3375	0.1176	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.72
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.82
INTERSECTION LEVEL OF SERVICE:	D

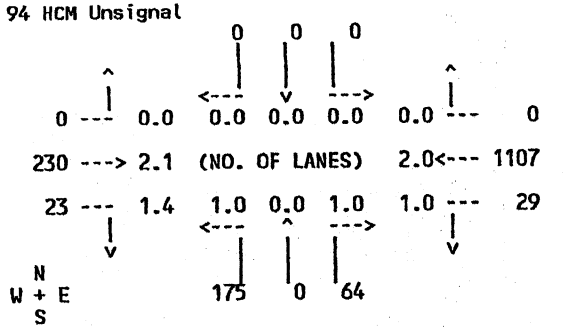
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - AM Peak Hour 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour AM PEAK HOUR

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=Y, Rur=Y

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	175	214	7.0	1531	111	109	527.6	F	387.6	F
R	64	78	5.5	141	1175	1175	3.3	A		
EB T	230	281							0.0	A
R	23	28								
TR	253	309					0.0	A		
WB L	29	35	5.5	281	1211	1211	3.1	A	0.1	A
T	1107	1353					0.0	A		

INT TOTAL: 57.0 F
MINOR MOVEMENTS: (346.0) (F)

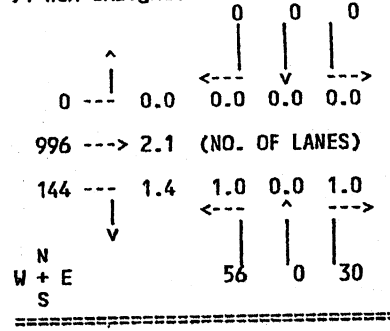
INT=EXIST.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Existing + Project Conditions - PM Peak Hour 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour PM PEAK HOUR

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=N

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	56	68	7.0	1591	102	86	124.9	F	82.9	F
R	30	37	5.5	633	661	661	5.8	B		
EB T	996	1217							0.0	A
R	144	176								
TR	1140	1393					0.0	A		
WB L	58	71	5.5	1267	358	358	12.5	C	2.0	A
T	306	374					0.0	A		

INT TOTAL: 4.9 A
MINOR MOVEMENTS: (54.6) (F)

INT=EXIST.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + Project Conditions - AM 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour AM PEAK HOUR

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	0	0				
LEFT	0	0.0	0.0	0.0	0.0	0.0	0	RIGHT	
THRU	230	2.1	(NO. OF LANES)			2.0	1107	THRU	STREET NAME: Jack London Blvd
RIGHT	23	1.4	1.0	0.0	1.0	1.0	29	LEFT	

Split? N

N
W + E
S

175 0 64
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Hagemann Dr.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	64	0 *	1650	0.0000	
	LEFT (L)	175	175	1650	0.1061	0.1061
EB	RIGHT (R)	23	0 *	1650	0.0000	
	THRU (T)	230	230	3375	0.0681	
	T + R		230	3375	0.0681	
WB	THRU (T)	1107	1107	3450	0.3209	0.3209
	LEFT (L)	29	29	1650	0.0176	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.43
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.53
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=MITIG8.INT,VOL=EXIST.AMV+FULLACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Existing + Project Conditions - PM 03/10/02

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour PM PEAK HOUR

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	0	0				
LEFT	0	0.0	0.0	0.0	0.0	0.0	0	RIGHT	
THRU	996	2.1	(NO. OF LANES)			2.0	306	THRU	STREET NAME: Jack London Blvd
RIGHT	144	1.4	1.0	0.0	1.0	1.0	58	LEFT	

Split? N

N
W + E
S

56 0 30
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Hagemann Dr.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	30	0 *	1650	0.0000	
	LEFT (L)	56	56	1650	0.0339	0.0339
EB	RIGHT (R)	144	54 *	1650	0.0327	
	THRU (T)	996	996	3375	0.2951	
	T + R		1050	3375	0.3111	0.3111
WB	THRU (T)	306	306	3450	0.0887	
	LEFT (L)	58	58	1650	0.0352	0.0352

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.38
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.48
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=MITIG8.INT,VOL=EXIST.PMV+FULLACCS.PMV,CAP=...LIVCAP.TAB

APPENDIX D – LEVEL OF SERVICE – YEAR 2010 CONDITIONS

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
899 68 0

LEFT	0	0.0	1.9	3.0	0.0	2.0	6	RIGHT
THRU	0	0.0	(NO. OF LANES)			1.1	6	THRU
RIGHT	0	0.0	0.0	2.0	1.9	2.1	11	LEFT

Split? N

STREET NAME: I-580 WB Ramps

N
W + E
S
0 311 434
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	434	434	1725	0.2516	
THRU (T)	311	311	3450	0.0901	0.0901
SB RIGHT (R)	899	899	1725	0.5212	
THRU (T)	68	68	5175	0.0131	
WB RIGHT (R)	6	0 *	2970	0.0000	
THRU (T)	6	6	1650	0.0036	
LEFT (L)	11	11	2970	0.0037	
T + L		17	2970	0.0057	0.0057

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.10
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.20
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
301 764 0

LEFT	0	0.0	1.9	3.0	0.0	2.0	302	RIGHT
THRU	0	0.0	(NO. OF LANES)			1.1	0	THRU
RIGHT	0	0.0	0.0	2.0	1.9	2.1	91	LEFT

Split? N

STREET NAME: I-580 WB Ramps

N
W + E
S
0 604 654
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	654	654	1725	0.3791	
THRU (T)	604	604	3450	0.1751	0.1751
SB RIGHT (R)	301	301	1725	0.1745	
THRU (T)	764	764	5175	0.1476	
WB RIGHT (R)	302	222 *	2970	0.0747	0.0747
THRU (T)	0	0	1650	0.0000	
LEFT (L)	91	91	2970	0.0306	
T + L		91	2970	0.0306	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.25
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.35
INTERSECTION LEVEL OF SERVICE:	A

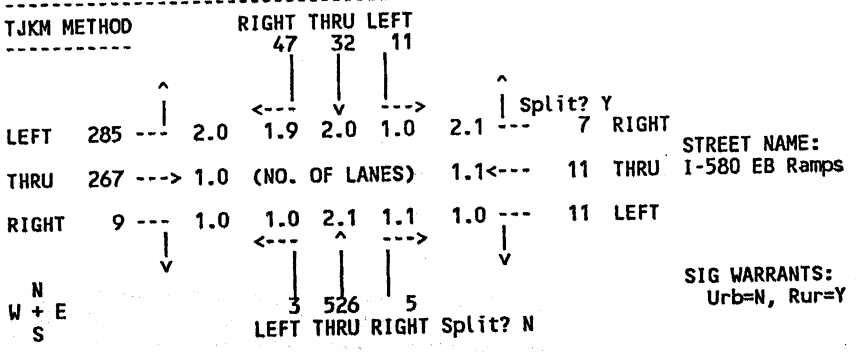
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: I-580 EB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	5	5	1650	0.0030	
	THRU (T)	526	526	3375	0.1559	
	LEFT (L)	3	3	1650	0.0018	
	T + R		531	3375	0.1573	0.1573
SB	RIGHT (R)	47	47	1725	0.0272	
	THRU (T)	32	32	3450	0.0093	
	LEFT (L)	11	11	1650	0.0067	0.0067
EB	RIGHT (R)	9	0 *	1650	0.0000	
	THRU (T)	267	267	1725	0.1548	0.1548
	LEFT (L)	285	285	2970	0.0960	
WB	RIGHT (R)	7	0 *	2970	0.0000	
	THRU (T)	11	11	1650	0.0067	0.0067
	LEFT (L)	11	11	1650	0.0067	
	T + R		11	2970	0.0037	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.33
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.43
INTERSECTION LEVEL OF SERVICE:	A

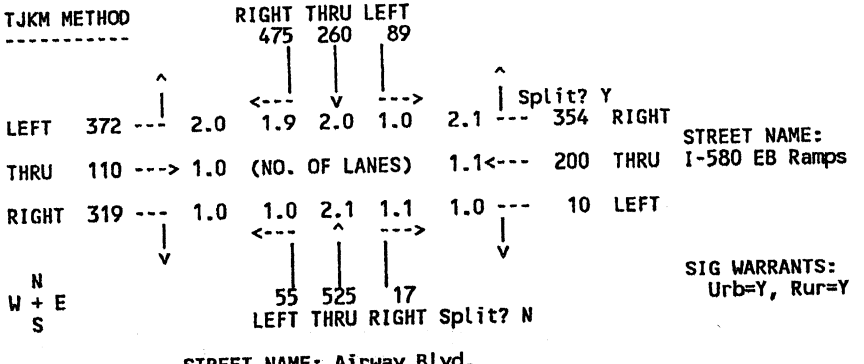
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: I-580 EB Ramps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	525	525	3375	0.1556	
	LEFT (L)	55	55	1650	0.0333	
	T + R		542	3375	0.1606	0.1606
SB	RIGHT (R)	475	475	1725	0.2754	
	THRU (T)	260	260	3450	0.0754	
	LEFT (L)	89	89	1650	0.0539	0.0539
EB	RIGHT (R)	319	212 *	1650	0.1285	0.1285
	THRU (T)	110	110	1725	0.0638	
	LEFT (L)	372	372	2970	0.1253	
WB	RIGHT (R)	354	230 *	2970	0.0774	
	THRU (T)	200	200	1650	0.1212	
	LEFT (L)	10	10	1650	0.0061	
	T + R		430	2970	0.1448	0.1448

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.49
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.59
INTERSECTION LEVEL OF SERVICE:	A

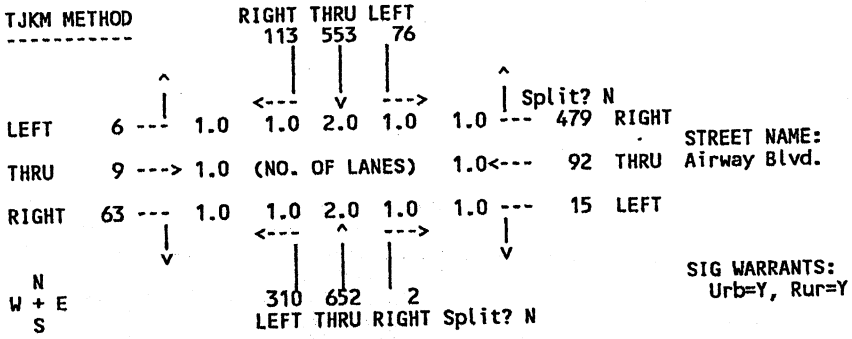
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	0 *	1650	0.0000	
	THRU (T)	652	652	3450	0.1890	
	LEFT (L)	310	310	1650	0.1879	0.1879
SB	RIGHT (R)	113	30 *	1650	0.0182	
	THRU (T)	553	553	3450	0.1603	0.1603
	LEFT (L)	76	76	1650	0.0461	
EB	RIGHT (R)	63	0 *	1650	0.0000	
	THRU (T)	9	9	1725	0.0052	
	LEFT (L)	6	6	1650	0.0036	0.0036
WB	RIGHT (R)	479	361 *	1650	0.2188	0.2188
	THRU (T)	92	92	1725	0.0533	
	LEFT (L)	15	15	1650	0.0091	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.57
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.67
INTERSECTION LEVEL OF SERVICE:	B

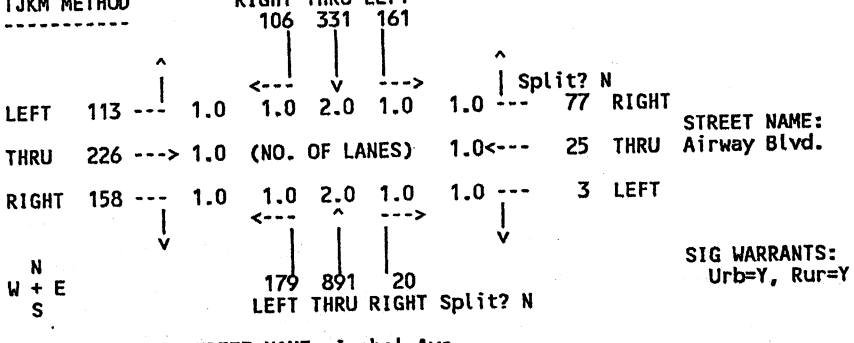
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	891	891	3450	0.2583	0.2583
	LEFT (L)	179	179	1650	0.1085	
SB	RIGHT (R)	106	0 *	1650	0.0000	
	THRU (T)	331	331	3450	0.0959	
	LEFT (L)	161	161	1650	0.0976	0.0976
EB	RIGHT (R)	158	0 *	1650	0.0000	
	THRU (T)	226	226	1725	0.1310	0.1310
	LEFT (L)	113	113	1650	0.0685	
WB	RIGHT (R)	77	0 *	1650	0.0000	
	THRU (T)	25	25	1725	0.0145	
	LEFT (L)	3	3	1650	0.0018	0.0018

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.49
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.59
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
13 508 124

LEFT	21	2.0	1.0	2.0	2.0	1.0	494	RIGHT	
THRU	20	2.0	(NO. OF LANES)			1.0	24	THRU	STREET NAME: Jack London Blvd
RIGHT	11	1.0	2.0	2.0	1.0	2.0	114	LEFT	

Split? N

N
W + E
S
13 450 26
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	26	0 *	1650	0.0000	
THRU (T)	450	450	3450	0.1304	0.1304
LEFT (L)	13	13	2970	0.0044	
SB RIGHT (R)	13	0 *	1650	0.0000	
THRU (T)	508	508	3450	0.1472	
LEFT (L)	124	124	2970	0.0418	0.0418
EB RIGHT (R)	11	0 *	1650	0.0000	
THRU (T)	20	20	3450	0.0058	
LEFT (L)	21	21	2970	0.0071	0.0071
WB RIGHT (R)	494	380 *	1650	0.2303	0.2303
THRU (T)	24	24	1725	0.0139	
LEFT (L)	114	114	2970	0.0384	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.41
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.51
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
12 355 366

LEFT	3	2.0	1.0	2.0	2.0	1.0	228	RIGHT	
THRU	9	2.0	(NO. OF LANES)			1.0	15	THRU	STREET NAME: Jack London Blvd
RIGHT	10	1.0	2.0	2.0	1.0	2.0	128	LEFT	

Split? N

N
W + E
S
7 859 248
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	132 *	1650	0.0800	
THRU (T)	859	859	3450	0.2490	0.2490
LEFT (L)	7	7	2970	0.0024	
SB RIGHT (R)	12	0 *	1650	0.0000	
THRU (T)	355	355	3450	0.1029	
LEFT (L)	366	366	2970	0.1232	0.1232
EB RIGHT (R)	10	0 *	1650	0.0000	
THRU (T)	9	9	3450	0.0026	0.0026
LEFT (L)	3	3	2970	0.0010	
WB RIGHT (R)	228	46 *	1650	0.0279	
THRU (T)	15	15	1725	0.0087	
LEFT (L)	128	128	2970	0.0431	0.0431

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.42
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.52
INTERSECTION LEVEL OF SERVICE: A

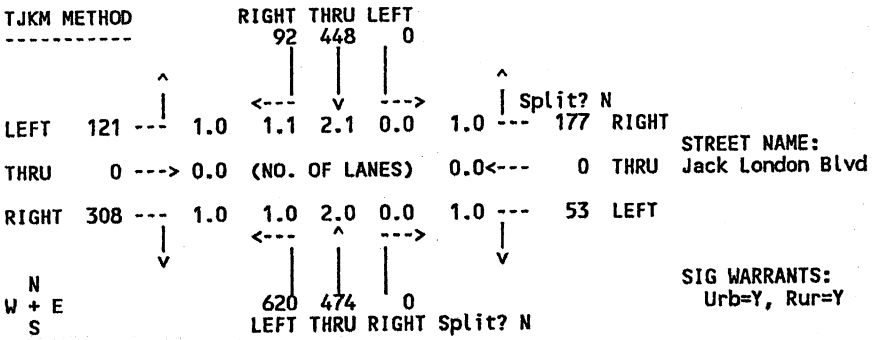
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	474	474	3450	0.1374	
LEFT (L)	620	620	1650	0.3758	0.3758
SB RIGHT (R)	92	92	1650	0.0558	
THRU (T)	448	448	3375	0.1327	
T + R		540	3375	0.1600	0.1600
EB RIGHT (R)	308	0 *	1650	0.0000	
LEFT (L)	121	121	1650	0.0733	0.0733
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.67
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

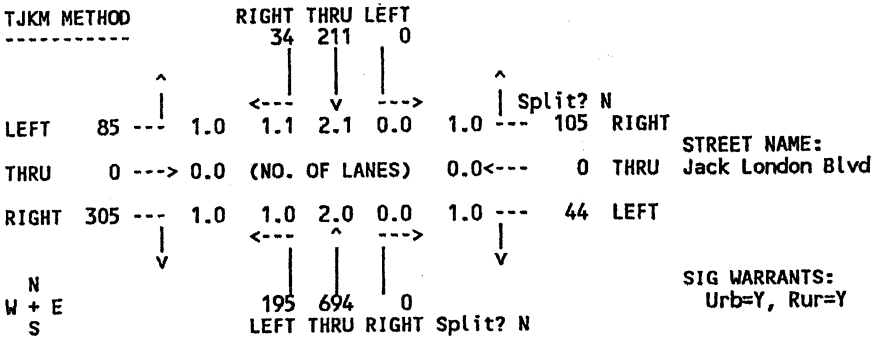
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	694	694	3450	0.2012	0.2012
LEFT (L)	195	195	1650	0.1182	
SB RIGHT (R)	34	34	1650	0.0206	
THRU (T)	211	211	3375	0.0625	
T + R		245	3375	0.0726	
EB RIGHT (R)	305	128 *	1650	0.0776	0.0776
LEFT (L)	85	85	1650	0.0515	
WB RIGHT (R)	105	25 *	1650	0.0152	
LEFT (L)	44	44	1650	0.0267	0.0267

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.31
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.41
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

Split? N

LEFT	0	0.0	0.0	0.0	0.0	0.0	0	RIGHT
THRU	477	2.0	(NO. OF LANES)			2.0	1678	THRU
RIGHT	89	1.0	2.0	0.0	1.0	2.0	272	LEFT

STREET NAME: Stanley Blvd.

N
W + E
S

207 0 125
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	125	0 *	1650	0.0000	
LEFT (L)	207	207	2970	0.0697	0.0697
EB RIGHT (R)	89	0 *	1650	0.0000	
THRU (T)	477	477	3450	0.1383	
WB THRU (T)	1678	1678	3450	0.4864	0.4864
LEFT (L)	272	272	2970	0.0916	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.56
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.66
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

Split? N

LEFT	0	0.0	0.0	0.0	0.0	0.0	0	RIGHT
THRU	1692	2.0	(NO. OF LANES)			2.0	474	THRU
RIGHT	394	1.0	2.0	0.0	1.0	2.0	92	LEFT

STREET NAME: Stanley Blvd.

N
W + E
S

112 0 89
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	89	0 *	1650	0.0000	
LEFT (L)	112	112	2970	0.0377	0.0377
EB RIGHT (R)	394	283 *	1650	0.1715	
THRU (T)	1692	1692	3450	0.4904	0.4904
WB THRU (T)	474	474	3450	0.1374	
LEFT (L)	92	92	2970	0.0310	0.0310

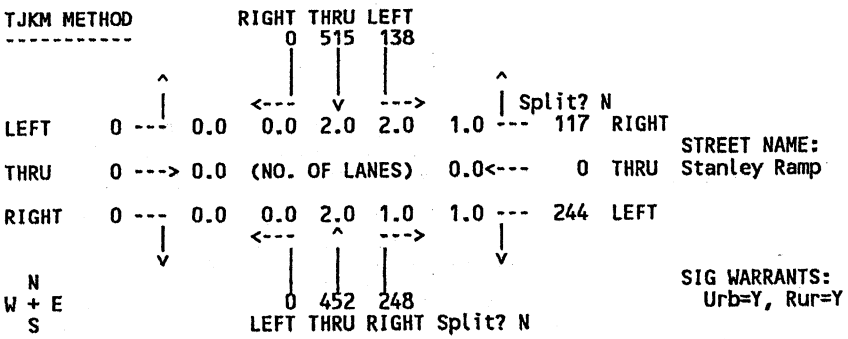
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.56
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.66
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	46 *	1650	0.0279	
THRU (T)	452	452	3450	0.1310	0.1310
SB THRU (T)	515	515	3450	0.1493	
LEFT (L)	138	138	2970	0.0465	0.0465
WB RIGHT (R)	117	0 *	1650	0.0000	
LEFT (L)	244	244	1650	0.1479	0.1479

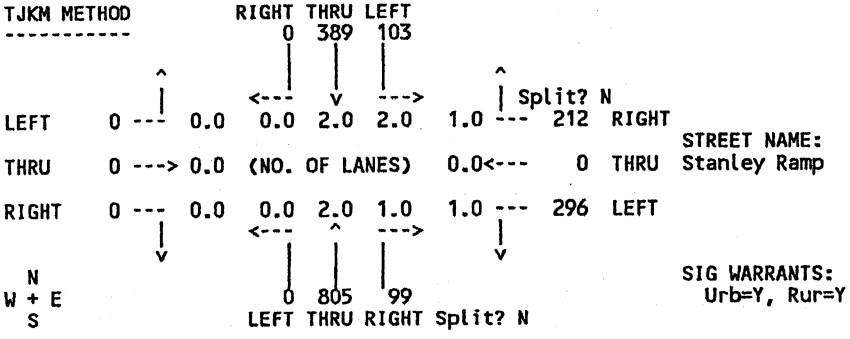
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.33
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.43
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	99	0 *	1650	0.0000	
THRU (T)	805	805	3450	0.2333	0.2333
SB THRU (T)	389	389	3450	0.1128	
LEFT (L)	103	103	2970	0.0347	0.0347
WB RIGHT (R)	212	103 *	1650	0.0624	
LEFT (L)	296	296	1650	0.1794	0.1794

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.45
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.55
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 05/14/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
408 832 3

LEFT 130 --- 2.1 1.0 1.0 1.0 1.0 --- 6 RIGHT | Split? Y
THRU 19 ---> 1.1 (NO. OF LANES) 1.0<--- 16 THRU
STREET NAME: Vineyard Ave.
RIGHT 12 --- 1.1 1.0 1.0 1.0 1.0 --- 12 LEFT

N
W + E
S
12 194 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	194	194	1725	0.1125	
	LEFT (L)	12	12	1650	0.0073	0.0073
SB	RIGHT (R)	408	292 *	1650	0.1770	
	THRU (T)	832	832	1725	0.4823	0.4823
	LEFT (L)	3	3	1650	0.0018	
EB	RIGHT (R)	12	12	1650	0.0073	
	THRU (T)	19	19	1650	0.0115	
	LEFT (L)	130	130	2970	0.0438	
	T + R		31	1650	0.0188	
	T + L		149	2970	0.0502	
	T + R + L		161	2970	0.0542	0.0542
WB	RIGHT (R)	6	0 *	1650	0.0000	
	THRU (T)	16	16	1725	0.0093	0.0093
	LEFT (L)	12	12	1650	0.0073	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.55
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.65
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 05/14/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
124 240 4

LEFT 806 --- 2.1 1.0 1.0 1.0 1.0 --- 6 RIGHT | Split? Y
THRU 53 ---> 1.1 (NO. OF LANES) 1.0<--- 14 THRU
STREET NAME: Vineyard Ave.
RIGHT 14 --- 1.1 1.0 1.0 1.0 1.0 --- 0 LEFT

N
W + E
S
6 581 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	581	581	1725	0.3368	0.3368
	LEFT (L)	6	6	1650	0.0036	
SB	RIGHT (R)	124	0 *	1650	0.0000	
	THRU (T)	240	240	1725	0.1391	
	LEFT (L)	4	4	1650	0.0024	0.0024
EB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	53	53	1650	0.0321	
	LEFT (L)	806	806	2970	0.2714	
	T + R		67	1650	0.0406	
	T + L		859	2970	0.2892	
	T + R + L		873	2970	0.2939	0.2939
WB	RIGHT (R)	6	0 *	1650	0.0000	
	THRU (T)	14	14	1725	0.0081	0.0081
	LEFT (L)	0	0	1650	0.0000	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.64
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 752 32

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 9 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 760 LEFT

Split? N

STREET NAME: Vallecitos Rd.

N
W + E
S

0 198 396
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	396	396	1725	0.2296	
THRU (T)	198	198	3450	0.0574	
SB THRU (T)	752	752	3450	0.2180	0.2180
LEFT (L)	32	32	1650	0.0194	
WB RIGHT (R)	9	0 *	1650	0.0000	
LEFT (L)	760	760	2970	0.2559	0.2559

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.47
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.57
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 245 17

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 10 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 466 LEFT

Split? N

STREET NAME: Vallecitos Rd.

N
W + E
S

0 595 1201
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1201	1201	1725	0.6962	
THRU (T)	595	595	3450	0.1725	0.1725
SB THRU (T)	245	245	3450	0.0710	
LEFT (L)	17	17	1650	0.0103	0.0103
WB RIGHT (R)	10	0 *	1650	0.0000	
LEFT (L)	466	466	2970	0.1569	0.1569

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.34
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.44
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 526 233

LEFT 0 --- 0.0 0.0 2.0 2.0 2.0 --- 469 RIGHT Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 749 LEFT

STREET NAME: Concannon

N
W + E
S
0 230 79
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	79	0 *	1650	0.0000	
NB THRU (T)	230	230	3450	0.0667	
SB THRU (T)	526	526	3450	0.1525	0.1525
SB LEFT (L)	233	233	2970	0.0785	
WB RIGHT (R)	469	324 *	2970	0.1091	
WB LEFT (L)	749	749	1650	0.4539	0.4539

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.61
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.71
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 270 416

LEFT 0 --- 0.0 0.0 2.0 2.0 2.0 --- 194 RIGHT Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 99 LEFT

STREET NAME: Concannon

N
W + E
S
0 710 751
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	751	622 *	1650	0.3770	0.3770
NB THRU (T)	710	710	3450	0.2058	
SB THRU (T)	270	270	3450	0.0783	
SB LEFT (L)	416	416	2970	0.1401	0.1401
WB RIGHT (R)	194	0 *	2970	0.0000	
WB LEFT (L)	99	99	1650	0.0600	0.0600

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.58
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.68
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 12 Isable Ave./Portola Avenue Livermore
Count Date Time Peak Hour

```
TJKM METHOD              RIGHT THRU LEFT
-----------                0    0    0
                           |    |    |
             ^             |    |    |         ^
             |            <---  v   --->       | Split? N
LEFT     0 ---   1.0     1.1  1.1  1.0    1.1 ---    0  RIGHT
                                                              STREET NAME:
THRU    80 --->  1.0    (NO. OF LANES)    2.1<---  848  THRU  Portola Avenue

RIGHT    1 ---   1.0     1.0  2.1  1.1    1.0 ---  234  LEFT
             |          <---   ^  --->         |
             v             |   |    |          v
  N                        |   |    |                     SIG WARRANTS:
W + E                     53   0    7                      Urb=N, Rur=N
  S                      LEFT THRU RIGHT Split? N
```

STREET NAME: Isable Ave.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	0	0	3375	0.0000	
	LEFT (L)	53	53	1650	0.0321	0.0321
	T + R		7	3375	0.0021	
SB	RIGHT (R)	0	0	1650	0.0000	0.0000
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	0	0	1650	0.0000	
	T + R		0	1650	0.0000	
EB	RIGHT (R)	1	0 *	1650	0.0000	
	THRU (T)	80	80	1725	0.0464	
	LEFT (L)	0	0	1650	0.0000	0.0000
WB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	848	848	3375	0.2513	0.2513
	LEFT (L)	234	234	1650	0.1418	
	T + R		848	3375	0.2513	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.28
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.38
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 12 Isable Ave./Portola Avenue Livermore
Count Date Time Peak Hour

```
TJKM METHOD              RIGHT THRU LEFT
-----------                0    0    0
                           |    |    |
             ^             |    |    |         ^
             |            <---  v   --->       | Split? N
LEFT     0 ---   1.0     1.1  1.1  1.0    1.1 ---    0  RIGHT
                                                              STREET NAME:
THRU   172 --->  1.0    (NO. OF LANES)    2.1<---  113  THRU  Portola Avenue

RIGHT    7 ---   1.0     1.0  2.1  1.1    1.0 ---   92  LEFT
             |          <---   ^  --->         |
             v             |   |    |          v
  N                        |   |    |                     SIG WARRANTS:
W + E                     20   0   54                      Urb=N, Rur=N
  S                      LEFT THRU RIGHT Split? N
```

STREET NAME: Isable Ave.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	54	54	1650	0.0327	0.0327
	THRU (T)	0	0	3375	0.0000	
	LEFT (L)	20	20	1650	0.0121	
	T + R		54	3375	0.0160	
SB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	0	0	1650	0.0000	0.0000
	T + R		0	1650	0.0000	
EB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	172	172	1725	0.0997	0.0997
	LEFT (L)	0	0	1650	0.0000	
WB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	113	113	3375	0.0335	
	LEFT (L)	92	92	1650	0.0558	0.0558
	T + R		113	3375	0.0335	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.19
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.29
INTERSECTION LEVEL OF SERVICE:	A

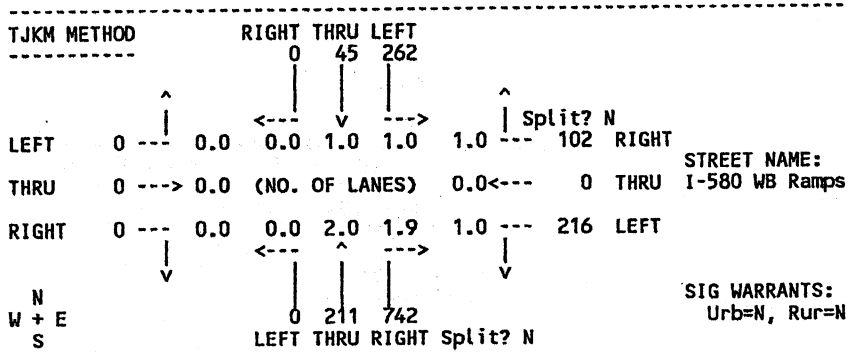
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/24/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	742	742	1725	0.4301	
THRU (T)	211	211	3450	0.0612	0.0612
SB THRU (T)	45	45	1725	0.0261	
LEFT (L)	262	262	1650	0.1588	0.1588
WB RIGHT (R)	102	0 *	1650	0.0000	
LEFT (L)	216	216	1650	0.1309	0.1309

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.35
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.45
INTERSECTION LEVEL OF SERVICE: A

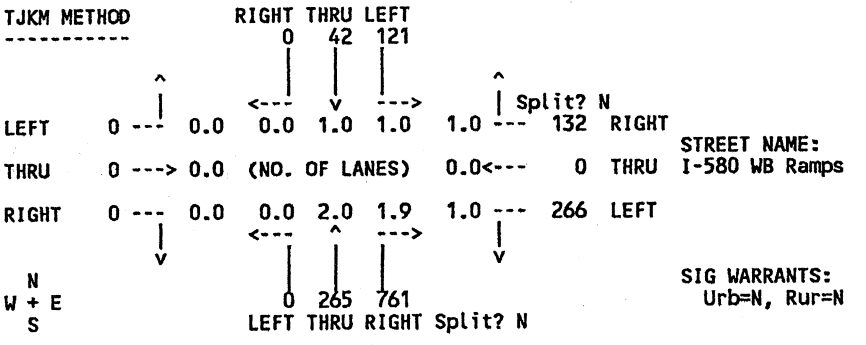
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/24/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	761	761	1725	0.4412	
THRU (T)	265	265	3450	0.0768	0.0768
SB THRU (T)	42	42	1725	0.0243	
LEFT (L)	121	121	1650	0.0733	0.0733
WB RIGHT (R)	132	0 *	1650	0.0000	
LEFT (L)	266	266	1650	0.1612	0.1612

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.31
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.41
INTERSECTION LEVEL OF SERVICE: A

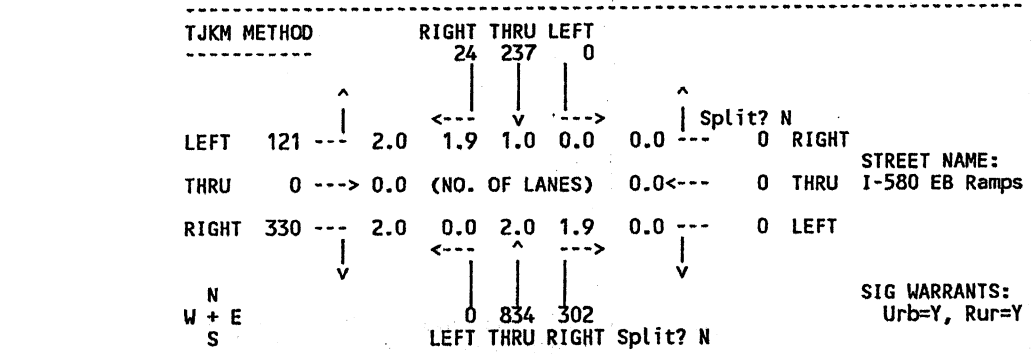
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	302	302	1725	0.1751	
THRU (T)	834	834	3450	0.2417	0.2417
SB RIGHT (R)	24	24	1725	0.0139	
THRU (T)	237	237	1725	0.1374	
EB RIGHT (R)	330	250 *	2970	0.0842	0.0842
LEFT (L)	121	121	2970	0.0407	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.33
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.43
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	451	451	1725	0.2614	
THRU (T)	814	814	3450	0.2359	0.2359
SB RIGHT (R)	32	32	1725	0.0186	
THRU (T)	276	276	1725	0.1600	
EB RIGHT (R)	321	241 *	2970	0.0811	0.0811
LEFT (L)	212	212	2970	0.0714	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.32
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.42
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/24/03

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            0    0    0
                       |    |    |
           ^           |    |    |          ^
           |       <---     v    --->       | Split? N
LEFT     2 ---  1.0   0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                         STREET NAME:
THRU   390 ---> 3.1  (NO. OF LANES)   2.0<--- 1879  THRU  Stanley Blvd.

RIGHT   32 ---  1.1   2.0  0.0  1.0   1.0 ---    50  LEFT
           |       <---     ^    --->       |
           v           |    |    |          v
  N                    |    |    |                       SIG WARRANTS:
W + E                 319   0    95                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

              STREET NAME: Murdell Lane
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	95	0 *	1650	0.0000	
	LEFT (L)	319	319	2970	0.1074	0.1074
EB	RIGHT (R)	32	32	1650	0.0194	
	THRU (T)	390	390	5100	0.0765	
	LEFT (L)	2	2	1650	0.0012	0.0012
	T + R		422	5100	0.0827	
WB	THRU (T)	1879	1879	3450	0.5446	0.5446
	LEFT (L)	50	50	1650	0.0303	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.65
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.75
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/24/03

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            0    0    0
                       |    |    |
           ^           |    |    |          ^
           |       <---     v    --->       | Split? N
LEFT     2 ---  1.0   0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                         STREET NAME:
THRU  2033 ---> 3.1  (NO. OF LANES)   2.0<---  540  THRU  Stanley Blvd.

RIGHT  194 ---  1.1   2.0  0.0  1.0   1.0 ---   133  LEFT
           |       <---     ^    --->       |
           v           |    |    |          v
  N                    |    |    |                       SIG WARRANTS:
W + E                  83   0    65                        Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? N

              STREET NAME: Murdell Lane
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	65	0 *	1650	0.0000	
	LEFT (L)	83	83	2970	0.0279	0.0279
EB	RIGHT (R)	194	194	1650	0.1176	
	THRU (T)	2033	2033	5100	0.3986	
	LEFT (L)	2	2	1650	0.0012	
	T + R		2227	5100	0.4367	0.4367
WB	THRU (T)	540	540	3450	0.1565	
	LEFT (L)	133	133	1650	0.0806	0.0806

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.55
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.65
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/24/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			0	0	0					
LEFT	0	--- 1.0	0.0	0.0	0.0	0.0	---	0	RIGHT	Split? N
THRU	442	---> 2.1	(NO. OF LANES)			2.0	<---	1611	THRU	STREET NAME: Stanley Blvd.
RIGHT	33	--- 1.4	1.0	0.0	1.0	1.0	---	226	LEFT	
			121	0	247					SIG WARRANTS: Urb=Y, Rur=Y
			LEFT	THRU	RIGHT	Split? N				

N
W + E
S

STREET NAME: Wall Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	247	54 *	1650	0.0327	
	LEFT (L)	121	121	1650	0.0733	0.0733
EB	RIGHT (R)	33	0 *	1650	0.0000	
	THRU (T)	442	442	3375	0.1310	
	LEFT (L)	0	0	1650	0.0000	0.0000
	T + R		442	3375	0.1310	
WB	THRU (T)	1611	1611	3450	0.4670	0.4670
	LEFT (L)	226	226	1650	0.1370	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.54
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.64
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=ADJ2005.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/24/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			0	0	0					
LEFT	3	--- 1.0	0.0	0.0	0.0	0.0	---	0	RIGHT	Split? N
THRU	1729	---> 2.1	(NO. OF LANES)			2.0	<---	616	THRU	STREET NAME: Stanley Blvd.
RIGHT	43	--- 1.4	1.0	0.0	1.0	1.0	---	240	LEFT	
			68	0	247					SIG WARRANTS: Urb=Y, Rur=Y
			LEFT	THRU	RIGHT	Split? N				

N
W + E
S

STREET NAME: Wall Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	247	47 *	1650	0.0285	
	LEFT (L)	68	68	1650	0.0412	0.0412
EB	RIGHT (R)	43	0 *	1650	0.0000	
	THRU (T)	1729	1729	3375	0.5123	0.5123
	LEFT (L)	3	3	1650	0.0018	
	T + R		1729	3375	0.5123	
WB	THRU (T)	616	616	3450	0.1786	
	LEFT (L)	240	240	1650	0.1455	0.1455

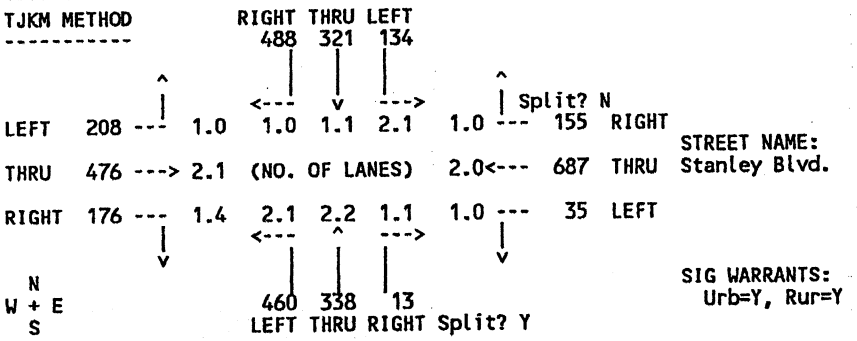
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.70
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.80
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=ADJ2005.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	13	13	1650	0.0079	
	THRU (T)	338	338	3300	0.1024	
	LEFT (L)	460	460	2970	0.1549	
	T + R		351	3300	0.1064	
	T + L		798	4620	0.1727	
	T + R + L		811	4620	0.1755	0.1755
SB	RIGHT (R)	488	304 *	1650	0.1842	
	THRU (T)	321	321	1650	0.1945	0.1945
	LEFT (L)	134	134	2970	0.0451	
	T + L		455	2970	0.1532	
EB	RIGHT (R)	176	86 *	1650	0.0521	
	THRU (T)	476	476	3375	0.1410	
	LEFT (L)	208	208	1650	0.1261	0.1261
	T + R		562	3375	0.1665	
WB	RIGHT (R)	155	38 *	1650	0.0230	
	THRU (T)	687	687	3450	0.1991	0.1991
	LEFT (L)	35	35	1650	0.0212	

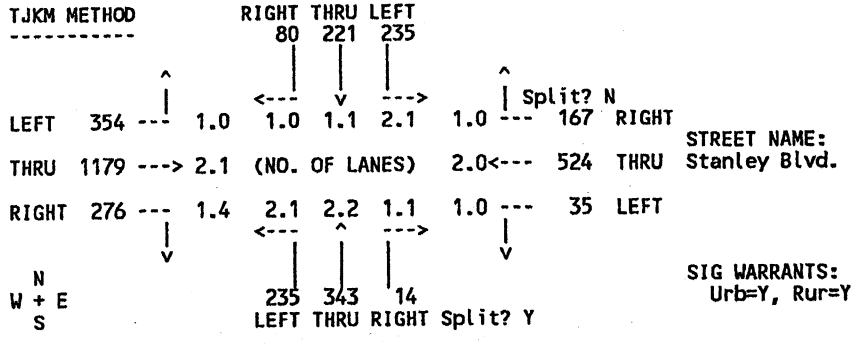
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.70
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.80
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	343	343	3300	0.1039	
	LEFT (L)	235	235	2970	0.0791	
	T + R		357	3300	0.1082	
	T + L		578	4620	0.1251	
	T + R + L		592	4620	0.1281	0.1281
SB	RIGHT (R)	80	0 *	1650	0.0000	
	THRU (T)	221	221	1650	0.1339	
	LEFT (L)	235	235	2970	0.0791	
	T + L		456	2970	0.1535	0.1535
EB	RIGHT (R)	276	186 *	1650	0.1127	
	THRU (T)	1179	1179	3375	0.3493	
	LEFT (L)	354	354	1650	0.2145	
	T + R		1365	3375	0.4044	0.4044
WB	RIGHT (R)	167	22 *	1650	0.0133	
	THRU (T)	524	524	3450	0.1519	
	LEFT (L)	35	35	1650	0.0212	0.0212

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.71
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.81
INTERSECTION LEVEL OF SERVICE:	D

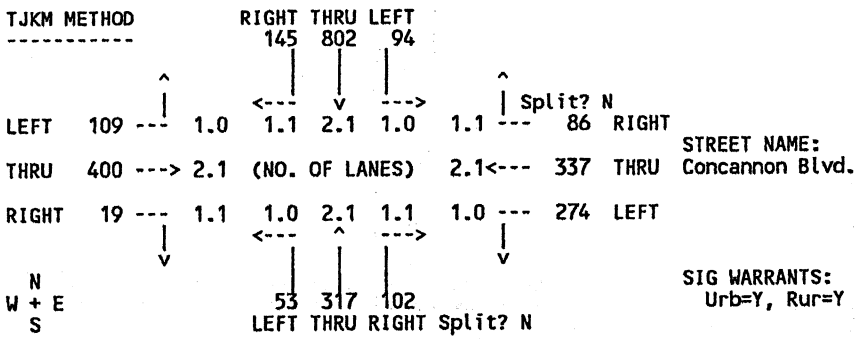
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Concannon Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Holmes Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	102	102	1650	0.0618	
	THRU (T)	317	317	3375	0.0939	
	LEFT (L)	53	53	1650	0.0321	0.0321
	T + R		419	3375	0.1241	
SB	RIGHT (R)	145	145	1650	0.0879	
	THRU (T)	802	802	3375	0.2376	
	LEFT (L)	94	94	1650	0.0570	
	T + R		947	3375	0.2806	0.2806
EB	RIGHT (R)	19	19	1650	0.0115	
	THRU (T)	400	400	3375	0.1185	
	LEFT (L)	109	109	1650	0.0661	
	T + R		419	3375	0.1241	0.1241
WB	RIGHT (R)	86	86	1650	0.0521	
	THRU (T)	337	337	3375	0.0999	
	LEFT (L)	274	274	1650	0.1661	0.1661
	T + R		423	3375	0.1253	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.60
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.70
INTERSECTION LEVEL OF SERVICE:	B

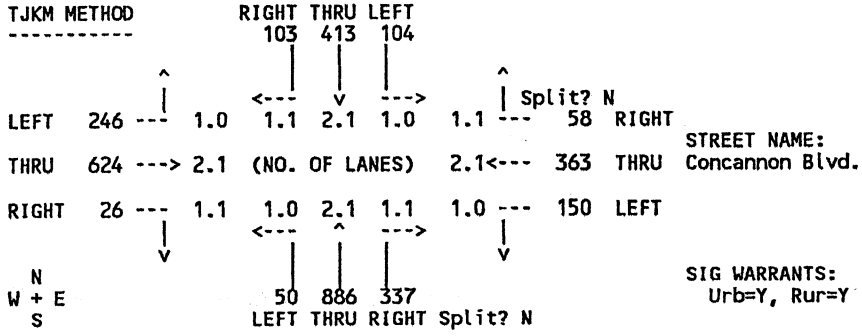
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Concannon Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Holmes Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	337	337	1650	0.2042	
	THRU (T)	886	886	3375	0.2625	
	LEFT (L)	50	50	1650	0.0303	
	T + R		1223	3375	0.3624	0.3624
SB	RIGHT (R)	103	103	1650	0.0624	
	THRU (T)	413	413	3375	0.1224	
	LEFT (L)	104	104	1650	0.0630	0.0630
	T + R		516	3375	0.1529	
EB	RIGHT (R)	26	26	1650	0.0158	
	THRU (T)	624	624	3375	0.1849	
	LEFT (L)	246	246	1650	0.1491	
	T + R		650	3375	0.1926	0.1926
WB	RIGHT (R)	58	58	1650	0.0352	
	THRU (T)	363	363	3375	0.1076	
	LEFT (L)	150	150	1650	0.0909	0.0909
	T + R		421	3375	0.1247	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.71
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.81
INTERSECTION LEVEL OF SERVICE:	D

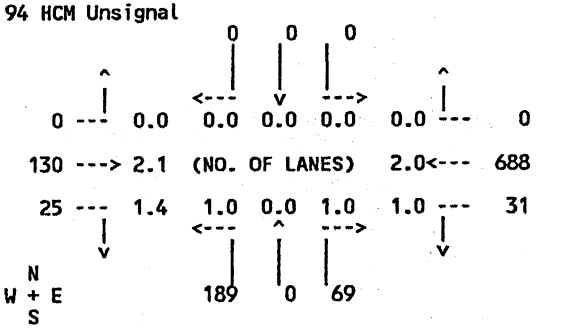
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - AM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=Y

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	189	231	7.0	957	259	253	73.3	F	54.6	F
R	69	84	5.5	86	1252	1252	3.1	A		
EB T	130	159							0.0	A
R	25	31								
TR	155	190					0.0	A		
WB L	31	38	5.5	172	1386	1386	2.7	A	0.1	A
T	688	841					0.0	A		

INT TOTAL: 12.5 C
MINOR MOVEMENTS: (49.0) (F)

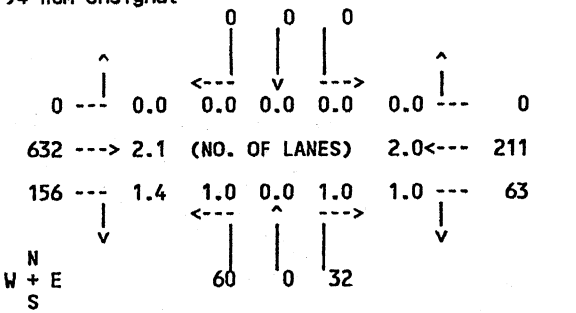
INT=2005.INT,VOL=2010ADJ.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 (No Project) - PM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=N

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	60	73	7.0	1093	212	190	30.3	E	21.3	D
R	32	39	5.5	438	831	831	4.5	A		
EB T	632	772							0.0	A
R	156	191								
TR	788	963					0.0	A		
WB L	63	77	5.5	876	581	581	7.1	B	1.6	A
T	211	258					0.0	A		

INT TOTAL: 2.1 A
MINOR MOVEMENTS: (15.5) (C)

INT=2005.INT,VOL=2010ADJ.PMV,CAP=...LIVCAP.TAB

APPENDIX E – LEVEL OF SERVICE – YEAR 2010 + PROJECT CONDITIONS

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

	RIGHT	THRU	LEFT
	899	68	0

LEFT 0 --- 0.0 1.9 3.0 0.0 2.0 --- 6 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 1.1<--- 6 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.1 --- 11 LEFT

Split? N

STREET NAME: I-580 WB Ramps

N
W + E
S

0 311 450
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	450	450	1725	0.2609	
THRU (T)	311	311	3450	0.0901	0.0901
SB RIGHT (R)	899	899	1725	0.5212	
THRU (T)	68	68	5175	0.0131	
WB RIGHT (R)	6	0 *	2970	0.0000	
THRU (T)	6	6	1650	0.0036	
LEFT (L)	11	11	2970	0.0037	
T + L		17	2970	0.0057	0.0057

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.10
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.20
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL-1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

	RIGHT	THRU	LEFT
	301	764	0

LEFT 0 --- 0.0 1.9 3.0 0.0 2.0 --- 302 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 1.1<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.1 --- 91 LEFT

Split? N

STREET NAME: I-580 WB Ramps

N
W + E
S

0 604 684
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	684	684	1725	0.3965	
THRU (T)	604	604	3450	0.1751	0.1751
SB RIGHT (R)	301	301	1725	0.1745	
THRU (T)	764	764	5175	0.1476	
WB RIGHT (R)	302	222 *	2970	0.0747	0.0747
THRU (T)	0	0	1650	0.0000	
LEFT (L)	91	91	2970	0.0306	
T + L		91	2970	0.0306	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.25
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.35
INTERSECTION LEVEL OF SERVICE: A

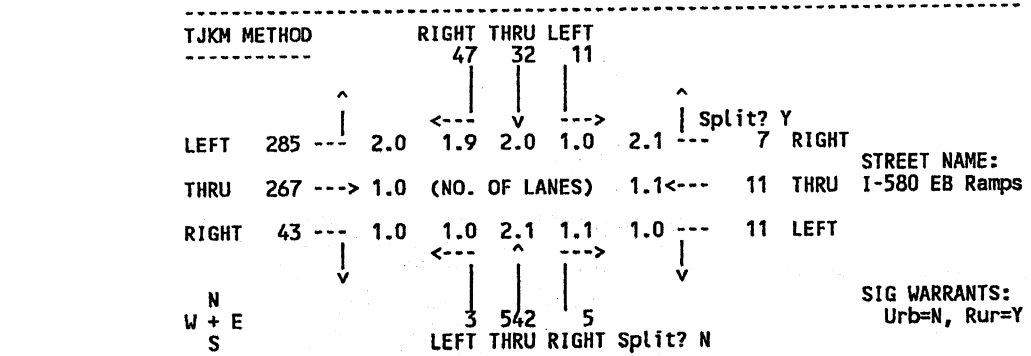
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL-1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	5	5	1650	0.0030	
	THRU (T)	542	542	3375	0.1606	
	LEFT (L)	3	3	1650	0.0018	
	T + R		547	3375	0.1621	0.1621
SB	RIGHT (R)	47	47	1725	0.0272	
	THRU (T)	32	32	3450	0.0093	
	LEFT (L)	11	11	1650	0.0067	0.0067
EB	RIGHT (R)	43	0 *	1650	0.0000	
	THRU (T)	267	267	1725	0.1548	0.1548
	LEFT (L)	285	285	2970	0.0960	
WB	RIGHT (R)	7	0 *	2970	0.0000	
	THRU (T)	11	11	1650	0.0067	0.0067
	LEFT (L)	11	11	1650	0.0067	
	T + R		11	2970	0.0037	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.33
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.43
INTERSECTION LEVEL OF SERVICE:	A

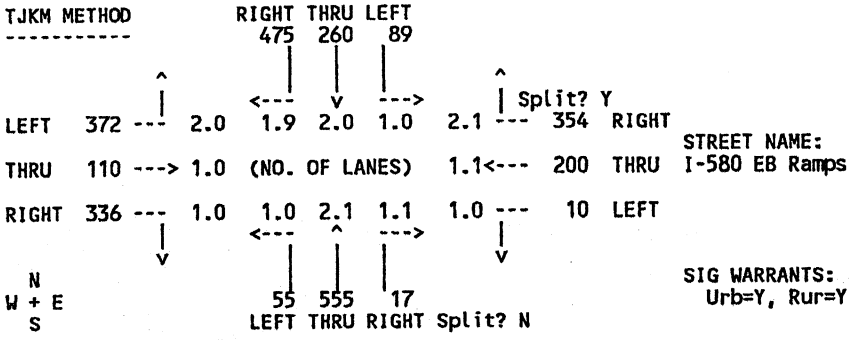
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	555	555	3375	0.1644	
	LEFT (L)	55	55	1650	0.0333	
	T + R		572	3375	0.1695	0.1695
SB	RIGHT (R)	475	475	1725	0.2754	
	THRU (T)	260	260	3450	0.0754	
	LEFT (L)	89	89	1650	0.0539	0.0539
EB	RIGHT (R)	336	229 *	1650	0.1388	0.1388
	THRU (T)	110	110	1725	0.0638	
	LEFT (L)	372	372	2970	0.1253	
WB	RIGHT (R)	354	230 *	2970	0.0774	
	THRU (T)	200	200	1650	0.1212	
	LEFT (L)	10	10	1650	0.0061	
	T + R		430	2970	0.1448	0.1448

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.51
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.61
INTERSECTION LEVEL OF SERVICE:	B

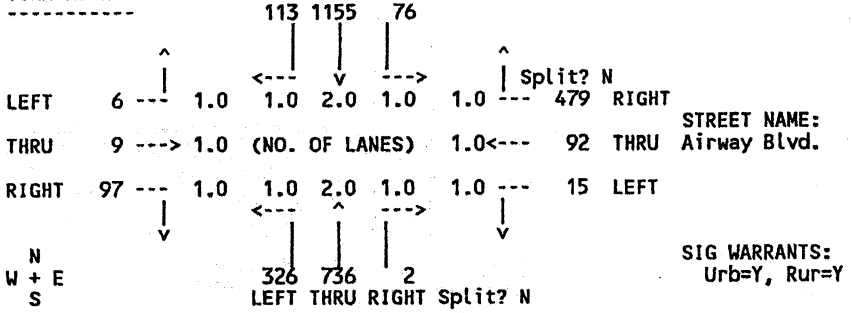
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	0 *	1650	0.0000	
	THRU (T)	736	736	3450	0.2133	
	LEFT (L)	326	326	1650	0.1976	0.1976
SB	RIGHT (R)	113	30 *	1650	0.0182	
	THRU (T)	1155	1155	3450	0.3348	0.3348
	LEFT (L)	76	76	1650	0.0461	
EB	RIGHT (R)	97	0 *	1650	0.0000	
	THRU (T)	9	9	1725	0.0052	
	LEFT (L)	6	6	1650	0.0036	0.0036
WB	RIGHT (R)	479	361 *	1650	0.2188	0.2188
	THRU (T)	92	92	1725	0.0533	
	LEFT (L)	15	15	1650	0.0091	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.75
ADJUSTMENT FOR LOST YELLOW TIME:	0.09
TOTAL VOLUME-TO-CAPACITY RATIO:	0.84
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED

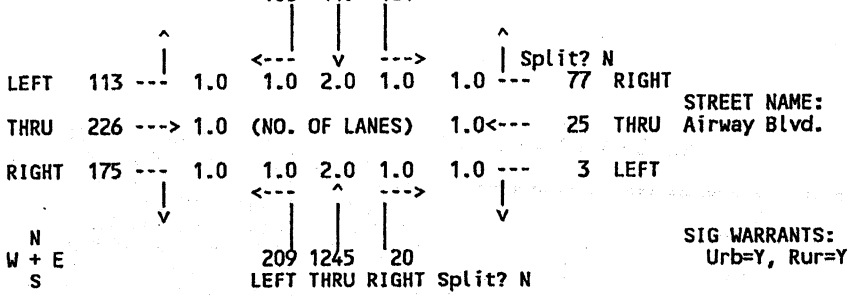
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	1245	1245	3450	0.3609	0.3609
	LEFT (L)	209	209	1650	0.1267	
SB	RIGHT (R)	106	0 *	1650	0.0000	
	THRU (T)	419	419	3450	0.1214	
	LEFT (L)	161	161	1650	0.0976	0.0976
EB	RIGHT (R)	175	0 *	1650	0.0000	
	THRU (T)	226	226	1725	0.1310	0.1310
	LEFT (L)	113	113	1650	0.0685	
WB	RIGHT (R)	77	0 *	1650	0.0000	
	THRU (T)	25	25	1725	0.0145	
	LEFT (L)	3	3	1650	0.0018	0.0018

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.59
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.69
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED

INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM (Full Access) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
331 826 124

LEFT 71 --- 2.0 1.0 2.0 2.0 1.0 --- 494 RIGHT
Split? N

THRU 81 ---> 2.0 (NO. OF LANES) 1.0<--- 188 THRU

RIGHT 164 --- 1.0 2.0 2.0 1.0 2.0 --- 278 LEFT

STREET NAME: Jack London Blvd

N
W + E
S

679 500 87
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	87	0 *	1650	0.0000	
THRU (T)	500	500	3450	0.1449	
LEFT (L)	679	679	2970	0.2286	0.2286
SB RIGHT (R)	331	231 *	1650	0.1400	
THRU (T)	826	826	3450	0.2394	0.2394
LEFT (L)	124	124	2970	0.0418	
EB RIGHT (R)	164	0 *	1650	0.0000	
THRU (T)	81	81	3450	0.0235	
LEFT (L)	71	71	2970	0.0239	0.0239
WB RIGHT (R)	494	380 *	1650	0.2303	0.2303
THRU (T)	188	188	1725	0.1090	
LEFT (L)	278	278	2970	0.0936	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.72
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM (Full Access) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
65 408 366

LEFT 195 --- 2.0 1.0 2.0 2.0 1.0 --- 228 RIGHT
Split? N

THRU 241 ---> 2.0 (NO. OF LANES) 1.0<--- 79 THRU

RIGHT 595 --- 1.0 2.0 2.0 1.0 2.0 --- 192 LEFT

STREET NAME: Jack London Blvd

N
W + E
S

168 1051 480
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	480	347 *	1650	0.2103	
THRU (T)	1051	1051	3450	0.3046	0.3046
LEFT (L)	168	168	2970	0.0566	
SB RIGHT (R)	65	0 *	1650	0.0000	
THRU (T)	408	408	3450	0.1183	
LEFT (L)	366	366	2970	0.1232	0.1232
EB RIGHT (R)	595	468 *	1650	0.2836	0.2836
THRU (T)	241	241	3450	0.0699	
LEFT (L)	195	195	2970	0.0657	
WB RIGHT (R)	228	46 *	1650	0.0279	
THRU (T)	79	79	1725	0.0458	
LEFT (L)	192	192	2970	0.0646	0.0646

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.78
ADJUSTMENT FOR LOST YELLOW TIME: 0.08
TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Proj. - AM (Full Access) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
331 826 124

LEFT 71 --- 2.0 1.0 2.0 2.0 1.0 --- 494 RIGHT
THRU 81 ---> 2.0 (NO. OF LANES) 1.0<--- 188 THRU
RIGHT 164 --- 1.5 2.0 2.0 1.0 2.0 --- 278 LEFT

Split? N

STREET NAME: Jack London Blvd

N
W + E
S
679 500 87
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	87	0 *	1650	0.0000	
THRU (T)	500	500	3450	0.1449	
LEFT (L)	679	679	2970	0.2286	0.2286
SB RIGHT (R)	331	231 *	1650	0.1400	
THRU (T)	826	826	3450	0.2394	0.2394
LEFT (L)	124	124	2970	0.0418	
EB RIGHT (R)	164	0 *	1650	0.0000	
THRU (T)	81	81	3450	0.0235	
LEFT (L)	71	71	2970	0.0239	0.0239
WB RIGHT (R)	494	380 *	1650	0.2303	0.2303
THRU (T)	188	188	1725	0.1090	
LEFT (L)	278	278	2970	0.0936	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.72
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Proj. - PM (Full Access) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
65 408 366

LEFT 195 --- 2.0 1.0 2.0 2.0 1.0 --- 228 RIGHT
THRU 241 ---> 2.0 (NO. OF LANES) 1.0<--- 79 THRU
RIGHT 595 --- 1.5 2.0 2.0 1.0 2.0 --- 192 LEFT

Split? N

STREET NAME: Jack London Blvd

N
W + E
S
168 1051 480
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	480	347 *	1650	0.2103	
THRU (T)	1051	1051	3450	0.3046	0.3046
LEFT (L)	168	168	2970	0.0566	
SB RIGHT (R)	65	0 *	1650	0.0000	
THRU (T)	408	408	3450	0.1183	
LEFT (L)	366	366	2970	0.1232	0.1232
EB RIGHT (R)	595	422 *	1650	0.2558	0.2558
THRU (T)	241	241	3450	0.0699	
LEFT (L)	195	195	2970	0.0657	
WB RIGHT (R)	228	46 *	1650	0.0279	
THRU (T)	79	79	1725	0.0458	
LEFT (L)	192	192	2970	0.0646	0.0646

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.75
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM (Right in/out) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
231 726 124

LEFT 121 --- 2.0 1.0 2.0 2.0 1.0 --- 494 RIGHT
Split? N

THRU 141 ---> 2.0 (NO. OF LANES) 1.0<--- 288 THRU
STREET NAME: Jack London Blvd

RIGHT 164 --- 1.0 2.0 2.0 1.0 2.0 --- 378 LEFT

N
W + E
S
1345 450 26
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	26	0 *	1650	0.0000	
THRU (T)	450	450	3450	0.1304	
LEFT (L)	1345	1345	2970	0.4529	0.4529
SB RIGHT (R)	231	117 *	1650	0.0709	
THRU (T)	726	726	3450	0.2104	0.2104
LEFT (L)	124	124	2970	0.0418	
EB RIGHT (R)	164	0 *	1650	0.0000	
THRU (T)	141	141	3450	0.0409	
LEFT (L)	121	121	2970	0.0407	0.0407
WB RIGHT (R)	494	380 *	1650	0.2303	0.2303
THRU (T)	288	288	1725	0.1670	
LEFT (L)	378	378	2970	0.1273	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.93
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 0.93
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+RIROACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM (Right in/out) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
65 408 366

LEFT 386 --- 2.0 1.0 2.0 2.0 1.0 --- 228 RIGHT
Split? N

THRU 473 ---> 2.0 (NO. OF LANES) 1.0<--- 79 THRU
STREET NAME: Jack London Blvd

RIGHT 595 --- 1.0 2.0 2.0 1.0 2.0 --- 192 LEFT

N
W + E
S
329 859 248
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	115 *	1650	0.0697	
THRU (T)	859	859	3450	0.2490	0.2490
LEFT (L)	329	329	2970	0.1108	
SB RIGHT (R)	65	0 *	1650	0.0000	
THRU (T)	408	408	3450	0.1183	
LEFT (L)	366	366	2970	0.1232	0.1232
EB RIGHT (R)	595	424 *	1650	0.2570	0.2570
THRU (T)	473	473	3450	0.1371	
LEFT (L)	386	386	2970	0.1300	
WB RIGHT (R)	228	46 *	1650	0.0279	
THRU (T)	79	79	1725	0.0458	
LEFT (L)	192	192	2970	0.0646	0.0646

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.69
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+RIROACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM (No Access at Isabel) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
449 508 124

LEFT 121 --- 2.0 1.0 2.0 2.0 1.0 --- 494 RIGHT
Split? N
THRU 141 ---> 2.0 (NO. OF LANES) 1.0<--- 552 THRU
STREET NAME: Jack London Blvd
RIGHT 317 --- 1.0 2.0 2.0 1.0 2.0 --- 114 LEFT

N
W + E 1345 450 26
S LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	26	0 *	1650	0.0000	
THRU (T)	450	450	3450	0.1304	
LEFT (L)	1345	1345	2970	0.4529	0.4529
SB RIGHT (R)	449	335 *	1650	0.2030	0.2030
THRU (T)	508	508	3450	0.1472	
LEFT (L)	124	124	2970	0.0418	
EB RIGHT (R)	317	0 *	1650	0.0000	
THRU (T)	141	141	3450	0.0409	
LEFT (L)	121	121	2970	0.0407	0.0407
WB RIGHT (R)	494	380 *	1650	0.2303	
THRU (T)	552	552	1725	0.3200	0.3200
LEFT (L)	114	114	2970	0.0384	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.02
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.02
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+ONE_ACCS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM (No Access at Isabel) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
117 355 366

LEFT 386 --- 2.0 1.0 2.0 2.0 1.0 --- 228 RIGHT
Split? N
THRU 473 ---> 2.0 (NO. OF LANES) 1.0<--- 143 THRU
STREET NAME: Jack London Blvd
RIGHT 1180 --- 1.0 2.0 2.0 1.0 2.0 --- 128 LEFT

N
W + E 329 859 248
S LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	132 *	1650	0.0800	
THRU (T)	859	859	3450	0.2490	0.2490
LEFT (L)	329	329	2970	0.1108	
SB RIGHT (R)	117	0 *	1650	0.0000	
THRU (T)	355	355	3450	0.1029	
LEFT (L)	366	366	2970	0.1232	0.1232
EB RIGHT (R)	1180	1009 *	1650	0.6115	0.6115
THRU (T)	473	473	3450	0.1371	
LEFT (L)	386	386	2970	0.1300	
WB RIGHT (R)	228	46 *	1650	0.0279	
THRU (T)	143	143	1725	0.0829	
LEFT (L)	128	128	2970	0.0431	0.0431

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.03
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.03
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+ONE_ACCS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 06/30/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
520 448 0

LEFT 242 --- 1.0 1.1 2.1 0.0 1.0 --- 177 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 308 --- 1.0 1.0 2.0 0.0 1.0 --- 53 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

620 474 0
LEFT THRU RIGHT Split? N

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	474	474	3450	0.1374	
LEFT (L)	620	620	1650	0.3758	0.3758
SB RIGHT (R)	520	520	1650	0.3152	0.3152
THRU (T)	448	448	3375	0.1327	
T + R		968	3375	0.2868	
EB RIGHT (R)	308	0 *	1650	0.0000	
LEFT (L)	242	242	1650	0.1467	0.1467
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.90
ADJUSTMENT FOR LOST YELLOW TIME: 0.02
TOTAL VOLUME-TO-CAPACITY RATIO: 0.92
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 06/30/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
162 211 0

LEFT 549 --- 1.0 1.1 2.1 0.0 1.0 --- 105 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd

RIGHT 305 --- 1.0 1.0 2.0 0.0 1.0 --- 44 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

195 694 0
LEFT THRU RIGHT Split? N

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	694	694	3450	0.2012	
LEFT (L)	195	195	1650	0.1182	0.1182
SB RIGHT (R)	162	162	1650	0.0982	
THRU (T)	211	211	3375	0.0625	
T + R		373	3375	0.1105	0.1105
EB RIGHT (R)	305	128 *	1650	0.0776	
LEFT (L)	549	549	1650	0.3327	0.3327
WB RIGHT (R)	105	25 *	1650	0.0152	0.0152
LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.58
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - AM Peak Hour 06/30/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
520 448 0

LEFT 242 --- 1.0 1.1 2.1 0.0 1.0 --- 177 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 308 --- 1.0 2.1 2.1 0.0 1.0 --- 53 LEFT

STREET NAME: Jack London Blvd

N
W + E
S

620 474 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	474	474	3375	0.1404	
LEFT (L)	620	620	2970	0.2088	0.2088
T + L		1094	4695	0.2330	
SB RIGHT (R)	520	520	1650	0.3152	0.3152
THRU (T)	448	448	3375	0.1327	
T + R		968	3375	0.2868	
EB RIGHT (R)	308	56 *	1650	0.0339	
LEFT (L)	242	242	1650	0.1467	0.1467
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.73
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - PM Peak Hour 06/30/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
162 211 0

LEFT 549 --- 1.0 1.1 2.1 0.0 1.0 --- 105 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 305 --- 1.0 2.1 2.1 0.0 1.0 --- 44 LEFT

STREET NAME: Jack London Blvd

N
W + E
S

195 694 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	694	694	3375	0.2056	0.2056
LEFT (L)	195	195	2970	0.0657	
T + L		889	4695	0.1894	
SB RIGHT (R)	162	162	1650	0.0982	
THRU (T)	211	211	3375	0.0625	
T + R		373	3375	0.1105	
EB RIGHT (R)	305	171 *	1650	0.1036	
LEFT (L)	549	549	1650	0.3327	0.3327
WB RIGHT (R)	105	25 *	1650	0.0152	0.0152
LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.55
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.65
INTERSECTION LEVEL OF SERVICE: B

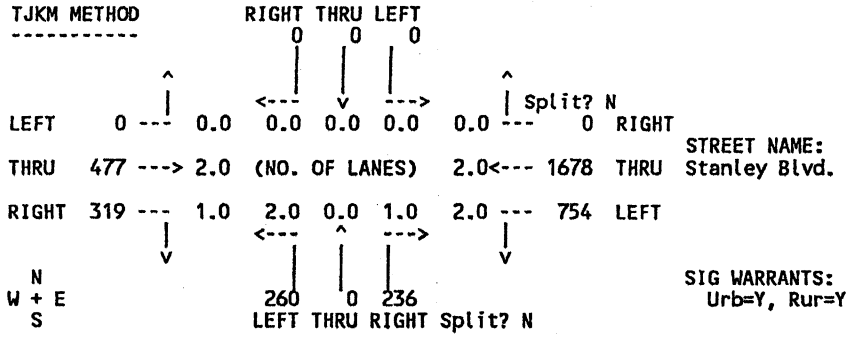
* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	236	0 *	1650	0.0000	
LEFT (L)	260	260	2970	0.0875	0.0875
EB RIGHT (R)	319	167 *	1650	0.1012	
THRU (T)	477	477	3450	0.1383	
WB THRU (T)	1678	1678	3450	0.4864	0.4864
LEFT (L)	754	754	2970	0.2539	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.57
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

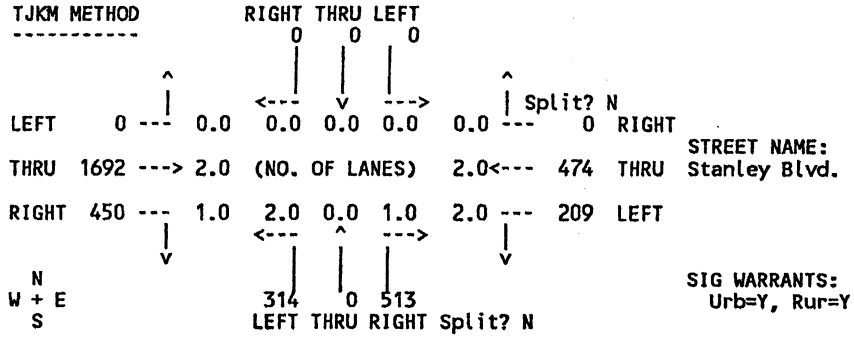
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Stanley Blvd.

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	513	375 *	1650	0.2273	0.2273
LEFT (L)	314	314	2970	0.1057	
EB RIGHT (R)	450	283 *	1650	0.1715	
THRU (T)	1692	1692	3450	0.4904	0.4904
WB THRU (T)	474	474	3450	0.1374	
LEFT (L)	209	209	2970	0.0704	0.0704

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.79
ADJUSTMENT FOR LOST YELLOW TIME: 0.07
TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

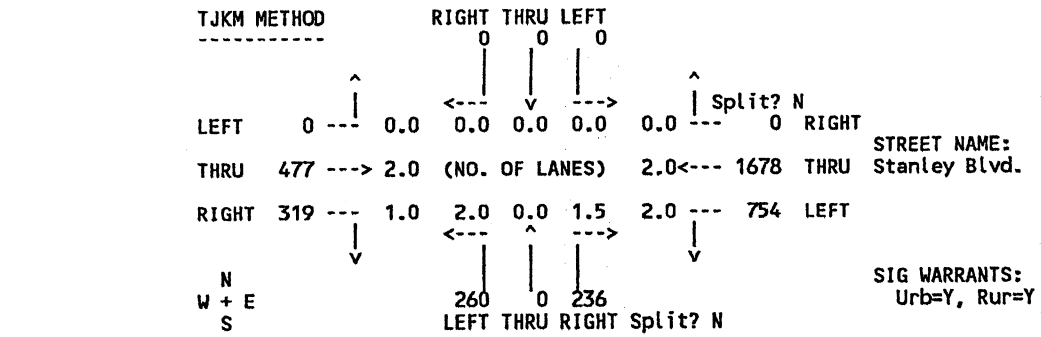
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	236	0 *	1650	0.0000	
LEFT (L)	260	260	2970	0.0875	0.0875
EB RIGHT (R)	319	167 *	1650	0.1012	
THRU (T)	477	477	3450	0.1383	
WB THRU (T)	1678	1678	3450	0.4864	0.4864
LEFT (L)	754	754	2970	0.2539	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.57
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	513	317 *	1650	0.1921	0.1921
LEFT (L)	314	314	2970	0.1057	
EB RIGHT (R)	450	283 *	1650	0.1715	
THRU (T)	1692	1692	3450	0.4904	0.4904
WB THRU (T)	474	474	3450	0.1374	
LEFT (L)	209	209	2970	0.0704	0.0704

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.75
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 658 302

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 829 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 244 LEFT

STREET NAME:
Stanley Ramp

Split? N

N
W + E
S
0 1072 248
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	46 *	1650	0.0279	
THRU (T)	1072	1072	3450	0.3107	0.3107
SB THRU (T)	658	658	3450	0.1907	
LEFT (L)	302	302	2970	0.1017	0.1017
WB RIGHT (R)	829	665 *	1650	0.4030	0.4030
LEFT (L)	244	244	1650	0.1479	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.82
ADJUSTMENT FOR LOST YELLOW TIME: 0.06
TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 934 729

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 384 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 296 LEFT

STREET NAME:
Stanley Ramp

Split? N

N
W + E
S
0 955 99
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	99	0 *	1650	0.0000	
THRU (T)	955	955	3450	0.2768	0.2768
SB THRU (T)	934	934	3450	0.2707	
LEFT (L)	729	729	2970	0.2455	0.2455
WB RIGHT (R)	384	102 *	1650	0.0618	
LEFT (L)	296	296	1650	0.1794	0.1794

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.70
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 658 302

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 829 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 244 LEFT
Split? N

STREET NAME: Stanley Ramp

N
W + E
S
0 1072 248
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	46 *	1650	0.0279	
THRU (T)	1072	1072	3450	0.3107	0.3107
SB THRU (T)	658	658	3450	0.1907	
LEFT (L)	302	302	2970	0.1017	0.1017
WB RIGHT (R)	829	581 *	1650	0.3521	0.3521
LEFT (L)	244	244	1650	0.1479	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.76
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 934 729

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 384 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 296 LEFT
Split? N

STREET NAME: Stanley Ramp

N
W + E
S
0 955 99
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	99	0 *	1650	0.0000	
THRU (T)	955	955	3450	0.2768	0.2768
SB THRU (T)	934	934	3450	0.2707	
LEFT (L)	729	729	2970	0.2455	0.2455
WB RIGHT (R)	384	0 *	1650	0.0000	
LEFT (L)	296	296	1650	0.1794	0.1794

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.70
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 05/14/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
434 858 3

LEFT 245 --- 2.1 1.0 1.0 1.0 1.0 --- 6 RIGHT
Split? Y

THRU 19 ---> 1.1 (NO. OF LANES) 1.0<--- 16 THRU
STREET NAME: Vineyard Ave.

RIGHT 12 --- 1.1 1.0 1.0 1.0 1.0 --- 12 LEFT

N
W + E
S
12 309 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	0	0	1650	0.0000	
THRU (T)	309	309	1725	0.1791	
LEFT (L)	12	12	1650	0.0073	0.0073
SB RIGHT (R)	434	286 *	1650	0.1733	
THRU (T)	858	858	1725	0.4974	0.4974
LEFT (L)	3	3	1650	0.0018	
EB RIGHT (R)	12	12	1650	0.0073	
THRU (T)	19	19	1650	0.0115	
LEFT (L)	245	245	2970	0.0825	
T + R		31	1650	0.0188	
T + L		264	2970	0.0889	
T + R + L		276	2970	0.0929	0.0929
WB RIGHT (R)	6	0 *	1650	0.0000	
THRU (T)	16	16	1725	0.0093	0.0093
LEFT (L)	12	12	1650	0.0073	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.61
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.71
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 05/14/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
225 341 4

LEFT 834 --- 2.1 1.0 1.0 1.0 1.0 --- 6 RIGHT
Split? Y

THRU 53 ---> 1.1 (NO. OF LANES) 1.0<--- 14 THRU
STREET NAME: Vineyard Ave.

RIGHT 14 --- 1.1 1.0 1.0 1.0 1.0 --- 0 LEFT

N
W + E
S
6 609 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	0	0	1650	0.0000	
THRU (T)	609	609	1725	0.3530	0.3530
LEFT (L)	6	6	1650	0.0036	
SB RIGHT (R)	225	0 *	1650	0.0000	
THRU (T)	341	341	1725	0.1977	
LEFT (L)	4	4	1650	0.0024	0.0024
EB RIGHT (R)	14	14	1650	0.0085	
THRU (T)	53	53	1650	0.0321	
LEFT (L)	834	834	2970	0.2808	
T + R		67	1650	0.0406	
T + L		887	2970	0.2987	
T + R + L		901	2970	0.3034	0.3034
WB RIGHT (R)	6	0 *	1650	0.0000	
THRU (T)	14	14	1725	0.0081	0.0081
LEFT (L)	0	0	1650	0.0000	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.67
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 778 32

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 9 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 760 LEFT
Split? N

STREET NAME: Vallecitos Rd.

N
W + E
S
0 313 396
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	396	396	1725	0.2296	
THRU (T)	313	313	3450	0.0907	
SB THRU (T)	778	778	3450	0.2255	0.2255
LEFT (L)	32	32	1650	0.0194	
WB RIGHT (R)	9	0 *	1650	0.0000	
LEFT (L)	760	760	2970	0.2559	0.2559

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.48
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.58
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 346 17

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 10 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 466 LEFT
Split? N

STREET NAME: Vallecitos Rd.

N
W + E
S
0 623 1201
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1201	1201	1725	0.6962	
THRU (T)	623	623	3450	0.1806	0.1806
SB THRU (T)	346	346	3450	0.1003	
LEFT (L)	17	17	1650	0.0103	0.0103
WB RIGHT (R)	10	0 *	1650	0.0000	
LEFT (L)	466	466	2970	0.1569	0.1569

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.35
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.45
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	579	323				
LEFT	0	0.0	0.0	2.0	2.0	2.0	859	RIGHT	
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Concannon
RIGHT	0	0.0	0.0	2.0	1.0	1.0	749	LEFT	

Split? N

SIG WARRANTS: Urb=Y, Rur=Y

N				
W + E	0	460	79	
S	LEFT	THRU	RIGHT	Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	79	0 *	1650	0.0000	
	THRU (T)	460	460	3450	0.1333	0.1333
SB	THRU (T)	579	579	3450	0.1678	
	LEFT (L)	323	323	2970	0.1088	0.1088
WB	RIGHT (R)	859	689 *	2970	0.2320	
	LEFT (L)	749	749	1650	0.4539	0.4539

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.70
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.80
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			0	472	759				
LEFT	0	0.0	0.0	2.0	2.0	2.0	288	RIGHT	
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Concannon
RIGHT	0	0.0	0.0	2.0	1.0	1.0	99	LEFT	

Split? N

SIG WARRANTS: Urb=Y, Rur=Y

N				
W + E	0	766	751	
S	LEFT	THRU	RIGHT	Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	751	622 *	1650	0.3770	0.3770
	THRU (T)	766	766	3450	0.2220	
SB	THRU (T)	472	472	3450	0.1368	
	LEFT (L)	759	759	2970	0.2556	0.2556
WB	RIGHT (R)	288	0 *	2970	0.0000	
	LEFT (L)	99	99	1650	0.0600	0.0600

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.69
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.79
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
482 809 0

LEFT 111 --- 2.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 153 --- 1.0 2.0 2.0 0.0 0.0 --- 0 LEFT

Split? N

STREET NAME:
Project Drwy.

N
W + E
S

666 1235 0
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	1235	1235	3450	0.3580	
LEFT (L)	666	666	2970	0.2242	0.2242
SB RIGHT (R)	482	371 *	1650	0.2248	
THRU (T)	809	809	3450	0.2345	0.2345
EB RIGHT (R)	153	0 *	1650	0.0000	
LEFT (L)	111	111	2970	0.0374	0.0374

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.50
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.60
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
117 1078 0

LEFT 424 --- 2.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 585 --- 1.0 2.0 2.0 0.0 0.0 --- 0 LEFT

Split? N

STREET NAME:
Project Drwy.

N
W + E
S

161 1274 0
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	1274	1274	3450	0.3693	0.3693
LEFT (L)	161	161	2970	0.0542	
SB RIGHT (R)	117	0 *	1650	0.0000	
THRU (T)	1078	1078	3450	0.3125	
EB RIGHT (R)	585	460 *	1650	0.2788	0.2788
LEFT (L)	424	424	2970	0.1428	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.65
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.75
INTERSECTION LEVEL OF SERVICE:	C

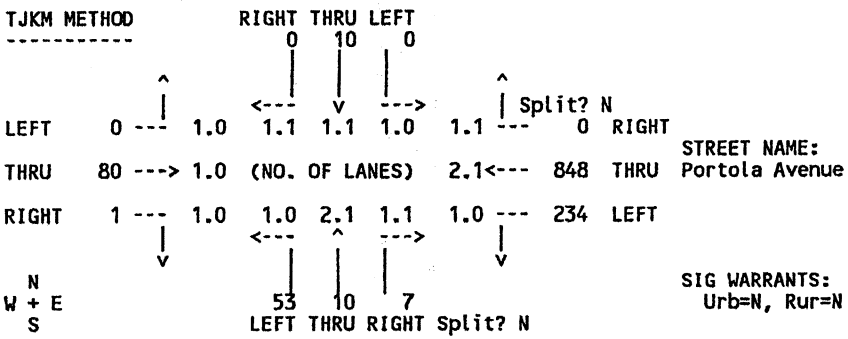
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 12 Isable Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Portola Avenue

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isable Ave.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	10	10	3375	0.0030	
	LEFT (L)	53	53	1650	0.0321	0.0321
	T + R		17	3375	0.0050	
SB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	10	10	1650	0.0061	0.0061
	LEFT (L)	0	0	1650	0.0000	
	T + R		10	1650	0.0061	
EB	RIGHT (R)	1	0 *	1650	0.0000	
	THRU (T)	80	80	1725	0.0464	
	LEFT (L)	0	0	1650	0.0000	0.0000
WB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	848	848	3375	0.2513	0.2513
	LEFT (L)	234	234	1650	0.1418	
	T + R		848	3375	0.2513	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.29
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.39
INTERSECTION LEVEL OF SERVICE: A

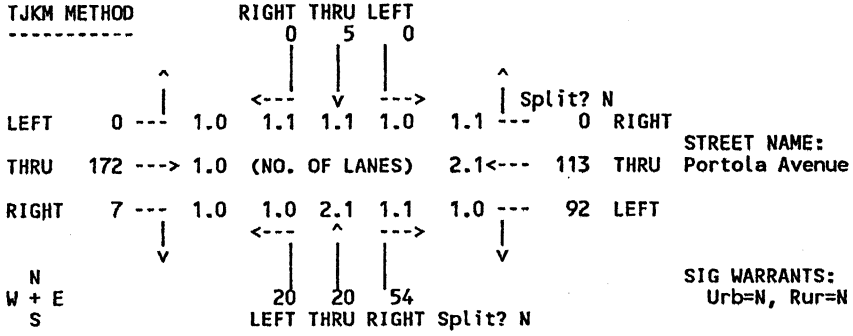
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 12 Isable Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Portola Avenue

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isable Ave.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	54	54	1650	0.0327	0.0327
	THRU (T)	20	20	3375	0.0059	
	LEFT (L)	20	20	1650	0.0121	
	T + R		74	3375	0.0219	
SB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	5	5	1650	0.0030	
	LEFT (L)	0	0	1650	0.0000	0.0000
	T + R		5	1650	0.0030	
EB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	172	172	1725	0.0997	0.0997
	LEFT (L)	0	0	1650	0.0000	
WB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	113	113	3375	0.0335	
	LEFT (L)	92	92	1650	0.0558	0.0558
	T + R		113	3375	0.0335	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.19
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.29
INTERSECTION LEVEL OF SERVICE: A

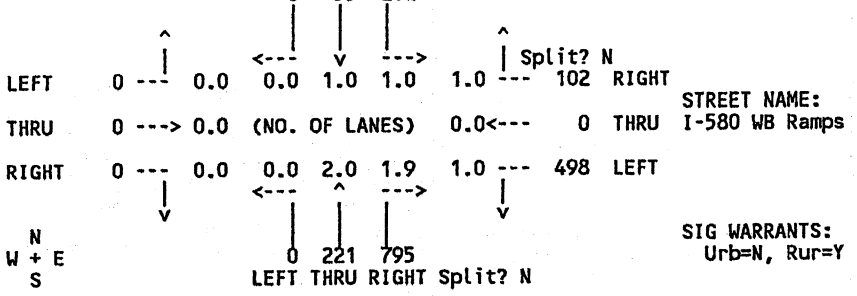
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/24/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 55 262



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	795	795	1725	0.4609	
	THRU (T)	221	221	3450	0.0641	0.0641
SB	THRU (T)	55	55	1725	0.0319	
	LEFT (L)	262	262	1650	0.1588	0.1588
WB	RIGHT (R)	102	0 *	1650	0.0000	
	LEFT (L)	498	498	1650	0.3018	0.3018

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.52
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

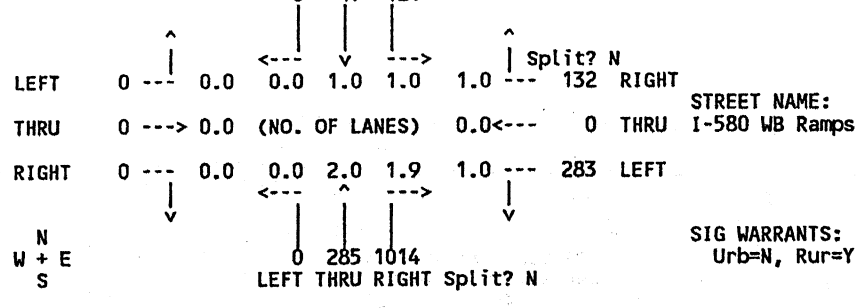
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/24/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 47 121



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1014	1014	1725	0.5878	
	THRU (T)	285	285	3450	0.0826	0.0826
SB	THRU (T)	47	47	1725	0.0272	
	LEFT (L)	121	121	1650	0.0733	0.0733
WB	RIGHT (R)	132	0 *	1650	0.0000	
	LEFT (L)	283	283	1650	0.1715	0.1715

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.33
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.43
INTERSECTION LEVEL OF SERVICE: A

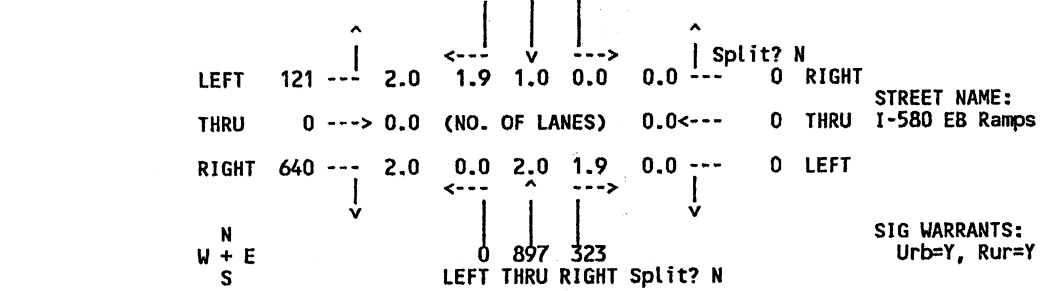
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
24 529 0



STREET NAME: I-580 EB Ramps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	323	323	1725	0.1872	
THRU (T)	897	897	3450	0.2600	
SB RIGHT (R)	24	24	1725	0.0139	
THRU (T)	529	529	1725	0.3067	0.3067
EB RIGHT (R)	640	560 *	2970	0.1886	0.1886
LEFT (L)	121	121	2970	0.0407	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.50
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
32 298 0

STREET NAME: I-580 EB Ramps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	532	532	1725	0.3084	
THRU (T)	1087	1087	3450	0.3151	0.3151
SB RIGHT (R)	32	32	1725	0.0186	
THRU (T)	298	298	1725	0.1728	
EB RIGHT (R)	387	307 *	2970	0.1034	0.1034
LEFT (L)	212	212	2970	0.0714	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.42
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.52
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/24/03

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 2 --- 1.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 438 ---> 3.1 (NO. OF LANES) 2.0<--- 2086 THRU
STREET NAME: Stanley Blvd.

RIGHT 40 --- 1.1 2.0 0.0 1.0 1.0 --- 50 LEFT

N
W + E
S
354 0 95
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	95	0 *	1650	0.0000	
	LEFT (L)	354	354	2970	0.1192	0.1192
EB	RIGHT (R)	40	40	1650	0.0242	
	THRU (T)	438	438	5100	0.0859	
	LEFT (L)	2	2	1650	0.0012	0.0012
	T + R		478	5100	0.0937	
WB	THRU (T)	2086	2086	3450	0.6046	0.6046
	LEFT (L)	50	50	1650	0.0303	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.72
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/24/03

INTERSECTION 15 Murdell Lane/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 2 --- 1.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 2215 ---> 3.1 (NO. OF LANES) 2.0<--- 590 THRU
STREET NAME: Stanley Blvd.

RIGHT 225 --- 1.1 2.0 0.0 1.0 1.0 --- 133 LEFT

N
W + E
S
92 0 65
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=B, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	65	0 *	1650	0.0000	
	LEFT (L)	92	92	2970	0.0310	0.0310
EB	RIGHT (R)	225	225	1650	0.1364	
	THRU (T)	2215	2215	5100	0.4343	
	LEFT (L)	2	2	1650	0.0012	
	T + R		2440	5100	0.4784	0.4784
WB	THRU (T)	590	590	3450	0.1710	
	LEFT (L)	133	133	1650	0.0806	0.0806

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.59
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.69
INTERSECTION LEVEL OF SERVICE: B

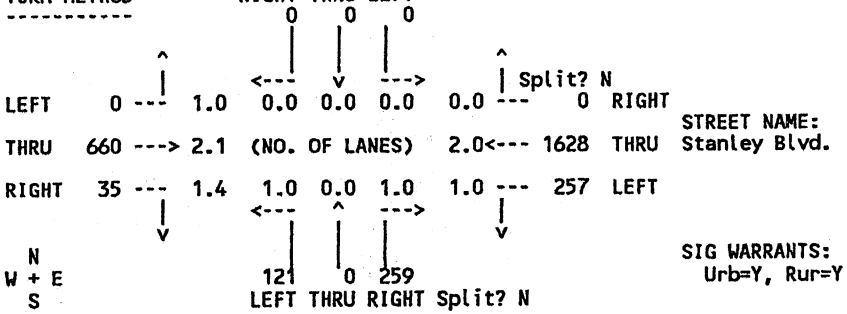
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/24/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	259	51 *	1650	0.0309	
LEFT (L)	121	121	1650	0.0733	0.0733
EB RIGHT (R)	35	0 *	1650	0.0000	
THRU (T)	660	660	3375	0.1956	
LEFT (L)	0	0	1650	0.0000	0.0000
T + R		660	3375	0.1956	
WB THRU (T)	1628	1628	3450	0.4719	0.4719
LEFT (L)	257	257	1650	0.1558	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.55
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.65
INTERSECTION LEVEL OF SERVICE: B

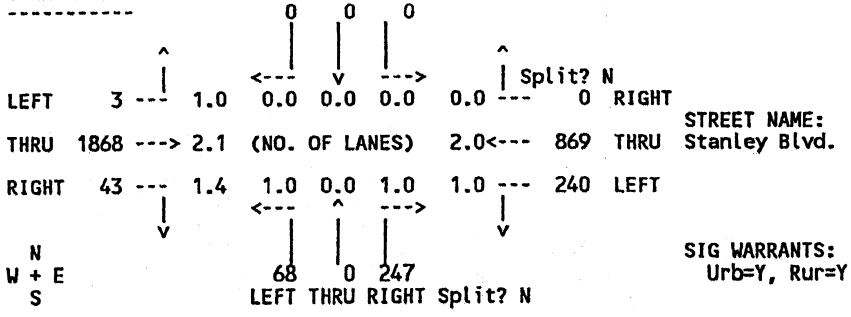
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=ADJ2005.AMV+5YEARS.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/24/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	247	47 *	1650	0.0285	
LEFT (L)	68	68	1650	0.0412	0.0412
EB RIGHT (R)	43	0 *	1650	0.0000	
THRU (T)	1868	1868	3375	0.5535	0.5535
LEFT (L)	3	3	1650	0.0018	
T + R		1868	3375	0.5535	
WB THRU (T)	869	869	3450	0.2519	
LEFT (L)	240	240	1650	0.1455	0.1455

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.74
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=ADJ2005.PMV+5YEARS.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
488 321 134

LEFT	208	1.0	1.0	1.1	2.1	1.0	155	RIGHT	Split? N
THRU	508	2.1	(NO. OF LANES)			2.0	825	THRU	STREET NAME: Stanley Blvd.
RIGHT	189	1.4	2.1	2.2	1.1	1.0	35	LEFT	

N
W + E
S
518 338 13
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	13	13	1650	0.0079	
	THRU (T)	338	338	3300	0.1024	
	LEFT (L)	518	518	2970	0.1744	
	T + R		351	3300	0.1064	
	T + L		856	4620	0.1853	
	T + R + L		869	4620	0.1881	0.1881
SB	RIGHT (R)	488	304 *	1650	0.1842	
	THRU (T)	321	321	1650	0.1945	0.1945
	LEFT (L)	134	134	2970	0.0451	
	T + L		455	2970	0.1532	
EB	RIGHT (R)	189	99 *	1650	0.0600	
	THRU (T)	508	508	3375	0.1505	
	LEFT (L)	208	208	1650	0.1261	0.1261
	T + R		607	3375	0.1799	
WB	RIGHT (R)	155	38 *	1650	0.0230	
	THRU (T)	825	825	3450	0.2391	0.2391
	LEFT (L)	35	35	1650	0.0212	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.75
ADJUSTMENT FOR LOST YELLOW TIME:	0.09
TOTAL VOLUME-TO-CAPACITY RATIO:	0.84
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
80 221 235

LEFT	354	1.0	1.0	1.1	2.1	1.0	167	RIGHT	Split? N
THRU	1300	2.1	(NO. OF LANES)			2.0	557	THRU	STREET NAME: Stanley Blvd.
RIGHT	327	1.4	2.1	2.2	1.1	1.0	35	LEFT	

N
W + E
S
249 343 14
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	343	343	3300	0.1039	
	LEFT (L)	249	249	2970	0.0838	
	T + R		357	3300	0.1082	
	T + L		592	4620	0.1281	
	T + R + L		606	4620	0.1312	0.1312
SB	RIGHT (R)	80	0 *	1650	0.0000	
	THRU (T)	221	221	1650	0.1339	
	LEFT (L)	235	235	2970	0.0791	
	T + L		456	2970	0.1535	0.1535
EB	RIGHT (R)	327	237 *	1650	0.1436	
	THRU (T)	1300	1300	3375	0.3852	
	LEFT (L)	354	354	1650	0.2145	
	T + R		1537	3375	0.4554	0.4554
WB	RIGHT (R)	167	22 *	1650	0.0133	
	THRU (T)	557	557	3450	0.1614	
	LEFT (L)	35	35	1650	0.0212	0.0212

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.76
ADJUSTMENT FOR LOST YELLOW TIME:	0.09
TOTAL VOLUME-TO-CAPACITY RATIO:	0.85
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			145	802	94					
LEFT	109	1.0	1.1	2.1	1.0	1.1	Split? N	86	RIGHT	
THRU	440	2.1	(NO. OF LANES)			2.1		509	THRU	STREET NAME: Concannon Blvd.
RIGHT	25	1.1	1.0	2.1	1.1	1.0		274	LEFT	
			76	317	102					SIG WARRANTS: Urb=Y, Rur=Y
			LEFT	THRU	RIGHT	Split? N				

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	102	102	1650	0.0618	
	THRU (T)	317	317	3375	0.0939	
	LEFT (L)	76	76	1650	0.0461	0.0461
	T + R		419	3375	0.1241	
SB	RIGHT (R)	145	145	1650	0.0879	
	THRU (T)	802	802	3375	0.2376	
	LEFT (L)	94	94	1650	0.0570	
	T + R		947	3375	0.2806	0.2806
EB	RIGHT (R)	25	25	1650	0.0152	
	THRU (T)	440	440	3375	0.1304	
	LEFT (L)	109	109	1650	0.0661	
	T + R		465	3375	0.1378	0.1378
WB	RIGHT (R)	86	86	1650	0.0521	
	THRU (T)	509	509	3375	0.1508	
	LEFT (L)	274	274	1650	0.1661	0.1661
	T + R		595	3375	0.1763	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.63
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.AMV+05FULL-1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			103	413	104					
LEFT	246	1.0	1.1	2.1	1.0	1.1	Split? N	58	RIGHT	
THRU	776	2.1	(NO. OF LANES)			2.1		405	THRU	STREET NAME: Concannon Blvd.
RIGHT	46	1.1	1.0	2.1	1.1	1.0		150	LEFT	
			56	886	337					SIG WARRANTS: Urb=Y, Rur=Y
			LEFT	THRU	RIGHT	Split? N				

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	337	337	1650	0.2042	
	THRU (T)	886	886	3375	0.2625	
	LEFT (L)	56	56	1650	0.0339	
	T + R		1223	3375	0.3624	0.3624
SB	RIGHT (R)	103	103	1650	0.0624	
	THRU (T)	413	413	3375	0.1224	
	LEFT (L)	104	104	1650	0.0630	0.0630
	T + R		516	3375	0.1529	
EB	RIGHT (R)	46	46	1650	0.0279	
	THRU (T)	776	776	3375	0.2299	
	LEFT (L)	246	246	1650	0.1491	
	T + R		822	3375	0.2436	0.2436
WB	RIGHT (R)	58	58	1650	0.0352	
	THRU (T)	405	405	3375	0.1200	
	LEFT (L)	150	150	1650	0.0909	0.0909
	T + R		463	3375	0.1372	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.76
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

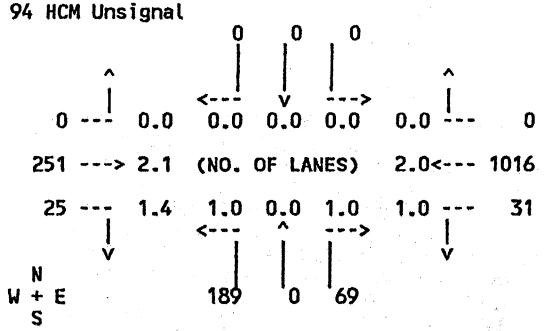
* ADJUSTED FOR RIGHT TURN ON RED
INT=2005.INT,VOL=2010ADJ.PMV+05FULL-1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=Y, Rur=Y

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT		ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB	L	189	231	7.0	1456	124	121	493.6	F	362.9	F
	R	69	84	5.5	153	1158	1158	3.4	A		
EB	T	251	307							0.0	A
	R	25	31								
	TR	276	338					0.0	A		
WB	L	31	38	5.5	307	1173	1173	3.2	A	0.1	A
	T	1016	1242					0.0	A		

INT TOTAL: 59.3 F
MINOR MOVEMENTS: (324.3) (F)

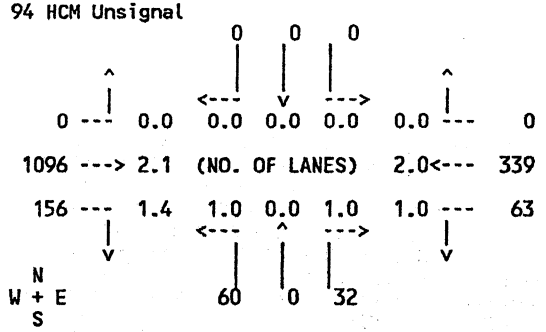
INT=2005.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=B

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT		ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB	L	60	73	7.0	1751	80	65	253.9	F	167.7	F
	R	32	39	5.5	696	615	615	6.2	B		
EB	T	1096	1340							0.0	A
	R	156	191								
	TR	1252	1531					0.0	A		
WB	L	63	77	5.5	1391	307	307	15.6	C	2.4	A
	T	339	414					0.0	A		

INT TOTAL: 9.4 B
MINOR MOVEMENTS: (105.9) (F)

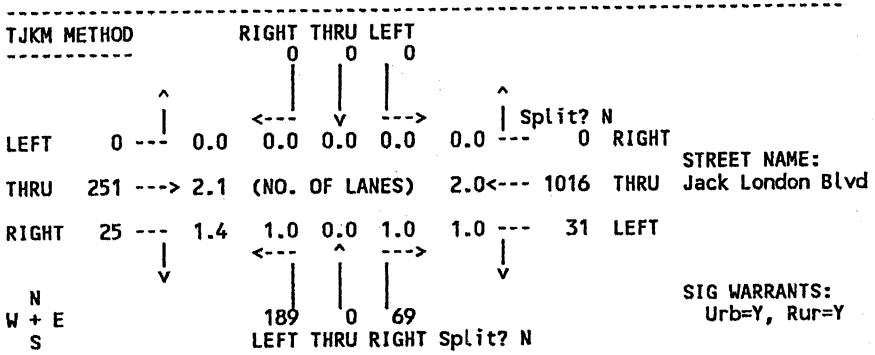
INT=2005.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - AM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Hagemann Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	69	0 *	1650	0.0000	
	LEFT (L)	189	189	1650	0.1145	0.1145
EB	RIGHT (R)	25	0 *	1650	0.0000	
	THRU (T)	251	251	3375	0.0744	
	T + R		251	3375	0.0744	
WB	THRU (T)	1016	1016	3450	0.2945	0.2945
	LEFT (L)	31	31	1650	0.0188	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.41
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.51
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.AMV+05FULL~1.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mitigated Year 2010 + Project - PM Peak Hour 04/18/03

INTERSECTION 19 Hagemann Drive/Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Hagemann Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	32	0 *	1650	0.0000	
	LEFT (L)	60	60	1650	0.0364	0.0364
EB	RIGHT (R)	156	66 *	1650	0.0400	
	THRU (T)	1096	1096	3375	0.3247	
	T + R		1162	3375	0.3443	0.3443
WB	THRU (T)	339	339	3450	0.0983	
	LEFT (L)	63	63	1650	0.0382	0.0382

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.42
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.52
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=05MIT.INT,VOL=2010ADJ.PMV+05FULL~1.PMV,CAP=...LIVCAP.TAB

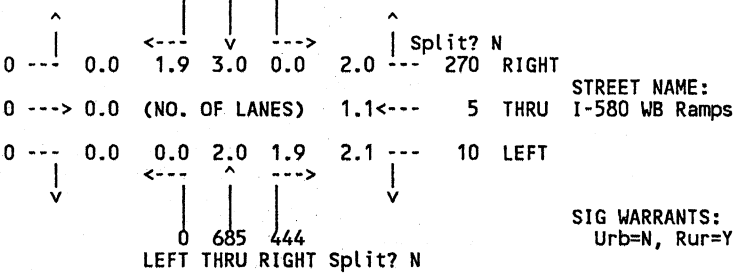
APPENDIX F – LEVEL OF SERVICE – YEAR 2025 CONDITIONS (TRI-VALLEY MODEL)

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
196 127 0



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	444	444	1725	0.2574	
THRU (T)	685	685	3450	0.1986	0.1986
SB RIGHT (R)	196	196	1725	0.1136	
THRU (T)	127	127	5175	0.0245	
WB RIGHT (R)	270	190 *	2970	0.0640	0.0640
THRU (T)	5	5	1650	0.0030	
LEFT (L)	10	10	2970	0.0034	
T + L		15	2970	0.0051	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.26
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
579 299 0

STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	90	90	1725	0.0522	
THRU (T)	350	350	3450	0.1014	0.1014
SB RIGHT (R)	579	579	1725	0.3357	
THRU (T)	299	299	5175	0.0578	
WB RIGHT (R)	226	146 *	2970	0.0492	0.0492
THRU (T)	5	5	1650	0.0030	
LEFT (L)	71	71	2970	0.0239	
T + L		76	2970	0.0256	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.15
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.25
INTERSECTION LEVEL OF SERVICE: A

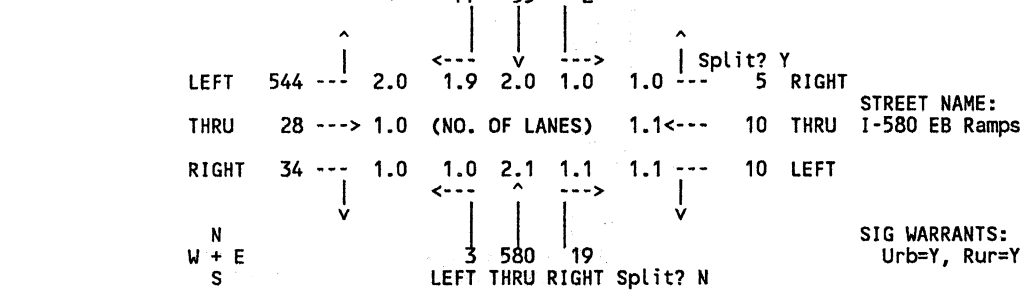
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	19	19	1650	0.0115	
	THRU (T)	580	580	3375	0.1719	
	LEFT (L)	3	3	1650	0.0018	
	T + R		599	3375	0.1775	0.1775
SB	RIGHT (R)	77	77	1725	0.0446	
	THRU (T)	55	55	3450	0.0159	
	LEFT (L)	2	2	1650	0.0012	0.0012
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	28	28	1725	0.0162	
	LEFT (L)	544	544	2970	0.1832	0.1832
WB	RIGHT (R)	5	0 *	1650	0.0000	
	THRU (T)	10	10	1650	0.0061	
	LEFT (L)	10	10	1650	0.0061	
	T + L		20	1650	0.0121	0.0121

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.37
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.47
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	137	137	3375	0.0406	
	LEFT (L)	1	1	1650	0.0006	0.0006
	T + R		148	3375	0.0439	
SB	RIGHT (R)	84	84	1725	0.0487	
	THRU (T)	232	232	3450	0.0672	0.0672
	LEFT (L)	2	2	1650	0.0012	
EB	RIGHT (R)	615	535 *	1650	0.3242	0.3242
	THRU (T)	11	11	1725	0.0064	
	LEFT (L)	262	262	2970	0.0882	
WB	RIGHT (R)	39	0 *	1650	0.0000	
	THRU (T)	6	6	1650	0.0036	
	LEFT (L)	9	9	1650	0.0055	
	T + L		15	1650	0.0091	0.0091

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.40
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.50
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			18	1525	32				
LEFT	5	1.0	1.1	3.1	1.0	1.0	7	RIGHT	
THRU	7	1.0	(NO. OF LANES)			1.0	28	THRU	STREET NAME: Airway Blvd.
RIGHT	90	1.0	2.0	3.1	1.1	1.0	41	LEFT	
			599	1205	10				

Split? N

N
W + E
S

LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=B

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1205	1205	5100	0.2363	
	LEFT (L)	599	599	2970	0.2017	0.2017
	T + R		1215	5100	0.2382	
SB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	1525	1525	5100	0.2990	
	LEFT (L)	32	32	1650	0.0194	
	T + R		1543	5100	0.3025	0.3025
EB	RIGHT (R)	90	0 *	1650	0.0000	
	THRU (T)	7	7	1725	0.0041	0.0041
	LEFT (L)	5	5	1650	0.0030	
WB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	28	28	1725	0.0162	
	LEFT (L)	41	41	1650	0.0248	0.0248

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.53
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			10	1834	338				
LEFT	90	1.0	1.1	3.1	1.0	1.0	53	RIGHT	
THRU	197	1.0	(NO. OF LANES)			1.0	13	THRU	STREET NAME: Airway Blvd.
RIGHT	632	1.0	2.0	3.1	1.1	1.0	23	LEFT	
			143	2267	34				

Split? N

N
W + E
S

LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	34	34	1650	0.0206	
	THRU (T)	2267	2267	5100	0.4445	
	LEFT (L)	143	143	2970	0.0481	
	T + R		2301	5100	0.4512	0.4512
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1834	1834	5100	0.3596	
	LEFT (L)	338	338	1650	0.2048	0.2048
	T + R		1844	5100	0.3616	
EB	RIGHT (R)	632	512 *	1650	0.3103	0.3103
	THRU (T)	197	197	1725	0.1142	
	LEFT (L)	90	90	1650	0.0545	
WB	RIGHT (R)	53	0 *	1650	0.0000	
	THRU (T)	13	13	1725	0.0075	
	LEFT (L)	23	23	1650	0.0139	0.0139

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.98
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 0.98
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
18 1564 32

LEFT 5 --- 1.0 1.1 3.1 2.0 1.0 --- 13 RIGHT
Split? N

THRU 13 ---> 1.0 (NO. OF LANES) 1.0<--- 28 THRU
STREET NAME: Airway Blvd.

RIGHT 125 --- 2.5 2.0 3.1 1.1 1.0 --- 41 LEFT

N
W + E
S

632 1229 11
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	1229	1229	5100	0.2410	
LEFT (L)	632	632	2970	0.2128	0.2128
T + R		1240	5100	0.2431	
SB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	1564	1564	5100	0.3067	
LEFT (L)	32	32	2970	0.0108	
T + R		1582	5100	0.3102	0.3102
EB RIGHT (R)	125	0 *	2970	0.0000	
THRU (T)	13	13	1725	0.0075	0.0075
LEFT (L)	5	5	1650	0.0030	
WB RIGHT (R)	13	0 *	1650	0.0000	
THRU (T)	28	28	1725	0.0162	
LEFT (L)	41	41	1650	0.0248	0.0248

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.56
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
10 1922 338

LEFT 90 --- 1.0 1.1 3.1 2.0 1.0 --- 53 RIGHT
Split? N

THRU 204 ---> 1.0 (NO. OF LANES) 1.0<--- 22 THRU
STREET NAME: Airway Blvd.

RIGHT 704 --- 2.5 2.0 3.1 1.1 1.0 --- 23 LEFT

N
W + E
S

209 2470 40
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	2470	2470	5100	0.4843	
LEFT (L)	209	209	2970	0.0704	
T + R		2510	5100	0.4922	0.4922
SB RIGHT (R)	10	10	1650	0.0061	
THRU (T)	1922	1922	5100	0.3769	
LEFT (L)	338	338	2970	0.1138	0.1138
T + R		1932	5100	0.3788	
EB RIGHT (R)	704	415 *	2970	0.1397	0.1397
THRU (T)	204	204	1725	0.1183	
LEFT (L)	90	90	1650	0.0545	
WB RIGHT (R)	53	0 *	1650	0.0000	
THRU (T)	22	22	1725	0.0128	
LEFT (L)	23	23	1650	0.0139	0.0139

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.76
ADJUSTMENT FOR LOST YELLOW TIME: 0.09
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
183 1235 184

LEFT 220 --- 2.0 1.0 3.0 2.0 1.0 --- 462 RIGHT
Split? N

THRU 520 ---> 2.0 (NO. OF LANES) 2.0<--- 780 THRU
STREET NAME: Jack London Blvd

RIGHT 287 --- 2.0 2.0 3.0 1.0 2.0 --- 196 LEFT

N
W + E
S
513 1127 86
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	86	0 *	1650	0.0000	
THRU (T)	1127	1127	5175	0.2178	
LEFT (L)	513	513	2970	0.1727	0.1727
SB RIGHT (R)	183	42 *	1650	0.0255	
THRU (T)	1235	1235	5175	0.2386	0.2386
LEFT (L)	184	184	2970	0.0620	
EB RIGHT (R)	287	65 *	2970	0.0219	
THRU (T)	520	520	3450	0.1507	
LEFT (L)	220	220	2970	0.0741	0.0741
WB RIGHT (R)	462	331 *	1650	0.2006	
THRU (T)	780	780	3450	0.2261	0.2261
LEFT (L)	196	196	2970	0.0660	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.71
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
291 1552 632

LEFT 446 --- 2.0 1.0 3.0 2.0 1.0 --- 174 RIGHT
Split? N

THRU 719 ---> 2.0 (NO. OF LANES) 2.0<--- 748 THRU
STREET NAME: Jack London Blvd

RIGHT 493 --- 2.0 2.0 3.0 1.0 2.0 --- 85 LEFT

N
W + E
S
459 1638 221
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	221	117 *	1650	0.0709	
THRU (T)	1638	1638	5175	0.3165	0.3165
LEFT (L)	459	459	2970	0.1545	
SB RIGHT (R)	291	87 *	1650	0.0527	
THRU (T)	1552	1552	5175	0.2999	
LEFT (L)	632	632	2970	0.2128	0.2128
EB RIGHT (R)	493	286 *	2970	0.0963	
THRU (T)	719	719	3450	0.2084	
LEFT (L)	446	446	2970	0.1502	0.1502
WB RIGHT (R)	174	0 *	1650	0.0000	
THRU (T)	748	748	3450	0.2168	0.2168
LEFT (L)	85	85	2970	0.0286	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.90
ADJUSTMENT FOR LOST YELLOW TIME: 0.02
TOTAL VOLUME-TO-CAPACITY RATIO: 0.92
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
127 444 0

LEFT 124 --- 1.0 1.1 2.1 0.0 1.0 --- 177 RIGHT
Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd
RIGHT 245 --- 1.0 1.0 2.0 0.0 1.0 --- 53 LEFT

N
W + E 649 272 0
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	272	272	3450	0.0788	
LEFT (L)	649	649	1650	0.3933	0.3933
SB RIGHT (R)	127	127	1650	0.0770	
THRU (T)	444	444	3375	0.1316	
T + R		571	3375	0.1692	0.1692
EB RIGHT (R)	245	0 *	1650	0.0000	
LEFT (L)	124	124	1650	0.0752	0.0752
WB RIGHT (R)	177	97 *	1650	0.0588	0.0588
LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.70
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
91 304 0

LEFT 110 --- 1.0 1.1 2.1 0.0 1.0 --- 105 RIGHT
Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Jack London Blvd
RIGHT 198 --- 1.0 1.0 2.0 0.0 1.0 --- 44 LEFT

N
W + E 171 510 0
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Murrieta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	510	510	3450	0.1478	
LEFT (L)	171	171	1650	0.1036	0.1036
SB RIGHT (R)	91	91	1650	0.0552	
THRU (T)	304	304	3375	0.0901	
T + R		395	3375	0.1170	0.1170
EB RIGHT (R)	198	33 *	1650	0.0200	
LEFT (L)	110	110	1650	0.0667	0.0667
WB RIGHT (R)	105	25 *	1650	0.0152	0.0152
LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.30
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.40
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 274 ---> 2.0 (NO. OF LANES) 2.0<--- 505 THRU
STREET NAME: Stanley Blvd.

RIGHT 105 --- 1.0 2.0 0.0 2.0 2.0 --- 529 LEFT

N
W + E
S
591 0 194
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	194	0 *	2970	0.0000	
LEFT (L)	591	591	2970	0.1990	0.1990
EB RIGHT (R)	105	0 *	1650	0.0000	
THRU (T)	274	274	3450	0.0794	0.0794
WB THRU (T)	505	505	3450	0.1464	
LEFT (L)	529	529	2970	0.1781	0.1781

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.46
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 689 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU
STREET NAME: Stanley Blvd.

RIGHT 436 --- 1.0 2.0 0.0 2.0 2.0 --- 255 LEFT

N
W + E
S
136 0 610
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	610	459 *	2970	0.1545	0.1545
LEFT (L)	136	136	2970	0.0458	
EB RIGHT (R)	436	318 *	1650	0.1927	
THRU (T)	689	689	3450	0.1997	0.1997
WB THRU (T)	423	423	3450	0.1226	
LEFT (L)	255	255	2970	0.0859	0.0859

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.44
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.54
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1134 548

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 559 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 76 LEFT

N
W + E
S

0 1058 238
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	238	120 *	1650	0.0727	
THRU (T)	1058	1058	3450	0.3067	0.3067
SB THRU (T)	1134	1134	3450	0.3287	
LEFT (L)	548	548	2970	0.1845	0.1845
WB RIGHT (R)	559	327 *	1650	0.1982	0.1982
LEFT (L)	76	76	1650	0.0461	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.69
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1285 675

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 526 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 164 LEFT

N
W + E
S

0 1775 71
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	71	0 *	1650	0.0000	
THRU (T)	1775	1775	3450	0.5145	0.5145
SB THRU (T)	1285	1285	3450	0.3725	
LEFT (L)	675	675	2970	0.2273	0.2273
WB RIGHT (R)	526	259 *	1650	0.1570	0.1570
LEFT (L)	164	164	1650	0.0994	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.90
ADJUSTMENT FOR LOST YELLOW TIME: 0.02
TOTAL VOLUME-TO-CAPACITY RATIO: 0.92
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1134 548

LEFT 0 --- 0.0 0.0 2.0 2.0 2.5 --- 559 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 0 --- 0.0 0.0 3.0 1.0 1.0 --- 76 LEFT

STREET NAME: Stanley Ramp

N
W + E 0 1058 238
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	238	120 *	1650	0.0727	
THRU (T)	1058	1058	5175	0.2044	0.2044
SB THRU (T)	1134	1134	3450	0.3287	
LEFT (L)	548	548	2970	0.1845	0.1845
WB RIGHT (R)	559	0 *	2970	0.0000	
LEFT (L)	76	76	1650	0.0461	0.0461

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.44
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.54
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1285 675

LEFT 0 --- 0.0 0.0 2.0 2.0 2.5 --- 526 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 0 --- 0.0 0.0 3.0 1.0 1.0 --- 164 LEFT

STREET NAME: Stanley Ramp

N
W + E 0 1775 71
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	71	0 *	1650	0.0000	
THRU (T)	1775	1775	5175	0.3430	0.3430
SB THRU (T)	1285	1285	3450	0.3725	
LEFT (L)	675	675	2970	0.2273	0.2273
WB RIGHT (R)	526	0 *	2970	0.0000	
LEFT (L)	164	164	1650	0.0994	0.0994

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.67
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
42 935 87

LEFT 53 --- 2.1 1.0 2.0 1.0 1.0 --- 34 RIGHT
Split? Y

THRU 23 ---> 1.1 (NO. OF LANES) 1.0<--- 8 THRU
STREET NAME: Vineyard Ave.

RIGHT 11 --- 1.1 1.0 2.0 1.0 1.0 --- 11 LEFT

N
W + E 11 432 3
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	432	432	3450	0.1252	
LEFT (L)	11	11	1650	0.0067	0.0067
SB RIGHT (R)	42	0 *	1650	0.0000	
THRU (T)	935	935	3450	0.2710	0.2710
LEFT (L)	87	87	1650	0.0527	
EB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	23	23	1650	0.0139	
LEFT (L)	53	53	2970	0.0178	
T + R		34	1650	0.0206	
T + L		76	2970	0.0256	
T + R + L		87	2970	0.0293	0.0293
WB RIGHT (R)	34	0 *	1650	0.0000	
THRU (T)	8	8	1725	0.0046	
LEFT (L)	11	11	1650	0.0067	0.0067

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.31
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.41
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
123 440 37

LEFT 104 --- 2.1 1.0 2.0 1.0 1.0 --- 70 RIGHT
Split? Y

THRU 20 ---> 1.1 (NO. OF LANES) 1.0<--- 17 THRU
STREET NAME: Vineyard Ave.

RIGHT 13 --- 1.1 1.0 2.0 1.0 1.0 --- 4 LEFT

N
W + E 5 1524 3
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	1524	1524	3450	0.4417	0.4417
LEFT (L)	5	5	1650	0.0030	
SB RIGHT (R)	123	14 *	1650	0.0085	
THRU (T)	440	440	3450	0.1275	
LEFT (L)	37	37	1650	0.0224	0.0224
EB RIGHT (R)	13	13	1650	0.0079	
THRU (T)	20	20	1650	0.0121	
LEFT (L)	104	104	2970	0.0350	
T + R		33	1650	0.0200	
T + L		124	2970	0.0418	
T + R + L		137	2970	0.0461	0.0461
WB RIGHT (R)	70	0 *	1650	0.0000	
THRU (T)	17	17	1725	0.0099	0.0099
LEFT (L)	4	4	1650	0.0024	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.52
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 935 29

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 8 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 592 LEFT

STREET NAME: Vallecitos Rd.

N
W + E
S
0 432 261
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	261	261	1725	0.1513	
THRU (T)	432	432	3450	0.1252	
SB THRU (T)	935	935	3450	0.2710	0.2710
LEFT (L)	29	29	1650	0.0176	
WB RIGHT (R)	8	0 *	1650	0.0000	
LEFT (L)	592	592	2970	0.1993	0.1993

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.47
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.57
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 441 15

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 9 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 313 LEFT

STREET NAME: Vallecitos Rd.

N
W + E
S
0 1524 444
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	444	444	1725	0.2574	
THRU (T)	1524	1524	3450	0.4417	0.4417
SB THRU (T)	441	441	3450	0.1278	
LEFT (L)	15	15	1650	0.0091	0.0091
WB RIGHT (R)	9	0 *	1650	0.0000	
LEFT (L)	313	313	2970	0.1054	0.1054

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.56
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

```
TJKM METHOD         RIGHT THRU LEFT
-----------             0  986  224
                        |   |    |
              ^         |   |    |          ^
              |       <---  v   --->        | Split? N
LEFT     0 ---   0.0   0.0  2.0  2.0   2.0 ---  768  RIGHT
                                                        STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   0.0<---    0  THRU  Concannon

RIGHT    0 ---   0.0   0.0  2.0  1.0   1.0 ---   96  LEFT
              |       <---  ^   --->        |
              v         |   |    |          v
  N                     |   |    |                      SIG WARRANTS:
W + E                   0  529   61                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: Isabel Ave.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	0 *	1650	0.0000	
	THRU (T)	529	529	3450	0.1533	
SB	THRU (T)	986	986	3450	0.2858	0.2858
	LEFT (L)	224	224	2970	0.0754	
WB	RIGHT (R)	768	626 *	2970	0.2108	0.2108
	LEFT (L)	96	96	1650	0.0582	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.50
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.60
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

```
TJKM METHOD         RIGHT THRU LEFT
-----------             0  597  852
                        |   |    |
              ^         |   |    |          ^
              |       <---  v   --->        | Split? N
LEFT     0 ---   0.0   0.0  2.0  2.0   2.0 ---  280  RIGHT
                                                        STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   0.0<---    0  THRU  Concannon

RIGHT    0 ---   0.0   0.0  2.0  1.0   1.0 ---   73  LEFT
              |       <---  ^   --->        |
              v         |   |    |          v
  N                     |   |    |                      SIG WARRANTS:
W + E                   0 1566  153                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: Isabel Ave.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	153	37 *	1650	0.0224	
	THRU (T)	1566	1566	3450	0.4539	0.4539
SB	THRU (T)	597	597	3450	0.1730	
	LEFT (L)	852	852	2970	0.2869	0.2869
WB	RIGHT (R)	280	0 *	2970	0.0000	
	LEFT (L)	73	73	1650	0.0442	0.0442

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.79
ADJUSTMENT FOR LOST YELLOW TIME:	0.07
TOTAL VOLUME-TO-CAPACITY RATIO:	0.86
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 986 224

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 768 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 2.0 --- 96 LEFT

N
W + E 0 529 61
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	0 *	1650	0.0000	
THRU (T)	529	529	3450	0.1533	
SB THRU (T)	986	986	3450	0.2858	0.2858
LEFT (L)	224	224	2970	0.0754	
WB RIGHT (R)	768	564 *	1650	0.3418	0.3418
LEFT (L)	96	96	2970	0.0323	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.63
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 No Proj. PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 597 852

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 280 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 2.0 --- 73 LEFT

N
W + E 0 1566 153
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	153	53 *	1650	0.0321	
THRU (T)	1566	1566	3450	0.4539	0.4539
SB THRU (T)	597	597	3450	0.1730	
LEFT (L)	852	852	2970	0.2869	0.2869
WB RIGHT (R)	280	0 *	1650	0.0000	
LEFT (L)	73	73	2970	0.0246	0.0246

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.77
ADJUSTMENT FOR LOST YELLOW TIME: 0.08
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 12 Isabel Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N
STREET NAME:
THRU 99 ---> 2.0 (NO. OF LANES) 2.0<--- 749 THRU Portola Avenue
RIGHT 1 --- 1.0 2.0 0.0 2.0 2.0 --- 524 LEFT
SIG WARRANTS:
N
W + E 312 0 55 Urb=Y, Rur=Y
S
LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	55	0 *	2970	0.0000	
LEFT (L)	312	312	2970	0.1051	0.1051
EB RIGHT (R)	1	0 *	1650	0.0000	
THRU (T)	99	99	3450	0.0287	
WB THRU (T)	749	749	3450	0.2171	0.2171
LEFT (L)	524	524	2970	0.1764	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.32
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.42
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 12 Isabel Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N
STREET NAME:
THRU 579 ---> 2.0 (NO. OF LANES) 2.0<--- 134 THRU Portola Avenue
RIGHT 319 --- 1.0 2.0 0.0 2.0 2.0 --- 91 LEFT
SIG WARRANTS:
N
W + E 1 0 417 Urb=Y, Rur=Y
S
LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	417	312 *	2970	0.1051	0.1051
LEFT (L)	1	1	2970	0.0003	
EB RIGHT (R)	319	239 *	1650	0.1448	
THRU (T)	579	579	3450	0.1678	0.1678
WB THRU (T)	134	134	3450	0.0388	
LEFT (L)	91	91	2970	0.0306	0.0306

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.30
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.40
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
263 196 0

LEFT 0 --- 0.0 1.9 3.0 0.0 1.0 --- 589 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 WB Ramps

RIGHT 0 --- 0.0 0.0 3.0 1.9 2.0 --- 1133 LEFT

N
W + E
S
0 1138 298
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	298	298	1725	0.1728	
	THRU (T)	1138	1138	5175	0.2199	0.2199
SB	RIGHT (R)	263	263	1725	0.1525	
	THRU (T)	196	196	5175	0.0379	
WB	RIGHT (R)	589	509 *	1650	0.3085	
	LEFT (L)	1133	1133	2970	0.3815	0.3815

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.60
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
910 1141 0

LEFT 0 --- 0.0 1.9 3.0 0.0 1.0 --- 289 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 WB Ramps

RIGHT 0 --- 0.0 0.0 3.0 1.9 2.0 --- 377 LEFT

N
W + E
S
0 387 205
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	205	205	1725	0.1188	
	THRU (T)	387	387	5175	0.0748	
SB	RIGHT (R)	910	910	1725	0.5275	
	THRU (T)	1141	1141	5175	0.2205	0.2205
WB	RIGHT (R)	289	209 *	1650	0.1267	
	LEFT (L)	377	377	2970	0.1269	0.1269

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.35
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.45
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
100 1228 0

LEFT 671 --- 2.0 1.9 3.0 0.0 0.0 --- 0 RIGHT
Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 EB Ramps
RIGHT 307 --- 2.0 0.0 3.0 1.9 0.0 --- 0 LEFT

N
W + E
S
0 765 421
LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	421	421	1725	0.2441	
THRU (T)	765	765	5175	0.1478	
SB RIGHT (R)	100	100	1725	0.0580	
THRU (T)	1228	1228	5175	0.2373	0.2373
EB RIGHT (R)	307	227 *	2970	0.0764	
LEFT (L)	671	671	2970	0.2259	0.2259

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.46
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
632 845 0

LEFT 181 --- 2.0 1.9 3.0 0.0 0.0 --- 0 RIGHT
Split? N
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 EB Ramps
RIGHT 1248 --- 2.0 0.0 3.0 1.9 0.0 --- 0 LEFT

N
W + E
S
0 412 1795
LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1795	1795	1725	1.0406 **	
THRU (T)	412	412	5175	0.0796	
SB RIGHT (R)	632	632	1725	0.3664	
THRU (T)	845	845	5175	0.1633	0.1633
EB RIGHT (R)	1248	1168 *	2970	0.3933	0.3933
LEFT (L)	181	181	2970	0.0609	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.56
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED ** APPROACHING OR EXCEEDING CAPACITY
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 15 Murdell Lane/Stanely Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

Split? N

LEFT	2	1.0	0.0	0.0	0.0	0.0	0	RIGHT
THRU	434	3.1	(NO. OF LANES)			2.0	715	THRU
RIGHT	32	1.4	2.0	0.0	1.0	1.0	54	LEFT

STREET NAME:
Stanely Blvd.

N
W + E
S

LEFT THRU RIGHT Split? N
319 0 95

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	95	0 *	1650	0.0000	
	LEFT (L)	319	319	2970	0.1074	0.1074
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	434	434	5100	0.0851	
	LEFT (L)	2	2	1650	0.0012	0.0012
	T + R		434	5100	0.0851	
WB	THRU (T)	715	715	3450	0.2072	0.2072
	LEFT (L)	54	54	1650	0.0327	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.32
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.42
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 15 Murdell Lane/Stanely Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

Split? N

LEFT	2	1.0	0.0	0.0	0.0	0.0	0	RIGHT
THRU	1102	3.1	(NO. OF LANES)			2.0	593	THRU
RIGHT	194	1.4	2.0	0.0	1.0	1.0	133	LEFT

STREET NAME:
Stanely Blvd.

N
W + E
S

LEFT THRU RIGHT Split? N
83 0 70

SIG WARRANTS:
Urb=B, Rur=Y

STREET NAME: Murdell Lane

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	70	0 *	1650	0.0000	
	LEFT (L)	83	83	2970	0.0279	0.0279
EB	RIGHT (R)	194	104 *	1650	0.0630	
	THRU (T)	1102	1102	5100	0.2161	
	LEFT (L)	2	2	1650	0.0012	
	T + R		1206	5100	0.2365	0.2365
WB	THRU (T)	593	593	3450	0.1719	
	LEFT (L)	133	133	1650	0.0806	0.0806

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.35
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.45
INTERSECTION LEVEL OF SERVICE:	A

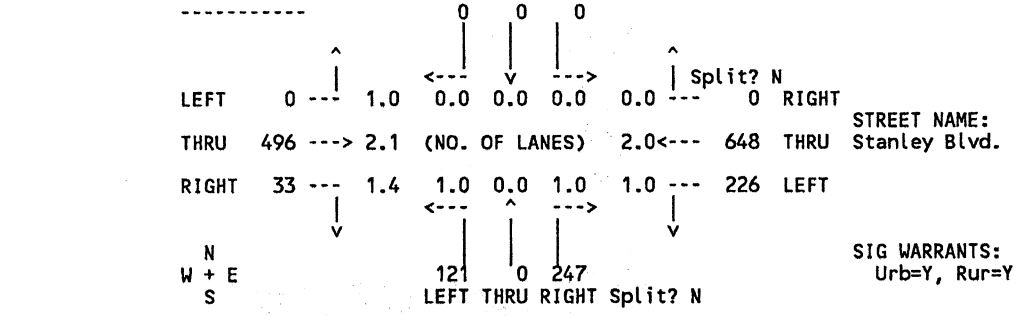
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT



STREET NAME: Wall Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	247	54 *	1650	0.0327	
	LEFT (L)	121	121	1650	0.0733	0.0733
EB	RIGHT (R)	33	0 *	1650	0.0000	
	THRU (T)	496	496	3375	0.1470	0.1470
	LEFT (L)	0	0	1650	0.0000	
	T + R		496	3375	0.1470	
WB	THRU (T)	648	648	3450	0.1878	
	LEFT (L)	226	226	1650	0.1370	0.1370

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT

STREET NAME: Wall Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	255	49 *	1650	0.0297	
	LEFT (L)	68	68	1650	0.0412	0.0412
EB	RIGHT (R)	43	0 *	1650	0.0000	
	THRU (T)	1126	1126	3375	0.3336	0.3336
	LEFT (L)	3	3	1650	0.0018	
	T + R		1126	3375	0.3336	
WB	THRU (T)	658	658	3450	0.1907	
	LEFT (L)	252	252	1650	0.1527	0.1527

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.53
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

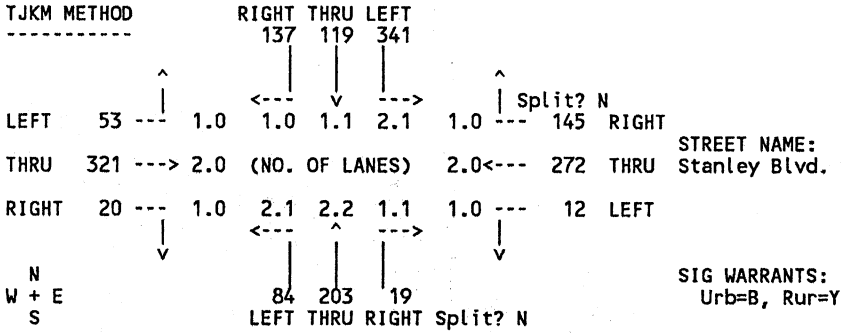
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	19	19	1650	0.0115	
	THRU (T)	203	203	3300	0.0615	
	LEFT (L)	84	84	2970	0.0283	0.0283
	T + R		222	3300	0.0673	
	T + L		287	4620	0.0621	
	T + R + L		306	4620	0.0662	
SB	RIGHT (R)	137	31 *	1650	0.0188	
	THRU (T)	119	119	1650	0.0721	
	LEFT (L)	341	341	2970	0.1148	
	T + L		460	2970	0.1549	0.1549
EB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	321	321	3450	0.0930	
	LEFT (L)	53	53	1650	0.0321	0.0321
WB	RIGHT (R)	145	0 *	1650	0.0000	
	THRU (T)	272	272	3450	0.0788	0.0788
	LEFT (L)	12	12	1650	0.0073	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.29
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.39
INTERSECTION LEVEL OF SERVICE: A

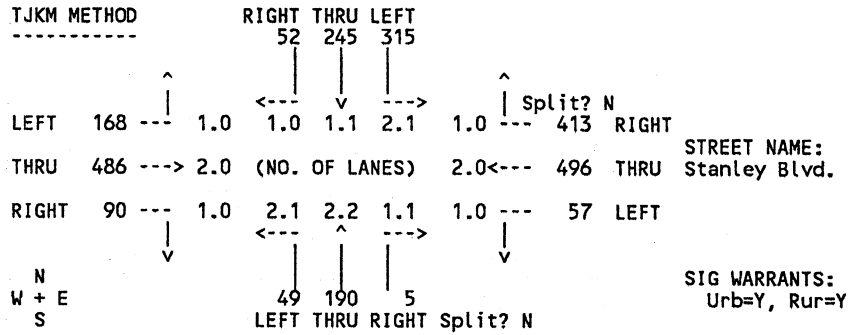
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: Murietta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	5	5	1650	0.0030	
	THRU (T)	190	190	3300	0.0576	
	LEFT (L)	49	49	2970	0.0165	0.0165
	T + R		195	3300	0.0591	
	T + L		239	4620	0.0517	
	T + R + L		244	4620	0.0528	
SB	RIGHT (R)	52	0 *	1650	0.0000	
	THRU (T)	245	245	1650	0.1485	
	LEFT (L)	315	315	2970	0.1061	
	T + L		560	2970	0.1886	0.1886
EB	RIGHT (R)	90	0 *	1650	0.0000	
	THRU (T)	486	486	3450	0.1409	
	LEFT (L)	168	168	1650	0.1018	0.1018
WB	RIGHT (R)	413	246 *	1650	0.1491	0.1491
	THRU (T)	496	496	3450	0.1438	
	LEFT (L)	57	57	1650	0.0345	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.46
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			132	521	12					
LEFT	209	1.0	1.1	2.1	1.0	1.1	8	RIGHT		
THRU	103	2.1	(NO. OF LANES)			2.1	163	THRU	STREET NAME:	Concannon Blvd.
RIGHT	33	1.1	1.0	2.1	1.1	1.0	92	LEFT		
N									SIG WARRANTS:	
W + E			92	197	93				Urb=B, Rur=Y	
S			LEFT	THRU	RIGHT	Split? N				

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	93	93	1650	0.0564	
	THRU (T)	197	197	3375	0.0584	
	LEFT (L)	92	92	1650	0.0558	0.0558
	T + R		290	3375	0.0859	
SB	RIGHT (R)	132	132	1650	0.0800	
	THRU (T)	521	521	3375	0.1544	
	LEFT (L)	12	12	1650	0.0073	
	T + R		653	3375	0.1935	0.1935
EB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	103	103	3375	0.0305	
	LEFT (L)	209	209	1650	0.1267	0.1267
	T + R		136	3375	0.0403	
WB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	163	163	3375	0.0483	
	LEFT (L)	92	92	1650	0.0558	
	T + R		171	3375	0.0507	0.0507

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.43
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.53
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT					
			214	212	6					
LEFT	188	1.0	1.1	2.1	1.0	1.1	22	RIGHT		
THRU	184	2.1	(NO. OF LANES)			2.1	119	THRU	STREET NAME:	Concannon Blvd.
RIGHT	96	1.1	1.0	2.1	1.1	1.0	114	LEFT		
N									SIG WARRANTS:	
W + E			31	381	90				Urb=Y, Rur=Y	
S			LEFT	THRU	RIGHT	Split? N				

STREET NAME: Holmes Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	90	90	1650	0.0545	
	THRU (T)	381	381	3375	0.1129	
	LEFT (L)	31	31	1650	0.0188	0.0188
	T + R		471	3375	0.1396	
SB	RIGHT (R)	214	214	1650	0.1297	0.1297
	THRU (T)	212	212	3375	0.0628	
	LEFT (L)	6	6	1650	0.0036	
	T + R		426	3375	0.1262	
EB	RIGHT (R)	96	96	1650	0.0582	
	THRU (T)	184	184	3375	0.0545	
	LEFT (L)	188	188	1650	0.1139	0.1139
	T + R		280	3375	0.0830	
WB	RIGHT (R)	22	22	1650	0.0133	
	THRU (T)	119	119	3375	0.0353	
	LEFT (L)	114	114	1650	0.0691	
	T + R		141	3375	0.0418	0.0418

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.30
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.40
INTERSECTION LEVEL OF SERVICE: A

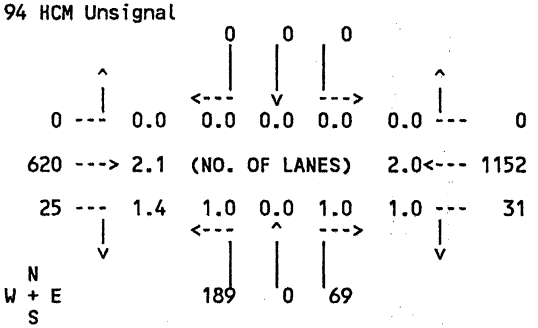
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=Y, Rur=Y

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	189	231	7.0	2017	54	52	999+	F	999+	F
R	69	84	5.5	358	912	912	4.3	A		
EB T	620	758							0.0	A
R	25	31								
TR	645	789					0.0	A		
WB L	31	38	5.5	717	707	707	5.4	B	0.1	A
T	1152	1408					0.0	A		

INT TOTAL: 154.3 F
MINOR MOVEMENTS: (999+) (F)

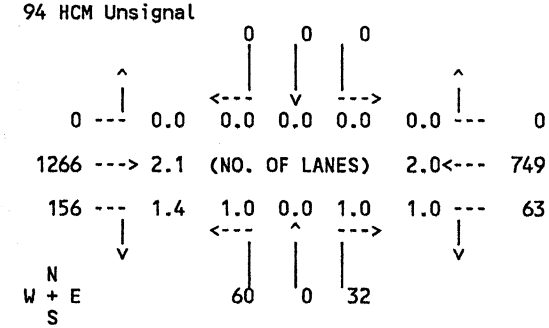
INT=25TRI.INT,VOL=25TRI.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 (No Proj.) - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal



N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=B

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	PEAK HOUR FACTOR THRU	PEAK HOUR FACTOR RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	60	73	7.0	2396	31	23	999+	F	843.4	F
R	32	39	5.5	790	551	551	7.0	B		
EB T	1266	1547							0.0	A
R	156	191								
TR	1422	1738					0.0	A		
WB L	63	77	5.5	1580	243	243	21.5	D	1.7	A
T	749	915					0.0	A		

INT TOTAL: 33.9 E
MINOR MOVEMENTS: (509.3) (F)

INT=25TRI.INT,VOL=25TRI.PMV,CAP=...LIVCAP.TAB

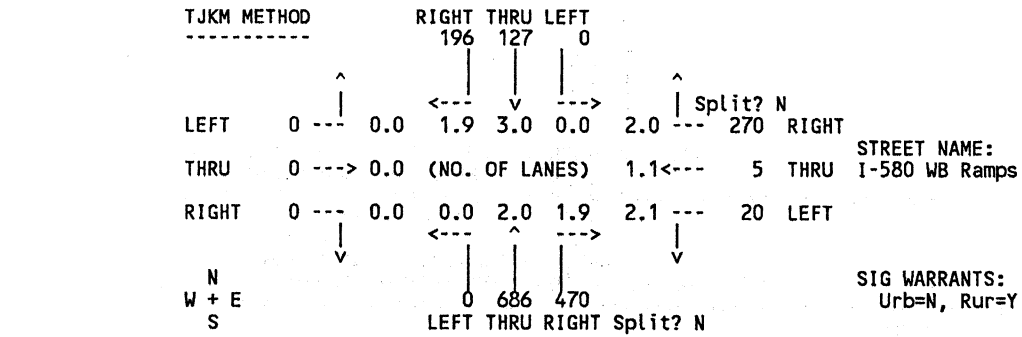
APPENDIX G – LEVEL OF SERVICE – YEAR 2025 + PROJECT (TRI-VALLEY MODEL)

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD



STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	470	470	1725	0.2725	
	THRU (T)	686	686	3450	0.1988	0.1988
SB	RIGHT (R)	196	196	1725	0.1136	
	THRU (T)	127	127	5175	0.0245	
WB	RIGHT (R)	270	190 *	2970	0.0640	0.0640
	THRU (T)	5	5	1650	0.0030	
	LEFT (L)	20	20	2970	0.0067	
	T + L		25	2970	0.0084	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.26
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 1 Airway Blvd./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

STREET NAME: I-580 WB Ramps

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Airway Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	342	342	1725	0.1983	
	THRU (T)	362	362	3450	0.1049	0.1049
SB	RIGHT (R)	579	579	1725	0.3357	
	THRU (T)	303	303	5175	0.0586	
WB	RIGHT (R)	226	146 *	2970	0.0492	0.0492
	THRU (T)	5	5	1650	0.0030	
	LEFT (L)	92	92	2970	0.0310	
	T + L		97	2970	0.0327	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.15
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.25
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
77 56 2

LEFT 544 --- 2.0 1.9 2.0 1.0 1.0 --- 5 RIGHT
Split? Y

THRU 28 ---> 1.0 (NO. OF LANES) 1.1<--- 10 THRU
STREET NAME: I-580 EB Ramps

RIGHT 80 --- 1.0 1.0 2.1 1.1 1.1 --- 10 LEFT

N
W + E 3 607 28
S LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	607	607	3375	0.1799	
	LEFT (L)	3	3	1650	0.0018	
	T + R		635	3375	0.1881	0.1881
SB	RIGHT (R)	77	77	1725	0.0446	
	THRU (T)	56	56	3450	0.0162	
	LEFT (L)	2	2	1650	0.0012	0.0012
EB	RIGHT (R)	80	0 *	1650	0.0000	
	THRU (T)	28	28	1725	0.0162	
	LEFT (L)	544	544	2970	0.1832	0.1832
WB	RIGHT (R)	5	0 *	1650	0.0000	
	THRU (T)	10	10	1650	0.0061	
	LEFT (L)	10	10	1650	0.0061	
	T + L		20	1650	0.0121	0.0121

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.38
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 2 Airway Blvd./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
84 255 2

LEFT 262 --- 2.0 1.9 2.0 1.0 1.0 --- 39 RIGHT
Split? Y

THRU 11 ---> 1.0 (NO. OF LANES) 1.1<--- 6 THRU
STREET NAME: I-580 EB Ramps

RIGHT 669 --- 1.0 1.0 2.1 1.1 1.1 --- 9 LEFT

N
W + E 2 401 22
S LEFT THRU RIGHT Split? N
SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Airway Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	22	22	1650	0.0133	
	THRU (T)	401	401	3375	0.1188	
	LEFT (L)	2	2	1650	0.0012	
	T + R		423	3375	0.1253	0.1253
SB	RIGHT (R)	84	84	1725	0.0487	
	THRU (T)	255	255	3450	0.0739	
	LEFT (L)	2	2	1650	0.0012	0.0012
EB	RIGHT (R)	669	588 *	1650	0.3564	0.3564
	THRU (T)	11	11	1725	0.0064	
	LEFT (L)	262	262	2970	0.0882	
WB	RIGHT (R)	39	0 *	1650	0.0000	
	THRU (T)	6	6	1650	0.0036	
	LEFT (L)	9	9	1650	0.0055	
	T + L		15	1650	0.0091	0.0091

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.49
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
18 1966 32

LEFT 5 --- 1.0 1.1 3.1 1.0 1.0 --- 13 RIGHT
Split? N

THRU 13 ---> 1.0 (NO. OF LANES) 1.0<--- 28 THRU
STREET NAME: Airway Blvd.

RIGHT 159 --- 1.0 2.0 3.1 1.1 1.0 --- 41 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

648 1313 11
LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	1313	1313	5100	0.2575	
LEFT (L)	648	648	2970	0.2182	0.2182
T + R		1324	5100	0.2596	
SB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	1966	1966	5100	0.3855	
LEFT (L)	32	32	1650	0.0194	
T + R		1984	5100	0.3890	0.3890
EB RIGHT (R)	159	0 *	1650	0.0000	
THRU (T)	13	13	1725	0.0075	0.0075
LEFT (L)	5	5	1650	0.0030	
WB RIGHT (R)	13	0 *	1650	0.0000	
THRU (T)	28	28	1725	0.0162	
LEFT (L)	41	41	1650	0.0248	0.0248

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.64
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
10 2010 338

LEFT 90 --- 1.0 1.1 3.1 1.0 1.0 --- 53 RIGHT
Split? N

THRU 204 ---> 1.0 (NO. OF LANES) 1.0<--- 22 THRU
STREET NAME: Airway Blvd.

RIGHT 721 --- 1.0 2.0 3.1 1.1 1.0 --- 23 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

439 2624 40
LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	2624	2624	5100	0.5145	
LEFT (L)	439	439	2970	0.1478	
T + R		2664	5100	0.5224	0.5224
SB RIGHT (R)	10	10	1650	0.0061	
THRU (T)	2010	2010	5100	0.3941	
LEFT (L)	338	338	1650	0.2048	0.2048
T + R		2020	5100	0.3961	
EB RIGHT (R)	721	519 *	1650	0.3145	0.3145
THRU (T)	204	204	1725	0.1183	
LEFT (L)	90	90	1650	0.0545	
WB RIGHT (R)	53	0 *	1650	0.0000	
THRU (T)	22	22	1725	0.0128	
LEFT (L)	23	23	1650	0.0139	0.0139

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.06
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.06
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
18 1966 32

LEFT 5 --- 1.0 1.1 3.1 2.0 1.0 --- 13 RIGHT
THRU 13 ---> 1.0 (NO. OF LANES) 1.0<--- 28 THRU
RIGHT 159 --- 2.5 2.0 3.1 1.1 1.0 --- 41 LEFT

Split? N

STREET NAME: Airway Blvd.

N
W + E
S
648 1313 11
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	1313	1313	5100	0.2575	
LEFT (L)	648	648	2970	0.2182	0.2182
T + R		1324	5100	0.2596	
SB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	1966	1966	5100	0.3855	
LEFT (L)	32	32	2970	0.0108	
T + R		1984	5100	0.3890	0.3890
EB RIGHT (R)	159	0 *	2970	0.0000	
THRU (T)	13	13	1725	0.0075	0.0075
LEFT (L)	5	5	1650	0.0030	
WB RIGHT (R)	13	0 *	1650	0.0000	
THRU (T)	28	28	1725	0.0162	
LEFT (L)	41	41	1650	0.0248	0.0248

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.64
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 3 Isabel Ave./Airway Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
10 2010 338

LEFT 90 --- 1.0 1.1 3.1 2.0 1.0 --- 53 RIGHT
THRU 204 ---> 1.0 (NO. OF LANES) 1.0<--- 22 THRU
RIGHT 721 --- 2.5 2.0 3.1 1.1 1.0 --- 23 LEFT

Split? N

STREET NAME: Airway Blvd.

N
W + E
S
439 2624 40
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	2624	2624	5100	0.5145	
LEFT (L)	439	439	2970	0.1478	
T + R		2664	5100	0.5224	0.5224
SB RIGHT (R)	10	10	1650	0.0061	
THRU (T)	2010	2010	5100	0.3941	
LEFT (L)	338	338	2970	0.1138	0.1138
T + R		2020	5100	0.3961	
EB RIGHT (R)	721	202 *	2970	0.0680	
THRU (T)	204	204	1725	0.1183	0.1183
LEFT (L)	90	90	1650	0.0545	
WB RIGHT (R)	53	0 *	1650	0.0000	
THRU (T)	22	22	1725	0.0128	
LEFT (L)	23	23	1650	0.0139	0.0139

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.77
ADJUSTMENT FOR LOST YELLOW TIME: 0.08
TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - Full Access - TV no Liv. AM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
550 1365 196

LEFT 303 --- 2.0 1.0 3.0 2.0 1.0 --- 474 RIGHT | Split? N

THRU 608 ---> 2.0 (NO. OF LANES) 2.0<--- 982 THRU STREET NAME: Jack London Blvd

RIGHT 387 --- 2.0 2.0 3.0 1.0 2.0 --- 560 LEFT

N
W + E 1167 1189 147 SIG WARRANTS: Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	147	0 *	1650	0.0000	
	THRU (T)	1189	1189	5175	0.2298	
	LEFT (L)	1167	1167	2970	0.3929	0.3929
SB	RIGHT (R)	550	386 *	1650	0.2339	
	THRU (T)	1365	1365	5175	0.2638	0.2638
	LEFT (L)	196	196	2970	0.0660	
EB	RIGHT (R)	387	0 *	2970	0.0000	
	THRU (T)	608	608	3450	0.1762	
	LEFT (L)	303	303	2970	0.1020	0.1020
WB	RIGHT (R)	474	340 *	1650	0.2061	
	THRU (T)	982	982	3450	0.2846	0.2846
	LEFT (L)	560	560	2970	0.1886	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.04
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.04
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - Full Access - TV no Liv. PM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
475 1619 646

LEFT 866 --- 2.0 1.0 3.0 2.0 1.0 --- 191 RIGHT | Split? N

THRU 939 ---> 2.0 (NO. OF LANES) 2.0<--- 913 THRU STREET NAME: Jack London Blvd

RIGHT 986 --- 2.0 2.0 3.0 1.0 2.0 --- 149 LEFT

N
W + E 721 1727 573 SIG WARRANTS: Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	573	452 *	1650	0.2739	
	THRU (T)	1727	1727	5175	0.3337	
	LEFT (L)	721	721	2970	0.2428	0.2428
SB	RIGHT (R)	475	154 *	1650	0.0933	
	THRU (T)	1619	1619	5175	0.3129	0.3129
	LEFT (L)	646	646	2970	0.2175	
EB	RIGHT (R)	986	706 *	2970	0.2377	
	THRU (T)	939	939	3450	0.2722	
	LEFT (L)	866	866	2970	0.2916	0.2916
WB	RIGHT (R)	191	0 *	1650	0.0000	
	THRU (T)	913	913	3450	0.2646	0.2646
	LEFT (L)	149	149	2970	0.0502	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.11
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.11
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - Rt. in/out - TV no Liv. -AM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
550 1365 196

						Split? N			
LEFT	353	2.0	1.0	3.0	2.0	1.0	474	RIGHT	
THRU	669	2.0	(NO. OF LANES)			2.0	982	THRU	STREET NAME: Jack London Blvd
RIGHT	387	2.0	2.0	3.0	1.0	2.0	560	LEFT	

N
W + E
S

1883 1139 86
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	86	0 *	1650	0.0000	
	THRU (T)	1139	1139	5175	0.2201	
	LEFT (L)	1883	1883	2970	0.6340	0.6340
SB	RIGHT (R)	550	372 *	1650	0.2255	
	THRU (T)	1365	1365	5175	0.2638	0.2638
	LEFT (L)	196	196	2970	0.0660	
EB	RIGHT (R)	387	0 *	2970	0.0000	
	THRU (T)	669	669	3450	0.1939	
	LEFT (L)	353	353	2970	0.1189	0.1189
WB	RIGHT (R)	474	340 *	1650	0.2061	
	THRU (T)	982	982	3450	0.2846	0.2846
	LEFT (L)	560	560	2970	0.1886	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	1.30
ADJUSTMENT FOR LOST YELLOW TIME:	0.00
TOTAL VOLUME-TO-CAPACITY RATIO:	1.30
INTERSECTION LEVEL OF SERVICE:	F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25RIRO.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - Rt. in/out - TV no Liv. -PM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
475 1619 646

						Split? N			
LEFT	938	2.0	1.0	3.0	2.0	1.0	191	RIGHT	
THRU	1291	2.0	(NO. OF LANES)			2.0	913	THRU	STREET NAME: Jack London Blvd
RIGHT	986	2.0	2.0	3.0	1.0	2.0	149	LEFT	

N
W + E
S

882 1655 221
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	221	100 *	1650	0.0606	
	THRU (T)	1655	1655	5175	0.3198	
	LEFT (L)	882	882	2970	0.2970	0.2970
SB	RIGHT (R)	475	134 *	1650	0.0812	
	THRU (T)	1619	1619	5175	0.3129	0.3129
	LEFT (L)	646	646	2970	0.2175	
EB	RIGHT (R)	986	661 *	2970	0.2226	
	THRU (T)	1291	1291	3450	0.3742	
	LEFT (L)	938	938	2970	0.3158	0.3158
WB	RIGHT (R)	191	0 *	1650	0.0000	
	THRU (T)	913	913	3450	0.2646	0.2646
	LEFT (L)	149	149	2970	0.0502	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	1.19
ADJUSTMENT FOR LOST YELLOW TIME:	0.00
TOTAL VOLUME-TO-CAPACITY RATIO:	1.19
INTERSECTION LEVEL OF SERVICE:	F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25RIRO.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - No Access - TV no Liv. - AM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
668 1247 196

LEFT 353 --- 2.0 1.0 3.0 2.0 1.0 --- 474 RIGHT
Split? N

THRU 669 ---> 2.0 (NO. OF LANES) 2.0<--- 1346 THRU
STREET NAME: Jack London Blvd

RIGHT 620 --- 2.0 2.0 3.0 1.0 2.0 --- 196 LEFT

N
W + E
S

1883 1139 86
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	86	0 *	1650	0.0000	
THRU (T)	1139	1139	5175	0.2201	
LEFT (L)	1883	1883	2970	0.6340	0.6340
SB RIGHT (R)	668	490 *	1650	0.2970	0.2970
THRU (T)	1247	1247	5175	0.2410	
LEFT (L)	196	196	2970	0.0660	
EB RIGHT (R)	620	17 *	2970	0.0057	
THRU (T)	669	669	3450	0.1939	
LEFT (L)	353	353	2970	0.1189	0.1189
WB RIGHT (R)	474	340 *	1650	0.2061	
THRU (T)	1346	1346	3450	0.3901	0.3901
LEFT (L)	196	196	2970	0.0660	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.44
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.44
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25NOACC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Proj. - No Access - TV no Liv. - PM 06/26/03

INTERSECTION 4 Isabel Ave./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
528 1566 646

LEFT 938 --- 2.0 1.0 3.0 2.0 1.0 --- 191 RIGHT
Split? N

THRU 1291 ---> 2.0 (NO. OF LANES) 2.0<--- 977 THRU
STREET NAME: Jack London Blvd

RIGHT 1771 --- 2.0 2.0 3.0 1.0 2.0 --- 85 LEFT

N
W + E
S

882 1655 221
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	221	117 *	1650	0.0709	
THRU (T)	1655	1655	5175	0.3198	
LEFT (L)	882	882	2970	0.2970	0.2970
SB RIGHT (R)	528	187 *	1650	0.1133	
THRU (T)	1566	1566	5175	0.3026	0.3026
LEFT (L)	646	646	2970	0.2175	
EB RIGHT (R)	1771	1446 *	2970	0.4869	
THRU (T)	1291	1291	3450	0.3742	
LEFT (L)	938	938	2970	0.3158	0.3158
WB RIGHT (R)	191	0 *	1650	0.0000	
THRU (T)	977	977	3450	0.2832	0.2832
LEFT (L)	85	85	2970	0.0286	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.20
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.20
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25NOACC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            391  444    0
                          |    |    |
           ^              |    |    |       ^
           |          <---    v    --->     | Split? N
LEFT   245 ---  1.0    1.1  2.1  0.0   1.0 ---  177  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   0.0<---     0  THRU  Jack London Blvd

RIGHT  245 ---  1.0    1.0  2.0  0.0   1.0 ---    53  LEFT
           |          <---    ^    --->     |
           v              |    |    |       v
  N                       |    |    |                     SIG WARRANTS:
W + E                   649  272    0                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N
```

STREET NAME: Murrieta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	272	272	3450	0.0788	
	LEFT (L)	649	649	1650	0.3933	0.3933
SB	RIGHT (R)	391	391	1650	0.2370	
	THRU (T)	444	444	3375	0.1316	
	T + R		835	3375	0.2474	0.2474
EB	RIGHT (R)	245	0 *	1650	0.0000	
	LEFT (L)	245	245	1650	0.1485	0.1485
WB	RIGHT (R)	177	97 *	1650	0.0588	0.0588
	LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.85
ADJUSTMENT FOR LOST YELLOW TIME:	0.04
TOTAL VOLUME-TO-CAPACITY RATIO:	0.89
INTERSECTION LEVEL OF SERVICE:	D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

```
TJKM METHOD          RIGHT THRU LEFT
-----------            219  304    0
                          |    |    |
           ^              |    |    |       ^
           |          <---    v    --->     | Split? N
LEFT   574 ---  1.0    1.1  2.1  0.0   1.0 ---  105  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   0.0<---     0  THRU  Jack London Blvd

RIGHT  198 ---  1.0    1.0  2.0  0.0   1.0 ---    44  LEFT
           |          <---    ^    --->     |
           v              |    |    |       v
  N                       |    |    |                     SIG WARRANTS:
W + E                   171  510    0                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N
```

STREET NAME: Murrieta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	510	510	3450	0.1478	
	LEFT (L)	171	171	1650	0.1036	0.1036
SB	RIGHT (R)	219	219	1650	0.1327	
	THRU (T)	304	304	3375	0.0901	
	T + R		523	3375	0.1550	0.1550
EB	RIGHT (R)	198	33 *	1650	0.0200	
	LEFT (L)	574	574	1650	0.3479	0.3479
WB	RIGHT (R)	105	25 *	1650	0.0152	0.0152
	LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.62
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.72
INTERSECTION LEVEL OF SERVICE:	C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 + Proj. - AM (Tri-Valley no Liv) 05/12/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			391	444	0				
LEFT	245	1.0	1.1	2.1	0.0	1.0	177	RIGHT	Split? N
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Jack London Blvd
RIGHT	245	1.0	2.1	2.1	0.0	1.0	53	LEFT	
N									SIG WARRANTS:
W + E			649	272	0				Urb=Y, Rur=Y
S			LEFT	THRU	RIGHT				Split? N

STREET NAME: Murrieta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	272	272	3375	0.0806	
	LEFT (L)	649	649	2970	0.2185	0.2185
	T + L		921	4695	0.1962	
SB	RIGHT (R)	391	391	1650	0.2370	
	THRU (T)	444	444	3375	0.1316	
	T + R		835	3375	0.2474	0.2474
EB	RIGHT (R)	245	0 *	1650	0.0000	
	LEFT (L)	245	245	1650	0.1485	0.1485
WB	RIGHT (R)	177	97 *	1650	0.0588	0.0588
	LEFT (L)	53	53	1650	0.0321	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.67
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25MIT.INT,VOL=2025TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 + Proj. - PM (Tri-Valley no Liv) 05/12/03

INTERSECTION 5 Murrieta Blvd./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			219	304	0				
LEFT	574	1.0	1.1	2.1	0.0	1.0	105	RIGHT	Split? N
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: Jack London Blvd
RIGHT	198	1.0	2.1	2.1	0.0	1.0	44	LEFT	
N									SIG WARRANTS:
W + E			171	510	0				Urb=Y, Rur=Y
S			LEFT	THRU	RIGHT				Split? N

STREET NAME: Murrieta Blvd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	THRU (T)	510	510	3375	0.1511	
	LEFT (L)	171	171	2970	0.0576	0.0576
	T + L		681	4695	0.1450	
SB	RIGHT (R)	219	219	1650	0.1327	
	THRU (T)	304	304	3375	0.0901	
	T + R		523	3375	0.1550	0.1550
EB	RIGHT (R)	198	71 *	1650	0.0430	
	LEFT (L)	574	574	1650	0.3479	0.3479
WB	RIGHT (R)	105	25 *	1650	0.0152	0.0152
	LEFT (L)	44	44	1650	0.0267	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.58
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25MIT.INT,VOL=2025TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 274 ---> 2.0 (NO. OF LANES) 2.0<--- 505 THRU
STREET NAME: Stanley Blvd.

RIGHT 335 --- 1.0 2.0 0.0 2.0 2.0 --- 1011 LEFT

N
W + E 644 0 305
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	305	0 *	2970	0.0000	
LEFT (L)	644	644	2970	0.2168	0.2168
EB RIGHT (R)	335	76 *	1650	0.0461	
THRU (T)	274	274	3450	0.0794	0.0794
WB THRU (T)	505	505	3450	0.1464	
LEFT (L)	1011	1011	2970	0.3404	0.3404

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.64
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 6 Isabel Ramp/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

LEFT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 689 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU
STREET NAME: Stanley Blvd.

RIGHT 492 --- 1.0 2.0 0.0 2.0 2.0 --- 372 LEFT

N
W + E 338 0 1034
S LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ramp

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1034	851 *	2970	0.2865	0.2865
LEFT (L)	338	338	2970	0.1138	
EB RIGHT (R)	492	318 *	1650	0.1927	
THRU (T)	689	689	3450	0.1997	0.1997
WB THRU (T)	423	423	3450	0.1226	
LEFT (L)	372	372	2970	0.1253	0.1253

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.61
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.71
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1277 712

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 1271 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 76 LEFT

N
W + E
S
0 1678 238
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	238	120 *	1650	0.0727	
THRU (T)	1678	1678	3450	0.4864	0.4864
SB THRU (T)	1277	1277	3450	0.3701	
LEFT (L)	712	712	2970	0.2397	0.2397
WB RIGHT (R)	1271	993 *	1650	0.6018	0.6018
LEFT (L)	76	76	1650	0.0461	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.33
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.33
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1830 1301

LEFT 0 --- 0.0 0.0 2.0 2.0 1.0 --- 698 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 164 LEFT

N
W + E
S
0 1925 71
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	71	0 *	1650	0.0000	
THRU (T)	1925	1925	3450	0.5580	0.5580
SB THRU (T)	1830	1830	3450	0.5304	
LEFT (L)	1301	1301	2970	0.4380	0.4380
WB RIGHT (R)	698	257 *	1650	0.1558	0.1558
LEFT (L)	164	164	1650	0.0994	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 1.15
ADJUSTMENT FOR LOST YELLOW TIME: 0.00
TOTAL VOLUME-TO-CAPACITY RATIO: 1.15
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1277 712

LEFT 0 --- 0.0 0.0 2.0 2.0 2.5 --- 1271 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 3.0 1.0 1.0 --- 76 LEFT

N
W + E
S
0 1678 238
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	238	120 *	1650	0.0727	
THRU (T)	1678	1678	5175	0.3243	0.3243
SB THRU (T)	1277	1277	3450	0.3701	
LEFT (L)	712	712	2970	0.2397	0.2397
WB RIGHT (R)	1271	479 *	2970	0.1613	0.1613
LEFT (L)	76	76	1650	0.0461	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.73
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 7 Isabel Ave./Stanley Ramp Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1830 1301

LEFT 0 --- 0.0 0.0 2.0 2.0 2.5 --- 698 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Stanley Ramp

RIGHT 0 --- 0.0 0.0 3.0 1.0 1.0 --- 164 LEFT

N
W + E
S
0 1925 71
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	71	0 *	1650	0.0000	
THRU (T)	1925	1925	5175	0.3720	0.3720
SB THRU (T)	1830	1830	3450	0.5304	
LEFT (L)	1301	1301	2970	0.4380	0.4380
WB RIGHT (R)	698	0 *	2970	0.0000	
LEFT (L)	164	164	1650	0.0994	0.0994

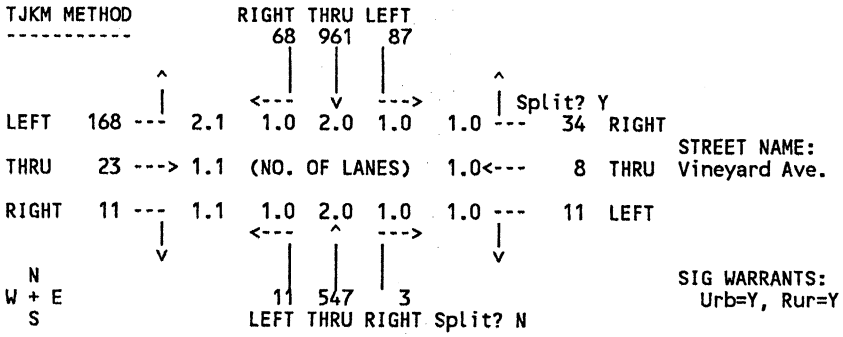
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.91
ADJUSTMENT FOR LOST YELLOW TIME: 0.01
TOTAL VOLUME-TO-CAPACITY RATIO: 0.92
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	547	547	3450	0.1586	
LEFT (L)	11	11	1650	0.0067	0.0067
SB RIGHT (R)	68	0 *	1650	0.0000	
THRU (T)	961	961	3450	0.2786	0.2786
LEFT (L)	87	87	1650	0.0527	
EB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	23	23	1650	0.0139	
LEFT (L)	168	168	2970	0.0566	
T + R		34	1650	0.0206	
T + L		191	2970	0.0643	
T + R + L		202	2970	0.0680	0.0680
WB RIGHT (R)	34	0 *	1650	0.0000	
THRU (T)	8	8	1725	0.0046	
LEFT (L)	11	11	1650	0.0067	0.0067

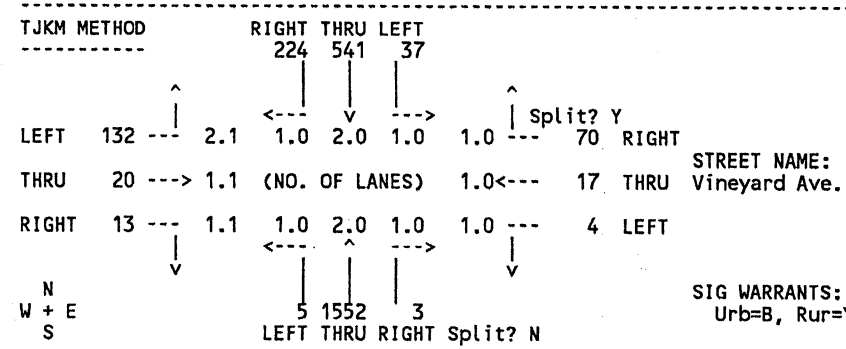
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 8 Isabel Ave./Vineyard Ave. Livermore
Count Date Time Peak Hour



STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	1552	1552	3450	0.4499	0.4499
LEFT (L)	5	5	1650	0.0030	
SB RIGHT (R)	224	107 *	1650	0.0648	
THRU (T)	541	541	3450	0.1568	
LEFT (L)	37	37	1650	0.0224	0.0224
EB RIGHT (R)	13	13	1650	0.0079	
THRU (T)	20	20	1650	0.0121	
LEFT (L)	132	132	2970	0.0444	
T + R		33	1650	0.0200	
T + L		152	2970	0.0512	
T + R + L		165	2970	0.0556	0.0556
WB RIGHT (R)	70	0 *	1650	0.0000	
THRU (T)	17	17	1725	0.0099	0.0099
LEFT (L)	4	4	1650	0.0024	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.54
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 961 29

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 8 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Vallecitos Rd.

RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 592 LEFT

N
W + E
S
0 547 261
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	261	261	1725	0.1513	
THRU (T)	547	547	3450	0.1586	
SB THRU (T)	961	961	3450	0.2786	0.2786
LEFT (L)	29	29	1650	0.0176	
WB RIGHT (R)	8	0 *	1650	0.0000	
LEFT (L)	592	592	2970	0.1993	0.1993

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.48
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.58
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 9 Isabel Ave./Vallecitos Rd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 542 15

LEFT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 9 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Vallecitos Rd.

RIGHT 0 --- 0.0 0.0 2.0 1.9 2.0 --- 313 LEFT

N
W + E
S
0 1552 444
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	444	444	1725	0.2574	
THRU (T)	1552	1552	3450	0.4499	0.4499
SB THRU (T)	542	542	3450	0.1571	
LEFT (L)	15	15	1650	0.0091	0.0091
WB RIGHT (R)	9	0 *	1650	0.0000	
LEFT (L)	313	313	2970	0.1054	0.1054

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.56
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1039 314

LEFT 0 --- 0.0 0.0 2.0 2.0 2.0 --- 804 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 96 LEFT

N
W + E
S
0 759 61
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	0 *	1650	0.0000	
THRU (T)	759	759	3450	0.2200	0.2200
SB THRU (T)	1039	1039	3450	0.3012	
LEFT (L)	314	314	2970	0.1057	0.1057
WB RIGHT (R)	804	637 *	2970	0.2145	0.2145
LEFT (L)	96	96	1650	0.0582	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.54
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/30/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 799 911

LEFT 0 --- 0.0 0.0 2.0 2.0 2.0 --- 374 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 1.0 --- 73 LEFT

N
W + E
S
0 1622 153
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	153	37 *	1650	0.0224	
THRU (T)	1622	1622	3450	0.4701	0.4701
SB THRU (T)	799	799	3450	0.2316	
LEFT (L)	911	911	2970	0.3067	0.3067
WB RIGHT (R)	374	41 *	2970	0.0138	
LEFT (L)	73	73	1650	0.0442	0.0442

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.82
ADJUSTMENT FOR LOST YELLOW TIME: 0.06
TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - AM (Tri-Valley no Liv) 06/26/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 1039 314

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 804 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 2.0 --- 96 LEFT

N
W + E
S
0 759 61
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	0 *	1650	0.0000	
THRU (T)	759	759	3450	0.2200	0.2200
SB THRU (T)	1039	1039	3450	0.3012	
LEFT (L)	314	314	2970	0.1057	0.1057
WB RIGHT (R)	804	550 *	1650	0.3333	0.3333
LEFT (L)	96	96	2970	0.0323	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.66
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.76
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr. 2025 +Proj. - PM (Tri-Valley no Liv) 06/26/03

INTERSECTION 10 Isabel Ave./Concannon Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 799 911

LEFT 0 --- 0.0 0.0 2.0 2.0 1.5 --- 374 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Concannon

RIGHT 0 --- 0.0 0.0 2.0 1.0 2.0 --- 73 LEFT

N
W + E
S
0 1622 153
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	153	53 *	1650	0.0321	
THRU (T)	1622	1622	3450	0.4701	0.4701
SB THRU (T)	799	799	3450	0.2316	
LEFT (L)	911	911	2970	0.3067	0.3067
WB RIGHT (R)	374	0 *	1650	0.0000	
LEFT (L)	73	73	2970	0.0246	0.0246

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.80
ADJUSTMENT FOR LOST YELLOW TIME: 0.07
TOTAL VOLUME-TO-CAPACITY RATIO: 0.87
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TVMIT.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
482 1689 0

LEFT 111 --- 2.0 1.0 3.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Project Drwy.

RIGHT 233 --- 2.0 2.0 3.0 0.0 0.0 --- 0 LEFT

N
W + E
S
716 2297 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	2297	2297	5175	0.4439	
LEFT (L)	716	716	2970	0.2411	0.2411
SB RIGHT (R)	482	371 *	1650	0.2248	
THRU (T)	1689	1689	5175	0.3264	0.3264
EB RIGHT (R)	233	0 *	2970	0.0000	
LEFT (L)	111	111	2970	0.0374	0.0374

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.60
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 11 Isabel Ave./Project Drwy. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
117 2346 0

LEFT 424 --- 2.0 1.0 3.0 0.0 0.0 --- 0 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: Project Drwy.

RIGHT 785 --- 2.0 2.0 3.0 0.0 0.0 --- 0 LEFT

N
W + E
S
161 2462 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB THRU (T)	2462	2462	5175	0.4757	
LEFT (L)	161	161	2970	0.0542	0.0542
SB RIGHT (R)	117	0 *	1650	0.0000	
THRU (T)	2346	2346	5175	0.4533	0.4533
EB RIGHT (R)	785	660 *	2970	0.2222	0.2222
LEFT (L)	424	424	2970	0.1428	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.73
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

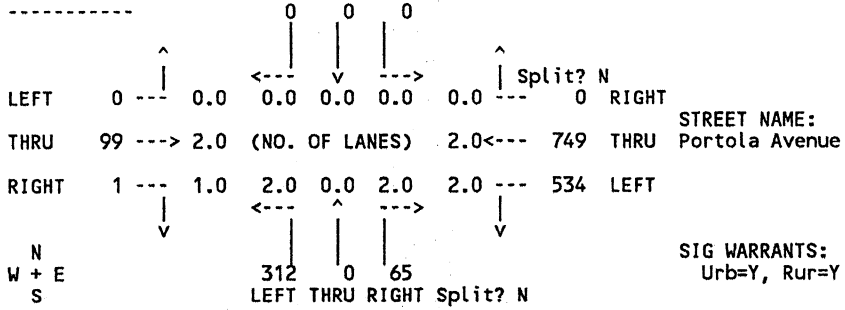
* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 12 Isabel Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT



N
W + E 312 0 65
S LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	65	0 *	2970	0.0000	
	LEFT (L)	312	312	2970	0.1051	0.1051
EB	RIGHT (R)	1	0 *	1650	0.0000	
	THRU (T)	99	99	3450	0.0287	
WB	THRU (T)	749	749	3450	0.2171	0.2171
	LEFT (L)	534	534	2970	0.1798	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.32
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.42
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 12 Isabel Ave./Portola Avenue Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT

N
W + E 1 0 467
S LEFT THRU RIGHT Split? N

STREET NAME: Isabel Ave.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	467	360 *	2970	0.1212	0.1212
	LEFT (L)	1	1	2970	0.0003	
EB	RIGHT (R)	319	239 *	1650	0.1448	
	THRU (T)	579	579	3450	0.1678	0.1678
WB	THRU (T)	134	134	3450	0.0388	
	LEFT (L)	96	96	2970	0.0323	0.0323

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.32
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.42
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
263 206 0

LEFT 0 --- 0.0 1.9 3.0 0.0 1.0 --- 671 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 WB Ramps

RIGHT 0 --- 0.0 0.0 3.0 1.9 2.0 --- 1133 LEFT

N
W + E
S
0 1148 351
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	351	351	1725	0.2035	
THRU (T)	1148	1148	5175	0.2218	0.2218
SB RIGHT (R)	263	263	1725	0.1525	
THRU (T)	206	206	5175	0.0398	
WB RIGHT (R)	671	591 *	1650	0.3582	
LEFT (L)	1133	1133	2970	0.3815	0.3815

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.60
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 13 Isabel Ave./I-580 WB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
910 1146 0

LEFT 0 --- 0.0 1.9 3.0 0.0 1.0 --- 306 RIGHT
Split? N

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
STREET NAME: I-580 WB Ramps

RIGHT 0 --- 0.0 0.0 3.0 1.9 2.0 --- 377 LEFT

N
W + E
S
0 407 258
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	258	258	1725	0.1496	
THRU (T)	407	407	5175	0.0786	
SB RIGHT (R)	910	910	1725	0.5275	
THRU (T)	1146	1146	5175	0.2214	0.2214
WB RIGHT (R)	306	226 *	1650	0.1370	0.1370
LEFT (L)	377	377	2970	0.1269	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			100	1320	0				
LEFT	671	2.0	1.9	3.0	0.0	0.0	0	RIGHT	Split? N
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: I-580 EB Ramps
RIGHT	617	2.0	0.0	3.0	1.9	0.0	0	LEFT	

N
W + E
S

	LEFT	THRU	RIGHT	Split? N
	0	828	442	

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	442	442	1725	0.2562	
THRU (T)	828	828	5175	0.1600	
SB RIGHT (R)	100	100	1725	0.0580	
THRU (T)	1320	1320	5175	0.2551	0.2551
EB RIGHT (R)	617	537 *	2970	0.1808	
LEFT (L)	671	671	2970	0.2259	0.2259

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.48
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.58
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 14 Isabel Ave./I-580 EB Ramps Livermore
Count Date Time Peak Hour

TJKM METHOD

			RIGHT	THRU	LEFT				
			632	867	0				
LEFT	181	2.0	1.9	3.0	0.0	0.0	0	RIGHT	Split? N
THRU	0	0.0	(NO. OF LANES)			0.0	0	THRU	STREET NAME: I-580 EB Ramps
RIGHT	1314	2.0	0.0	3.0	1.9	0.0	0	LEFT	

N
W + E
S

	LEFT	THRU	RIGHT	Split? N
	0	485	1876	

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Isabel Ave.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1876	1876	1725	1.0875 **	
THRU (T)	485	485	5175	0.0937	
SB RIGHT (R)	632	632	1725	0.3664	
THRU (T)	867	867	5175	0.1675	0.1675
EB RIGHT (R)	1314	1234 *	2970	0.4155	0.4155
LEFT (L)	181	181	2970	0.0609	

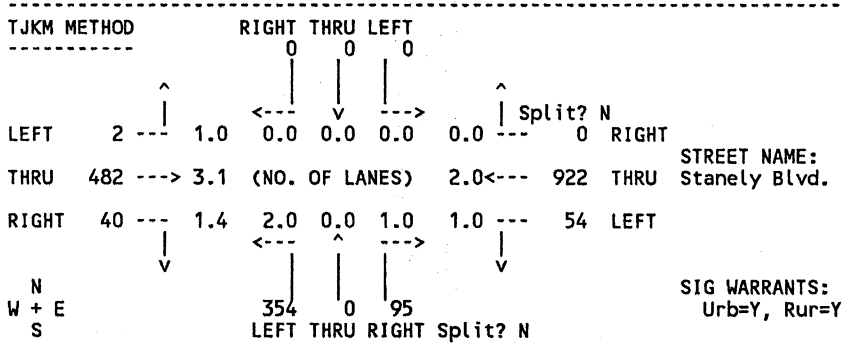
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.58
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.68
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED ** APPROACHING OR EXCEEDING CAPACITY
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 15 Murdell Lane/Stanely Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Murdell Lane

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	95	0 *	1650	0.0000	
LEFT (L)	354	354	2970	0.1192	0.1192
EB RIGHT (R)	40	0 *	1650	0.0000	
THRU (T)	482	482	5100	0.0945	
LEFT (L)	2	2	1650	0.0012	0.0012
T + R		482	5100	0.0945	
WB THRU (T)	922	922	3450	0.2672	0.2672
LEFT (L)	54	54	1650	0.0327	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.39
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.49
INTERSECTION LEVEL OF SERVICE:	A

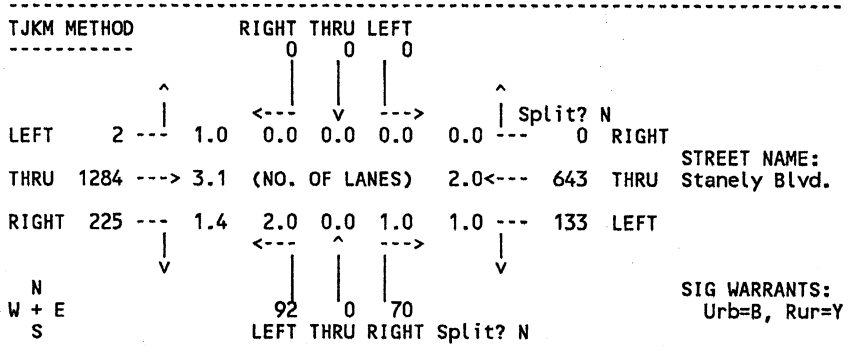
* ADJUSTED FOR RIGHT TURN ON RED

INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 15 Murdell Lane/Stanely Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Murdell Lane

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	70	0 *	1650	0.0000	
LEFT (L)	92	92	2970	0.0310	0.0310
EB RIGHT (R)	225	135 *	1650	0.0818	
THRU (T)	1284	1284	5100	0.2518	
LEFT (L)	2	2	1650	0.0012	
T + R		1419	5100	0.2782	0.2782
WB THRU (T)	643	643	3450	0.1864	
LEFT (L)	133	133	1650	0.0806	0.0806

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.39
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.49
INTERSECTION LEVEL OF SERVICE:	A

* ADJUSTED FOR RIGHT TURN ON RED

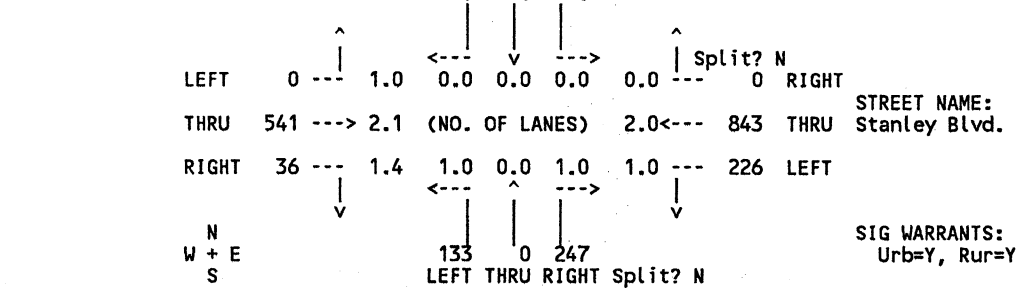
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0



STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	247	54 *	1650	0.0327	
LEFT (L)	133	133	1650	0.0806	0.0806
EB RIGHT (R)	36	0 *	1650	0.0000	
THRU (T)	541	541	3375	0.1603	0.1603
LEFT (L)	0	0	1650	0.0000	
T + R		541	3375	0.1603	
WB THRU (T)	843	843	3450	0.2443	
LEFT (L)	226	226	1650	0.1370	0.1370

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.38
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 16 Wall Street/Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
0 0 0

STREET NAME: Wall Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	255	49 *	1650	0.0297	
LEFT (L)	71	71	1650	0.0430	0.0430
EB RIGHT (R)	53	0 *	1650	0.0000	
THRU (T)	1298	1298	3375	0.3846	0.3846
LEFT (L)	3	3	1650	0.0018	
T + R		1298	3375	0.3846	
WB THRU (T)	705	705	3450	0.2043	
LEFT (L)	252	252	1650	0.1527	0.1527

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.58
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
137 119 341

LEFT 53 ---> 1.0 1.0 1.1 2.1 1.0 ---> 145 RIGHT
THRU 353 ---> 2.0 (NO. OF LANES) 2.0<--- 410 THRU
RIGHT 33 ---> 1.0 2.1 2.2 1.1 1.0 ---> 12 LEFT

Split? N
STREET NAME:
Stanley Blvd.

N
W + E
S
142 203 19
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	19	19	1650	0.0115	
THRU (T)	203	203	3300	0.0615	
LEFT (L)	142	142	2970	0.0478	0.0478
T + R		222	3300	0.0673	
T + L		345	4620	0.0747	
T + R + L		364	4620	0.0788	
SB RIGHT (R)	137	31 *	1650	0.0188	
THRU (T)	119	119	1650	0.0721	
LEFT (L)	341	341	2970	0.1148	
T + L		460	2970	0.1549	0.1549
EB RIGHT (R)	33	0 *	1650	0.0000	
THRU (T)	353	353	3450	0.1023	
LEFT (L)	53	53	1650	0.0321	0.0321
WB RIGHT (R)	145	0 *	1650	0.0000	
THRU (T)	410	410	3450	0.1188	0.1188
LEFT (L)	12	12	1650	0.0073	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.35
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.45
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 17 Murietta Blvd./Stanley Blvd. Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT
52 245 315

LEFT 168 ---> 1.0 1.0 1.1 2.1 1.0 ---> 413 RIGHT
THRU 607 ---> 2.0 (NO. OF LANES) 2.0<--- 529 THRU
RIGHT 141 ---> 1.0 2.1 2.2 1.1 1.0 ---> 57 LEFT

Split? N
STREET NAME:
Stanley Blvd.

N
W + E
S
63 190 5
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Murietta Blvd.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	5	5	1650	0.0030	
THRU (T)	190	190	3300	0.0576	
LEFT (L)	63	63	2970	0.0212	0.0212
T + R		195	3300	0.0591	
T + L		253	4620	0.0548	
T + R + L		258	4620	0.0558	
SB RIGHT (R)	52	0 *	1650	0.0000	
THRU (T)	245	245	1650	0.1485	
LEFT (L)	315	315	2970	0.1061	
T + L		560	2970	0.1886	0.1886
EB RIGHT (R)	141	44 *	1650	0.0267	
THRU (T)	607	607	3450	0.1759	
LEFT (L)	168	168	1650	0.1018	0.1018
WB RIGHT (R)	413	246 *	1650	0.1491	
THRU (T)	529	529	3450	0.1533	0.1533
LEFT (L)	57	57	1650	0.0345	

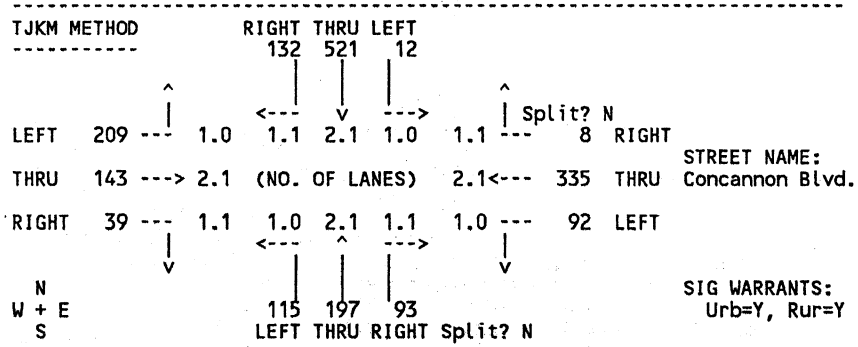
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.46
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Holmes Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	93	93	1650	0.0564	
THRU (T)	197	197	3375	0.0584	
LEFT (L)	115	115	1650	0.0697	0.0697
T + R		290	3375	0.0859	
SB RIGHT (R)	132	132	1650	0.0800	
THRU (T)	521	521	3375	0.1544	
LEFT (L)	12	12	1650	0.0073	
T + R		653	3375	0.1935	0.1935
EB RIGHT (R)	39	39	1650	0.0236	
THRU (T)	143	143	3375	0.0424	
LEFT (L)	209	209	1650	0.1267	0.1267
T + R		182	3375	0.0539	
WB RIGHT (R)	8	8	1650	0.0048	
THRU (T)	335	335	3375	0.0993	
LEFT (L)	92	92	1650	0.0558	
T + R		343	3375	0.1016	0.1016

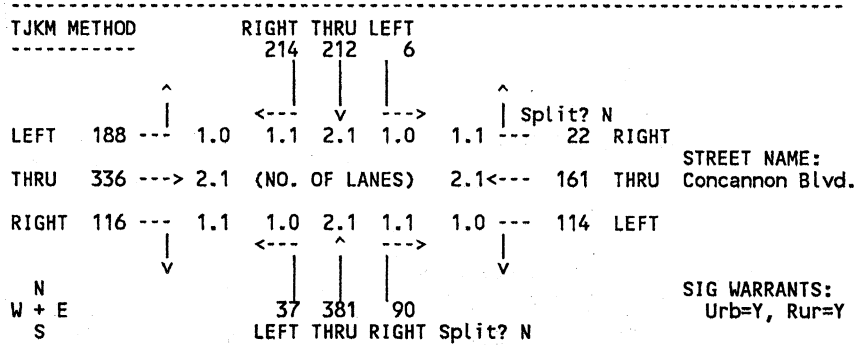
VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.49
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 18 Holmes Street/Concannon Blvd. Livermore
Count Date Time Peak Hour



STREET NAME: Holmes Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	90	90	1650	0.0545	
THRU (T)	381	381	3375	0.1129	
LEFT (L)	37	37	1650	0.0224	0.0224
T + R		471	3375	0.1396	
SB RIGHT (R)	214	214	1650	0.1297	0.1297
THRU (T)	212	212	3375	0.0628	
LEFT (L)	6	6	1650	0.0036	
T + R		426	3375	0.1262	
EB RIGHT (R)	116	116	1650	0.0703	
THRU (T)	336	336	3375	0.0996	
LEFT (L)	188	188	1650	0.1139	
T + R		452	3375	0.1339	0.1339
WB RIGHT (R)	22	22	1650	0.0133	
THRU (T)	161	161	3375	0.0477	
LEFT (L)	114	114	1650	0.0691	0.0691
T + R		183	3375	0.0542	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.36
ADJUSTMENT FOR LOST YELLOW TIME: 0.10
TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - AM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal

```
                  0     0     0
          ^       |     |     |          ^
          |     <---    v    --->        |
   0 ---     0.0   0.0   0.0   0.0   0.0 ---    0

 741 ---> 2.1   (NO. OF LANES)     2.0<--- 1680

  25 ---    1.4   1.0   0.0   1.0   1.0 ---    31
          |     <---    ^    --->        |
          v       |     |     |          v
  N
W + E            189    0    69
  S
```

N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=Y, Rur=Y

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	THRU	RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	189	231	7.0	2738	19	18	999+	F	999+	F
R	69	84	5.5	426	843	843	4.7	A		
EB T	741	906							0.0	A
R	25	31								
TR	766	937					0.0	A		
WB L	31	38	5.5	851	599	599	6.4	B	0.1	A
T	1680	2053					0.0	A		

INT TOTAL: 399.7 F
MINOR MOVEMENTS: (999+) (F)

INT=25TRI.INT,VOL=25TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Yr. 2025 + Project - PM (Tri-Valley no Liv.) 06/25/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

94 HCM Unsignal

```
                  0     0     0
          ^       |     |     |          ^
          |     <---    v    --->        |
   0 ---     0.0   0.0   0.0   0.0   0.0 ---    0

1730 ---> 2.1   (NO. OF LANES)     2.0<---  877

 156 ---    1.4   1.0   0.0   1.0   1.0 ---    63
          |     <---    ^    --->        |
          v       |     |     |          v
  N
W + E             60    0    32
  S
```

N/S CONTROL: STOP
E/W CONTROL: NONE
MAJ ST SAT FLOW:
Th= 1900, Rt= 1650

CRITICAL GAP ADJUST

	LEFT	THRU	RIGHT
NB	0.0	---	0.0
EB	---	---	---
WB	0.0	---	---

SIGNAL WARRANTS:
Urb=N, Rur=B

ACCEL LANE FOR LT	% SU/RV	% COMBO VEH	% MOTOR CYCLE	PEAK HOUR FACTOR LEFT	THRU	RGHT
N	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90
-	0	0	0	0.90	0.90	0.90

MOVEMENT	ORIG VOL	ADJ VOL	ADJ GAP	CONFL VOL	POT CAP	ACT CAP	MVMT DELAY	MVT LOS	APP DELAY	APP LOS
NB L	60	73	7.0	3053	12	6	999+	F	999+	F
R	32	39	5.5	1048	408	408	9.8	B		
EB T	1730	2114							0.0	A
R	156	191								
TR	1886	2305					0.0	A		
WB L	63	77	5.5	2096	129	129	63.0	F	4.2	A
T	877	1072					0.0	A		

INT TOTAL: 125.2 F
MINOR MOVEMENTS: (999+) (F)

INT=25TRI.INT,VOL=25TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr.2025 + Project -AM (Tri-Valley no Liv) 04/24/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT

			0	0	0				
LEFT	0	---	0.0	0.0	0.0	0.0	0.0	--- 0	RIGHT
THRU	741	--->	2.1	(NO. OF LANES)			2.0	<--- 1680	THRU
RIGHT	25	---	1.4	1.0	0.0	1.0	1.0	--- 31	LEFT
				189	0	69			

Split? N

STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=Y, Rur=Y

N / W + E / S

LEFT THRU RIGHT Split? N

STREET NAME: Hagemann Dr.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	69	0 *	1650	0.0000	
LEFT (L)	189	189	1650	0.1145	0.1145
EB RIGHT (R)	25	0 *	1650	0.0000	
THRU (T)	741	741	3375	0.2196	
T + R		741	3375	0.2196	
WB THRU (T)	1680	1680	3450	0.4870	0.4870
LEFT (L)	31	31	1650	0.0188	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.60
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.70
INTERSECTION LEVEL OF SERVICE:	B

* ADJUSTED FOR RIGHT TURN ON RED

INT=25MIT.INT,VOL=2025TRI.AMV+25FULLAC.AMV,CAP=...LIVCAP.TAB

LOS Software by TJKM Transportation Consultants

Condition: Mit. Yr.2025 + Project -PM (Tri-Valley no Liv) 04/24/03

INTERSECTION 19 Hagemann Dr./Jack London Blvd Livermore
Count Date Time Peak Hour

TJKM METHOD RIGHT THRU LEFT

			0	0	0				
LEFT	0	---	0.0	0.0	0.0	0.0	0.0	--- 0	RIGHT
THRU	1730	--->	2.1	(NO. OF LANES)			2.0	<--- 877	THRU
RIGHT	156	---	1.4	1.0	0.0	1.0	1.0	--- 63	LEFT
				60	0	32			

Split? N

STREET NAME: Jack London Blvd

SIG WARRANTS: Urb=N, Rur=B

N / W + E / S

LEFT THRU RIGHT Split? N

STREET NAME: Hagemann Dr.

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	32	0 *	1650	0.0000	
LEFT (L)	60	60	1650	0.0364	0.0364
EB RIGHT (R)	156	66 *	1650	0.0400	
THRU (T)	1730	1730	3375	0.5126	
T + R		1796	3375	0.5321	0.5321
WB THRU (T)	877	877	3450	0.2542	
LEFT (L)	63	63	1650	0.0382	0.0382

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION:	0.61
ADJUSTMENT FOR LOST YELLOW TIME:	0.10
TOTAL VOLUME-TO-CAPACITY RATIO:	0.71
INTERSECTION LEVEL OF SERVICE:	C

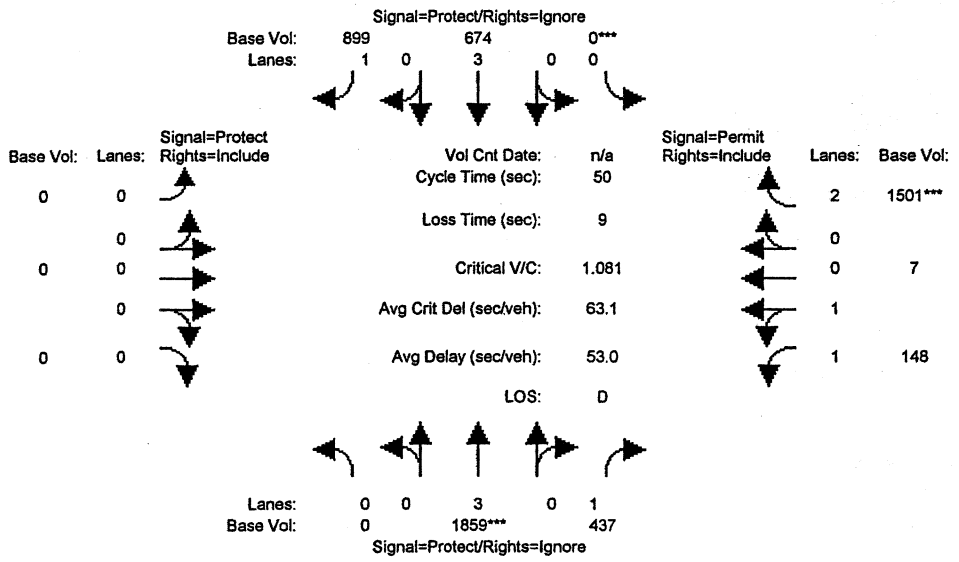
* ADJUSTED FOR RIGHT TURN ON RED

INT=25MIT.INT,VOL=2025TRI.PMV+25FULLAC.PMV,CAP=...LIVCAP.TAB

APPENDIX H – LEVEL OF SERVICE – YEAR 2025 CONDITIONS (CITY MODEL)

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

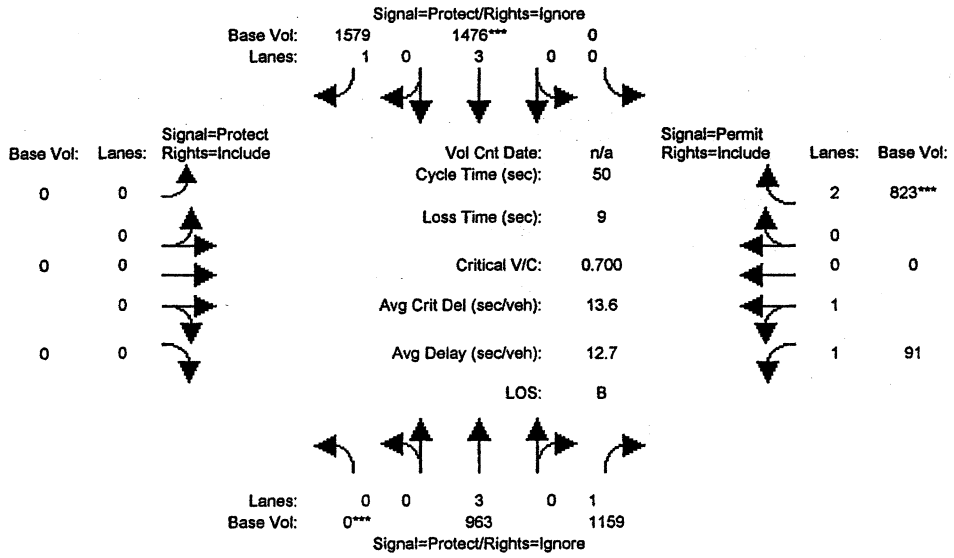
Intersection #1: Airway Blvd./ I-580 Westbound ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1859	437	0	674	899	0	0	0	148	7	1501
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:	0	1859	437	0	674	899	0	0	0	148	7	1501
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1859	0	0	674	0	0	0	0	148	7	1501
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1859	0	0	674	0	0	0	0	148	7	1501
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1859	0	0	674	0	0	0	0	148	7	1501
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.85	0.85	0.75
Lanes:	0.00	3.00	1.00	0.00	3.00	1.00	0.00	0.00	0.00	1.91	0.09	2.00
Final Sat.:	0	5187	1900	0	5187	1900	0	0	0	3084	146	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.36	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.05	0.05	0.53
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.49	0.49	0.49
Volume/Cap:	0.00	1.08	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.10	0.10	1.08
Uniform Del:	0.0	16.7	0.0	0.0	12.8	0.0	0.0	0.0	0.0	6.9	6.9	12.8
IncremntDel:	0.0	47.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	49.3
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
Delay/Veh:	0.0	64.0	0.0	0.0	13.0	0.0	0.0	0.0	0.0	6.9	6.9	62.0
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:	0.0	64.0	0.0	0.0	13.0	0.0	0.0	0.0	0.0	6.9	6.9	62.0
DesignQueue:	0	38	0	0	13	0	0	0	0	2	0	24

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

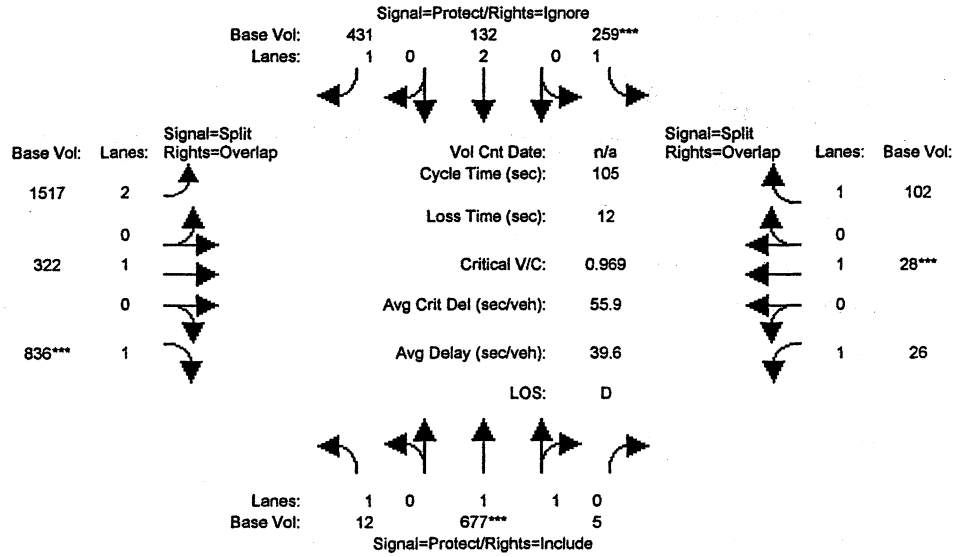
Intersection #1: Airway Blvd./ I-580 Westbound ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	963	1159	0	1476	1579	0	0	0	91	0	823
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:	0	963	1159	0	1476	1579	0	0	0	91	0	823
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	963	0	0	1476	0	0	0	0	91	0	823
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	963	0	0	1476	0	0	0	0	91	0	823
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	963	0	0	1476	0	0	0	0	91	0	823
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.77	1.00	0.75
Lanes:	0.00	3.00	1.00	0.00	3.00	1.00	0.00	0.00	0.00	2.00	0.00	2.00
Final Sat.:	0	5187	1900	0	5187	1900	0	0	0	2941	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.19	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.03	0.00	0.29
Crit Moves:	****				****							****
Green/Cycle:	0.00	0.41	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.41	0.00	0.41
Volume/Cap:	0.00	0.46	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.07	0.00	0.70
Uniform Del:	0.0	10.8	0.0	0.0	12.3	0.0	0.0	0.0	0.0	8.9	0.0	12.1
IncremntDel:	0.0	0.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	11.0	0.0	0.0	13.4	0.0	0.0	0.0	0.0	8.9	0.0	14.0
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:	0.0	11.0	0.0	0.0	13.4	0.0	0.0	0.0	0.0	8.9	0.0	14.0
DesignQueue:	0	17	0	0	26	0	0	0	0	1	0	14

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

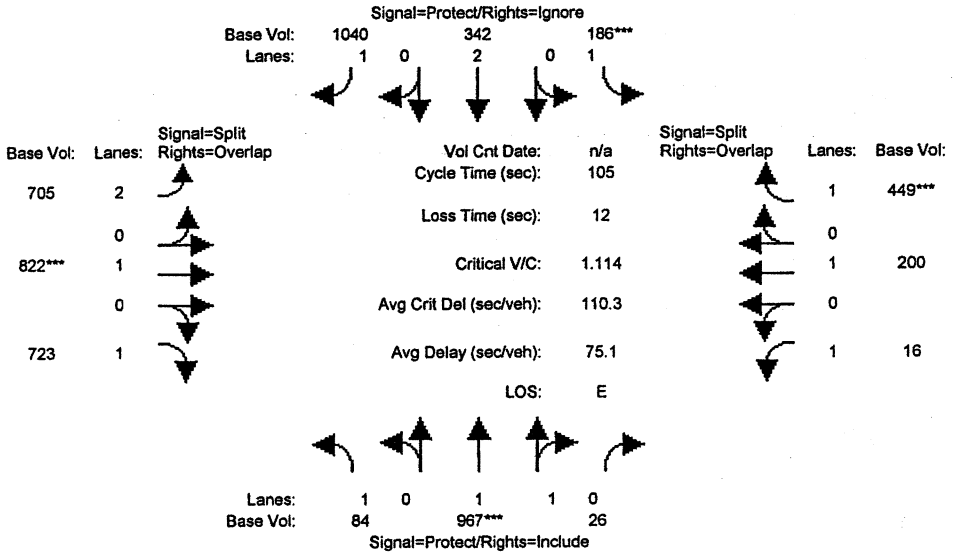
Intersection #2: Airway Blvd./I-580 Eastbound ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	12	677	5	259	132	431	1517	322	836	26	28	102
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:	12	677	5	259	132	431	1517	322	836	26	28	102
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	12	677	5	259	132	0	1517	322	836	26	28	102
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	677	5	259	132	0	1517	322	836	26	28	102
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	12	677	5	259	132	0	1517	322	836	26	28	102
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.95	1.00	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.99	0.01	1.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3580	26	1805	3610	1900	3502	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.19	0.19	0.14	0.04	0.00	0.43	0.17	0.52	0.01	0.01	0.06
Crit Moves:		****		****					****		****	
Green/Cycle:	0.05	0.20	0.20	0.15	0.29	0.00	0.53	0.53	0.58	0.02	0.02	0.16
Volume/Cap:	0.13	0.97	0.97	0.97	0.13	0.00	0.82	0.32	0.89	0.95	0.97	0.39
Uniform Del:	47.4	41.9	41.9	44.5	27.4	0.0	20.7	14.1	19.2	51.7	51.7	39.2
IncremntDel:	0.6	26.3	26.3	46.3	0.1	0.0	3.1	0.2	10.8	148.5	154	0.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	48.0	68.3	68.3	90.8	27.5	0.0	23.8	14.3	30.0	200.2	206	40.2
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:	48.0	68.3	68.3	90.8	27.5	0.0	23.8	14.3	30.0	200.2	206	40.2
DesignQueue:	1	33	0	13	6	0	47	9	23	1	2	5

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

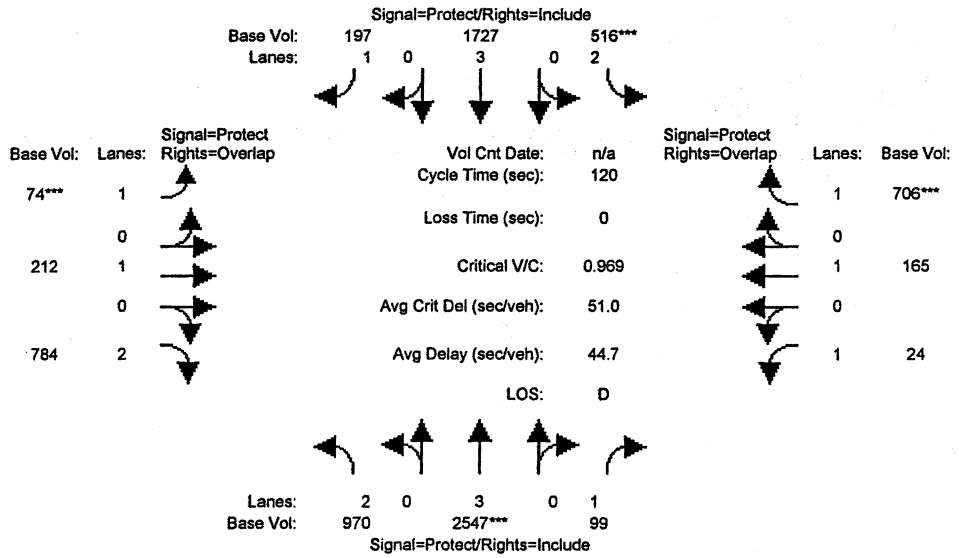
Intersection #2: Airway Blvd./I-580 Eastbound ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	84	967	26	186	342	1040	705	822	723	16	200	449
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:	84	967	26	186	342	1040	705	822	723	16	200	449
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	84	967	26	186	342	0	705	822	723	16	200	449
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	84	967	26	186	342	0	705	822	723	16	200	449
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	84	967	26	186	342	0	705	822	723	16	200	449
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.95	1.00	0.92	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.95	0.05	1.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3501	94	1805	3610	1900	3502	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.05	0.28	0.28	0.10	0.09	0.00	0.20	0.43	0.45	0.01	0.11	0.28
Crit Moves:		****		****				****				****
Green/Cycle:	0.11	0.25	0.25	0.09	0.23	0.00	0.39	0.39	0.50	0.16	0.16	0.25
Volume/Cap:	0.42	1.11	1.11	1.11	0.42	0.00	0.52	1.11	0.89	0.06	0.67	1.11
Uniform Del:	43.4	39.5	39.5	47.6	34.5	0.0	24.6	32.1	23.7	37.6	41.7	39.4
IncremntDel:	1.4	66.6	66.6	103.6	0.3	0.0	0.4	69.1	12.4	0.1	5.8	79.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	44.8	106	106.1	151.2	34.9	0.0	25.0	101	36.2	37.7	47.5	118.9
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:	44.8	106	106.1	151.2	34.9	0.0	25.0	101	36.2	37.7	47.5	118.9
DesignQueue:	4	46	1	10	16	0	26	33	23	1	10	21

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

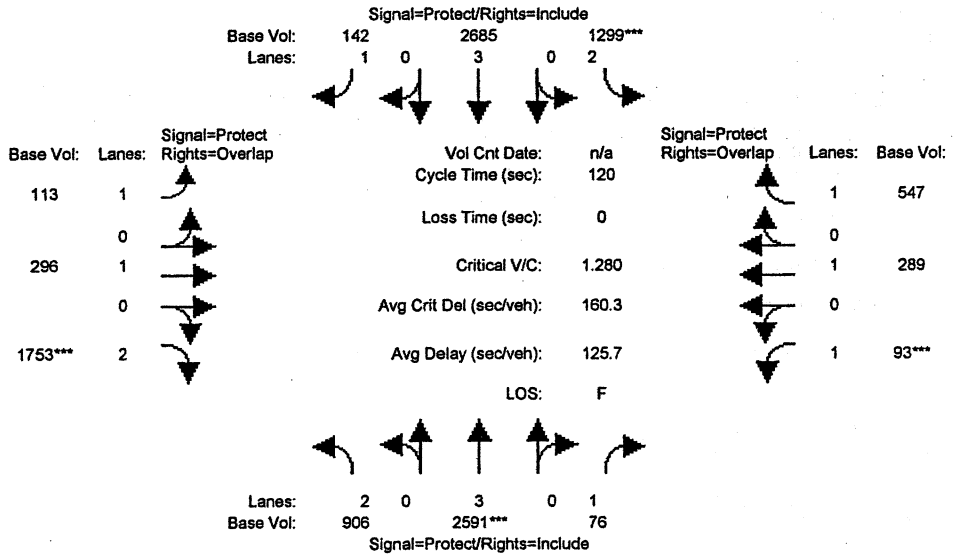
Intersection #3: Isabel/Airway



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	970	2547	99	516	1727	197	74	212	784	24	165	706
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:	970	2547	99	516	1727	197	74	212	784	24	165	706
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:	970	2547	99	516	1727	197	74	212	784	24	165	706
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	970	2547	99	516	1727	197	74	212	784	24	165	706
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.:	970	2547	99	516	1727	197	74	212	784	24	165	706
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	0.85	0.92	0.91	0.85	0.95	1.00	0.75	0.95	1.00	0.85
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00
Final Sat.:	3502	5187	1615	3502	5187	1615	1805	1900	2842	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.28	0.49	0.06	0.15	0.33	0.12	0.04	0.11	0.28	0.01	0.09	0.44
Crit Moves:		****		****			****					****
Green/Cycle:	0.30	0.51	0.51	0.15	0.36	0.36	0.04	0.30	0.60	0.04	0.30	0.45
Volume/Cap:	0.93	0.97	0.12	0.97	0.93	0.34	0.97	0.37	0.46	0.37	0.29	0.97
Uniform Del:	40.8	28.7	15.6	50.6	36.9	28.0	57.4	32.6	13.0	56.5	32.3	32.1
IncremntDel:	13.5	11.3	0.1	31.1	8.5	0.3	92.2	0.4	0.2	3.4	0.3	25.8
Delay 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
Delay/Veh:	54.3	40.0	15.6	81.7	45.4	28.4	149.6	33.0	13.2	59.9	32.6	57.9
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:	54.3	40.0	15.6	81.7	45.4	28.4	149.6	33.0	13.2	59.9	32.6	57.9
DesignQueue:	49	95	3	30	80	9	5	10	22	2	8	29

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

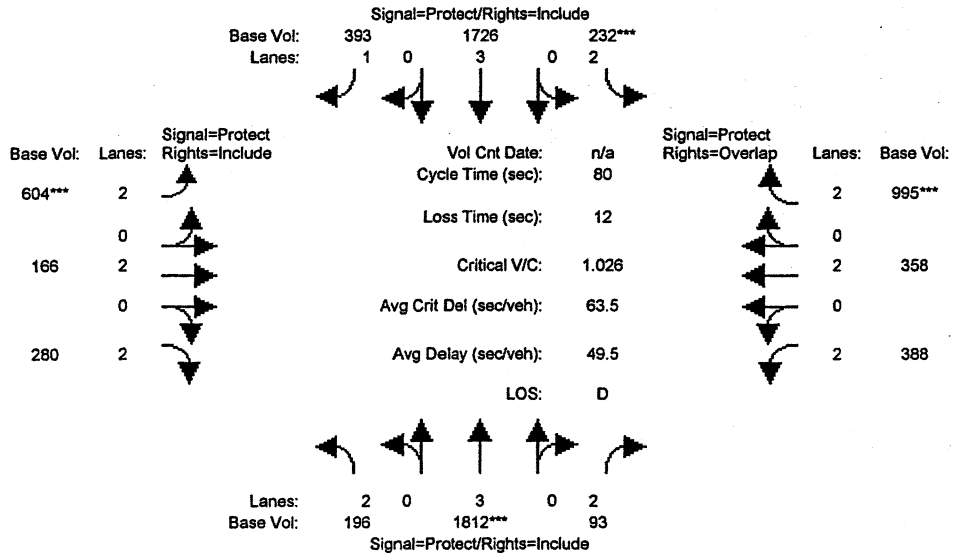
Intersection #3: Isabel/Airway



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	906	2591	76	1299	2685	142	113	296	1753	93	289	547
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:	906	2591	76	1299	2685	142	113	296	1753	93	289	547
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:	906	2591	76	1299	2685	142	113	296	1753	93	289	547
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	906	2591	76	1299	2685	142	113	296	1753	93	289	547
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.:	906	2591	76	1299	2685	142	113	296	1753	93	289	547
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	0.85	0.92	0.91	0.85	0.95	1.00	0.75	0.95	1.00	0.85
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00
Final Sat.:	3502	5187	1615	3502	5187	1615	1805	1900	2842	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.26	0.50	0.05	0.37	0.52	0.09	0.06	0.16	0.62	0.05	0.15	0.34
Crit Moves:		****		****					****	****		
Green/Cycle:	0.23	0.39	0.39	0.29	0.45	0.45	0.09	0.28	0.51	0.04	0.23	0.52
Volume/Cap:	1.14	1.28	0.12	1.28	1.14	0.19	0.67	0.56	1.22	1.28	0.67	0.66
Uniform Del:	46.4	36.6	23.4	42.6	32.8	19.7	52.6	36.9	29.6	57.6	42.3	21.2
IncremntDel:	78.6	130	0.1	133.6	69.4	0.1	10.1	1.3	104.7	198.1	4.1	1.9
Delay 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
Delay/Veh:	125.0	167	23.5	176.3	102	19.8	62.7	38.2	134.3	255.6	46.4	23.1
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:	125.0	167	23.5	176.3	102	19.8	62.7	38.2	134.3	255.6	46.4	23.1
DesignQueue:	50	120	3	68	112	5	7	15	66	6	16	19

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

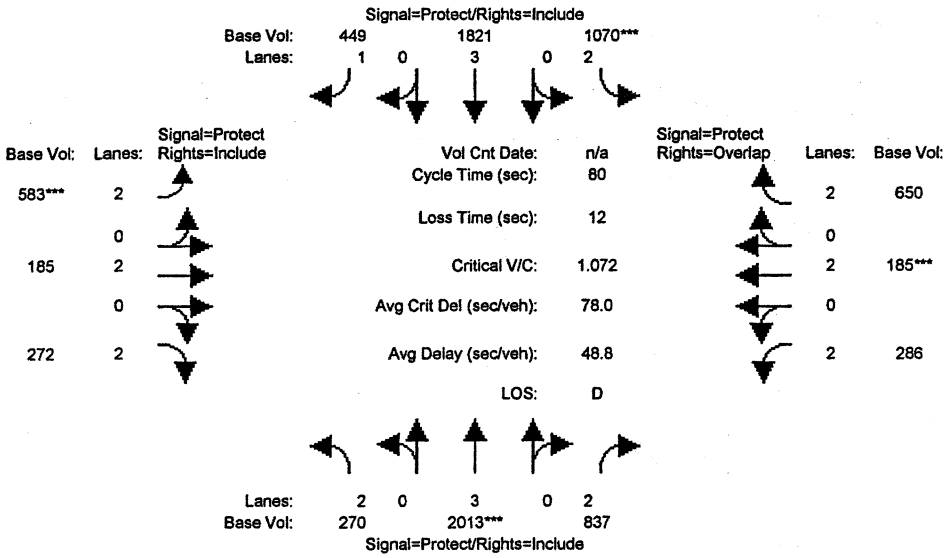
Intersection #4: East Jack London Boulevard/ Isabel Avenue-Kitty Hawk Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	196	1812	93	232	1726	393	604	166	280	388	358	995
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:	196	1812	93	232	1726	393	604	166	280	388	358	995
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:	196	1812	93	232	1726	393	604	166	280	388	358	995
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	196	1812	93	232	1726	393	604	166	280	388	358	995
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.:	196	1812	93	232	1726	393	604	166	280	388	358	995
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	0.75	0.92	0.91	0.85	0.92	0.95	0.75	0.92	0.95	0.75
Lanes:	2.00	3.00	2.00	2.00	3.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Final Sat.:	3502	5187	2842	3502	5187	1615	3502	3610	2842	3502	3610	2842
Capacity Analysis Module:												
Vol/Sat:	0.06	0.35	0.03	0.07	0.33	0.24	0.17	0.05	0.10	0.11	0.10	0.35
Crit Moves:		****			****			****				****
Green/Cycle:	0.06	0.34	0.34	0.06	0.35	0.35	0.17	0.21	0.21	0.24	0.28	0.34
Volume/Cap:	0.96	1.03	0.10	1.03	0.96	0.70	1.03	0.22	0.47	0.47	0.36	1.03
Uniform Del:	37.6	26.4	18.0	37.4	25.6	22.6	33.3	26.2	27.7	26.3	23.2	26.3
IncremntDel:	51.2	28.2	0.0	66.7	12.9	4.0	43.8	0.1	0.6	0.4	0.2	35.6
Delay 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
Delay/Veh:	88.8	54.6	18.0	104.1	38.5	26.5	77.1	26.4	28.3	26.7	23.5	62.0
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:	88.8	54.6	18.0	104.1	38.5	26.5	77.1	26.4	28.3	26.7	23.5	62.0
DesignQueue:	8	58	3	10	54	12	23	6	10	14	12	31

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

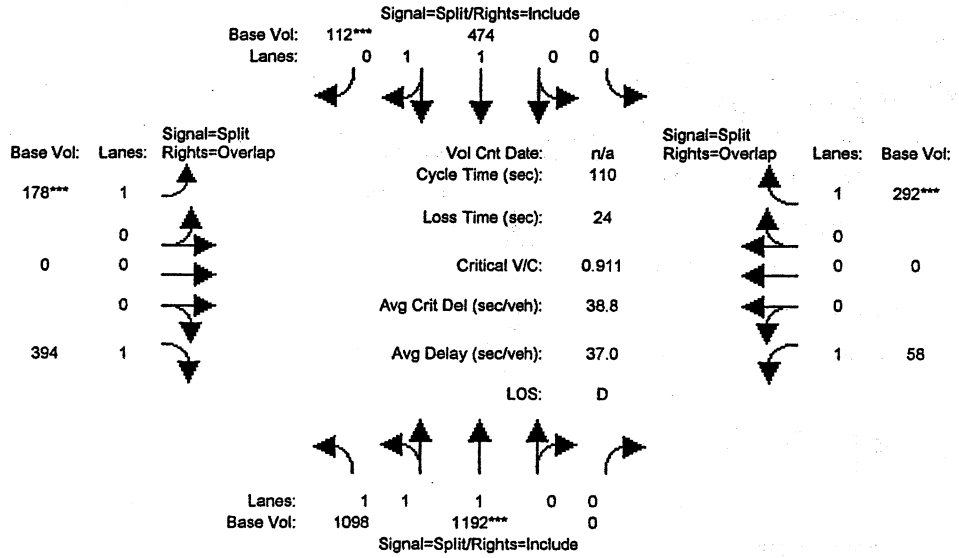
Intersection #4: East Jack London Boulevard/ Isabel Avenue-Kitty Hawk Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	270	2013	837	1070	1821	449	583	185	272	286	185	650
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:	270	2013	837	1070	1821	449	583	185	272	286	185	650
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:	270	2013	837	1070	1821	449	583	185	272	286	185	650
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	270	2013	837	1070	1821	449	583	185	272	286	185	650
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.:	270	2013	837	1070	1821	449	583	185	272	286	185	650
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	0.75	0.92	0.91	0.85	0.92	0.95	0.75	0.92	0.95	0.75
Lanes:	2.00	3.00	2.00	2.00	3.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Final Sat.:	3502	5187	2842	3502	5187	1615	3502	3610	2842	3502	3610	2842
Capacity Analysis Module:												
Vol/Sat:	0.08	0.39	0.29	0.31	0.35	0.28	0.17	0.05	0.10	0.08	0.05	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.12	0.36	0.36	0.28	0.53	0.53	0.16	0.11	0.11	0.09	0.05	0.33
Volume/Cap:	0.66	1.07	0.81	1.07	0.66	0.52	1.07	0.47	0.87	0.87	1.07	0.69
Uniform Del:	33.8	25.5	23.1	28.6	13.6	12.2	33.8	33.4	35.1	35.8	38.1	23.1
IncremntDel:	4.0	43.2	5.1	49.9	0.6	0.6	59.4	0.9	22.7	21.9	89.0	2.1
Delay 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
Delay/Veh:	37.9	68.7	28.1	78.5	14.2	12.8	93.2	34.3	57.8	57.7	127	25.2
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:	37.9	68.7	28.1	78.5	14.2	12.8	93.2	34.3	57.8	57.7	127	25.2
DesignQueue:	11	63	25	37	42	10	23	7	11	12	8	20

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

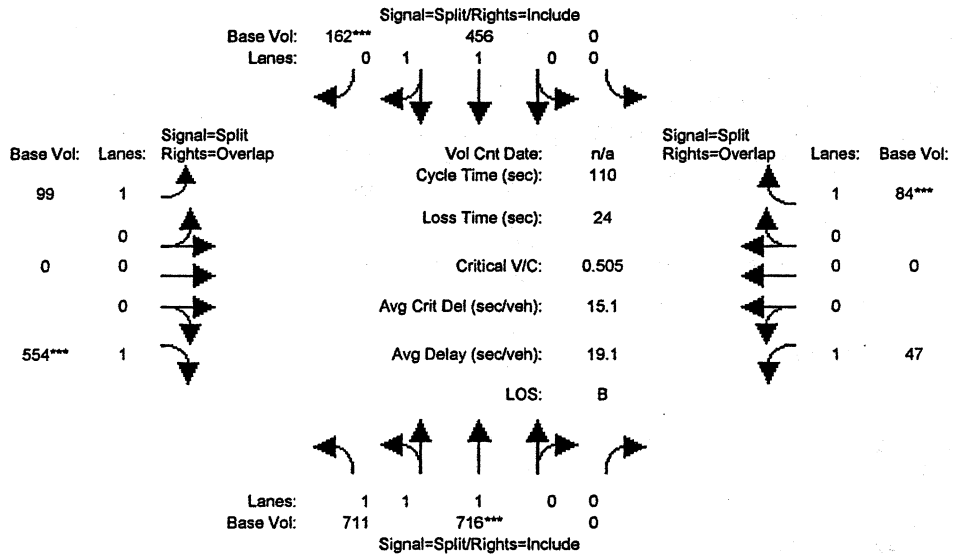
Intersection #5: Jack London Boulevard/ Murrieta Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	1098	1192	0	0	474	112	178	0	394	58	0	292
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:	1098	1192	0	0	474	112	178	0	394	58	0	292
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:	1098	1192	0	0	474	112	178	0	394	58	0	292
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1098	1192	0	0	474	112	178	0	394	58	0	292
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.:	1098	1192	0	0	474	112	178	0	394	58	0	292
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	1.00	1.00	0.92	0.92	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.44	1.56	0.00	0.00	1.62	0.38	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	2537	2754	0	0	2835	670	1805	0	1615	1805	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.43	0.43	0.00	0.00	0.17	0.17	0.10	0.00	0.24	0.03	0.00	0.18
Crit Moves:		****				****	****					****
Green/Cycle:	0.48	0.48	0.00	0.00	0.18	0.18	0.11	0.00	0.58	0.20	0.00	0.38
Volume/Cap:	0.91	0.91	0.00	0.00	0.91	0.91	0.91	0.00	0.42	0.16	0.00	0.47
Uniform Del:	26.7	26.7	0.0	0.0	44.0	44.0	48.5	0.0	12.6	36.5	0.0	25.6
IncremntDel:	5.5	5.5	0.0	0.0	17.2	17.2	40.3	0.0	0.3	0.2	0.0	0.6
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Delay/Veh:	32.2	32.2	0.0	0.0	61.2	61.2	88.8	0.0	12.9	36.7	0.0	26.2
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:	32.2	32.2	0.0	0.0	61.2	61.2	88.8	0.0	12.9	36.7	0.0	26.2
DesignQueue:	39	43	0	0	25	6	10	0	11	3	0	11

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

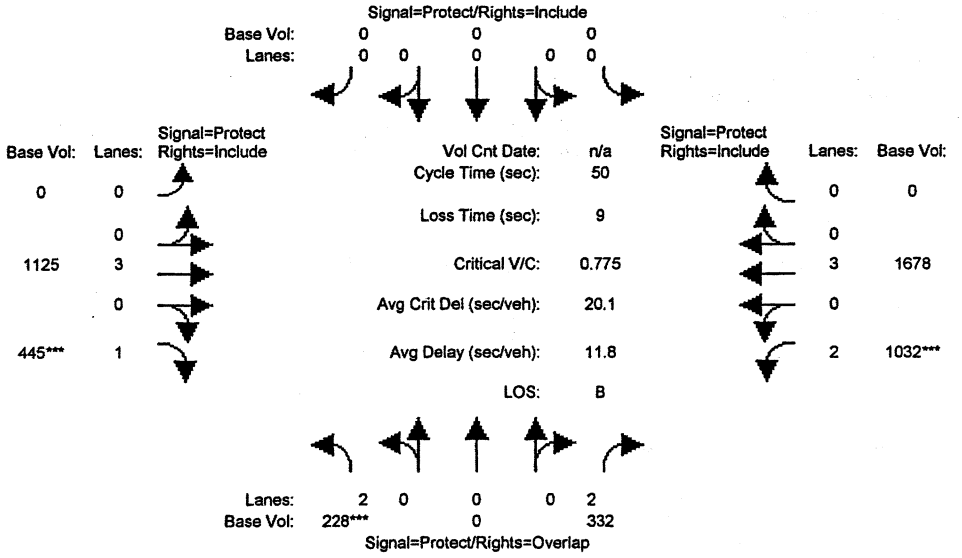
Intersection #5: Jack London Boulevard/ Murrieta Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	711	716	0	0	456	162	99	0	554	47	0	84
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:	711	716	0	0	456	162	99	0	554	47	0	84
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:	711	716	0	0	456	162	99	0	554	47	0	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	711	716	0	0	456	162	99	0	554	47	0	84
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.:	711	716	0	0	456	162	99	0	554	47	0	84
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	1.00	1.00	0.91	0.91	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.49	1.51	0.00	0.00	1.48	0.52	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	2633	2652	0	0	2560	909	1805	0	1615	1805	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.27	0.27	0.00	0.00	0.18	0.18	0.05	0.00	0.34	0.03	0.00	0.05
Crit Moves:		****				****			****			****
Green/Cycle:	0.53	0.53	0.00	0.00	0.35	0.35	0.14	0.00	0.68	0.10	0.00	0.46
Volume/Cap:	0.51	0.51	0.00	0.00	0.51	0.51	0.38	0.00	0.51	0.25	0.00	0.11
Uniform Del:	16.3	16.3	0.0	0.0	28.1	28.1	42.6	0.0	8.6	45.4	0.0	17.2
IncremntDel:	0.1	0.1	0.0	0.0	0.3	0.3	0.9	0.0	0.4	0.7	0.0	0.1
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Delay/Veh:	16.5	16.5	0.0	0.0	28.4	28.4	43.5	0.0	9.0	46.2	0.0	17.3
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:	16.5	16.5	0.0	0.0	28.4	28.4	43.5	0.0	9.0	46.2	0.0	17.3
DesignQueue:	22	22	0	0	19	7	5	0	12	3	0	3

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

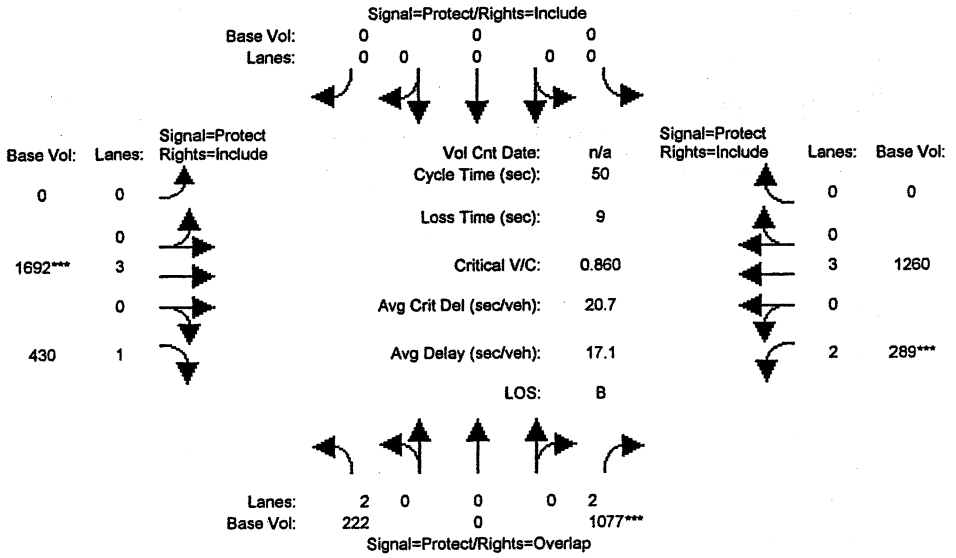
Intersection #6: East Stanley Boulevard/ Isabel Connector Ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	228	0	332	0	0	0	0	1125	445	1032	1678	0
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:	228	0	332	0	0	0	0	1125	445	1032	1678	0
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:	228	0	332	0	0	0	0	1125	445	1032	1678	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	228	0	332	0	0	0	0	1125	445	1032	1678	0
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.:	228	0	332	0	0	0	0	1125	445	1032	1678	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.75	1.00	1.00	1.00	1.00	0.91	0.85	0.92	0.91	1.00
Lanes:	2.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	1.00	2.00	3.00	0.00
Final Sat.:	3502	0	2842	0	0	0	0	5187	1615	3502	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.12	0.00	0.00	0.00	0.00	0.22	0.28	0.29	0.32	0.00
Crit Moves:	****								****	****		
Green/Cycle:	0.08	0.00	0.46	0.00	0.00	0.00	0.00	0.36	0.36	0.38	0.74	0.00
Volume/Cap:	0.77	0.00	0.25	0.00	0.00	0.00	0.00	0.61	0.77	0.77	0.44	0.00
Uniform Del:	22.4	0.0	8.1	0.0	0.0	0.0	0.0	13.3	14.3	13.6	2.6	0.0
IncremntDel:	12.1	0.0	0.1	0.0	0.0	0.0	0.0	0.6	6.5	2.9	0.1	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	34.6	0.0	8.2	0.0	0.0	0.0	0.0	13.9	20.9	16.5	2.7	0.0
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:	34.6	0.0	8.2	0.0	0.0	0.0	0.0	13.9	20.9	16.5	2.7	0.0
DesignQueue:	6	0	5	0	0	0	0	21	8	19	13	0

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

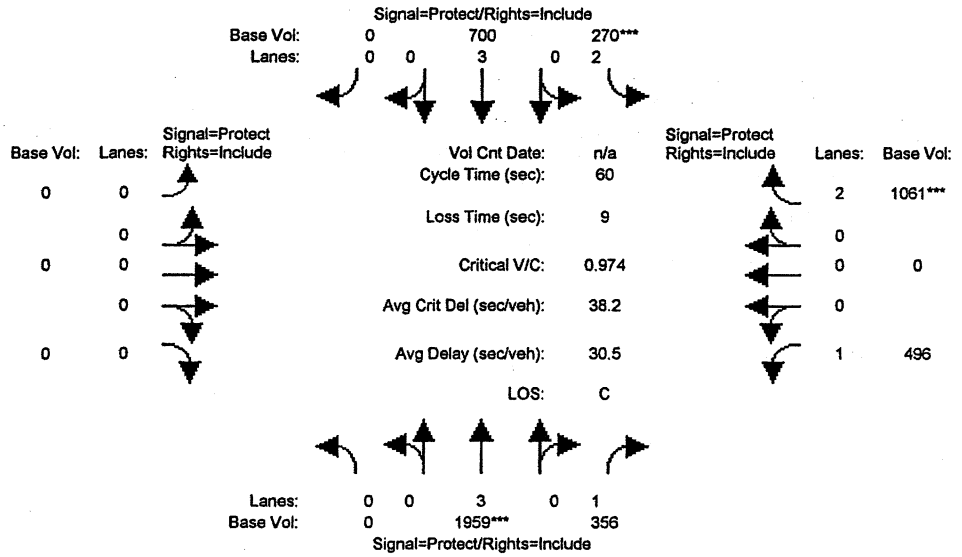
Intersection #6: East Stanley Boulevard/ Isabel Connector Ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	222	0	1077	0	0	0	0	1692	430	289	1260	0
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:	222	0	1077	0	0	0	0	1692	430	289	1260	0
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:	222	0	1077	0	0	0	0	1692	430	289	1260	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	222	0	1077	0	0	0	0	1692	430	289	1260	0
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.:	222	0	1077	0	0	0	0	1692	430	289	1260	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.75	1.00	1.00	1.00	1.00	0.91	0.85	0.92	0.91	1.00
Lanes:	2.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	1.00	2.00	3.00	0.00
Final Sat.:	3502	0	2842	0	0	0	0	5187	1615	3502	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.38	0.00	0.00	0.00	0.00	0.33	0.27	0.08	0.24	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.34	0.00	0.44	0.00	0.00	0.00	0.00	0.38	0.38	0.10	0.48	0.00
Volume/Cap:	0.18	0.00	0.86	0.00	0.00	0.00	0.00	0.86	0.70	0.86	0.51	0.00
Uniform Del:	11.5	0.0	12.6	0.0	0.0	0.0	0.0	14.3	13.1	22.3	9.1	0.0
IncremntDel:	0.1	0.0	6.2	0.0	0.0	0.0	0.0	4.1	3.7	19.5	0.2	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	11.5	0.0	18.8	0.0	0.0	0.0	0.0	18.4	16.8	41.7	9.3	0.0
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:	11.5	0.0	18.8	0.0	0.0	0.0	0.0	18.4	16.8	41.7	9.3	0.0
DesignQueue:	4	0	18	0	0	0	0	32	8	7	20	0

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

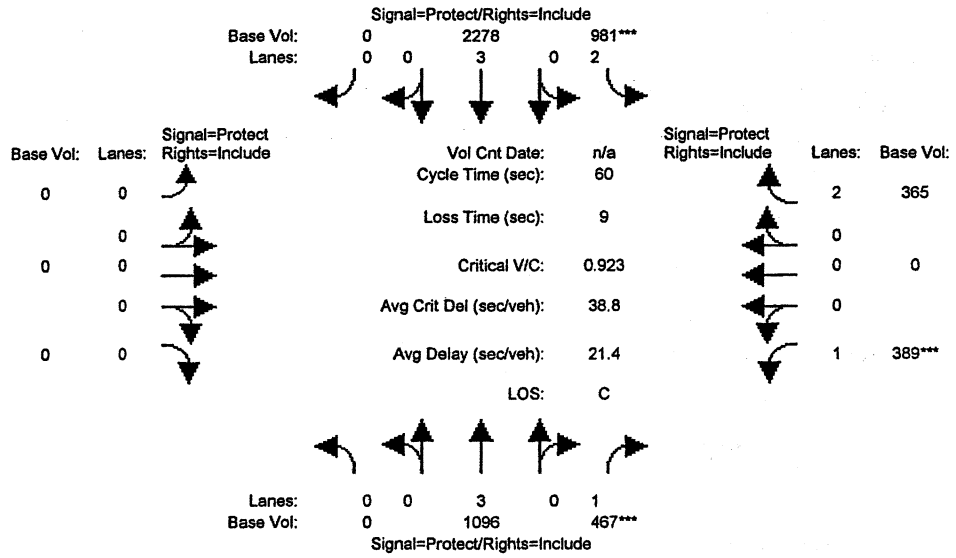
Intersection #7: Isable Avenue/Stanley Connector Ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1959	356	270	700	0	0	0	0	496	0	1061
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:	0	1959	356	270	700	0	0	0	0	496	0	1061
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:	0	1959	356	270	700	0	0	0	0	496	0	1061
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1959	356	270	700	0	0	0	0	496	0	1061
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.:	0	1959	356	270	700	0	0	0	0	496	0	1061
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.85	0.92	0.91	1.00	1.00	1.00	1.00	0.95	1.00	0.75
Lanes:	0.00	3.00	1.00	2.00	3.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00
Final Sat.:	0	5187	1615	3502	5187	0	0	0	0	1805	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.38	0.22	0.08	0.13	0.00	0.00	0.00	0.00	0.27	0.00	0.37
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.39	0.39	0.08	0.47	0.00	0.00	0.00	0.00	0.38	0.00	0.38
Volume/Cap:	0.00	0.97	0.57	0.97	0.29	0.00	0.00	0.00	0.00	0.72	0.00	0.97
Uniform Del:	0.0	18.1	14.4	27.6	9.9	0.0	0.0	0.0	0.0	15.7	0.0	18.2
IncremntDel:	0.0	14.4	1.2	46.8	0.1	0.0	0.0	0.0	0.0	3.6	0.0	21.2
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	32.5	15.7	74.3	9.9	0.0	0.0	0.0	0.0	19.4	0.0	39.4
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:	0.0	32.5	15.7	74.3	9.9	0.0	0.0	0.0	0.0	19.4	0.0	39.4
DesignQueue:	0	44	8	8	13	0	0	0	0	11	0	24

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

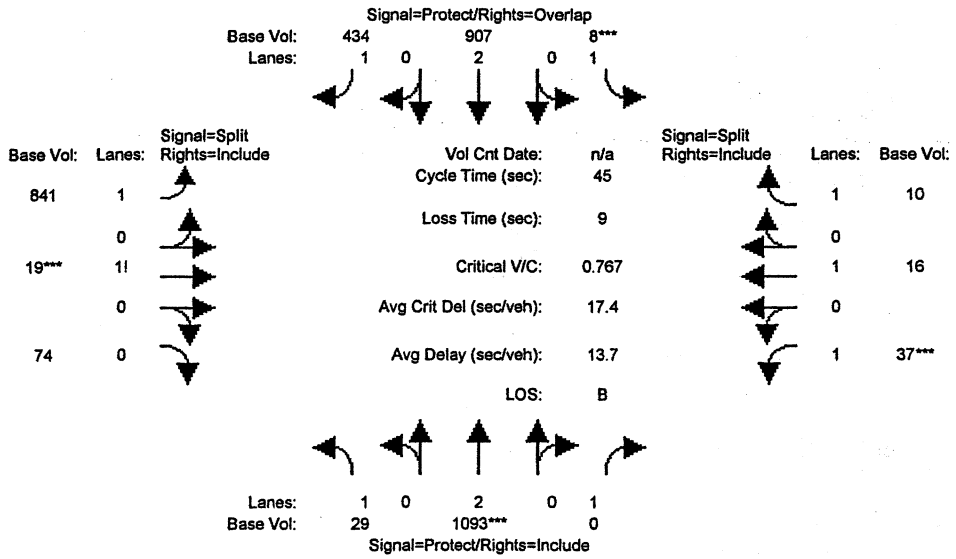
Intersection #7: Isable Avenue/Stanley Connector Ramp



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1096	467	981	2278	0	0	0	0	389	0	365
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:	0	1096	467	981	2278	0	0	0	0	389	0	365
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:	0	1096	467	981	2278	0	0	0	0	389	0	365
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1096	467	981	2278	0	0	0	0	389	0	365
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.:	0	1096	467	981	2278	0	0	0	0	389	0	365
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.85	0.92	0.91	1.00	1.00	1.00	1.00	0.95	1.00	0.75
Lanes:	0.00	3.00	1.00	2.00	3.00	0.00	0.00	0.00	0.00	1.00	0.00	2.00
Final Sat.:	0	5187	1615	3502	5187	0	0	0	0	1805	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.29	0.28	0.44	0.00	0.00	0.00	0.00	0.22	0.00	0.13
Crit Moves:			****	****						****		
Green/Cycle:	0.00	0.31	0.31	0.30	0.62	0.00	0.00	0.00	0.00	0.23	0.00	0.23
Volume/Cap:	0.00	0.67	0.92	0.92	0.71	0.00	0.00	0.00	0.00	0.92	0.00	0.55
Uniform Del:	0.0	17.9	19.9	20.2	7.9	0.0	0.0	0.0	0.0	22.5	0.0	20.2
IncremntDel:	0.0	1.1	22.7	13.0	0.8	0.0	0.0	0.0	0.0	25.8	0.0	1.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	19.1	42.6	33.2	8.6	0.0	0.0	0.0	0.0	48.3	0.0	21.2
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:	0.0	19.1	42.6	33.2	8.6	0.0	0.0	0.0	0.0	48.3	0.0	21.2
DesignQueue:	0	26	11	24	33	0	0	0	0	11	0	10

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

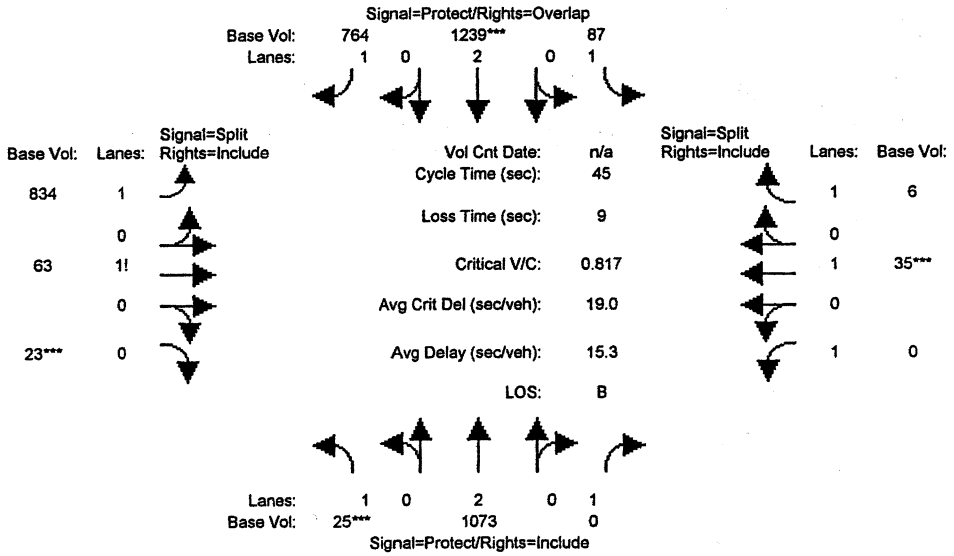
Intersection #8: East Vineyard Avenue/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	29	1093	0	8	907	434	841	19	74	37	16	10
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:	29	1093	0	8	907	434	841	19	74	37	16	10
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:	29	1093	0	8	907	434	841	19	74	37	16	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	1093	0	8	907	434	841	19	74	37	16	10
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.:	29	1093	0	8	907	434	841	19	74	37	16	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	0.95	0.95	0.85	0.95	0.95	0.95	0.95	1.00	0.85
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.82	0.04	0.14	1.00	1.00	1.00
Final Sat.:	1805	3610	1900	1805	3610	1615	3268	66	259	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.30	0.00	0.00	0.25	0.27	0.26	0.29	0.29	0.02	0.01	0.01
Crit Moves:		****		****				****		****		
Green/Cycle:	0.02	0.39	0.00	0.01	0.38	0.75	0.37	0.37	0.37	0.03	0.03	0.03
Volume/Cap:	0.67	0.77	0.00	0.77	0.67	0.36	0.69	0.77	0.77	0.77	0.32	0.23
Uniform Del:	21.8	11.8	0.0	22.3	11.7	1.9	11.9	12.4	12.4	21.8	21.5	21.4
IncremntDel:	33.2	2.6	0.0	148.8	1.3	0.2	1.5	3.0	3.0	52.0	3.5	2.7
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	55.0	14.4	0.0	171.1	13.0	2.1	13.5	15.4	15.4	73.8	25.0	24.2
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:	55.0	14.4	0.0	171.1	13.0	2.1	13.5	15.4	15.4	73.8	25.0	24.2
DesignQueue:	1	18	0	0	15	3	14	0	1	1	0	0

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

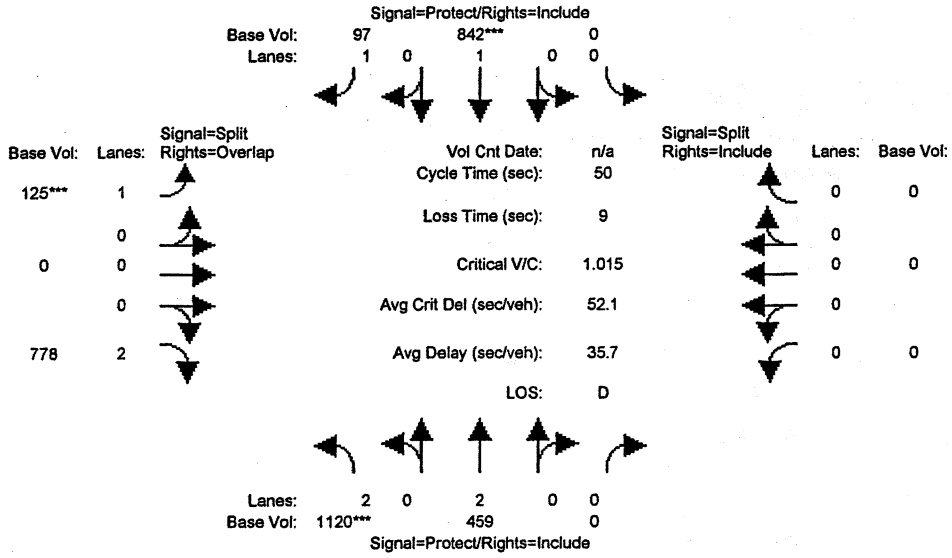
Intersection #8: East Vineyard Avenue/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	25	1073	0	87	1239	764	834	63	23	0	35	6
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:	25	1073	0	87	1239	764	834	63	23	0	35	6
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:	25	1073	0	87	1239	764	834	63	23	0	35	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	1073	0	87	1239	764	834	63	23	0	35	6
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.:	25	1073	0	87	1239	764	834	63	23	0	35	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	0.95	0.95	0.85	0.95	0.95	0.95	1.00	1.00	0.85
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.83	0.12	0.05	1.00	1.00	1.00
Final Sat.:	1805	3610	1900	1805	3610	1615	3312	227	83	1900	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.30	0.00	0.05	0.34	0.47	0.25	0.28	0.28	0.00	0.02	0.00
Crit Moves:	****				****				****		****	
Green/Cycle:	0.02	0.38	0.00	0.06	0.42	0.76	0.34	0.34	0.34	0.00	0.02	0.02
Volume/Cap:	0.82	0.79	0.00	0.79	0.82	0.62	0.74	0.82	0.82	0.00	0.82	0.16
Uniform Del:	22.0	12.5	0.0	20.8	11.5	2.4	13.1	13.6	13.6	0.0	21.9	21.6
IncremntDel:	89.0	3.2	0.0	30.9	3.6	1.0	2.4	4.7	4.7	0.0	71.0	2.1
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Delay/Veh:	111.0	15.7	0.0	51.7	15.1	3.4	15.5	18.3	18.3	0.0	92.9	23.7
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:	111.0	15.7	0.0	51.7	15.1	3.4	15.5	18.3	18.3	0.0	92.9	23.7
DesignQueue:	1	18	0	2	20	5	15	1	0	0	1	0

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

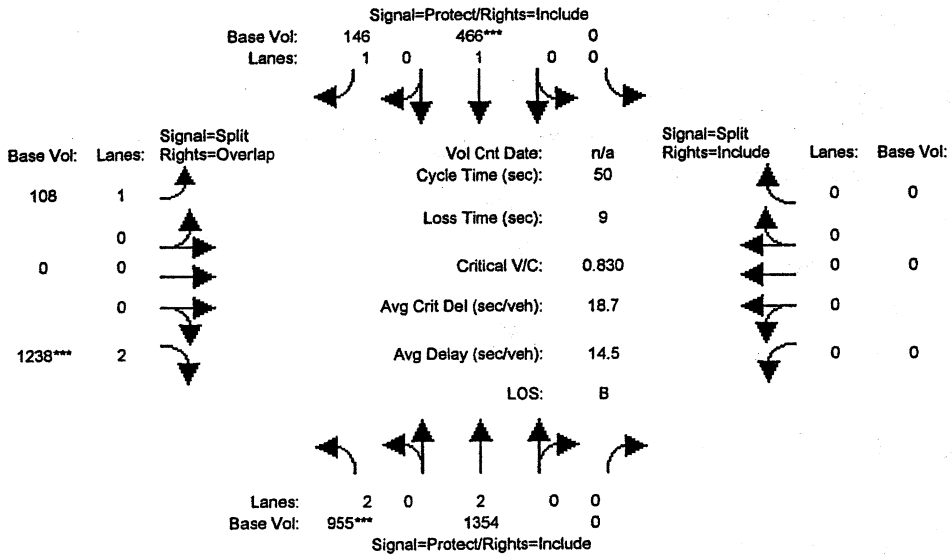
Intersection #9: Vallecitos Road/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	1120	459	0	0	842	97	125	0	778	0	0	0
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:	1120	459	0	0	842	97	125	0	778	0	0	0
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:	1120	459	0	0	842	97	125	0	778	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1120	459	0	0	842	97	125	0	778	0	0	0
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.:	1120	459	0	0	842	97	125	0	778	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	1.00	1.00	1.00	0.85	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	3610	0	0	1900	1615	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.32	0.13	0.00	0.00	0.44	0.06	0.07	0.00	0.27	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.32	0.75	0.00	0.00	0.44	0.44	0.07	0.00	0.38	0.00	0.00	0.00
Volume/Cap:	1.01	0.17	0.00	0.00	1.01	0.14	1.01	0.00	0.71	0.00	0.00	0.00
Uniform Del:	17.1	1.8	0.0	0.0	14.1	8.4	23.3	0.0	13.1	0.0	0.0	0.0
IncremntDel:	30.9	0.0	0.0	0.0	35.0	0.1	85.1	0.0	2.3	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	48.0	1.8	0.0	0.0	49.1	8.5	108.4	0.0	15.4	0.0	0.0	0.0
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:	48.0	1.8	0.0	0.0	49.1	8.5	108.4	0.0	15.4	0.0	0.0	0.0
DesignQueue:	23	3	0	0	15	2	3	0	14	0	0	0

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

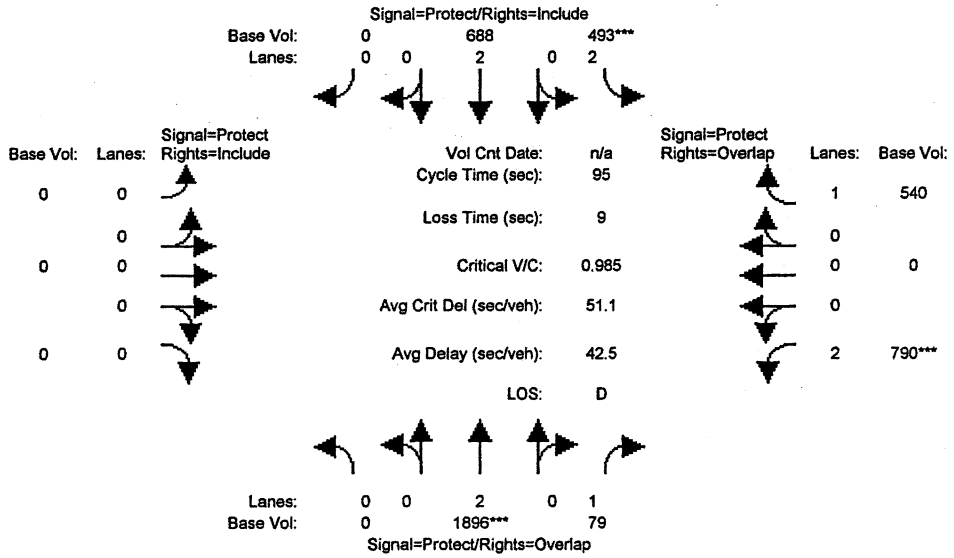
Intersection #9: Vallecitos Road/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	955	1354	0	0	466	146	108	0	1238	0	0	0
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:	955	1354	0	0	466	146	108	0	1238	0	0	0
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:	955	1354	0	0	466	146	108	0	1238	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	955	1354	0	0	466	146	108	0	1238	0	0	0
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.:	955	1354	0	0	466	146	108	0	1238	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	1.00	1.00	1.00	0.85	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	3610	0	0	1900	1615	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.27	0.38	0.00	0.00	0.25	0.09	0.06	0.00	0.44	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.33	0.62	0.00	0.00	0.30	0.30	0.20	0.00	0.52	0.00	0.00	0.00
Volume/Cap:	0.83	0.60	0.00	0.00	0.83	0.31	0.31	0.00	0.83	0.00	0.00	0.00
Uniform Del:	15.5	5.7	0.0	0.0	16.4	13.6	17.2	0.0	10.0	0.0	0.0	0.0
IncremntDel:	5.2	0.5	0.0	0.0	10.1	0.4	0.5	0.0	4.1	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	20.7	6.1	0.0	0.0	26.5	14.0	17.7	0.0	14.1	0.0	0.0	0.0
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:	20.7	6.1	0.0	0.0	26.5	14.0	17.7	0.0	14.1	0.0	0.0	0.0
DesignQueue:	19	16	0	0	10	3	2	0	18	0	0	0

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

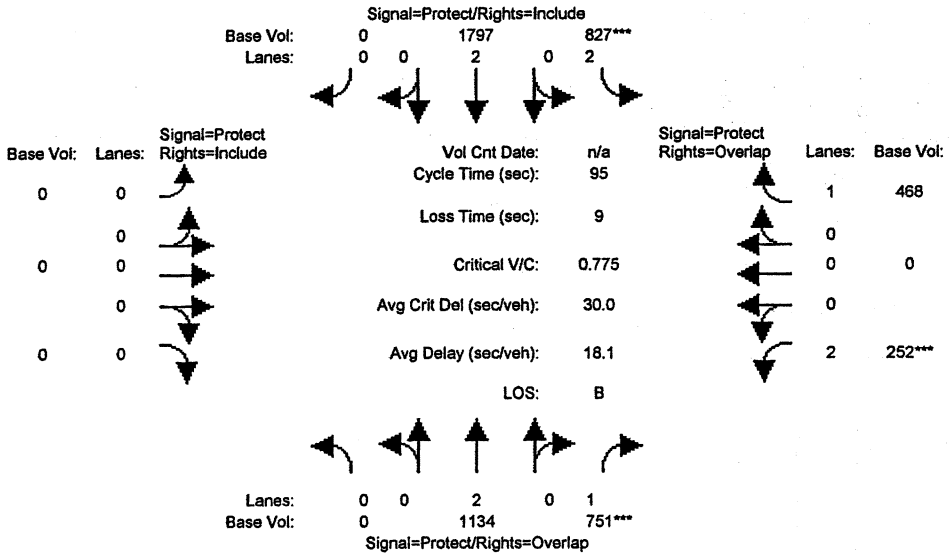
Intersection #10: Concannon Boulevard/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1896	79	493	688	0	0	0	0	790	0	540
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:	0	1896	79	493	688	0	0	0	0	790	0	540
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:	0	1896	79	493	688	0	0	0	0	790	0	540
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1896	79	493	688	0	0	0	0	790	0	540
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.:	0	1896	79	493	688	0	0	0	0	790	0	540
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.92	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	3502	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.53	0.05	0.14	0.19	0.00	0.00	0.00	0.00	0.23	0.00	0.33
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.53	0.76	0.14	0.68	0.00	0.00	0.00	0.00	0.23	0.00	0.37
Volume/Cap:	0.00	0.98	0.06	0.98	0.28	0.00	0.00	0.00	0.00	0.98	0.00	0.90
Uniform Del:	0.0	21.8	2.8	40.6	6.2	0.0	0.0	0.0	0.0	36.5	0.0	28.1
IncremntDel:	0.0	17.0	0.0	36.2	0.1	0.0	0.0	0.0	0.0	27.9	0.0	16.4
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	38.8	2.8	76.8	6.2	0.0	0.0	0.0	0.0	64.4	0.0	44.5
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:	0.0	38.8	2.8	76.8	6.2	0.0	0.0	0.0	0.0	64.4	0.0	44.5
DesignQueue:	0	54	1	23	12	0	0	0	0	34	0	19

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

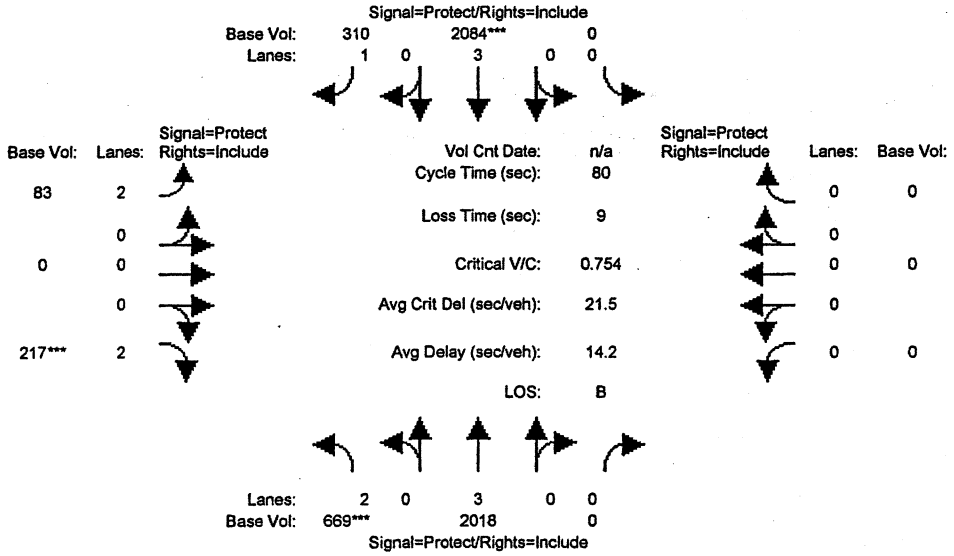
Intersection #10: Concannon Boulevard/ Isabel Avenue



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1134	751	827	1797	0	0	0	0	252	0	468
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:	0	1134	751	827	1797	0	0	0	0	252	0	468
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:	0	1134	751	827	1797	0	0	0	0	252	0	468
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1134	751	827	1797	0	0	0	0	252	0	468
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.:	0	1134	751	827	1797	0	0	0	0	252	0	468
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.92	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	3502	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.31	0.47	0.24	0.50	0.00	0.00	0.00	0.00	0.07	0.00	0.29
Crit Moves:			****	****						****		
Green/Cycle:	0.00	0.51	0.60	0.30	0.81	0.00	0.00	0.00	0.00	0.09	0.00	0.40
Volume/Cap:	0.00	0.62	0.77	0.77	0.61	0.00	0.00	0.00	0.00	0.77	0.00	0.73
Uniform Del:	0.0	16.8	14.2	30.0	3.3	0.0	0.0	0.0	0.0	42.1	0.0	24.3
IncremntDel:	0.0	0.7	4.0	3.6	0.4	0.0	0.0	0.0	0.0	11.0	0.0	4.2
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	17.5	18.1	33.7	3.7	0.0	0.0	0.0	0.0	53.2	0.0	28.5
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:	0.0	17.5	18.1	33.7	3.7	0.0	0.0	0.0	0.0	53.2	0.0	28.5
DesignQueue:	0	32	18	32	20	0	0	0	0	12	0	16

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

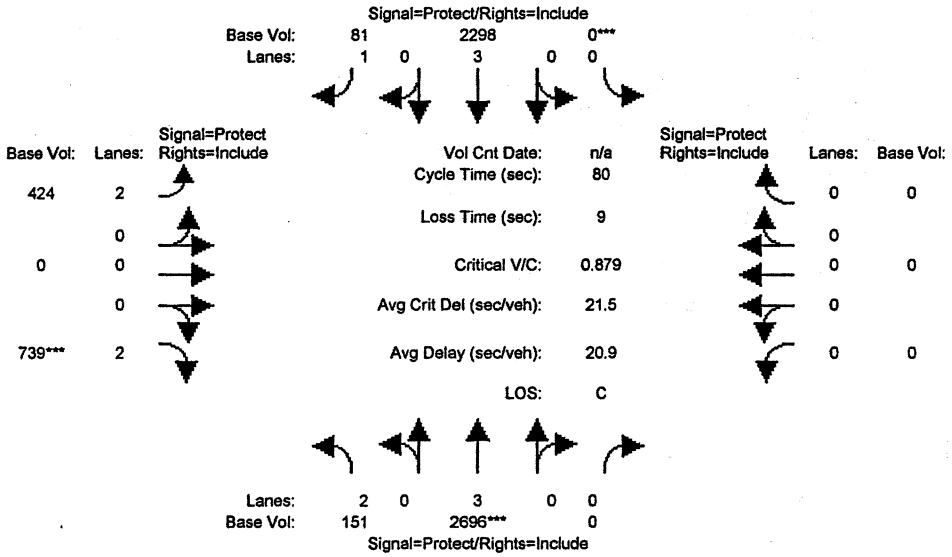
Intersection #11: Isabel Avenue/ Voyager



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	669	2018	0	0	2084	310	83	0	217	0	0	0
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:	669	2018	0	0	2084	310	83	0	217	0	0	0
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:	669	2018	0	0	2084	310	83	0	217	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	669	2018	0	0	2084	310	83	0	217	0	0	0
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.:	669	2018	0	0	2084	310	83	0	217	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	1.00	1.00	0.91	0.85	0.92	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	3.00	0.00	0.00	3.00	1.00	2.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	5187	0	0	5187	1615	3502	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.19	0.39	0.00	0.00	0.40	0.19	0.02	0.00	0.08	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.25	0.79	0.00	0.00	0.53	0.53	0.10	0.00	0.10	0.00	0.00	0.00
Volume/Cap:	0.75	0.49	0.00	0.00	0.75	0.36	0.23	0.00	0.75	0.00	0.00	0.00
Uniform Del:	27.6	3.0	0.0	0.0	14.6	10.8	33.1	0.0	35.0	0.0	0.0	0.0
IncremntDel:	3.7	0.1	0.0	0.0	1.2	0.3	0.3	0.0	10.8	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	31.3	3.1	0.0	0.0	15.8	11.1	33.4	0.0	45.7	0.0	0.0	0.0
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:	31.3	3.1	0.0	0.0	15.8	11.1	33.4	0.0	45.7	0.0	0.0	0.0
DesignQueue:	23	21	0	0	48	7	3	0	9	0	0	0

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

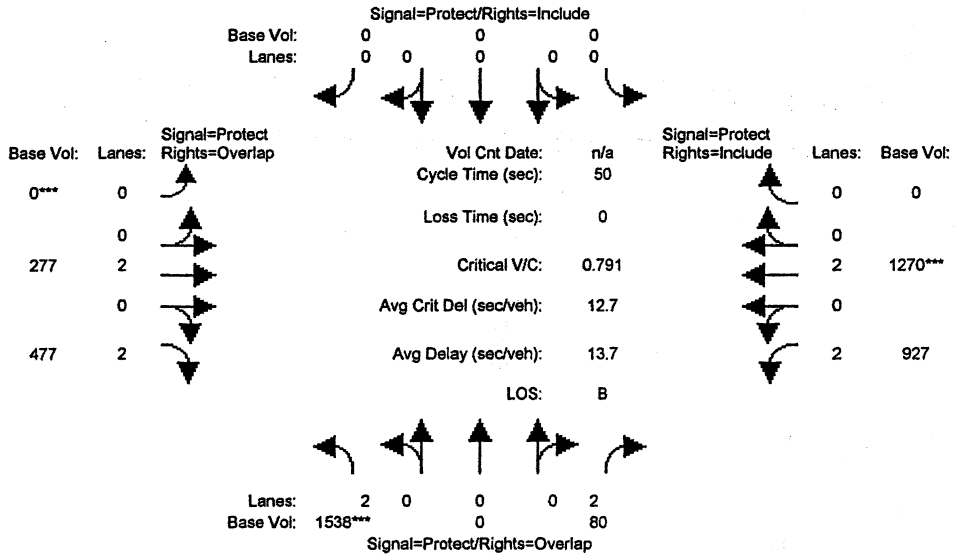
Intersection #11: Isabel Avenue/ Voyager



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	151	2696	0	0	2298	81	424	0	739	0	0	0
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:	151	2696	0	0	2298	81	424	0	739	0	0	0
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:	151	2696	0	0	2298	81	424	0	739	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	151	2696	0	0	2298	81	424	0	739	0	0	0
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.:	151	2696	0	0	2298	81	424	0	739	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.91	1.00	1.00	0.91	0.85	0.92	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	3.00	0.00	0.00	3.00	1.00	2.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	5187	0	0	5187	1615	3502	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.52	0.00	0.00	0.44	0.05	0.12	0.00	0.26	0.00	0.00	0.00
Crit Moves:		****		****					****			
Green/Cycle:	0.05	0.59	0.00	0.00	0.54	0.54	0.30	0.00	0.30	0.00	0.00	0.00
Volume/Cap:	0.82	0.88	0.00	0.00	0.82	0.09	0.41	0.00	0.88	0.00	0.00	0.00
Uniform Del:	37.5	13.9	0.0	0.0	15.3	8.9	22.6	0.0	26.8	0.0	0.0	0.0
IncremntDel:	24.7	3.2	0.0	0.0	2.1	0.0	0.3	0.0	10.5	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	62.2	17.1	0.0	0.0	17.3	9.0	22.8	0.0	37.3	0.0	0.0	0.0
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:	62.2	17.1	0.0	0.0	17.3	9.0	22.8	0.0	37.3	0.0	0.0	0.0
DesignQueue:	6	56	0	0	53	2	14	0	24	0	0	0

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

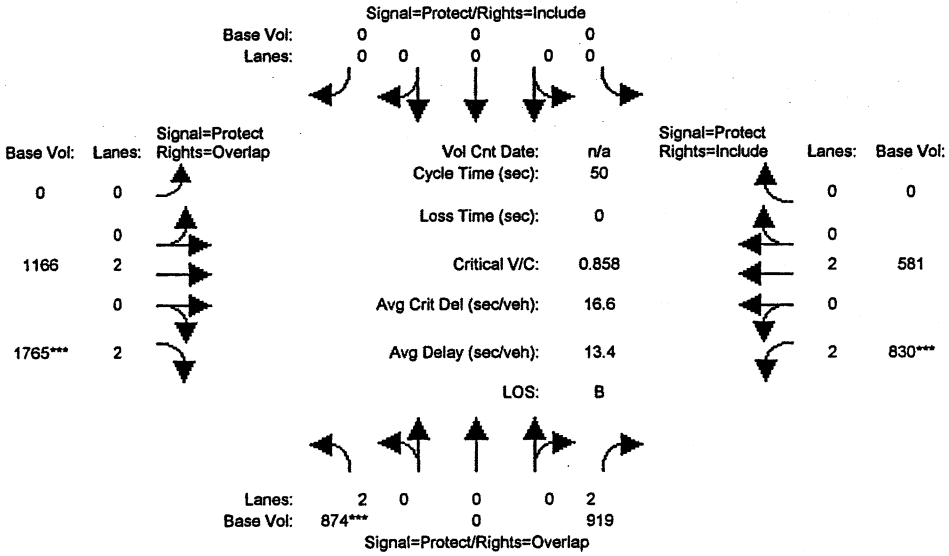
Intersection #12: Isabel/Portola Extension



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	1538	0	80	0	0	0	0	277	477	927	1270	0
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:	1538	0	80	0	0	0	0	277	477	927	1270	0
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:	1538	0	80	0	0	0	0	277	477	927	1270	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1538	0	80	0	0	0	0	277	477	927	1270	0
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.:	1538	0	80	0	0	0	0	277	477	927	1270	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.75	1.00	1.00	1.00	1.00	0.95	0.75	0.92	0.95	1.00
Lanes:	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Final Sat.:	3502	0	2842	0	0	0	0	3610	2842	3502	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.44	0.00	0.03	0.00	0.00	0.00	0.00	0.08	0.17	0.26	0.35	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.56	0.00	0.90	0.00	0.00	0.00	0.00	0.10	0.66	0.34	0.44	0.00
Volume/Cap:	0.79	0.00	0.03	0.00	0.00	0.00	0.00	0.77	0.26	0.77	0.79	0.00
Uniform Del:	8.8	0.0	0.3	0.0	0.0	0.0	0.0	21.9	3.6	14.6	11.9	0.0
IncremntDel:	2.3	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.1	3.0	2.8	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	11.1	0.0	0.3	0.0	0.0	0.0	0.0	31.5	3.6	17.6	14.6	0.0
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:	11.1	0.0	0.3	0.0	0.0	0.0	0.0	31.5	3.6	17.6	14.6	0.0
DesignQueue:	21	0	0	0	0	0	0	7	5	18	21	0

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

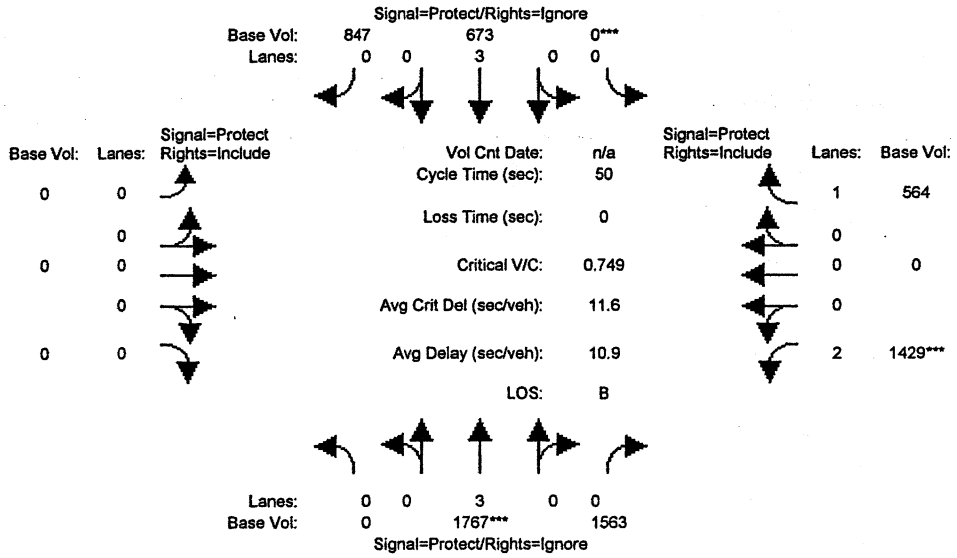
Intersection #12: Isabel/Portola Extension



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	874	0	919	0	0	0	0	1166	1765	830	581	0
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:	874	0	919	0	0	0	0	1166	1765	830	581	0
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:	874	0	919	0	0	0	0	1166	1765	830	581	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	874	0	919	0	0	0	0	1166	1765	830	581	0
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.:	874	0	919	0	0	0	0	1166	1765	830	581	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.75	1.00	1.00	1.00	1.00	0.95	0.75	0.92	0.95	1.00
Lanes:	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Final Sat.:	3502	0	2842	0	0	0	0	3610	2842	3502	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.25	0.00	0.32	0.00	0.00	0.00	0.00	0.32	0.62	0.24	0.16	0.00
Crit Moves:	****								****	****		
Green/Cycle:	0.29	0.00	0.57	0.00	0.00	0.00	0.00	0.43	0.72	0.28	0.71	0.00
Volume/Cap:	0.86	0.00	0.57	0.00	0.00	0.00	0.00	0.75	0.86	0.86	0.23	0.00
Uniform Del:	16.8	0.0	6.9	0.0	0.0	0.0	0.0	11.9	5.0	17.2	2.5	0.0
IncremntDel:	7.4	0.0	0.5	0.0	0.0	0.0	0.0	2.0	3.9	7.7	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	24.1	0.0	7.4	0.0	0.0	0.0	0.0	13.9	8.9	24.9	2.6	0.0
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:	24.1	0.0	7.4	0.0	0.0	0.0	0.0	13.9	8.9	24.9	2.6	0.0
DesignQueue:	18	0	12	0	0	0	0	20	15	18	5	0

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

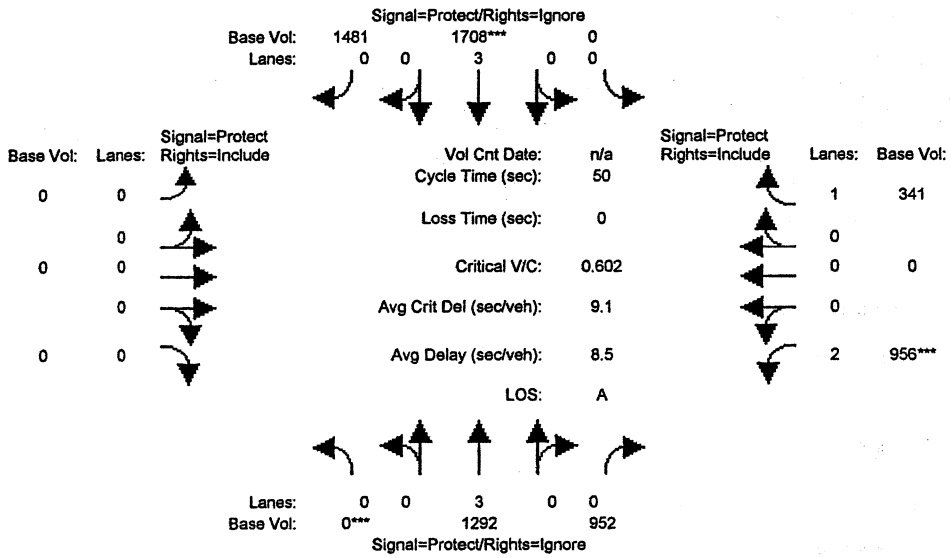
Intersection #13: Isabel/I580 wb Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1767	1563	0	673	847	0	0	0	1429	0	564
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:	0	1767	1563	0	673	847	0	0	0	1429	0	564
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1767	0	0	673	0	0	0	0	1429	0	564
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1767	0	0	673	0	0	0	0	1429	0	564
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1767	0	0	673	0	0	0	0	1429	0	564
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.34	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.41	0.00	0.35
Crit Moves:		****			****					****		
Green/Cycle:	0.00	0.45	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.55	0.00	0.55
Volume/Cap:	0.00	0.75	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.75	0.00	0.64
Uniform Del:	0.0	11.3	0.0	0.0	8.5	0.0	0.0	0.0	0.0	8.7	0.0	8.0
IncremntDel:	0.0	1.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.7	0.0	1.6
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	12.6	0.0	0.0	8.6	0.0	0.0	0.0	0.0	10.4	0.0	9.6
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:	0.0	12.6	0.0	0.0	8.6	0.0	0.0	0.0	0.0	10.4	0.0	9.6
DesignQueue:	0	29	0	0	11	0	0	0	0	20	0	8

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

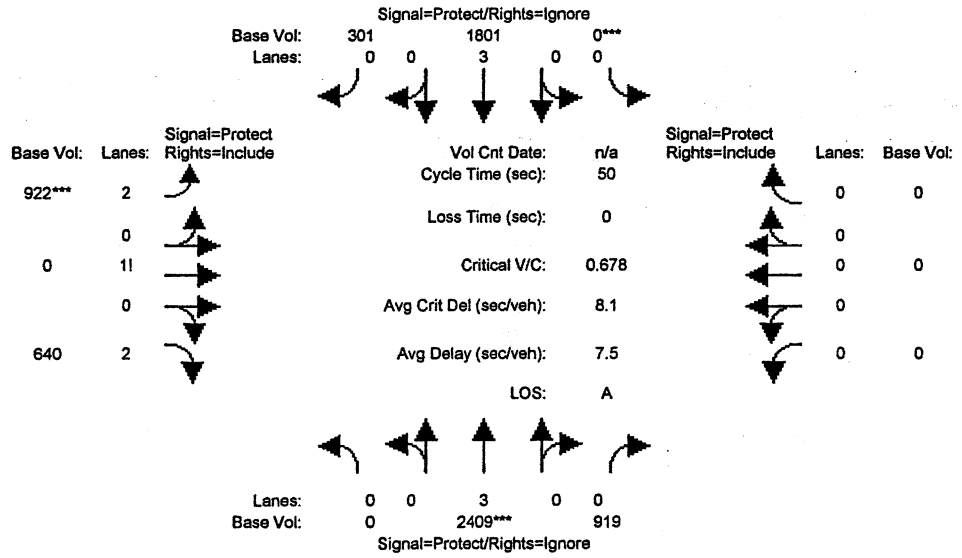
Intersection #13: Isabel/I580 wb Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1292	952	0	1708	1481	0	0	0	956	0	341
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:	0	1292	952	0	1708	1481	0	0	0	956	0	341
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1292	0	0	1708	0	0	0	0	956	0	341
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1292	0	0	1708	0	0	0	0	956	0	341
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1292	0	0	1708	0	0	0	0	956	0	341
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.25	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.27	0.00	0.21
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.55	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.45	0.00	0.45
Volume/Cap:	0.00	0.46	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60	0.00	0.47
Uniform Del:	0.0	6.8	0.0	0.0	7.7	0.0	0.0	0.0	0.0	10.3	0.0	9.5
IncremntDel:	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.7	0.0	0.5
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	7.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	10.9	0.0	9.9
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:	0.0	7.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	10.9	0.0	9.9
DesignQueue:	0	17	0	0	23	0	0	0	0	16	0	5

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

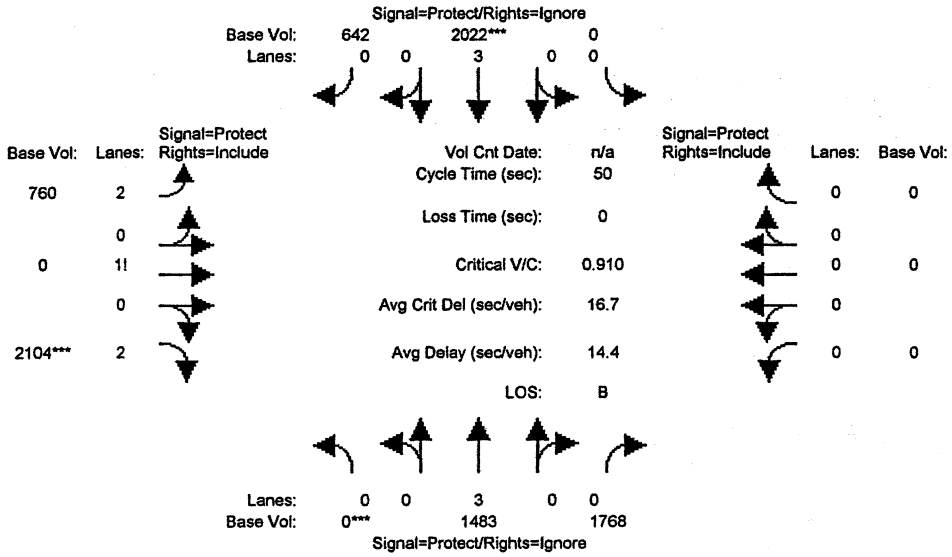
Intersection #14: Isabel / I580 eb Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	2409	919	0	1801	301	922	0	640	0	0	0
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:	0	2409	919	0	1801	301	922	0	640	0	0	0
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	2409	0	0	1801	0	922	0	640	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	2409	0	0	1801	0	922	0	640	0	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	2409	0	0	1801	0	922	0	640	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.91	1.00	0.91	0.91	0.88	1.00	0.80	1.00	1.00	1.00
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	2.57	0.00	2.43	0.00	0.00	0.00
Final Sat.:	0	5187	0	0	5187	0	4313	0	3710	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.46	0.00	0.00	0.35	0.00	0.21	0.00	0.17	0.00	0.00	0.00
Crit Moves:		****		****			****					
Green/Cycle:	0.00	0.68	0.00	0.00	0.68	0.00	0.32	0.00	0.32	0.00	0.00	0.00
Volume/Cap:	0.00	0.68	0.00	0.00	0.51	0.00	0.68	0.00	0.55	0.00	0.00	0.00
Uniform Del:	0.0	4.6	0.0	0.0	3.8	0.0	14.9	0.0	14.2	0.0	0.0	0.0
IncremntDel:	0.0	0.5	0.0	0.0	0.1	0.0	0.8	0.0	0.2	0.0	0.0	0.0
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	5.2	0.0	0.0	3.9	0.0	15.7	0.0	14.4	0.0	0.0	0.0
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:	0.0	5.2	0.0	0.0	3.9	0.0	15.7	0.0	14.4	0.0	0.0	0.0
DesignQueue:	0	24	0	0	17	0	18	0	13	0	0	0

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

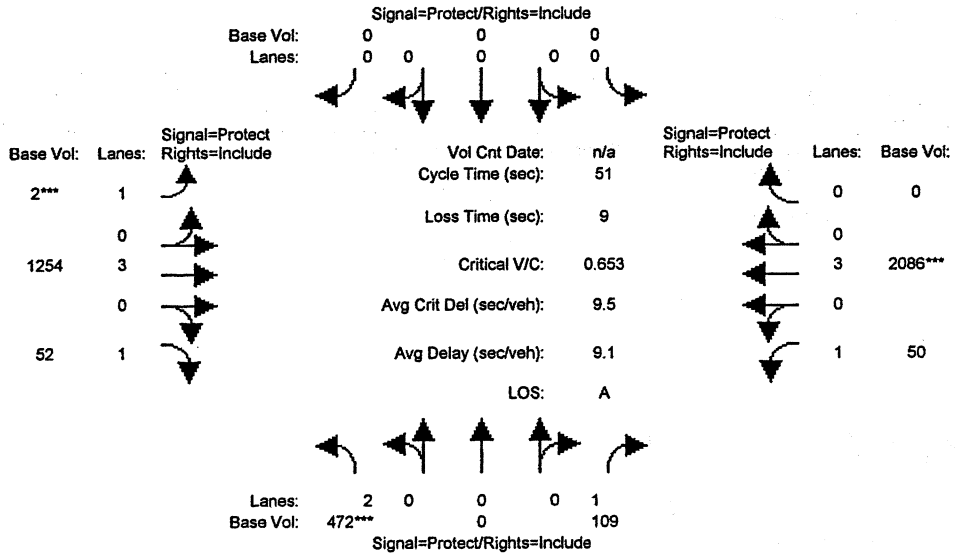
Intersection #14: Isabel / I580 eb Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	0	1483	1768	0	2022	642	760	0	2104	0	0	0
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:	0	1483	1768	0	2022	642	760	0	2104	0	0	0
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1483	0	0	2022	0	760	0	2104	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1483	0	0	2022	0	760	0	2104	0	0	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	1483	0	0	2022	0	760	0	2104	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.91	1.00	0.91	0.91	0.85	1.00	0.77	1.00	1.00	1.00
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	2.25	0.00	2.75	0.00	0.00	0.00
Final Sat.:	0	5187	0	0	5187	0	3637	0	4044	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.29	0.00	0.00	0.39	0.00	0.21	0.00	0.52	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.00	0.43	0.00	0.00	0.43	0.00	0.57	0.00	0.57	0.00	0.00	0.00
Volume/Cap:	0.00	0.67	0.00	0.00	0.91	0.00	0.37	0.00	0.91	0.00	0.00	0.00
Uniform Del:	0.0	11.4	0.0	0.0	13.4	0.0	5.8	0.0	9.6	0.0	0.0	0.0
IncremntDel:	0.0	0.8	0.0	0.0	6.1	0.0	0.0	0.0	4.5	0.0	0.0	0.0
Delay Adj:	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	0.0	12.2	0.0	0.0	19.5	0.0	5.8	0.0	14.0	0.0	0.0	0.0
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:	0.0	12.2	0.0	0.0	19.5	0.0	5.8	0.0	14.0	0.0	0.0	0.0
DesignQueue:	0	25	0	0	35	0	9	0	28	0	0	0

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

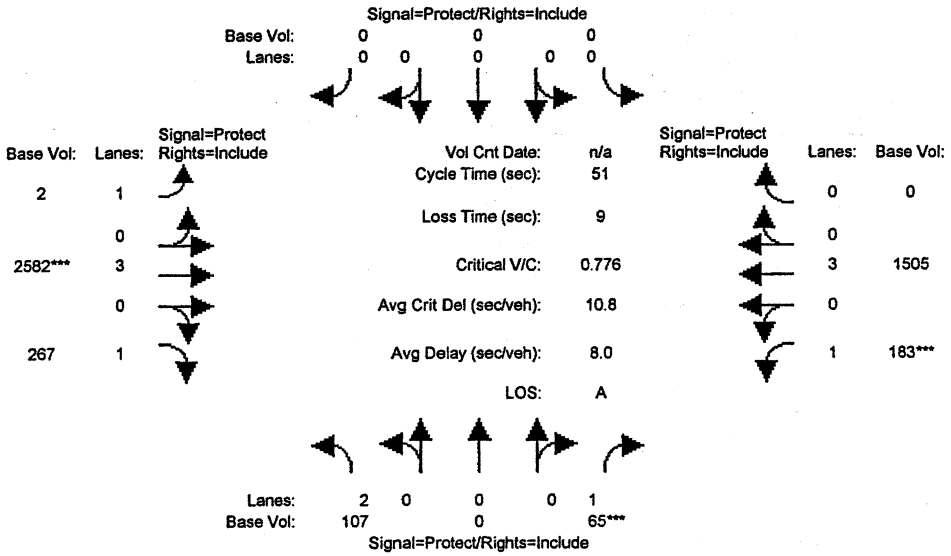
Intersection #15: East Stanley Boulevard/ Murdell Lane



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	472	0	109	0	0	0	2	1254	52	50	2086	0
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:	472	0	109	0	0	0	2	1254	52	50	2086	0
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:	472	0	109	0	0	0	2	1254	52	50	2086	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	472	0	109	0	0	0	2	1254	52	50	2086	0
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.:	472	0	109	0	0	0	2	1254	52	50	2086	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.91	0.85	0.95	0.91	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	3.00	1.00	1.00	3.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	5187	1615	1805	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.13	0.00	0.07	0.00	0.00	0.00	0.00	0.24	0.03	0.03	0.40	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.21	0.00	0.21	0.00	0.00	0.00	0.00	0.55	0.55	0.06	0.62	0.00
Volume/Cap:	0.65	0.00	0.33	0.00	0.00	0.00	0.65	0.44	0.06	0.44	0.65	0.00
Uniform Del:	18.6	0.0	17.2	0.0	0.0	0.0	25.4	6.7	5.2	23.0	6.3	0.0
IncremntDel:	2.2	0.0	0.6	0.0	0.0	0.0	216.2	0.1	0.0	2.7	0.5	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	20.7	0.0	17.8	0.0	0.0	0.0	241.6	6.8	5.3	25.7	6.8	0.0
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:	20.7	0.0	17.8	0.0	0.0	0.0	241.6	6.8	5.3	25.7	6.8	0.0
DesignQueue:	11	0	2	0	0	0	0	17	1	1	25	0

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

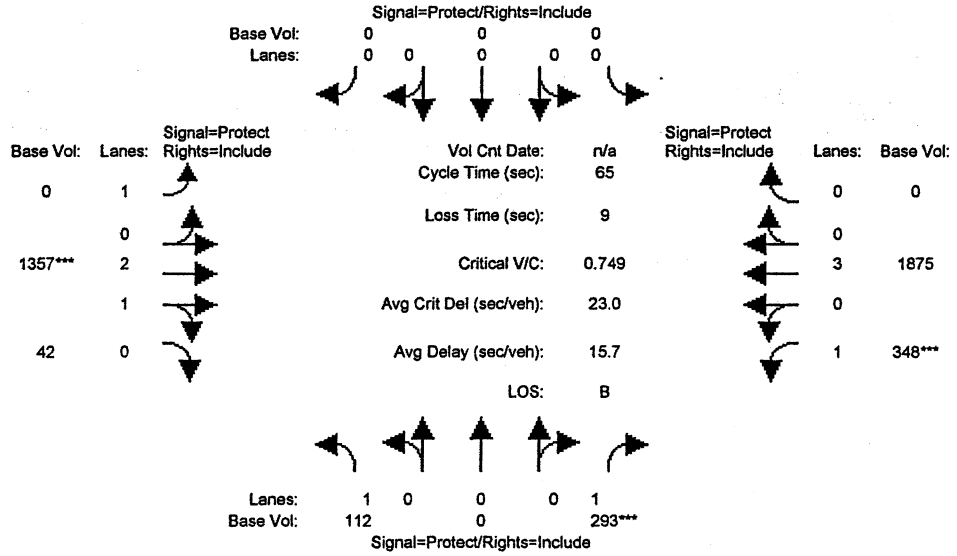
Intersection #15: East Stanley Boulevard/ Murdell Lane



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	107	0	65	0	0	0	2	2582	267	183	1505	0
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:	107	0	65	0	0	0	2	2582	267	183	1505	0
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:	107	0	65	0	0	0	2	2582	267	183	1505	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	107	0	65	0	0	0	2	2582	267	183	1505	0
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.:	107	0	65	0	0	0	2	2582	267	183	1505	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.91	0.85	0.95	0.91	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	3.00	1.00	1.00	3.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	5187	1615	1805	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.04	0.00	0.00	0.00	0.00	0.50	0.17	0.10	0.29	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.64	0.64	0.13	0.77	0.00
Volume/Cap:	0.59	0.00	0.78	0.00	0.00	0.00	0.38	0.78	0.26	0.78	0.38	0.00
Uniform Del:	23.6	0.0	23.9	0.0	0.0	0.0	25.4	6.5	3.9	21.5	1.9	0.0
IncremntDel:	5.0	0.0	35.7	0.0	0.0	0.0	39.7	1.2	0.1	14.9	0.1	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	28.7	0.0	59.6	0.0	0.0	0.0	65.1	7.7	4.1	36.4	2.0	0.0
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:	28.7	0.0	59.6	0.0	0.0	0.0	65.1	7.7	4.1	36.4	2.0	0.0
DesignQueue:	3	0	2	0	0	0	0	30	3	5	11	0

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

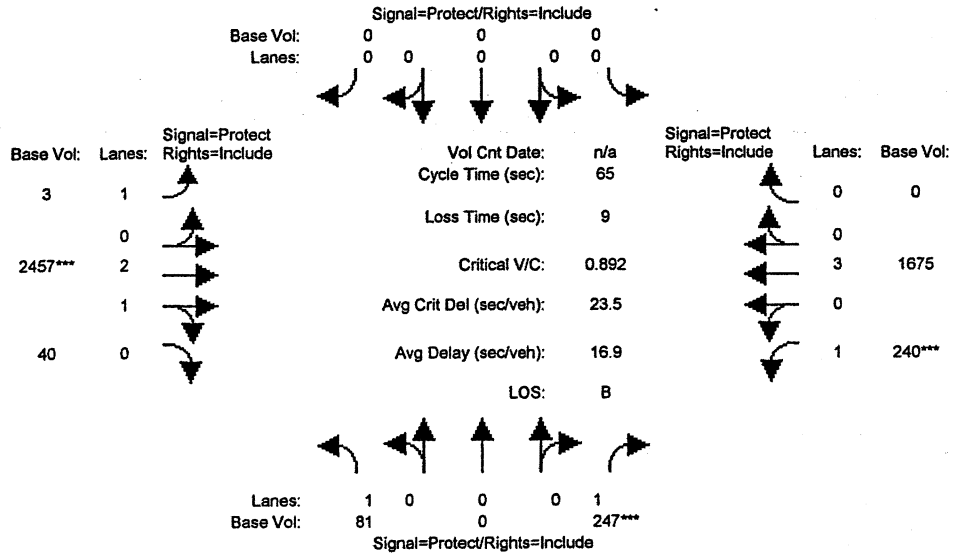
Intersection #16: East Stanley Boulevard/ Wall Street



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	112	0	293	0	0	0	0	1357	42	348	1875	0
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:	112	0	293	0	0	0	0	1357	42	348	1875	0
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:	112	0	293	0	0	0	0	1357	42	348	1875	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	112	0	293	0	0	0	0	1357	42	348	1875	0
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.:	112	0	293	0	0	0	0	1357	42	348	1875	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.91	0.91	0.95	0.91	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.91	0.09	1.00	3.00	0.00
Final Sat.:	1805	0	1615	0	0	0	1900	5011	155	1805	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.27	0.19	0.36	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.24	0.00	0.24	0.00	0.00	0.00	0.00	0.36	0.36	0.26	0.62	0.00
Volume/Cap:	0.26	0.00	0.75	0.00	0.00	0.00	0.00	0.75	0.75	0.75	0.58	0.00
Uniform Del:	19.9	0.0	22.8	0.0	0.0	0.0	0.0	18.2	18.2	22.2	7.4	0.0
IncremntDel:	0.3	0.0	7.8	0.0	0.0	0.0	0.0	1.7	1.7	6.6	0.3	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	20.2	0.0	30.6	0.0	0.0	0.0	0.0	19.9	19.9	28.8	7.7	0.0
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:	20.2	0.0	30.6	0.0	0.0	0.0	0.0	19.9	19.9	28.8	7.7	0.0
DesignQueue:	3	0	8	0	0	0	0	33	1	10	28	0

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

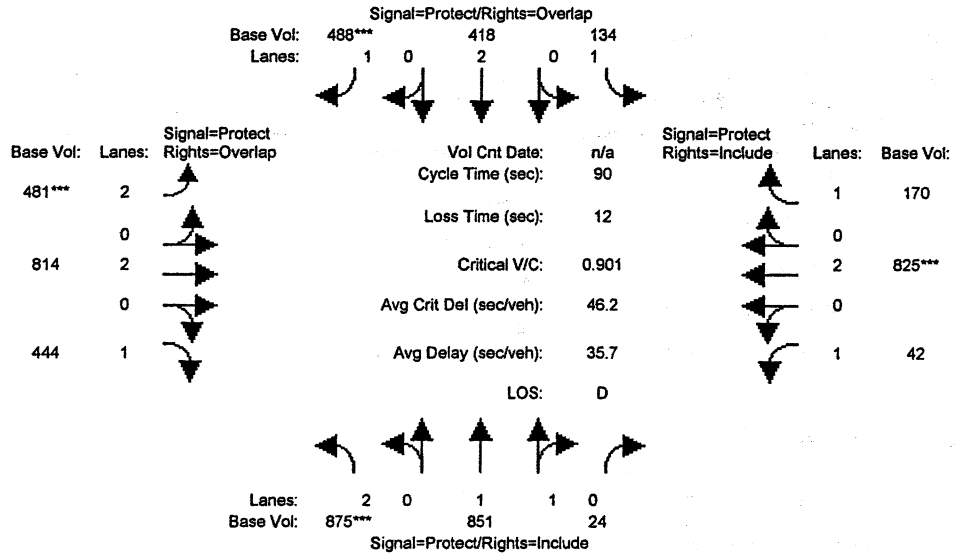
Intersection #16: East Stanley Boulevard/ Wall Street



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	81	0	247	0	0	0	3	2457	40	240	1675	0
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:	81	0	247	0	0	0	3	2457	40	240	1675	0
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:	81	0	247	0	0	0	3	2457	40	240	1675	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	81	0	247	0	0	0	3	2457	40	240	1675	0
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.:	81	0	247	0	0	0	3	2457	40	240	1675	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.91	0.91	0.95	0.91	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.95	0.05	1.00	3.00	0.00
Final Sat.:	1805	0	1615	0	0	0	1805	5094	83	1805	5187	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.00	0.15	0.00	0.00	0.00	0.00	0.48	0.48	0.13	0.32	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.17	0.00	0.17	0.00	0.00	0.00	0.00	0.54	0.54	0.15	0.69	0.00
Volume/Cap:	0.26	0.00	0.89	0.00	0.00	0.00	0.47	0.89	0.89	0.89	0.47	0.00
Uniform Del:	23.4	0.0	26.3	0.0	0.0	0.0	32.3	13.2	13.2	27.1	4.7	0.0
IncremntDel:	0.5	0.0	28.1	0.0	0.0	0.0	46.2	4.0	4.0	28.7	0.1	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	23.8	0.0	54.4	0.0	0.0	0.0	78.5	17.3	17.3	55.8	4.8	0.0
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:	23.8	0.0	54.4	0.0	0.0	0.0	78.5	17.3	17.3	55.8	4.8	0.0
DesignQueue:	2	0	8	0	0	0	0	46	1	8	21	0

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

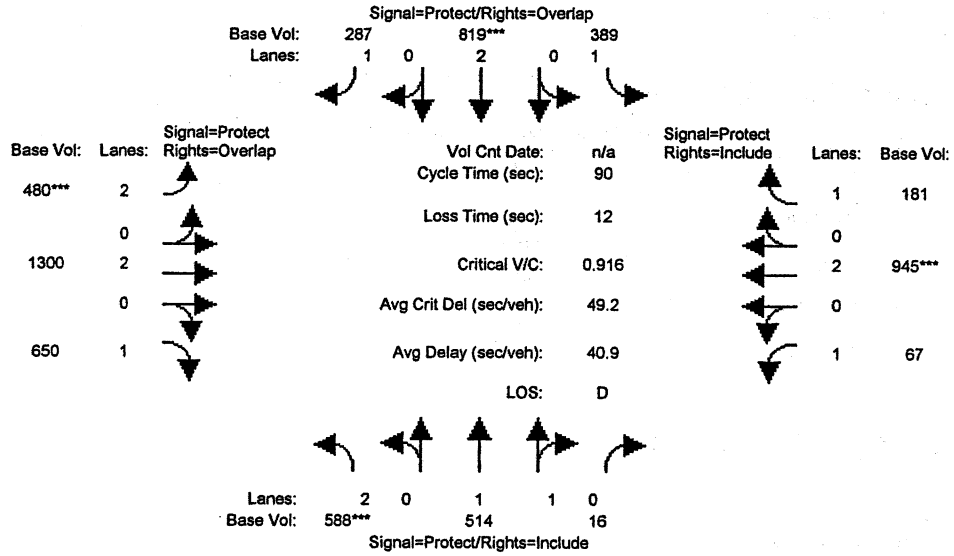
Intersection #17: East Stanley Boulevard/ Murrieta Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	875	851	24	134	418	488	481	814	444	42	825	170
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:	875	851	24	134	418	488	481	814	444	42	825	170
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:	875	851	24	134	418	488	481	814	444	42	825	170
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	875	851	24	134	418	488	481	814	444	42	825	170
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.:	875	851	24	134	418	488	481	814	444	42	825	170
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.95	0.95	0.95	0.85	0.92	0.95	0.85	0.95	0.95	0.85
Lanes:	2.00	1.95	0.05	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3502	3497	99	1805	3610	1615	3502	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.25	0.24	0.24	0.07	0.12	0.30	0.14	0.23	0.27	0.02	0.23	0.11
Crit Moves:	****					****	****				****	
Green/Cycle:	0.28	0.35	0.35	0.11	0.18	0.34	0.15	0.37	0.65	0.04	0.25	0.25
Volume/Cap:	0.90	0.69	0.69	0.69	0.63	0.90	0.90	0.61	0.43	0.61	0.90	0.41
Uniform Del:	31.3	24.9	24.9	38.7	34.0	28.5	37.5	23.2	7.8	42.6	32.5	28.0
IncremntDel:	11.3	1.6	1.6	10.1	2.0	18.0	18.3	0.9	0.3	15.2	11.8	0.7
Delay 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
Delay/Veh:	42.6	26.5	26.5	48.8	36.0	46.5	55.7	24.0	8.1	57.9	44.3	28.7
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:	42.6	26.5	26.5	48.8	36.0	46.5	55.7	24.0	8.1	57.9	44.3	28.7
DesignQueue:	34	29	1	6	18	17	21	27	8	2	33	6

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

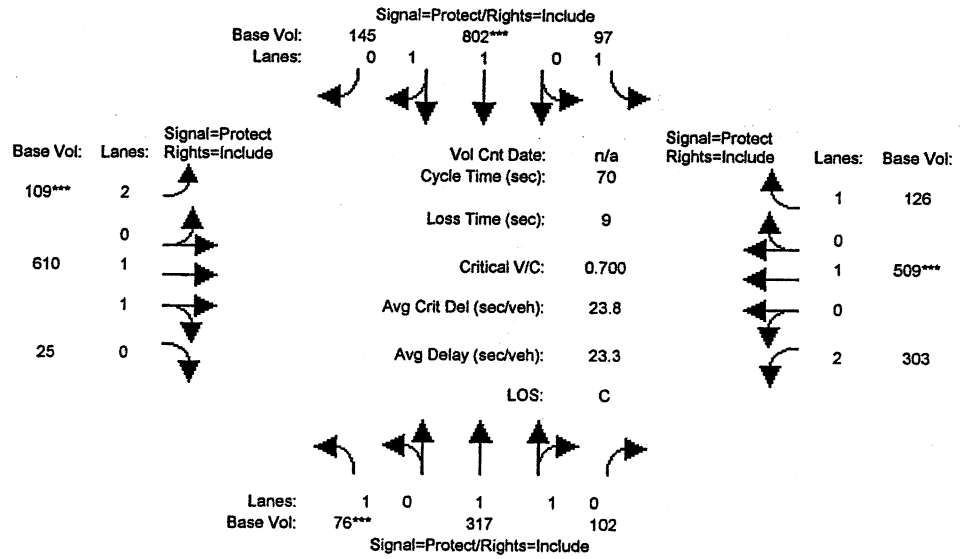
Intersection #17: East Stanley Boulevard/ Murrieta Boulevard



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	588	514	16	389	819	287	480	1300	650	67	945	181
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:	588	514	16	389	819	287	480	1300	650	67	945	181
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:	588	514	16	389	819	287	480	1300	650	67	945	181
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	588	514	16	389	819	287	480	1300	650	67	945	181
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.:	588	514	16	389	819	287	480	1300	650	67	945	181
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.95	0.95	0.95	0.85	0.92	0.95	0.85	0.95	0.95	0.85
Lanes:	2.00	1.94	0.06	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3502	3487	109	1805	3610	1615	3502	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.17	0.15	0.15	0.22	0.23	0.18	0.14	0.36	0.40	0.04	0.26	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.18	0.18	0.18	0.26	0.25	0.40	0.15	0.39	0.58	0.04	0.29	0.29
Volume/Cap:	0.92	0.84	0.84	0.84	0.92	0.45	0.92	0.91	0.70	0.91	0.92	0.39
Uniform Del:	36.1	35.9	35.9	31.8	32.9	19.9	37.7	25.8	13.4	43.0	31.1	25.8
IncremntDel:	17.9	10.0	10.0	13.1	13.9	0.5	20.8	9.1	2.3	75.2	12.4	0.6
Delay 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
Delay/Veh:	54.0	45.9	45.9	44.8	46.8	20.4	58.5	34.9	15.7	118.2	43.5	26.4
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:	54.0	45.9	45.9	44.8	46.8	20.4	58.5	34.9	15.7	118.2	43.5	26.4
DesignQueue:	25	22	1	15	33	9	21	43	15	3	36	7

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

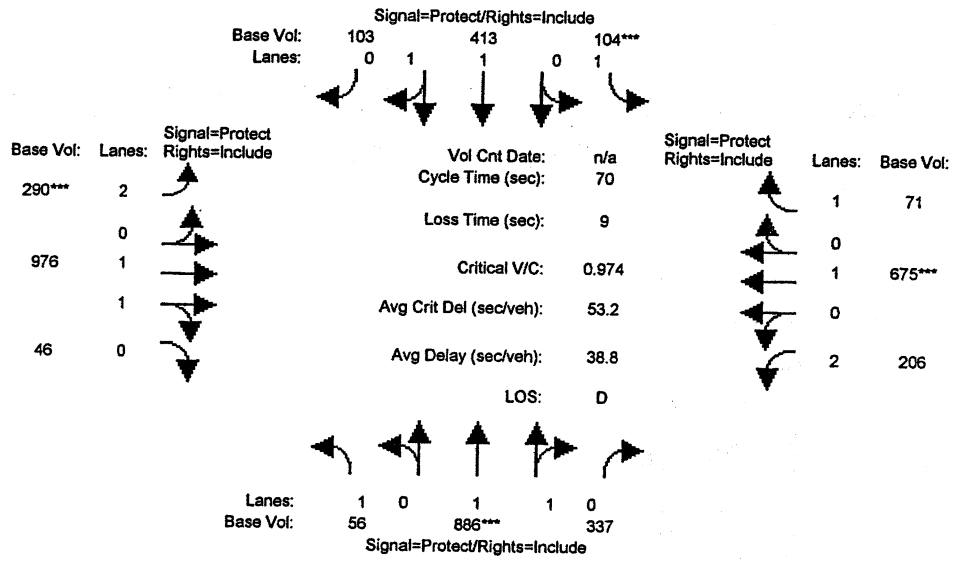
Intersection #18: Concannon Boulevard/ Holmes Street



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	76	317	102	97	802	145	109	610	25	303	509	126
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:	76	317	102	97	802	145	109	610	25	303	509	126
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:	76	317	102	97	802	145	109	610	25	303	509	126
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	76	317	102	97	802	145	109	610	25	303	509	126
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.:	76	317	102	97	802	145	109	610	25	303	509	126
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.92	0.92	0.95	0.93	0.93	0.92	0.94	0.94	0.92	1.00	0.85
Lanes:	1.00	1.51	0.49	1.00	1.69	0.31	2.00	1.92	0.08	2.00	1.00	1.00
Final Sat.:	1805	2633	847	1805	2987	540	3502	3447	141	3502	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.12	0.12	0.05	0.27	0.27	0.03	0.18	0.18	0.09	0.27	0.08
Crit Moves:	****				****		****				****	
Green/Cycle:	0.06	0.31	0.31	0.14	0.38	0.38	0.04	0.29	0.29	0.14	0.38	0.38
Volume/Cap:	0.70	0.39	0.39	0.39	0.70	0.70	0.70	0.62	0.62	0.62	0.70	0.20
Uniform Del:	32.3	19.1	19.1	27.5	18.2	18.2	33.0	21.6	21.6	28.3	18.2	14.5
IncremntDel:	18.3	0.2	0.2	1.0	1.6	1.6	13.2	1.1	1.1	2.4	3.0	0.2
Delay 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
Delay/Veh:	50.6	19.3	19.3	28.6	19.8	19.8	46.2	22.7	22.7	30.7	21.2	14.6
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:	50.6	19.3	19.3	28.6	19.8	19.8	46.2	22.7	22.7	30.7	21.2	14.6
DesignQueue:	3	9	3	3	21	4	4	18	1	10	13	3

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

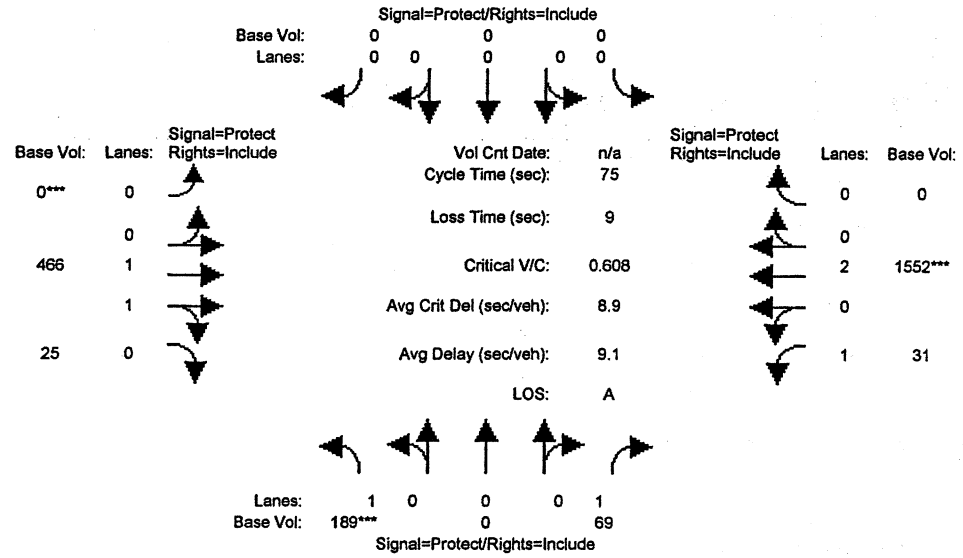
Intersection #18: Concannon Boulevard/ Holmes Street



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	56	886	337	104	413	103	290	976	46	206	675	71
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:	56	886	337	104	413	103	290	976	46	206	675	71
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:	56	886	337	104	413	103	290	976	46	206	675	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	886	337	104	413	103	290	976	46	206	675	71
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.:	56	886	337	104	413	103	290	976	46	206	675	71
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.91	0.95	0.92	0.92	0.92	0.94	0.94	0.92	1.00	0.85
Lanes:	1.00	1.45	0.55	1.00	1.60	0.40	2.00	1.91	0.09	2.00	1.00	1.00
Final Sat.:	1805	2508	954	1805	2803	699	3502	3423	161	3502	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.35	0.35	0.06	0.15	0.15	0.08	0.29	0.29	0.06	0.36	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.07	0.36	0.36	0.06	0.35	0.35	0.09	0.37	0.37	0.08	0.36	0.36
Volume/Cap:	0.42	0.97	0.97	0.97	0.42	0.42	0.97	0.76	0.76	0.76	0.97	0.12
Uniform Del:	31.0	22.0	22.0	32.9	17.4	17.4	31.9	19.3	19.3	31.7	21.9	14.8
IncremntDel:	2.2	19.4	19.4	78.6	0.2	0.2	44.9	2.7	2.7	12.3	27.7	0.1
Delay 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
Delay/Veh:	33.2	41.4	41.4	111.5	17.7	17.7	76.9	22.0	22.0	44.0	49.7	14.9
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:	33.2	41.4	41.4	111.5	17.7	17.7	76.9	22.0	22.0	44.0	49.7	14.9
DesignQueue:	2	24	9	4	11	3	11	26	1	8	18	2

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

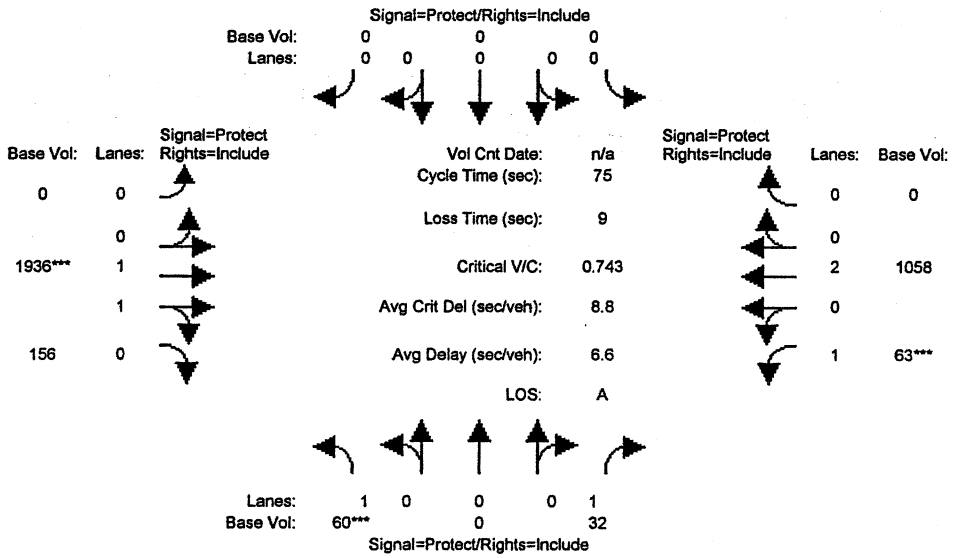
Intersection #19: Jack London Boulevard/ Hagemann Dr.



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	189	0	69	0	0	0	0	466	25	31	1552	0
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:	189	0	69	0	0	0	0	466	25	31	1552	0
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:	189	0	69	0	0	0	0	466	25	31	1552	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	189	0	69	0	0	0	0	466	25	31	1552	0
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.:	189	0	69	0	0	0	0	466	25	31	1552	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.94	0.94	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.90	0.10	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3399	182	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.10	0.00	0.04	0.00	0.00	0.00	0.00	0.14	0.14	0.02	0.43	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.17	0.00	0.17	0.00	0.00	0.00	0.00	0.63	0.63	0.08	0.71	0.00
Volume/Cap:	0.61	0.00	0.25	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.61	0.00
Uniform Del:	28.7	0.0	26.8	0.0	0.0	0.0	0.0	6.0	6.0	32.4	5.6	0.0
IncremntDel:	3.4	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.4	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	32.1	0.0	27.3	0.0	0.0	0.0	0.0	6.0	6.0	33.2	6.0	0.0
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:	32.1	0.0	27.3	0.0	0.0	0.0	0.0	6.0	6.0	33.2	6.0	0.0
DesignQueue:	7	0	2	0	0	0	0	7	0	1	21	0

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

Intersection #19: Jack London Boulevard/ Hagemann Dr.



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	60	0	32	0	0	0	0	1936	156	63	1058	0
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:	60	0	32	0	0	0	0	1936	156	63	1058	0
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:	60	0	32	0	0	0	0	1936	156	63	1058	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	0	32	0	0	0	0	1936	156	63	1058	0
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.:	60	0	32	0	0	0	0	1936	156	63	1058	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.94	0.94	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.85	0.15	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3304	266	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.59	0.59	0.03	0.29	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.79	0.79	0.05	0.84	0.00
Volume/Cap:	0.74	0.00	0.44	0.00	0.00	0.00	0.00	0.74	0.74	0.74	0.35	0.00
Uniform Del:	35.4	0.0	34.9	0.0	0.0	0.0	0.0	4.1	4.1	35.3	1.4	0.0
IncremntDel:	30.6	0.0	4.3	0.0	0.0	0.0	0.0	1.1	1.1	29.4	0.1	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	66.0	0.0	39.2	0.0	0.0	0.0	0.0	5.2	5.2	64.7	1.5	0.0
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:	66.0	0.0	39.2	0.0	0.0	0.0	0.0	5.2	5.2	64.7	1.5	0.0
DesignQueue:	2	0	1	0	0	0	0	20	2	3	8	0

APPENDIX D

Air Quality Impact Evaluation

Donald Ballanti, *Air Quality Impact Evaluation for the Oaks Business Park, City of Livermore*, August, 2003.

AIR QUALITY IMPACT ANALYSIS FOR THE PROPOSED OAKS BUSINESS PARK, LIVERMORE

Prepared for:

Pacfic Municipal Consultants
225 Cannery Row, Suite K
Monterey, CA. 93940

August 2003

Donald Ballanti *Certified Consulting Meteorologist*

1424 Scott Street / El Cerrito, California 94530 / (510) 234-6087 / Fax: (510) 232-7752

Introduction

This report describes the impacts of the proposed project on air quality. The section was prepared using thresholds of significance recommended by the Bay Area Air Quality Management District. It describes existing air quality, direct and indirect emissions associated with the project and mitigation measures warranted to reduce or eliminate any identified significant impacts.

SETTING

Climate

The project is within the Livermore Valley. The Livermore Valley forms a small sub-regional air basin distinct from the larger San Francisco Bay Area Air Basin. The Livermore Valley air basin is surrounded on all sides by high hills or mountains. Significant breaks in the hills surrounding the air basin are Niles Canyon and the San Ramon Valley, which extends northward into Contra Costa County.

The terrain of the Livermore-Amador Valley influences both the climate and air pollution potential of the sub-regional air basin. As an inland, protected valley, the area has generally lighter winds and a higher frequency of calm conditions when compared to the greater Bay Area.

The occurrence of episodes of high atmospheric stability, known as inversion conditions, severely limits the ability of the atmosphere to disperse pollutants vertically. Inversions can be found during all seasons in the Bay Area, but are particularly prevalent in the summer months when they are present about 90% of the time in both morning and afternoon.

According to the Bay Area Air Quality Management District, air pollution potential is high in the Livermore Valley, especially for ozone in the summer and fall (BAAQMD, 1999). High temperatures increase the potential for ozone, and the valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from upwind portions of the greater Bay Area. Transport of pollutants also occurs between the Livermore Valley and the San Joaquin Valley to the east.

During the winter, the sheltering effect of terrain and its inland location results in frequent surface-based inversions. Under these conditions pollutants such as carbon monoxide from automobiles and particulate matter generated by fireplaces and agricultural burning can become concentrated.

Regulatory Framework

<u>Ambient Air Quality Standards</u>

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These

ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents.

The federal and California ambient air quality standards are summarized in Table 1 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both federal and state standards are intended to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM_{10}.

The U.S. Environmental Protection Agency established new national air quality standards for ground-level ozone and for fine particulate matter in 1997. The existing 1-hour ozone standard of 0.12 PPM microns or less) is to be phased out and replaced by an 8-hour standard of 0.08 PPM. Implementation of the 8-hour standard was delayed by litigation, but was determined to be valid and enforceable by the U. S. Supreme Court in a decision issued in February of 2001. However, the new federal ozone standard is not yet in effect pending final resolution of this litigation and adoption of implementing regulations.

In 1997 new national standards for fine Particulate Matter (diameter 2.5 microns or less) were adopted for 24-hour and annual averaging periods. The current PM_{10} standards were to be retained, but the method and form for determining compliance with the standards were to be revised. Implementation of this standard was delayed by litigation and will not occur until the U. S. Environmental Protection Agency has issued court-approved guidance.

Attainment Status

The federal Clean Air Act and the California Clean Air Act of 1988 require that the California Air Resources Board (CARB), based on air quality monitoring data, designate air basins within the state where the federal or state ambient air quality standards are not met as “non-attainment areas". Because of the differences between the federal and state standards, the designation of non-attainment areas is different under the federal and state legislation.

The Bay Area is currently a non-attainment area for the federal 1-hour ozone standard. Under the California Clean Air Act the Bay Area is a non-attainment area for ozone and PM_{10}.

To meet federal Clean Air Act requirements, the District has adopted an Ozone Attainment Demonstration Plan. In addition, to meet California Clean Air Act requirements, the District has also adopted and updated a Clean Air Plan addressing the California ozone standard. The control strategy contained in these plans include new limits on emissions from industry, prohibitions on sources of hydrocarbons, regional transit and HOV programs, buy back programs for older vehicles and educational programs.

Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	0.12 ppm 0.08 ppm	0.09 ppm --
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.05 ppm --	-- 0.25 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm --	-- 0.05 ppm 0.5 ppm
PM_{10}	Annual 24-Hour	50 ug/m^3 150 ug/m^3	20ug/m^3 50 ug/m^3
$PM_{2.5}$	Annual 24-Hour	15 ug/m^3 65 ug/m^3	12 ug/m^3 ---
Lead	30-Day Avg. Month Avg.	-- 1.5 ug/m^3	1.5 ug/m^3 --

ppm = parts per million
ug/m^3 = Micrograms per Cubic Meter

The California Legislature, when it passed the California Clean Air Act in 1988, recognized the relative intractability of the PM_{10} problem with respect to the state ambient standard and excluded it from the basic planning requirements of the Act. The Act did require the CARB to prepare a report to the Legislature regarding the prospect of achieving the State ambient air quality standard for PM_{10}. This report recommended a menu of actions, but did not recommend imposing a planning process similar to that for ozone or other pollutants for achievement of the standard within a certain period of time.

Current Air Quality

The project is within the nine-county Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) operates a network of air quality monitoring sites in the region, including one in central Livermore on Old First Street. Table 2 shows a summary of air quality data for this monitoring site for the period 2000-2002. Data are shown for ozone, carbon monoxide, PM_{10} and nitrogen dioxide. The number of days exceeding each standard is shown for each year.

Table 2 shows that concentrations of carbon monoxide and nitrogen dioxide at the Livermore monitoring site meet state/federal standards. Ozone concentrations exceed both the state and federal standards, and exhibit wide variations from year-to-year related to meteorological conditions. Years where the summer months tend to be warmer than average tend to have higher average ozone concentrations while years with cooler than average temperatures tend to have lower average ozone concentrations.

Levels of PM_{10} and $PM_{2.5}$ at Livermore meet the federal ambient standards but exceed the more stringent state standard.

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to located. These land uses include residences, schools playgrounds, child care centers, retirement homes, convaleascent homes, hospitals and residences. The closest sensitive receptors to the project site are homes located on the east side of Isabel Avenue.

Table 2
Air Quality at Livermore Monitoring Site, 2000-2002

Pollutant	Standard	Days Standard Exceeded During:		
		2000	2001	2002
Ozone	Federal 1-Hour	1	0	2
Ozone	State 1-Hour	7	9	10
Ozone	Federal 8-Hour	2	2	6
PM_{10}	Federal 24-Hour	0	0	0
PM_{10}	State 24-Hour	2	3	0
$PM_{2.5}$	Federal 24-Hour	0	1	0
Carbon Monoxide	State/Federal 8-Hour	0	0	0
Nitrogen Dioxide	State 1-Hour	0	0	0

Source: CARB, 2003

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Current CEQA Guidelines provide that a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

CEQA Guidelines provide that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. The BAAQMD has established the following impact criteria (BAAQMD, 1999):

- A significant impact on local air quality is defined as an increase in carbon monoxide concentrations that causes a violation of the most stringent ambient air quality standard for carbon monoxide (20 ppm for the one-hour averaging period, 9.0 ppm for the eight-hour averaging period).
- A significant impact on regional air quality is defined as an increase in emissions of an ozone precursor or PM_{10} exceeding the BAAQMD thresholds of significance. The current significance thresholds are 80 pounds per day (or 15 tons/year) for ozone precursors or PM_{10}.
- Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.
- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.
- Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

The BAAQMD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

Despite the establishment of both federal and state standards for $PM_{2.5}$ (particulate matter, 2.5 microns), the BAAQMD has not developed a threshold of significance for this pollutant. For this analysis, $PM_{2.5}$ impacts would be considered significant if project emissions of PM_{10} exceed 80 pounds per day.

Methodology

Local Carbon Monoxide Concentrations

On the local scale, the project would change traffic on the local street network, changing carbon monoxide levels along roadways used by project traffic. Carbon monoxide is an odorless, colorless poisonous gas whose primary source in the Bay Area is automobiles. Concentrations of this gas are highest near intersections of major roads.

A screening-level form of the CALINE-4 program was used to predict concentrations (BAAQMD, 1999). The CALINE-4 model is a fourth-generation line source air quality model that is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. Normalized concentrations for each roadway size (2 lanes, 4 lanes, etc.) are adjusted for the two-way traffic volume and emission factor. Calculations were made for a receptor at a corner of the intersection, located at the curb. Emission factors were derived from the California Air Resources Board EMFAC72002 computer program based on a 2004, 2010 or 2025 vehicle mix.

The screening form of the CALINE-4 model calculates the local contribution of nearby roads to the total concentration. The other contribution is the background level attributed to more distant traffic. The 1-hour background level in was taken as 3.9 PPM in 2004 and 3.5 PPM in 2010 and 2025. The 8-hour background concentration was taken as 2.6 PPM in 2004 and 2.3 PPM in 2010 and 2025. These backgrounds were estimated using isopleth maps and correction factors developed by the Bay Area Air Quality Management District. The results of the analysis are shown in Table 3. Spreadsheet printouts summarizing the calculation of concentration are attached in Appendix 1.

Permanent Regional Impacts

Estimates of regional emissions generated by project traffic were made using a program called URBEMIS2002 (Jones and Stokes, 2003). URBEMIS2002 is a program that estimates the emissions that result from various land use development projects. Land use project can include residential uses such as single-family dwelling units,

apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS2002 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

Inputs to the URBEMIS2002 program include trip generation rates, vehicle mix, average trip length by trip type and average speed. Trip generation rates for project land uses were provided by the project transportation consultant. Average trip lengths and vehicle mixes for the San Francisco Bay Air Basin were used. Average speed for all types of trips was assumed to be 30 MPH.

The URBEMIS2002 was run to calculate daily emission during the summer months with an ambient temperature of 85 degrees Fahrenheit. Analysis year was 2010. The URBEMIS2002 output is included in Appendix 2. The results are shown in Table 4.

Project Impacts and Mitigation Measures

Impact 1: Construction activities such as clearing, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would temporarily affect local air quality for adjacent land uses.

Construction within the project site would result in numerous activities that would generate dust. Grading, earthmoving and excavation are the activities that generate the most PM_{10} emissions. Impacts would be localized and variable. Construction dust impacts are considered to be potentially significant on a localized basis.

During construction various diesel-powered vehicles and equipment in use on the site would create odors. These sources are mobile and transient in nature, and the emission occurs at a substantial distance from nearby receptors (which provides for dilution of odor-producing constituents). These odors would be temporary and unlikely to be noticeable beyond the project boundaries.

Mitgation Measure 1: The BAAQMD recommends the following construction dust control measures for all construction sites greater than 4 acres in area:

- Water all active construction areas at least twice daily.
- Water or cover stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all

unpaved access roads, parking areas and staging areas at construction sites.

- Sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites.
- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydro-seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more.
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Implementation of the above measures would reduce construction dust impacts to a level that is less than significant

Impact 2: The project would change traffic volumes and congestion levels, changing carbon monoxide concentrations at land uses near the roadway.

On a local basis the project would change traffic on the local street network, changing carbon monoxide levels along roadways used by project traffic. Carbon monoxide is an odorless, colorless poisonous gas whose primary source in the Bay Area is automobiles. Concentrations of this gas are highest near intersections of major roads.

The CALINE-4 computer simulation model was applied to six intersections near the project site. Four model runs were made:

- Existing conditions (2004)
- Existing Plus Project (2004)
- Cumulative Plus Project (2010)
- Cumulative Plus Project (2025)

The model results were used to predict the maximum 1-and 8-hour concentrations, corresponding to the 1- and 8-hour averaging times specified in the state and federal

ambient air quality standards for carbon monoxide. The CALINE-4 model and the assumptions made in its use are described in Appendix 1.

Table 3 shows the results of the CALINE-4 analysis for the peak 1-hour and 8-hour traffic periods in parts per million (PPM). The 1-hour values are to be compared with the federal 1-hour standard of 35 PPM and the state 1-hour standard of 20 PPM. The 8-hour values in Table 3 are to be compared with the state and federal standard of 9 PPM.

Table 3 shows that concentrations are predicted not to exceed the ambient standards with or without the proposed project. The addition of project traffic would increase carbon monoxide concentrations by up to 0.6 PPM for the 1-hour averaging time and 0.4 PPM for the 8-hour averaging time, but predicted concentrations remain below the applicable state and federal standards. Concentrations with project and cumulative traffic growth in 2010 and 2025 traffic would not exceed the state/federal ambient air quality standards. Project impacts on local carbon monoxide concentrations are considered less-than-significant.

Mitgation Measure 2: None required.

Impact 3: Trips to and from the project would result in new air pollutant emissions within the air basin.

To evaluate emissions associated with the project the URBEMIS2002 computer program was employed. The daily increase in regional emissions from auto travel is shown in Table 4 for reactive organic gases (hydrocarbons) and oxides of nitrogen (two precursors of ozone), carbon monoxide and particulate matter ($PM_{10}/PM_{2.5}$). The URBEMIS2002 model and the conditions assumed in its use are described in Appendix 2.

Guidelines for the evaluation of project impacts issued by the Bay Area Air Quality Management District consider emission increases to be significant if they exceed 80 lbs per day for regional pollutants (ROG and NO_X, $PM_{10}/PM_{2.5}$). The net increase in emissions shown in Table 4 exceeds these criteria for all three pollutants, so the project would have a significant impact on regional air quality.

Mitigation Measure 3: Implement a Transportation Demand Management (TDM) program for the project site. All businesses located within the project should be required to join a Transportation Management Association (TMA) that would prepare and implement the TDM program with oversight by the City of Livermore. The goal of the TDM program should be a 15% reduction in daily vehicle trips. The BAAQMD identifies the following strategies as appropriate for a project of this type:

- Implement carpool/vanpool program, e.g., carpool ridematching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.

- Provide on-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc.

Table 3
Projected 8-Hour Worst-Case Carbon Monoxide Concentrations, in Parts Per Million

Intersection	Existing (2004)		Existing + Project (2004)		Project+ Cumulative (2010)		Project+ Cumulative (2025)	
	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Isabel Avenue/ Stanley Blvd.	6.7	4.6	7.3	5.0	5.4	3.7	4.0	2.6
Isabel Avenue/ Vallecitos Road	6.1	4.1	5.3	3.6	5.3	3.6	3.8	2.5
Isabel Avenue/ Discovery	---	---	6.8	4.7	5.5	3.7	4.4	2.9
Stanley Blvd./ Wall Street	6.7	4.6	6.9	4.7	5.4	3.7	3.9	2.6
Stanley Blvd./ Murrieta Blvd.	6.6	4.5	6.7	4.3	5.4	3.6	3.9	2.5
Holmes Street/ Concannon	6.2	4.2	6.3	4.3	4.9	3.3	3.7	2.4
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0

Table 4
Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	$PM_{10}/PM_{2.5}$
Project New Daily Vehicle Emissions	149.7	147.3	181.8
BAAQMD Threshold	80.0	80.0	80.0

- Provide on-site child care, or contribute to off-site child care within walking distance.
- Provide shuttle service to transit stations/multimodal centers.
- Providing preferential parking for electric or alternatively-fueled vehicles.
- Implement parking charges for non-visitors with a reduction in parking supply.
- Provide electric vehicle charging stations.
- Implement a parking cash-out program for employees (non-driving employees receive transportation allowance equivalent to value of subsidized parking.
- Negotiate with LAVTA to improve transit service to the project site. Construct transit facilities such as bus turnouts/bus bulbs, benches, etc..
- Design and locate buildings to facilitate transit use.

The above TDM requirement would reduce daily trip generation and regional emissions by 15%. This would not provide the nearly 50% reduction in emissions needed to reduce the project's impact to a level that is less-than-significant, so project impacts would remain significant after implementation of mitigation measures.

Impact 4: Project regional emissions would exceed BAAQMD thresholds of significance, resulting in a cumulatively significant impact on regional air quality.

According to BAAQMD significance criteria, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Since the proposed project would exceed the BAAQMD thresholds of significance for Reactive Organic Gases, Nitrogen Oxides and $PM_{10}/PM_{2.5}$, the project would have a significant cumulative impact on regional air quality.

Mitigation Measure 4: See mitigation measure 3. Since available mitigation measures would not provide the nearly 50% reduction in emissions needed to reduce the project's impact to a level that is less-than-significant, project impacts would remain cumulatively significant after mitigation.

References

Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, December 1999.

California Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2003.

Jones and Stokes Associates, Software User's Guide: URBEMIS2002 for Windows wiith Enhanced Construction Module, Version 7.4, May 2003.

Appendix 1: Carbon Monoxide Screening Procedure Spreadsheet Output

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Stanley			
Case:	No Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2611	Conc.	6.7	4.6
Volume 2:	678			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Stanley			
Case:	Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2869	Conc.	7.3	5.0
Volume 2:	1477			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Isabel/Stanley			
Case:	cum+ Proj			
Year:	2010			
Volume 1:	2930	Conc.	5.4	3.7
Volume 2:	1486			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Stanley			
Case:	cum+ Proj			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	2518	Conc.	4.0	2.6
Volume 2:	2230			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Vallecitos			
Case:	No Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2132	Conc.	6.1	4.1
Volume 2:	206			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Vallecitos			
Case:	Existing + Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2261	Conc.	6.2	4.2
Volume 2:	335			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Isabel/Vallecitos			
Case:	cum+ Proj			
Year:	2010			
Volume 1:	2638	Conc.	5.3	3.6
Volume 2:	1716			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Vallecitos			
Case:	cum+ Proj			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	1851	Conc.	3.8	2.5
Volume 2:	781			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Discovery			
Case:	Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2519	Conc.	6.8	4.7
Volume 2:	1287			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Isabel/Discovery			
Case:	Project			
Year:	2010			
Volume 1:	3088	Conc.	5.5	3.7
Volume 2:	1277			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Isabel/Discovery			
Case:	Project			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	5754	Conc.	4.4	2.9
Volume 2:	1487			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Stanley/Wall			
Case:	no Project			
Year:	2004			
Volume 1:	2640	Conc.	6.7	4.6
Volume 2:	572			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.7			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Stanley/Wall			
Case:	Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2859	Conc.	6.9	4.7
Volume 2:	584			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.7			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Sipreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Stanley/Wall			
Case:	Project			
Year:	2010			
Volume 1:	3234	Conc.	5.4	3.7
Volume 2:	585			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.7			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Stanley/Wall			
Case:	Project			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	2510	Conc.	3.9	2.6
Volume 2:	631			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.7			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Stanley/Murrietta			
Case:	no Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	2275	Conc.	6.6	4.5
Volume 2:	1180			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Stanley/Murrietta			
Case:	Project			
Year:	2004			
Volume 1:	2414	Conc.	6.7	4.6
Volume 2:	1180			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

			1-Hour	8-Hour
Intersection:	Stanley/Murrietta			
Case:	Project			
Year:	2010			
Volume 1:	2867	Conc.	5.4	3.6
Volume 2:	1460			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Stanley/Murrietta			
Case:	Project			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	1926	Conc.	3.9	2.5
Volume 2:	1383			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Holmes/Concannon			
Case:	No Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	1842	Conc.	6.2	4.2
Volume 2:	1447			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Holmes/Concannon			
Case:	Project			
Year:	2004			
			1-Hour	8-Hour
Volume 1:	1867	Conc.	6.3	4.3
Volume 2:	1641			
EMF (g/mile)	14.05			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.9			
8-Hour Backgr.	2.6			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Holmes/Concannon			
Case:	Project			
Year:	2010			
			1-Hour	8-Hour
Volume 1:	1887	Conc.	4.9	3.3
Volume 2:	1830			
EMF (g/mile)	8			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Slpreadsheet to Calculate CO Using BAAQMd Screening Method

Intersection:	Holmes/Concannon			
Case:	Project			
Year:	2025			
			1-Hour	8-Hour
Volume 1:	1052	Conc.	3.7	2.4
Volume 2:	1023			
EMF (g/mile)	2.084			
Norm. CO Road 1	7			
Norm. CO Road 2	2.6			
1-Hour Backgr.	3.5			
8-Hour Backgr.	2.3			

Appendix 2: URBEMIS2002 Output

URBEMIS 2002 For Windows 7.4.2

File Name: A:\oakspark.urb
Project Name: Oaks Business Park
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Office park	109.91	113.03	1,190.51	0.92	139.68
Manufacturing	39.80	34.22	358.53	0.28	42.11
TOTAL EMISSIONS (lbs/day)	149.71	147.25	1,549.03	1.20	181.79

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Office park	8.11 trips / 1000 sq. ft.	1,635.49	13,263.85
Manufacturing	3.82 trips / 1000 sq. ft.	1,090.33	4,165.06

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0
Manufacturing				41.5	20.8	37.8

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Operations

The operational emission year changed from 2004 to 2010.
The travel mode environment settings changed from both to: non-residential
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
     has been changed from off to on.
Mitigation measure Provide Securre Bicycle Parking:1
     has been changed from off to on.
Mitigation measure Provide Employee Lockers and Showers:1
     has been changed from off to on.
Mitigation measure Shuttle Bus Service to Transit/Multi-Modal Center:2
     has been changed from off to on.
Mitigation measure Preferential Carpool/Vanpool Parking:1.5
     has been changed from off to on.
Mitigation measure Employee Rideshare Incentive Program:1
     has been changed from off to on.
Mitigation measure Day Care Center Onsite or Within 1/2 Mile:1
     has been changed from off to on.
Mitigation measure Employee Telecommuting Program:
     has been changed from off to on.

APPENDIX E

Environmental Noise Analysis

Bollard & Brennan, Inc., *Environmental Noise Analysis, The Oaks Business Park, City of Livermore*, September, 2003.

Environmental Noise Analysis

The Oaks Business Park

City of Livermore, California

Bollard & Brennan Job # 2001-190

Prepared For:

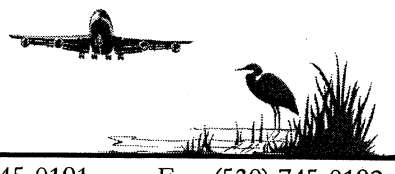
Pacific Municipal Consultants
225 H Cannery Row
Monterey, CA 93940

Prepared By:

Bollard & Brennan, Inc.

Paul Bollard, President
Member, Institute of Noise Control Engineers

Updated September 24, 2003



Bollard & Brennan, Inc.
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ENVIRONMENTAL SETTING

Project Location and Description:

The Oak Business Park Project is located at the southwest quadrant of the intersection of Jack London Blvd. and Isabel Ave. in the City of Livermore, California. The project proposes the creation of 35 to 40 parcels ranging in size from 2 to 16 acres for uses under the Light Industrial (I-2) designation. The project site is currently zoned I-2, so no substantive changes in the types of noise-generating uses are anticipated as a result of the subdivision of the site. This section discusses the noise environment in the project vicinity and potential noise impacts due to the project.

Acoustical Terminology:

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by the A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Table 1
Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptor, Ldn, and shows very good correlation with community response to noise.

The Day-night Average Level (Ldn) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Existing Land Uses in the Project Vicinity:

The project site is currently vacant and undeveloped. It is bordered to the north by Jack London Blvd., to the south by railroad tracks parallel to Stanley Blvd., to the west by land under development, and to the east by Isabel Ave. The only noise sensitive uses in the immediate project vicinity is a single family residential community located approximately 300 feet to the east of the project site across Isabel Avenue.

Existing Noise Environment in the Project Vicinity:

Due to the very large size of the project site (178 acres), the existing ambient noise environment in the project vicinity varies considerably. For example, the existing ambient noise environment in the northern portion of the project site is defined by a combination of aircraft and traffic noise. In the eastern portion of the site, the ambient noise environment is defined mainly by traffic on Isabel Ave. To the south, Stanley Boulevard traffic and railroad activities influence the ambient noise environment. Although intermittent aircraft operations occur over the project site, the dominant noise source tends to be traffic.

General Ambient Noise Levels:

To generally quantify the existing ambient noise environment in the project vicinity, a short-term ambient noise level measurement survey was conducted at four locations on the project site on September 25th, 2001. The noise measurement locations are shown on Figure 1.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the noise level measurement survey. The meter was calibrated before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The noise level measurement survey results are provided below in Table 2. The ambient noise monitoring survey revealed that ambient noise levels at the project site along Jack London Blvd. and Isabel Ave. are elevated, as would be expected in such close proximity to major roadways. This fact in important in that the only identified noise sensitive area in the immediate project vicinity is adjacent to Isabel Avenue.

Table 2
Ambient Noise Monitoring Results
Oak Business Park - September 25, 2001

Site	Location	Average (L_{eq})	Median (L_{50})	Maximum (L_{max})	Noise Sources
1	North side of Project Site	53	48	68	Jack London Blvd + Airport activity
2	East side of Project Site	58	53	73	Isabel Ave.
3	South side of Project Site	45	43	56	None- Background + Single Aircraft
4	West side of Project Site	46	43	48	None-Background

Source: Bollard & Brennan, Inc.
Noise measurement locations are shown on Figure 1.

Existing Traffic Noise Levels:

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly Leq values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the Traffic Impact Study prepared for the project by TJKM Transportation Consultants (July 31st 2001). The data is provided in that report in the form of intersection turning movements. Truck usage on the local area roadways were estimated from field observations.

Table 3 shows the existing traffic noise levels in terms of Ldn at a reference distance of 100 feet from the centerlines of the existing project-area roadways (baseline conditions). This tables also shows the distances to existing traffic noise contours.

The baseline conditions were used to assess pre-project noise levels since it represents existing plus currently approved project conditions. The extent by which existing land uses in the project vicinity are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise. A complete listing of the FHWA Model input data is contained in Appendix A.

Table 3
Existing Average Daily Traffic Volumes (ADT), Noise Levels and Distances to Contours
Oak Business Park - Livermore, California

				Distance to Contours (feet)		
Roadway	Segment	ADT	Leq/Ldn @ 100 Feet	70 dB	65 dB	60 dB
Jack London Blvd.	West of Isabel Ave.	665	53.4	8	17	37
	East of Isabel Ave.	8340	64.4	43	92	197
Isabel Ave.	North of Jack London Blvd.	10340	65.4	49	106	228
	South of Jack London Blvd.	7795	64.1	41	88	189
	South of Stanley Blvd.	8710	64.6	44	94	203
Stanley Blvd.	East of Isabel Ave.	23180	68.9	84	181	390

Source: FHWA-RD-77-108 with inputs from TJKM Trasnsportation Consultants and Bollard & Brennan, Inc.

REGULATORY SETTING

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. The City of Livermore General Plan Noise Element and CEQA provide regulations regarding noise levels for uses relevant to the proposed project. The following provides a general overview of the existing regulations established by the City and CEQA.

City of Livermore Noise Element Criteria:

The City of Livermore Noise Element establishes land use compatibility criteria for a variety of land uses in terms of Day / Night Average Levels (Ldn). The uses with the highest degree of sensitivity have the lowest corresponding land use compatibility criteria with respect to noise. Specifically, residential uses are considered acceptable in exterior noise environments up to 60 dB Ldn without noise mitigation, and as high as 70 dB Ldn with mitigation. Commercial and industrial uses are considered acceptable in exterior noise environments up to 70 and 75 dB Ldn, respectively, without noise mitigation, and as high as 80 dB Ldn with mitigation.

CEQA Noise Criteria:

Criteria for determining the significance of noise impacts were developed based on information contained in the California Environmental Quality Act Guidelines (State CEQA Guidelines). According to those guidelines, a project may have a significant effect on the environment if it will satisfy the following conditions:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

c. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

It is generally recognized that an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. A common practice is to assume that a clearly noticeable increase of 5 dB will trigger a finding of significance.

SPECIFIC IMPACTS AND MITIGATION MEASURES

Standards of Significance:

Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed, as discussed previously in the Regulatory Setting heading of this Section. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local planning criteria or ordinances, or substantially increase noise levels at noise-sensitive land uses. For this analysis, noise impacts associated with the proposed project would be considered significant if the following were to occur:

- Expose the existing noise-sensitive land uses in the project vicinity to noise levels generated by on-site activities (sources other than off-site traffic) in excess of the City of Livermore General Plan Noise Element standards.

- Expose existing noise-sensitive land uses to a traffic noise level increase of 5 dB or more.

Method of Analysis:

Identified potentially significant noise-producing components of this project at existing noise-sensitive land uses in the general project vicinity are project-related construction, increased traffic noise on the local roadway network, and noise generated by the individual uses within the Oaks Business Park. This analysis focuses on those noise sources.

Off-Site Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at a representative distance for both existing and future, project and no-project conditions. Noise impacts are identified at existing noise-sensitive areas if the noise level increases which result from the project exceed the significance criteria of 5 dB. The traffic noise levels were predicted using the same modeling methodology described in the Setting Section, using the inputs contained in appendix A.

Tables 4 and 5 show the predicted traffic noise level increases on the local roadway network for existing and cumulative conditions, respectively. The Tables are provided in terms of Ldn at a standard distance of 100 feet from the centerlines of the project-area roadways.

Table 4
Predicted Baseline Traffic Noise Levels
Oaks Business Park Project - Livermore, California

		Ldn, dB at 100 feet from Roadway Centerline		
Road	Segment	No Project	Project	Change
Jack London Blvd.	West of Isabel Ave.	53.4	66.7	13.3
	East of Isabel Ave.	64.4	66.8	2.4
Isabel Ave.	North of Jack London Blvd.	65.4	67.1	1.7
	South of Jack London Blvd.	64.1	68.5	4.4
	South of Stanley Blvd.	64.6	67.3	2.6
Stanley Blvd.	East of Isabel Ave.	68.9	69.6	0.7

Source: FHWA RD-77-108 with inputs from DKS & Bollard & Brennan, Inc.

Table 5
Predicted Cumulative Traffic Noise Levels
Oaks Business Park Project - Livermore, California

		Ldn, dB at 100 feet from Roadway Centerline		
Road	Segment	No Project	Option 1	Change
Jack London Blvd.	West of Isabel Ave.	69.7	71.8	2.1
	East of Isabel Ave.	69.0	70.1	1.1
Isabel Ave.	North of Jack London Blvd.	71.5	72.2	0.7
	South of Jack London Blvd.	71.2	72.3	1.1
	South of Stanley Blvd.	69.8	70.4	0.6
Stanley Blvd.	East of Isabel Ave.	67.6	68.8	1.2

Source: FHWA RD-77-108 with inputs from DKS & Bollard & Brennan, Inc.

On-Site Noise Source Impact Assessment Methodology

The types of uses which are allowed under the current and proposed Light Industrial (I-2) zoning include light manufacturing, assembly, warehousing and distribution facilities, research and development, and professional and administrative office uses. The noise generation of these uses can vary considerably, with certain types of manufacturing processes generating very high noise levels while professional and administrative office uses generate negligible levels of noise. Furthermore, if a very loud process is housed inside an equipment building, it may not even be audible outside of the building. Due to the myriad possibilities for noise sources, locations, and operating characteristics, it is infeasible to predict project-specific noise impacts for future uses within the Oaks Business Park.

Due to the considerable distance between what will be the nearest Business Park uses to Isabel Avenue and the existing residences to the east, and due to masking of industrial noise at those residences by existing and future Isabel Avenue traffic noise, the potential for adverse noise impacts at those nearest residences from on-site activities is projected to be low. Nonetheless, the zoning of the business park allows for certain uses which could generate significant noise levels. Therefore, the potential for off-site adverse noise impacts exists, even though it cannot practically be quantified at this time.

Although the makeup of the uses within the Oaks Business Park is unknown at this time, it is likely that many of the future uses developed within the Oaks Business Park will utilize trucks for the delivery of raw materials and shipment of finished products, particularly uses involved in manufacturing, assembly, and warehousing and distribution facilities. Noise generated by truck movements while inside the business park will likely be insignificant at the nearest noise sensitive uses located east of Isabel Avenue, and off-site truck traffic noise is analyzed under the "Off-Site Traffic Noise Impact Assessment Methodology" section of this report.

Construction Noise Impact Assessment Methodology:

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 85 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Table 6
Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Environmental Noise Pollution, Patrick R. Cunniff, 1977.

SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1: **Increase in Existing Traffic Noise Levels.** The project will generate increased traffic on the existing roadway network. According to Table 4, the project-generated traffic is expected to result in traffic noise level increases over existing/baseline levels ranging from 0.4 to 14.1 dB Ldn.

Pursuant to the project's Significance Criteria, a substantial increase in traffic noise levels is defined as 5 dB. The only roadway segment for which project- generated traffic is predicted to cause an increase of more than 5 dB is Jack London Boulevard, west of Isabel Avenue. However, because there are no existing noise-sensitive land uses located along this roadway segment, no noise impact is identified. **Therefore, this impact is considered less than significant.**

Mitigation for Impact 1: *None Required.*

Impact 2: **Cumulative Increase in Traffic Noise Levels.** The project will contribute to cumulative traffic on the roadway network. The project-generated traffic is expected to result in traffic noise level increases over cumulative no-project levels ranging from 0.7 to 2.1 dB Ldn on the project area roadways, as indicated by Table 5.

Pursuant to the Project's Significance Criteria, a substantial increase in traffic noise levels is defined as 5 dB. The project's contribution to cumulative traffic noise levels is predicted to be less than 5 dB. **Therefore, this impact is considered less than significant.**

Mitigation for Impact 2: *None Required.*

Impact 3 **Impacts of On-Site Noise Sources at Existing Residences:** As stated in the methodology section of this report, noise impacts associated with future uses developed within the Oaks Business Park cannot practically be evaluated due to the wide range of variables which will affect such noise generation. Nonetheless, because noise-producing uses would be allowed under the light-industrial zoning, and because there are existing noise sensitive land uses on the east side of Isabel Avenue, **this impact is considered potentially significant in need of mitigation.**

Mitigation for Impact 3:

Implementation of the following noise mitigation measures would reduce this impact to a *less than significant level.*

MM3a The CC&R's developed for the Oaks Business Park shall require all uses developed within the Park to generate noise levels which comply with City of Livermore Noise Element standards.

MM3b During project review, the Zoning Administer shall make a determination as to whether or not the proposed use would likely generate noise levels which could adversely affect residences to the east. If it is determined from this review that proposed uses could generate excessive noise levels at existing noise-sensitive uses, the applicant shall be required to prepare an acoustical analysis to ensure that all appropriate noise control measures are incorporated into the project design so as to mitigate any noise impacts. Such noise control measures include, but are not limited to, use of noise barriers, site-redesign, silencers, partial or complete enclosures of critical equipment, etc.

Impact 4: **Construction Noise.** Activities associated with construction will result in elevated noise levels, with maximum noise levels ranging from 85-90 dB at 100 feet, as shown in Table 7. Construction activities would be temporary in nature and would likely occur during normal daytime working hours. Nonetheless, because construction activities would result in periods of elevated noise levels, **this impact is considered potentially significant.**

Mitigation for Impact 4:

Implementation of the following noise mitigation measures would reduce this impact to a *less than significant level.*

MM 4: Construction activities should adhere to the requirements of the City of Livermore with respect to hours of operation.

Appendix A
FHWA Traffic Noise Prediction Model Inputs
The Oaks Business Park - City of Livermore

Roadway	Segment	Average Daily Traffic Volume			
		Existing	Exist. + Project	Cumulative	Cum. + Project
Jack London Blvd.	West of Isabel Ave.	665	14160	28295	45485
	East of Isabel Ave.	8340	14545	24035	60435
Isabel Ave.	North of Jack London Blvd.	10340	15470	42015	49975
	South of Jack London Blvd.	7795	21290	39450	51635
	South of Stanley Blvd.	8710	16000	29010	33110
Stanley Blvd.	East of Isabel Ave.	23180	27520	17395	23065

Source: DKS Associates, Inc. and Bollard & Brennan, Inc
Day / Night distribution for all roadway segments was assumed to be 83% / 17%
Truck usage was 3% Medium and 3% Heavy.
Vehicle speeds for all segments were assumed to be 50 mph.

APPENDIX F

Cultural Resources Study

LSA Associates, Inc., *A Cultural Resources Study for the Oaks Business Park Project, Livermore, Alameda County, California*, September 21, 2000.

A CULTURAL RESOURCES STUDY FOR THE OAKS BUSINESS PARK PROJECT, LIVERMORE, ALAMEDA COUNTY, CALIFORNIA

Prepared
for

Livermore Airway Associates, LLC

Prepared
by

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LSA Project #GWW030

September 21, 2000

CONFIDENTIAL

This report contains confidential cultural resources location information; report distribution should be restricted to those with a need to know. Cultural resources are nonrenewable, and their scientific, cultural, and aesthetic values can be significantly impaired by disturbance. To deter vandalism, artifact hunting, and other activities that can damage cultural resources, the locations of cultural resources should be kept confidential. The legal authority to restrict cultural resources information is in California Government Code 6254.1 and the National Historic Preservation Act of 1966, Section 304.

CONTENTS

Introduction

This report presents the results of a cultural resources study of a 178-acre property in the city of Livermore, Alameda County, California. The study was conducted by LSA Associates, Inc. (LSA) at the request of Livermore Airway Associates, LLC. The latter firm proposes to develop approximately 157 acres of the property for light industrial uses, with multiple buildings, paved parking lots, and a drainage outflow to a nearby watercourse.

The purposes of this study, in accordance with the California Environmental Quality Act and the California Register of Historical Resources (California Register), were to 1) identify and record any cultural resources within the study area; 2) make preliminary evaluations of such resources' significance based on their eligibility for listing on the California Register; and 3) recommend procedures for avoidance or mitigation of adverse effects to resources that are potentially significant. The study consisted of background research and a field survey of the study area.

The records and literature search indicated that one previous cultural resource study has been conducted within the study area, and that a cultural resource, historic archaeological site CA-ALA-518H, was recorded as part of that study. The field study for the Oaks Business Park project identified several previously unrecorded cultural resources, all of which are either in close proximity to, or are functionally associated with, CA-ALA-518H. The original record for that site, completed in 1990, has been updated and supplemented to include these new discoveries. CA-ALA-518H's features and constituents are not unique, are in poor condition, lack stratigraphic integrity, and appear to lack scientific value. The field documentation is sufficient to realize the minimal data potential of this site. Therefore, the site is considered to be not significant, and, according to the criteria of the California Register, not eligible for listing on the California Register of Historical Resources. Further study or avoidance of this resource is not recommended. See the ***Study Results*** and ***Discussion and Recommendations*** sections of this report for details.

Study Area

The study area encompasses 177.68 acres in the Livermore Valley, at the northwest edge of the City of Livermore (Figures 1 and 2). It is directly south of the City's municipal airport and its water reclamation plant, and is bounded by W. Jack London Boulevard and undeveloped land on the north, residential development and the State Route 84/Isabel Avenue Extension Project on the east, undeveloped land along Arroyo Mocho and Stanley Boulevard on the south, and a gravel mining operation on the west. The west and south edges conform to the city boundary of Livermore. The entire perimeter of the study area is fenced and dirt roads extend the length of the study area on the east and west sides. The majority of the study area is a large open field. The study area also includes a narrow strip of fenced roadway that extends south from the west side of the field, crosses Arroyo Mocho, and accesses railroad tracks and Stanley Boulevard. The study area also includes a portion of Arroyo Mocho west of a bridge over the stream. The study area is within the lands of the former Rancho Valle de San Jose in Township 3 South, Range 1 East (MDBM), as depicted on the 1961 USGS 7.5' Livermore quadrangle map, and earlier USGS maps.

The elevation of the study area ranges from 395 to 418 feet above mean sea level, and the land is mostly flat and devoid of trees. It has been cleared and partially leveled for agricultural purposes, and was used as farmland for at least a century. As recently as two years ago it was used for

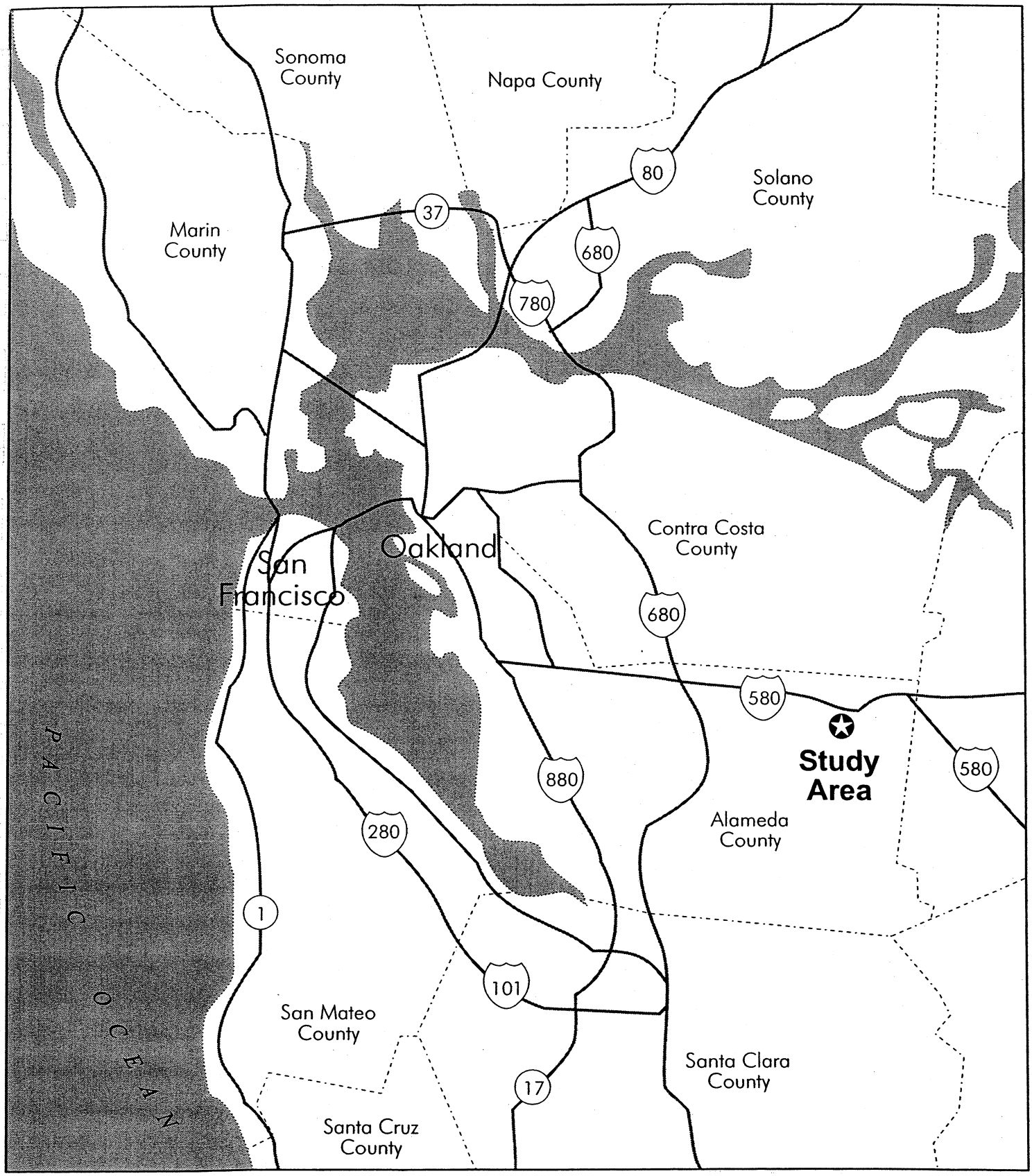

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Figure 1

N

LSA

Scale in miles

0 10

Regional Location

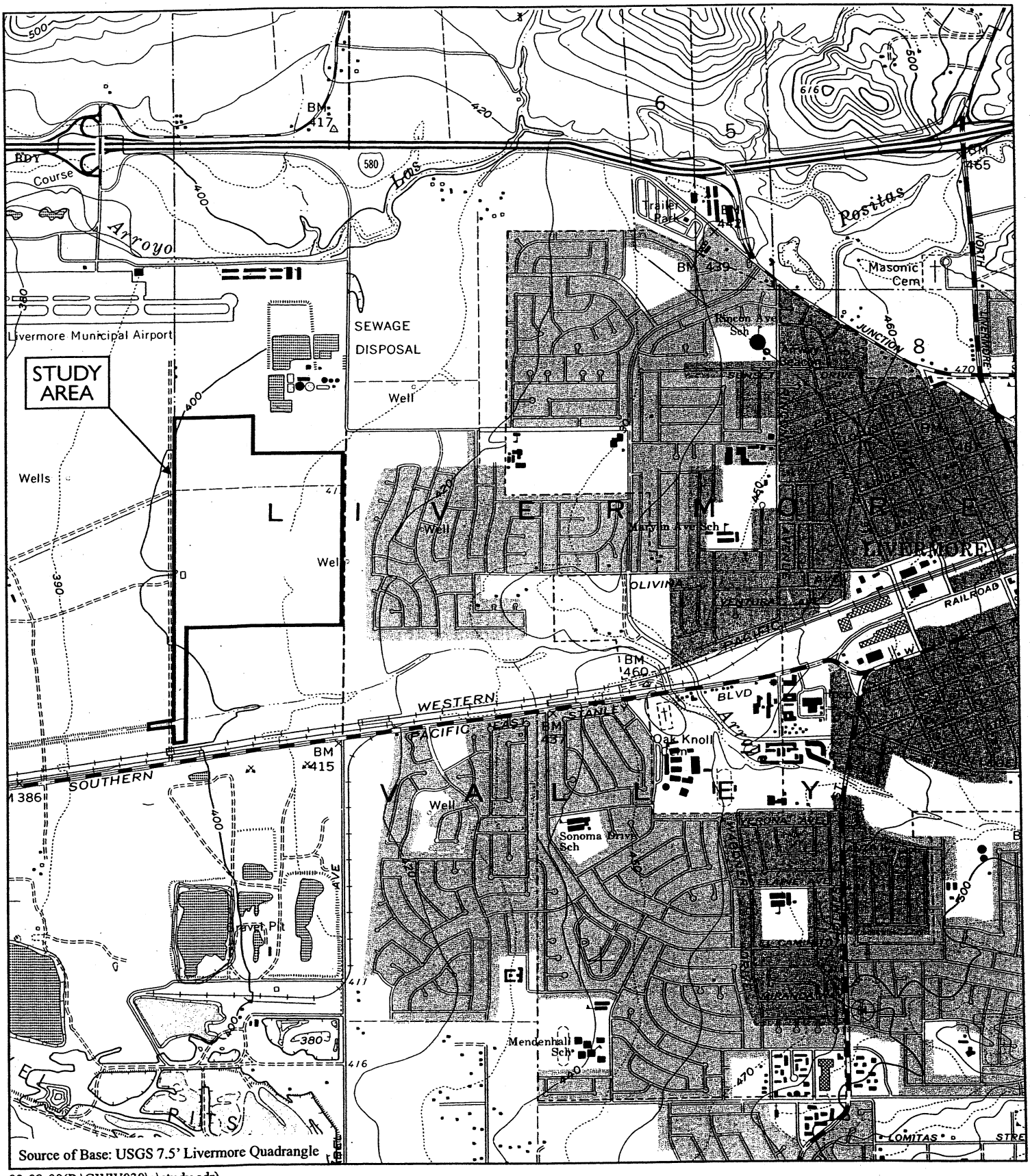

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Figure 2

N

LSA

Scale in feet

0 2000

Study Area Map

safflower cultivation. Today, the entire study area is disced and fallow, and is dominated by star thistle. Coyote brush, turkey mullein, morning glory, and other plant species are also present. Soils are Holocene age coarse-grained alluvial deposits of Yolo loams and gravelly loams on 0 - 3% grades, and Livermore very gravelly coarse sandy loams (Welch 1981; Helley, LaJoie, Spangle, and Blair 1979). In the south half of the field is a broad, shallow, westerly-flowing arroyo. This seasonally dry, unnamed drainage is also thistle-covered and disced, but supports two large valley oaks and a large Western sycamore tree. Arroyo Mocho, at the south end of the study area, also flows west and is fringed by sparse to dense riparian woodland. Arroyo Mocho contained flowing water at the time of the field study.

Study Methods

The study consisted of prefield research and a field survey.

Background research included a records search at the Northwest Information Center of the California Historical Resources Information System. The Center, housed at Sonoma State University in Rohnert Park, California, is an affiliate of the State of California Office of Historic Preservation and is the official state repository of cultural resources records and reports for an 18-county area, including Alameda County. The search at the Information Center was augmented with research of publications on file at LSA's Point Richmond office. These included the California Department of Parks and Recreation's *California Inventory of Historic Resources* (1976) and the Office of Historic Preservation's *California Historical Landmarks* (1996), *Five Views: An Ethnic Historic Site Survey for California* (1988), and *California Points of Historical Interest* (1992). Also reviewed was the Information Center's *Directory of Properties in the Historic Property Data File* (4 April 2000), which includes the listings of the National Register of Historic Places and the California Register of Historical Resources, along with the most recent listings of the California Historical Landmarks and California Points of Historical Interest. See ***References, Publications, and Maps Reviewed*** for a complete list of the publications and maps reviewed.

A mixed-strategy, pedestrian field survey of the study area was conducted by LSA archaeologists on August 22 and 23, 2000. Almost all of the study area was covered with thistle and other plants and ground visibility was generally fair to poor. Rodent backdirt piles often provided the only observable earth. With three exceptions, the area was walked in parallel, east-west transects of 20-30 meters width, and open ground was inspected for the presence or absence of archaeological materials. One exception was land between two fences that parallel the unnamed arroyo, which was covered intensively in 5-m wide or narrower transects. Within this arroyo, site CA-ALA-518H was relocated, its condition and present surface character assessed, and its archaeological site record updated to reflect new discoveries and conditions. Another exception was the north and south banks of Arroyo Mocho, which were closely inspected for a distance of approximately 100 meters west of the bridge and access road. The narrow strip of dirt access road and its east side were also intensively surveyed.

Study Results

Prior to this study, one cultural resources management project had been conducted within the study area, and a second one adjacent to it. The former was a linear survey of the proposed State Route 84 Extension project along Isabel Road, which apparently covered an eastern portion of the present study area and resulted in the recording of CA-ALA-518H (see Macdougall, Doyle, and Walsh 1990). However, no report detailing the location of surveyed ground is available from the Northwest Information Center. At the gravel mining operation immediately west of the study area, Holman (1983) conducted a surface survey and an intensive subsurface trenching program that focused on the potential for buried prehistoric archaeological deposits along the present or former course of Arroyo Mocho. Buried deposits have been found in similar contexts further downstream (some distance from the present study area) and portions of the gravel operation were considered to be archaeologically sensitive. The only cultural resources identified during these studies were surface or near-surface historic remains with no prehistoric remains found.

Site CA-ALA-518H, the only cultural resource previously recorded within the present study area, was originally described as being two concentrations of cut timber/lumber that contained modern and historic debris, such as square nails, a steel pipe and other hardware, a section of picket fence, at least 50 cut timbers of various sizes, a galvanized bucket, and a beverage and sanitary can (A. Macdougall, M. Doyle, B. Walsh 1990). The site was recorded as lying 150 feet west and 35 feet north of a barbed wire fence. The site was relocated during this study, and found to be in a location other than previously recorded and mapped. Also, the character and condition of the site have apparently changed during the last decade, as it was found to be sparser and less visible than previously observed, with only the site's smaller, "secondary" concentration still present. Although its historical function was not interpreted in the 1990 record, the site might reflect refuse disposal.

Several previously unrecorded cultural resources were identified during the field study, each within or alongside the arroyo. Together with CA-ALA-518H, they comprise a complex of features and artifacts that reflects local agricultural activity, dating broadly from "historic" times to the recent past. One cultural resource is a somewhat parallel length of barbed wire, wooden post fence that borders much of the arroyo on its north and south sides, and stretches for approximately 2300-2400 feet. Both wire and square nails are present in posts along each fenceline and one northern post contains four ceramic insulators. The fences are in a state of disuse and partial collapse and exhibit a history of maintenance and refurbishment, including the intermittent replacements of original posts with ones of modern steel. A small amount of standing fence and piled boards were found at the trees in the arroyo. Site CA-ALA-518H, as previously recorded, lies between the two fencelines, and its secondary concentration borders the south fence.

Another newly identified group of cultural resources was the remains of two structures and associated features and artifacts, which were found within the arroyo between the ends of the fences and the west edge of the study area. This group consists of the concrete foundation of a cattle weighing station, the burned remains of a former barn, an open shaft of a well, a concrete loading dock, and miscellaneous farming implements along with other artifacts of metal, brick, glass, plastic, as well as vegetation debris. Nothing identified in this area is unequivocally historic, as many of the artifacts are modern and others are fragmentary or otherwise not temporally sensitive. Local resident and agricultural contractor Norman Marciel provided limited feature identifications and a brief historical overview of the remains at the west end of the arroyo. He indicated that prior to the discontinuance of agricultural pursuits in the study area and a change of land ownership in the past

decade, this west-arroyo area had supported a dairy operation and was also used to store numerous mechanical and other agricultural implements. With the exception of two pieces of abandoned machinery, large items were removed seven or eight years ago and the area was generally cleaned up. Further, he identified a burned area at the end of the arroyo as the location of a barn, which he indicated had existed since historic times. This location corresponds to a single structure on the 1961 USGS Livermore map, but no structures in the study area appear on at least two earlier maps of the area (Thompson and West 1878, USGS 1906). More importantly, the barn could not be field-verified on the basis of available surface artifacts. Much of the area is covered with burned tin cans and other debris of recent vintage, as well as piles of discarded asphalt. Mr. Marciel also interpreted the function of a large concrete "step" as a loading dock used by trucks, and the concrete foundation as the location of cattle scales (weighing station). As with the barn, physical evidence for the ages and functions of these features could not be found, but despite the temporal ambiguity of this archaeological complex, it is likely that the area was used in some capacity during historic times. Mr. Marciel also indicated that the fences were used for excluding cattle from the arroyo. The weathered, semi-dilapidated nature of the fencelines, together with square nails within many of the posts, attest to the antiquity of these fences.

Based on spatial, material, and temporal considerations, the new arroyo discoveries appear to be associated with the originally recorded site CA-ALA-518H. Therefore, the existing site record was updated to reflect all new discoveries and observations, both within and outside the original site boundaries. Additional field documentation was completed to professional recording standards, with resources being recorded textually, photographically, and graphically on State of California DPR 523 forms. In expanding the geographic extent of CA-ALA-518H, the west-arroyo complex was labeled Locus A, and the area of two wood concentrations at the opposite end was labeled Locus B. Although the arroyo was vegetated during the survey, ground visibility was sufficiently adequate to identify the material remains of this cultural resource. See the attached Appendix (the CA-ALA-518H update) for detailed observations made at this site. No other cultural resources were identified in the study area.

Discussion and Recommendations

The California Environmental Quality Act (CEQA) states that it is the policy of the State of California to "take all action necessary to provide the people of this state with . . . historic environmental qualities . . . and preserve for future generations . . . examples of the major periods of California history" (Public Resources Code §21001 (b), (c)).

CEQA uses the criteria of the California Register of Historical Resources to determine whether or not a cultural resource is eligible for listing on the California Register and therefore afforded protection. These criteria are defined in the California Code of Regulations, Title 14, Chapter 11.5, §4852 and are as follows:

> An historical resource must be significant at the local, state, or national level under one or more of the following four criteria:
>
> 1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2) It is associated with the lives of persons important to local, California, or national history;

3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master of possesses high artistic values; or

4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

If an archaeological site is eligible for listing in the California Register, it must be protected from substantial adverse change. If the archaeological site is not eligible, further protection is not necessary unless it meets the definition of a unique archaeological resource as defined in the Public Resources Code at 21083.2.

The Public Resources Code at 21083.2 states that a "unique archaeological resource" is one that 1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; 2) has a special or particular quality such as oldest of its type or best available example of its type; or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

Archaeological sites are generally evaluated with respect to criterion 4 of the California Register of Historical Resources. The cultural resources identified during this study, and recorded in the aggregate as CA-ALA-518H, do not appear to be substantial enough or intact enough to address significant archaeological research themes and issues. While aerially extensive, its deposits are relatively minor in quantity and diversity, and are in generally poor condition. The site consists, in sum, of 1) a feature and artifact complex (Locus A) of nebulous age and poorly substantiated function(s); 2) by two rows of historic fences of common (and modified) construction, and which are in a semi-dilapidated state; and 3) by a very sparse, highly disrupted artifact scatter (Locus B) of low diversity and apparently minor function (possible trash dump). The larger, "primary" concentration of artifacts at this locus, which was reported to be mostly comprised of cut wood, could not be re-located. Likewise, the "secondary" concentration now contains only remnants of what was originally recorded (also mostly wood). It is probable that some or many of the site constituents have been destroyed or removed from this area within the past ten years.

The cultural resources comprising CA-ALA-518H 1) do not appear to be unique; 2) are not well dated and contain modern elements; 3) are in highly disturbed and apparently shallow contexts; and 4) serve as poor local representations of past farming and ranching lifeways. Hence, they appear to lack the necessary integrity to contain scientifically valuable data. Moreover, it is considered that data retrieved during the recent discoveries and site updating has realized the data potential of the site. There was also no indication that this archaeological site could convey the values associated with California Register criteria 1, 2, and 3. In consideration of the above conclusions, site CA-ALA-518H does not meet the criteria for listing on the California Register of Historical Resources. Further efforts to study, protect, or avoid the cultural resources of CA-ALA-518H are not recommended.

However, if intact deposits of prehistoric or historic materials are encountered during future construction activities, either within or outside of the present boundaries of CA-ALA-518H, all work within 50 feet should be halted until a qualified archaeologist can evaluate the findings and make

recommendations. Prehistoric materials can include flaked stone tools (e.g., projectile points, knives, and choppers) or tool making debris of obsidian, chert, quartzite, and other materials; culturally darkened soil (i.e., midden which often contains heat-affected rock, ash and charcoal, shellfish remains, and cultural materials); and stone milling equipment (e.g., mortars, pestles, and handstones). Historic materials might include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, metal, glass, ceramics, and other refuse.

Encountering Human Remains

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined whether or not the remains are subject to the coroner's authority. If human remains are encountered, work should halt within 50 feet of the find and the County Coroner notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. Pursuant to Section 5097.98 of the Public Resources Code, the Native American Heritage Commission will identify a Native American Most Likely Descendent to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods.

References, Publications, and Maps Reviewed

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APPENDIX
(CA-ALA-518H 1990 Site Record and 2000 Update)

Permanent Trinomial: CA-ALA-518H Supplement ☐

Other Designation: GD-4

Agency Designation.:

ARCHAEOLOGICAL SITE RECORD (HISTORIC)

1. **County:** Alameda

2. **USGS Quad:** Livermore (446A) (7.5') x (15') **Photorevised** 1980

3. **UTM Coordinates:** **Zone** 10 / 605260 **Easting** / 4171090 **Northing** ( )

4. **Township** 3S **Range** 1E ; 1/4 of 1/4 of 1/4 of 1/4 of **Section** N/A **Base (Mer.)** Mt.D ( )

5. **Map Coordinates:** 308 **mmS** 252 **mmE (from NW corner of map)**

6. **Elevation:** 410 feet (Air Photo No.:)

7. **Location:**
Site is located in a gentle swale in an open field. From the intersection of N. Livermore Avenue and I-580 proceed south on Livermore Ave. for 1.25 mile to it's intersection with Railroad Avenue. Turn west on Railroad Ave. and proceed 0.7 mile to it's intersection with Stanley Blvd. Proceed west on E. Stanley Blvd. for 1.4 mile to it's intersection with Isabel Avenue. Walk north for 0.45 mile. The site is 150 feet to the west, 35 feet north of a barbed wire fence.

( )

8. **Prehistoric** _____ **Historic** _x_ **Protohistoric** _____

9. **Site Description:**
The site consists of two concentrations of cut timber/lumber, one concntration being substantially larger than the other. Square nails were noted in material in both concentrations. Miscellaneous modern and historic debris is present.

( )

Site Type:

- ____ Trail/Road
- ____ Homestead/Ranch
- ____ Hunters Camp
- ____ Logging
- ____ Civilian Conservation Corps
- _x_ Other Material dump
- ____ Military/War
- ____ Pastoral Camp
- ____ Burial/Cemetary
- ____ Mining
- ____ Forest Service
- ____ Railroad

10. **Area:** 100 m. Length (Axis) x 45 m. Width (Axis) = 3534 sq.m
(328 ft. x 148 ft. = 0.9 acs.)
Method of Determination: Paced measurements

11. **Depth:** Unknown cm **Method of Determination:** N/A ( )
(in.)

12. **Features:**
Two concentrations of cut timbers.

- ____ House/cabin
- _x_ Dump
- ____ Well
- ____ Wood Fence
- ____ Rock Fence
- ____ Rock Alignment
- ____ Stamp Mill
- ____ Tailings
- ____ Ditch
- ____ Cut
- ____ Rock Foundations
- ____ Cement Foundations
- ____ Prospect
- ____ Mine Shaft
- ____ Mine Tunnel
- ____ Claim Post
- ____ _____
- ____ _____

( )

Permanent Trinomial: CA-ALA-518H Date: 06/14/90

Other Designation: GD-4

Agency Designation.:

ARCHEOLOGICAL SITE RECORD

13. **Artifacts:**

Aritifacts include miscellaneous steel debris such as pipe and other hardware, a section of picket fence, 50+ cut timbers of various sizes, square cut nails, a 7 1/2 x 3 3/8 inch beverage can and a 4 x 3 inch sanitary can. Both cans were opened with a church key. A galvanized steel bucket was also present.

( )

____ Bottles/Glass	____ Ceramics	_x_ Cans (Food)
____ Buttons	____ Shoes/Boots	_x_ Beer Cans
____ Misc. domestic	____ Harness/Tack	____ Cooking Utensils
____ Farm Equipment	____ Mining Equipment	____ Round(Wire) Nails
_x_ Square (cut) Nails	____ Vehicles	____ _____

Chronology:

____ WWII – Modern (1940+)	____ Turn-of-the-Century (1900 – 1909)
____ Depression (1930 – 1939)	____ 1890s
____ Post WWI (1920 – 1929)	____ 1870s – 1880s
____ WWI (1910 – 1919)	____ Pre-1870 (Emigrant/Early Settlement)

Bottle Marks:

Ceramic Marks:

Other Marks (Patents, etc.):

14. **Non-Artifactual Constituents:**

None Observed

( )

15. **Date Recorded:** June 14, 1990 16. **Recorded By:** A. Macdougall, M. Doyle, B. Walsh ( )

17. **Affiliation and Address:** Dames & Moore, 60 Declaration Drive, Suite B, Chico, CA 95926 ( )

18. **Human Remains:**

None observed. ( )

19. **Site Disturbances:**

None observed

( )

(Site Condition: Excellent ____ Good _x_ Fair ____ Poor ____)

20. **Nearest Water (type, distance, direction):** Arroyo Las Positas is 1 mile north. ( )

21. **Vegetation Community (site vicinity):** Valley Grasslands ( )

ARCHEOLOGICAL SITE RECORD

Page 3 of 6

Permanent Trinomial: CA-ALA-518H **Date:** 06/14/90

Other Designation: GD-4

Agency Designation.:

22. **Vegetation Community (on site):** Various grasses, star thistle, mustard. ( )

23. **Site Soil:** grey-brown sandy silt with gravels ( ) 24. **Surrounding Soil:** Same as site vicinity ( )

25. **Geology:** Alluvial Plain ( ) 26. **Landform:** Valley Floor ( )

28. **Slope:** 1° ( ) (Aspect:)

28. **Exposure:** Open ( )

29. **Landowner(s) (and/or tenants) and Address:**

Unknown

( )

30. **Remarks:**

None

( )

Data Categories (Historic):

____ Settlement Patterns
____ Economic Pursuits
____ Mining Technology
____ Domestic Organization
____ Forest Service History
____ Subsistence Patterns
____ House Construction and Use
____ Military History
____ Ranching/agricultural Practices
____ Civilian Conservation Corps History

Significance Level:

____ Very significant (Level I)
____ Significant (Level II)
____ Limited Significance (Level III)

NRHP Eligibility:

____ Yes (FS Class I)
____ Potentially (FS Class II)
____ Not Eligible (FS Class III)

Management Recommendation:

____ Preservation ____ Interpretation
____ Conservation ____ None

31. **References:**

None

Historic Documents:

( )

32. **Name of Project:**

Route 84 between I-680 and I-580 ( )

33. **Type of Investigation:** Intensive Pedestrian Survey ( )

4. **Artifact Accession No.:** **Curated At:** ( )

35. **Photos (Type):** T-Max 100 B&W prints. **Taken By:** B. Walsh

Accession Number: Route 84 Roll 2 Frames 18-23 **Negatives At:** Dames & Moore, Chico, CA ( )

ARCHEOLOGICAL PHOTOGRAPHIC RECORD

Permanent Trinomial: CA-ALA-518H / June 14, 1990 (mo. da. yr.)

Other Designation: GD-4

Agency Designation:

Camera and Lens Types	Film Type and Speed	
Canon AE-1 P 35-105 mm	T-Max 100 B&W Prints	1990

Mo	Day	Time	Exp./Frame	Subject/Description	View Tow.	Roll Number
06	14	1500	18	View of secondary concentration	W	2
06	14	1500	19	View of secondary concentration	E	2
06	14	1500	20	View of primary concentration	N	2
06	14	1500	21	View of primary concentration	E	2
06	14	1500	22	Site overview	SW	2
06	14	1500	23	Site overview	N	2

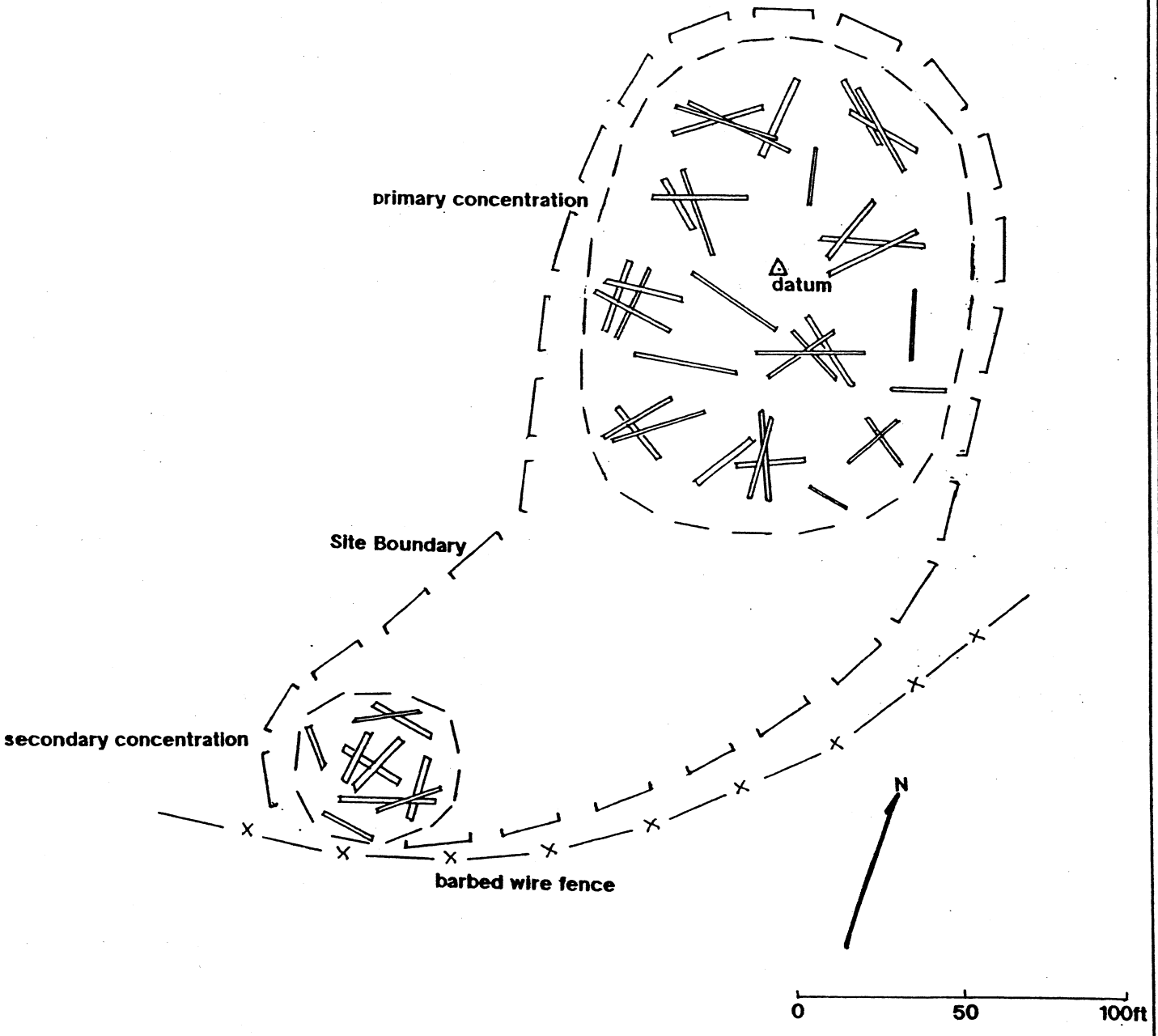
ARCHAEOLOGICAL SITE MAP

Permanent Trinomial: CA-ALA-518H

Other Designations: GD-4

Agency Designation:

June (Mo.) 90 (Yr.)



ARCHAEOLOGICAL SITE LOCATION MAP

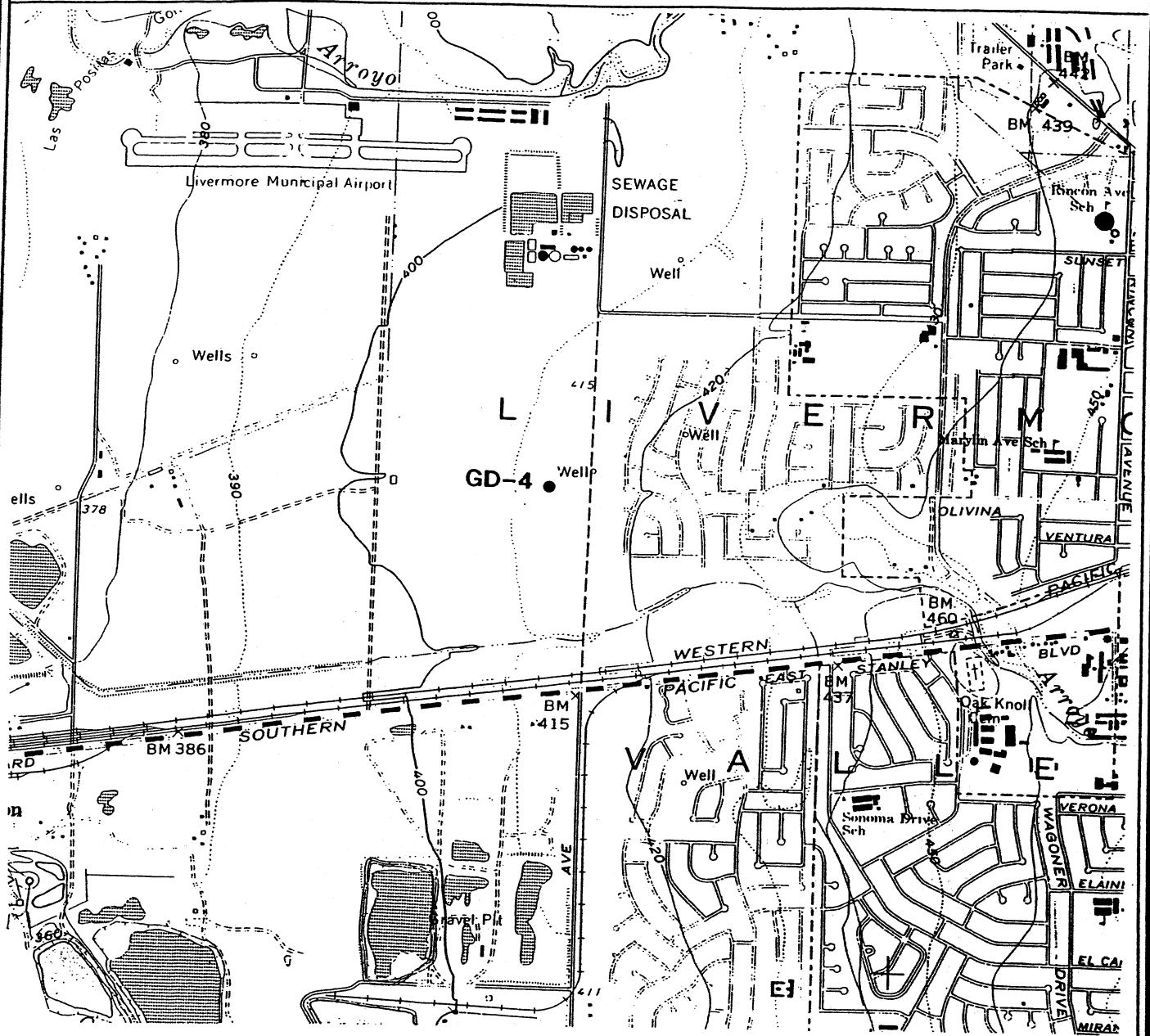
Page 6 of 6

Permanent Trinomial: CA-ALA-518H

Other Designations: GD-4

June 90
Mo. Yr.

Agency Designation



LIVERMORE QUADRANGLE
CALIFORNIA-ALAMEDA COUNTY (1980)
7.5 MINUTE SERIES (TOPOGRAPHIC)

1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #_____
HRI #_____
Trinomial # CA-ALA-518H (update)
NRHP Status Code_____
Other Listings_____
Review Code _____ Reviewer _____ Date_____

Page 1 of 6 *Resource Name or #: Oaks Business Park Agricultural Remains

P1. Other Identifier: GD-4

***P2. Location:** ☒ Not for Publication ☐ Unrestricted *a. County Alameda

*b. USGS 7.5' Quad Livermore Date 1961 T 3S ; R 1E ; - ¼ of - ¼ of Sec - ; Mt. Diablo B.M.

c. Address (N/A) City Livermore, Calif. Zip (N/A)

d. UTM: Zone 10 ; NE corner: 605400 mE / 4171170 mN SE corner: 605400 mE / 4171050 mN
NW corner: 604650 mE / 4171180 mN SW corner: 604650 mE / 4171100 mN

e.Other Locational Data: Within APN 904-5-7. Encompasses most of a long, shallow arroyo in the south half of an open field that is proposed for commercial development (Oaks Business Park), approximately 1/4 mile south of the Livermore Municipal Airport, and just within present Livermore city limits, on the west side of Isabel Road/State Route 84.

***P3a. Description:** Historic and modern agricultural remains associated with a shallow arroyo and bordered by cleared, leveled, former farmland. The west end of the site is a complex of dairy remains (Locus A), which contains a concrete cattle scale foundation, a water well, the burned remains of a barn, and a concrete loading dock. The central part of the site is characterized by two abandoned, historic fences that parallel the arroyo and which extend to the east end of the site. The east end, between the fences, is a sparse, disturbed scatter of historic refuse (Locus B), mostly cut wood with square nails. The site is in very poor condition, with artifacts having been broken and redeposited through discing, others possibly removed over the last decade, and mixed with recent refuse, especially at the two loci. Additionally, no structures remain standing at Locus A, where the reported barn was burned, structural framing and farm machinery removed, and the area generally cleaned up within the past ten years or so. No observed cultural materials at Locus A are unequivocally historic in age.

***P3b. Resource Attributes:** HP33, Farm/ranch; HP46, Walls/gates/fences

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☒ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing:

P5b. Description of Photo: (View, data, accession #)
Remains of barn (Feature 1, looking southwest (Frame 22, Roll 1 of 2)

***P6. Date Constructed/Age and Sources:**
☒ Historic
☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Livermore Airway Associates, LLC
(address N/A)

***P8. Recorded by:** (Name, affiliation, and address): S. Gillies, P. Bowler, T. Martin
LSA Associates, Inc.
157 Park Place,
Pt. Richmond, Calif. 94801

***P9. Date recorded:** 8-31-2000

***P10. Survey Type:**
Reconnaissance

***P11. Report citation:** A Cultural Resources Study for the Oaks Business Park Project, Livermore, Alameda County, California, by Thomas Martin (2000). On file at LSA Associates, Inc., Point Richmond, California.

Attachments: ☒ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Archaeological Record ☒ Photograph Record

DPR 523A (1/95) ***Required Information**

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHAEOLOGICAL SITE RECORD

Primary #_____
Trinomial CA-ALA-518H (update)

*Resource Name or #: (Assigned by recorder) Oaks Business Park Agricultural Remains

*A1. **Dimensions: a. Length** ~2500 ft. **(E-W) x b. Width** ~250 ft. **(N-S)**
Method of Measurement: ☒ Paced ☐ Taped ___ ☒ Visual estimate ___ ☐ Other: _____
Method of Determination (Check any that apply): ☒ Artifacts ☒ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain): _____
Reliability of determination: ☒ High ☐ Medium ☐ Low (Explain): Site is mostly bounded by two rows of standing fences, and by easily-recognized features and artifacts at its west end.
Limitations (Check any that apply) ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☐ Disturbances ☐ Vegetation ☐ Other: (Explain): _____

A2. **Depth:**_____ ☐ None ☒ Unknown Method of Determination: Not determined, but probably surface-only

*A3. **Human Remains:** ☐ Present ☐ Absent ☐ Possible ☒ Unknown (Explain): None observed, and unlikely due to site type, lack of marked graves, etc.

*A4. **Features:** (see attached Continuation Sheet)

*A5. **Cultural Constituents:** None observed other than those associated with the features.

*A6. **Were Specimens Collected?** ☒ No ☐ Yes

*A7. **Site Condition:** ☐ Good ☐ Fair ☒ Poor Describe disturbances: Change of land ownership and end of farming in the last decade have reportedly resulted in dismantled and destroyed dairying facilities, and general cleanup, in Locus A. Also, artifacts across the site have been broken and scattered from discing, and others appear to have been removed from Locus B. The fences are no longer in use and are semi-dilapidated.

*A8. **Nearest Water:** Water is seasonally present in the west-flowing arroyo, and a small wetland exists at or near the east end of the site. The closest perennial watercourse is the Mocho Arroyo, to the south about 750 feet.

*A9. **Elevation:** 400 - ~412' amsl

A10. **Environmental Setting:** The area is in a modified, broad valley filled with Holocene-aged, coarse-grained alluvium. Used as farmland since historic times until recently, it has been largely cleared of oaks and other large vegetation, and has been slightly leveled. The site and adjacent fields are now largely overgrown with star thistles, coyote brush, turkey mullein, morning glory, and other plant species. Two large valley oaks and a Western sycamore reside in the arroyo.

A11. **Historical Information:** Local resident Norman Marciel provided a brief historical overview of the area and ascribed functions to the features in Locus A, and to the fences. Archaeological evidence for the ages and/or uses of Loci A and B are lacking, however.

*A12. **Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☒ 1880-1914 ☒ 1914-1945 ☒ Post 1945 ☐ Undetermined

A13. **Interpretations:** The site's condition will probably degrade further during future development of the arroyo, but information collected and presented in this record is considered sufficient to realize the site's minimal data potential. The site lacks integrity, is not significant, and is not eligible for listing on the California Register of Historical Resources. No further work to study or protect the site is recommended.

A14. **Remarks:** This document updates the site's original record of 1990, expanding the site's complexity and its area.

A15. **References:**

Macdougall, A., M. Doyle, and B. Walsh
1990 Site Record for CA-ALA-518H. On file at Northwest Information Center, Sonoma State University, Rohnert Park, California.
Marciel, Norman
2000 On-site personal communication with longtime local resident and agricultural contractor.
United States Geological Survey
1961 *Livermore, Calif.* 7.5' topographic quadrangle. Photorevised 1980.
1906 *Pleasanton* 15' quadrangle. Edition of July 1906, surveyed 1904.

A16. **Photographs:** (See attached Photograph Record)
Original Media/Negatives Kept at: LSA Associates, Inc., 157 Park Place, Pt. Richmond, CA. 94801

*A17. **Form Prepared By:** T. Martin, S. Gillies **Date:** August 31, 2000
Affiliation and Address: LSA Associates, Inc., 157 Park Place, Pt. Richmond, CA. 94801

*Required Information

A4.Features: The site is comprised of three contiguous features with two delineated loci. Locus A is a complex of building, structure, and object remains at the west end of the site, marking the sparse remains of an apparent dairy. Its Feature 1 is the burned and highly disturbed remains of a reported barn, resting at the floor of the arroyo alongside a north-south dirt road. No foundation exists and no direct evidence of a barn is present. This location contains a debris scatter, which is densest at the west end of the feature, where the barn was apparently located. Artifacts include burned lumber, burned palm fronds, automobile parts, numerous sanitary-type metal cans, a sewing machine, brick and metal fragments, plastic soft drink bottles, plastic nursery cans, and piles of asphalt. All of these visible remains are not definitely historic, although a toiletry/grooming bottle dating to the 1940s or later was found. A structure appears on the 1961 USGS 7.5' Livermore map at the barn location, but not on at least two earlier maps. Feature 2 is the exposed concrete foundation of a reported former cattle scale, located on the north side of the arroyo, north of Feature 1. It is T-shaped and varies from 17 - 21" deep. Its north and south sides contain inverted-L-shaped metal fittings, each measuring 2.5" long across the top and 1.5" high. Other metal fittings on the east and west walls are 1.5" high. Within the foundation are a 9.5'-long pipe, a bolt from a gate suspension, small lengths of rusty barbed wire, 4 broken chunks of concrete, a 50 gallon drum full of concrete, and a concrete post footing from which extends a wooden post end measuring 6 x 6 x 7". No wall or other structural remains are present. Feature 3 is an abandoned and partially dismantled well just south of Feature 2. There, an 8"-diameter metal pipe descends into the ground greater than 10 feet and is surrounded at the surface by a small concrete pad; no pump is present. Feature 4 is a concrete retaining wall on the south slope of the arroyo, facing north, southeast of Feature 1. It was reportedly a loading dock used during truck transportation. It measures about 12 x 1' and does not appear to be associated with any other cultural materials.

Locus B is a sparse scatter of historic refuse situated between two fences at the east end of the site. It comprises the entire site area as originally recorded (see Macdougall, Doyle, and Walsh 1990), measuring about 150 feet x xx feet. However, only one of the two originally recorded concentrations of artifacts could be identified during this site update, and it appears that artifacts of the larger, "primary" concentration have been removed or destroyed over the past decade and that this concentration no longer exists. The smaller, "secondary" concentration has been heavily disturbed by discing and possible artifact removal; it was also found to be closer to 500 feet from the east end of the south fence rather than 135 feet as earlier recorded. In this area of about 70 x 40 feet were found lumber with square and wire nails, a milled piece of lumber through which a 4"- long, galvanized but rusted pipe was inserted,
hundreds of small, disced wood fragments, and miscellaneous modern debris such as tin cans, shotgun shells, and a thin metal band. About 150 feet to the west, near the south fence, were found other scattered remains of large wood pieces, also with square nails.

About 290 feet northwest of the secondary concentration, near the north fence, was found a fragmented historic brick. Measuring 6 x 4 x 2.5", this hand molded item contained impressions of a wood mold on one side. Its top exhibited flattening of excess clay which had been scraped from the mold. Mortar, seemingly mixed unevenly with plant material, is present on one side. Between the brick and secondary concentration was identified the neck of an historic, dark amber bitters or other liquor bottle whose lip had been applied with a "brandy" finish.

A third feature of the site are two rows of barbed wire fence that border the north and south sides of the arroyo, reportedly established for purposes of excluding cattle from this seasonally-wet area. The south segment is a (paced) 2335 feet long, and the north segment is about 2377 (paced) feet long. Wire is variously missing and intact, with the majority of the remaining wire being a standard Glidden type, two-strand wire with two-pointed barbs. Most of the fence posts are of rough-hewn, now-weathered wood, but some have been replaced with modern metal fenceposts. Wire has been attached to the posts with square nails, wire nails, and staples; many of the square nails are located on the lower half of the posts where occasional, horizontal "connecting" boards still remain. Attached to one wooden post on the north fence, at a sharp bend about 400 feet from the west end of the fenceline, are four white, molded-ceramic insulators of three types; no others were seen on any post. one is stamped "Superior 6" and another "USA". Each has been attached to the post with wire nails. The fences display evidence of past maintenance and refurbishment, but are now abandoned and, while mostly still standing, are in poor condition.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary #
HRI#
Trinomial CA-ALA-518H (update)

Page 4 of 6 *Project Name: Oaks Business Park Cultural Resources Study Year 2000

Camera Format: Rollei and Nikon FM Rolls: 1 and 2 of 2 Lens Size:
Film Type and Speed: ASA 200 and 400 Color Negatives Kept at: LSA Associates Inc., 157 Park Place, Pt. Richmond, CA 94801

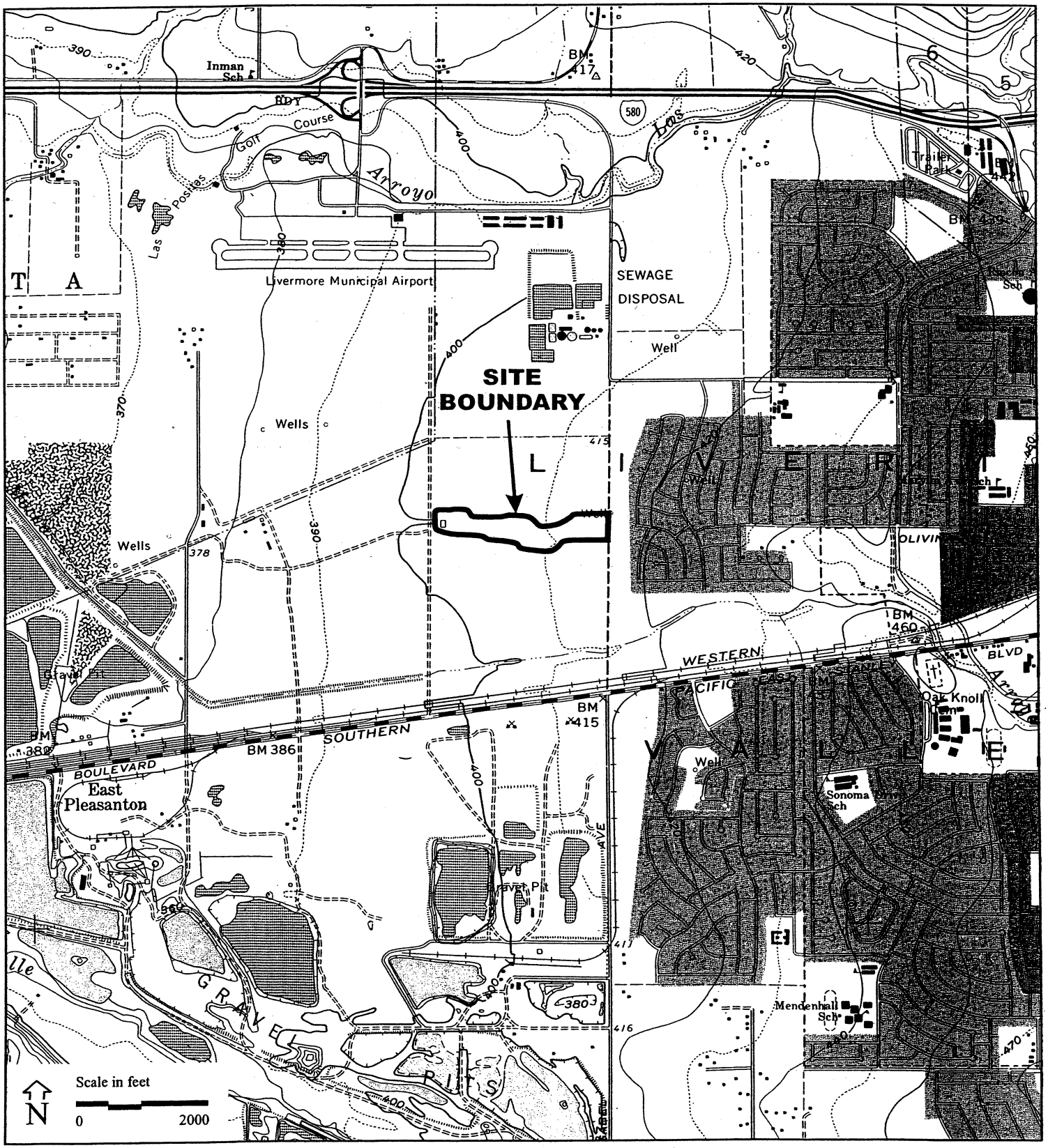
Mo.	Day	Time	Exp./ Frame	Subject/Description	View Toward	Accession #
8	22	pm	13	Oaks Business Park study area; overview of surveying. S. Gillies (background), P. Bowler (middle), C. MacDonald (foreground).	~NE	(Roll 1)
"	"	"	14	Overview of former barn area (Fea. 1), taken from west border of project; farm machinery at right, arroyo trees at left.	SE	"
"	"	"	15	Overview of former cattle weigh station (Fea. 2), obscure well (Fea. 3), and northern fence line area; people at weigh station location; airport in left background.	NE	"
"	"	"	16	Closeup of weigh station foundation; northern fence line directly east, large trees in right background.	E	"
"	"	"	17	Overview of Locus B; S. Gillies (left) at "secondary concentration," P. Bowler (middle) at boards, C. MacDonald (left) at historic brick; note fence lines and trees.	W	"
"	"	"	18	Same, different view; P. Bowler (far right) at boards, S. Gillies (far left) and C. MacDonald (middle) are at historic bottle; Stanley Road beyond treeline in rear.	S	"
"	"	"	19	Closeup of northern fence post with insulators.	~S	"
"	"	"	20	(Not available--out of focus)		"
"	"	"	21	Closeup of cattle loading dock (Fea. 4); note trees at left.	E	"
"	"	"	22	Closeup of barn area with abandoned farm machinery in background.	S	"
8	29	10am	1	View down swale.	E	(Roll 2)
"	"	"	2	" " "	E	"
"	"	"	3	barn location	SE	"
"	"	"	4	" " (note fence in background)	NE	"
"	"	"	5	" " "	NE	"
"	"	"	6	burnt barn materials	NW	"
"	"	"	7	fence line	E	"
"	"	"	8	" "	E	"
"	"	"	9	concrete foundation, road in background.	NW	"

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary
HRI#
Trinomial

*Resource Name or # (Assigned by recorder) Oaks Business Park Agricultural Remains

*Map Name: USGS 7.5' Livermore Quadrangle *Scale: 1" = 2000' *Date of Map: 9-27-00



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***Required Information**

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1 - 11 X 17 (S)

Page 6 of 6

11 X 17

APPENDIX G

Hydraulic / Water Supply Report

Camp Dresser & McKee Inc., Hydraulic Analysis and Potable Water Supply Letter, July 10, 2001.

CDM Camp Dresser & McKee Inc.

consulting engineering construction operations

One Walnut Creek Center
100 Pringle Avenue, Suite 300
Walnut Creek, California 94596
Tel: 925 933-2900 Fax: 925 933-4174

July 10, 2001

Mr. Chuck McCallum, P.E.
Kier & Wright
1233 Quarry Lane, Suite 145
Pleasanton, CA 94588-8552

Subject: Potable Water Service for the Oaks Business Park

Dear Mr. McCallum:

In response to your request and authorization, CDM has performed hydraulic analyses to determine an appropriate piping layout, and the sizes of the pipes, within the Oaks Business Park, a 160-acre development located near the intersection of Highway 84 and West Jack London Boulevard. We have also determined the size of the pipe that will complete the pipe loop around the Livermore Airport.

The results of our analysis are presented below and shown on Figure 1. In performing this potable water system analysis we utilized the information in our files for the previously proposed reclaimed water system at this site.

Water Demands

The following water demands were used as specified in the City's Facilities Planning Guidelines of August 1995 for the commercial and industrial-low land use categories within the Oaks Business Park:

Average Day Demand
800 gal per day per acre

Maximum Day Demand
1,600 gal per day per acre

Fire Flow
4,000 gpm
Fire flow will occur during maximum day demand.

Pipe Layout and Sizes

1. There will be two connections to the City's existing water system on West Jack London Boulevard, Junctions 52 and 55. The pipe layout provides a looped pipe system within the Oaks Business Park.

2. All pipes should be 12 inches, except the two pipes shown on Figure 1 which should be 8 inches.

3. Approximately 1,000 feet of 12-inch pipe should be added at the west end of West Jack London Boulevard. These two pipes (approximately 700 feet on West Jack London Boulevard and approximately 300 feet in a north-south direction) will complete a loop around the Airport and will provide reliable water service for the Oaks Business Park.

4. Hydraulic analyses indicate that with a 4,000 gpm fire flow at any location within the Oaks Business Park, the pressures at all location within the Oaks Business Park will be 20 psi or greater.

5. No further pipe improvements (other than those listed above) are needed to serve the Oaks Business Park. It is anticipated that when the 20-acre parcel at the southwest corner of Highway 84 and West Jack London Boulevard is developed, the developer would install a pipe in Highway 84 from West Jack London southerly to Junction 68. When this pipe is installed in the future, the water pressure within the Oaks Business Park will increase.

6. On April 24 the City conducted a water flow test and determined that with a flow of 4,950 gpm could be obtained with a residual pressure of 20 psi. For checking purposes, a hydraulic analysis was made with a 4,700 gpm fire flow at the intersection of West Jack London Boulevard and Highway 84 (Junction 1009) and the calculated pressure was 27 psi. This calculated flow correlates closely with the measured flow, but is not exact because at the time of the City's flow measurements: (1) the pressures at the two Zone 7 turnouts were not measured, and (2) the water demands within the City's pressure Zone 1 were not known.

Comments and Limitations

1. Analyses were based upon ultimate land use conditions within the current service are for the City's water system and the Oaks Business Park.

2. Analyses were based upon the assumption that both of the Zone 7 turnouts (Kitty Hawk Road near Airway Boulevard and south of Highway 580 near Airway Boulevard) are providing water to the City system.

We appreciate this opportunity to again be of service to Kier & Wright for the Oaks Business Park project. We are available to answer questions that may arise regarding the information in this letter report.

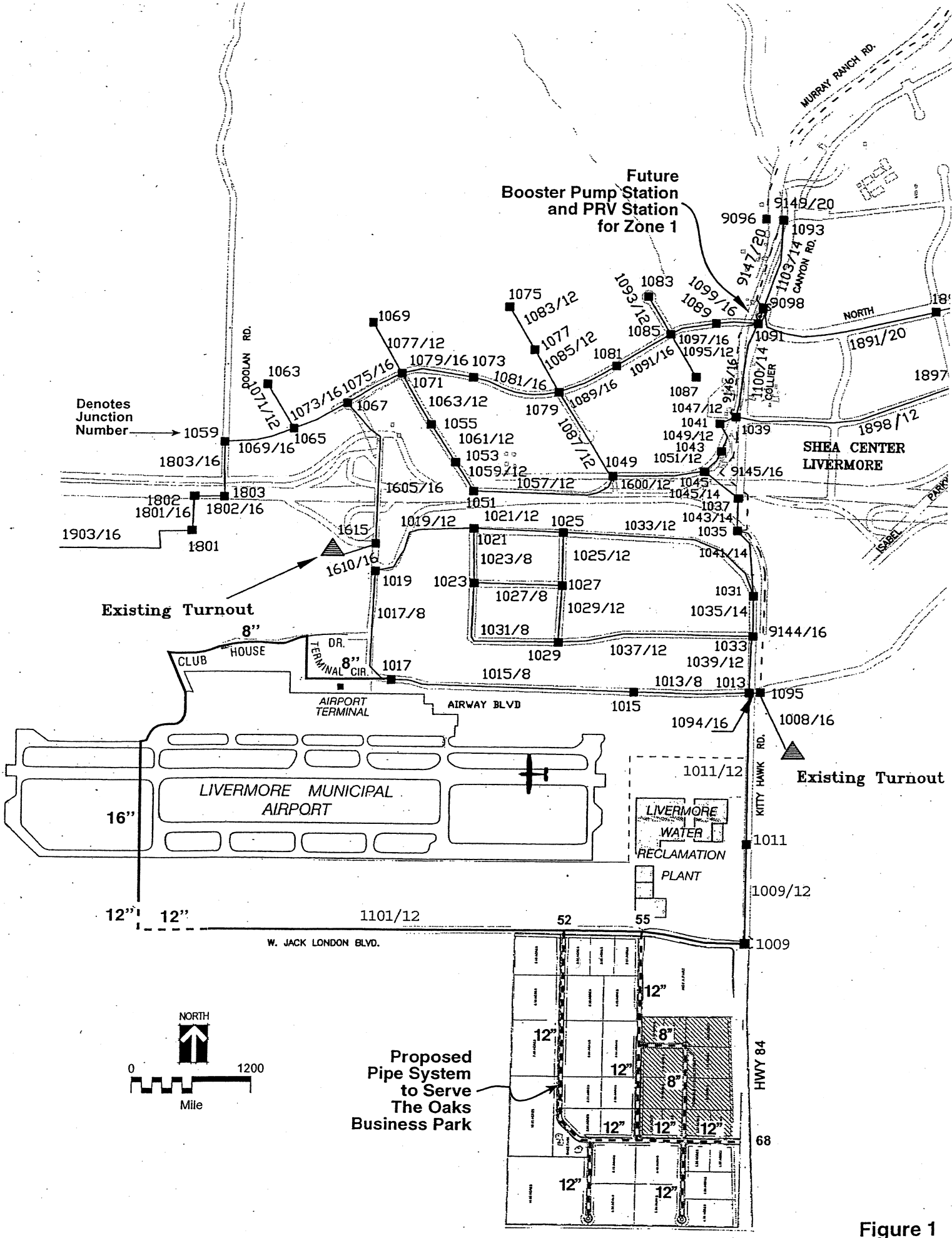
Sincerely,

CAMP DRESSER & McKEE INC.

Roger G. Fry

Roger G. Fry
Associate

Enclosure: Figure 1



CDM Camp Dresser & McKee Inc.

Figure 1
Zone 1 Potable Water System
City of Livermore

APPENDIX H

Geotechnical Due Diligence

Kleinfelder, Inc., Geotechnical Due Diligence, May 31, 2000.

KLEINFELDER
An employee owned company

May 31, 2000
File: 10-3011-73/GEO

John Dobrott
Senior Vice President
Gale & Wentworth California, L.L.C.
2030 Main Street, Suite 310
Irvine, California 92614

SUBJECT: Geotechnical Due Diligence for the Property at the South West Corner of Jack London Boulevard and Kitty Hawk Road in Livermore, California

Dear Mr. Dobrott,

We are pleased to submit our findings of the geotechnical due diligence review for the subject property in Livermore, California. We previously performed a geotechnical investigation at the site for another project. The results of the previous investigation were presented in our report dated December 1, 1998 (File No.: 10-3009-33). The focus of that investigation was based on construction of a few buildings within the southern half of the property, and an extensive area of pavement throughout the remainder of the property. As a result, the previous investigation has enabled us to obtain a general overview of the site, but is not sufficient for design level criteria.

During the previous investigation, it was found that the western limit of the City of Livermore's Special Study Zone for the Livermore fault crossed the eastern portion of the site. Since the previous project did not include any structures in the Zone, further fault investigation at the site was not needed. However, this current project will include buildings within the study area. As such, we have recently completed a fault investigation at the site that involved excavating a 1400 foot long trench to a depth of about 10 feet across the central-eastern portion of the site. The information from this fault investigation, combined with the information from our previous geotechnical investigation at the site and our extensive experience in the area, was used in the preparation of this letter.

The subsurface soils encountered to-date within the site consist mainly of interbedded medium stiff to hard silty clays, sandy clays and silts, and loose to dense clayey sands with some gravel layers to the maximum depth previously drilled of approximately 16 ½ feet. An Atterberg Limits test performed on a soil sample of the near-surface clayey soils indicated a Liquid Limit of 32 and a Plasticity Index of 8, which is indicative of low plasticity soil. Resistance (R)-Value tests were performed on a number of samples of near surface soils for use in pavement design. The results of the tests varied from 9 to 20. Groundwater is anticipated to be at depths greater than 50 feet.

For the proposed project of one- to two-story tilt-up retail buildings, we anticipate column loads will be on the order of 40 kips for single-story and 80 kips for two-story, and wall loads will be

KLEINFELDER 7133 Koll Center Parkway, Suite 100, Pleasanton, CA 94566-3101 (925) 484-1700 (925) 484-5838 fax

on the order of 3.0 kips per lineal foot of dead plus live load. Based on the information collected to-date, the building loads may be supported by shallow foundations consisting of continuous and isolated spread footings founded on either the native stiff silt and clay soils, or in engineered fill. Our test results indicate that the near surface soils are of low plasticity, and therefore, special mitigation measures for expansive soils are not needed except for appropriate moisture conditioning and compaction. Slabs can be constructed over a capillary break over moisture conditioned and compacted subgrade.

The results of the chemical analyses performed by CERCO for corrosivity evaluation on two samples of the near-surface soils indicates that the soils tested are insufficient to damage to cement mortar coated structures or to buried reinforced concrete structures. The soil was classified as "mildly to moderately" corrosive to bare, galvanized, and dielectric coated steel and ductile and cast iron in contact with the soils. Proper protection to the buried structures and underground utilities should be provided.

It is our opinion that, from a geotechnical standpoint, the site can be designed and constructed for the proposed use as a business park. Pavements can be supported by the subgrade soils. The anticipated building loads for one to two story buildings may be supported on shallow foundations. Conventional construction methods may be used for utilities. Our experience in the vicinity of the site indicates that the near surface silty soils are somewhat sensitive to excess moisture. When wet, that becomes difficult to compact and can pump under normal to heavy equipment. Therefore, grading during the winter and early spring months may need special mitigation, such as lime or cement treatment. After construction has started, the parking lots should be completed prior to the winter rains.

The findings of our fault study indicates that there is no evidence of fault-related disruption to soils at the project site. This result supports the conclusions of previous consultants investigations performed for existing developments in the area of the project site and within the Livermore fault study area.

We appreciate the opportunity of providing our services to you on this project. If you should have any questions or require additional information, please contact us at (925) 484-1700.

Sincerely,

KLEINFELDER, INC.

Kris Johnson, R.G., C.E.G.
Engineering Geologist

Michael Majchrzak, C.E., G.E.
Geotechnical Manager

REGISTERED PROFESSIONAL ENGINEER ★ MICHAEL MAJCHRZAK No.555 Exp. 3/31/03 GEOTECHNICAL ★ STATE OF CALIFORNIA

KJ/MM/jb

ENGINEERING GEOLOGIST ★ KRIS J. JOHNSON No. CEG1915 Exp. 1/31/01 ★ STATE OF CALIFORNIA

KLEINFELDER 7133 Koll Center Parkway, Suite 100, Pleasanton, CA 94566-3101 (925) 484-1700 (925) 484-5838 fax

APPENDIX I

Storm Drainage Study

Kier and Wright, *Storm Drainage Study, Oaks Business Park, Livermore, California,* December 2002.

STORM DRAINAGE STUDY

FOR

Oaks Business Park

Livermore, California

Prepared for Gale & Wentworth

Date

November 8, 2000
Revised June 25, 2001
Revised October 18, 2001
Revised April 4, 2002
Revised December 11, 2002

Prepared by

KIER & WRIGHT
Civil Engineers & Surveyors, Inc.
1233 Quarry Lane Suite 145
Pleasanton, California 94566
Phone (925)249-6555 • Fax (925)249-6563

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7. HEC 1 Analysis 15-yr – Two Basin Option-Arroyo Las Positas (Proposed Condition)

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13. 100 Yr and 10 Yr Rational Method Pipe Calculations for Two Basin Option

14. 100 Yr and 10 Yr Rational Method Pipe Calculations for Zone 7 Option

15. 100 Yr Event Rational Method Pipe Calculations for Future Zone Channel

STORM DRAINAGE STUDY
OAKS BUSINESS PARK
LIVERMORE, CA.

1.1 General Purpose

The purpose of this study is to develop a hydrologic model of the drainage watersheds draining thru the proposed Oaks Business Park property and the adjacent properties (See Figures 1A and 2A) and to determine the sizes of the proposed pipe system in the project. This study is being submitted as a part of the application for Vesting Tentative Tract 7300. The proposed Oaks Business Park parcel is 178 Acres. It is located south of West Jack London Blvd and directly west of the Isabel Expressway (Future Hwy 84) south of the Livermore Airport. The study presents two design options. The 1st option is designed based upon constructing a temporary lined detention basin along the western property line to be maintained and owned by Zone 7 and may be used by Zone 7 in the future as a portion of the Arroyo Mocho Bypass Channel (See Figure 1B and 1C). The entire project will drain to this one detention basin. The 2nd option is the original proposal of constructing two lined detention basins, one at the northwest corner and one at the southern property line of the project (See figure 2B & 2C).

The study includes two watersheds. The southern watershed drains to the Arroyo Mocho and the northern watershed drains to the existing drainage channel within the Livermore Airport that ultimately drains to the Arroyo Las Positas.

The storm drainage study has been updated to reflect the same methodology used by Zone 7 within the Hydrologic Procedures and Design Discharges Report dated December 3, 1997 by Schaaf and Wheeler Consulting Engineers (See Appendix 1). The hydrograph method was revised from the SCS method to the Snyder Unit Hydrograph method. The parameters indicated in the report and as provided by Zone 7 were used in this study. The rainfall distribution used was the 24 hour precipitation pattern from Alameda County Public Work Agency (ACPWA) dated September, 1994 Summary Report. The 24 hour precipitation pattern was used instead of 6 hour pattern to match the same methodology in the Schaaf and Wheeler report, so that any significant change to the peak flows in the Arroyo Mocho and Arroyo Las Positas will be revealed from the calculations. The regional watershed for both Arroyos exceeds 20 square miles. The Schaaf and Wheeler study also

found that using the 24 hour storm was more conservative than the 6 hour storm and the 24 hour storm was used exclusively to develop the Zone 7 model, even when analyzing detention basins. (See Section 5 -"Zone 7 Model" in Appendix 1)The depth of rainfall has been modified from the Schaff and Wheeler Report to negate the area reduction factor used in determining the design discharges for large watersheds. The area reduction factor was used by Schaff and Wheeler to account for the unlikelihood of a storm raining uniformly over extensive drainage areas. These were taken from the area reduction diagram from the National Weather Service and are discussed in more detail in the Schaff and Wheeler study in Appendix 1. We have assumed uniform rainfall based upon working with a smaller watershed area.

The study used the Snyder method to determine the time of the existing 100 year peak storm time at all critical outfalls. It also used the Snyder method to size the detention basin and determine any possible impact the basin may have downstream. The Snyder method was used so that there would be a direct comparison between the Zone 7 model and our development. A proposed 15 year model was also provided for Zone 7's benefit based on their request. Zone 7 will use the model for their future planning for Arroyo Mocho bypass. The rational method is used in lieu of Snyder hydrograph to determine the existing flows for the two watersheds. It was used because it is the more conservative of the two methods for determining the existing flow for the watershed and is also the standard method used by the City of Livermore per their "Facilities Planning Guidelines" dated August 1995 for the smaller watershed.

The study also incorporates the sizing of the proposed pipe system for the project through the use of the rational method. The sizing of the pipes is based upon using the City of Livermore's "Facilities Planning Guidelines". The pipe system has been designed for both the 10 year and the 100 year storms per City of Livermore requirements. (See pipe calculations in Appendix 13 and 14). Overland flow has been accounted for and shown on Figures 3-8 for both options.

The proposed detention basins in both alternatives will be lined with an impermeable membrane to eliminate the percolation of storm water. All the developed parcels draining into the basins will have 80% of these parcels treated by biofiltration swales. These will be used to remove floatable materials, oil and grease and heavy metals. Where site conditions don't allow the use of biofiltration swales, mechanical means such as oil and grease interceptors may be permitted if allowed by the City of Livermore. The use of detention basins in both alternatives will limit the post-project outflow to the pre-project flow.

1.2 History

The first drainage study for the property was completed by Bissell & Karn for Tentative Parcel Map 5420 in 1988. This study was never accepted officially by the City of Livermore. The study is noted because the improvements to City Airport were based upon this study. The study determined 10-year flows for both the Northern watershed (Arroyo Las Positas) and the Southern Watershed (Arroyo Mocho)

	Flow Rate (Post-PM 5420)	Area
Northern Watershed (Arroyo Las Positas)	92.5 cfs	185.50 ac
Southern Watershed (Arroyo Mocho)	50cfs -Excludes PGC Land	60.0 ac

The City of Livermore conditioned the developer of Tentative Parcel Map 5420, Orchard Properties, in their 1990 development agreement to evaluate downstream impacts based on this significant increase in flows. The proposed increase to existing flows was by over 7 times the pre-project flows.

Page 12 in the agreement stated, *"The Arroyo Mocho channel shall be modified and improved as necessary down to El Charro Road to handle the additional flows created by this development without causing flooding over and above the condition that currently exists".* No detention basin design was proposed in the Bissel and Karn option. This is in contrast to the current design alternatives that do not significantly impact downstream conditions.

1.3 Existing Watersheds

1.3.1 Northern Watershed (Arroyo Las Positas)

This watershed includes 117.5 Ac of the Oaks Business Park parcel and the 23-acre Ashwell Parcel. See attached Figures 1A and 2A. This area drains to the existing 8' wide trapezoidal channel that runs through the airport and the golf course. This 8' wide channel was constructed in 1989 per plans by Bryan and Murphy Associates per the City of Livermore's requirements. The plans were entitled "Golf Course Drainage Channel Improvement Plans", Job No 5748-2, dated March 4, 1989. Additional

improvements were done per The Hodges and Shute plans entitled "Runway and Taxiway Extension Plans", dated January 1989. The additional watershed of 350 +/- acres is also shown on Figures 1A and 2A.

Zone 7 requested an existing Snyder unit hydrograph using the Schaff and Wheeler methodology. The existing 100 year model is attached in Appendix 2 and conservative lag time values were calculated for the proposed model attached in Table 1. The areas shown for each drainage shed area is based upon City of Livermore Base Maps and City of Livermore Plans for the Golf Course and the Airport. Field visits were also conducted and meetings with City staff at both the airport and the golf course. This area is a portion of the drainage shed within the Schaff and Wheeler study labeled as H-1(See Appendix 10). The parameters used in the Snyder Hydrograph were based on the original values used in that study. The value for the PB card(line 12 in H-1 input) was increased by eliminating the reducing factor 0.940 shown in line 2 of the H-1 input. The BF card value -0.447 is taken from Line 203 of H-1 input, which is the base flow card for the sub-reach used in the Schaff and Wheeler study.

Zone 7 requested this analysis to establish the approximate time of the peak flow draining into the Arroyo Positas and determine if the construction of the detention basins could impact the Arroyo Las Positas by changing the time of the peak flow draining into it. The peak flow in the Arroyo Las Positas channel occurs at 16.75 hours per H-1 output data supplied by Zone 7 (Appendix 10). The peak of the H-1 area draining into the channel occurs at 13.25 hours. See attached Figure 8 from the Schaff and Wheeler study showing their drainage areas locations. The analysis in Appendix 2 shows the peak draining into the Arroyo Las Positas at 13.00 hours which is consistent with the Schaff and Wheeler study.

As mentioned before, the rational method is used in lieu of Snyder hydrograph to determine the existing flows for the two watersheds. The 24 hour precipitation pattern for the Snyder method shows higher peak flows for the Oaks Business Park because the method is more suitable for larger watersheds. It was used in this case only to analyze the detention basin sizing (rainfall volume) and impacts on the larger drainage shed as directed by Zone 7. The peak existing flows were calculated using the rational method and two different methods to calculate time of concentration. This was completed to show the slight differences that occur based on the method used. Tables 3A and 3B show the results based on using both a modified Kirpich formula and the Overland flow equation used in the Alameda County Hydrology Manual for a combination of short green pasture land and cultivated land. The flow to the Arroyo Las Positas based on using the two different methods for time of concentration has a variation of 15%+/- for peak flows. Based on discussions with Zone 7, the more conservative method used by Alameda

County is shown in Table 3B. The approximate existing peak flows to the Arroyo Las Positas using Alameda County's method is shown in table below.
The C factor used was obtained from the City of Livermore's "Facilities Planning Guidelines" Table 3-3. Using soil type 4, the C factor is 0.20 for unimproved areas. The intensities were obtained from Table 3-1 and 3-2 in the "Facility Planning Guidelines".

EXISTING PEAK FLOWS ARROYO LAS POSITAS WATERSHED

	100 YR	***15 YR***	***10 YR***
Northern Watershed (Arroyo Las Positas)	24 cfs	16 cfs	15 cfs

1.3.2 Southern Watershed (Arroyo Mocho)

This watershed has historically included approximately 60 acres of the Oaks Business Park and the 48-acre PGC parcel. This is based on the Bissel and Karns study and previous agreements with Orchard, Triad Development and Pleasanton Gravel Company. This area drains directly to the Arroyo Mocho at the Jamison Bridge. A 15' wide easement over the PGC property was dedicated for the behalf of Orchard Property and the City of the Livermore, originally as a part of the agreements associated with the 1990 development agreement. The construction easements to construct within this easement have since expired. The storm drain connection for the proposed condition to the Arroyo Mocho has been revised to eliminate any possible construction impacts to the Pleasanton Gravel Property.

The calculated drainage area outside the Arroyo Mocho is calculated to be 39.80 acres to eliminate the impact that the inclusion of the dry arroyo may have in the calculations. See Figure 2C in the storm drainage study. The flow to the Arroyo Mocho based on using the two different methods for time of concentration has a variation of 1.5 cfs for peak flows. Based on discussions with Zone 7, the more conservative method used by Alameda County is shown in Table 3B. The approximate existing peak flows to the Arroyo Mocho using Alameda County's method is shown in table below.

EXISTING PEAK FLOWS ARROYO MOCHO WATERSHED

	100 YR	***15 YR***	***10 YR***
Southern Watershed (Arroyo Mocho)	7 cfs	5 cfs	5 cfs

Per the Schaaf and Wheeler study (Appendix 1), the peak flow of 4800 cfs in the Arroyo Mocho channel occurs at 19.75 hours per G-50 (see Figure 8 for area) output data (Appendix 11) supplied by Zone 7. The drainage shed is a small portion of overall area. The peak of the G-50 area draining into the channel occurs at 13.25 hours. The analysis in Appendix 2 shows the peak draining into the Arroyo Mocho at 12.75 hours, which slightly differs because it is only a small portion of area G-50. The value for the PB card(line 12 in G-50 input) was increased by eliminating the reducing factor 0.945 shown in line 2 of the G-50 input. The BF card value -0.78 is taken from Line 68 of G-50 input, which is the base flow card for the sub-reach used in the Schaff and Wheeler study.

Existing flows for the Arroyo Mocho above the Arroyo Las Positas confluence were also reviewed from the Zone 7 model. The existing 100-year Zone 7 flow is approximately 4700 cfs for existing conditions and 4800 cfs for future conditions. The existing 100-year FEMA existing model flow is approximately 5700 cfs as shown in Schaaf and Wheeler study and listed within the City of Livermore Flood Insurance Study(FIS) dated September 17th, 1997. The newer Alameda County FIS dated February 9, 2000 was also reviewed, but the study only references Arroyo Mocho flows below the confluence of the Arroyo Las Positas. Zone 7 has reviewed both models and uses the approved Alameda County Hydrologic model calibrated using the Zone 7 stream gages. All future work within or related to the Arroyo Mocho must conform to the County model.

1.4 Proposed Conditions

The net acreage of the development is approximately 173 acres after the City of Livermore acquires the frontage property along Isabel Expressway. The storm drainage system installed with the first phase of the Isabel Expressway project has been adequately sized to accommodate the ultimate development of Isabel Expressway to the full configuration.

Two design options are proposed as previously mentioned. Both options reduce the approximate development peak flows for the project to approximate pre-development flows. The 1st option is designed based upon constructing a temporary lined detention basin along the western property line to be maintained and owned by Zone 7 and may be used by Zone 7 in the future as a portion of the Arroyo Mocho Bypass Channel. See Figure 1B and 1C. In the 2nd option, the entire site will drain into two detention basins. One is located near the northwest corner of the property and one is located at the south side of the property. The basins are shown on Figures 2A-2C. The basins will be maintained through a landscape assessment district established for the Oaks Business Park.

In both options the basins will be lined with an impermeable membrane to eliminate infiltration. This is proposed in order to eliminate any storm water infiltration into the neighboring quarry. The volume of storage was calculated for all basin scenarios including pipe storage and is shown in HEC 1 input. Orifices calculations for each detention basin are shown in Table Section 5. Sizes for the orifices and tentative design is shown on Figures 1B and Figures 2B-2C. The basin for the Zone 7 in option 1 proposes two pipes, a 12" and 15" at different heights to maintain orifice flows as noted in HEC 1 analysis. The basins for the 2nd option include one pipe to use as orifice and a 2nd pipe to be used as an overflow for both the southern and northern basin. This includes a 15 "orifice and 18" overflow for the northern basin. It also includes a 10 "orifice and 12" overflow for the southern basin. The orifice entrance loss coefficient used is 0.6 for tables shown in Table Section 5. The final configuration of the orifices will be completed at the time of construction drawings and will match proposed peak flows in the HEC 1 analysis for each basin.

Storm calculations for the 15 year and 100 year were done for each watershed using the Snyder Hydrograph Method per Zone 7's request. The 10 year storm was not analyzed using the Snyder Hydrograph method. The 10 year base data was not provided in the Schaaf and Wheeler study. The difference between the 15 year storm and 10 year storm is not significant. So the 15 year was used to establish beginning water surface elevations for the 10 year pipe calculations that are referred to below. The Snyder hydrograph calculations for sizing the detention basins are located in Appendices 4 thru 9. The lag time calculations for

watershed areas are shown in Tables 2 for each option. The associated hydrology area maps are Figures 1A-1C and 2A-2C. The results of the hydrograph calculations are as follows for the proposed condition for each option.

OPTION 1- ZONE 7 ALTERNATIVE

	100 YR Peak (Flow/Storage)	***15 YR Peak*** (Flow/Storage)
Northern Watershed (Arroyo Las Positas)	22 cfs/33 ac-ft	16cfs/16 ac-ft
Southern Watershed (Arroyo Mocho)	N/A	N/A

OPTION 2- TWO BASIN OPTION

	100 YR Peak (Flow/Storage)	***15 YR Peak*** (Flow/Storage)
Northern Watershed (Arroyo Las Positas)	19 cfs/20 ac-ft	15 cfs/10 ac-ft
Southern Watershed (Arroyo Mocho)	7 cfs/9 ac-ft	5 cfs/5 ac-ft

Included are pipe calculations for both options in Appendix 13 and 14 using the rational method. Figures 3 thru 8 show the proposed drainage areas and overland flow arrows on the hydrology maps (Figures 3 thru 8) as necessary to show how the 100 year flow will be conveyed by a combination of pipe flow and overland flow to the detention basins. The developed C factor of 0.75 was used for the sizing of the storm drain system. This was based upon the City of Livermore criteria shown in the Facilities Planning Guide for a high industrial use with Type 4 soil. The pipes are designed so the 100 year storm flows will not impact any neighboring properties and meet the City of Livermore storm drainage requirements. Both alternatives will abide by these standards.

The calculations are based upon the hydraulic grade line (HGL) for 15 year and 100 year storms. The beginning HGL's used are based upon the determined surface water elevations calculated using the Snyder Unit

Hydrograph results. The beginning HGL used for the peak runoff in the pipes is based upon the water surface elevation at the time of the peak runoff draining into the basins. This was used in lieu of the peak storage elevation of the basin because the peak storage elevation occurs after the peak flows have occurred. The table below is compiled from the data in the Snyder Hydrographs:

BEGINNING HGL FOR PIPE CALCULATIONS

	Time of Peak Flow (Hr)	***Water Surface*** (Ft)
Northern Basin (100 yr)	12.75	394.85'
Southern Basin (100 yr)	12.75	407.65.
Zone 7 Alternative Basin (100 yr)	12.75	395.75'
Northern Basin (15 yr)	12.75	391.85'
Southern Basin (15 yr)	12.75	405.35'
Zone 7 Alternative Basin (15 yr)	12.75	393.95'

In Appendix 15, additional calculations were done based upon the possibility of the Zone 7 alternative basin being converted to a bypass channel. Zone 7 has supplied us with a design configuration that meets their design guidelines for the future. The top of the detention basin will also be the top of the future channel. The depth of the channel can be adjusted to accommodate the future bypass flows per Zone 7 requirements between 3200-4000 cfs. The pipe calculations in Appendix 15 are based upon a 100 year HGL 1' below the top of the detention basin/ future showing the impact of the 100 year event on the business park. Zone 7 has indicated that the future design of the channel will be compliant with City of Livermore standards.

1.4.1 Northern Watershed (Arroyo Las Positas)

The study shows that there will be no impact on the Arroyo Las Positas based on the arrival of the peak storm at outfall into the Las Positas for both alternatives. Included are HEC 1 runs (Appendix 6 & 8) showing that the peak flow time for the outfall remains basically unchanged at 13.00 hrs after routing through the detention basins. This is due to fact that the area outside of the Oaks Business Park is a larger share of the overall watershed and thus determines the time of the peak. Also the 100 year peak outflow for both options does exceed 19 cfs for the original option or 22 cfs for the Zone 7 alternative. This is decreased from the calculated existing peak 100 year flow of 24 cfs for the Arroyo Las Positas watershed from the project site.

The sizes in the pipes within the proposed streets range from 15"SD to 60"SD. This entire watershed will drain to the proposed detention basin for Option 1 and only the original watershed drains to the northern basin for Option 2. A main ranging in size from 24" to 48" will be installed along West Jack London Boulevard to drain the water to the west. This main will serve the Oaks Business Park and the Ashwell Parcel. A 36" SD to 42" SD is proposed to run along a portion of the PGC northern parcel within the future right of way of West Jack London Blvd. It will run along the PGC parcel approximately 3300 feet and is sized to accommodate the portion of the PGC northern parcel that drains to the airport drainage shed area (Area B shown on Fig. 1A or 2A). Then the system will turn 90 degrees and head north. It will then run along the access road adjacent approximately 700 feet along the old airport detention basin and outfall to the 8' wide grass lined channel. This 8' wide channel was designed based upon the design flows developed by Bissell and Karn. It was designed to handle 202 cfs for the 10 year storm calculations per the Bissell and Karn study.

The developed 15 year flow at the northwest corner of the site is 16 cfs for Option 1 and 15 cfs for Option 2 and the 100-year flow is 22 cfs for Option 1 and 20 cfs for option 2. This includes the Oaks Business Park, the developed Ashwell Parcel and the West Jack London Boulevard flows. The mains are sized to handle the future developed flow from the PGC northern parcel and the Ashwell Parcel. The original master plan by Bissell and Karn for this site determined a peak 10-year storm flow of 73 cfs for the site and the Ashwell site. The project has reduced the developed 15-year peak flow back to 16 cfs and the 100 year peak flow to 22 cfs. The approximate existing peak flow for the Arroyo Las Positas was calculated to be 24 cfs. The project is designed to completely avoid any significant downstream impacts. All the downstream facilities within the airport area were designed by Bryan Murphy and were confirmed

adequate per the Bissell and Karn study. The site will have no additional impact on the existing airport and golf course drainage facilities.

1.4.1 Southern Watershed (Arroyo Mocho)

Option 1 eliminates any flows from the project from draining directly to the Arroyo Mocho. So all the calculations for this watershed are for Option 2 only. 15 year and 100 year storm calculations for this watershed were performed using the Snyder Hydrograph method per Zone 7's request. The calculations are located in Appendix 4 and 5. The developed 15 year flow for the southern basin outlet is 6 cfs and it is 7 cfs for the 100-year flow as a result of using the detention basins. This is based on no tail water effect. This will cause the no significant impact to the Arroyo Mocho in either storm event. Because the developed flows are approximately equivalent to the undeveloped flows.

A 10" and 12" orifice are proposed for the southern basin and will connect to a 24" SD that will be constructed to the southeast corner of the business park and the routed to the Arroyo Mocho as indicated on Figure 4 Orifice calculations without tail water are attached in Appendix 15. A riprap outfall structure shall be sufficient to eliminate erosion directly at the pipe outfall. The outfall will be placed through the existing channel constructed by the Isabel Avenue project. Environmental permits will be required to install this outfall and that is discussed in the next sections.

As indicated previously, the peak outflow from the detention basin will occur much sooner than the peak flow in the Arroyo Mocho. However, the storm drain system has been designed to adequately handle the impact of the 100 year flow in the Arroyo Mocho on the flows from the detention basin. When the Arroyo Mocho reaches its peak stage, the flow from the orifice from the southern detention basin will be reduced due to the tail water effect. The peak Hydraulic grade line (HGL) for the 100 year storm at the proposed outlet within the Arroyo Mocho is 409.4'. This was obtained from the City of Livermore Plans for the construction of Isabel Avenue dated December 1997. The HGL used for the realignment for the Arroyo Mocho bypass were based upon the FEMA model flows, not the Zone 7 model. So the HGL is more conservative. A higher top of bank elevation for the southern detention basin is proposed at elevation 412.0 feet. Using a freeboard amount of 1 foot in the basin, the calculated allowable peak flow from the basin is 3.3 cfs. See Table 4 for the orifice calculation based on assuming a tail water effect in the Arroyo Mocho. The calculations are based on a scenario that the peak storm for both the on-site and offsite occur at the same time. When the Arroyo Mocho is at

its peak stage at 19.75 hours, the 100 year peak flow from the project will be decreased to 3.3 cfs. So we ran a 2nd 100 yr storm-Hec 1 run assuming a maximum outflow of only 3.3 cfs. It is also included in Appendix 4 and the water surface elevation in the basin does not exceed 411.04 per this analysis. This is also less than the existing peak flow to the Arroyo Mocho. This will only cause a backup at node B21 of 6 inches (See Figure 4).

A 3' berm is proposed along the southern property line of Parcel 6 using export from the detention basin as an additional safety precaution. A flap gate will also be constructed at the outlet pipe at the Arroyo Mocho to keep the water from backing up into the basin.

The sizes in the pipes within the proposed streets range from 18"SD to 42"SD have been proposed for Option 2 and calculations are shown in Appendix 13. See Figure 3 and 4 for the area drainage maps.

1.5 Water Quality Design

The pollutants of concern for an industrial/commercial project are floatable materials (litter), oil and grease, heavy metals and toxic concerns. The regional board has created a list of Best Management Practices (BMP's) that can effectively prevent or remove the pollutants.

A Storm Water Pollution plan will be required for the project prior to construction. This report will include all City of Livermore and Regional Water Quality Control Board applicable standards for preventing and removing pollutants. Toxic pollutants and floatables will be removed through the use of BMP's for Vehicle/Equipment Washing, Fuel Dispensing, Trash Enclosures, Loading Dock Areas, Storage Areas and all other applicable source controls for project. Individual site projects will be required to provide there own BMP's prior to approval of on-site projects and submit their plan to the City of Livermore.

Park landscaping standards include design standards for the inclusion of biofiltration swales. The land within the project drainage area and the Ashwell Parcel shall have 80% of the site areas treated by biofiltration swales. Where site conditions don't allow the use of biofiltration swales, mechanical means such as oil grease interceptors may be used if permitted by the City of Livermore.

The project will include Erosion Control Practices as outlined in the Association of Bay Area Governments (ABAG) *Erosion and Sediment Control Handbook*, California Storm Water Best Management Practice Handbooks, and the Regional Water Quality Control Board's *Erosion and*

Sediment Control Field Manual. These shall be incorporated in the final construction plans for the Oaks Business Park and the future owners will be required to follow all applicable BMP's.

1.6 Future Permitting

The following is a list of permits that will need to be obtained from the state and federal agencies to construct the outfall of the storm drain system into the Arroyo Mocho

The following permits will be required.

Permits:

1. Corps – Nationwide permit for outfall structure
2. CDFG – 1603 Streambed Alteration Agreement for the outfall structure.
3. San Francisco Bay Regional Water Quality Control Board ("RWQCB") – A Clean Water Act Section 401 water quality certification of certification waiver will be required in connection with Corps permit authorization. The RWQCB will be reviewing storm water treatment prior to discharge into any regulated waters. *Any required BMP's as directed by regional board or the City of Livermore prior to construction of the improvements will be implemented..*

1.7 Summary

The Oaks Business Park site has significantly improved original drainage studies for this area from past projects. The designed storm drain system is in accordance with the City of Livermore storm drainage requirements and has gone beyond the typical standards of the City Livermore by using detention basins to reduce developed flows to approximately equal existing flows. Two alternative design options are provided at the request of Zone 7 Flood Control Agency and the City of Livermore. Both options will not significantly impact downstream flow conditions as indicated through this study.

Charles R. McCallum, PE
Kier and Wright, Civil Engineers

Approved City of Livermore Engineering Department

APPENDIX J

Biology Reports

1. LSA Associates, Inc., Tree Assessment Letter, September 19, 2000.
2. URS, *Oaks Business Park Biological Resource Review*, December 20, 2000.
3. URS, *Oaks Business Park Biological Survey Results and Recommendations*, June 22, 2001.
4. May & Associates, Inc., Peer Review of Previous Biological Reports, August 28, 2001.
5. URS, Biological Assessment of Proposed Outfall Structure Letter, February 8, 2002.

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September 19, 2000

Mr. John Dobrott
Gale and Wentworth, California, LLC
2030 Main Street, Suite 200
Irvine, CA 92614

Mr. Gary Edwards
Western Realco
500 Newport Center Drive, suite 630
Newport Beach, CA 92660

Subject: Tree Assessment for Oaks Business Park in Livermore

Dear Mr. Dobrott and Mr. Edwards:

This letter report summarizes the results of LSA Associates' evaluation of the trees located on the proposed site for the Oaks Business Park in Livermore. The primary objectives of the evaluation were to: 1) review previous assessments prepared by HortScience, Inc dated September 16, 1998; 2) conduct a field survey to verify the present condition of trees; and 3) recommend tree protection measures to protect the trees from construction and development of the Oaks Business Park in Livermore.

Tree Evaluation

There are three mature native trees in the southwestern portion of the site in a seasonally wet swale that runs generally east-west with open land to the north and south. A fourth tree, a mature valley oak, is located on the adjoining property near the access road that runs along the western edge of the project site. The tree on the adjacent property (tree #4) was included in this assessment because the existing access road on the project site, which runs along the western boundary of the property, comes within 25 feet of the dripline of the tree. Therefore, grading and other construction activities along this road can cause potential adverse effects to this tree. Tree locations are noted on the attached plan.

#1 Valley oak
This tree is 56 inches in diameter and approximately 60 feet tall. It has a wide crown with large limbs that lean to the south toward the swale. The overall condition of the tree is good to moderate; there are some old branch wounds with signs of decay.

#2 Western sycamore
This a multi-trunked tree with branches extending to the ground on all sides, a form that is common for this species. There are three main trunks: trunk diameters are 24 inches, 32 inches and 30 inches. The tree shows signs of Anthracnose, a native foliar and twig disease that is common to sycamores in the area. The tree is approximately 60 feet tall and the overall condition is good.

#3 Valley oak
This tree is 52 inches in diameter and approximately 60 feet tall. This specimen has indications of stress and decline because of the following symptoms:

- it is producing many short epicormic shoots (a shoot arising from a latent bud)
- it has moderate twig and stem dieback
- there is a severe infestation of leaf gall wasp and oak pit scale

Overall the condition of this tree is moderate.

#4 Valley oak
This tree is estimated to be approximately 70 inches in diameter and 70 feet tall; it is located on the adjoining property to the west. There is no access to the tree from the project site. It has a wide spreading crown indicative of the species and was observed to be a roosting site for red-tailed hawk and mourning dove. There is soil covering the natural grade between the trunk and the road. This tree has healthy, vigorous growth with some signs of branch decay associated with old pruning wounds; overall the condition is good.

Anticipated Impacts

The trees will suffer negative impacts and stress during the development of the project. During construction, the trees will be at risk from soil compaction and root injury. After the project has been constructed, the trees at the site will be in a very different overall environment than the pre-construction environment. Light and heat factors, as well as hydrology will change and affect the health and vigor of the trees. The mitigation measures below are recommended to minimize impacts to the trees.

Mitigation Measures

Soil compaction and root injury resulting from construction activity near trees is nearly impossible to rectify, therefore protecting the root area from impact is very important. The trees on this site are large, mature specimens that require a relatively large tree protection zone because of their age and species. Specific protection measures are:

Pre-construction

- The contractor should meet with the project manager on site to discuss tree protection, access and storage prior to beginning any work.

- The tree protection zone should be delineated on the grading and construction plans and protective fencing should be in place before any equipment is brought to the site.

Engineers and Surveyors.

- As shown on the plans, the tree protection zone should be maintained 35 feet from the edge of the tree driplines.

- Dust control is very important to help lessen the impacts to the existing trees. Accumulated dust on leaves inhibits photosynthesis and harbors insect pests, both of which limit the normal physiological processes of trees. Dust on a construction site is inevitable and provisions should be made to wash down the tree leaves on a regular basis during the construction period, a minimum of once per month in the dry season.

- Any plans affecting the trees, including the landscape and irrigation plans, should be reviewed by the project arborist with regard to tree impacts.

Post-Construction

- The trees should be monitored periodically for health and stability. Water requirements and irrigation should be monitored closely. Management for pests should be ongoing. Occasional pruning may be required.

- Fresh potable water only should be used to irrigate the existing trees. Reclaimed water should be avoided due to its relatively high pH and salt content.

Please do not hesitate to call with any questions regarding the information found in this report.

Respectfully yours,

LSA ASSOCIATES, INC.

Denise Kelly
Certified Arborist #WC-1469

Attachments: Figure 1 - Site Plan

DRAFT REPORT

OAKS BUSINESS PARK BIOLOGICAL RESOURCE REVIEW

Prepared for
Gale & Wentworth
2030 Main Street, Suite 200
Irvine, CA 92614

December 20, 2000

URS
500 12th Street, Suite 200
Oakland, California 94607

Project 41-F0341B02.00

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URS conducted a review of biological resources for an approximately 178-acre property in Livermore, Alameda County. This property is proposed for development as part of the Oaks Business Park. The scope of the biological resource review included:

- Compilation and review of existing information;
- A field reconnaissance of the property; and
- Preparation of a report that evaluates the adequacy of the existing studies, conclusions and recommendations.

The 178-acre property is located south of Interstate 580 and north of Stanley Boulevard along the western edge of the City of Livermore (Figure 1). Jack London Road borders the property on the north, the Isabel Avenue extension on the east, a gravel quarry on the northwest and a disked field on the south.

This report summarizes the methods and results of the biological resource review as outlined above. A summary of findings and recommendations is provided at the end of the report.

URS biologists reviewed the existing biological resource information for the property prior to conducting the field reconnaissance. This review included the following reports in chronological order of preparation:

- Revised 1995 Draft Environmental Impact Report (RDEIR) for the Isabel Avenue/Route 84 Extension project and comments (City of Livermore 1995);
- Preliminary Biological Assessment (BA), 172-Acre Livermore Property, Alameda County, Prepared for ADT Automotive, August 3, 1998. (Zentner and Zentner 1998a);
- Biological Assessment, 178-Acre Livermore Property (Golden Gate Auto Auction), Alameda County, Prepared for ADT Automotive September 18, 1998, as amended October 12, 1998. (Zentner and Zentner 1998b);
- Initial Study/Negative Declaration, October 1998, and comments (Brady/LSA 1998);
- Burrowing Owl Survey, Golden Gate Auction Site, Livermore, March 2, 1999. Conducted by Zentner and Zentner for ADT Automotive (Zentner and Zentner 1999); and
- 178-Acre Livermore Site, Alameda County, Survey of Site Conditions, May 2000, prepared by Zentner and Zentner (2000).

URS biologists reviewed the California Natural Diversity Data Base (CNDDB) records for the Livermore 7.5 minute USGS quadrangle, the proposed critical habitat designations for the California red-legged frog, and the U.S. Fish and Wildlife Service (USFWS) species list for Alameda County (CNDDB 2000; USFWS 2000). Additionally, the property was evaluated for habitat that might support species listed in Table 1 (Special Status Species Evaluated) and Appendix D (Biological Survey Report) of the 1998 BA by Zentner and Zentner, as well as Table 4.11-2 (Sensitive Plant Species that Potentially Occur within or Adjacent to the Study Area) and Table 4.11.3 (2 (Sensitive Wildlife Species that Potentially Occur within or Adjacent to the Study Area) of the RDEIR for the Isabel Avenue/ Route 84 Extension Project.

Mapped soil types for the property were determined from the Alameda County soil survey and were compared with the habitat requirements of special status plants and the list of hydric soils for Alameda County (Soil Conservation Service 1966). The CNDDB records are attached as Appendix B, and the USFWS species list for Alameda County is attached as Appendix C. Soil types in the project area are shown on Figure 2.

On December 5, 2000, URS biologists Michele Lee and Corinna Lu conducted a reconnaissance survey of the project area to evaluate potential habitat for special status species and to determine the potential presence of wetlands. Focused surveys of the project area were not conducted. The four vegetation associations in the project area that were described in Zentner and Zentner's September 1998 BA and the May 2000 report were surveyed for changes in the vegetation and reevaluated as habitat for special status species. URS biologists specifically examined an area that had been previously determined to be non-jurisdictional for any evidence of wetland vegetation, hydric soils, or wetland hydrology. All burrows encountered on the property were examined for evidence of burrowing owl or San Joaquin kit fox.

The City of Livermore Engineering office and the Permit Center, which includes the planning department, were contacted to identify any additional information the City may have for the property and the vicinity. The property was included as part of the project study area for the Isabel Avenue/Route 84 Expansion project and URS reviewed a copy of the 1995 Revised Draft

EIR (RDEIR) for the Isabel Extension Project. No revisions were made for the Final EIR; the Final EIR consists of comment letters to the RDEIR and responses to these comments. The Permit Center also has a record of the negative declaration and a copy of the initial study prepared for ADT Automotive in 1998. No other relevant reports or studies were identified for the property and the vicinity.

3.1 EVALUATION OF EXISTING INFORMATION

The CNDDB records dated October 2, 2000 for special status species in the Livermore 7.5 minute USGS quadrangle were compared with the records dated April 11, 2000 in Zentner and Zenter's 2000 report. There are no significant differences in the records. No new occurrences were reported in the Livermore quadrangle since the April 11, 2000 release of the CNDDB. However, additional species are included on the U.S. Fish and Wildlife Service species list for the Livermore 7.5-minute quadrangle. A list of special status species with potential to occur in the vicinity of the property was developed based on these sources and the other documents reviewed (Table 3).

3.2 VEGETATION

The vegetation on the property is similar to the description presented in the May 2000 report. On December 5, 2000, the entire property was dominated by unidentifiable seedlings of grasses and forbs as well as the remains of non-native annuals such as hare barley (*Hordeum murinum*), Italian rye (*Lolium multiflorum*), star thistle (*Centaurea solstitialis*), and short-pod mustard (*Hirschfeldia incana*). Other plant species observed in the project area are listed in Table 2.

The vegetation in the project area is relatively homogenous. The four vegetation associations described in the1998 BA are more accurately described using two habitat types: 1) fallow field, and 2) dry arroyo (Figure 1). The herbaceous vegetation is similar in both of these areas. The arroyo habitat is differentiated based on the presence of three mature trees, topography and past land use. The fallow fields are relatively flat and were previously cultivated whereas the dry arroyo is a shallow topographic swale that has not been recently cultivated.

Areas in the dry arroyo that appear to be more heavily disked are barren and gravelly, but this feature generally supports upland species similar to the rest of the property. The lowest portions of the dry arroyo have a dense cover of star thistle. The two large valley oaks (*Quercus lobata*) and the western sycamore (*Platanus racemosa*) in the dry arroyo appear to be moderately healthy.

3.3 EVALUATION OF POTENTIAL WETLANDS

Two sites were identified from existing reports that were evaluated for potential wetland indicators. A formal wetland delineation was not conducted. Potential wetland features were evaluated based on existing reports and observations during the field review.

The soils on the project area are Yolo loam (YmA) and Livermore very gravelly coarse sandy loam (Lm) (Figure 2). Yolo loam is well drained and moderately permeable. The capacity for holding water is high. The surface soil of Yolo loam from 0-16 inches is mildly alkaline on and the subsoil and substratum from 16-60 inches is moderately alkaline. Livermore very gravelly coarse sandy loam is somewhat excessively drained and has rapid permeability. Capacity for holding water is very low. The surface soil is slightly acid to neutral and the underlying soil layers are neutral. Neither of these soil types are considered hydric soils (Natural Resource Conservation Service 1992).

The 1998 BA identified a 0.3-acre seasonal wetland at the eastern boundary of the property. This seasonal wetland was described as primarily unvegetated, with Bermuda grass (*Cynodon dactylon*) providing approximately 25-50% vegetative cover. The 1998 amendment to the 1998 BA also states that this wetland was delineated in association with the Isabel Avenue/Route 84 Extension project and was verified by the U.S. Army Corps of Engineers (Corps) as non-jurisdictional on February 26, 1997 (Zentner and Zentner 2000). This verification is valid until February 26, 2002. Zentner and Zentner's May 2000 report stated that this feature "was eliminated by the road and fence construction on the project area and the Isabel Avenue/Route 84 extension immediately to the east (although the adjacent *Eucalyptus* trees were still extant)."

At the time of the December 5th survey, remnants of the former seasonal wetland were still evident. This area appeared to be slightly lower in elevation and although a soil pit was not excavated, the soil on the surface was moist. Several small patches of desiccated Bermuda grass, a facultative wetland species, were observed here and nowhere else in the project area. Several other species reported in the 1998 BA from this area were also observed: horseweed (*Conyza canadensis*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), and willow herb (*Epilobium brachycarpum*). Horseweed and curly dock are both included as wetland indicator species on the National List of Plant Species that Occur in Wetlands (Reed 1988). Other plant species associated with this feature were also observed elsewhere within the dry arroyo: seedlings of grasses and forbs, star thistle and short-pod mustard. This area was more densely vegetated than it was described in 1998.

Previous reports for the property and vicinity do not discuss the jurisdictional status of the dry arroyo in the project area. This swale appears to have been a former distributary channel of Arroyo Mocho that has been subsequently isolated from the stream's main channel. Residential development to the east prevents runoff from reaching the dry arroyo channel. The topography of the property slopes away from the swale as shown on Figure 1. Therefore, this feature is not likely to receive substantial surface runoff during the rainy season. During the site reconnaissance, the arroyo was dry and dominated by upland plants.

3.4 SPECIAL STATUS SPECIES

3.4.1 Special Status Plants

The property is dominated by ruderal vegetation and has a long history of disturbance. Therefore, occurrences of special status plants are unlikely. According to the RDEIR for the Isabel Avenue/Route 84 Extension project, the project area has been farmed for over 100 years. As reported in May 2000, the entire area has been disked. However, there are some parts of the property that may provide marginal habitat for special status plants.

Table 1 in the 1998 BA lists five special status plants that are known to occur in the Livermore Valley and have marginal habitat present in the project area:

- big tarplant (*Blepharizonia plumosa* ssp. *plumosa*),
- Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*),
- large flowered fiddleneck (*Amsinckia grandiflora*),
- San Joaquin saltbush (*Atriplex joaquiniana*), and

- stinkbells (*Fritillaria agrestis*).

Zentner and Zentner conducted surveys in July and September 1998. Based on these surveys they concluded that the special status plant species listed above were unlikely to be present in the project area. The U.S. Fish and Wildlife Service (USFWS) comment letter dated January 6, 1999 regarding the IS/mitigated negative declaration for the proposed ADT Automotive Golden Gate Auction project addressed the issue that the 1998 surveys coincided with the blooming period of some of these plants but not all of them. The comment letter states that the 1998 BA acknowledges that the survey dates were late for plant surveys even though remnants of spring-flowering plants were observed. Biological surveys for the Isabel Avenue/Route 84 Extension project were conducted during different seasons from 1989 to 1993. However, these surveys did not address four of the species identified in Zentner and Zentner's 1998 BA.

Additional surveys for rare plants are recommended. These surveys should be conducted in April and June. This survey time would include the blooming period for stinkbells (March to April), large flowered fiddleneck (April to May), San Joaquin saltbush (April to September) and Congdon's tarplant (June to November). These surveys would also be appropriately timed to identify other species known to occur in the project vicinity including palmate-bracted bird's beak (*Cordylanthus palmatus*), hispid bird's beak (*C. mollis* ssp. *hispidus*), and heartscale (*Atriplex cordulata*).

3.4.2 Special Status Wildlife

As stated earlier, the area has been heavily farmed, reducing the quality of the habitat for some species such as the San Joaquin pocket mouse (*Perognathus inornatus*) and the San Joaquin whipsnake (*Masticophis flagellum ruddocki*) that inhabit undisturbed grasslands.

Northern harrier (*Circus cyaneus*), a California species of special concern, and white-tailed kite (*Elanus caeruleus*), a California Department of Fish and Game (CDFG) fully protected species, were observed on the project area. Zentner and Zentner observed a loggerhead shrike (*Lanius ludovicianus*), a California species of special concern, in the project area in 1998, and Dames & Moore recorded a Golden eagle (*Aquila chrysaetos*), a state candidate for listing, in the vicinity in 1995 for the City of Livermore Isabel Avenue/ Route 84 Extension project. There is a possibility that these birds may breed in the area, and a pre-construction survey for any nesting birds in the vicinity is recommended. This can be done concurrently with burrowing owl surveys. More details on burrowing owls follow.

Potential habitat is also present for the horned lark *(Eremophila alpestris)*, a California species of special concern. Horned larks prefer sparse vegetation and exposed soil as well as tilled fields and short grasslands. While some of the vegetation present in the project area, such as *Lolium* sp., grows very tall, the vegetation during the winter and after disking is very short; there are some areas in the arroyo in which exposed soil is present. If the area is disked prior to the breeding season and the grasses remain short during this time, it is possible for birds to nest in the area. As stated above, a preconstruction survey for any nesting birds on the area should be conducted.

Habitat exists for the western burrowing owl (*Athene cunicularia)*, a California species of special concern, although no owls were observed in the project area at the time of the site visit. Ground

squirrel burrows were inspected for any signs of presence such as whitewash or feathers but none were found. However, a systematic survey of the area was not conducted during the field review.

The 1995 RDEIR for the City of Livermore Isabel Avenue/Route 84 Extension project reports one burrowing owl observed in the study area for that project. The Isabel Extension project area includes the Oaks Business Park property as well as adjacent land. Surveys were conducted for the Isabel Avenue/Route 84 Extension project in 1989 and in 1993. No owls or potential burrows were observed during these surveys. Zentner and Zentner conducted a survey on March 2, 1999, and again, no owls or burrows were observed. However, a number of speakers testified to the presence of the species on the project area in a March 2, 1999 City Council hearing. A citizen documented a burrowing owl nest 50 to 75 yards from the property around this time. The nest was in the right-of-way of the Isabel Avenue/Route 84 Extension project and has since been destroyed.

Marginal habitat is present for the San Joaquin kit fox (*Vulpes macrotis* spp. *mutica*). This species is Federally listed as endangered and State listed as threatened. San Joaquin kit foxes prefer sandy soils for burrowing but they are known to modify other burrows, including ground squirrel burrows (Bell, 1995). URS biologists found one exceptionally large burrow approximately 7 inches in diameter in the project area, although it is unclear as to whether this was a kit fox den. The minimum size of a burrow to accommodate kit fox is 3.5 to 4 inches in height/width (Isabel Extension Final EIR comments, 1995). Unidentified scat was found in several areas. This property is isolated from occupied habitats in the inner Coast Ranges by transportation corridors and urban development. The San Joaquin kit fox requires a relatively large territory and is uncommon in areas that are isolated and highly disturbed. However, kit foxes are known to occur in disturbed areas such as agricultural fields and have persisted in urban areas such as Bakersfield.

A USFWS comment letter that addressed the IS/Mitigated Negative Declaration for the ADT Automotive Golden Gate Auto Auction project noted that the absence of kit fox during site visits does not imply that kit fox do not use the project area, or that it is not habitat (USFWS 1999). Kit fox surveys were conducted for the City of Livermore Isabel Extension Project in September and November 1993 as well as in September 1990 for the Caltrans State Route 84 project, which included the Isabel Extension project area. Dames and Moore conducted all of these surveys. No kit foxes were recorded during these surveys. However, due to the presence of potential habitat for San Joaquin kit fox, preconstruction surveys should be conducted according the USFWS protocol.

California tiger salamander (*Ambystoma californienese*), a candidate species for listing, and the western spadefoot (*Scaphiopus hammondi* spp. *hammondi*), a California species of special concern, have been identified near the project area and in Alameda County, respectively. Suitable breeding habitat is not currently present for these species because of the lack of seasonal ponds or pools on the property. However, the burrows on the property could provide upland refugia for adult salamanders or spadefoots.

USFWS has previously commented that the property could provide habitat for California tiger salamander (USFWS 1999). The USFWS letter noted that no focused surveys were conducted for this species. Dames and Moore conducted amphibian surveys for the Isabel Avenue/ Route 84 Extension Project in 1989 and 1993. These surveys included the non-jurisdictional wetland at the eastern margin of the property. No tiger salamanders were documented, although the wetland

and surrounding grasslands with ground squirrel burrows were found to be potential habitat. Western spadefoots were also addressed in these surveys but none were recorded. Although this wetland is no longer present, potential upland habitat for both species could still be present if breeding habitat is present in within approximately 1,650 feet (CDFG 1997). Pre-construction surveys should be conducted according to the CDFG protocol (1997).

USFWS also commented on hydrological and water quality issues of the area and how they would impact the red-legged (*Rana aurora* spp. *Draytonii*). The Oaks Business Park site is not within the range of critical habitat for the red-legged frog (*Rana aurora* spp. *Draytonii*) and there is no breeding habitat present in the project area.

No new biological resource issues were identified during the URS review. Previous studies are generally adequate to address potential impacts to wetlands and special status species. However, based on the field review and comments received in response to previous submittals for projects on this property we have made the following recommendations:

- A formal wetland delineation, preferably during the wet, winter months, should be conducted to determine whether potential jurisdictional wetlands are present. Previous wetland delineations identified a potential wetland area along the eastern margin of the project area. However, subsequent review for the Isabel Avenue/ Route 84 Extension project concluded that this area was not jurisdictional. This discrepancy should be addressed by submitting a formal delineation to the Corps and requesting verification.
- USFWS previously commented that surveys for rare plants did not address species with spring blooming periods. Additional surveys for rare plants should be conducted during April and June to address spring-blooming species.
- Although no burrowing owls were observed on the property, suitable habitat is present. Pre-construction surveys should be conducted in accordance with CDFG protocol to determine presence before construction. If burrowing owls are found, pre-construction and pre-breeding exclusion trapping should be performed with consultation from CDFG.
- Marginal nesting habitat is present for northern harrier, golden eagle, loggerhead shrike horned lark. Pre-construction nesting surveys should be conducted in accordance with CDFG protocol to determine presence before construction.
- USFWS previously commented that pre-construction surveys should be conducted for San Joaquin kit fox. Marginal habitat is present in the project area. Surveys should be conducted according to the protocol specified by USFWS.
- Suitable upland habitat is present for California tiger salamander and western spadefoot if potential breeding ponds are located within about 1650 feet of the property. If potential breeding ponds are present, pre-construction surveys should be conducted according to the CDFG protocol (1997).

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Zentner and Zentner. 1998b. Biological Assessment, 178-Acre Livermore Property (Golden Gate Auto Auction), Alameda County, Prepared for ADT Automotive. September 18, 1998, as amended October 12, 1998.

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Table 1. Plant Species Observed on the Project Area

Common Name	Scientific Name	Native/Non-native
wild oats	*Avena* sp.	non-native
ripgut brome	*Bromus diandrus*	non-native
soft chess brome	*Bromus hordeaceus*	non-native
safflower	*Carthamus tinctorius*	non-native
yellow star-thistle	*Centaurea solstitialis*	non-native
bull thistle	*Cirsium vulgare*	non-native
field bindweed	*Convolvulus arvensis*	non-native
horseweed	*Conyza canadensis*	native
Bermuda grass	*Cynodon dactylon*	non-native
willow herb	*Epilobium brachycarpum*	native
filaree	*Erodium* sp.	native or non-native
California poppy	*Eschscholzia californica*	native
shortpod mustard	*Hirschfeldia incana*	non-native
barely	*Hordeum murinum*	non-native
prickly lettuce	*Lactuca serriola*	non-native
ryegrass	*Lolium* sp.	non-native
cheeseweed	*Malva parviflora*	non-native
horehound	*Marrubium vulgare*	non-native
bristly ox-tongue	*Picris echioides*	non-native
Western sycamore	*Platanus racemosa*	native
valley oak	*Quercus lobata*	native
wild radish	*Raphanus sativus*	non-native
curly dock	*Rumex crispus*	non-native
Russian thistle	*Salsoda tragus*	non-native
cocklebur	*Xanthium strumarium*	non-native

Table 2. Vertebrate Species Observed on the Project Area

BIRDS

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
Black phoebe	*Sayornis nigricans*
Brewer's blackbird	*Euphagus cyanocephalus*
Kestral	*Falco sparverius*
Killdeer	*Charadrius vociferus*
Mourning dove	*Zenaida macroura*
Northern harrier	*Circus cyaneus*
Red tailed hawk	*Buteo jamaicensis*
Savannah sparrow	*Passerculus sandwichensis*
Turkey vulture	*Cathartes aura*
Western meadowlark	*Sturnella neglecta*
White tailed kite	*Elanus leucurus*
White-crowned sparrow	*Zonotrichia leucophrys*

MAMMALS

Common Name	Scientific Name
Black tailed hare	*Lepus californicus*
California ground squirrel	*Spermophilus beecheyi*

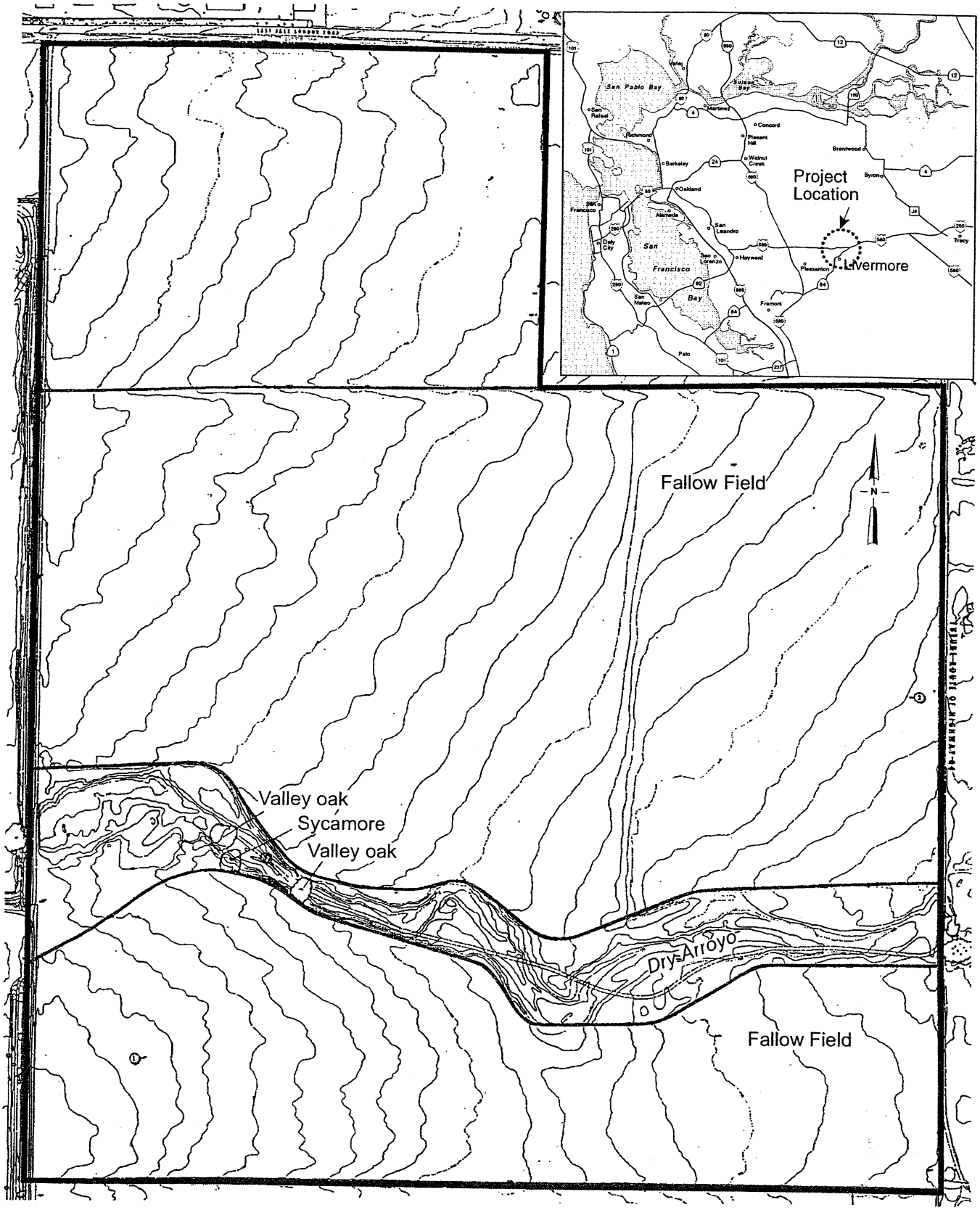
Table 3. Special Status Species with the Potential to Occur in the Project Area

PLANTS

Common Name	**Scientific Name**
Big tarplant	*Blepharizonia plumosa* ssp. *plumosa*
Congdon's tarplant	*Hemizonia parryi ssp. congdonii*
Heartscale	*Atriplex cordulata*
Hispid bird's beak	*Cordylanthus mollis* spp. *Hispidus*
Large flowered fiddleneck	*Amsinckia grandiflora*
Palmate-bracted bird's beak	*Cordylanthus palmatus*
San Joaquin saltbush	*Atriplex joaquiniana*
Stinkbells	*Fritillaria agrestis*

WILDLIFE

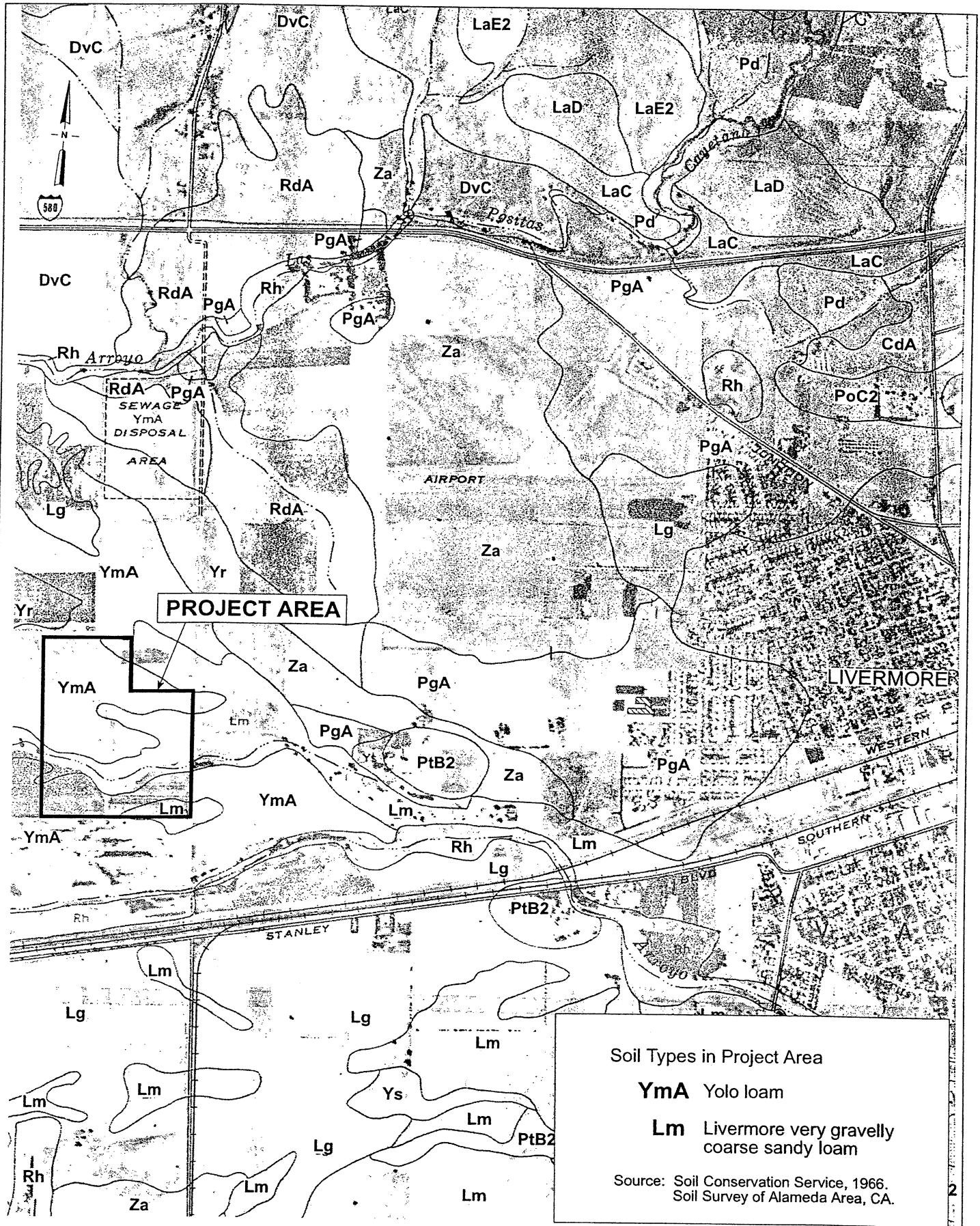
Common Name	**Scientific Name**
California tiger salamander	*Ambystoma californienese*
Horned lark	*Eremophila alpestris*
Northern harrier	*Circus cyaneus*
San Joaquin kit fox	*Vulpes macrotis* spp. *mutica*
Western burrowing owl	*Athene cunicularia*
Western spadefoot	*Scaphiopus hammondi* spp. *hammondi*
White-tailed kite	*Elanus caeruleus*



Map source: Kier and Wright, 5880 West LasPositas blvd., Suite 34, Pleasanton, CA 94588

URS	Project No. 51-00167008.01 Oaks Business Park	PROJECT AREA LOCATION	Figure 1

51-00167008.01-00000/122000/gos



Soil Types in Project Area

YmA Yolo loam

Lm Livermore very gravelly coarse sandy loam

Source: Soil Conservation Service, 1966. Soil Survey of Alameda Area, CA.

URS	Project No. 51-00167008.01 Oaks Business Park	SOILS TYPES IN THE PROJECT AREA AND VICINITY	Figure 2

Appendix A

Project Area Photographs

Photo 1. Disked field (former safflower field), facing north

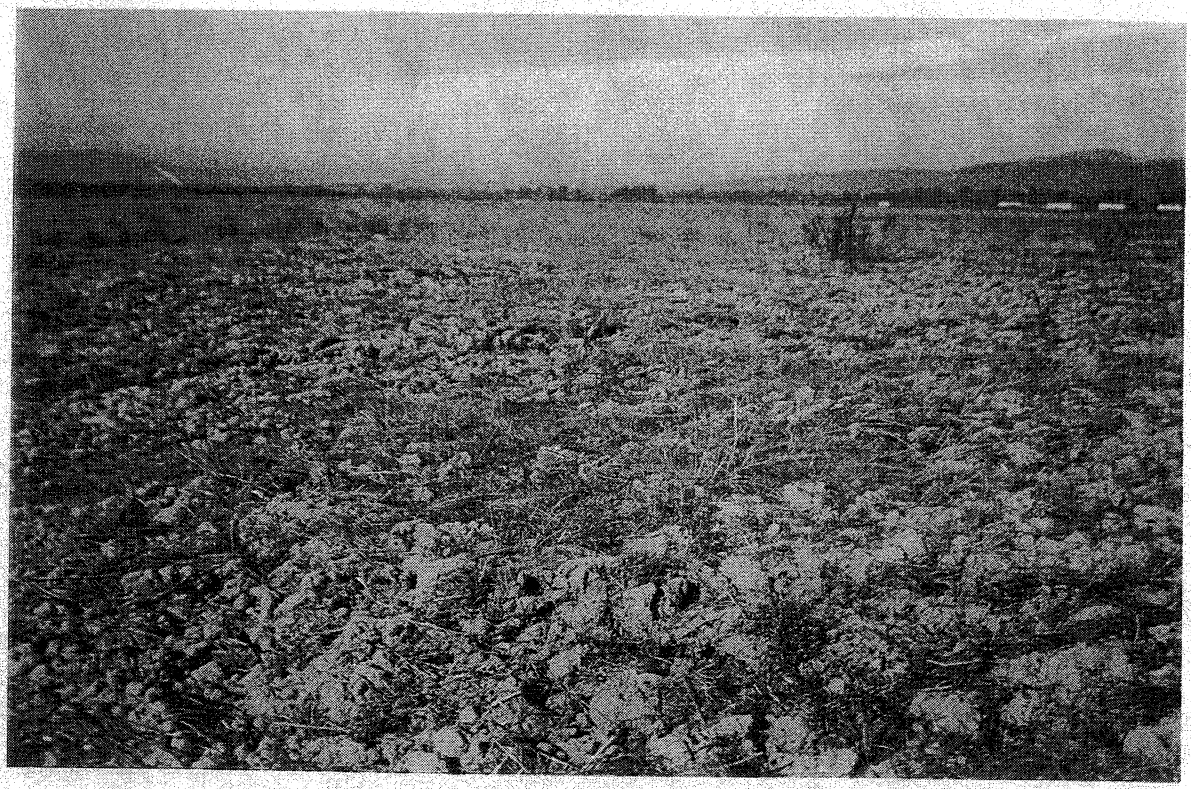


Photo 2. Disked field (former safflower field), facing southwest

URS	Project No. 51-00167008.01 Oaks Business Park	PROJECT AREA PHOTOGRAPHS	Appendix A

Photo 3. Disked field, south of dry arroyo, facing west

Photo 4. Dry arroyo, facing southwest

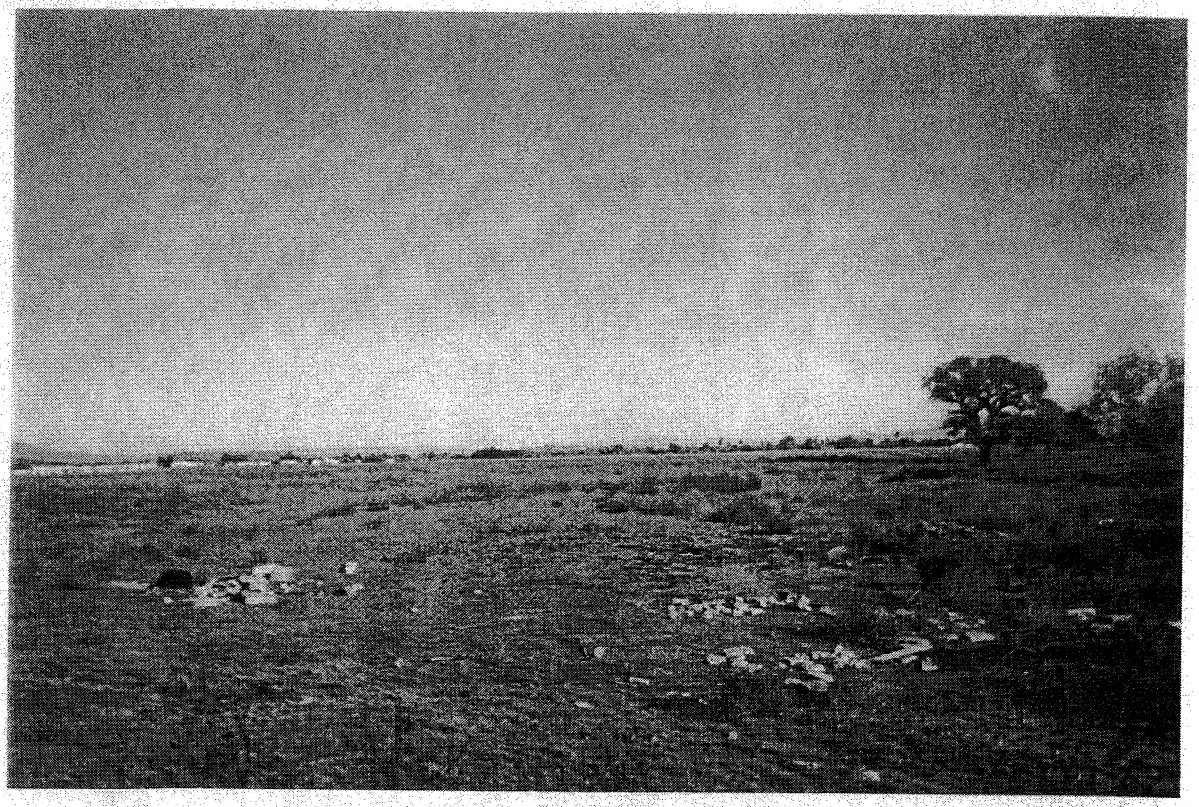


Photo 5. Western end of dry arroyo, facing east

Photo 6. Dry arroyo and a portion of the disked field south of it, facing west

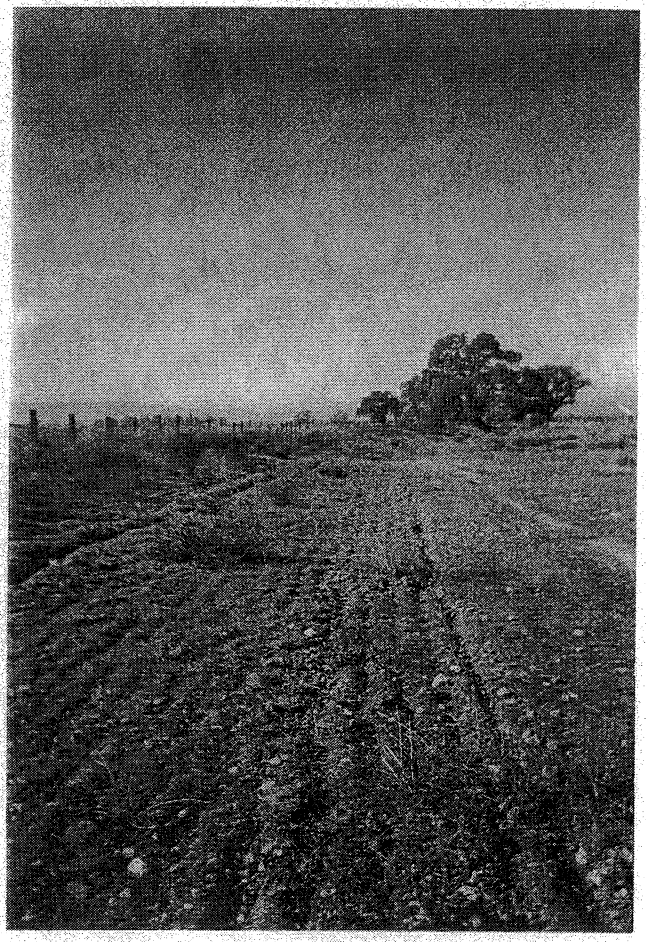


Photo 7. Dry arroyo, facing west

Photo 8. Close-up of cobbles and stones in dry arroyo

Photo 9. Potential seasonal wetland, eastern end of dry arroyo, facing east

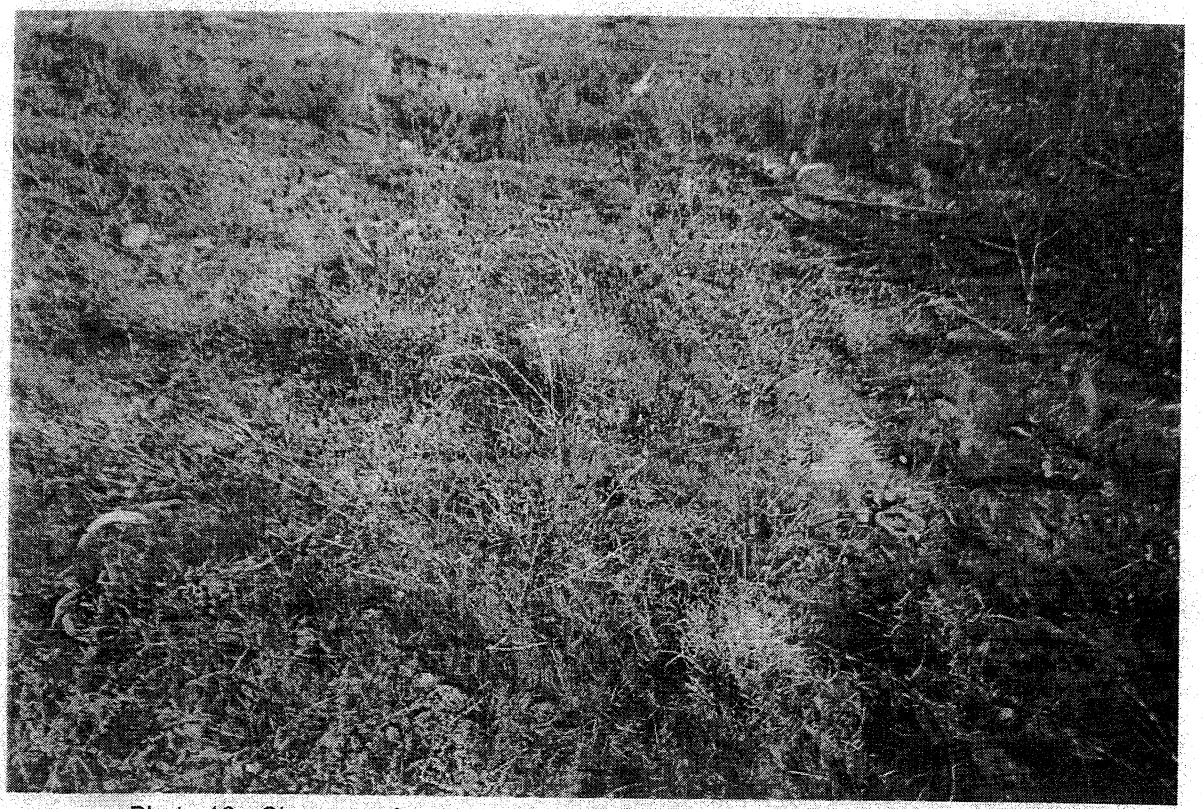


Photo 10. Close-up of potential seasonal wetland, eastern end of dry arroyo

Photo 11. Project area, facing northwest. Highway 84 is under construction east of the site. The project area only includes the grassland beyond the construction site.

Appendix B

October 2, 2000 CNDDB Records for the Livermore 7.5 minute USGS quadrangle

AMBYSTOMA CALIFORNIENSE
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

Habitat Associations
General: FEDERAL LISTING REFERS TO POPULATIONS IN SANTA BARBARA COUNTY ONLY.
Micro: NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING

Occurrence No. 34 Map Index:10632
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BRODE, J. 1986 (PERS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: BESIDE ROAD, NEAR GRAVEL PITS SOUTH OF L STREET IN LIVERMORE. BETWEEN GOLF COURSE AND TRAILER PARK.

Dates Last Seen
Element: 1970-01-13
Site: 1970-01-13

Lat/Long: 37°40'24" / 121°46'03"
UTM: Zone-10 N4170087 E608681
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 2/5 mile

Township: 03S
Range: 02E
Section: XX Qtr XX
Meridian: M
Elevation: 515 ft

Comments
Distribution:
Ecological:
Threat:
General: MVZ 88574. ALSO MVZ 81289-81292 COLL 11/15/66. LIVERMORE AREA MVZ 79012 COLL. 01/23/1965
Owner/Manager: UNKNOWN

Occurrence No. 109 Map Index:17105
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LSA ASSOC. 1989 (OBS)
Quad Summary: LIVERMORE (3712167/446A)*, LA COSTA VALLEY (3712157/446D)
County Summary: ALAMEDA
SNA Summary:
Location: ABOUT 2 MI SW OF LIVERMORE, WITHIN 1.5 MI OF THE JUNCTION OF HWY 84 & E VINEYARD AVE.

Dates Last Seen
Element: 1989-04-XX
Site: 1989-04-XX

Lat/Long: 37°38'01" / 121°48'34"
UTM: Zone-10 N4165640 E605040
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 03S
Range: 01E
Section: XX Qtr XX
Meridian: M
Elevation:

Comments
Distribution:
Ecological: INTRODUCED GRASSLAND ON NNE FACING SLOPE WITH OAK WOODLAND ALONG STREAM CHANNELS. BLUE OAK WOODLAND & SAVANNA UPSLOPE TO WEST OF PROJECT SITE.
Threat: CURRENTLY USED FOR GRAZING. PLANS TO DEVELOP SITE INTO RESIDENTIAL AREA (RUBY HILLS PROJECT SITE).
General: OVER 120 LARVAE FOUND.
Owner/Manager: PVT

Occurrence No. 140 Map Index:24130
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BROWNING, J & M. LONG 1993 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG VINEYARD AVENUE, WEST OF HWY 84, SW OF LIVERMORE.

Dates Last Seen
Element: 1993-01-21
Site: 1993-01-21

Lat/Long: 37°39'05" / 121°48'19"
UTM: Zone-10 N4167605 E605403
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 252.4 ac

Township: 03S
Range: 01E
Section: XX Qtr XX
Meridian: M
Elevation: 420 ft

Comments
Distribution: 3 ADULTS OBSERVED ON VINEYARD AVENUE, ABOUT 0.5 MILE APART, DURING HEAVY RAIN.
Ecological: SURROUNDING LAND (POTENTIAL HABITAT) CONSISTS OF VINEYARDS, FALLOW AGRICULTURAL FIELDS, ANNUAL GRASSLANDS, AND SPARSELY-SCATTERED HOMES.
Threat: MAIN THREAT IS PROPOSED RESIDENTIAL DEVELOPMENT SOUTH OF VINEYARD AVENUE.
General: 3 ADULT SALAMANDERS OBSERVED MIGRATING TO/FROM BREEDING SITES BETWEEN 8:50 AND 9:05 PM ON 21 JANUARY 1993.
Owner/Manager: UNKNOWN

AMBYSTOMA CALIFORNIENSE (cont.)
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 141 Map Index:24123
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BROWNING, J & M. LONG 1993 (OBS)
Quad Summary: LIVERMORE (3712167/446A)*, ALTAMONT (3712166/445B)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG WENTE AVENUE, SOUTH OF PLEASANT VIEW LANE, LIVERMORE.

Dates Last Seen:
Element: 1993-01-21
Site: 1993-01-21

Lat/Long: 37°39'56" / 121°45'01"
UTM: Zone-10 N4169237 E610227
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 03S
Range: 02E
Section: XX Qtr XX
Meridian: M
Elevation: 550 ft

Comments
Distribution: 1 ADULT OBSERVED ON THE ROAD, DURING A HEAVY RAIN, AT 8:15 PM.
Ecological: SURROUNDING LANDS INCLUDE VINEYARDS, FALLOW AGRICULTURAL FIELDS, ANNUAL GRASSLANDS, AND SPARSELY SCATTERED HOMES.
Threat:
General: 1 ADULT OBSERVED MIGRATINGTO/FROM A BREEDING SITE.
Owner/Manager: UNKNOWN

Occurrence No. 142 Map Index:24129
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: VICINITY OF THE INTERSECTION OF DOOLAN ROAD AND COLLIER CANYON ROAD, ON THE NORTH SIDE OF I-580, NW OF LIVERMORE.

Dates Last Seen:
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°42'06" / 121°49'18"
UTM: Zone-10 N4173170 E603877
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 12.0 ac

Township: 03S
Range: 01E
Section: XX Qtr XX
Meridian: M
Elevation: 380 ft

Comments
Distribution: ONE ADULT OBSERVED CROSSING COLLIER CANYON ROAD AND A SECOND WAS OBSERVED CROSSING DOOLAN ROAD ON 28 DECEMBER 1992, DURING A RAINSTORM.
Ecological: SURROUNDING HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: THREATS INCLUDE CATTLE GRAZING AND A PROPOSED HOUSING DEVELOPMENT.
General:
Owner/Manager: UNKNOWN

Occurrence No. 143 Map Index:24124
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: DOOLAN ROAD, 0.7 MILES NORTH OF I-580, NW OF LIVERMORE.

Dates Last Seen:
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°42'42" / 121°49'21"
UTM: Zone-10 N4174286 E603788
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 35 Qtr SE
Meridian: M
Elevation: 460 ft

Comments
Distribution: ONE ADULT OBSERVED CROSSING ROAD, HEADING TOWARD COTTONWOOD CREEK, DURING A RAINSTORM.
Ecological: SURROUNDING HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: THREATS INCLUDE GRAZING AND A PROPOSED HOUSING DEVELOPMENT.
General:
Owner/Manager: UNKNOWN

AMBYSTOMA CALIFORNIENSE (cont.)
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 144 Map Index:24125
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG DOOLAN ROAD, 1.5 MILES NORTH OF I-580, NW OF LIVERMORE.

—Dates Last Seen—
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°43'28" / 121°49'23"
UTM: Zone-10 N4175687 E603712
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02S
Range: 01E
Section: 26 Qtr SE
Meridian: M
Elevation: 640 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: THREATS INCLUDE CATTLE GRAZING AND A PROPOSED HOUSING DEVELOPMENT.
General: IN 1992, ONE ADULT WAS FOUND ALIVE IN A SWIMMING POOL FILTER BASKET AT 5033 DOOLAN ROAD ON 12 DECEMBER; A SECOND ADULT WAS OBSERVED ON 28 DECEMBER CROSSING A COUNTY ROAD, HEADING FOR A POOL IN COTTONWOOD CREEK.
Owner/Manager: PVT

Occurrence No. 145 Map Index:24126
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG DOOLAN ROAD, 2.5 MILES NORTH OF I-580, NW OF LIVERMORE.

—Dates Last Seen—
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°43'53" / 121°50'07"
UTM: Zone-10 N4176458 E602632
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 26 Qtr SW
Meridian: M
Elevation: 580 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: THREATS INCLUDE CATTLE GRAZING AND A PROPOSED HOUSING DEVELOPMENT.
General: IN 1992, ONE ADULT WAS OBSERVED CROSSING THE COUNTY ROAD, HEADING FOR A POOL IN COTTONWOOD CREEK.
Owner/Manager: UNKNOWN

Occurrence No. 146 Map Index:24127
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG COLLIER CANYON ROAD, 2.5 MILES NORTH OF I-580, NW OF LIVERMORE.

—Dates Last Seen—
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°44'10" / 121°48'26"
UTM: Zone-10 N4177000 E605093
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 25 Qtr NE
Meridian: M
Elevation: 500 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: MAIN THREAT IS CATTLE GRAZING.
General: IN 1992, ONE ADULT WAS OBSERVED CROSSING THE COUNTY ROAD, HEADING WEST TOWARD THE CREEK AND SEVERAL PONDS (DURING LIGHT RAIN).
Owner/Manager: UNKNOWN

AMBYSTOMA CALIFORNIENSE (cont.)
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status: Federal: Endangered; State: None
NDDB Element Ranks: Global: G2G3; State: S2S3
Other Lists: CDFG Status: SC

Occurrence No. 147 Map Index:24128
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEMAN, G. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

Dates Last Seen—
Element: 1992-12-28
Site: 1992-12-28

Lat/Long: 37°44'33" / 121°48'33"
UTM: Zone-10 N4177703 E604933
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 24 Qtr SE
Meridian: M
Elevation: 620 ft

Location: ALONG COLLIER CANYON ROAD, 3 MILES NORTH OF I-580, NW OF LIVERMORE.

Comments
Distribution:
Ecological: HABITAT CONSISTS OF ANNUAL GRASSLAND.
Threat: MAIN THREAT IS CATTLE GRAZING.
General: IN 1992, ONE ADULT WAS OBSERVED CROSSING THE COUNTY ROAD, HEADING WEST.
Owner/Manager: UNKNOWN

Occurrence No. 188 Map Index:33751
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CENTER FOR CONSERVATION BIOL. 1993 (OBS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

Dates Last Seen—
Element: 1999-05-14
Site: 1999-05-14

Lat/Long: 37°43'23" / 121°44'13"
UTM: Zone-10 N4175637 E611325
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 478.1 ac

Township: 02S
Range: 02E
Section: 27 Qtr XX
Meridian: M
Elevation: 500 ft

Location: SPRINGTOWN, SOUTH OF RAYMOND ROAD AND WEST OF VASCO ROAD, NORTH OF LIVERMORE.

Comments
Distribution: INCLUDED IN AREA ARE THE SPRINGTOWN PROJECT SITE (SE CORNER) & SPRINGTOWN MITIGATION SITE (MIDDLE WEST)
Ecological: HABITAT CONSISTS OF ALKALI SINK CONTAINING VERNAL POOLS. CORDYLANTHUS PALMATUS, BRANCHINECTA LYNCHI, AND ATHENE CUNICULARIA ALSO FOUND IN AREA.
Threat: THREATS INCLUDE DEVELOPMENT, INVASIVE EXOTICS, ORV'S (INCLUDING HEAVY BICYCLE USE), AND DUMPING.
General: SEVERAL OBSERVED 1991-93. 1 ADULT OBSERVED, 1993 (IN SWIMMING POOL), ADJACENT TO A CREEK. 50+ JUVENILES OBSERVED, 1998. 1 JUV OBSERVED NORTH END, SEVERAL IN SE, & 1 IN MID-WESTERN PERTIONS OF POLYGON, 1999.
Owner/Manager: CITY OF LIVERMORE, PVT

Occurrence No. 238 Map Index:26023
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MONK, J. 1992 (PERS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

Dates Last Seen—
Element: 1996-12-21
Site: 1997-01-23

Lat/Long: 37°43'09" / 121°45'40"
UTM: Zone-10 N4175185 E609176
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 1,097.2 ac

Township: 02S
Range: 02E
Section: 33 Qtr XX
Meridian: M
Elevation: 460 ft

Location: WEST OF LORRAINE STREET AND NORTH OF I-580, LIVERMORE.

Comments
Distribution:
Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND, INTERSPERSED WITH SEASONAL WETLANDS. MIMA-MOUND TOPOGRAPHY. CTS USE GROUND SQUIRREL BURROWS, FOUND IN THE MORE UPLAND AREAS, FOR AESTIVATION.
Threat: THREATENED BY PROPOSED DEVELOPMENT.
General: AN UNKNOWN NUMBER OF CTS WERE CAPTURED AND RELEASED ON 31 MARCH 1992. NUMEROUS ADULTS OBSERVED DURING NOCTURNAL SURVEYS OF GROUND SQUIRREL BURROWS AND PITFALL TRAPPING, FROM 12 MAR 1996 THROUGH 23 JAN 1997.
Owner/Manager: PVT

AMBYSTOMA CALIFORNIENSE (cont.)
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 432 Map Index:38736
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: 0.6 MILE NW OF THE JUNCTION OF FALLON ROAD AND I-580, EAST OF DUBLIN.

—Dates Last Seen—
Element: 1998-04-19
Site: 1998-04-19

Lat/Long: 37°42'35" / 121°51'16"
UTM: Zone-10 N4174030 E600979
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 34 Qtr SW
Meridian: M
Elevation: 380 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF A STOCK POND, SURROUNDED BY OPEN, ROLLINGS HILLS OF GRAZED GRASSLAND; SPRING BOX UPSTREAM FROM A LONE, LARGE WILLOW TREE.
Threat: THREATENED BY DEVELOPMENT & EROSION OF EARTHEN DAM; DAM CUT THROUGH SO POND DRIES A COUPLE OF WEEKS AFTER RAINS STOP.
General: 2 LARVAE COLLECTED ON 19 APRIL 1998; 1 LARVA RELEASED AND 1 DEPOSITED AT CAS (#MRJ 1373).
Owner/Manager: PVT

Occurrence No. 433 Map Index:38737
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: 0.8 MILE NNE OF THE INTERSECTION OF I-580 AND TASSAJARA ROAD, EAST OF DUBLIN.

—Dates Last Seen—
Element: 1998-04-19
Site: 1998-04-19

Lat/Long: 37°42'45" / 121°51'52"
UTM: Zone-10 N4174313 E600092
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 33 Qtr SE
Meridian: M
Elevation: 380 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF A STOCK POND SURROUNDED BY OPEN, ROLLING HILLS OF GRAZED GRASSLAND.
Threat: THREATENED BY PROPOSED DEVELOPMENT AND EROSION OF THE EARTHEN DAM.
General: 3 LARVAE COLLECTED ON 19 APRIL 1998; 2 RELEASED AND 1 DEPOSITED AT CAS (#MRJ-1374).
Owner/Manager: PVT

Occurrence No. 448 Map Index:40556
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: 1.2 MILES NW OF THE I-580/NORTH LIVERMORE AVENUE INTERCHANGE, NORTH OF LIVERMORE.

—Dates Last Seen—
Element: 1998-11-07
Site: 1998-11-07

Lat/Long: 37°42'38" / 121°47'20"
UTM: Zone-10 N4174207 E606749
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 02E
Section: 31 Qtr SE
Meridian: M
Elevation: 550 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF A VERNAL POOL, SURROUNDED BY OPEN, GRAZED GRASSLAND, WITH LOTS OF STAR THISTLE.
Threat: THREATENED BY DEVELOPMENT.
General: 22 JUVENILES OBSERVED ON 7 NOV 1998.
Owner/Manager: PVT

AMBYSTOMA CALIFORNIENSE (cont.)
CALIFORNIA TIGER SALAMANDER
Element Code: AAAAA01147

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2G3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 453 Map Index:41135
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARIK, M. 1997 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

Dates Last Seen
Element: 1997-11-21
Site: 1997-11-21

Lat/Long: 37°43'27" / 121°52'21"
UTM: Zone-10 N4175621 E599349
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/10 mile

Township: 02S
Range: 01E
Section: 28 Qtr XX
Meridian: M
Elevation: 428 ft

Location: WEST OF TASSAJARA CREEK, 0.6 MILE NORTH OF SANTA RITA COUNTY REHABILITATION CENTER, NORTH OF DUBLIN.

Comments
Distribution: INDIVIDUAL WAS FOUND IN THE GROUND IN A POSTHOLE.
Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND, DOMINATED MAINLY BY EXOTICS AND SOME VERNAL POOLS/WET MEADOWS.
Threat:
General: 1 ADULT OBSERVED ON 21 NOV 1997.
Owner/Manager: DOD-US ARMY

Occurrence No. 455 Map Index:41454
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DREIER, J. 1999 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

Dates Last Seen
Element: 1999-05-14
Site: 1999-05-14

Lat/Long: 37°37'50" / 121°51'19"
UTM: Zone-10 N4165261 E600987
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 03S
Range: 01E
Section: 34 Qtr XX
Meridian: M
Elevation: 710 ft

Location: 0.75 MILE EAST OF THE INTERSECTION OF HAPPY VALLEY ROAD & ALISAL STREET, 1.5 MILES SSE OF PLEASANTON.

Comments
Distribution:
Ecological: HABITAT CONSISTS OF A SMALL STOCKPOND SURROUNDED BY GRAZED ANNUAL GRASSLAND. POND IS 6-8 INCHES DEEP AND 0.02 ACRES IN SIZE; VEGETATED BY XANTHIUM (DEAD PLANTS).
Threat: POSSIBLE THREAT FROM OVER-GRAZING.
General: AT LEAST 5 LARVAE (7.5-9.5CM TOTAL LENGTH) OBSERVED ON 14 MAY 1999.
Owner/Manager: PVT

RANA AURORA DRAYTONII
CALIFORNIA RED-LEGGED FROG
Element Code: AAABH01022

List Status	NDDB Element Ranks	Other Lists
Federal: Threatened	Global: G4T2T3	CDFG Status: SC
State: None	State: S2S3	

Habitat Associations
General: LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.
Micro: REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Occurrence No. 221 Map Index:36451
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MORI, B . 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)*, TASSAJARA (3712177/464D)
County Summary: CONTRA COSTA
SNA Summary:
Location: IMPOUNDMENT 0.9 MILE EAST OF TASSAJARA ROAD AND 0.35 MILE NORTH OF CONTRA COSTA-ALAMEDA CO LINE, SAN RAMON.

Dates Last Seen — Element: 1992-04-30 Site: 1992-04-30
Lat/Long: 37°44'58" / 121°51'13"
UTM: Zone-10 N4178423 E600983
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile
Township: 02S
Range: 01E
Section: 22 Qtr NW
Meridian: M
Elevation: 570 ft

Comments
Distribution: SMALL SPRING IMPOUNDMENT IN FOOTHILL GRASSLAND.
Ecological: VEGETATION ALMOST ABSENT DUE TO GRAZING, EXCEPT ONE SMALL PATCH OF GRASSES AND COMPOSITE AT POND MARGIN. MUD/SILT SUBSTRATE; NO SHADE; TURBID WATER.
Threat: GRAZING.
General: 8 OBSERVED; 4 ADULTS, 4 LARVA. ALSO FOUND HYLA. FROGS PROBABLY IMMIGRATED FROM SPRING IMPOUNDMENT DIRECTLY SOUTH OF COUNTY LINE.
Owner/Manager: PVT

Occurrence No. 222 Map Index:34681
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MORI, B. 1992 (OBS)
Quad Summary: LIVERMORE (3712167/446A)*, DUBLIN (3712168/446B), TASSAJARA (3712177/464D)
County Summary: CONTRA COSTA
SNA Summary:
Location: TASSAJARA CREEK, APPROX. 0.5 MILE NORTH OF ALAMEDA-CONTRA COSTA CO LINE & 0.15 MILE EAST OF TASSAJARA ROAD, SAN RAMON.

Dates Last Seen — Element: 1992-05-20 Site: 1992-05-20
Lat/Long: 37°44'47" / 121°52'26"
UTM: Zone-10 N4178082 E599201
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 37.0 ac
Township: 02S
Range: 01E
Section: 21 Qtr XX
Meridian: M
Elevation: 470 ft

Comments
Distribution: GLIDES, POOLS AND IMPOUNDMENTS IN CHANNEL, APPROX. 0.75 MILE OF CREEK WITH PAUCITY OF RIPARIAN TREES; GRAZED MARGINS.
Ecological: PATCHES OF WILLOW & BLACKBERRY OCCUR ON BANKS. TYPHA, DUCKWEED AND ELODEA WETLAND PLANTS.
Threat: GRAZING.
General: 7 ADULTS AND MANY (INFINITY SYMBOL ON SURVEY FORM) JUVENILES OBSERVED. STICKLEBACK, HYLA, BUFO AND CLEMMYS PRESENT. SITE QUALITY RATED AS GOOD TO FAIR.
Owner/Manager: PVT

Occurrence No. 227 Map Index:36677
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PITTMAN, B. 1997 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ARROYO LAS POSITAS, SOUTH OF I-580, BETWEEN LAS POSITAS GOLF COURSE AND THE WEST END OF LIVERMORE MUNICIPAL AIRPORT.

Dates Last Seen — Element: 1997-08-08 Site: 1997-08-08
Lat/Long: 37°41'49" / 121°49'29"
UTM: Zone-10 N4172653 E603608
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters
Township: 03S
Range: 01E
Section: 02 Qtr XX
Meridian: M
Elevation: 375 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF A STREAM FLOWING AT 1-2 CFS, WITH A SANDY/COBBLY BOTTOM, VARYING IN WIDTH BETWEEN 5-12 FEET (4-24 INCHES DEEP). EMERGENT VEGETATION CONSISTS OF DENSE SCIRPUS CALIFORNICUS AND POLYGONUM SP, WITH NON-NATIVE GRASSES ON BANK
Threat: ARROYO IS CHANNELIZED AND CLEARED OF VEGETATION 0.5 MILE DOWNSTREAM; GOLF COURSE RUNOFF MAY DEGRADE WATER QUALITY.
General: A SINGLE ADULT FROG WAS FOUND IN A SMALL POOL ON 8 AUGUST 1997.
Owner/Manager: PVT

RANA AURORA DRAYTONII (cont.)
CALIFORNIA RED-LEGGED FROG
Element Code: AAABH01022

List Status	NDDB Element Ranks	Other Lists
Federal: Threatened	Global: G4T2T3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 229 Map Index:37736
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1997 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

—Dates Last Seen—
Element: 1999-03-27
Site: 1999-03-27

Lat/Long: 37°42'26" / 121°46'39"
UTM: Zone-10 N4173849 E607742
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 104.7 ac

Township: 03S
Range: 02E
Section: 05 Qtr XX
Meridian: M
Elevation: 450 ft

Location: ALONG CAYETANO CREEK, FROM ARROYO POSITAS UPSTREAM TO 0.6 MILE SOUTH OF HARTMAN ROAD, NORTH OF LIVERMORE.

—Comments—
Distribution: CREEK FLOWS THROUGH URBAN AND RURAL AREAS.
Ecological: CREEK FLOWING THROUGH AN ERODED, SANDY CHANNEL WITH LOTS OF SILT. SURROUNDED BY URBAN AREAS AND BY OPEN, GRAZED GRASSLANDS WITH A FEW SCATTERED COAST LIVE OAKS. CLUMPS OF WILLOW AND CATTAILS FOUND AT A FEW ISOLATED AREAS ALONG THE CREEK.
Threat: THREATS INCLUDE GRAZING, NON-NATIVE PREDATORS (BULLFROGS, MOSQUITOFISH, CRAYFISH), AND DEVELOPMENT.
General: 1 JUVENILE FROG COLLECTED ON 15 NOV 1997 AND DEPOSITED AT CAS (#MRJ 1329). 1 SUBADULT OBSERVED ON 24 MAY 1998. 1 ADULT COLLECTED ON 25 MAR 1999 AND DEPOSITED AT CAS (#MRJ 1457). 27 EGG MASSES OBSERVED ON 26-27 MAR 1999.
Owner/Manager: PVT

Occurrence No. 278 Map Index:40557
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA, CONTRA COSTA
SNA Summary:

—Dates Last Seen—
Element: 1998-06-04
Site: 1998-06-04

Lat/Long: 37°44'31" / 121°51'32"
UTM: Zone-10 N4177592 E600521
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 01E
Section: 21 Qtr SE
Meridian: M
Elevation: 520 ft

Location: UNNAMED EASTERN TRIBUTARY OF TASSAJARA CREEK, JUST SOUTH OF THE ALAMEDA/CONTRA COSTA COUNTY LINE, NORTH OF PLEASANTON.

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF A DEEPLY-INCISED STREAM FLOWING THROUGH OPEN, GRAZED GRASSLANDS. OTHER RARE TAXA FOUND IN THE VICINITY OF THIS SITE: WESTERN POND TURTLE.
Threat: POSSIBLE THREAT OF DEVELOPMENT, AS DUBLIN EXPANDS INTO THIS AREA.
General: 5+ ADULTS AND 75+ SUBADULTS OBSERVED ON 4 JUN 1998; 1 SUBADULT WAS COLLECTED (MRJ #1380) AND DEPOSITED AT CAS.
Owner/Manager: PVT

Occurrence No. 279 Map Index:40558
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:

—Dates Last Seen—
Element: 1998-11-07
Site: 1998-11-07

Lat/Long: 37°42'27" / 121°50'59"
UTM: Zone-10 N4173782 E601387
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 03S
Range: 01E
Section: 03 Qtr XX
Meridian: M
Elevation: 365 ft

Location: WEST SIDE OF FALLON ROAD, 0.4 MILE NORTH OF I-580, BETWEEN LIVERMORE AND PLEASANTON.

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF A POND AND STREAM CREATED BY DAMMING UPSTREAM; CATTAILS ARE FOUND IN THE CENTER OF THE POND, WITH WILLOWS BOTH UPSTREAM AND DOWNSTREAM. SURROUNDING AREA CONSISTS OF OPEN, GRAZED GRASSLAND.
Threat: THREATENED BY PRESENCE OF MOSQUITOFISH AND BY DEVELOPMENT.
General: 5 JUVENILES OBSERVED ON 7 NOV 1998.
Owner/Manager: PVT

RANA AURORA DRAYTONII (cont.)
CALIFORNIA RED-LEGGED FROG
Element Code: AAABH01022

List Status	NDDB Element Ranks	Other Lists
Federal: Threatened	Global: G4T2T3	CDFG Status: SC
State: None	State: S2S3	

Occurrence No. 281 Map Index:40560
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JENNINGS, M. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: COLLIER CREEK, AT THE ENTRANCE TO LAS POSITAS COLLEGE, NORTH SIDE OF LIVERMORE.

—Dates Last Seen—
Element: 1998-07-12
Site: 1998-07-12

Lat/Long: 37°42'31" / 121°48'12"
UTM: Zone-10 N4173984 E605470
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 03S
Range: 02E
Section: 06 Qtr NW
Meridian: M
Elevation: 438 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF AN INTERMITTENT STREAM CHANNEL, CROSSED BY THE BRIDGE TO THE COLLEGE. SURROUNDING AREA CONSISTS OF A MIX OF LIVESTOCK GRAZING & URBAN (COLLEGE).
Threat: THREATENED BY STREAM CHANNELIZATION AND DEVELOPMENT.
General: 6 JUVENILES OBSERVED ON 12 JUL 1998.
Owner/Manager: PVT

Occurrence No. 297 Map Index:26023
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MONK, J. 1992 (PERS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: WEST OF LORRAINE STREET AND NORTH OF I-580, LIVERMORE.

—Dates Last Seen—
Element: 1997-01-23
Site: 1997-01-23

Lat/Long: 37°43'09" / 121°45'40"
UTM: Zone-10 N4175185 E609176
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 1,097.2 ac

Township: 02S
Range: 02E
Section: 33 Qtr XX
Meridian: M
Elevation: 460 ft

—Comments—
Distribution:
Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND, INTERSPERSED WITH SEASONAL WETLANDS.
Threat: THREATENED BY PROPOSED DEVELOPMENT.
General: 5 JUVENILES OBSERVED BETWEEN 21 DEC 1996 AND 23 JAN 1997; MOST LIKELY DISPERSING JUVENILES FROM ALTAMONT CREEK.
Owner/Manager: PVT

ATHENE CUNICULARIA (BURROW SITES)
BURROWING OWL
Element Code: ABNSB10010

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G4T2	CDFG Status: SC
State: None	State: S2	

Habitat Associations
General: FOUND IN OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 77 Map Index:10712
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: EDWARDS, A. 1983 (PERS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary: Springtown Wetlands
Location: SPRINGTOWN, IN THE VICINITY OF BLUEBELL DRIVE, NE PART OF LIVERMORE.

Dates Last Seen
Element: 1978-06-03
Site: 1978-06-03

Lat/Long: 37°42'52" / 121°44'24"
UTM: Zone-10 N4174671 E611065
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 3/5 mile

Township: 02S
Range: 02E
Section: 34 Qtr XX
Meridian: M
Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: MANY INDIVIDUAL OBSERVATIONS FROM 1973 TO 1978; AS MANY AS SIX AT ONE TIME OBSERVED.
Owner/Manager: UNKNOWN

Occurrence No. 257 Map Index:37734
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MCCALLISTER, L. 1997 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: NORTH SIDE OF HARTFORD AVENUE, EAST OF NORTH LIVERMORE AVENUE, NORTH OF LIVERMORE.

Dates Last Seen
Element: 1997-08-XX
Site: 1997-08-XX

Lat/Long: 37°43'28" / 121°45'43"
UTM: Zone-10 N4175755 E609103
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 39.5 ac

Township: 02S
Range: 02E
Section: 28 Qtr XX
Meridian: M
Elevation: 520 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF GRAZED GRASSLAND, INHABITED BY GROUND SQUIRRELS.
Threat: THREATENED BY A PROPOSED DEVELOPMENT.
General: AN UNKNOWN NUMBER OF BURROWING OWLS WERE OBSERVED NESTING BETWEEN MAR-AUG 1997.
Owner/Manager: PVT

EREMOPHILA ALPESTRIS ACTIA
CALIFORNIA HORNED LARK
Element Code: ABPAT02011

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G4G5T3	CDFG Status: SC
State: None	State: S3	

Habitat Associations

General: COASTAL REGIONS, CHIEFLY FROM SONOMA CO. TO SAN DIEGO CO. ALSO MAIN PART OF SAN JOAQUIN VALLEY & EAST TO FOOTHILLS.
Micro: SHORT-GRASS PRAIRIE, "BALD" HILLS, MOUNTAIN MEADOWS, OPEN COASTAL PLAINS, FALLOW GRAIN FIELDS, ALKALI FLATS.

Occurrence No. 26 Map Index:34882
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MORI, B. 1992 (OBS)

Dates Last Seen—
Element: 1992-06-24
Site: 1992-06-24

Lat/Long: 37°44'44" / 121°52'04"
UTM: Zone-10 N4177974 E599745
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 4/5 mile

Township: 02S
Range: 01E
Section: 21 Qtr XX
Meridian: M
Elevation: 600 ft

Quad Summary: LIVERMORE (3712167/446A)*, DUBLIN (3712168/446B), TASSAJARA (3712177/464D), DIABLO (3712178/464C)
County Summary: ALAMEDA, CONTRA COSTA
SNA Summary:
Location: EAST OF SAN RAMON; EAST OF TASSAJARA ROAD AND NORTH OF I-580.

Comments

Distribution:
Ecological: GRAZED GRASSLAND OF FOOTHILLS.
Threat: POSSIBLE THREAT: GRAZING.
General: SINGING MALES AND 1 PAIR OBSERVED DURING BREEDING SEASON. JUVENILES OBSERVED ELSEWHERE IN TASSAJARA VALLEY.
Owner/Manager: PVT-MOLLER RANCH

AGELAIUS TRICOLOR (NESTING COLONY)
TRICOLORED BLACKBIRD
Element Code: ABPBXB0020

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G3	CDFG Status: SC
State: None	State: S3	

Habitat Associations
General: HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN THE CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

*** SENSITIVE ***
Occurrence No. 254 Map Index:
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEDY, E. ET AL 1991 (LIT)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: *SENSITIVE* Location information suppressed.

Dates Last Seen: Element: 1980-06-XX Site: 1980-06-XX
Lat/Long: / UTM: Precision: Symbol Type: Radius:
Township: Range: Section: Qtr Meridian: Elevation:

Comments
Distribution: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE IS CATTAILS WITHIN A LARGE, SHALLOW POND WITH A DEEP MUD BOTTOM.
Threat: POSSIBLE THREAT FROM GRAVEL MINING OPERATIONS.
General:
Owner/Manager:

*** SENSITIVE ***
Occurrence No. 255 Map Index:
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEDY, E. ET AL 1991 (LIT)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: *SENSITIVE* Location information suppressed.

Dates Last Seen: Element: 1974-05-11 Site: 1974-05-11
Lat/Long: / UTM: Precision: Symbol Type: Radius:
Township: Range: Section: Qtr Meridian: Elevation:

Comments
Distribution: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF CATTAILS; SURROUNDING AREA IS VEGETATED BY SMALL WILLOWS, MULEFAT, LOW SHRUBS, AND GRASSLAND.
Threat:
General:
Owner/Manager:

*** SENSITIVE ***
Occurrence No. 256 Map Index:
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEDY, E. ET AL 1991 (LIT)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: *SENSITIVE* Location information suppressed.

Dates Last Seen: Element: 1985-05-26 Site: 1985-05-26
Lat/Long: / UTM: Precision: Symbol Type: Radius:
Township: Range: Section: Qtr Meridian: Elevation:

Comments
Distribution: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812..
Ecological: NESTING SUBSTRATE CONSISTS OF CATTAILS WITHIN A SHALLOW POND WITH A DEEP MUD BOTTOM.
Threat: GRAVEL PIT AREA; MAY BE THREATENED BY GRAVEL MINING.
General:
Owner/Manager:

VULPES MACROTIS MUTICA
SAN JOAQUIN KIT FOX
Element Code: AMAJA03041

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G4T2T3	CDFG Status:
State: Threatened	State: S2S3	

Habitat Associations
General: ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.
Micro: NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Occurrence No. 17 Map Index:23600
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BELL, H. 1992 (OBS)

Dates Last Seen—
Element: 1992-08-92
Site: 1992-08-92

Lat/Long: 37°31'47" / 121°17'33"
UTM: Zone-10 N4154791 E650887
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 374,080.4 ac

Township: 06S
Range: 07E
Section: XX Qtr XX
Meridian: M
Elevation: 700 ft

Quad Summary: SOLYO (3712153/444D)*, VOLTA (3712018/403C), INGOMAR (3712028/403B), SAN LUIS DAM (3712111/404D), PACHECO PASS (3712112/404C), HOWARD RANCH (3712121/404A), CREVISON PEAK (3712122/404B), NEWMAN (3712131/424D), ORESTIMBA PEAK (3712132/424C), CROWS LANDING (3712141/424A), PATTERSON (3712142/424B), COPPER MTN. (3712143/425A), BRUSH LAKE (3712151/443D), WESTLEY (3712152/443C), LONE TREE CREEK (3712154/444C), CEDAR MTN. (3712155/445D), VERNALIS (3712163/444A), TRACY (3712164/444B), MIDWAY (3712165/445A), ALTAMONT (3712166/445B), LIVERMORE (3712167/446A), DUBLIN (3712168/446B), UNION ISLAND (3712174/462C), CLIFTON COURT FOREBAY (3712175/463D), BYRON HOT SPRINGS (3712176/463C), TASSAJARA (3712177/464D), DIABLO (3712178/464C), WOODWARD ISLAND (3712185/463A), BRENTWOOD (3712186/463B), ANTIOCH SOUTH (3712187/464A), CLAYTON (3712188/464B)
County Summary: ALAMEDA, CONTRA COSTA, MERCED, SAN JOAQUIN, STANISLAUS
SNA Summary:
Location: NORTHWEST SAN JOAQUIN VALLEY; NORTH TO ANTIOCH AND SOUTH TO HIGHWAY 152.

Comments
Distribution: DENSITIES THROUGHOUT THE AREA ARE NOT KNOWN. NUMEROUS SIGHTINGS HAVE BEEN RECORDED FROM 1972-1992.
Ecological: GRAZED ANNUAL GRASSLAND, VALLEY/COASTAL MOUNTAIN INTERFACE, AGRICULTURAL LAND.
Threat: DEVELOPMENT, GRAZING, COMPETITION FROM RED FOX AND COYOTE, AGRICULTURE, ROAD CROSSING.
General: A LARGE AMOUNT OF DATA IS AVAILABLE FOR THIS OCCURRENCE IN THE VULPES MACROTIS MUTICA ELEMENT FILE.
Owner/Manager: UNKNOWN

CLEMMYS MARMORATA
WESTERN POND TURTLE
Element Code: ARAAD02030

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G4	CDFG Status: SC
State: None	State: S3	

Habitat Associations
General: A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS & IRRIGATION DITCHES WITH AQUATIC VEGETATION.
Micro: NEED BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT FOR EGG-LAYING.

Occurrence No. 111 Map Index:34681
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MORI, B. 1992 (OBS)

Dates Last Seen
Element: 1992-05-20
Site: 1992-05-20

Lat/Long: 37°44'47" / 121°52'26"
UTM: Zone-10 N4178082 E599201
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 37.0 ac

Township: 02S
Range: 01E
Section: 21 Qtr XX
Meridian: M
Elevation: 470 ft

Quad Summary: LIVERMORE (3712167/446A)*, DUBLIN (3712168/446B), TASSAJARA (3712177/464D)
County Summary: CONTRA COSTA
SNA Summary:
Location: TASSAJARA CREEK; APPROX. 0.5 MILES NORTH OF CONTRA COSTA/ALAMEDA COUNTY LINE.

Comments
Distribution:
Ecological: TURBID CREEK WITH IMPOUNDMENT; PATCHES OF DENSE TYPHA; ELODEA ABUNDANT; MUD/SILT SUBSTRATE; GRAZED MARGINS.
Threat: POSSIBLE THREAT: CATTLE GRAZING.
General: 5 ADULTS OBSERVED BY B. MORI.
Owner/Manager: PVT

VALLEY SINK SCRUB

Element Code: CTT36210CA

List Status — Federal: None — State: None

NDDB Element Ranks — Global: G1 — State: S1.1

Other Lists

Habitat Associations

General: None for this Element

Micro: None for this Element

Occurrence No. 18 Map Index:10697

Occ Rank: Unknown

Origin: Natural/Native occurrence

Presence: Presumed Extant

Trend: Unknown

Main Source: JOKERST, J. 1986 (OBS)

Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)

County Summary: ALAMEDA

SNA Summary: Springtown Wetlands

Location: WEST OF BROADMOOR STREET AND SOUTH OF RAYMOND ROAD, NORTHEAST OF LIVERMORE.

Dates Last Seen — Element: 1986-06-05 — Site: 1986-06-05

Lat/Long: 37°43'30" / 121°44'19"

UTM: Zone-10 N4175847 E611163

Precision: NON-SPECIFIC

Symbol Type: POINT

Radius: 1 mile

Township: 02S

Range: 02E

Section: 27 Qtr SE

Meridian: M

Elevation: 510 ft

Comments

Distribution: SITE IS ADJACENT TO A HOUSING DEVELOPMENT. REPORTED TO BE WITHIN THE SE 1/4 OF SECTION 27 BUT MAY ACTUALLY BE IN THE SW 1/4.

Ecological: ALLENROLFEA OCCIDENTALIS SCRUB W/ALKALINE BARRENS, SCATTERED CLAYPAN VERNAL POOLS & INTERMITTENT DRAINAGES. W/FRANKENIA, SALICORNIA, LASTHENIA, HORDEUM GENICULATUM. RARE TAXA INCL CORDYLANTHUS MOLLIS HISPIDUS & C. PALMATUS.

Threat:

General: THIS WAS OCC #018 OF CTT36210CA.

Owner/Manager: CITY OF LIVERMORE

SYCAMORE ALLUVIAL WOODLAND

Element Code: CTT62100CA

List Status: Federal: None; State: None

NDDB Element Ranks: Global: G1; State: S1.1

Other Lists:

Habitat Associations
General: None for this Element
Micro: None for this Element

Occurrence No. 7 Map Index:20538
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: OLSON, B. 1991 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary: Arroyo Valle
Location: ARROYO VALLE, EXTENDING FROM ARROYO ROAD NEAR THE VETERANS ADMIN HOSPITAL TO THE INTERSECTION OF ALDEN LN & ISABEL AVE.

Dates Last Seen—
Element: 1991-02-04
Site: 1991-02-24

Lat/Long: 37°38'34" / 121°46'43"
UTM: Zone-10 N4166671 E607749
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 211.2 ac

Township: 03S
Range: 02E
Section: XX Qtr XX
Meridian: M
Elevation: 500 ft

Comments
Distribution: COMMUNITY IS CONFINED TO THE ARROYO FLOOR IN AN AREA OF ALLUVIAL TERRACES, WASHES, PONDS, CHANNELS AND FLATS.
Ecological: THE DOMINANT TREE IS PLATANUS RACEMOSA WITH INDIVIDUAL QUERCUS SPP., PINUS SPP., SALIX SPP., DOTTING THE LANDSCAPE. LATE SUCCESSIONAL STATUS FOR PLATANUS RACEMOSA AND QUERCUS LOBATA. RIVERINE SEDIMENTS SW, ASPECT\1-10% SLOPE.
Threat: EVIDENCE OF GRAZING, WATER DIVERSION, GRAVEL MINING, OFF-ROAD VEHICLE USE.
General: LITTLE OR NO REGENERATION IN OAKS AND SYCAMORES. 1991 GENERALIZED GRAPHIC REVISED IN 1992 USING 1970 ORTHOPHOTOQUAD. THIS WAS OCC #007 OF CTT62100CA.
Owner/Manager: CITY OF LIVERMORE

BRANCHINECTA LYNCHI
VERNAL POOL FAIRY SHRIMP
Element Code: ICBRA03030

List Status: Federal: Threatened; State: None
NDDB Element Ranks: Global: G2G3; State: S2S3
Other Lists: CDFG Status:

Habitat Associations
General: ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MTNS, AND SOUTH COAST MTNS, IN ASTATIC RAIN-FILLED POOLS.
Micro: INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

Occurrence No. 99 Map Index:25002
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CENTER FOR CONSERVATION BIOL. 1993 (OBS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: SPRINGTOWN, SOUTH OF RAYMOND ROAD AND WEST OF VASCO ROAD, NORTH OF LIVERMORE.

Dates Last Seen — Element: 1993-XX-XX; Site: 2000-XX-XX
Lat/Long: 37°43'22" / 121°44'13"
UTM: Zone-10 N4175598 E611325
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 504.4 ac

Township: 02S
Range: 02E
Section: 34 Qtr XX
Meridian: M
Elevation: 500 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF ALKALI SINK CONTAINING VERNAL POOLS.
Threat: INVASIVE EXOTICS, ORV'S, NATURAL DISTURBANCE REGIME ALTERED (FIRE CONTROL); DISSRUPTION OF HYDROLOGY AND DUMPING.
General: SHRIMP OBSERVED WITH 2 COLLECTED FOR DENTON BELK'S COLLECTION 1991-1993; SEVERAL AMBYSTOMA TIGRIUM CALIFORIENSE, CORDYLANTHUS PALMATUS & ATHENE CUNICULARIA ALSO FOUND IN THE AREA. NONE FOUND IN SW 1/4 OF POLY, 2000
Owner/Manager: CITY OF LIVERMORE, PVT

Occurrence No. 142 Map Index:28335
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LYNCH, S. 1996 (OBS)
Quad Summary: LIVERMORE (3712167/446A)*, ALTAMONT (3712166/445B)
County Summary: ALAMEDA
SNA Summary:
Location: 0.6 MILE EAST OF HARTFORD AVENUE & NORTH LIVERMORE AVENUE INTERSECTION; 1.3 MILES NORTH OF INTERSTATE 580.

Dates Last Seen — Element: 1996-11-27; Site: 1996-11-27
Lat/Long: 37°43'23" / 121°45'28"
UTM: Zone-10 N4175636 E609473
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 64.8 ac

Township: 02S
Range: 02E
Section: 33 Qtr NW
Meridian: M
Elevation: 515 ft

Comments
Distribution: STONECHASE PROJECT SITE. POOL #'S: 1, 2, 23, 24, 48, 51, 53, 67, 92. SWALE #'S: 4, 22-2, 50. MIMA-MOUND TOPAGRAPHY.
Ecological: SEASONAL WETLAND WITH NON-NATIVE ANNUAL GRASSLAND UPLAND; DOMINANT PLANTS: CALLITRICHE MARGINATA, DOWNINGIA PULCHELLA, LASTHENIA FREMONTII, PSILOCARPHUS TENELLUS VAR. TENELLUS, FRANKENIA SALINA, HORDEUM MARINUM GUSSONEANUM, JUNCUS BUFONIUS.
Threat: CATTLE GRAZING AND PROPOSED DEVELOPMENT.
General: 1996: ~20 OBS IN POOL #1, 2 IN POOL #2, 50-100 IN #23; 25-50 IN #24, 10 IN #48, ~50 IN POOLS 53 & 92, 10 IN #67, ~100 IN POOL 51, AND SWALES 22-2 & 50, >20 IN SWALE 4. SPECIMENS AT CAS.
Owner/Manager: PVT

LINDERIELLA OCCIDENTALIS
CALIFORNIA LINDERIELLA
Element Code: ICBRA06010

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G2G3	CDFG Status:
State: None	State: S2S3	

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 155 Map Index:38907
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GANZ, H. 1996 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: 1.1 MILES NE OF JUNC I-580 & N LIVERMORE AVE & 1.7 MILES NE OF LIVERMORE MUNICIPAL AIRPORT, 0.7 MILES S OF HARTMAN RD.

Dates Last Seen—
Element: 1996-03-27
Site: 1996-03-27

Lat/Long: 37°42'36" / 121°47'22"
UTM: Zone-10 N4174138 E606695
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 02S
Range: 02E
Section: 31 Qtr SE
Meridian: M
Elevation: 530 ft

Comments
Distribution:
Ecological: VERNAL POOL. CONCHOSTRACANS, OSTRACODS, CLADOCERANS, COPEPODS, NOTONECTIDS, CORIXIDS, DYTISCID BEETLES, BRYOZOANS & TIGER SALAMANDERS ALSO FOUND HERE. SURROUNDING LAND IS HEAVILY DISCED.
Threat: GRAZING, DISCING
General: 100'S OBSERVED 27 MARCH 1996.
Owner/Manager: PVT

CENTROMADIA PARRYI SSP CONGDONII
CONGDON'S TARPLANT
Element Code: PDAST4R0P1

List Status	NDDB Element Ranks	Other Lists
Federal: Species of Concern	Global: G5T1	CNPS List: 1B
State: None	State: S1.1	R-E-D Code: 3-3-3

Habitat Associations
General: VALLEY AND FOOTHILL GRASSLAND.
Micro: ALKALINE SOILS, SOMETIMES DESCRIBED AS HEAVY WHITE CLAY. 1-230M.

Occurrence No. 11 Map Index:25530
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: PRESTON, R. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: LIVERMORE VALLEY, NORTH OF I-580 BETWEEN FALLON ROAD AND CROAK ROAD, WEST OF LIVERMORE.

Dates Last Seen—
Element: 1998-10-06
Site: 1998-10-06

Lat/Long: 37°42'15" / 121°50'42"
UTM: Zone-10 N4173423 E601800
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 100.2 ac

Township: 03S
Range: 01E
Section: 03 Qtr XX
Meridian: M
Elevation: 355 ft

Comments
Distribution: AT TOE OF SLOPES AND IN FLATS OF FIELD BETWEEN FALLON ROAD AND CROAK ROAD; UP TO 0.4 MILE NORTH OF I-580.
Ecological: ANNUAL GRASSLAND WITH LOLIUM MULTIFLORUM, RUMEX CRISPUS, CONVOLVULUS ARVENSIS, AND PICRIS ECHIOIDES. SOILS MAPPED AS CLEAR LAKE CLAY AND RINCON CLAY LOAM.
Threat:
General: 76,000 PLANTS OBSERVED IN 1998. HISTORIC COLLECTION BY HOWELL (#5544 CAS) IS ALSO ATTRIBUTED TO THIS SITE.
Owner/Manager: PVT

Occurrence No. 42 Map Index:42348
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: PRESTON, R. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG TASSAJARA ROAD ABOUT 0.7 MILE NORTH OF I-580, NORTH OF PLEASANTON.

Dates Last Seen—
Element: 1998-10-06
Site: 1998-10-06

Lat/Long: 37°42'42" / 121°52'14"
UTM: Zone-10 N4174235 E599538
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 14.0 ac

Township: 02S
Range: 01E
Section: 33 Qtr SW
Meridian: M
Elevation: 360 ft

Comments
Distribution: ON EAST SIDE OF ROAD OPPOSITE HOSPITAL; ABOUT 0.5 TO 0.8 MILE NORTH OF I-580.
Ecological: ANNUAL GRASSLAND WITH LOLIUM MULTIFLORUM, PICRUS ECHIOIDES, AND CENTAUREA SOLSTITIALIS. SOILS MAPPED AS PESCADERO CLAY.
Threat: SITE IS GRAZED AND THE MARGINS ARE DISKED, BUT THESE DO NOT APPEAR TO BE THREATS.
General: 4000+ PLANTS OBSERVED IN 1998. COULD NOT ACCESS PROPERTY TO DETERMINE EASTWARD EXTENT OF OCCURRENCE, BUT IS PROBABLY MUCH MORE THAN 10 ACRES.
Owner/Manager: PVT

Occurrence No. 43 Map Index:42349
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: PRESTON, R. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: ALONG TASSAJARA ROAD ABOUT 2.2 MILES NORTH OF I-580, NORTH OF PLEASANTON.

Dates Last Seen—
Element: 1998-10-09
Site: 1998-10-09

Lat/Long: 37°43'58" / 121°52'09"
UTM: Zone-10 N4176572 E599633
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 16.4 ac

Township: 02S
Range: 01E
Section: 28 Qtr NW
Meridian: M
Elevation: 470 ft

Comments
Distribution: WEST SIDE OF ROAD AS IT MAKES BEND NORTH OF I-580.
Ecological: ANNUAL GRASSLAND. SOILS MAPPED AS CLEAR LAKE CLAY.
Threat: SITE IS GRAZED, BUT GRAZING DOES NOT APPEAR TO BE A THREAT.
General: 9600 PLANTS OBSERVED IN 1998.
Owner/Manager: PVT

CENTROMADIA PARRYI SSP CONGDONII (cont.)
CONGDON'S TARPLANT
Element Code: PDAST4R0P1

List Status	NDDB Element Ranks	Other Lists
Federal: Species of Concern	Global: G5T1	CNPS List: 1B
State: None	State: S1.1	R-E-D Code: 3-3-3

Occurrence No. 44 Map Index:42350
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: PRESTON, R. 1998 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: EAST OF NORTH LIVERMORE ROAD ALONG HARTFORD AVENUE, NORTH OF LIVERMORE.

—Dates Last Seen—
Element: 1998-10-06
Site: 1998-10-06

Lat/Long: 37°43'20" / 121°45'32"
UTM: Zone-10 N4175533 E609367
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 198.9 ac

Township: 02S
Range: 02E
Section: 33 Qtr N
Meridian: M
Elevation: 520 ft

—Comments—

Distribution: MAPPED MOSTLY ALONG AND SOUTH OF HARTFORD AVE, UP TO 0.8 MILE EAST OF JUNCTION WITH N. LIVERMORE RD.
Ecological: ANNUAL GRASSLAND WITH LOLIUM MULTIFLORUM, HEMIZONIA PUNGENS, AND BELLARDIA TRIXAGO. SOILS MAPPED AS PESCADERO CLAY.
Threat: FIELDS NORTH OF HARTFORD ARE MOWED.
General: 370,000 PLANTS OBSERVED IN 1998. PLANTS IN THIS POPULATION APPEAR TO BE INTERMEDIATE WITH SSP. RUDIS. PERHAPS THIS IS A ZONE OF HYBRIDIZATION.
Owner/Manager: UNKNOWN

PLAGIOBOTHRYS GLABER
HAIRLESS POPCORN-FLOWER
Element Code: PDBOR0V0B0

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: GH	CNPS List: 1A
State: None	State: SH	R-E-D Code: *

Habitat Associations
General: MEADOWS AND SEEPS, MARSHES AND SWAMPS.
Micro: COASTAL SALT MARSHES AND ALKALINE MEADOWS. 5-180M.

Occurrence No. 5 Map Index:28362
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BACIGALUPI, R. #2755 DS #299959 (HERB)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: IN FIELD NEAR HIGHWAY 50 (NOW I-580?), 2 MILES EAST OF LIVERMORE STATION.

--Dates Last Seen--
Element: 1942-05-03
Site: 1942-05-03

Lat/Long: 37°41'25" / 121°44'35"
UTM: Zone-10 N4172002 E610814
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 03S
Range: 02E
Section: XX Qtr XX
Meridian: M
Elevation: 520 ft

Comments
Distribution: MAPPED AT EAST EDGE OF PRESENT DAY LIVERMORE, JUST SOUTH OF I-580 AT LIVERMORE BLVD.
Ecological: GROWING IN "HOG-WALLOW" IN FIELD.
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1942 COLLECTION BY BACIGALUPI.
Owner/Manager: UNKNOWN

TROPIDOCARPUM CAPPARIDEUM
CAPER-FRUITED TROPIDOCARPUM
Element Code: PDBRA2R010

List Status	NDDB Element Ranks	Other Lists
Federal: Species of Concern	Global: G1	CNPS List: 1A
State: None	State: S1	R-E-D Code: *

Habitat Associations
General: VALLEY AND FOOTHILL GRASSLAND.
Micro: ALKALINE HILLS. 0-455M.

Occurrence No. 11 Map Index:36869
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DUDLEY, W. SN DS (HERB)
Quad Summary: ALTAMONT (3712166/445B)*, MIDWAY (3712165/445A), LIVERMORE (3712167/446A), BYRON HOT SPRINGS (3712176/463C), TASSAJARA (3712177/464D)
County Summary: ALAMEDA
SNA Summary:
Location: BY RAILROAD EAST OF LIVERMORE.

Dates Last Seen—
Element: 1897-03-XX
Site: 1897-03-XX

Lat/Long: 37°42'02" / 121°42'55"
UTM: Zone-10 N4173164 E613259
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 5 mile

Township: 03S
Range: 02E
Section: 02 Qtr XX
Meridian: M
Elevation: 540 ft

Comments
Distribution:
Ecological:
Threat:
General: ABOVE LOCATION DESCRIPTION IS ONLY INFORMATION. NO ELEVATION GIVEN ON HERBARIUM LABEL. SURVEYS NEEDED TO DETERMINE IF SUITABLE HABITAT EXISTS.
Owner/Manager: UNKNOWN

ATRIPLEX CORDULATA
HEARTSCALE
Element Code: PDCHE040B0

List Status	NDDB Element Ranks	Other Lists
Federal: Species of Concern	Global: G2?	CNPS List: 1B
State: None	State: S2.2?	R-E-D Code: 2-2-3

Habitat Associations
General: CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLAND, MEADOWS.
Micro: ALKALINE FLATS AND SCALDS IN THE CENTRAL VALLEY, SANDY SOILS. 1-150(600)M.

Occurrence No. 11 Map Index:10712
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: OLSON, B. 1992 (PERS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary: Springtown Wetlands
Location: SPRINGTOWN ALKALI SINK, NORTHEAST OF LIVERMORE.

Dates Last Seen—
Element: 1988-XX-XX
Site: 1988-XX-XX

Lat/Long: 37°42'52" / 121°44'24"
UTM: Zone-10 N4174671 E611065
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 3/5 mile

Township: 02S
Range: 02E
Section: 34 Qtr XX
Meridian: M
Elevation: 500 ft

Comments
Distribution:
Ecological: ALKALI SINK.
Threat:
General: ONLY SOURCE OF INFORMATION IS OLSON LETTER TO CNPS MENTIONING 1988 OBSERVATION BY R. COATS ET. AL. MORE PRECISE INFORMATION NEEDED FOR THIS SITE.
Owner/Manager: UNKNOWN

ATRIPLEX JOAQUINIANA
SAN JOAQUIN SALTBUSH
Element Code: PDCHE041F3

List Status: Federal: Species of Concern; State: None
NDDB Element Ranks: Global: G2; State: S2.1
Other Lists: CNPS List: 1B; R-E-D Code: 2-2-3

Habitat Associations
General: CHENOPOD SCRUB, ALKALI MEADOW, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN SEASONAL ALKALI WETLANDS OR ALKALI SINK SCRUB WITH DISTICHLIS SPICATA, FRANKENIA, ETC. 1-250M.

Occurrence No. 2 Map Index:20661
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOKERST, J. 1987 (OBS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: SPRINGTOWN SITE, NORTH END OF LIVERMORE, ABOUT 1/2 MILE SOUTH OF RAYMOND ROAD. "SPRINGVALE" HOUSING DEVELOPMENT.

Dates Last Seen: Element: 1991-06-23; Site: 1991-06-23
Lat/Long: 37°43'24" / 121°44'43"
UTM: Zone-10 N4175646 E610574
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 39.8 ac

Township: 02S
Range: 02E
Section: 27 Qtr SW
Meridian: M
Elevation: 500 ft

Comments
Distribution: MAPPED AS TWO COLONIES; THE LARGER OF THE COLONIES IS ALONG HARTFORD AVE EAST OF PERCHERON ROAD, THE SMALLER COLONY IS 1/8 MI NORTH OF THE EASTERN END OF HARTFORD AVE. WITHIN THE SW 1/4 OF SECTION 27 AND THE NW 1/4 OF SECTION 34.
Ecological: ALKALI SINK SCRUB WITH CORDYLANTHUS PALMATUS, ALLENROLFEA OCCIDENTALIS, HEMIZONIA PUNGENS, SALICORNIA SUBTERMINALIS, SPERGULARIA MACROTHECTA LONGISTYLA, FRANKENIA GRANDIFLORA, LASTHENIA JESSICAE, SUAEDA, CRESSA, HORDEUM, VULPIA, AND BROMUS.
Threat: THREATENED BY OVERGRAZING IN 1987; GRAZING REMOVED FROM AT LEAST PART OF THE SITE IN 1990.
General: ABOUT 500 PLANTS SEEN IN 1987, BUT LARGE AREA OF SUITABLE HABITAT NOT SURVEYED. 1 PLANT OBSERVED IN 1991 IN AREA NORTH OF THE EASTERN END OF HARTFORD AVE. SOME OF THE POPULATION IS WITHIN THE SPRINGTOWN WETLANDS RESERVE.
Owner/Manager: CITY OF LIVERMORE

Occurrence No. 35 Map Index:24897
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PRESTON, R. 1993 (OBS)
Quad Summary: LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary:
Location: AMADOR VALLEY; BETWEEN I-580 AND ARROYO LAS POSITAS WEST OF FALLON ROAD, NORTHEAST OF PLEASANTON.

Dates Last Seen: Element: 1993-07-16; Site: 1993-07-16
Lat/Long: 37°41'56" / 121°51'20"
UTM: Zone-10 N4172826 E600899
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 15.8 ac

Township: 03S
Range: 01E
Section: XX Qtr XX
Meridian: M
Elevation: 350 ft

Comments
Distribution: ABOUT 0.4 MILES WEST OF FALLON ROAD/EL CHARRO ROAD INTERCHANGE WITH I-580.
Ecological: DISTURBED ALKALINE WETLANDS AND ADJACENT NON-NATIVE GRASSLAND. ASSOCIATED WITH FRANKENIA GRANDIFLORA, HEMIZONIA PUNGENS, BROMUS HORDEACEUS, LACTUCA SERRIOLA, CENTAUREA SOLSITITALIS, AND ELYMUS.
Threat: PROPOSED HOUSING DEVELOPMENT, SITE IS PRESENTLY USED AS PASTURE AND/OR HAY GROWING.
General: APPROX 10,000 PLANTS OBSERVED IN 1993 OVER AN AREA OF APPROX. 12 ACRES.
Owner/Manager: CITY OF ALAMEDA

CORDYLANTHUS PALMATUS
PALMATE-BRACTED BIRD'S-BEAK
Element Code: PDSCR0J0J0

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G1	CNPS List: 1B
State: Endangered	State: S1.1	R-E-D Code: 3-3-3

Habitat Associations
General: CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLAND.
Micro: USUALLY ON PESCADERO SILTY CLAY WHICH IS ALKALINE, WITH DISTICHLIS, FRANKENIA, ETC. 5-155M.

Occurrence No. 10 Map Index:10692
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Increasing
Main Source: CENTER FOR CONSERVATION BIOL. 1993 (OBS)
Quad Summary: ALTAMONT (3712166/445B)*, LIVERMORE (3712167/446A)
County Summary: ALAMEDA
SNA Summary: Springtown Wetlands
Location: SPRINGTOWN WETLANDS RESERVE, APPROX 2.5 MI N OF LIVERMORE, W OF VASCO RD, S OF RAYMOND RD-HARTFORD AVE.

Dates Last Seen—
Element: 1993-XX-XX
Site: 1993-XX-XX

Lat/Long: 37°43'21" / 121°44'13"
UTM: Zone-10 N4175576 E611308
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 358.0 ac

Township: 02S
Range: 02E
Section: 27 Qtr S
Meridian: M
Elevation: 510 ft

Comments
Distribution: ALSO IN SECTIONS 33 & 34.
Ecological: ALONG BRAIDED DRAINAGE CHANNELS ON PESCADERO CLAY & SOLANO LOAM. IODINE BUSH & ALKALI GRASSLAND SUBTYPES OF THE VALLEY SINK SCRUB VEG. TYPE HERE. W/DISTICHLIS, HEMIZONIA, FRANKENIA, ALLENROLFEA & ANOTHER RARE PLANT: C. MOLLIS HISPIDUS.
Threat: GENERAL VICINITY OVERGRAZED BUT C. PALMATUS NOT IMPACTED AS OF YET. SOME AREAS FILLED AND BULLDOZED BTWN 9/82 AND 1/83.
General: LARGEST POPULATION-9000 PLANTS IN 1990, 10,000 IN 1991, 36,000 IN 1992. A MGMT PLAN WAS FINALIZED IN OCTOBER, 1988.
Owner/Manager: PVT, CITY OF LIVERMORE

Appendix C

USFWS Species List for Alameda County

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute *quads*. The United States is divided into these quads, which are about the size of San Francisco. If you requested your list by quad name or number, that is what we used. Otherwise, we used the information you sent us to determine which quad or quads to use.

Animals

The animals on your species list are ones that occur within, *or may be affected by projects within*, the quads covered by the list. Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

Plants

Any plants on your list are ones *that have actually been observed* in the quad or quads covered by the list. We may have also given you either a county species list or a list of species in nearby quads. We recommend that you check for the plants on this additional list.

State-Listed Species

Species listed as threatened or endangered by the California Department of Fish and Game do not appear on your species list unless they have also been listed by us or by the National Marine Fisheries Service.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as *critical habitat*. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, this will be noted on the species list. Maps and boundary descriptions of the critical habitat may be found in the *Federal Register*. The information is also reprinted in the *Code of Federal Regulations* (50 CFR 17.95).

Species of Concern

Your list may contain a section called *Species of Concern*. This term includes former *category 2 candidate species* and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Following Selected Quads
November 17, 1998

QUAD : 446A LIVERMORE

Listed Species

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

American peregrine falcon, *Falco peregrinus anatum* (E)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California steelhead, *Oncorhynchus mykiss* (T)

Invertebrates

longhorn fairy shrimp, *Branchinecta longiantenna* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

Plants

palmate-bracted bird's-beak, *Cordylanthus palmatus* (E)

Proposed Species

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) *

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) *

Fish

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

QUAD : 446A LIVERMORE

Candidate Species

Birds

mountain plover, *Charadrius montanus* (C)

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

Berkeley kangaroo rat, *Dipodomys heermanni berkeleyensis* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin whipsnake, *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

QUAD : 446A LIVERMORE

Species of Concern

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

Plants

alkali milk-vetch, *Astragalus tener var. tener* (SC) *

pappose spikeweed, *Hemizonia parryi ssp. congdonii* (SC) *

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(*)		Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

Listed Species

Plants

palmate-bracted bird's-beak, *Cordylanthus palmatus* (E)

pallid manzanita (Alameda manzanita), *Arctostaphylos pallida* (T)

robust spineflower, *Chorizanthe robusta* (E) *

Contra Costa goldfields, *Lasthenia conjugens* (E) *

California sea blite, *Suaeda californica* (E) *

Proposed Species

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) *

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) *

Fish

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (PE)

Central Valley fall-run chinook crit hab, *Oncorhynchus tshawytscha* (PT)

Central Valley fall-run chinook salmon, *Oncorhynchus tshawytscha* (PT)

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Plants

Santa Cruz tarplant, *Holocarpha macradenia* (PT) *

Candidate Species

Birds

mountain plover, *Charadrius montanus* (C)

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Species of Concern

Mammals

Berkeley kangaroo rat, *Dipodomys heermanni berkeleyensis* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Species of Concern

Mammals

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Pacific western big-eared bat, *Plecotus townsendii townsendii* (SC)

Alameda Island mole, *Scapanus latimanus parvus* (SC)

salt marsh vagrant shrew, *Sorex vagrans halicoetes* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

American bittern, *Botaurus lentiginosus* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Vaux's swift, *Chaetura vauxi* (SC)

lark sparrow, *Chondestes grammacus* (SC)

olive-sided flycatcher, *Contopus cooperi* (SC)

hermit warbler, *Dendroica occidentalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

Pacific-slope flycatcher, *Empidonax difficilis* (SC)

common loon, *Gavia immer* (SC)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

loggerhead shrike, *Lanius ludovicianus* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)

long-billed curlew, *Numenius americanus* (SC)

white-faced ibis, *Plegadis chihi* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

red-breasted sapsucker, *Sphyrapicus ruber* (SC)

Bewick's wren, *Thryomanes bewickii* (SC)

California Thrasher, *Toxostoma redivivum* (SC)

Species of Concern

Reptiles

- silvery legless lizard, *Anniella pulchra pulchra* (SC)
- northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
- southwestern pond turtle, *Clemmys marmorata pallida* (SC)
- San Joaquin whipsnake, *Masticophis flagellum ruddocki* (SC)
- California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

- foothill yellow-legged frog, *Rana boylii* (SC)
- western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

- green sturgeon, *Acipenser medirostris* (SC)
- river lamprey, *Lampetra ayresi* (SC)
- Pacific lamprey, *Lampetra tridentata* (SC)
- longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

- Opler's longhorn moth, *Adela oplerella* (SC)
- Bridges' Coast Range shoulderband snail, *Helminthoglypta nickliniana bridgesi* (SC)
- Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)
- curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)
- San Francisco lacewing, *Nothochrysa californica* (SC)

Plants

- heartscale, *Atriplex cordulata* (SC)
- brittlescale, *Atriplex depressa* (SC)
- valley spearscale, *Atriplex joaquiniana* (SC)
- Mt. Hamilton thistle, *Cirsium fontinale var. campylon* (SC)
- South Bay clarkia, *Clarkia concinna ssp. automixa* (SC)
- hispid bird's-beak, *Cordylanthus mollis ssp. hispidus* (SC)
- interior California larkspur, *Delphinium californicum ssp. interius* (SC)
- recurved larkspur, *Delphinium recurvatum* (SC)
- talus fritillary, *Fritillaria falcata* (SC)
- fragrant fritillary, *Fritillaria liliacea* (SC)
- Diablo rock-rose, *Helianthella castanea* (SC)
- pappose spikeweed, *Hemizonia parryi ssp. congdonii* (SC)

OAKS BUSINESS PARK BIOLOGICAL SURVEY RESULTS AND RECOMMENDATIONS

Prepared for
Gale & Wentworth
2030 Main Street, Suite 200
Irvine, CA 92614

June 22, 2001

URS
500 12th Street, Suite 200
Oakland, California 94607

Project 51-00167008.01

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This report presents follow-up surveys conducted for Gale & Wentworth by URS Corporation (URS) for an approximately 178-acre property in Livermore, Alameda County. This property is proposed for development as part of the Oaks Business Park. In 2000, URS reviewed biological work conducted by Zentner & Zentner and other firms for the site in 1998 and recommended that a wetland delineation and biological surveys be conducted before development of the property begins (URS 2000). Specific tasks included in this scope are:

- A wetland delineation on the eastern portion of the dry arroyo in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987);
- A survey for California tiger salamander (*Ambystoma californiense*) breeding ponds within 1 kilometer of the project area. These are seasonal ponds that are often dry by mid-summer;
- A burrowing owl (*Speotyto cunicularia*) survey conducted according to California Department of Fish and Game protocol;
- A survey for San Joaquin kit fox (*Vulpes macrotis mutica*) dens on the project site. This was done in conjunction with the burrowing owl surveys;
- Informal consultation with resource agency biologists to determine the survey requirements for San Joaquin kit fox, California tiger salamander, and western spadefoot (*Scaphios hammondi*);
- A review of U.C./Jepson Herbarium specimens of rare plants that potentially occur on the site; and
- Rare plant surveys for big tarplant (*Blepharizonia plumosa* ssp. *plumosa*), Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*), large flowered fiddleneck (*Amsinckia grandiflora*), San Joaquin saltbush (*Atriplex joaquiniana*), stinkbells (*Fritillaria agrestis*), palmate-bracted bird's beak (*Cordylanthus palmatus*), heartscale (*Atriplex cordulata*), and hispid bird's beak (*Cordylanthus mollis* ssp. *hispidus*);

The 178-acre property is located south of Interstate 580 and north of Stanley Boulevard along the western edge of the City of Livermore (Figure 1). Jack London Road borders the property on the north, the Isabel Avenue extension on the east, a gravel quarry on the northwest and a disked field on the south.

This report presents the findings of the wetland delineation and biological surveys that were outlined above. Some of the rare plants found in alkali scalds listed above were not surveyed for during their blooming period because suitable habitat was not present. Contact was initiated with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), and informal consultation is still in progress. However, the necessity of conducting further surveys was assessed using comments from both agencies regarding these species for the Isabel Extension Project as well as a review of the habitat present in the project area. A summary of findings and recommendations is provided at the end of the report.

2.1 REGULATORY BACKGROUND

The U.S. Army Corps of Engineers (USACE) regulates waters of the U.S. under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act. Waters of the U.S. include wetlands, special aquatic sites, and other non-wetland waters such as bays, rivers, and lakes.

Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). Seasonally inundated areas that meet the criteria of all three wetland parameters as defined in the USACE 1987 Wetland Delineation Manual are also considered jurisdictional wetlands (Environmental Laboratory 1987).

Potential jurisdictional wetlands and waters of the U.S. in the dry arroyo portion of the project area were delineated on April 25, 2001 by URS biologists Corinna Lu and Jennifer Pearson-Stolz. Wetlands were delineated using the routine on-site method described in the USACE 1987 Wetland Delineation Manual (Environmental Laboratory 1987). In the absence of human disturbance or unusual circumstances, an area must possess indicators (characteristics) of three parameters to be considered a jurisdictional wetland. This method is referred to as the three-parameter approach. The three parameters are: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology.

Hydrophytic plant species are defined by their "wetland indicator status", which indicates the frequency that an individual species occurs in wetlands verses non-wetlands across the entire distribution of the species (Reed 1988). The wetland indicator status of a plant species is defined as follows.

- **OBL** (obligate wetland plants have an estimated probability of >99% to occur in wetlands)
- **FACW** (facultative wetland plants have an estimated probability of 67-99% to occur in wetlands)
- **FAC** (facultative plants have an estimated probability of 34-66% to occur in wetlands)
- **FACU** (facultative upland plants have an estimated probability of 1-33% to occur in wetlands)

Hydric soils are either classified by the Natural Resources Conservation Service (NRCS) as hydric or they possess indicators of anaerobic, reducing conditions created by saturation, flooding, or ponding.

Wetland hydrology is present when an area is regularly inundated or saturated to the surface long enough for hydric soils to develop and support hydrophytic vegetation. However, the wetlands present in the project site are "problem areas" as defined by the USACE wetland delineation manual (Environmental Laboratory 1987). Problem area wetlands are wetland types in which wetland indicators of one of more of the parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions. Seasonal wetlands that normally have indicators of wetland soils, vegetation and hydrology during the rainy season may lack wetland indicators of hydrology and/or vegetation during the dry season (Environmental Laboratory 1987). During field investigations at the data points, most of the wetlands data points lacked

indicators of wetland hydrology. This parameter is not necessary in order for an area to be determined a wetland.

Potential wetlands in the dry arroyo, or study area, were delineated by selecting representative data points in each potential wetland plant community. The locations of the data points are shown in Figure 2. Appendix A contains the wetland delineation data sheets. Data points were selected within the wetland and near what was presumed to be the boundary of the wetland until the precise boundary was determined by investigating indicators of vegetation, hydrology and soils at each data point.

2.2 SITE DESCRIPTION: HYDROLOGY, SOILS AND VEGETATION

The delineated area, or study area consisted of the dry arroyo portion of the Oaks Business Park. See Appendix B for photos of the site. The following sections describe hydrology, soils and vegetation characterized within wetlands, waters and uplands in the study area.

The Natural Resources Conservation Service's (formerly the Soil Conservation Service) soil survey mapped the soil in the project study area as Yolo loam and Livermore very gravelly coarse sandy loam (Soil Conservation Service 1966) (Figure 3). Yolo loam is well drained and moderately permeable. The capacity for holding water is high. The surface soil of Yolo loam from 0-16 inches is mildly alkaline and the subsoil and substratum from 16-60 inches is moderately alkaline. Livermore very gravelly coarse sandy loam is somewhat excessively drained and has rapid permeability. Capacity for holding water is very low. The surface soil is slightly acid to neutral and the underlying soil layers are neutral. Neither of these soil types are considered hydric soils (Natural Resource Conservation Service 1992).

Two habitat types were found within the project study area including fallow fields and a dry arroyo.

2.2.1 Vegetation

The vegetation on the property is similar to the description presented in the May and December 2000 report. On April 25, 2001, the entire property was dominated by non-native annuals such as foxtail barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome *(Bromus diandrus)* star thistle (*Centaurea solstitialis*), and short-pod mustard (*Hirschfeldia incana*). Other plant species observed in the project area are listed in Table 1.

The vegetation in the project area is relatively homogenous. There are two habitat types present in the project area: 1) fallow field, and 2) dry arroyo (Figure 1). The herbaceous vegetation is similar in both of these areas. The arroyo habitat is differentiated based on the presence of three mature trees, topography and past land use. The fallow fields are relatively flat and were previously cultivated whereas the dry arroyo is a shallow topographic swale that has not been recently cultivated.

The lowest portions of the dry arroyo have a dense cover of star thistle and non-native grasses such as ripgut brome and foxtail barely. The two large valley oaks (*Quercus lobata*) and the western sycamore (*Platanus racemosa*) in the dry arroyo appear to be moderately healthy. Vegetation is growing out from the trunk, which is typically a sign that the tree is stressed.

2.3 EVALUATION OF POTENTIAL WETLANDS

Previous reports for the property and vicinity do not discuss the jurisdictional status of the dry arroyo in the project area. This swale appears to have been a former tributary channel of Arroyo Mocho that has been subsequently isolated from the stream's main channel. Residential development to the east prevents runoff from reaching the dry arroyo channel. The topography of the property slopes away from the swale as shown on Figure 1. Therefore, this feature is not likely to receive substantial surface runoff during the rainy season. The arroyo was dry and dominated by upland plants during the site reconnaissance in December 2000 and again in April 2001.

However, there are three small areas within the dry arroyo that potentially could be wetlands and were delineated. These areas are described below:

As discussed in the December 2000 report, a 0.3-acre seasonal wetland at the eastern boundary of the dry arroyo, was delineated in association with the Isabel Avenue/Route 84 Extension project. It was verified by the U.S. Army Corps of Engineers (Corps) as non-jurisdictional on February 26, 1997 (Zentner & Zentner 2000). This verification is valid until February 26, 2002. Zentner & Zentner's May 2000 report stated that this feature "was eliminated by the road and fence construction on the project area and the Isabel Avenue/Route 84 extension immediately to the east (although the adjacent Eucalyptus trees were still extant)." A delineation was conducted at this site and two other areas in the arroyo to determine if they would be considered jurisdictional wetlands.

The seasonal wetland discussed above was described in the 1998 Biological Assessment as primarily unvegetated, with bermuda grass (*Cynodon dactylon*) providing approximately 25-50% vegetative cover. On April 25, 2001, three wetland data points were taken in the area, which was densely vegetated primarily with upland species, such as foxtail barley (*Hordium murinum* ssp. *leporinum,* NL), wild oats (*Avena fatua,* NL), yellow star thistle (*Centaurea solstitialis*, NL), filaree (*Erodium* sp., NL) and soft chess brome (*Bromus hordeaceus,* NL). Soils had a chroma of 2 with no mottles, which is indicative of a non- hydric soil. This area is slightly lower in elevation than the surrounding area. However, there were no field indicators of hydrology due to its seasonality. While there is still some drainage into the area during the rainy season, most of the water no longer drains into the area since the construction of the road and fence. Due to the lack of hydrophytic vegetation and hydric soils, this area was not determined to be a wetland.

One small portion of the area, approximately 3 feet by 1 feet, however, was dominated by a facultative-wetland species, Italian wild rye (*Lolium perenne/multiflorum,* FAC). Soils in this area had a chroma of 2 with mottles, indicative of hydric soils. Although this area is lower in elevation, no field indicators of wetland hydrology were present. However, as described above, wetland hydrology may not be present in "problem area" wetlands. While this area is defined as a wetland, the U.S. Army Corps of Engineers does not consider an area this small to be jurisdictional (Ed Wylie, pers. comm. 2001).

Two other sites were also delineated and determined to be non-jurisdictional wetlands. These distinct areas are located in the middle of the dry arroyo along the western side (Figure 3) and are characterized by moist, peat-like soils, bare ground and matted vegetation consisting primarily of the facultative-upland species, mouse-ear chickweed (*Cerastium glomeratum,* FACU-). Additional vegetation in the area includes cocklebur (*Xanthium strumarium,* FAC+), wild oats

(NL), short-pod mustard (NL), and mallow (*Malva* sp.). The soil chroma was 1, which is indicative of hydric soils. However, since the dominant species, mouse-ear chickweed, is not a hydrophytic plant and there is no evidence of hydrology, these areas were not deemed to be wetlands.

2.4 JURISDICTIONAL DETERMINATIONS

Potential seasonal wetlands were delineated in the study area, although it was determined that none of these wetlands are jurisdictional. All except one wetland of the three delineated wetland areas failed to meet all three wetland parameters of hydrology, soils and vegetation. This area, approximately 3 feet by 1 foot, was determined by the U.S. Army Corps to be too small to consider (Ed Wylie, pers. comm., 2001). The wetland and the hydrology that was present at this site prior to construction of Isabel Road have been eliminated due to these developments.

California tiger salamanders, a candidate species for federal listing and CDFG species of special concern, prefer ephemeral pools such as vernal pools or temporary stock ponds for breeding. Potential breeding habitat, or any ephemeral ponds within 1 kilometer (0.6 miles) of the site, was surveyed for on April 16, 2001. Protocol level surveys were conducted in the vicinity in 1989 by Dr. Bradley Shaffer and Christopher Austin (City of Livermore 1995b). Although this survey information may not be current, it is useful as a reference. Results from the survey are described in the appropriate sections below.

The California Natural Diversity Database (CNDDB) reports one adult observed in 1992 at the intersection of Doolan Road and Collier Canyon Road, on the north side of Interstate 80, approximately 1.5 kilometers (0.9 miles)away from the project area. A salamander was also reported in 1970 between the gravel pits south of the site and Ruby Hill golf course, approximately 2.5 kilometers (1.5 miles) south of the project area.

Two ephemeral ponds are present east of the site and south of the dry arroyo (Figure 4). These ponds are in the Isabel Road Extension construction area. One is the result of the construction in the area (Pond 1) and is adjacent to a newly constructed small road. The other, Pond 2, is in the middle of the flood control channel. Pond 1 does not contain vegetation and is approximately 2 inches deep in the deepest area. It does not provide suitable habitat for California tiger salamanders since its shallowness indicates that it is most likely too ephemeral to hold water long enough for larvae to mature.

Pond 2 is approximately 2 feet deep in the deepest area and contains no emergent vegetation, although algae was observed floating along the edge. Two bullfrog (*Rana catesbeiana*) calls were heard at the pond, indicating a low likelihood of California tiger salamander larvae. California tiger salamanders are strongly negatively correlated with bull frog presence since bull frogs tend to prey on the larvae (Shaffer *et al.* 1993). A willet (*Catoptrophorus semipalmatus*), mallard (*Anus platyrhynchos*) and killdeer (*Charadrius vociferus*) were identified at this pond.

Other areas surveyed as potential breeding sites by URS, and Shaffer and Austin, include (Figure 4):

- **Arroyo Mocho.** This arroyo, less than 0.5 kilometers (0.3 miles) south of the project area, is dry and has very little riparian vegetation. The vegetation is primarily ruderal and includes eucalyptus (*Eucalptus* sp.), curly dock (*Rumex crispus*), barley (*Hordeum murinum*), slender wild oats (*Avena barbata*), and rabbit's foot grass (*Polypogon monospeliensis*). It is not suitable breeding habitat for the California tiger salamander because there are no seasonal wetlands present. Similarly, it was not considered suitable habitat by Dr. Shaffer in 1989.
- **Las Positas Golf Course.** The golf course contains a riparian corridor with some ponded areas, approximately 1.25 km (0.7 miles) north of the project area. There were some ponds on the golf course that URS biologists could not access and so were not included in this survey. The riparian area provides suitable habitat for the California tiger salamander and the species has the potential to occur here. A salamander was reported at the intersection of Doolan and Collier Canyon Roads, immediately north of the golf course, albeit north of Interstate 580. However, the likelihood of salamanders crossing the freeway is very low.

The Livermore Municipal airport is directly adjacent to the golf course and closer, suitable upland habitat is present adjacent to the golf course to the west. However, there is some potential that some salamanders would utilize the project area.

- **Gravel Pits South of Stanley Boulevard**

The gravel pits approximately 1.2 kilometers (0.7 miles) south of the project area, south of Stanley Boulevard, were reviewed for potential breeding habitat by Dames & Moore for the Isabel Extension Project Environmental Impact Report in 1993. These ponds were characterized as being moderately to highly disturbed by aggregate mining activities. The area around these ponds was previously mined but work has since been completed. Much of the riparian vegetation present most likely became established after completion of the mining. They range from ephemeral to perennial, with bare ground, marsh and riparian vegetation along their banks. They were considered potential breeding habitat for California tiger salamander, although no larvae were observed. Bullfrogs were present in the area, making it less likely that the salamanders would be present.

While California tiger salamanders could be present in these gravel pits, Stanley Boulevard is likely to inhibit movement between this area and the project site.

- **Gravel Pits West of the Project Area.**

The area containing gravel pits west of the area, approximately 1.5 kilometers (0.9 miles) from the project area, was under construction at the time of the survey and URS biologists did not have access to this site. Very little vegetation is present on the site. No seasonal ponded areas were seen during a visual overview of the site from the fence, much closer to the project area than the gravel pits, although this does not imply that no ponds are present in the area. No ponds were surveyed for potential breeding habitat. Due to the construction at the gravel pits west of the project area and a visual overview of the area with binoculars, any ponding in the area is likely to be unvegetated, ephemeral and highly disturbed. It is not likely to provide suitable quality breeding habitat for California tiger salamanders. Dr. Shaffer found any movement between the project area and the gravel pits limited due to the low quality of both the upland refugia habitat of the project area and steep slopes of the gravel pits (City of Livermore 1995b).

Surveys for burrowing owl (*Athene cunicularia*), a CDFG species of special concern, and San Joaquin kit fox (*Vulpes macrotis mutica*) dens, a state-listed threatened species and federally-listed endangered species, were conducted on May 23, 2001.

Survey Methods

The San Joaquin kit fox den and burrowing owl surveys were conducted concurrently. Surveys for the burrowing owl were conducted according to CDFG protocol by URS Corporation biologists Corinna Lu and Michele Lee. The San Joaquin kit fox survey was not to protocol and conducted only to determine if there was potential habitat present in the area. The weather was sunny and clear. The visibility was good and temperatures were in the low 80's. The survey area covered the 178-acre Oaks Business Park site in Livermore, California (Figure 1). Transects were walked thirty meters apart throughout the entire project area.

The Oaks Business Park site is flat with the exception of a dry arroyo running east to west along the southern portion of the site. The vegetation consists almost entirely of non-native grasses, shrubs and herbaceous plants.

Results

Burrowing Owls

No burrowing owls or evidence of burrowing owl such as pellets, scat or feathers were observed during the survey. The site supports ground squirrels (*Otospermophilus beecheyi),* an important prey base for the species, pocket gophers (*Thomomys talpoides*) and their burrows. The majority of the burrows that were located were small individual burrows. However, on the fallow fields to the north of the dry arroyo, clusters of burrows were present. Habitat on the project site is not ideal for burrowing owls because the non-native grasses are too tall for suitable burrowing owl habitat.

A review of the CNDDB (2001) reports the closest burrowing owl occurrence approximately 0.8 km (0.5 miles) to the south in March 1993. The next closest sighting is approximately 3.7 kilometers (6 miles) away to the northeast.

Other Bird Species

A list of bird species and other wildlife observed at the site is included in Table 2. Four mourning dove (*Zenaida macroura)* nests were observed on the ground in the tall grasses north of the dry arroyo. They were in various stages of development ranging from eggs to hatchlings more than one week old. It is likely that more birds, including mourning doves and a mallard, are nesting in the area since URS biologists flushed out many birds while walking the transects but were unable to locate nests.

Disking of the project area was scheduled for the end of May, but the presence of the nests prevented this from occurring. The Migratory Bird Treaty Act prohibits any take, killing, or possessing of migratory birds. Disking before the young have fledged would destroy any nests present, so disking was postponed until the birds have fledged and there is no evidence of second nesting attempts, as determined by a biologist. URS biologists will return to the site in the first week of July, approximately 6 weeks after the birds were discovered to determine if all the chicks have fledged.

San Joaquin Kit Fox Dens

No kit fox dens or evidence of kit fox dens were observed during the survey. Two burrows approximately 5 inches in diameter were found and could potentially be dens. No evidence of San Joaquin kit fox use was present at the site. As with burrowing owls, the tall grasses are not ideal habitat for the species, although there is some potential for the species to occur on the site.

Shaffer (1989) and Mori and Cook (1993) conducted amphibian surveys, including western spadefoot toad, in the project area and surrounding areas (City of Livermore, 1995b). No spadefoot toads were observed during either survey. No suitable breeding habitat exists for the western spadefoot toad; the two ephemeral ponds east of the project site are unlikely to be used as breeding areas for the toad because Pond 1 is a temporary pond created due to the construction and Pond 2 is too deep and contains bullfrogs that are likely to prey on the toad. The toad, like the California tiger salamander, utilizes upland refugia, and prefers short grasslands and the sandy or gravelly soil of grasslands (Stebbins 1985). The project area provides such refugia for the toad but because suitable breeding habitat is not present nearby, the potential for the species to occur in the project area is low.

A rare plant survey for large-flowered fiddleneck (*Amsinckia grandiflora*), San Joaquin saltbush (*Atriplex joaquiniana*), stinkbells (*Fritillaria agrestis*), and heartscale (*Atriplex cordulata*) was conducted on April 25, 2001. The survey was timed to coincide with the blooming periods of the plants (Table 3). These plants were not in bloom when Zentner & Zentner conducted special-status plant surveys for the site in 1998, and further surveys were recommended by the U.S. Fish and Wildlife Service (City of Livermore 1998b).

Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*), palmate bracted bird's beak (*Cordylanthus palmatus*), and hispid bird's beak (*Cordylathus mollis* ssp. *hispidus*) were not surveyed for because it was determined that no suitable alkaline habitat was present on the site. Since the soil survey classifies Yolo loam, the soil in the project area, as mildly alkaline, there was the possibility that potential habitat for these species could be present. However, since there are no alkali scalds or alkali grasslands on the site, potential habitat for these plants does not occur, regardless of the soil type. Big tarplant (*Blepharizonia plumosa* ssp. *plumosa*) was not surveyed for since Zentner & Zentner conducted late season special status plant surveys for this and other species in 1998. It was not observed on the site.

Transects approximately 10 meters apart were walked within the dry arroyo portion of the site. The fallow fields were not surveyed because they are annually disked, are heavily disturbed, and were densely vegetated with exotic grasses, allowing no room for these species to grow. Thus, suitable habitat is not present in the fields for any of the species surveyed (Table 3). All plant species encountered were identified to the level necessary to determine whether they were a special status species. A list of plant species observed in the project study area is presented in Table 1.

None of the special status plant species surveyed for in the area were found in the project site. The habitat in the dry arroyo is marginal for these species due to the predominance of non-native grasses and dense vegetation cover. While this habitat type is similar to the fallow fields, the dry arroyo is not disked, the density of the cover is slightly less and there were few open areas that are suitable for the special status species mentioned above.

Burrowing owl and other nesting birds

Although burrowing owls were not detected on the site, there is still the potential that they could inhabit the area prior to development of the site. Therefore, burrowing owl pre-construction surveys are recommended no more than 30 days prior to breaking ground. In addition, nesting bird surveys should be conducted no earlier than 45 days and no later than 20 days prior to breaking ground if construction is during the nesting/breeding season (February 1 to August 31).

California Tiger Salamander

While suitable habitat was found at the Los Positas golf course and in the gravel pits south of Stanley Boulevard, within approximately 1 kilometer (0.6 miles) of the project site, it is not likely that this species would utilize the project area as upland habitat. Stanley Boulevard is a busy street and migration across this road would be unlikely. The Livermore Municipal Airport lies between the Los Positas golf course and the project site and migration across this would also be minimal, especially since suitable upland habitat is present adjacent to the golf course to the west. However, since there is a chance that the species could occur, a preconstruction survey for salamanders in upland refugia is recommended.

San Joaquin Kit Fox

Since suitable habitat exists for the species, preconstruction surveys should be conducted no less than 14 days and no more than 30 days prior to construction. The surveys should identify kit fox habitat features on the project site and evaluate use by kit fox, and, if possible, assess the potential impact to the kit fox by the proposed activity. The status of all dens should be determined and mapped.

The USFWS must receive written results of this survey within 5 days after survey completion and prior to the start of ground disturbance and/or construction activities. If a natal/pupping den is discovered within the project area or within 200-feet (61 meters) of the project boundary, the USFWS shall immediately be notified. If the preconstruction survey reveals an active native pupping or new information, the project applicant should contact the USFWS immediately to obtain the necessary take authorization/permit (USFWS 1999).

Western Spadefoot Toad

Since suitable breeding habitat is not present on the site, no further surveys are recommended.

Wetland Delineation and Rare Plant Surveys

Since no jurisdictional wetlands and no special status plants were located on the site, no further action is required at this time.

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Personal Communication

Ed Wylie, Regulatory Biologist, U.S. Army Corps of Engineers, May 2, 2001.

Table 1. Plant Species Observed in the Project Area

Latin Name	Common Name	Wetland Indicator Statu
Amsinckia sp.	fiddleneck	NL
Anthemis cotula	mayweed	FACU
Atriplex triangularis	spearscale	NL
Avena barbata	slender wild oat	NL
Avena fatua	wild oats	NL
Bromus diandrus	ripgut brome	NI
Bromus hordeaceus	soft chess brome	NL
Bromus madritensis ssp. *rubens*	red brome	NL
Carthamus tinctorius	safflower	NL
Centaurea solstitialis	yellow star-thistle	NL
Cerastium glomeratum	mouse-ear chickweed	FACU-
Chamomilla occidentalis	western chamomile	NL
Cirsium vulgare	bull thistle	FACU
Claytonia perfoliata	miner's lettuce	FAC
Convolvulus arvensis	field bindweed	NL
Conyza canadensis	horseweed	FAC
Cynodon dactylon	bermuda grass	FAC
Epilobium brachycarpum	willow herb	UPL
Erodium cicutarium	red-stemmed filaree	NL
Eschscholzia californica	California poppy	NL
Hirschfeldia incana	shortpod mustard	NL
Hordeum murinum ssp. *leporinum*	barely	NL
Hypochaeris glabra	smooth cat's ears	NL
Lactuca serriola	prickly lettuce	FAC
Lolium multiflorum	Italian ryegrass	FAC
Malva parviflora	cheeseweed	NL
Marrubium vulgare	horehound	FAC
Medicago polymorpha	bur clover	NL
Melilotus indica	sourclover	FAC
Phalaris minor	little-seed canarygrass	NL
Picris echioides	bristly ox-tongue	FAC
Plagiobotrys canescens	valley popcornflower	NL
Plantago lanceolata	English plantain	FAC-
Platanus racemosa	western sycamore	FACW
Quercus lobata	valley oak	NL
Raphanus sativus	wild radish	NL
Rumex crispus	curly dock	FACW-
Salsoda tragus	Russian thistle	FACU
Silybum marianum	milk thistle	NL
Sonchus oleraceus	common sow thistle	NI
Spergularia rubra	red sandspurry	FAC-
Tragopogon porrifolius	purple salsify	NL
Vulpia myuros	zorro grass	FACU
Urtica dioica	stinging nettle	FACW-
Xanthium strumarium	cocklebur	FAC+

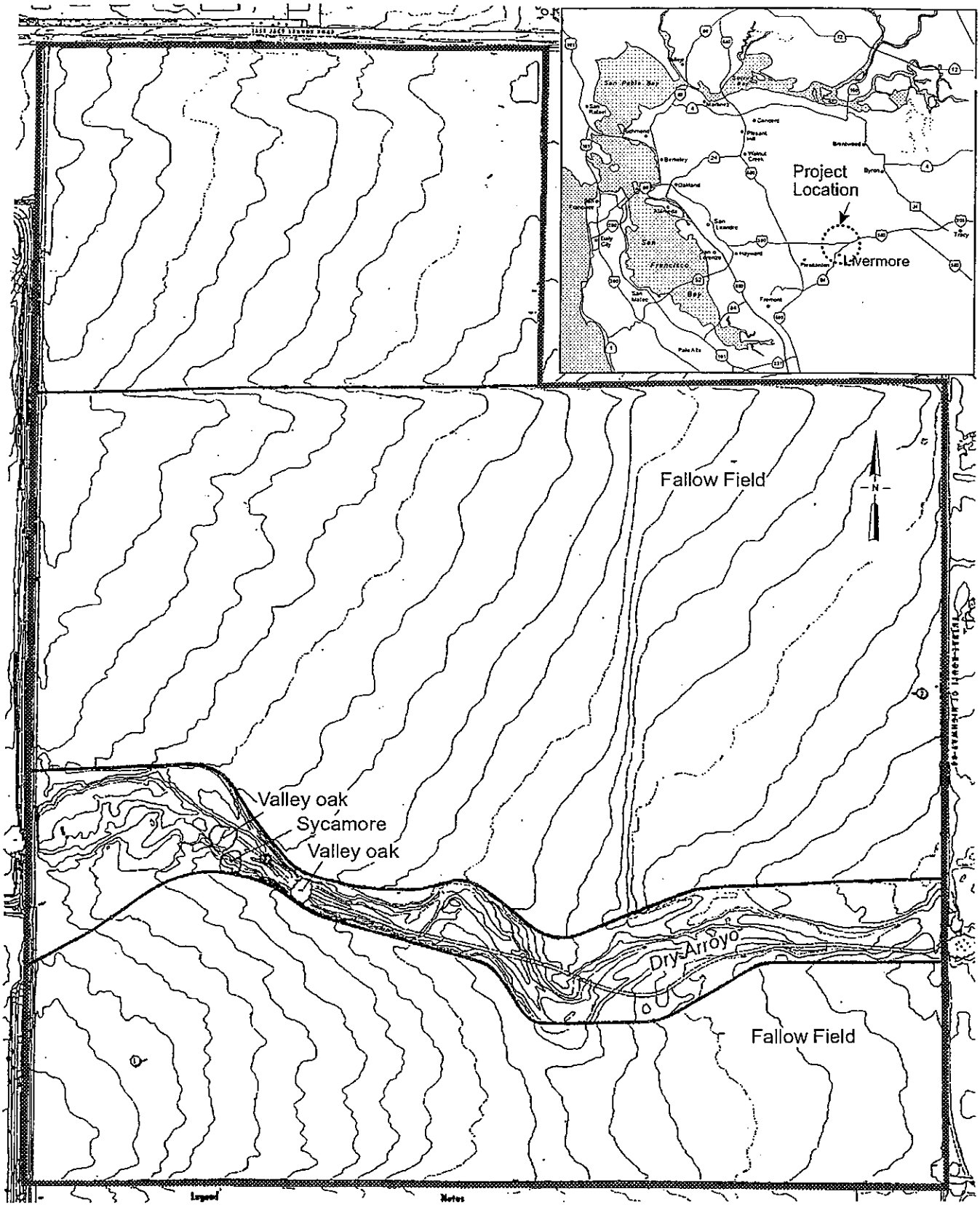
Table 2. Wildlife Species Observed in the Project Area

BIRDS

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
Mallard	*Anas platyrhynchos*
Red tailed hawk	*Buteo jamaicensis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Northern harrier	*Circus cyaneus*
White tailed kite	*Elanus leucurus*
Brewer's blackbird	*Euphagus cyanocephalus*
Kestrel	*Falco sparverius*
Hooded oriole	*Icterus cucullatus*
Savannah sparrow	*Passerculus sandwichensis*
Ring-necked pheasant	*Phasianus colchicus*
Black phoebe	*Sayornis nigricans*
Western meadowlark	*Sturnella neglecta*
Western kingbird	*Tyrannus verticalis*
Mourning dove	*Zenaida macroura*
White-crowned sparrow	*Zonotrichia leucophrys*

MAMMALS

Common Name	Scientific Name
Black tailed hare	*Lepus californicus*
California ground squirrel	*Spermophilus beecheyi*

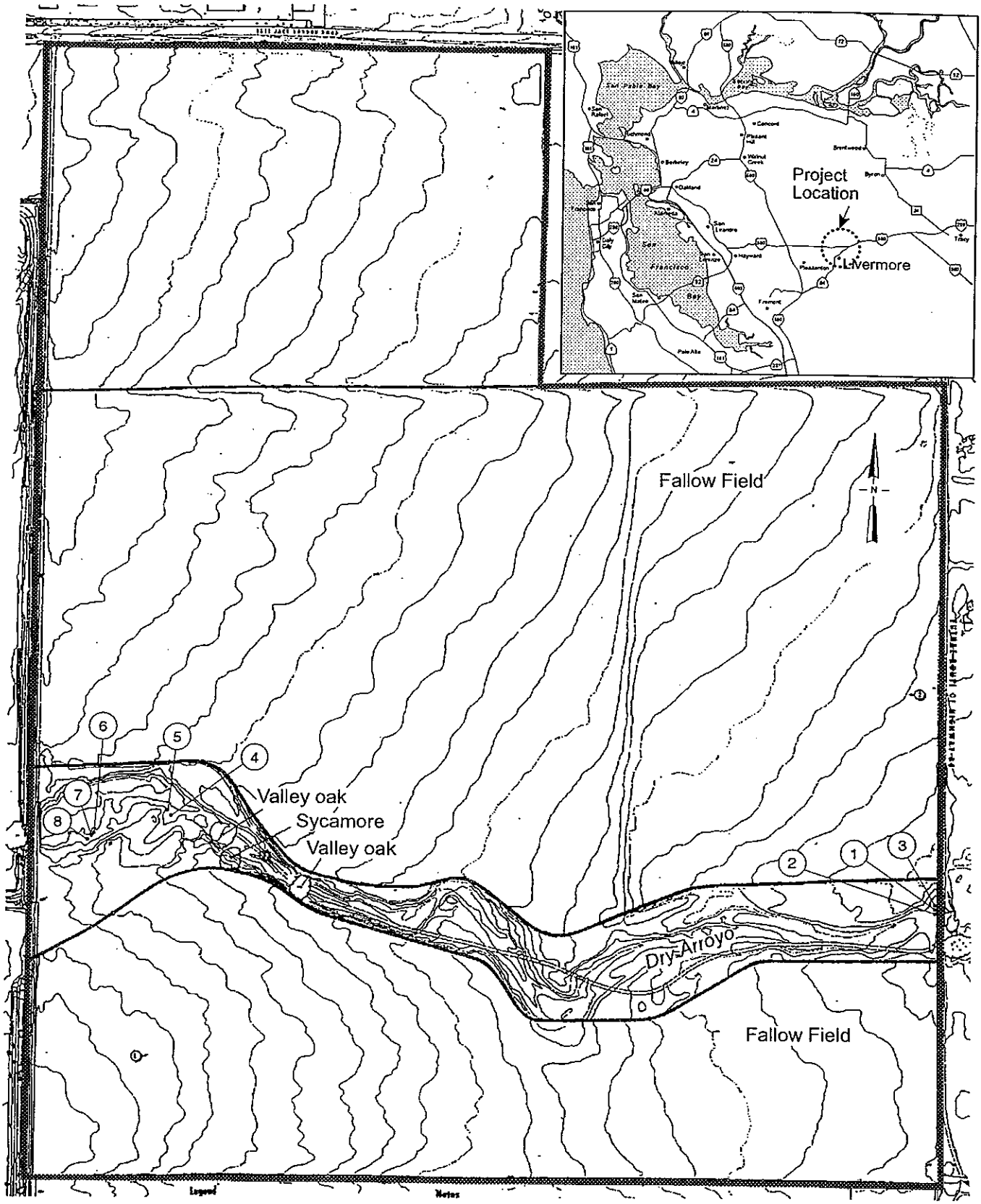


Map source: Kier and Wright, 5880 West LasPositas blvd., Suite 34, Pleasanton, CA 94588

URS	Project No. 51-00167008.01 Oaks Business Park	PROJECT AREA LOCATION	Figure 1

Table 3. Special Status Plant Species Surveyed for on April 25, 2001

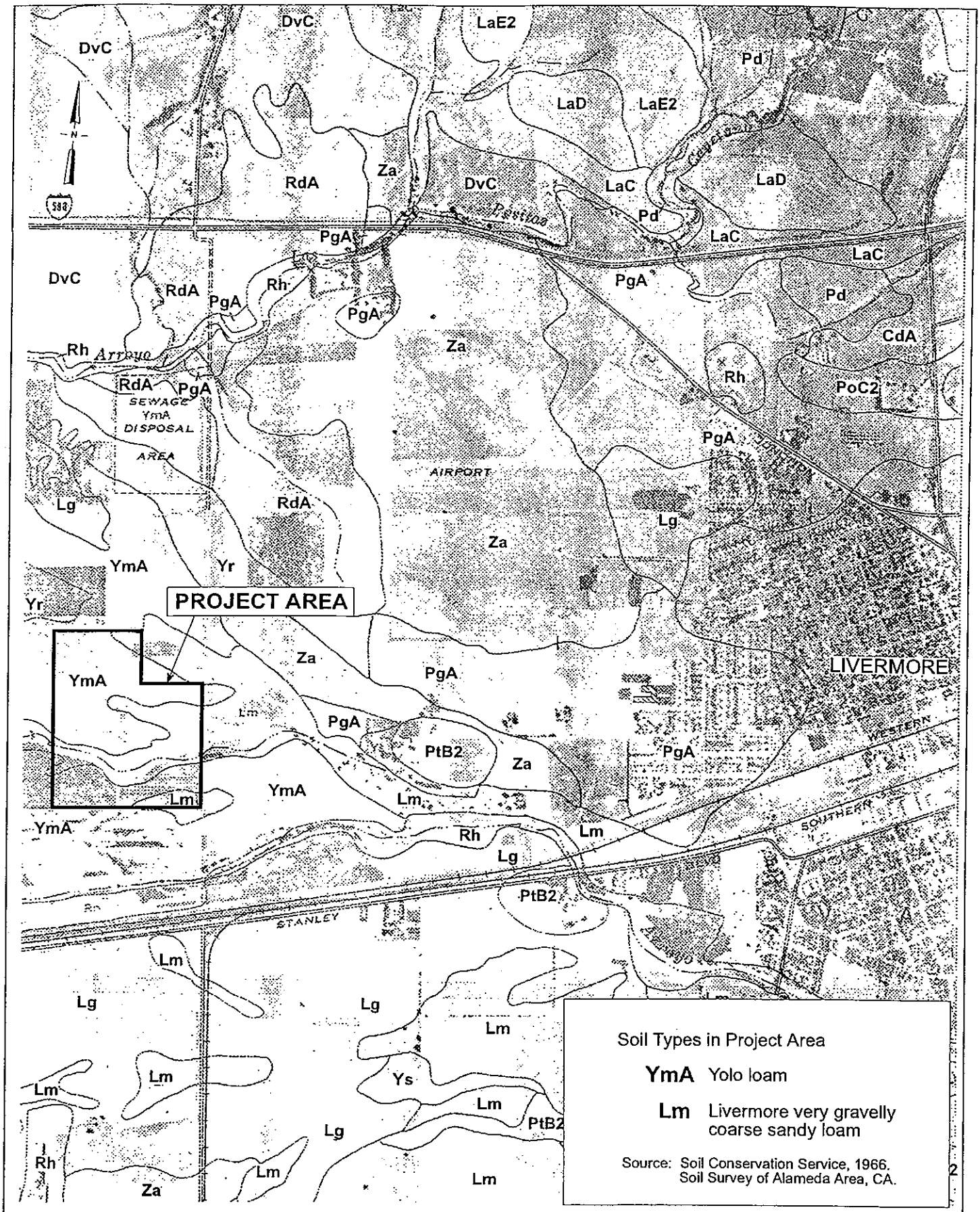
Common Name	Scientific Name	Federal/State/ CNPS Status	Blooming Period	Habitat	Occurrences during survey
Large flowered fiddle-neck	*Amsinckia grandiflora*	E/E/1B	April-May	Cismontane woodland; valley grassland	None
San Joaquin saltbush	*Atriplex joaquiniana*	None/ None/1B	April-Oct	Chenopod scrub; alkaline soils in meadoww, playas, and valley grasslands	None
Stinkbells	*Fritillaria agrestis*	None/ None/4	March-June	Valley grassland; clay, sometimes serpentine soils	None
Heartscale	*Atriplex cordulata*	None/ None/1B	April-Oct	Chenopod scrub; alkaline or saline soils in meadows and valley grasslands	None



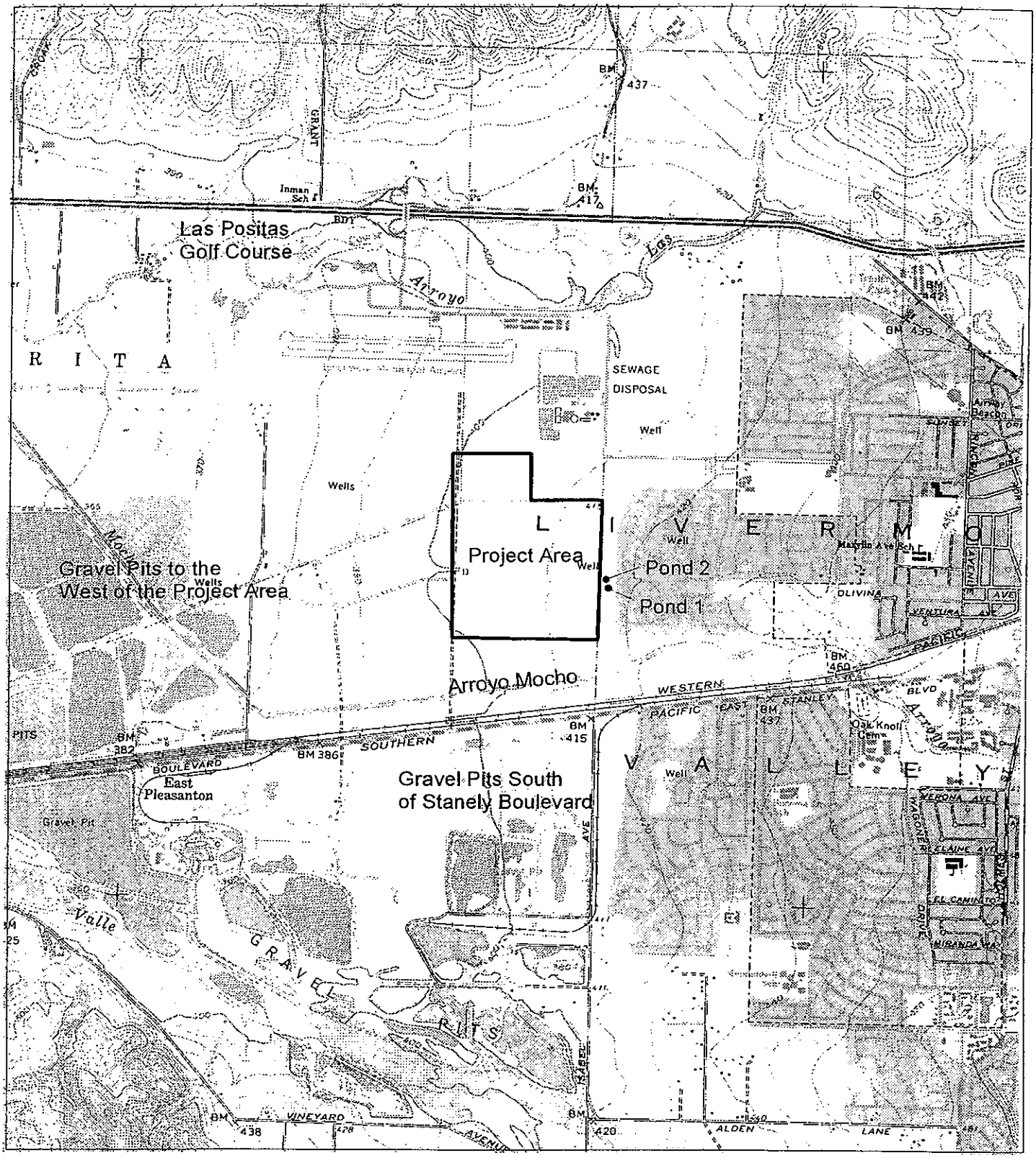
Map source: Kier and Wright, 5880 West LasPositas blvd., Suite 34, Pleasanton, CA 94588

URS	Project No. 51-00167008.01 Oaks Business Park	WETLAND DELINEATION DATA POINTS	Figure 2

51-00167008.01-00000/062101/gos



URS	Project No. 51-00167008.01 Oaks Business Park	SOILS TYPES IN THE PROJECT AREA AND VICINITY	Figure 3



Source. USGS 7.5 Minute Livermore Quadrangle

N

1:30000

URS	Oaks Business Park Project No.51-00167008.01	Seasonal Ponds Within 1 Km of the Project Area	Figure 4

Appendix A

Wetland Delineation Data Sheets

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park Site Site 1
Date: April 25, 01
Applicant/owner:
County:
Investigator(s): Cary Lu, Jennifer Stolz
State: CA
S/T/R:

Do normal circumstances exist on the site? ☑ Yes ☐ No
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No
Is the area a potential problem area? ☑ Yes ☐ No
Explanation of atypical or problem area: Seasonal drainage

Community ID: 1
Transect ID:
Plot ID:

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Hordium marinum	H	75	NL.		H		
Avena fatua	H	10	NL		H		
Centaria soli	H	5	NL		H		
Lolium purenne	H	5	FAC		H		
Erodium botrys	H	3	NL		H		
Bromis mollis	H	2	FACU-		H		

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC:

Check all indicators that apply and explain below:

☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
☐ Morphological adaptations
☐ Technical Literature
☐ Physiological/reproductive adaptations
☐ Wetland plant database
☐ Personal knowledge of regional plant communities
☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☑ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☑ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☐ Yes ☑ No on

Drift Lines: ☐ Yes ☑ No

Oxidized Root (live roots) Channels <12 in.: ☑ Yes ☐ No

FAC Neutral: ☐ Yes ☐ No

Sediment Deposits: ☐ Yes ☐ No

Drainage Patterns: ☑ Yes ☐ No

Local Soil Survey: ☐ Yes ☐ No

Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

☐ Stream, lake or gage data
☐ Aerial photographs
☐ Other

Other (explain): lower elevation

Wetland hydrology present? ☐ Yes ☐ No

Rationale for decision/remarks: This once was delineated as a wetland, but now drainage has been cut off. A new gravel road is now adjacent.

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Buisness Park site Site 1 | Date: April 25, 01

Applicant/owner: | County:

Investigator(s): Cary Lu, Jennifer Stolz | State: CA

S/T/R:

Do normal circumstances exist on the site? ☑ Yes ☐ No | Community ID: 1

Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No | Transect ID:

Is the area a potential problem area? ☑ Yes ☐ No | Plot ID:

Explanation of atypical or problem area: Seasonal drainage

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Hordium murinum	H	75	NL.		H		
Avena fatua	H	10	NL		H		
Centaria soli	H	5	NL		H		
Lolium perenne	H	5	FAC		H		
Erodium brtrys	H	3	NL		H		
Bromis mollis	H	2	FACU-		H		

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC:

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☑ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☑ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☐ Yes ☑ No on

Drift Lines: ☐ Yes ☑ No

Oxidized Root (live roots) Channels <12 in.: ☑ Yes ☐ No

FAC Neutral: ☐ Yes ☐ No

Sediment Deposits: ☐ Yes ☐ No

Drainage Patterns: ☑ Yes ☐ No

Local Soil Survey: ☐ Yes ☐ No

Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☑ Aerial photographs
- ☐ Other

Other (explain): lower elevation

Wetland hydrology present? ☐ Yes ☐ No

Rationale for decision/remarks: This once was delinated as a wetland, but now drainage has been cut off. A new gravel road is now adjacent.

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup) Livermore Sandy Loam

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
15		10YR 3/2	~~3~~			

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☑ No

Rationale for decision/Remarks: no mottles in soil

Wetland Determination

Hydrophytic vegetation present?	☐ Yes	☐ No
Hydric soils present?	☐ Yes	☐ No
Wetland hydrology present?	☐ Yes	☐ No
Is the sampling point within a wetland?	☐ Yes	☐ No

Rationale/Remarks:

NOTES:

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Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park Site Site 2	Date: April 25, 01
Applicant/owner:	County:
Investigator(s): Cory Lu, Jennifer Stolz	State:
	S/T/R:
Do normal circumstances exist on the site? ☑ Yes ☐ No	Community ID: 2
Is the site significantly disturbed (atypical situation)? ☐ Yes ☑ No	Transect ID:
Is the area a potential problem area? ☒ Yes ☒ No	Plot ID:
Explanation of atypical or problem area: Seasonal drainage	

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Centaria		90	NL				
Avena fatua		~~3~~ 3	NL				
Lolium perenne		~~3~~ 5	FAC				
Rumex crispus		2					
Curly doc							
–							
Rumex							

HYDROPHYTIC VEGETATION INDICATORS:

Are of dominants OBL, FACW, & FAC:

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☐ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☑ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☒ Yes ☐ No
Depth to free water in pit: inches	Oxidized Root (live roots) Channels <12 in: ☐ Yes ☐ No	Local Soil Survey: ☐ Yes ☐ No
Depth to saturated soil: inches	FAC Neutral: ☐ Yes ☐ No	Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain): Drainage has been cut off to this site.

Wetland hydrology present? ☐ Yes ☒ No

Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup) Livermore sandy loam

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
5		3/2 10YR			rocky, dry	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☐ No

Rationale for decision/Remarks:

Wetland Determination

Hydrophytic vegetation present?	☐ Yes	☐ No
Hydric soils present?	☐ Yes	☐ No
Wetland hydrology present?	☐ Yes	☐ No
Is the sampling point within a wetland?	☐ Yes	☐ No

Rationale/Remarks:

NOTES:

NOTES — drainage ditch (1) [illegible]

Revised 4/97

juncus [illegible]
cyperus [illegible]
curly dock
picris

Xanthium spinosum (cocklebur)
[illegible]

drainage ditch (2)
nutsedge
bull thistle
bristly ox tongue

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park Site
Applicant/owner:
Investigator(s): Corinna Lu, Jennifer Stolz

Date: 4/25/01
County:
State: CA
S/T/R:

Do normal circumstances exist on the site? ☒ Yes ☐ No
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No
Is the area a potential problem area? ☒ Yes ☐ No
Explanation of atypical or problem area: Seasonal drainage

Community ID:
Transect ID: 3
Plot ID:

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Lolium perenne		100	FAC				
–							
–							

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: low

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☒ Yes ☐ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: Ø inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☒ Yes ☐ No on Matted grass
Sediment Deposits: ☐ Yes ☐ No
Drift Lines: ☐ Yes ☐ No
Drainage Patterns: ☒ Yes ☐ No
Oxidized Root (live roots) Channels <12in: ☐ Yes ☐ No
Local Soil Survey: ☐ Yes ☐ No
FAC Neutral: ☐ Yes ☐ No
Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain): Site is along a gravel road that cuts off drainage. The area was previously a non-jurisdictional wetland.

Wetland hydrology present? ☒ **Yes** ☐ **No**

Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
~	A	10YR 3/2	7.5YR 4/6	large few mottles, high contrast		

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☒ Yes ☐ No

Rationale for decision/Remarks:

Wetland Determination

Hydrophytic vegetation present?	☒ Yes	☐ No
Hydric soils present?	☒ Yes	☐ No
Wetland hydrology present?	☒ Yes	☐ No
Is the sampling point within a wetland?	☒ Yes	☐ No

Rationale/Remarks:

NOTES: Very small area; formerly a part of a wetland but it has been hydrologically cut off, and has only marginal wetland hydrology.

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Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park
Applicant/owner:
Investigator(s): C. Lu, J. Stolz

Date: 9/25/01
County:
State:
S/T/R:

Do normal circumstances exist on the site? ☒ Yes ☐ No
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No
Is the area a potential problem area? ☒ Yes ☐ No
Explanation of atypical or problem area: seasonal hydrology

Community ID:
Transect ID: 4
Plot ID:

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Xanthium strumarium cockle bur		20%	FAC+				
Crastium glomeratum		80%	FACW-				
Avena fatua		<1%	NL				
–							
–							

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 20

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No
Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No
Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches
Depth to free water in pit: Ø inches
Depth to saturated soil: inches

Water Marks: ☒ Yes ☐ No on matted vegetation	Sediment Deposits: ☐ Yes ☐ No
Drift Lines: ☐ Yes ☐ No	Drainage Patterns: ☐ Yes ☐ No
Oxidized Root (live roots) Channels <12 in: ☐ Yes ☐ No	Local Soil Survey: ☐ Yes ☐ No
FAC Neutral: ☐ Yes ☐ No	Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain):

Wetland hydrology present? ☒ Yes ☐ No
Rationale for decision/remarks: Much of the C. glomeratum was dead + matted. Evidence of water on plants. However, area was not lower than surrounding areas + was on a slight slope

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
	A	10YR 2/1			loamy, very rich	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☒ Yes ☐ No

Rationale for decision/Remarks:

Wetland Determination

Hydrophytic vegetation present?	☒ Yes	☒ No
Hydric soils present?	☒ Yes	☐ No
Wetland hydrology present?	☒ Yes	☐ No
Is the sampling point within a wetland?	☐ Yes	☒ No

Rationale/Remarks:

NOTES: area was at the bottom of the arroyo with matted dead veg.

Revised 4/97

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park Applicant/owner: Investigator(s): C. Lu, J. Stolz	Date: 4/25/01 County: State: S/T/R:
Do normal circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No Is the area a potential problem area? ☐ Yes ☒ No Explanation of atypical or problem area:	Community ID: Transect ID: 5 Plot ID:

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Hordeum murinum		60	NL				
Centaria sp.		1	NL				
Avena fatua		39	NL				
–							
–							

HYDROPHYTIC VEGETATION INDICATORS:

Is of dominants OBL, FACW, & FAC:

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: 0 inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☐ Yes ☒ No	Sediment Deposits: ☐ Yes ☒ No	
Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☐ Yes ☒ No	
Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No	
FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No	

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain):

Wetland hydrology present? ☐ Yes ☒ No

Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
	A	10YR 3/2	—			

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☒ No

Rationale for decision/Remarks: no mottling, chroma ≤ 2

Wetland Determination

Hydrophytic vegetation present?	☐ Yes	☒ No
Hydric soils present?	☐ Yes	☒ No
Wetland hydrology present?	☐ Yes	☒ No
Is the sampling point within a wetland?	☐ Yes	☒ No

Rationale/Remarks:

NOTES:

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Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Ocuco Business Park	Date: 9/25/01
Applicant/owner:	County:
Investigator(s): C. Lu, J. Stolz	State:
	S/T/R:
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID:
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	Transect ID: 6
Is the area a potential problem area? ☒ Yes ☐ No	Plot ID:
Explanation of atypical or problem area: Seasonal	

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Hirschfeldia incana	H	10	NL	Convolvulus arvensis	H	<1	
Willow Sp	H	8	—	Atriplex triangularis	H	<1	
Chamomilla occidentalis	H	0	NL	bare ground		80	
Sonchus bothnicus	H	2	NL				
Bromus mollis	H	2	NL				
Bromus rubens	H	9	NL				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 0%

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☒ Yes ☐ No on Matted vegetation	Sediment Deposits: ☐ Yes ☐ No
Drift Lines: ☐ Yes ☐ No	Drainage Patterns: ☐ Yes ☐ No
Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☐ No	Local Soil Survey: ☐ Yes ☐ No
FAC Neutral: ☐ Yes ☐ No	Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain):

Wetland hydrology present? ☒ Yes ☐ No

Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
	A	10YR 3/2	/			

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☒ No

Rationale for decision/Remarks: no mottles

Wetland Determination

Hydrophytic vegetation present?	☒ Yes	☒ No
Hydric soils present?	☐ Yes	☒ No
Wetland hydrology present?	☒ Yes	☐ No
Is the sampling point within a wetland?	☐ Yes	☒ No

Rationale/Remarks:

NOTES:

Revised 4/97

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Outlet Business Park	Date: 4/25/01
Applicant/owner:	County:
Investigator(s): CLH, J Stolz	State:
	S/T/R:
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID:
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	Transect ID:
Is the area a potential problem area? ☒ Yes ☐ No	Plot ID: 7
Explanation of atypical or problem area: Seasonal drainage	

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Psathulzia californica	H	5	NL				
Hordeum murinum	H	20	FAC				
Centaria so	H	10	NL				
bare ground	H	65	/				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 10 of 35 = 33%.

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No

Based on: ☐ Soil temp (record temp) ☐ Other (explain)

Depth of inundation: inches

Depth to free water in pit: inches

Depth to saturated soil: inches

Water Marks: ☐ Yes ☐ No on	Sediment Deposits: ☐ Yes ☐ No
Drift Lines: ☐ Yes ☐ No	Drainage Patterns: ☐ Yes ☐ No
Oxidized Root (live roots) Channels <12 in: ☐ Yes ☐ No	Local Soil Survey: ☐ Yes ☐ No
FAC Neutral: ☐ Yes ☐ No	Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain):

Wetland hydrology present? ☐ Yes ☒ No

Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
		10YR 3/2	no mottling			

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☒ No

Rationale for decision/Remarks:

Wetland Determination

Hydrophytic vegetation present?	☐ Yes	☒ No
Hydric soils present?	☐ Yes	☒ No
Wetland hydrology present?	☐ Yes	☒ No
Is the sampling point within a wetland?	☐ Yes	☒ No

Rationale/Remarks:

NOTES:

Revised 4/97

Routine Wetland Determination

DATA FORM 1 *(Revised)*

Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

Project/Site: Livermore Oaks Business Park
Applicant/owner:
Investigator(s):

Date: 4/25/01
County:
State:
S/T/R:

Do normal circumstances exist on the site? ☒ Yes ☐ No
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No
Is the area a potential problem area? ☒ Yes ☐ No
Explanation of atypical or problem area: Seasonal drainage

Community ID:
Transect ID:
Plot ID: 8

VEGETATION (For *strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	*Stratum	% cover	Indicator	Dominant Plant Species	*Stratum	% cover	Indicator
Hordeum marinum	H	100	FAC				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☐ Wetland plant database
- ☐ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☒ Yes ☐ No
Rationale for decision/Remarks:

HYDROLOGY

Wit the growing season? ☐ Yes ☐ No
Based on: ☐ Soil temp (record temp) ☐ Other (explain)
Depth of inundation: inches
Depth to free water in pit: inches
Depth to saturated soil: inches

Water Marks: ☐ Yes ☐ No on
Drift Lines: ☐ Yes ☐ No
Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☐ No
FAC Neutral: ☐ Yes ☐ No

Sediment Deposits: ☐ Yes ☐ No
Drainage Patterns: ☐ Yes ☐ No
Local Soil Survey: ☐ Yes ☐ No
Water-stained Leaves: ☐ Yes ☐ No

Check all that apply & explain below:

- ☐ Stream, lake or gage data
- ☐ Aerial photographs
- ☐ Other

Other (explain): no evidence of hydrology

Wetland hydrology present? ☐ Yes ☒ No
Rationale for decision/remarks:

SOILS

Map Unit Name (Series and Phase) :

Drainage Class

Field observations confirm mapped type? ☐ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
	A	10YR 3/2	—			

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ Yes ☒ No

Rationale for decision/Remarks:

Wetland Determination

Hydrophytic vegetation present?	☐ Yes	☒ No
Hydric soils present?	☐ Yes	☒ No
Wetland hydrology present?	☐ Yes	☒ No
Is the sampling point within a wetland?	☐ Yes	☒ No

Rationale/Remarks:

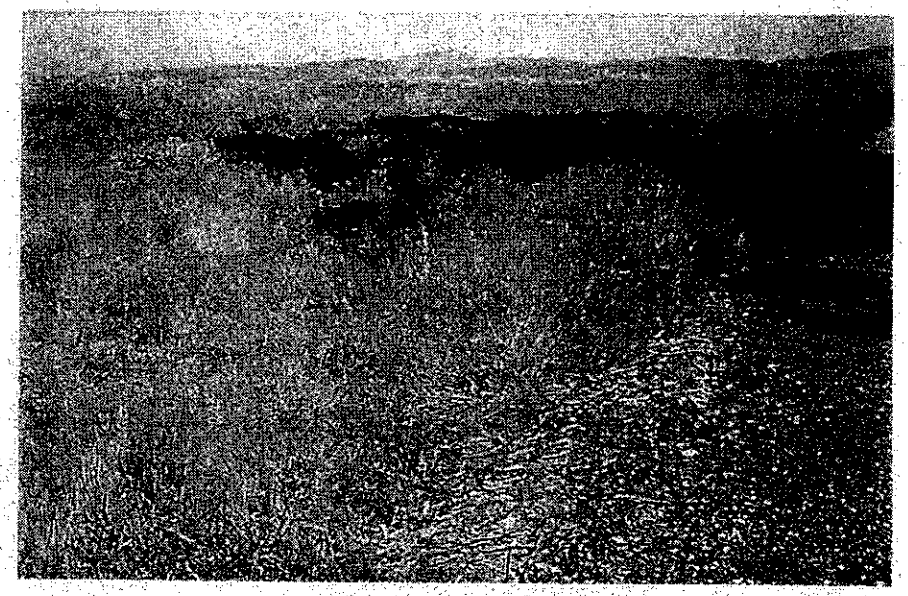
NOTES:

Revised 4/97

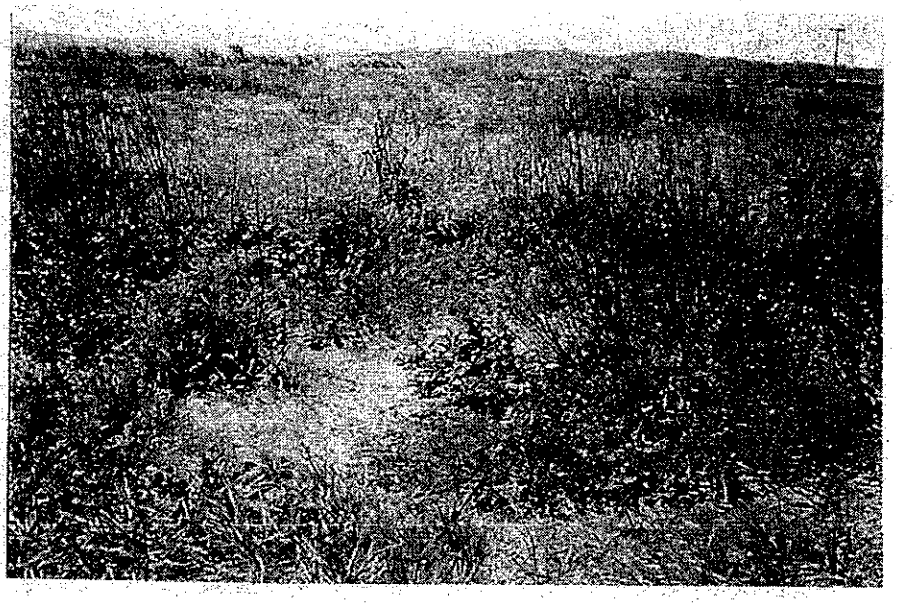
Appendix B

Site Photographs

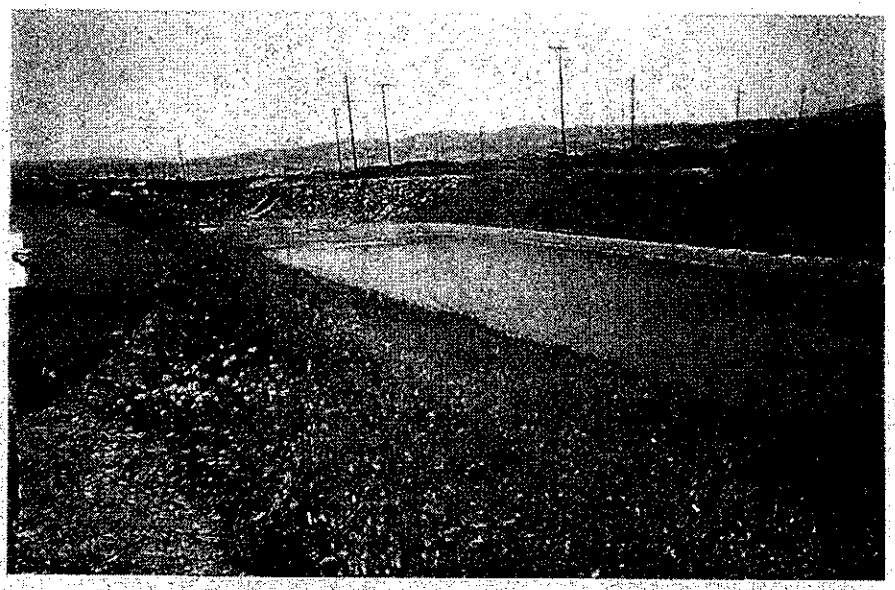
Project area, facing north.



Seasonal wetland on the eastern edge of the dry arroyo.



Moist area on the western portion of the dry arroyo. This area was not determined to be a wetland.



Pond 1, east of the project area in the flood control channel.

Pond 2, east of the project area in the Isabel Road Extension Project construction area

MAY & Associates, Inc.

August 28, 2001

Mr. Tad Stearn, Principal
Pacific Municipal Consultants
225K Cannery Row
Monterey, CA 93940
Fax: (831) 373-0733

Dear Mr. Stearn:

As per you request, we have conducted a peer review of the ADEIR biological resources section for the Oaks Business Park, City of Livermore, and have reviewed related biological resource documents that you provided.

In summary, we find past studies to have been adequate to support the EIR document. In addition to the surveys that have been completed to date, we suggest you consider the following actions to ensure that the project, as proposed, will be acceptable to the resource agencies.

First, we recommend a survey be conducted for California tiger salamander, a species that may not be present on the study site during the entire year, but that is known from the area. This species could migrate across the site to- and from- Arroyo Mocho Creek and other adjacent wetland and upland habitats. This study may yield information that may influence project design or preconstruction activities. If you decide to go forward with the additional salamander studies, we recommend you first contact DFG and USFWS regarding study design (and confirming the need to undertake the study).

Second, we recommend that you contact USFWS regarding the San Joaquin kit fox survey results. It has been our experience that all grasslands within the Livermore area have been considered by USFWS as suitable San Joaquin kit fox habitat, regardless of the absence of kit fox sightings or lack of evidence of the species' presence at the site. San Joaquin kit fox mitigation requirements may vary widely between areas and projects, and acceptable mitigation procedures may not necessarily follow past published USFWS mitigation procedures. We recommend that you confirm with USFWS, DFG, and the San Joaquin Council of Governments the appropriateness of the San Joaquin Habitat Conservation Planning process for your project prior to including language in the EIR document suggesting the use of the San Joaquin Open Space and Habitat Conservation plan for mitigation requirements.

PO Box 1156 Walnut Grove, CA 95690
(916) 776-2500 Fax: (916) 776-1541
Email: mayconsult@citlink.net

Third, we suspect that the site is suitable burrowing owl habitat, and that the owls could occasionally occupy the site over time. If found during the recommended preconstruction surveys, the site would be considered "occupied burrowing owl habitat, and habitat compensation may be required as per DFG's burrowing Owl Survey Protocol and Mitigation Guidelines. It has been our recent experience that burrowing owl issues have become more controversial with the agencies, and that early consultation with the agency staff is effective in determining appropriate mitigation strategies. We recommend adding text to this effect to the EIR document as shown in the attached marked up copy of your document.

The majority of our remaining comments are editorial in nature, and are being transmitted to you via fax and mail as handwritten comments on your draft text.

Thank you for the opportunity to work on this interesting project. Call if you have questions or require additional information.

Sincerely,

Loran May
President

Attachments

PO Box 1156 Walnut Grove, CA 95690
(916) 776-2500 Fax: (916) 776-1541
Email: mayconsult@citlink.net

URS

8 February 2002

Mr. John Dobrott
Senior Vice President
Gale & Wentworth California LLC
2030 Main Street, Suite 200
Irvine, CA 92614

Re: **Proposed Outfall Construction at the Oaks Business Park Site**

Dear Mr. Dobrott:

A biological field reconnaissance of the proposed stormwater outfall for the Oaks Business Park Site in Livermore, California was conducted on February 4, 2002. This letter summarizes the results of the field reconnaissance.

The field reconnaissance was conducted by URS biologist Cindy Hopkins. The study area includes the southeast corner of the 178-acre Oaks Business Park site and the proposed stormwater outfall alignment along Isabel Avenue between the Oaks Business Park site and the Arroyo Mocho channel. The entire study area was walked, including 200 feet along the southern margin of the Oaks Business Park and Arroyo Mocho and a 400 foot section of the Arroyo Mocho channel.

Indicators of the ordinary high water elevation within the channel were examined to determine the limits of potential jurisdictional waters of the U.S. Plant species along the slope of the channel were evaluated for potential wetland indicator species. The study area was also evaluated for potential to support special status species.

The surveyed area of the Oaks Business Park site is flat. The soil on the property was recently disked. The adjoining property (Pleasanton Sand and Gravel parcel) south to the Arroyo Mocho is hard-packed sand and gravel. The Arroyo channel was constructed with sections of both concrete bed and banks or large rocks of 2 to 3 feet diameter on the bed and banks. The vegetation on the Oak Business Park property and the Pleasanton Sand and Gravel parcel consists almost entirely of non-native grasses and other herbaceous plants. There was no vegetation in the eastern 200 feet of the surveyed area within the Arroyo Mocho. The western

URS Corporation
500 12th Street, Suite 200
Oakland, CA 94607-4014
Tel: 510.893.3600
Fax: 510.874.3268

200 feet of the observed area of the Arroyo Mocho channel consisted almost entirely of non-native grasses and other herbaceous plants. The arroyo channel was completely dry.

Results

Wetlands and Other Waters of the U.S.

Evidence of ordinary high water elevation was observed approximately 5.5 above the channel bed. No potential wetland indicator plant species were observed within the Arroyo Mocho channel or alongside the channel. The channel bed and sloped banks are composed entirely of large rocks of 2 to 3 feet diameter. No potential wetlands or evidence of wetland hydrology were observed in the study area.

Burrowing Owls

No evidence of burrowing owl (*Athene cunicularia*) activity was observed near the proposed outfall location. A single ground squirrel burrow was found in the Pleasanton Sand and Gravel parcel, in the approximate location of the outfall placement. However, no evidence of burrowing owl presence such as whitewash or feathers were observed.

Other Bird Species

A northern harrier (*Circus cyaneus*), a California species of special concern, was observed on the project area. Other bird species observed included: Brewer's blackbird (*Euphagus cyanochephalus*), American robin (*Turdus migratorius*), turkey vultures (*Cathartes aura*), savannah sparrow (*Passerculus sandwichensis*), and an American kestrel (*Falco sparverius*).

Mammal Species

California ground squirrels (*Spermophilus beecheyi*) were observed on the project area and within the Arroyo Mocho.

Discussion

Authorization from the Army Corps of Engineers (ACOE) and the Regional Water Quality Control Board (RWQCB) would be required if the proposed outfall is located below the ordinary high water elevation of the Arroyo Mocho channel. However, it is likely the proposed outfall could be authorized using the existing nationwide permit for stormwater outfalls (NWP # 7)

reissued on January 15, 2002. This NWP requires the applicant to submit a pre-construction notification to the ACOE. In addition, a 401 water quality certification, or waiver would be required from the RWQCB.

If you have any questions about the information presented in this letter, please do not hesitate to call Cindy Hopkins (510-874-3058) or Steve Leach (510-874-3205).

Sincerely,

URS CORPORATION

Cindy Hopkins
Biologist

Steve Leach
Project Manager

cc: Tad Stearn, Pacific Municipal
Chuck McCallum, P.E., Kier & Wright

APPENDIX K

Phase I Environmental Site Assessment

Kleinfelder, Inc., *Phase I Environmental Site Assessment Report, Jack London Road Property, Livermore, California*, April 27, 2000.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT JACK LONDON ROAD PROPERTY LIVERMORE, CALIFORNIA

KLEINFELDER
An employee owned company

KLEINFELDER

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT JACK LONDON ROAD PROPERTY LIVERMORE, CALIFORNIA

April 27, 2000

A Report Prepared for:

Mr. John DoBrott
Gale & Wentworth California, L.L.C.
2030 Main Street, Suite 310
Irvine, California 92614

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT JACK LONDON ROAD PROPERTY LIVERMORE, CALIFORNIA

Kleinfelder Job No.: 10-3011-65/ESA

Prepared by:

Karen Newton
Staff Engineer

Donald A. Kubik Jr. R.E.A.
Project Manager

KLEINFELDER, INC.
7133 Koll Center Parkway, Suite 100
Pleasanton, California 94566
(925) 484-1700

April 26, 2000

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(continued)

PLATES

APPENDICES

1.0 SUMMARY

Kleinfelder, Inc. (Kleinfelder) was retained by Gale & Wentworth California, L.L.C. (Gale & Wentworth California) to conduct a Phase I Environmental Site Assessment (ESA) for an approximately 178 acre property located along the west boundary of the proposed Highway 84 (Isabel Avenue) road alignment and between Jack London Boulevard to the north and Stanley Boulevard to the south in Livermore, California (see Site Vicinity Map, Plate 1). In this report, the property will be referred to as the "site".

The purpose of this assessment is to assist Gale & Wentworth California in recognizing environmental conditions that might be associated with the historical use, handling, storage and/or disposal of hazardous substances on the site. A summary of our findings, conclusions and recommendations is presented below. Kleinfelder's findings are discussed in further detail in the text of this report. This report is subject to the limitations in Section 9.0.

SITE HISTORY

- Based on our historical review, the site was previously used for grazing land.
- One structure was present on the west side of the site from the late 1950s until the late 1980s, according to topographic maps and aerial photographs.
- Two wells were installed on the site in the past, including one groundwater monitoring well installed in 1987 and one water supply well installed in 1940. The groundwater monitoring well was destroyed in 1999. According to the Zone 7 Water Agency, the water supply well is used to monitor groundwater levels in the area of the site.

SITE CONDITIONS

- The site was undeveloped and covered with grass at the time of our site visit.
- No evidence of the structure previously located on the west side of the site was observed during the site visit.
- Arroyo Mocho flows through the southwest leg of the site.
- One water well (as noted above) was observed along the eastern border of the site.
- Manhole covers were located along the eastern border of the site. These manholes were marked as sanitary sewer covers.
- Pole mounted transformers were located along the western border of the site. No evidence of damage or leakage was observed on or beneath these transformers.

- There was no evidence uncovered during this Phase I ESA which indicated past or present use, storage, disposal or handling of hazardous substances on-site.

- The expected groundwater flow direction in the site vicinity is to the west, following the surface slope.

- The site has an elevation of approximately 410 feet above Mean Sea Level (MSL) with a slight surface slope downward to the west.

REGULATORY REVIEW

- The site was not included on any of the regulatory databases/lists reviewed during the course of this Phase I ESA.

- Silver Metal Products located at 2150 Kitty Hawk Road, east of the site, has had a reported release. According to the information reviewed during this Phase I ESA, this facility was included on the LUST list due to a gasoline leak that has affected the soil but has been granted case closure.

- Livermore Water Plant at 101 Jack London Boulevard, located east of the site, is listed on the LUST database due to a gasoline leak. Because this LUST site is greater than 2,000 feet from the site, it is unlikely that the gasoline leak has impacted the site.

CONCLUSIONS AND RECOMMENDATIONS

- Pesticides may have been applied to the site and adjacent properties when they were used for hayfields, and it is possible that residual pesticide concentrations are present in the soil. However, it is our understanding that pesticides are generally not applied to hayfields or are applied in low concentrations. Therefore, in Kleinfelder's opinion, residual pesticide concentration in the native soils across the site are not likely to be a significant concern.

- Soil and/or groundwater release incidents have been reported in the vicinity of the site. In Kleinfelder's opinion, these incidents are unlikely to impact the site due to their being granted case closure, impacts to soil only, their distance from the site and/or their location in a down- or cross-gradient direction with respect to assumed regional groundwater flow direction.

In conclusion, no significant environmental concerns were noted during our site reconnaissance and historical and regulatory review. These and other findings are discussed in greater detail in the text of this report.

2.0 INTRODUCTION

In April of 2000, Gale & Wentworth California retained Kleinfelder to conduct a Phase I ESA of the site. Kleinfelder understands that this report will assist the client in understanding site specific recognized environmental conditions associated with the subject property's past and current use. Kleinfelder performed this Phase I ESA in general accordance with the scope and limitations of the American Society for Testing and Materials (ASTM); *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-97)* and our proposal 10-YP0-628 dated April 11, 2000.

REPORT FORMAT

The following sections describe Kleinfelder's work scope:

Section 3, *Site Setting*, is a compilation of information concerning the site's location, physical setting, geologic and hydrogeologic conditions, and adjacent property use.

Section 4, *Records Review*, is a compilation of Kleinfelder's review of several databases available from Federal, State, and local regulatory agencies regarding hazardous substance use, storage, or disposal at the site; and for off-site facilities within the specified search radius.

Section 5, *History of the Site*, details the history of the site and adjoining properties based on review of various sources which may have included aerial photographs, city/county agencies, city or suburban directories, and historical maps.

Section 6, *Site Reconnaissance*, describes the site reconnaissance conducted by Kleinfelder.

Section 7, *Interviews*, summarizes the interviews and telephone conversations conducted by Kleinfelder with people knowledgeable about the site.

Section 8, *Findings and Conclusions*, is a presentation of our findings and conclusions regarding the information contained in Sections 3 through 7; and presents our opinion regarding recognized environmental conditions at the site.

Sections 9 and 10 include our limitations and references, respectively.

3.0 SITE SETTING

The site setting is evaluated to assess the impact of possible migration of potential contamination from recognized environmental conditions on the site. Tables 1 through 4 summarize the physical characteristics of the site and bordering properties. The site location is shown on Plate 1, Site Vicinity Map.

The information presented in Table 1 includes the physical location and size of the site, as well as its current and proposed use. This information was obtained from review of various maps (such as topographic maps), and/or review of public records at the city and/or county offices. As shown on the Site Vicinity Map, Plate 1, the site is located along the west boundary of the proposed Highway 84 (Isabel Avenue) road realignment and Jack London Boulevard to the north and Stanley Boulevard to the south.

TABLE 1
SITE SETTING

ADDRESS	No street address assigned
LOCATION	Livermore, California
TOWNSHIP/RANGE SECTION/SUBSECTION	Township 3 South, Range 1 East, Sections 12 and 13 (Source: Livermore Quadrangle Topographic Map)
ASSESSOR'S PARCEL No.	APN: 904-5-7
ACREAGE	Approximately 178 acres
CURRENT USE	Vacant land
PROPOSED USE	Development

Table 2 includes information on the physical setting of the site. As noted in Table 2, the United States Geological Survey (USGS) Livermore Quadrangle 7.5 Minute Topographic Map was reviewed during the course of this assessment. The map was originally produced in 1961 and was photorevised in 1980. Copies of this map and historical topographic maps (discussed in Section 5.3 of this report) are presented in Appendix B.

The soils map reviewed for the site vicinity was contained in the soil survey report produced by the United States Department of Agriculture, Soil Conservation Service (USDA, SCS) for the Alameda Area, California.

The Munger Map Book noted in Table 2 is a comprehensive atlas published by the Department of Conservation, Division of Oil and Gas (DOG). The maps in this book show field locations of active and inactive oil and gas wells.

TABLE 2 PHYSICAL SETTING		
SOURCE TITLE	AUTHOR/SOURCE	COMMENTS
USGS TOPOGRAPHIC MAP	Livermore 7.5 Minute Quadrangle	Site appears vacant. The site elevation is approximately 410 feet MSL and a surface slope downward to the west.
SOIL SURVEY OF ALAMEDA AREA, CALIFORNIA	USDA, SCS, 1966	Yolo loam (YmA) with 0-3% slope. This soil occurs mostly in large bodies on nearly level valley floors. The color of the surface soil ranges from dark grayish brown to brown. The texture ranges from fine sandy loam to light clay loam. This soil is well drained and is moderately permeable. Runoff is very slow.
MUNGER MAP BOOK	Averill H. Munger, 1993/1994	No oil or gas wells reported on-site or in area.

Information on regional geology and hydrogeology is presented in Table 3 below. This information was obtained from published data and maps of the site vicinity.

The geologic map reviewed for the site was contained in the "Geologic Atlas of California", prepared by the California Division of Mines and Geology (CDMG).

TABLE 3 REGIONAL GEOLOGY AND HYDROGEOLOGY		
SOURCE TITLE	AUTHOR/SOURCE	COMMENTS
REGIONAL GEOMORPHIC PROVINCE	Norris and Webb, 1990	Coast Range
GENERALIZED GEOLOGIC MAP	*Geologic Atlas of California*, CDMG, 1969	Site is underlain by Recent Alluvium (Qal) with stream alluvial deposits. Alluvial fan and flood-plain deposits are present in Livermore and Santa Clara Valleys.
DEPTH TO GROUNDWATER	Alameda County Flood Control and Water Control District – Zone 7	60 to 130 feet below ground surface; shallower, perched zones may be present.
EXPECTED LOCAL GROUNDWATER FLOW DIRECTION	Surface Topography	To west with surface slope
REGIONAL GROUNDWATER QUALITY PROBLEMS	VISTA Information Solutions, *Site Assessment Report* and State Water Resources Control Board *1991 Well Investigation Program*	Several hydrocarbon releases reported in area but no reported contaminated public water supply wells

A brief drive-by survey of the parcels adjacent to the site was conducted on the same day as the site visit, April 20, 2000. The results of this survey are presented below in Table 4. There was

no business suspected by its name and/or the nature of the business to be involved in hazardous substances handling.

TABLE 4
BORDERING PROPERTIES

LOCATION	PROPERTY USE
North	Vacant land/ business park
South	Vacant land
East	Residential
West	Vacant land

4.0 RECORDS REVIEW

The purpose of the records review is to obtain and review records that would help to evaluate recognized environmental conditions in connection with the site and bordering properties. Kleinfelder reviewed databases available from the Federal, State, and local regulatory lists. This review was performed by VISTA Information Solutions, Inc. (VISTA) of San Diego, California and is summarized below in Table 5. The acronyms used in Table 5 are defined in VISTA's Site Assessment Report in Appendix A.

VISTA utilizes a geographical information system to plot the locations of reported incidents. This information is reviewed by Kleinfelder to help establish if the site or nearby properties have been included on the noted databases and lists. The VISTA report includes a map which shows the locations of the regulated properties with respect to the site (Page 3 of VISTA's report) and a summary of pertinent information for these properties, including the responsible party, the property address, the distance and direction from the site, and the databases and lists on which the property appears (see Pages 6 through 9 of VISTA's report).

Due to lack of sufficient address information, VISTA was unable to map several facilities with reported releases (see Pages 10 through 15 of VISTA's report). Based on Kleinfelder's experience in the area, we established that none of the unmapped properties were within the search distance.

TABLE 5
RECORDS REVIEWED-SEARCH DISTANCE

FEDERAL		STATE	
NPL	1 Mile	SPL	1 Mile
CERCLIS	0.5 Mile	SCL	0.5 Mile
CORRACTS	1-mile	SWIS	0.5 Mile
RCRA-TDS	1 Mile	LUST	0.5 Mile
RCRA-GEN	Site & Bordering	CORTESE	1 Mile
ERNS	Site	UST	Site and Bordering
LOCAL			
LANDFILLS		0.5 Mile	
CONTAMINATED WELLS		0.5 Mile	
REGISTERED UST		Site & bordering	

Project Site

The site was not included on any of the agency databases/lists reviewed for this assessment.

Surrounding Areas

Silver Metal Products at 2150 Kitty Hawk Road, located approximately 0.46 miles east of the site, has had a reported release. According to the information reviewed during this Phase I ESA, this facility was included on the LUST list due to a gasoline leak that has affected the soil but has had case closure.

Livermore Water Plant at 101 Jack London Boulevard, located approximately 0.45 miles east of the site, is listed on the LUST database due to a gasoline leak. Because this LUST site is greater than 2,000 feet from the site, it is unlikely that the gasoline leak has impacted the site.

In addition to the releases noted above, several other releases were reported within the specified search distances. In Kleinfelder's opinion, these releases would be unlikely to impact the site due to their being granted case closure, impacts to soil only, distances from the site and/or locations in a cross to down-gradient direction with respect to expected regional groundwater flow.

5.0 HISTORY OF THE SITE

The history of the site was researched to identify obvious uses of the site back to the first developed use, or 1940, whichever is earlier or more readily available. Aerial photographs earlier than those noted in Table 6 were not readily available during the course of this assessment. Table 6 summarizes the available information that was reviewed during this assessment

TABLE 6
HISTORICAL INFORMATION REVIEWED

	REMARKS	COMMENTS	REVIEWED
AERIAL PHOTOGRAPHS (Source: Pacific Aerial, Oakland, California)	Years Reviewed: 1957, 1959, 1969, 1978, 1988, and 1996 Scales and ID # in References (Section 10)	See discussion below	Yes
FIRE INSURANCE MAPS (Source: VISTA)	No Sanborn Maps produced for the site vicinity	See discussion below	No
HISTORICAL TOPOGRAPHIC MAPS	Years Reviewed: 1904, 1937, 1949, 1960, 1968, and 1973	See discussion below	Yes
CITY/COUNTY BUILDING AND PLANNING DEPARTMENTS	City of Livermore Building and Planning Departments	See discussion below	Yes
LAND USE REPORT	City of Livermore Planning Department	Zoned - I-2 (light industrial)	Yes
COUNTY HEALTH/ CITY FIRE DEPARTMENT	Alameda County Health Care Services Agency/City of Livermore/Pleasanton Fire Department	See discussion below	Yes
COUNTY ASSESSOR'S RECORDS	Alameda County Assessor's Office	APN 904-5-7	Yes
CHAIN-OF-TITLE	Not Provided by Client	See discussion below	No

5.1 AERIAL PHOTOGRAPHS

Project Site

The site was used as agricultural land or was undeveloped land in the 1957 through 1996 aerial photographs. In the 1959 through 1988 photographs, a building was present along the western border of the site. The building had been demolished by the time of the 1996 photographs. The purpose of the building could not be established from the photographs.

Surrounding Areas

The area surrounding the site was vacant in the 1957 through 1969 photographs. The area to the south remained vacant until the 1996 photograph while the area to the east became residential in the 1978 photograph the area to the north became light industrial in the 1996 photograph, and the area to the west became a quarry.

5.2 SANBORN FIRE INSURANCE MAPS

During the course of this assessment, Kleinfelder contacted VISTA for Sanborn Fire Insurance Maps of the site vicinity. These maps were originally produced to show buildings in sufficient detail for insurance underwriters to evaluate risks and establish premiums. At the time of our assessment, no Sanborn Maps had been published for the site vicinity. The lack of Sanborn mapping of the site vicinity suggests that the vicinity was not considered a high population density fire hazard zone.

5.3 HISTORICAL TOPOGRAPHIC MAP REVIEW

Historical 7.5 and 15 Minute Topographic Maps for the Pleasanton and Livermore Quadrangles were reviewed for the years 1904, 1937, 1949, 1960, 1968, and 1973. Copies of the historical topographic maps as well as the most recent topographic map are presented in Appendix B.

The site was mainly undeveloped land in all of the maps. A building was present on the west side of the site in the 1949 through 1973 maps. The purpose of the building could not be established from the maps.

5.4 CITY AND COUNTY PLANNING DEPARTMENT INFORMATION REVIEW

Ms. Newton contacted Ms. Leah Dreger of the City of Livermore Planning/Building Department regarding the history of the site. According to Ms. Dreger, ADT Automotive was interested in purchasing the site in 1998. Ms. Dreger stated that applications for permits had been filed, but ultimately the development project was denied after several reviews and public hearings. After the project was denied for development at the site, Ms. Dreger stated that ADT Automotive was no longer interested in purchasing the site. To the best of Ms. Dreger's knowledge, no environmental concerns were noted in the Environmental Impact Report prepared for the site. Ms. Dreger stated that the file for this site was not available for review as it is currently archived and in the process of being transferred to microfiche.

According to a representative of the City of Livermore Planning Department, the property is currently zoned as I-2 (light industrial).

5.5 COUNTY HEALTH DEPARTMENT/CITY FIRE DEPARTMENT INFORMATION REVIEW

The Alameda County Health Care Services Agency, Hazardous Materials Division (ACHCSA) has files relating to specific addresses. Since there is no address assigned at this time for our site, the ACHCSA had no file.

The Livermore/Pleasanton Fire Department has files relating to specific addresses. Since there is no address assigned at this time for our site, the fire department had no file.

5.6 ALAMEDA COUNTY FLOOD CONTROL AND WATER CONTROL DISTRICT (ZONE 7)

Karen Newton contacted Mr. Wyman Hong of Zone 7 for information on the wells observed on the site (well identification numbers 3S 1E 12H2 and 3S 1E 12J1). Mr. Hong stated well number 3S 1E 12H2 was a groundwater well and was installed on November 24, 1987 to a depth of 85 feet. Mr. Hong also stated that well number 3S 1E 12H2 was destroyed on June 10, 1999. Well number 3S 1E 12J1 was a water supply well and was installed on September 23, 1940 to a depth of 304 feet. The depth to water was measured by Zone 7 on September 20, 1999 and was 134.7 feet.

5.7 CHAIN-OF-TITLE REVIEW

A 50-Year Chain-of-Title or Preliminary Title Report was not provided to Kleinfelder by Gale & Wentworth California for review.

5.8 PREVIOUS REPORTS

At the planning department, a report titled "Phase I Environmental Site Assessment Report, Stanley Boulevard Property, Livermore, California" prepared in June 1998 by Kleinfelder, Inc. was reviewed. According to this report, no significant environmental concerns were noted during the site reconnaissance and historical and regulatory review. In addition, Kleinfelder interviewed Mr. Dan Sarhead of Orchard Properties regarding the history of the site. Orchard Properties was a co-owner of the site until 1997. Mr. Sarhead stated that the structure which appears in the 1959 through 1988 aerial photographs was used as a hay barn.

Kleinfelder also reviewed a report titled "ADT Automotive Golden Gate Auto Auction, Initial Study/Mitigated Negative Declaration" prepared in October 1998 by Brady LSA. According to this report, no significant environmental concerns were noted. This declaration was made according to the conclusions made in the aforementioned Phase I report prepared by Kleinfelder.

6.0 SITE RECONNAISSANCE

Kleinfelder's representative, Ms. Newton, conducted a site reconnaissance on April 20, 2000. The purpose of the site visit was to observe environmental conditions involving the use, storage, disposal and handling of hazardous substances.

The Site Plan (Plate 2) shows the approximate site boundaries and the locations of the items discussed in the following paragraphs. Photographs taken during the site reconnaissance are presented on Plates 3 and 4.

At the time of the site visit, the approximately 178-acre site was undeveloped and covered with grass and other foliage (Plate 3, Photos 1 and 2). No structures were observed on the site.

The Arroyo Mocho flowed through the southwest leg of the site.

Pole mounted transformers were located along the western border of the site and sanitary sewer manholes were located along the eastern border of the site. No evidence of stains or damage was noted on or beneath the transformers.

A water supply well (number 3S 1E 12J1) was located near the center of the site along the eastern border. The area around the well was stained by grease. Zone 7 is currently using the well to measure depth to groundwater.

No obvious evidence of underground or aboveground storage tanks or distressed vegetation was observed on-site.

General site features noted at the time of our assessment are summarized on Table 7.

TABLE 7
SITE RECONNAISSANCE - GENERAL FEATURES

ROADS	Stanley Boulevard to the south and Jack London Boulevard to the north
POTABLE WATER SUPPLY	Site undeveloped
SEWAGE DISPOSAL SYSTEM	Site undeveloped
GENERAL DESCRIPTION OF STRUCTURES	Vacant land

During the site reconnaissance, obvious evidence of recognized environmental conditions in association with the site were noted, and are summarized on Table 8.

TABLE 8 SITE OBSERVATIONS			
	REMARKS	OBSERVED	NOT OBSERVED
INTERIOR AND EXTERIOR OBSERVATIONS			
Current use	Vacant land	X	
Hazardous substances and petroleum products in connection with unidentified uses			X
Storage tanks - above or underground			X
Odors or pools of liquid			X
Drums			X
Hazardous substances and petroleum products containers (not necessarily in connection with identified uses)			X
Unidentified substance containers			X
Electrical Equipment (Possibly polychlorinated biphenyls [PCBs] containing oil)	Pole mounted transformers unlikely to contain PCBs as transformers in area reportedly checked by Pacific Gas & Electric Company (PG&E) and oil replaced, if necessary	X	
Chemical storage or agricultural chemical mixing areas			X
INTERIOR OBSERVATIONS			
Heating/cooling			X
Stains or corrosion			X
Floor drains & sumps			X
Hazardous waste storage			X
Elevators			X
EXTERIOR OBSERVATIONS			
Pits, ponds, or lagoons			X
Stained soil or pavement	Minor staining around water supply well	X	
Stressed vegetation			X
Solid waste			X
Waste water			X
Wells			X
Septic systems			X
Buried or burn debris			X

7.0 INTERVIEWS

The purpose of the interviews is to obtain information suggesting recognized environmental conditions in connection with the site. Table 9 is a summary of the individuals contacted for this information.

TABLE 9
OWNERS AND OCCUPANTS

OWNER	Unknown
KEY SITE MANAGER	No site contact
OCCUPANT	Vacant

Wyman Hong of Zone 7 was contacted regarding permitted water wells located on-site. Mr. Hong stated that the water supply well numbered 3S 1E 12J1 was installed in 1940 and the groundwater monitoring well numbered 3S 1E 12H2 was installed in 1987. Mr. Hong did not know the purpose of the monitoring well, but stated that the well was destroyed in 1999 by the City of Livermore. According to Mr. Hong, the water supply well is currently being used by Zone 7 for depth to water measurements.

Kleinfelder was unable to contact the current owner of the site.

8.0 FINDINGS AND CONCLUSIONS

Kleinfelder performed this Phase I ESA of the subject site in conformance with the scope and limitations of ASTM Standard Practice E1527-97. The purpose of this assessment was to evaluate recognizable environmental concerns associated with the present or past usage, storage or disposal of hazardous substances on-site. The findings of this Phase I ESA and Kleinfelder's recommendations are presented below.

SITE HISTORY

Based on our historical review, the site was previously used for grazing land.

One structure was present on the west side of the site from the late 1950s until the late 1980s, according to topographic maps and aerial photographs.

Two wells were installed on the site in the past, including one groundwater monitoring well installed in 1987 and one water supply well installed in 1940. The groundwater monitoring well was destroyed in 1999. According to the Zone 7 Water Agency, the water supply well is used to monitor groundwater levels in the area of the site.

SITE CONDITIONS

The site was undeveloped and covered with grass at the time of our site visit.

No evidence of the structure previously located on the west side of the site was observed during the site visit.

Arroyo Mocho flows through the southwest leg of the site.

One water well (as noted above) was observed along the eastern border of the site.

Manhole covers were located along the eastern border of the site. These manholes were marked as sanitary sewer covers.

Pole mounted transformers were located along the western border of the site. No evidence of damage or leakage was observed on or beneath these transformers.

There was no evidence uncovered during this Phase I ESA which indicated past or present use, storage, disposal or handling of hazardous substances on-site.

The expected groundwater flow direction in the site vicinity is to the west, following the surface slope.

The site has an elevation of approximately 410 feet above Mean Sea Level (MSL) with a slight surface slope downward to the west.

REGULATORY REVIEW

The site was not included on any of the regulatory databases/lists reviewed during the course of this Phase I ESA.

Silver Metal Products located at 2150 Kitty Hawk Road, east of the site, has had a reported release. According to the information reviewed during this Phase I ESA, this facility was included on the LUST list due to a gasoline leak that has affected the soil but has been granted case closure.

Livermore Water Plant at 101 Jack London Boulevard, located east of the site, is listed on the LUST database due to a gasoline leak. Because this LUST site is greater than 2,000 feet from the site, it is unlikely that the gasoline leak has impacted the site.

CONCLUSIONS AND RECOMMENDATIONS

Pesticides may have been applied to the site and adjacent properties when they were used for hayfields, and it is possible that residual pesticide concentrations are present in the soil. However, it is our understanding that pesticides are generally not applied to hayfields or are applied in low concentrations. Therefore, in Kleinfelder's opinion, residual pesticide concentration in the native soils across the site are not likely to be a significant concern.

Soil and/or groundwater release incidents have been reported in the vicinity of the site. In Kleinfelder's opinion, these incidents are unlikely to impact the project site due to their being granted case closure, impacts to soil only, their distance from the site and/or their location in a down- or cross-gradient direction with respect to assumed regional groundwater flow direction.

In conclusion, no significant environmental concerns were noted during our site reconnaissance and historical and regulatory review. These and other findings are discussed in greater detail in the text of this report.

9.0 LIMITATIONS

The scope of work for this report was intended to provide a limited review of certain information related to the possibility of soil and/or groundwater contamination of the referenced site. This Phase I ESA was not intended to be comprehensive, identify all potential concerns, or eliminate the possibility of acquiring land with some degree of problems.

Our report of findings and recommendations are based on review of limited historical documents and information, regulatory agency communications, interviews, and site reconnaissance.

This document may be used only by Gale & Wentworth California, L.L.C., and only for the purpose stated, within a reasonable time from its issuance. Land use, site and building conditions may change over time. Additional assessment work may be required with the passage of time.

Any party other than Gale & Wentworth California who wishes to use this document shall notify Kleinfelder of such intended use by executing the "Application of Authorization to Use" which follows as Appendix C. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated document be issued. Non-compliance with any of these requirements by the Client or anyone else will release Kleinfelder from any liability resulting from the use of this document by any unauthorized party.

Kleinfelder performed this Phase I ESA in accordance with generally accepted standards of care that existed in Northern California at the time of the assessment. No warranty, expressed or implied, is made.

10.0 REFERENCES

Aerial Photographs: Pacific Aerial

Date	I.D. Number	Scale
05-16-57	AV-253-30-40(41)	1:12,000
05-16-59	AV-329-05-03(04)	1:12,000
05-15-69	AV-903-03-13(14)	1:12,000
05-05-78	AV-1498-03-14(15)	1:36,000
08-18-88	AV-3268-28-39(40)	1:12,000
07-31-96	AV-5200-31-38(39)	1:12,000

Brady LSA, 1998, *ADT Automotive Golden Gate Auto Auction, Initial Study/Mitigated Negative Declaration"*

California Division of Mines and Geology, 1969, Geologic Atlas of California

Munger Map Book, *California-Alaska Oil and Gas Fields,* 1993

Norris and Webb, 1990, *Geology of California*, Second Edition.. New York, New York, John Wiley & Sons..

Kleinfelder, Inc., June 22, 1998, *Phase I Environmental Site Assessment Report Stanley Boulevard Property, Livermore, California*

United States Department of Agriculture, Soil Conservation Service, 1966, *Soils of Alameda Area, California*

United States Geological Survey, 1904, Pleasanton Quadrangle 15 Minute Topographic Map

United States Geological Survey, 1937, Pleasanton Quadrangle 15 Minute Topographic Map

United States Geological Survey, 1949, Livermore Quadrangle 7.5 Minute Topographic Map

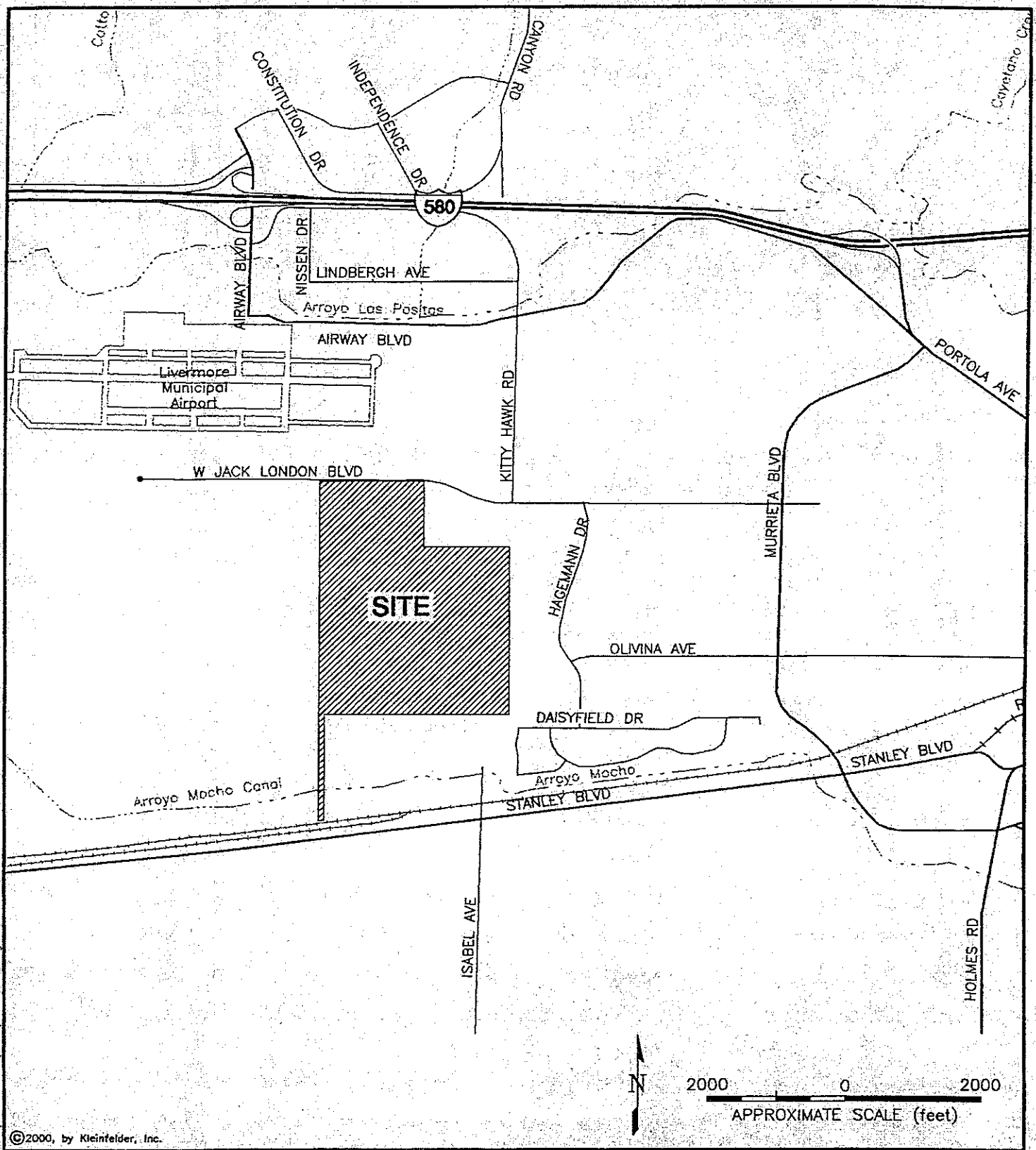
United States Geological Survey, 1960, Livermore Quadrangle 7.5 Minute Topographic Map

United States Geological Survey, 1968, Livermore Quadrangle 7.5 Minute Topographic Map

United States Geological Survey, 1973, Livermore Quadrangle 7.5 Minute Topographic Map

United States Geological Survey, 1961 (photorevised 1980) Livermore Quadrangle 7.5 Minute Topographic Map

VISTA Information Solutions, Inc., Site Assessment Report, April 17, 2000



KLEINFELDER

DRAFTED BY: L. Sue	DATE: 4-26-00
CHECKED BY: K. Newton	DATE: 4-26-00

SITE VICINITY MAP

JACK LONDON ROAD PROPERTY
LIVERMORE, CALIFORNIA

PROJECT NO. 10-301165-ESA

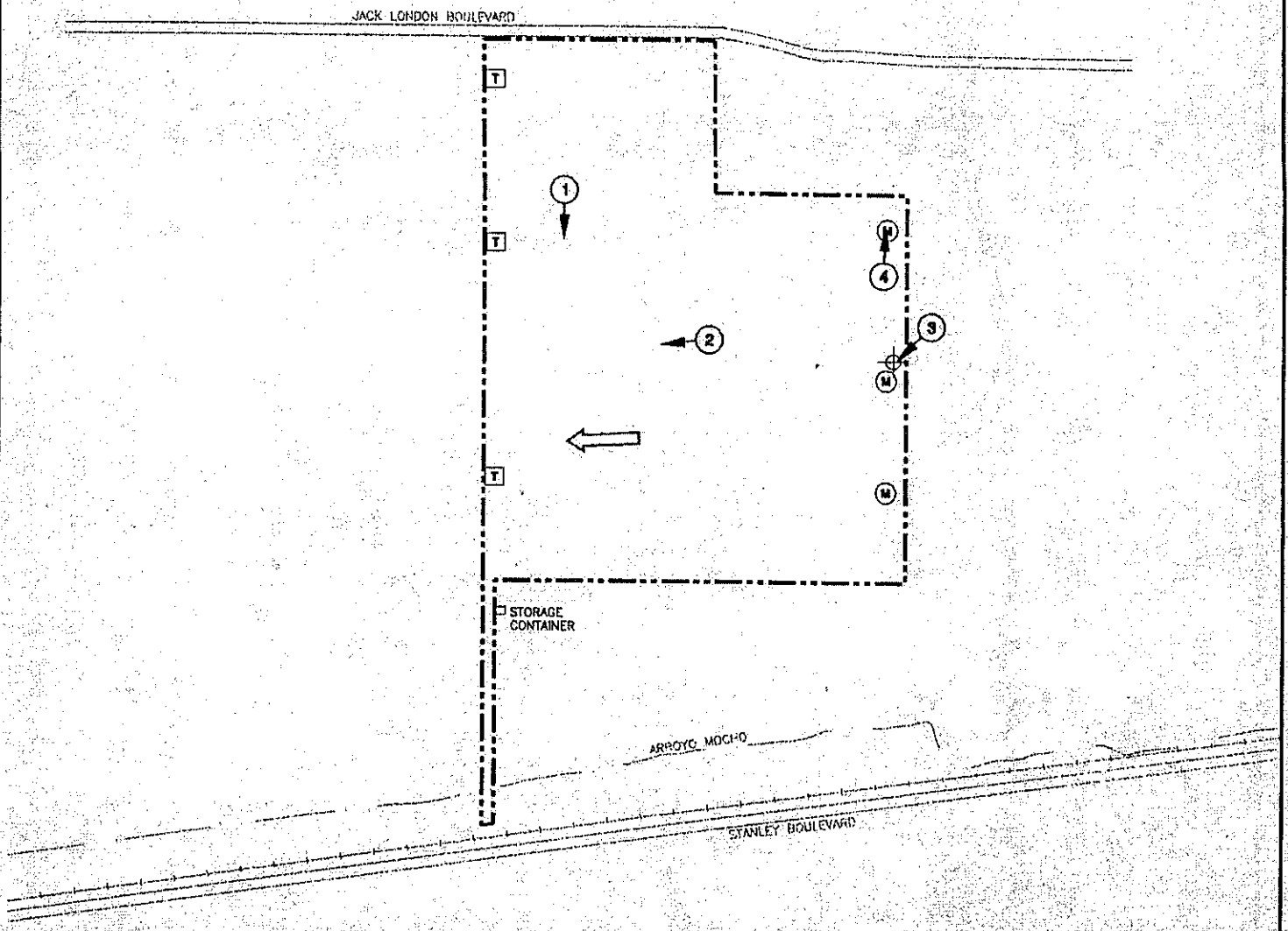
PLATE 1

CAD FILE: C:_KA-PROJ\PLEAS\10301165\ESA\SITE-VIC.dwg

LEGEND

- PROPERTY BOUNDARY
- RAILROAD TRACKS
- WATER SUPPLY WELL
- (M) MANHOLE
- [T] TRANSFORMER
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW (based on surface topography)
- (1) LOCATION, NUMBER AND VIEW DIRECTION OF PHOTOGRAPH

NOTE: Locations are approximate.



N

1000 0 1000

APPROXIMATE SCALE (feet)

KLEINFELDER

DRAFTED BY: L. Sue	DATE: 4-26-00
CHECKED BY: K. Newton	DATE: 4-26-00

SITE PLAN

JACK LONDON ROAD PROPERTY
LIVERMORE, CALIFORNIA

PROJECT NO. 10-301165-ESA

PLATE 2

CAD FILE: C:_KA-PROJ\PLEAS\10301165\ESA\SITEPLAN.dwg

Photo 1. Subject site.

Photo 2. Subject site with pole-mounted transformer in the background.

KLEINFELDER

SITE RECONNAISSANCE PHOTOGRAPHS: APRIL 20, 2000

PLATE 3

DRAFTED BY: L. Sue	DATE: 4-26-00	JACK LONDON ROAD PROPERTY LIVERMORE, CALIFORNIA
CHECKED BY: K. Newton	DATE: 4-26-00	PROJECT NO. 10-301165-ESA

DWG FILE: C:_PROJECTS\10301165\ESA\PHOTOS.dwg

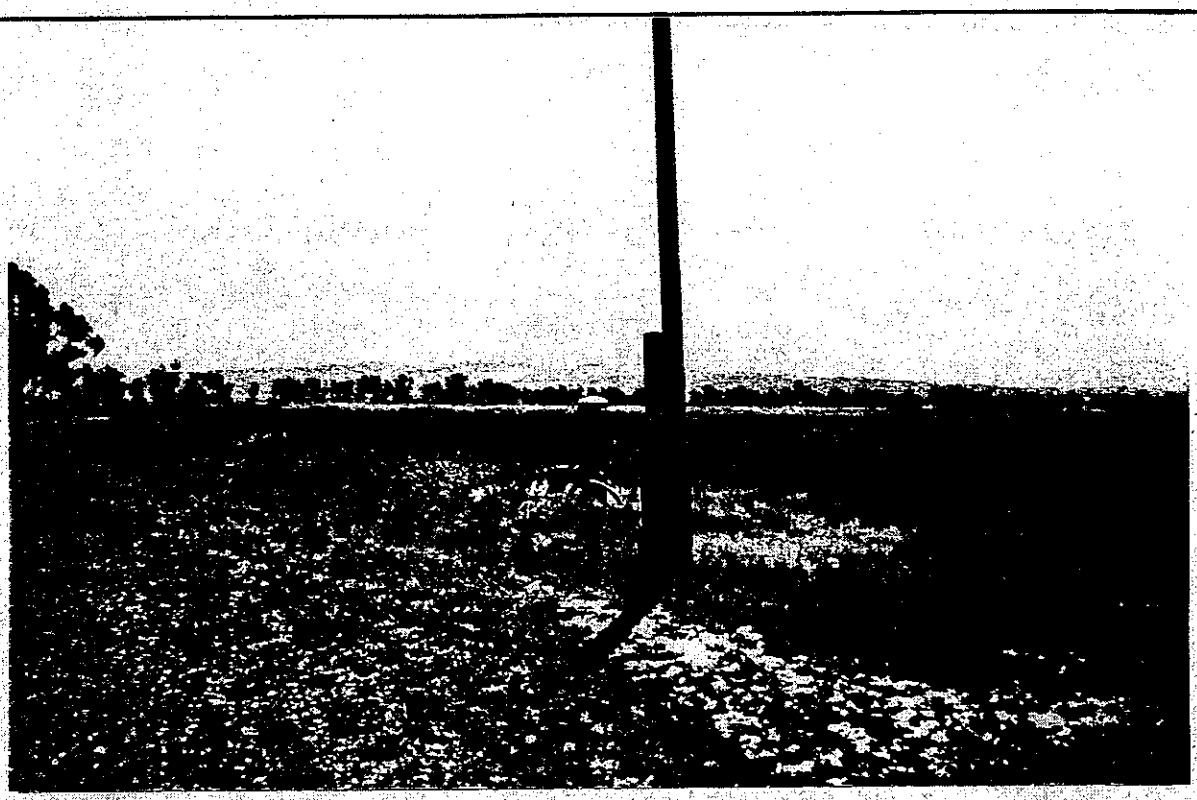


Photo 3. Water production well.

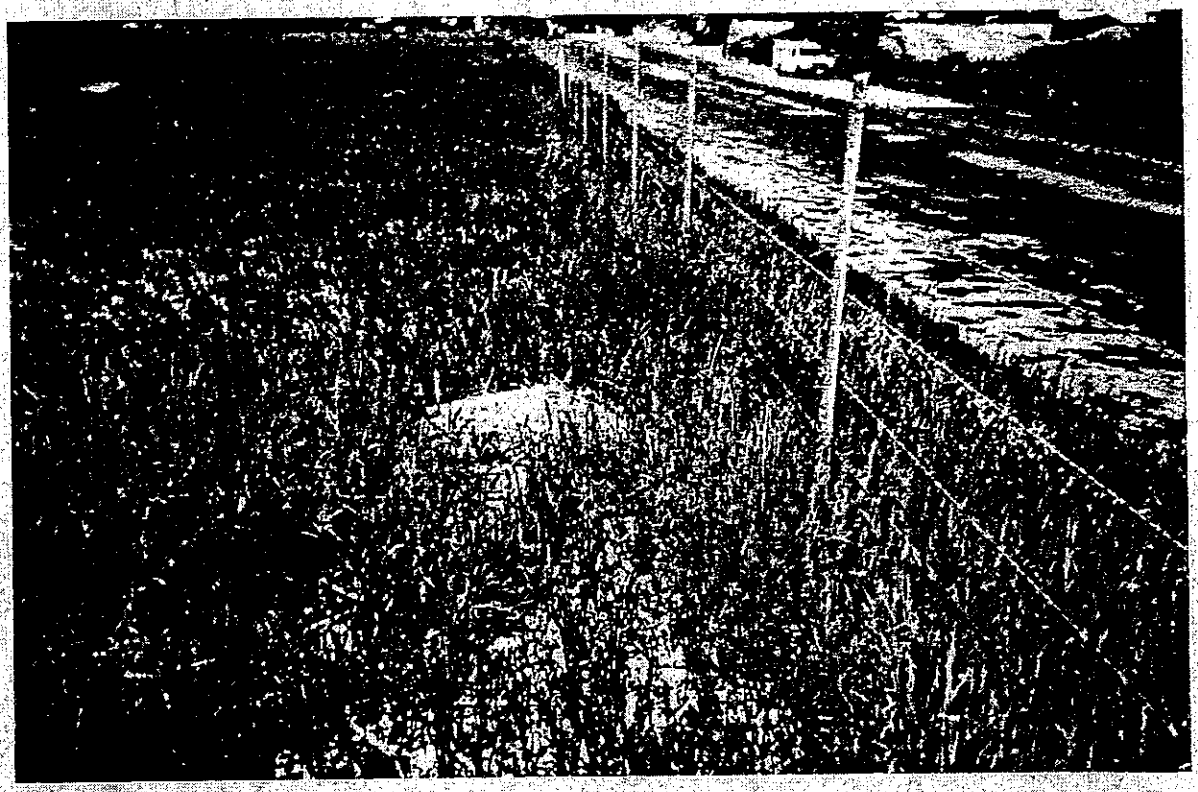


Photo 4. Manhole cover.

KLEINFELDER

DRAFTED BY: L. Sue	DATE: 4-26-00	
CHECKED BY: K. Newton	DATE: 4-26-00	

SITE RECONNAISSANCE PHOTOGRAPHS: APRIL 20, 2000

JACK LONDON ROAD PROPERTY
LIVERMORE, CALIFORNIA

PROJECT NO. 10-301165-ESA

PLATE

4

CAD FILE: C:_PROJECTS\10301165\ESA\PHOTOS.dwg

SITE ASSESSMENT REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Not Provided Jack London Road Property West Jack London Boulevard Livermore, CA Latitude/Longitude: (37.689568, 121.814421)	Karen Newton Kleinfelder 7133 Koll Center Parkway, Suit Pleasanton, CA 94566

Site Distribution Summary Agency / Database - Type of Records			*within 1/8 mile*	*1/8 to 1/4 mile*	*1/4 to 1/2 mile*	*1/2 to 1 mile*
A) Databases searched to 1 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS (TSD)	RCRA Corrective Actions and associated TSD	0	0	0	0
STATE	SPL	State equivalent priority list	0	0	0	0
B) Databases searched to 1/2 mile:						
STATE	SCL	State equivalent CERCLIS list	0	0	0	-
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	0	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE	LUST	Leaking Underground Storage Tanks	0	0	2	-
STATE	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
C) Databases searched to 1/4 mile:						
STATE	UST	Registered underground storage tanks	0	0	-	-
STATE	AST	Registered aboveground storage tanks	0	0	-	-

NOTES

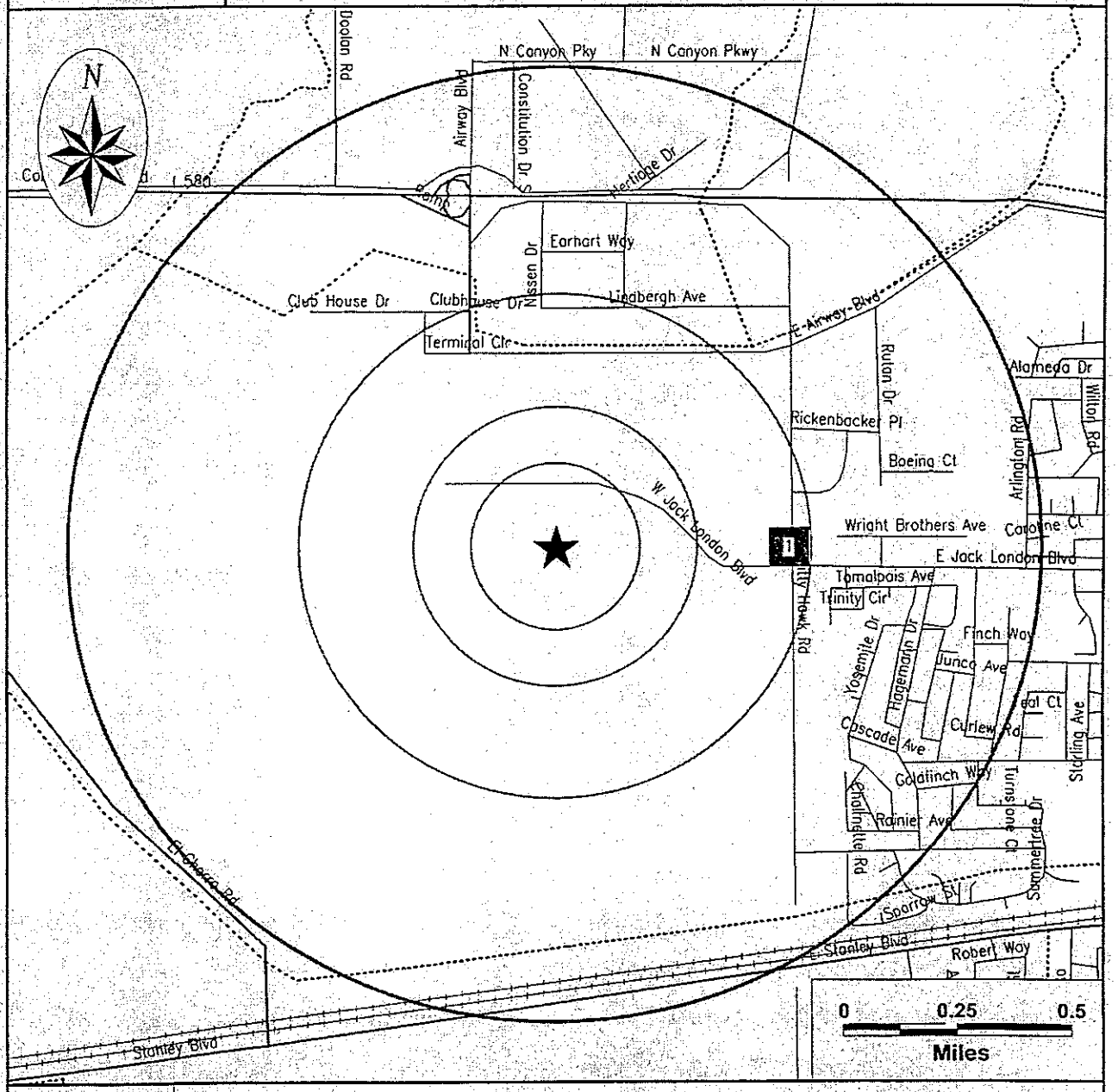
Site Distribution Summary Agency / Database - Type of Records			within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile
D) Databases searched to 1/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	LG GEN	RCRA registered large generators of hazardous waste	0	-	-	-
US EPA	SM GEN	RCRA registered small generators of hazardous waste	0	-	-	-
STATE	SPILLS	State spills list	0	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

NOTES

SITE ASSESSMENT REPORT

Map of Sites within 1 Mile



Subject Site	Category: / Databases Searched to:	A 1 mi.	B 1/2 mi.	C 1/4 mi.	D 1/8 mi.
★	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

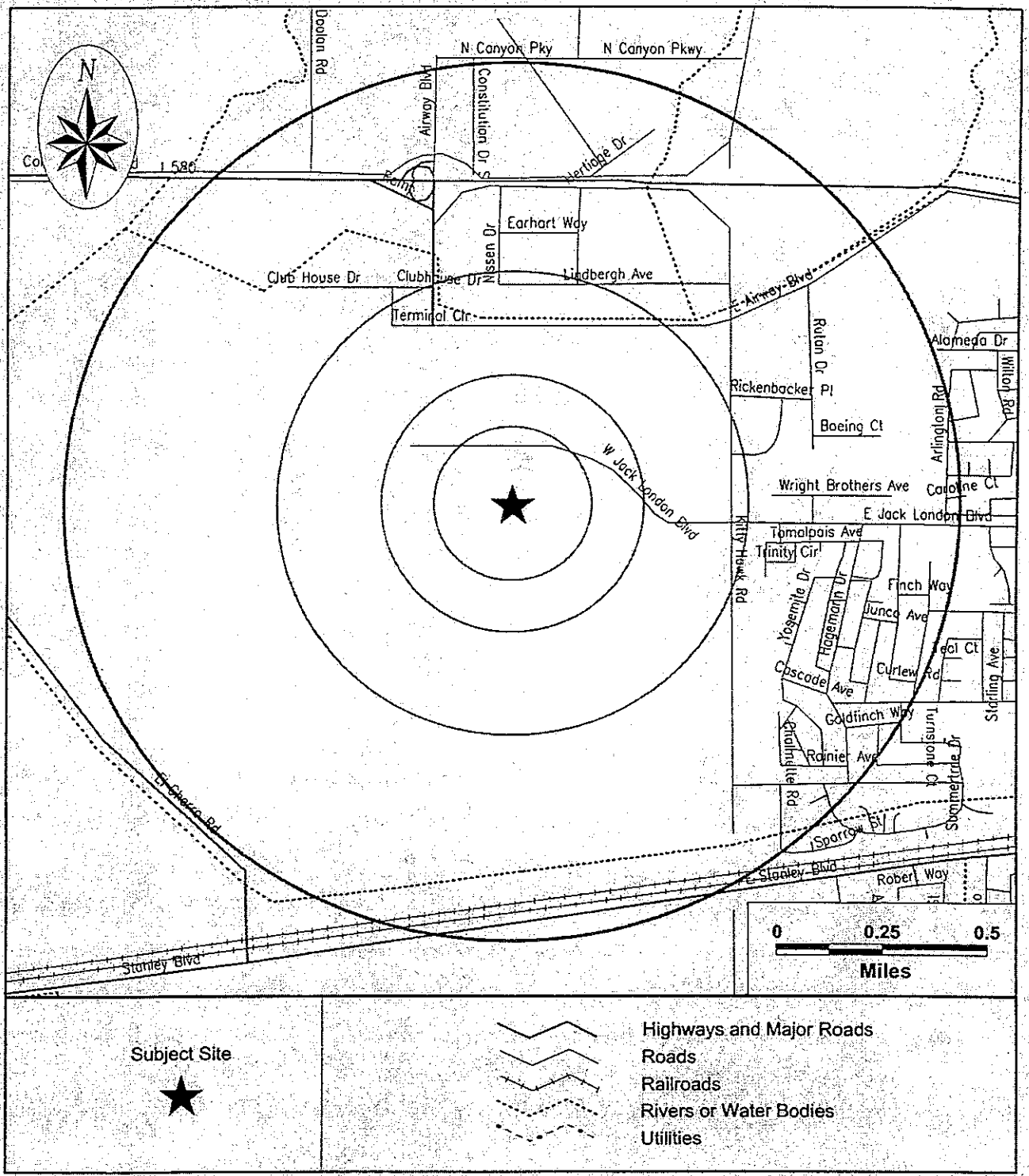
For More Information Call VISTA Information Solutions, Inc. at **1 - 800 - 767 - 0403**

Report ID: **497601901**

Date of Report: **April 17, 2000**

SITE ASSESSMENT REPORT

Street Map



SITE ASSESSMENT REPORT

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	A			B					C		D			
	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS(TSD)	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	AST	ERNS	LG GEN	SM GEN	SPILLS
No Records Found															

MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	A			B					C		D			
	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS(TSD)	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	AST	ERNS	LG GEN	SM GEN	SPILLS
No Records Found															

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	A			B					C		D			
	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS(TSD)	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	AST	ERNS	LG GEN	SM GEN	SPILLS
1	LIVERMORE WATER PLANT 101 JACK LONDON BLVD LIVERMORE, CA 94550 12639773 / 0.45 MI / E							X							
1	SILVER METAL PRODUCTS INC 2150 KITTYHAWK ROAD LIVERMORE, CA 94550 1594203 / 0.46 MI / E							X		•					

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)	A			B					C		D			
	VISTA ID / DISTANCE / DIRECTION	NPL	CORRACTS(TSD)	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	AST	ERNS	LG GEN	SM GEN	SPILLS
No Records Found															

UNMAPPED SITES	VISTA ID	A			B					C		D			
		NPL	CORRACTS(TSD)	SPL	SCL	CERCLIS/NFRAP	TSD	LUST	SWLF	UST	AST	ERNS	LG GEN	SM GEN	SPILLS
MT HAMILTON ROADS YARD 11315 DEL PUERTO RD LIVERMORE, CA	7291303							X							X
LAGUNA OAKS PROPERTY UNKNOWN FOOTHILL BLVD PLEASANTON, CA 94566	64542705							X							

SITE ASSESSMENT REPORT

DETAILS

PROPERTY AND THE ADJACENT AREA (within 1/8 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)

VISTA Address*:	**LIVERMORE WATER PLANT** **101 JACK LONDON BLVD** **LIVERMORE, CA 94550**	VISTA ID#: Distance/Direction: Plotted as:	12639773 0.45 MI / E Point	Map ID **1**
STATE LUST - State Leaking Underground Storage Tank / SRC# 164		Agency ID:	01-1741	

Agency Address:	*SAME AS ABOVE*
Facility ID:	*01-1741*
Leak Report Date:	*5/14/1993*
Substance:	*GASOLINE*
Remediation Event:	*NO ACTION TAKEN*
Remediation Status:	*PRELIMINARY SITE ASSESSMENT UNDERWAY*
Media Affected:	*OTHER*
Lead Agency:	*LOCAL AGENCY*
Region / District:	*SAN FRANCISCO BAY RE*
Description / Comment:	*COUNTY: ALAMEDA*
Description / Comment:	*XSTREET:*
Description / Comment:	*REVIEW DATE: 10/28/1998*

VISTA Address*:	**SILVER METAL PRODUCTS INC** **2150 KITTYHAWK ROAD** **LIVERMORE, CA 94550**	VISTA ID#: Distance/Direction: Plotted as:	1594203 0.46 MI / E Point	Map ID **1**
STATE LUST - State Leaking Underground Storage Tank / SRC# 164		Agency ID:	01-1391	

Agency Address:	*SILVER METAL PRODUCTS* *2150 KITTY HAWK RD* *LIVERMORE, CA 94550*
Facility ID:	*01-1391*
Leak Report Date:	*12/7/1990*
Case Closed Date:	*12/19/1990*
Substance:	*UNLEADED GASOLINE*
Remediation Event:	*NO ACTION TAKEN*

SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.	
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*
Lead Agency:	*LOCAL AGENCY*
Region / District:	*SAN FRANCISCO BAY RE*
Description / Comment:	*COUNTY: ALAMEDA*
Description / Comment:	*XSTREET:*
Description / Comment:	*REVIEW DATE: 1/17/1991*

SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)
No Records Found

UNMAPPED SITES

VISTA Address*:	MT HAMILTON ROADS YARD 11315 DEL PUERTO RD LIVERMORE, CA	VISTA ID#:	7291303

STATE LUST - State Leaking Underground Storage Tank / SRC# 164	Agency ID:	43-1237

Agency Address:	SCVTA MT HAMILTON ROADS YARD 11315 DEL PUERTO RD UNKNOWN, CA 94550
Facility ID:	43-1237
Leak Report Date:	3/6/1990
Case Closed Date:	1/4/1996
Substance:	GASOLINE
Remediation Status:	CASE CLOSED
Media Affected:	SOIL ONLY
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: SANTA CLARA
Description / Comment:	XSTREET:
Description / Comment:	REVIEW DATE: 7/30/1992

VISTA Address*:	LAGUNA OAKS PROPERTY UNKNOWN FOOTHILL BLVD PLEASANTON, CA 94566	VISTA ID#:	64542705

STATE LUST - State Leaking Underground Storage Tank / SRC# 164	Agency ID:	01-0874

Agency Address:	SAME AS ABOVE
Facility ID:	01-0874
Leak Report Date:	12/7/1989
Site Assessment Began:	3/1/1991
Case Closed Date:	8/1/1994
Substance:	WASTE OIL
Remediation Event:	NO ACTION TAKEN
Remediation Status:	CASE CLOSED
Media Affected:	OTHER
Lead Agency:	LOCAL AGENCY
Region / District:	SAN FRANCISCO BAY RE
Description / Comment:	COUNTY: ALAMEDA
Description / Comment:	XSTREET:
Description / Comment:	REVIEW DATE: 8/1/1994

SITE ASSESSMENT REPORT

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 MILE

NPL
SRC#: 19

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for NPL was January, 2000.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 113

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was October, 1999.

This database is provided by the Cal. Environmental Protection Agency, Dept. of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

CORRACTS
SRC#: 14

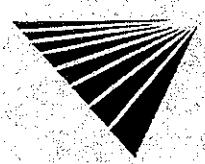
VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for HWDMS/RCRIS was December, 1999.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

RCRA-Tsd Corracts
SRC#: 556

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for HWDMS/RCRIS was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste.



B) DATABASES SEARCHED TO 1/2 MILE

CERCLIS
SRC#: 17

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS was October, 1999.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List(NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activiies or events at the site, financial funding information for the events, and unrestricted enforcement activities.

NFRAP
SRC#: 18

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS-NFRAP was October, 1999.

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

SCL
SRC#: 112

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was October, 1999.

This database is provided by the Department of Toxic Substances Control. The agency may be contacted at: .

The CalSites database includes both known and potential sites. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

RCRA-TSD
SRC#: 12

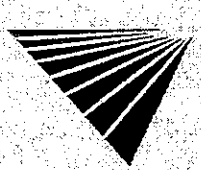
VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for HWDMS/RCRIS was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

SWLF
SRC#: 70

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for City of Los Angeles Landfills was April, 1999.

This database is provided by the City of Los Angeles, Environmental Affais Department. The agency may be contacted at: 213-580-1070.



SWLF
SRC#: 163

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Ca Solid Waste Information System (SWIS) was November, 1999.**

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

The California Solid Waste Information System (SWIS) database consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies.

LUST RG6
SRC#: 108

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Lahontan Region LUST List was August, 1999.**

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.

LUST RG5
SRC#: 145

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #5-Central Valley Undergound Tank Tracking System was September, 1999.**

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3125.

LUST
SRC#: 164

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Lust Information System (LUSTIS) was January, 2000.**

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-445-6532.

LUST RG2
SRC#: 853

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region #2-San Francisco Bay Fuel Leaks List was January, 2000.**

This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

C) DATABASES SEARCHED TO 1/4 MILE

UST's
SRC#: 45

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Underground Storage Tank Registrations Database was January, 1994.**

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. The agency may be contacted at: 916-227-4364. Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 57

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for Alameda County UST List was January, 2000.**

This database is provided by the Department of Environmental Health. The agency may be contacted at: 510-567-6700; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 62

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of San Leandro UST Listing was January, 2000.**

This database is provided by the San Leandro Fire Department. The agency may be contacted at: 510-577-3331; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 80

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Union Underground Storage Tanks List was July, 1999.**

This database is provided by the Union City Fire Department. The agency may be contacted at: 510-471-1424; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 92

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Oakland Underground Storage Tank List was April, 1999.**

This database is provided by the City of Oaklan Fire Department, Office of Emergency Services. The agency may be contacted at: 510-238-3938; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 127

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Berkeley UST List was August, 1999.**

This database is provided by the City of Berkeley. The agency may be contacted at: 510-705-8152; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 149

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Hayward UST Report was September, 1999.**

This database is provided by the City of Hayward Fire Department. The agency may be contacted at: 510-583-4900; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 155

VISTA conducts a database search to identify all sites within 1/4 mile of your property. **The agency release date for City of Livermore and City of Pleasanton UST List was October, 1999.**

This database is provided by the City of Livermore Fire Department. The agency may be contacted at: 925-454-2361; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's
SRC#: 60

VISTA conducts a database search to identify all sites within 1/4 mile of your property.
The agency release date for Aboveground Storage Tank Database was December, 1999.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

D) DATABASES SEARCHED TO 1/8 MILE

ERNS
SRC#: 8

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for was August, 1999.

The Emergency Response Notification System (ERNS) is a national database containing records from October 1986 to the release date above and is used to collect information for reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of Transportation. The ERNS hotline number is (202) 260-2342.

RCRA-LgGen
SRC#: 16

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for HWDMS/RCRIS was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRA-SmGen
SRC#: 15

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for HWDMS/RCRIS was December, 1999.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

SPILL
SRC#: 106

VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for Region #2-North and South Bay SLIC Report was November, 1999.

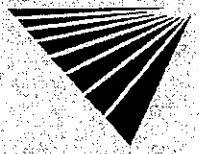
This database is provided by the Regional Water Quality Control Board, Region #2. The agency may be contacted at: 510-286-1269.

SPILL
SRC#: 147

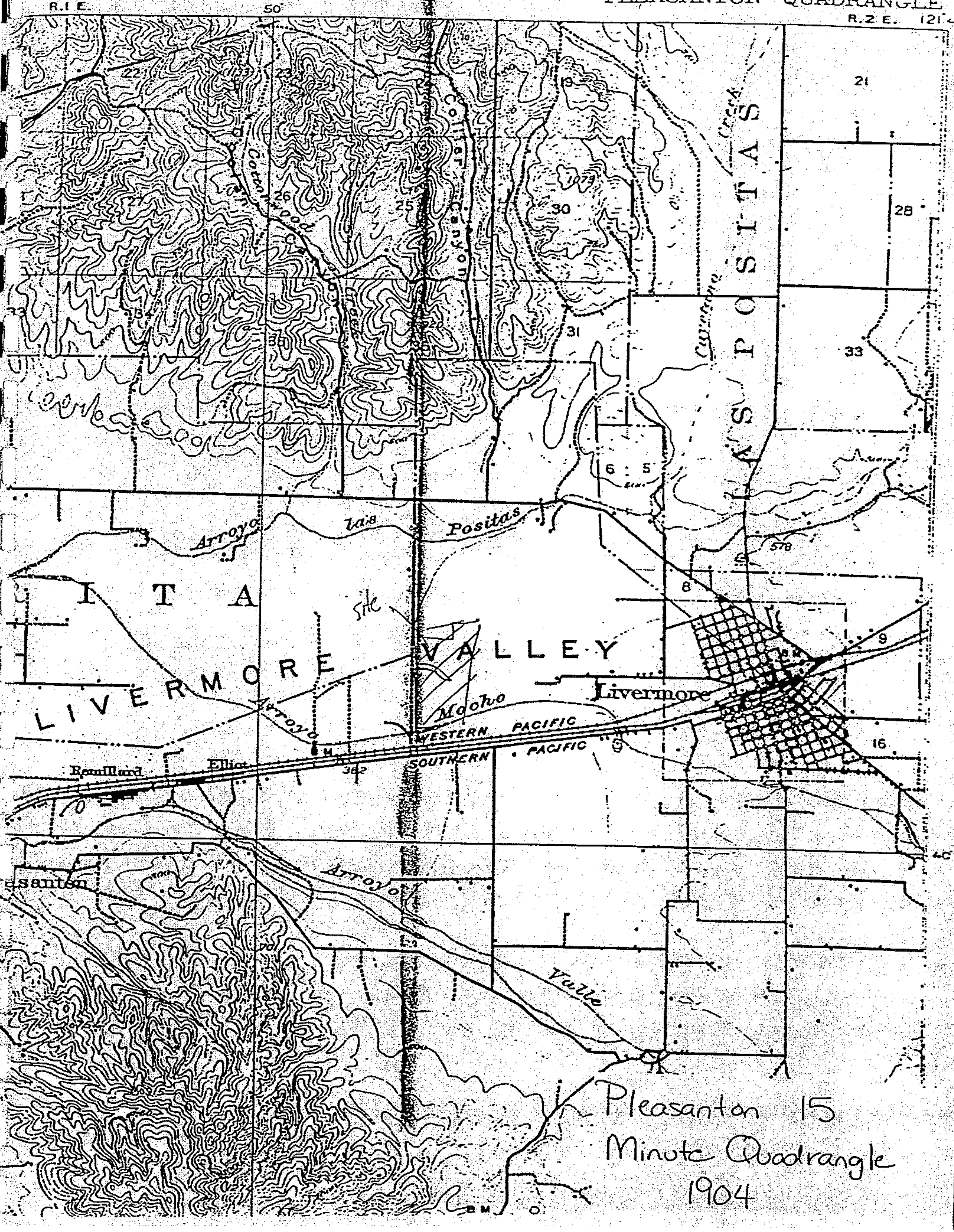
VISTA conducts a database search to identify all sites within 1/8 mile of your property.
The agency release date for Region #5-Central Valley SLIC\DOD\DOE List was September, 1999.

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3000.

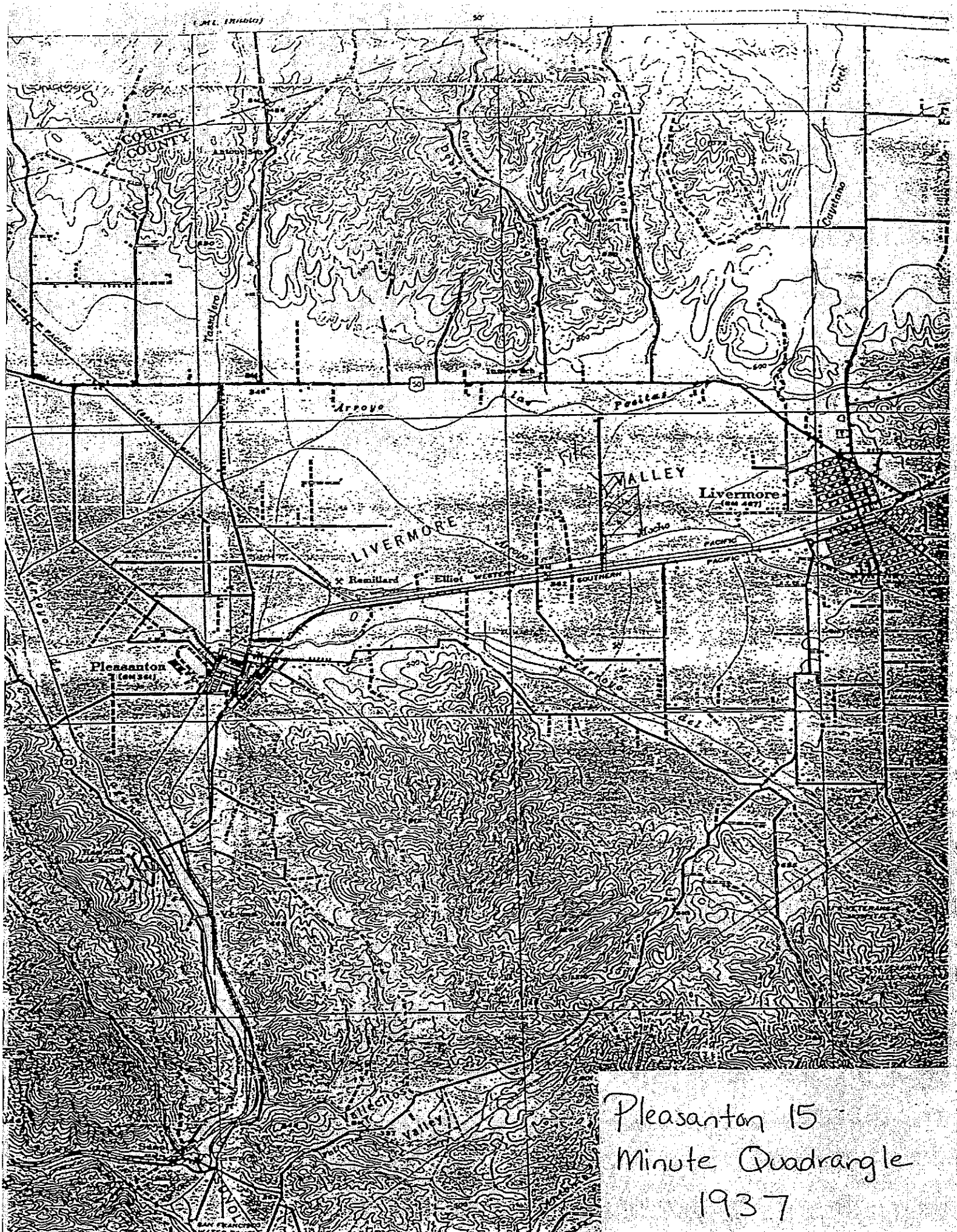
End of Report



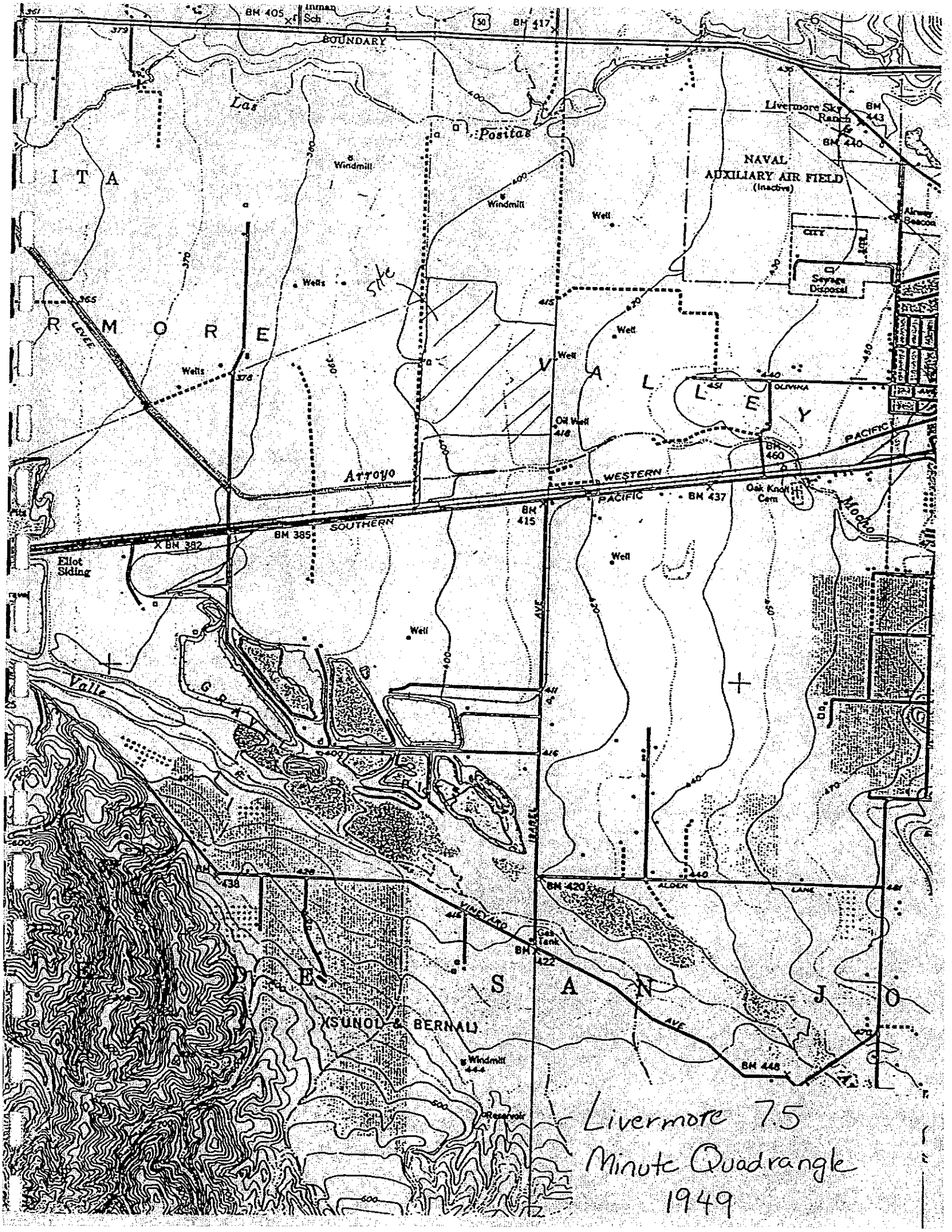
CALIFORNIA
PLEASANTON QUADRANGLE



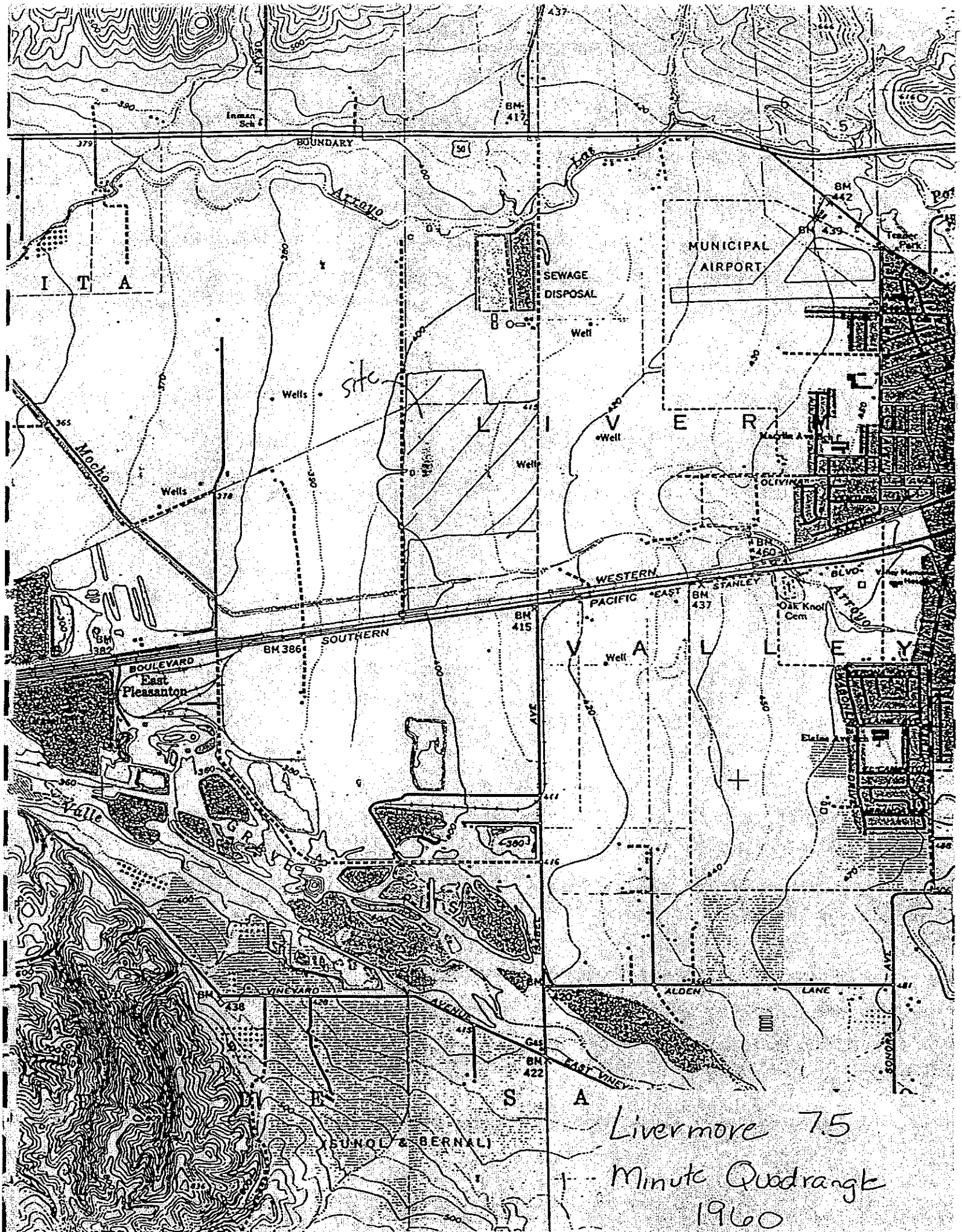
Pleasanton 15 Minute Quadrangle 1904



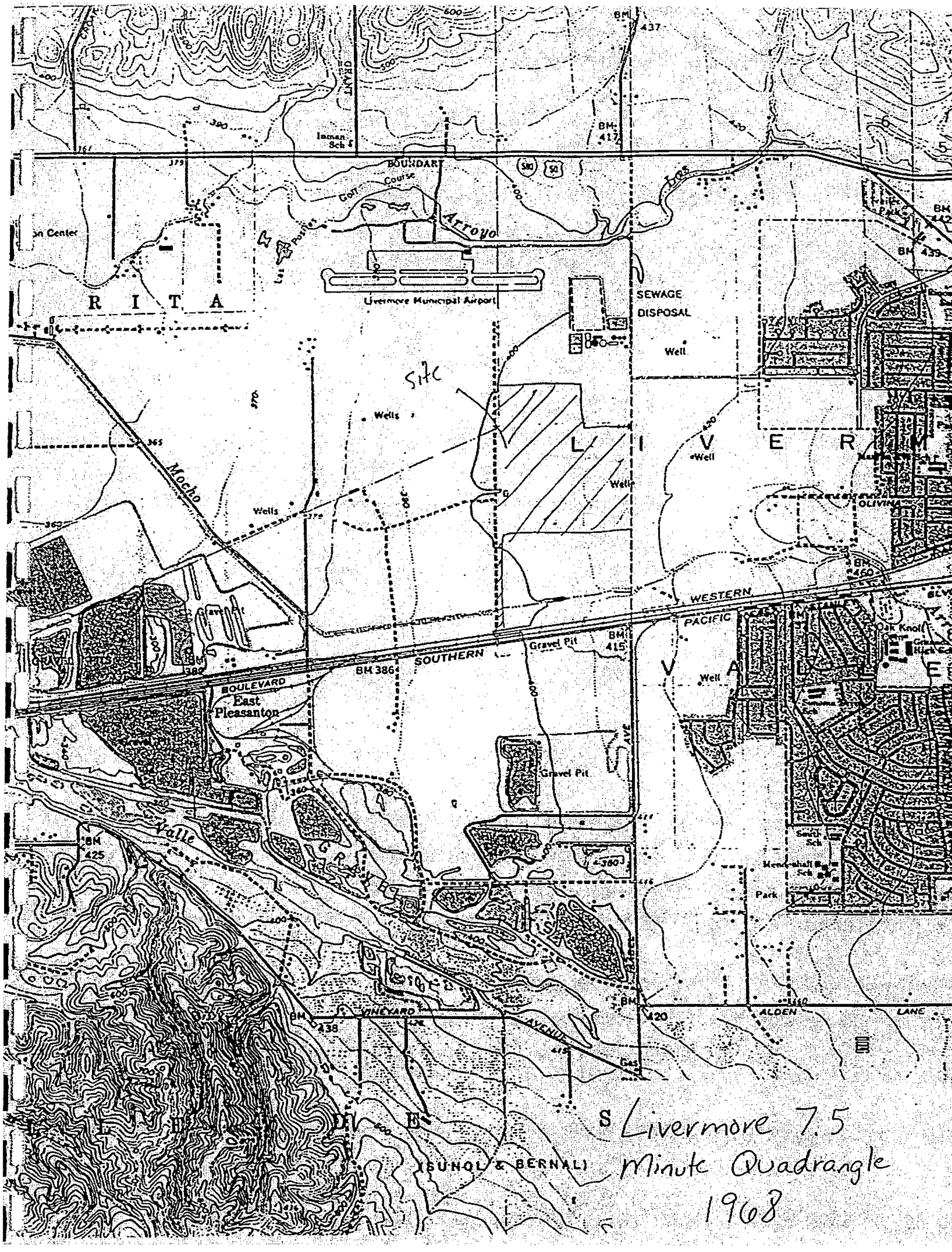
Pleasanton 15 Minute Quadrangle 1937



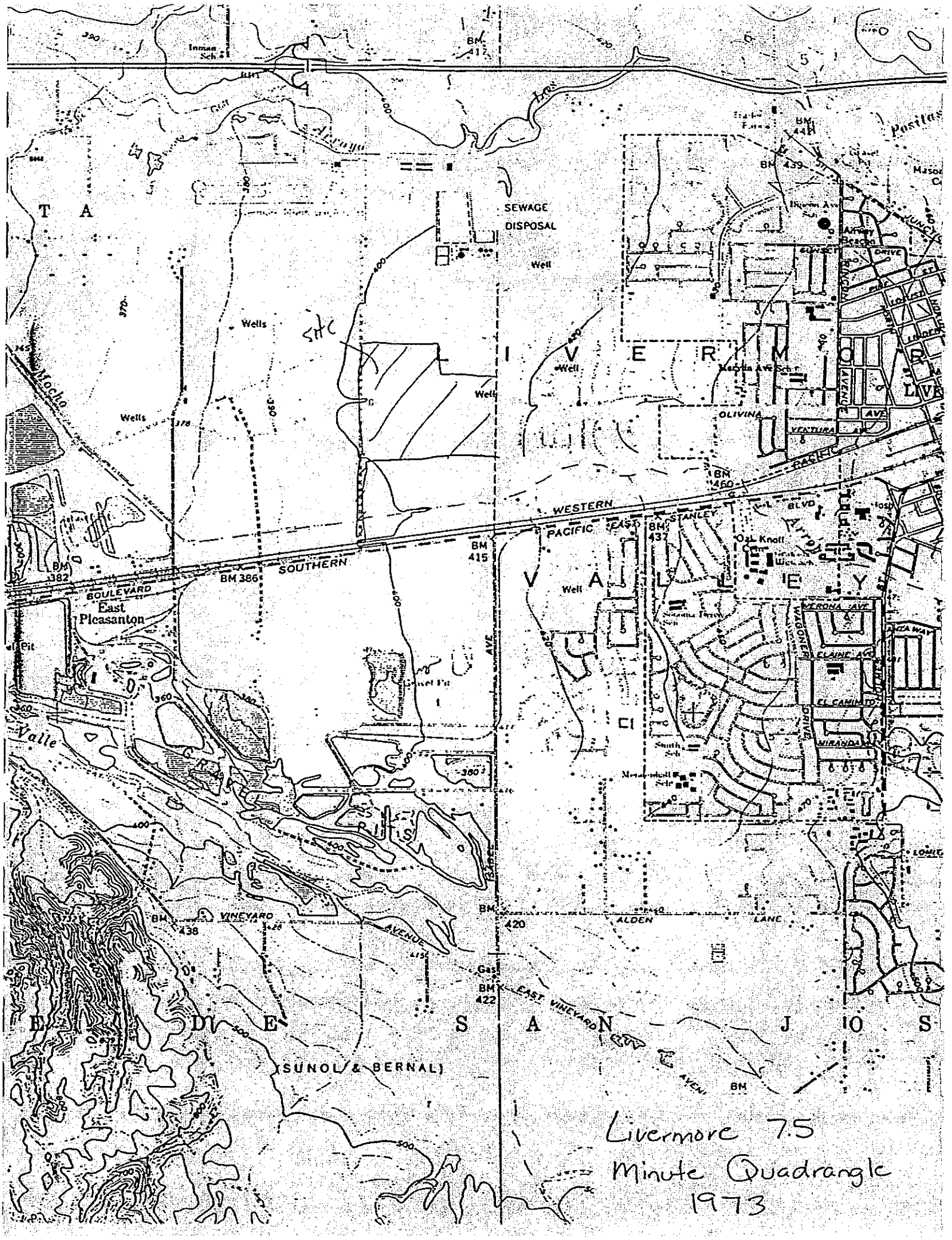
Livermore 7.5 Minute Quadrangle 1949

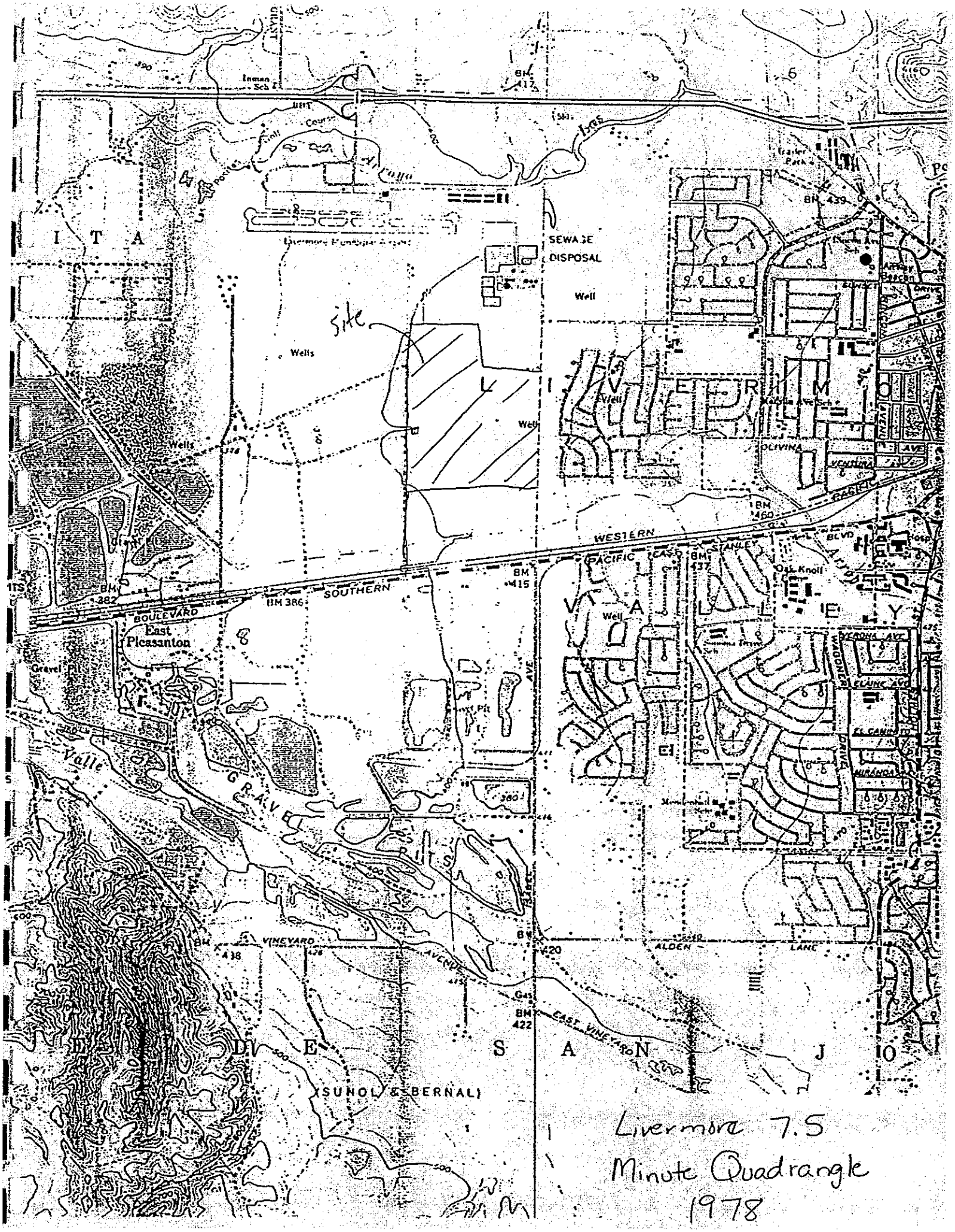


Livermore 7.5 Minute Quadrangle 1960



Livermore 7.5 Minute Quadrangle 1968


SEWAGE
DISPOSAL
Well
Wells
site
LIVERMORE
VALLEY
East
Pleasanton
SUNOL & BERNAL)
Livermore 7.5
Minute Quadrangle
1973



Livermore 7.5 Minute Quadrangle 1978

APPLICATION FOR AUTHORIZATION TO USE

Phase I Environmental Site Assessment Report
Jack London Road Property
Livermore, California

File Number: 10-3011-65 Report Date: April 27, 2000

Kleinfelder, Inc.
7133 Koll Center Parkway, Suite 100
Pleasanton, California 94566
Telephone: (925) 484-1700
FAX: (925) 484-5838

To whom it may concern:

Applicant understands and agrees that the Phase I Environmental Site Assessment (ESA) for the site is a copyrighted document, that Kleinfelder, Inc. is the copyright owner and that unauthorized use or copying of the Phase I ESA for the site is strictly prohibited without the express written permission of Kleinfelder, Inc. Applicant understands that Kleinfelder, Inc. may withhold such permission at its sole discretion, or grant permission upon such terms and conditions as it deems acceptable.

Applicant agrees to accept the contractual terms and conditions between Kleinfelder, Inc. and Gale & Wentworth California, L.L.C.. originally negotiated for preparation of this Phase I ESA. Use of this Phase I ESA releases Kleinfelder, Inc. from any liability that may arise from use of this report.

To be Completed by Applicant

_____ By: _____
(company name) *(Print Name)*

_____ _____
(address) *(Signature)*

_____ Title: _____
(city, state, zip)

_____ _____ Date: _____
(telephone) *(FAX)*

Approval of Original Client

By: _____ Date: _____
(Print Name)

_____
(Signature)

For Kleinfelder, Inc.'s use only

_____ approved for re-use with additional fee of $_____
_____ approved for re-use with applicant's agreement to following conditions:
Applicant agrees to above terms and understands that findings discussed in report were based on available information and site conditions as noted at time of ESA.
_____ disapproved, report needs to be updated

By: _____ Date: _____
(Kleinfelder, Inc. Project Manager)

APPENDIX L

Draft Planned Development Standards

Gale and Wentworth, LLC, *Draft Planned Development Standards, Planned Development – Industrial 01-003,* September 15, 2003.

DRAFT

PLANNED DEVELOPMENT STANDARDS
Planned Development – Industrial 01-003

Prepared: September 15, 2003

Purpose: The purpose of establishing this Planned Development-Industrial (PD-I 01-003) district is to regulate the development of 178+/- acres of land located southwest of the intersection of Jack London Boulevard and Isabel Avenue, as shown in the attached figure (Figure 1). The intent of this district is to accomplish the following:

1. PD-I 01-003 is intended to provide an environment exclusively for and conducive to the development and protection of modern professional and administrative facilities, research institutions, manufacturing operations and related uses, all of a non-nuisance type.

2. The district is intended to provide for an aesthetically attractive working environment with park- and/or campus-like grounds, attractive buildings, employee parking and other amenities appropriate to a mix of office and industrial uses.

3. The district is intended to establish development standards and regulations consistent with the intent of the low intensity industrial General Plan designation.

4. Development shall be in conformance with the requirements of the Zoning Ordinance as it exists now or may be amended in the future except as modified by the following regulations:

A. Principal Permitted Uses

The following are the principal permitted uses:

1. Research and development facilities.
2. Professional and administrative offices.
3. Experimental and testing laboratories.
4. Manufacture of electric and electronic circuits, instruments and devices.
5. Manufacture of pharmaceutical products.
6. Restaurants, except fast food.
7. Warehousing and distribution facilities.
8. Vocational schools, music, dance, gymnastics and martial arts schools.
9. Manufacturing, assembly, processing, storage, or packaging of products from previously prepared materials such as, but not limited to, cloth, plastic, paper, leather, and precious or semi-precious metals or stones, <u>but not including the following</u>:
   A. Operations such as saw and planing mills, any manufacturing uses involving primary production of wood, metal, or chemical products from raw materials, and similar uses.

B. Uses manufacturing, processing, storing or packaging chemicals, petroleum, heavy agricultural products or other hazardous materials.
C. Vehicle dismantling yards, scrap and waste yards.

10. The uses identified in Section .A.10.A below, provided they comply with the restrictions outlined in Section A.10.B.

    A. Permitted Uses:
        1. Sales and showrooms for heavy equipment and construction related vehicles and equipment, including associated repair, service and parts distribution facilities.
        2. Public Transportation Center and associated vehicle maintenance and storage.

    B. Requirements:
        1. Uses shall be designed and integrated into the site in a manner that maintains the corporate and professional character of the Oaks Business Park.
        2. Uses shall be located a distance of at least 500 feet from Isabel Avenue and Jack London Boulevard.
        3. Outdoor service and storage yards shall be screened from public view by landscape screening and a solid wall with a minimum height of six feet and a maximum height of 8 feet.

B. Accessory Uses

The following are the accessory uses permitted:

1. Signs complying with the regulations established through PD-I 01-003 (See Section G, below).
2. Accessory uses and buildings customarily appurtenant to a permitted use.
3. Living quarters determined by the zoning administrator to be necessary for surveillance purposes.
4. Off-street parking and loading spaces in accordance with Chapter 3-20 LPZC, as it exists now or may be amended in the future.

C. Conditional Uses

The following uses are permitted subject to conditional use permit approval in addition to any other prerequisite permits and conformance to all applicable regulations set forth in PD 01-03.

1. Public and quasi-public uses.
2. Motels, fast-food businesses, banks, personal services, or goods reasonably required for the convenience and support of occupants of uses in the surrounding district(s).
3. Places of worship.
4. Contractor's storage yards and open storage uses (not including vehicle dismantling yards, scrap, or waste yards), and only when located a distance of at least 500 feet from Isabel Avenue and 500 feet from W. Jack London Boulevard. Such uses shall be completely screened by a solid masonry wall having a minimum height of six feet.
5. Any land use that utilizes hazardous materials shall be subject to the regulations of Chapter 3-30 LPZC (Hazardous Materials), as it exists now or is amended in

the future. Prior to approval, it must be found that the project includes sufficient safeguards to assure that the storage and use of the hazardous materials will be an acceptable risk as defined by Chapter 3-30 LPZC.

6. Fuel stations subject to the requirements of LPZC 3-10-070 (Auto Service Stations), as it exists now or is amended in the future.

D. Site Development Regulations

The following minimum requirements shall be observed, except where increased for conditional uses:

1. Lot Area: Twenty thousand square feet.

2. Lot Width: One hundred feet.

3. Yards: Yard requirements are established below. Buildings shall not be permitted within required yards.

   A. Front or Street Side: 40-feet on Isabel Avenue, 35-five feet on Jack London Boulevard, and 30-feet on frontage roads and interior streets.
   B. Rear and Side: None.

4. Uses of Yard Areas: The following uses shall be made of yard areas and then only if such uses are otherwise permissible pursuant to the provisions of this chapter:

   A. Landscaping shall be regulated by the following requirements:

      1. All required yards adjacent to streets shall be landscaped, except for driveways and sidewalks found to be necessary for the efficient use of the property.
      2. In the case of a parking lot being located between the building and the street, the landscaped strip adjacent to the street may be reduced by up to 10 feet, provided a landscaped strip equal to the amount of reduction is added to a landscaped planter adjacent to the street side of the building.
      3. A landscaped strip of land, at least 25 feet wide, shall be maintained along any property line where a PD-I district abuts an R district or an OS district designated for future residential use in the general plan.
      4. All landscaping shall be carried out in accordance with the landscaping plan approved by the city, and such landscaping shall be installed and maintained in such a manner so as to prevent the viewing of outdoor storage, and loading areas.
      5. In any case where the building frontage is visible from a public or private street, a minimum five-foot landscaped strip abutting the foundation shall be included, allowing for necessary entrances.
      6. No more than 10 parking spaces shall be located in a row without a landscaped planter strip provided parallel to the parked vehicles. The landscape planter strip shall provide minimum dimensions of five feet by 19 feet. Parking lot landscaping shall include a minimum of one tree for every six parking spaces for double loaded stalls and one tree for every three spaces for single loaded stalls.

B. Exterior Storage: Exterior storage shall be regulated as follows for all uses:
   1. Exterior storage shall not be allowed directly adjacent to a public street (except under Section C.4.
   2. Exterior storage shall be completely screened from the public view by a masonry fence, wall or berm not exceeding 15 feet in height, with all stored material kept below the top of such screen.
   3. Exterior storage areas exceeding 10 percent of the building area shall be considered an open storage use subject to a Conditional Use Permit, under Section C.4., above.

5. Height Regulations: The height of all on-site structures, including roof-top mechanical equipment) is limited to 35 feet plus an additional foot of height for every additional foot of setback above that required, not to exceed a maximum of 40 feet of height.

6. Lot Coverage: The building coverage maximum shall be 45 percent.

7. Floor Area Ratio: The allowable floor area shall be based on the type of land use and the Average Daily Vehicle Trips (ADT) allocated to each parcel (see *Vehicle Trip Monitoring Requirements* (Section E) below).

8. Parking: Parking requirements for the subject site shall comply with the requirements of chapter 3-20 of the Livermore Planning and Zoning Code, as it exists now or may be amended in the future, with the following exception:

   A. Parking spaces for office, manufacturing, warehouse, research, industrial, heavy equipment operations, transportation centers and other similar office or industrial uses shall have a width of not less than nine feet.

   B. Parking spaces for restaurants, motels, banks, retail, commercial and personal service uses shall have a width of not less than nine and one half feet.

E. Vehicle Trip Monitoring Requirements

a. The Oaks Business Park shall receive an allocation of 15,686 Average Daily Vehicle Trips (ADT). Each parcel shall receive a baseline allocation of 82 ADT per acre, with all remaining ADT available to the developer to distribute to individual parcels. ADT allocations for parcels containing public facilities, such as parks, shall be based on use specific ADT allocations approved by the City of Livermore. Detention basin areas shall receive no ADT allocation.

b. Once two northbound through lanes and two southbound through lanes have been constructed and opened for operation at the Isabel Avenue/Discovery Drive intersection, the project developer shall receive an allocation of an additional 1,743 ADT, which may be allocated by the developer among any of the parcels located on-site.

3. The ADT allocated to a parcel shall be used to determine the maximum gross square footage of development permitted on the parcel.

4. The maximum allowable building square footage per parcel shall be calculated based on the following ADT generation rates:

Office: 1 ADT = 123.3 square feet of Office; or
1,000 square feet of Office = 8.11 ADT

Industrial: 1 ADT = 261.7 square feet of Office; or
1,000 square feet of Industrial = 3.82 ADT

Other Uses: The applicable ADT generation rates for other uses shall be determined by the City of Livermore based on a calculation of Average Daily Vehicle Trips for the subject land use.

Where a single building or tenant space contains more than one use, the applicable ADT generation rates shall be calculated based on the gross square footage of each use within the building.

5. Any additional ADT granted to each parcel by the master developer shall be recorded on the deed for the parcel.

   A. Prior to recording the grant deed for each parcel sold by the developer, the developer shall transmit to the City of Livermore Planning Division the allocation of ADT for the parcel.
   B. The developer shall also provide, in spreadsheet format, the previous allocations of ADT provided per parcel for each parcel within the Oaks Business Park, and the balance remaining in the ADT pool.

6. Once the ADT has been allocated to each parcel by the master developer it shall be locked in place and may not be transferred to other parcels within the Oaks Business Park. In the case of a Lot Line Adjustment or a Subdivision of land, the originally allocated ADT shall be transferred with the land based on a calculation of ADT per square foot and shall be recorded on the deed for each new or modified parcel.

7. Any submittal of improvement plans, whether for new building construction or tenant improvements, shall include the following:

   A. The APN number and address of the parcel.
   B. Parcel square footage.
   C. The total ADT allocated to the parcel, as shown on the deed.
   D. A calculation of the total ADT required for all existing and proposed on-site uses.
   E. A calculation of any remaining unused ADT available to the parcel.
   F. Where a building contains more than one use, the gross square footage of each use shall be clearly identified on submitted plans, with the applicable ADT calculation shown for each use within the building.

F. Other Required Conditions

The following additional conditions shall apply to the PD-I 01-003 district:

1. Site plan and design review approval are required prior to the development of any site, including the construction of any buildings or the establishment of any open use.

2. The following performance standards will be required in the district:
   A. Air Pollution. All uses shall comply with regulations of the San Francisco Bay Area Air Pollution Control District.
   B. Noise. No use shall be permitted which creates an ambient noise level greater than 75 decibels (dBA) beyond the boundaries of the site, nor greater than 60 decibels at the boundary of an R district.
   C. Vibration, Heat, Glare, Electrical Disturbance. No use shall be permitted which creates vibrations, heat, glare or electrical disturbances beyond the boundaries of the site. Lighting used to illuminate buildings, structures, uses, or parking and loading areas shall not be directed toward any public right-of-way.
   D. Fire, Explosion. All uses shall provide adequate safety devices and adequate fire fighting and fire suppression equipment to protect against fire, explosion, and other hazards.
   E. Solid and Liquid Wastes. No solid or liquid waste discharges, other than into a public sewage disposal system, shall be permitted. The chemical composition and volume of industrial effluent discharged shall be subject to the wastewater permit requirements established by LMC Title 13, Division II. (Ord. 442 § 14.80).

3. The exercise of the rights granted by this Planned Development Permit (#01-003) shall expire unless the Tentative Tract Map (7300) is finaled within the time periods set forth in the Subdivision Map Act.

4. Within 90 days following the date of approval, the permittee shall cause to be filed with the County Recorder, 1) a recorded description of the subject property in conformance with the Zoning Ordinance noting that said property is regulated by a Planned Development District, and 2) a statement of agreement to the conditions imposed by this permit.

5. A variance from the zoning standards established by this Planned Development Industrial (PD-I 01-003) district may be approved by the Planning Commission, subject to Chapter 4-15 (Variance Permits) of the Livermore Planning and Zoning Code, as it exists now or may be amended in the future.

6. The developer shall establish CC&Rs for the project site, subject to approval by the City, which shall establish responsibility for the maintenance of buildings, signs, walls, landscaping, benches and other improvements throughout the site. Final delineation of the maintenance areas shall be subject to approval by the Engineering Division. The CC&Rs shall also include provisions for the on-going implementation of a Transportation Demand Management (TDM) program for the project site.

7. A TDM program shall be approved for the project site by the City and implemented by all property owner(s) within the boundaries of PD-I 01-003.

8. All development within PD-01-003 shall comply with the Design Guidelines established for the Oaks Business Park project.

G. Sign Requirements

Signs shall be subject to the requirements identified below and shall comply with the Design Guidelines approved for the Oaks Business Park. Where not otherwise specified below, signs shall comply with the sign requirements established by the Chapter 3-45 LPZC, as it exists now or is amended in the future.

1. Building mounted/wall signs are permitted, as described below:

    A. Parcel: The maximum aggregate sign area per parcel for all building mounted/wall signs is calculated as follows:

        1. 32 square feet plus one square foot for each two feet of building frontage in excess of 50 feet, up to a maximum total of 100 square feet for the parcel.

        2. In addition, if more than one use exists on a parcel, there is allowed 12 additional square feet for each use. This additional square footage does not apply to tenants or users that must access their suite(s) through an interior lobby. Signs shall be of wall type and must be located immediately adjacent to (above or along side) the main building entry.

        3. In addition, for secondary building frontage, where a parcel fronts on more than one street, additional sign area shall be permitted as follows: 10 square feet for each parcel, plus one square foot for each two lineal feet of building frontage, to a maximum of 32 square feet.

2. Monument signs are permitted, as described below:

    A. In addition to the wall sign square footage provided above, 45 square feet of monument sign area shall be provided in the case of a multi-building project (three or more buildings) with a minimum parcel size of 2.5 acres, and a minimum total floor area of 50,000 square feet.

        1. The monument sign shall be allowed a project name, project logo and address.

    B. Where a project does not meet the criteria noted in G.2.A, above, a monument sign shall be permitted, provided the total monument sign area is deducted from the maximum aggregate sign area for all building mounted wall signs allowed in section G.1, above.

    C. Monument signs shall comply with the following criteria:
        1. 45 sq. ft. maximum sign area per face per sign
        2. 4 foot maximum average height from immediate adjacent grade
        3. 12 foot maximum length
        4. Signs shall be limited to the project name and logo, the name of the primary user(s) (limit 3) and the street address.
        5. Monument signs shall be located a minimum of 10 feet back from street frontage property lines and site access driveways.

3. Signs for Retail and Food Service Uses

   A. Signs shall comply with the sign requirements identified for the Commercial Service (CS) Zoning District, as specified in section 3-45-230 of the Livermore Planning and Zoning Code, as it exists now or may be amended in the future.

4. Directional Site Signs, as listed below, may be permitted in addition to the wall and monument signs permitted above.

   A. Directional signs shall include:
      1. Non-building mounted address signs.
      2. Entrance direction.
      3. Directional maps and listings.
      4. Directional signs, both pedestrian and vehicular.
      5. Parking and traffic control signs.

   B. Directional signs shall be ground mounted and may be front lit or internally illuminated.

   C. Directional signs shall meet the following dimensional criteria, unless otherwise required by City or State code:
      1. 5 foot maximum height.
      2. 1 foot maximum width for restrictive signs (no parking, handicapped).
      3. 3 foot maximum width for directional signs (visitor parking, deliveries, etc.).
      4. 4 foot maximum width for tenant directories, site locations, etc.
      5. Maximum size of 6 square feet.

5. All Sign Permit submittals within PD 01-003 shall include a calculation of the maximum allowable permanent sign area per parcel as well as the square footage of all existing and proposed signs on-site.

6. Temporary real estate signs shall be permitted in addition to the signs listed above and shall comply with the following requirements:

   A. Signs shall comply with the following dimensional requirements based on sign type:

Sign Type	Maximum Height	Maximum Width	Maximum Sign Square Footage
A	12 ft	8 ft.	72 sq. ft.
B	9 ft.	6 ft.	45 sq. ft.
C	6 ft.	4 ft.	18 sq. ft.

   B. For parcels less than one acre in size:

      1. Each parcel shall be allowed one temporary real estate sign. Signs shall be of size B or C for advertising any of the following: future facilities, construction activities and initial real estate marketing or leasing (during the first 6 months after construction). Signs for subsequent real estate marketing or leasing (more than 6 months after completion of initial construction) shall be of size C.

C. For parcels one acre or more in size:

1. Each parcel shall be allowed one temporary real estate sign. Signs shall be of size A, B or C for advertising any of the following: future facilities, construction activities and initial real estate marketing or leasing (during the first 6 months after construction). Signs for subsequent real estate marketing or leasing (more than 6 months after completion of initial construction) shall be of size C.

D. Temporary real estate signs, for the uses noted above, may be permitted for a period of 6 months. Permits may be renewed after 6 months for additional 6 month periods, provided the sign meets all applicable requirements and has been maintained in good condition. Signs shall be removed upon completion of the purpose for which the permit was granted.

E. Temporary real estate signs, as established above, shall comply with the dimensional and design criteria established by the Oaks Business Park Design Guidelines, in addition to the following requirements:

1. Flags, banners or other attachments are not permitted.
2. Temporary signs shall be non-illuminated.
3. Signs may be double or single faced, shall be placed either parallel or perpendicular to the roadway and must be set back a minimum of 10 feet from the property line.
4. Only one sign per parcel is allowed.

F. Temporary signs for purposes other than future facilities, construction activities or real estate marketing or leasing shall comply with the temporary sign requirements established by the City of Livermore Planning and Zoning Code, as it exists now or may be amended in the future.

APPENDIX M

Draft Transportation Demand Management Program

TJKM Transportation Consultants, *Oaks Business Park Transportation Demand Management Program,* January 23, 2003.

Oaks Business Park
Transportation Demand Management Program

In the City of Livermore

January 28, 2003

Oaks Business Park
Transportation Demand Management Program

In the City of Livermore

January 28, 2003

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1. INTRODUCTION

Introduction

This Transportation Demand Management (TDM) Plan for the Oaks Business Park has been developed to fulfill the requirements of the Conditions of Approval, Tentative Tract Map, Development Agreement, and The Environmental Impact Report for the Oaks Business Park. The approved project, which has an entitlement for 2,725,822 square feet of development, will include research and development, office, industrial, light manufacturing and other uses.

This document develops the framework and details for:

- Establishing a Transportation Management Association (TMA) for Oaks Business Park;
- A TDM Program Manager to assist employers;
- A permanent TDM program; and
- City monitoring of the TDM Program;

The primary responsibility for implementing the TDM Plan will be the Oaks Business Park Owners' Association (OBPOA), which will be established by the Covenants, Conditions and Restrictions (CC&Rs) for the Oaks Business Park. The OBPOA will serve as the TMA of the Oaks Business Park (Park), as called for in the City's Conditions of Approval.

Every property owner and tenant located within Oaks is required to participate in this TDM program. Each company in the park employing 100 or more persons will also be required to develop and implement an individual TDM program and comply with the survey and reporting requirements discussed herein.

Although the Oaks TDM program will be permanent, the intent of the program is to ensure flexibility and to revise or replace measures as necessary, including situations where those measures are not compatible with changing circumstances.

Chapter 2 of the TDM Plan presents the objective and phasing elements of the plan, while Chapter 3 presents the Implementation Plan for those elements. Chapter 4 outlines the monitoring and reporting process. Chapter 5 presents a description of the individual program elements.

2. OBJECTIVES

The overall objective of this TDM Plan is to reduce the project peak hour trip generation by providing commute alternatives to driving alone and strategies that encourage use of these alternatives. Commute alternatives include carpooling and vanpooling, public and private transit, bicycling and walking, and other non-single-occupant vehicle options.

A specific performance objective for the TDM program is to have a Vehicle Trip Reduction (VTR) goal for the overall Park. The VTR is referenced to the vehicle trip rates contained in the Final Environmental Impact Report (FEIR) for the Oaks Business Park. FEIR trip rates, expressed as peak hour vehicular trips per thousand square feet of buildings, are as follows: Office uses, 1.24 and 1.08 during the a.m. and p.m. periods, respectively; Manufacturing uses, 0.73 and 0.74 during the a.m. and p.m. periods, respectively. The weighted trip rates for the entire Park, considering planned amounts of both uses, are 1.036 in the a.m. period and 0.944 during the p.m. period.

Because construction of Oaks is estimated to occur over a period of five to ten years, and because the ultimate success of a TDM program is dependent on achieving the greater employee densities associated with later years of the build-out program, this TDM Plan includes a phased schedule for implementing TDM measures. The phasing of build-out will depend on various factors, including primarily market demand and infrastructure development (including roadways and regional transit facilities). While public transit access to Oaks is currently limited, transit service improvements will be made as the Park builds out.

Table I presents the phasing in of the VTR goal, linked to the number of employees within Oaks. As the table indicates, the VTR goal will be a three percent reduction as the first buildings are constructed and occupied by 1,500 employees, to a four percent reduction when employment at the Park reaches 3,000 employees. The VTR goal will then increase to a five percent reduction and continue to be implemented as the Park is built out to the full workforce.

TABLE I: PHASED IMPLEMENTATION OF VTR GOAL

Phase	Park Employment Level	VTR Goal
I	<1,500	Three percent
II	1,500 – 3,000	Four percent
III	3,000+	Five percent

3. IMPLEMENTATION PLAN

This section outlines the phasing of elements in the TDM Plan and identifies required versus optional measures, as well as describes the roles of the OBPOA Transportation Management Association, the OBPOA TDM Program Manager and the Employer Transportation Coordinator.

3.1 Phasing and Compliance

The Oaks TDM plan is structured to be implemented in three phases, linked to the number of employees within Oaks (as identified in Table 1). Each phase has identified Baseline Requirements, Supplemental Requirements and Optional Measures that are presented in Tables II and III, the Implementation Matrix.

Baseline Requirements:

The Baseline Requirements include actions to develop and implement a TDM program by the OBPOA and individual employers, including the provision of shuttle service between Oaks and BART transit services. The Baseline Requirements must be implemented at each phase of development by the OBPOA and by employers with 100 or more employees, as appropriate. Phase I OBPOA Baseline Requirements will be implemented within one year of issuance of the Permanent Certificate of Occupancy for the first new building provided that there are 300 employees in the Park. The shuttle service to BART will be fully operational to the Baseline Requirement (30-minute headways during 2 hours of peak period service each standard work day [a "standard workday" being a Monday through Friday, non-holiday]) within 12 months of the Permanent Certificate of Occupancy (C.O.) issuance for the first on-site building.

Each individual company with 100 or more employees will comply with additional Baseline Requirements (see Table III) within one year of the issuance of their Permanent Certificate of Occupancy. If the company is not the first to occupy a certain building, they will comply with the Baseline Requirements within one year of their Lease Commencement Date or Purchase Closing Date. Phase II and Phase III OBPOA Baseline Requirements will be implemented within one year of Oaks reaching 1,500 and 3,000 employees, respectively, as determined by the annual surveys (discussed in Chapter 3).

Supplemental Requirements

The Supplemental Requirements include actions by both the OBPOA and individual employers that will be required if the VTR goal for any phase has not been met. Supplemental Requirements shall be implemented in any year following non-compliance with VTR goals and shall be based on the phase of development identified in Table 1. Supplemental Requirements are identified in Table II for the OBPOA and in Table III for companies with more than 100 employees. These measures enhance effectiveness of the Baseline Requirements and promote alternative commute modes, in particular ridesharing and bicycle use.

Optional Measures

The Optional Measures include a "toolbox" of actions that could be implemented voluntarily by the OBPOA or individual employers to promote commute alternatives.

TABLE II: OAKS BUSINESS PARK TDM PLAN IMPLEMENTATION MATRIX

OBPOA ACTIONS		
Phase I	**Phase II**	**Phase III**
BASELINE REQUIREMENT • Shuttle to BART (30 minute headways for total of 4 hours of peak period service) • OBPOA TMA with quarterly meetings • OBPOA TDM Program Manager • Annual Surveys • Quarterly newsletters • Quarterly ETC workshops • Commute Website • Move-in packets for new employers and employees • Promotion, fairs, events • Promote Alameda Guaranteed Ride Home program (see narrative) • Sidewalks and bike lanes on all new streets built in OBP • Rideshare Matching (see narrative) • Bicycle/Pedestrian Facilities (see narrative) • Encourage, but not require, implementation of intra-park shuttle if market conditions or survey results indicate potential demand • Encourage Alternative Work Hours – Telecommuting/Flextime • Showers and overnight clothing lockers in every new building or multi-building project (submitted by the same property owner) with total office square footage over 100,000 square feet or total combined industrial and office square footage over 200,000 square feet	***Baseline Requirement*** • Shuttle to BART (15-minute headways for a total of 4 hours of peak period service). • All other Baseline Requirements identified in Phase I	***Baseline Requirement*** • Shuttle service BART (15-minute headways for a total of 4 hours of peak period service). • Expand shuttle service to include at least one a.m. and one p.m. trip to the Livermore ACE Station • All other Baseline Requirements identified in Phase II
SUPPLEMENTAL REQUIREMENTS • Preferential HOV parking (2 percent of total spaces for every business in the OBPOA) • Ride matching (see narrative) • Bicycle/Pedestrian Facilities (see narrative) • Showers and overnight clothing lockers in one of every 3 new buildings (owned by same owner) or in every new building not owned by same owner ("new" is defined as building permit is received after this Supplemental Requirement is imposed) • Provide GRH to employers with fewer than 100 employees (see narrative) • Additional marketing and promotion	***Supplemental Requirements*** • Bicycle commuter club • Increase HOV parking to meet demand (minimum of 5 percent of total spaces for every business in the OBPOA) • All Supplemental Requirements identified in Phase I	***Supplemental Requirements*** • Expand shuttle service to include two a.m. and two p.m. trips to the Livermore ACE Station. • All other Baseline Requirements identified in Phase II
OPTIONAL MEASURES • Station cars/taxi service • Bike fleet • Additional marketing and promotion • OBPOA assistance to distribute commuter checks and facilitate employer commuter	***Optional Measures*** • All those identified in Phase I	***Optional Measures*** • All those identified in Phase I

• OBPOA assistance to distribute commuter checks and facilitate employer commuter choice programs • Charging for parking • Financial incentives (i.e., EcoPass, Commuter Check)		

TABLE III: OAKS BUSINESS PARK TDM PLAN IMPLEMENTATION MATRIX

EMPLOYER (>100 employees) ACTIONS		
Phase I	**Phase II**	**Phase III**
BASELINE REQUIREMENT • TMA Member • ETC job duties • Attend OBPOA TMA meetings • Post transportation information on on-site bulletin board, including up-to-date alternative transportation resource information and schedules. • Provide TDM information to new hires and/or employees new to Oaks Business Park • Help to promote OBPOA TDM Program Events. • Conduct annual survey • Internal rideshare matching • Provide Preferential HOV parking (1 percent of total spaces)	BASELINE REQUIREMENT • All Baseline Requirements identified in Phase I	BASELINE REQUIREMENT • All Baseline Requirements identified in Phase I
SUPPLEMENTAL REQUIREMENTS • Provide Guaranteed Ride Home Program (via Alameda CMA or own)	SUPPLEMENTAL REQUIREMENTS • All Measures identified in Phase I	SUPPLEMENTAL REQUIREMENTS • All Measures identified in Phase I
OPTIONAL MEASURES • Telecommute/Flextime Policies • Transit/carpool user subsidies • Other financial incentives • On-site amenities • Charge for parking • Offer parking cash-out	OPTIONAL MEASURES • All Measures identified in Phase I	OPTIONAL MEASURES • All measures identified in Phase I

3.2 Program Evaluation

The TDM program will be evaluated annually (see Chapter 4). The following process will occur:

1. Analysis of Employers with >100 Employees

A. **Conduct Annual Survey:** The first annual survey will be conducted for all employers with 100 or more employees in the October following the first full year of occupancy of the first office building. Subsequent surveys will be conducted every October and will include all employers with 100 or more employees that have been operating in the Park for a minimum of six months.

1. Assess Survey Results: The survey results will be utilized by the OBPOA's TDM Program Manager to monitor the effectiveness of and participation in the TDM program. The survey will also be used to evaluate whether individual businesses are implementing Baseline Requirements identified in Table III. If the TDM Program Manager determines that an individual company has not implemented Baseline measures, the company shall be subject to a non-compliance fee:

The non-compliance fee will be set at $10 per regular full and part-time employee. This fee will double for every year of non-compliance. Fee increases shall be based on increases in the Consumer Price Index, as noted in Section 3.3A. The OBPOA may also agree to adopt additional penalties for non-compliance with Baseline Requirements if the VTR goal is not being met on a regular basis. All fees shall be utilized by the OBPOA expand TDM Program services.

2. Analysis of the OBPOA TDM Program

A. The OBTOA TDM Program Manager shall prepare a report documenting TDM Program compliance each year for submittal to the City of Livermore. The report shall be provided within one year of the issuance of the first occupancy permit for the first building constructed on-site (provided there are more than 300 employees in the park). The first report shall document the establishment of a TDM Program Coordinator for the Oaks Business Park, the implementation of required Baseline measures (for phase I, II or III), and a survey of participation.

In the second year the park is open and in all subsequent years, a complete report shall be submitted to the City on Feb. 15th and shall include a traffic study with vehicle counts to demonstrate compliance with the TDM Program Vehicle Trip Reduction requirement (3, 4, or 5 percent depending on project phase). The report shall be submitted to the City of Livermore Engineering Division for review and approval.

Compliance with the percentage reduction requirement shall be measured based on the peak hour vehicle trips projected for the square footage of office, industrial and other uses occupied at the time the traffic counts are taken. Note that peak hour vehicle trips will be measured for the park as a whole, and not for individual property owners or businesses. Vehicle counts should include calculations to eliminate cut through traffic upon completion

of West Jack London as a through street, as well as traffic generated by uses on the Ashwell Parcel (located at the southwest corner of Isabel and Jack London Blvd.)

The report shall also include, but not be limited to, the following information:

- A summary of shuttle operations to demonstrate compliance with shuttle requirements.
- A detailed accounting of compliance with applicable Baseline or Supplemental Requirements for the OBPOA, including detailed information on any areas of non-compliance.
- TDM Program plans for the following year, and if applicable, plans for achieving compliance in the event of any demonstrated non-compliance (either with Baseline or Supplemental Requirements or VTR goals).
- In the event VTR goals are not reached, plans and timetables for implementing Supplemental Requirements.
- A copy of the survey results identified under Section 3.2.1.A, above.
- A summary of businesses with >100 employees that have not complied with Baseline Requirements.
- A summary of any fees due to the City and a check payable to the City of Livermore in the amount of those fees.

3. Non-compliance:

A. The following steps will cause the project to lapse into non-compliance:

1. Failure to implement required OBPOA Baseline implementation measures.

2. Failure to implement required OBPOA Secondary implementation measures.

3. Failure to meet the required percentage trip reduction in any year.

B. The following steps shall be taken in the event of non-compliance:

1. Failure to implement Baseline implementation measures shall result in a fee, as shown in Table IV.

2. In the event that Baseline measures have been implemented and the required trip reduction is not reached, secondary measures shall be implemented in the first year after non-compliance is reported. There is no fee for this first year of non-compliance. After two consecutive years of compliance with the required peak hour trip reduction percentage, the program coordinator may propose a schedule for phasing out secondary measures. This schedule shall be reviewed and approved by the City.

3. Failure to implement required secondary implementation measures shall result in a fee, as shown in the attached table.

4. In the event that secondary measures have been required and compliance with applicable VTR requirements is still not achieved, the following shall apply:

a. The TDM program coordinator shall submit a plan outlining additional requirements designed to achieve compliance in the following year.
b. A fee shall be paid to the City based on the fee schedule shown in Table IV.

5. The final (4th) phase of the Final Tract Map shall not be approved unless the business park is in compliance with TDM program requirements at the time of the request and has demonstrated compliance for at least 50 percent of the lifetime of the program, or two consecutive years of compliance prior to the final map request.

6. Additionally, to underscore the importance of the shuttles to BART, if during a continuous period of three months the OBPOA misses more than 30 percent of scheduled service of the BART shuttle, the OBPOA can be served a "notice to cure" by the City of Livermore stating that the OBPOA has 30 days to meet required service levels. If the OBPOA does not meet applicable requirements within the 30 days, the OBPOA will be fined by the City of Livermore an amount equal to $5,000 per month until service meets required levels. If the shuttle misses more than 10 percent of scheduled service for the year, OBPOA shall be considered out of compliance with Baseline implementation requirements, as monitored in the annual report. Any non-compliance fees imposed on the OBPOA will be paid by the OBPOA to the City of Livermore within 30 business days of receipt of an invoice.

Eliminate TDM Measures (with City of Livermore approval): It is not the intent of this TDM plan that TDM measures that prove ineffective or inefficient remain in place indefinitely. Accordingly, if the OBPOA TDM Program Manager can demonstrate to the City of Livermore's satisfaction (with City pre-approval being granted in writing) that a particular TDM Measure is ineffective or inefficient, that TDM Measure may be eliminated. Eliminated measures should be replaced by other measures that are expected to produce more effective results.

3.3 Implementation Matrix

The implementation matrices in Tables II and III summarize the measures and actions, presented in Chapter 5, which will be implemented by the OBPOA on a park-wide basis, and actions that will be the responsibility of individual employers. For both the OBPOA and employer actions, the matrix identifies the Baseline Requirements, the Supplemental Requirements, and Optional Measures for each phase.

TABLE IV: TDM PROGRAM NON-COMPLIANCE FEES

% Peak Hour Trip Reduction	Phase I < 1,500 Employees	Phase II 1,500-3,000 Employees	Phase III < 3,000 employees
5.0%	$0	$0	$0
4.5%	$0	$0	$15,000
4.0%	$0	$0	$20,000
3.5%	$0	$10,000	$25,000
3.0%	$0	$15,000	$30,000
2.5%	$5,000	$20,000	$35,000
2.0%	$10,000	$25,000	$40,000
1.5%	$15,000	$30,000	$50,000
1.0%	$20,000	$35,000	$60,000
0.5%	$25,000	$40,000	$70,000
0.0%	$30,000	$50,000	$80,000
Failure to Implement Baseline Measures			
1st Year*	$5,000	$10,000	$15,000
2nd Consecutive Yr.	$10,000	$25,000	$40,000
3rd Consecutive Yr.	$30,000	$50,000	$80,000
4th Consecutive Yr.	$60,000	$90,000	$120,000
Addt. Consecutive. Yrs.	Bldg. Permits Withheld Pending Compliance	Bldg. Permits Withheld Pending Compliance	Bldg. Permits Withheld Pending Compliance
Failure to Implement Required Secondary Measures			
1st Year*	$5,000	$10,000	$15,000
2nd Consecutive Yr.	$10,000	$25,000	$40,000
3rd Consecutive Yr.	$30,000	$50,000	$80,000
4th Consecutive Yr.	$60,000	$90,000	$120,000
Addt. Consecutive. Yrs.	Bldg. Permits Withheld Pending Compliance	Bldg. Permits Withheld Pending Compliance	Bldg. Permits Withheld Pending Compliance

*1st year means the first year the program is in place or any year after a previous year of compliance.

3.3-A Adjustments

All fees contained in this TDM Program shall be increased each year based on increases in the Consumer Price Index for the San Francisco Bay Area. The base level for all fees contained in this document shall be set in April of 2003. Fee increases shall then be calculated each year based on changes in the Consumer Price Index.

3.4 OBPOA Transportation Management Association (TMA)

The primary responsibility for implementing this TDM program will be the Oaks Business Park Owners' Association (OBPOA), which will serve as the Transportation Management Association (TMA) called for in the City's conditions of approval of the Oaks project. The CC&Rs require that all property owners and tenants participate pro rata in funding the operational costs of the TDM program. The costs of the TDM plan will be charged back to the property owners and tenants as part of the regular assessment.

As specified in the CC&Rs, all employers will be required to participate in, and fund, the TMA, and those with 100 or more employees will also be required to develop individual TDM programs. Individual-employer TDM programs will incorporate measures from the Park TDM Plan, adjusted to address travel characteristics of their employees, and can include TDM measures beyond those required by the Park TDM Plan. Each employer will be required to identify an employee that will be the Employer Transportation Coordinator, either on a full-time or part-time basis. Employers with 100 or more employees will be required to participate in the annual monitoring survey.

Employers with fewer than 100 employees will benefit from the Oaks TDM program, as employees of these companies will have access to the TDM Program Manager, marketing information and activities, Oaks commute website, shuttle service and other TDM program features. Employers with fewer than 100 employees will not be required to prepare an employer TDM program, identify an ETC or participate in the annual monitoring survey. However, if 25 percent or more of the OBPOA's employee work force works for employers of less than 100 employees, then the threshold for inclusion in the TDM program will be revised to 50 or more employees.

3.5 OBPOA TDM Program Manager

The OBPOA will hire a TDM Program Manager to coincide with the occupancy of the first office building. The role of the Program Manager will be to manage the program's development, implementation, marketing, administration and evaluation. The Program Manager will establish the internal structure, staff and support services to enable implementation of the TDM Program.

The specific responsibilities of the TDM Program Manager are shown in Table II and are also described below:

Program Development

- Assist Employer Transportation Coordinators within the Park to develop individual TDM programs.
- Develop shuttle service to Bart and other public transit, as appropriate. Conduct annual park-wide special promotions for the shuttle service.
- Develop and distribute quarterly newsletter and training and educational programs. Develop TDM website.
- Obtain training from RIDES on their services, particularly on assisting with ride matching for employees.
- Research and assess the potential applicability of other TDM measures for the Oaks workforce.
- Coordinate with City, transit agencies and other transportation agencies to achieve public transit access to the site.
- Coordinate the program with employers in the surrounding area, if feasible.
-
- Develop, conduct\facilitate, and summarize annual surveys (see Chapter 4).
- Complete quarterly reports to the OBPOA Board in compliance with the Baseline (and Supplemental, if appropriate) Requirements and other TDM implementation items.

Implementation

- Provide information to employers and employees on where and how to purchase LAVTA and BART transit tickets.
- Facilitate implementation of optional employer transit subsidy programs, providing opportunities for on-site commuter check distribution.
- Promote commute alternatives and incentives to all employees.
- Provide employers with commute information guides for distribution to all employees upon move-in and to all new hires within one month of employment. Employers should add TDM information specific to their company's TDM program to these packets.
- Transmit updated transit brochures, routes and schedules to Employer Transportation Coordinators.
- Coordinate rideshare matching through RIDES.
- Provide workshops for the Employer Transportation Coordinators at least quarterly.

Administration

- Maintain website.
- Maintain commute information center.
- Manage shuttle program/contract.
- Manage monitoring and reporting of program to employees and employers.
- Maintain a record of marketing materials (e.g., newsletters, emails, and information guides). Report results of annual survey to the OBPOA TMA.
- Hire a qualified traffic consulting firm to conduct traffic counts for the park and to write a report detailing the level of compliance with the required Vehicle Trip Reduction requirement for the Oaks Business Park.
- Provide comprehensive annual report to the City of Livermore.

3.6 Employer Transportation Coordinators

Each employer with 100 or more employees will be required to identify an employee to operate as the Employee Transportation Coordinator ("ETC") within 60 days of issuance of the Permanent Certificate of Occupancy (or, if the company is not the first to occupy a certain building, 60 days of their Lease Commencement Date or Purchase Closing Date) who will be responsible for coordinating with the OBPOA TDM Program Manager, provide travel information to employees, and offer assistance with commute planning, as necessary. Employers will be required to designate a new ETC within 60 days of the departure or reassignment of the previous ETC. The type of business and size of the employer would determine if a full-time staff position (full time equivalent or FTE) is warranted, or if the coordination effort is only one of the responsibilities of an employee. The OBPOA TDM Program Manager will recommend the level of commitment of the ETC. Specifically, the recommended levels are: a one-quarter time ETC if the employer has 100 to 300employees, a half-time ETC if the employer has 301 to 600employees, and a three quarter to full time ETC for more than 600 The OBPOA TDM Program Manager will also provide information to employers that will enable them to share a full time ETC. Up to three employers with up to a maximum of 1,000 employees could share the same ETC. The foregoing commitment levels of the ETC are recommendations but not requirements.

The specific responsibilities of the Employer Transportation Coordinator will include:

- Move-in orientation with OBPOA TDM Program Manager.
- Develop employer TDM program to ensure employer compliance with Oaks TDM program.
- Attend OBPOA TMA quarterly meetings.
- Provide TDM information to new employees.
- Administer employer programs (e.g., educational programs, optional financial incentives/subsidy programs, parking preferential programs).
- Help to promote OBPOA TDM Program Events.
- Perform annual surveys and submit Annual Report to OBPOA TDM Program Manager.
- Maintenance of an on-site commute information center in a visible location, such as an employee break room.
- Participate in workshops and meetings sponsored by OBPOA TDM Program Manager.
- Provide internal rideshare matching services for interested employees.

Employer Transportation Coordinators will be educated about ride matching services and all other facets of the TDM program during the move-in orientation, workshops and other educational activities and through the OBPOA newsletter.

Appendix A contains the Employer Transportation Coordinator Form.

4. MONITORING AND REPORTING

Successful TDM programs require an understanding of the characteristics of the employee population and their travel characteristics, to identify features that might discourage or encourage alternate transportation modes. Each employer with 100 or more employees employed in the Park will be required to participate in an annual survey of commute characteristics of its employees and report on the results of the survey, as well as on the status of their TDM program. This information will be used by the OBPOA TDM Program Manager to report Park-wide status to the City of Livermore City Engineer. The following sections outline the survey process and the reporting requirements. Surveys will be conducted in October. The first survey will be conducted during the month of -October following the first full 12 months of occupancy of the first office building.

4.1 Annual Surveys

Surveys of employees will be conducted in October of each year. Each employer with 100 or more employees that has been operating in the Park for at least six months will be required to participate. Surveys shall not coincide with a special event or promotion geared at increasing alternative modes of transportation (e.g., Bike-to-Work Day).

Appendix B of this TDM Plan contains a sample cover letter and survey form that would be distributed to each employee either in hard copy or electronically. Prior to distribution to the employees, the OBPOA TDM Program Manager will submit the proposed survey and cover letter(s) to the City Engineer for review and approval. Each employer of 100 or more employees shall have the right to develop its own cover letter and survey form so long as they are substantially in conformance with the attached samples, and so long as the City Engineer approves them before they are distributed to employees. All proposed changes to the survey form shall be transmitted by individual companies to the OBPOA TDM Program Manager, who will submit them as a complete package to the City Engineer by August 15. If the City Engineer does not respond within 30 days, the survey form will be deemed approved. Each individual ETC will determine the most appropriate form of survey distribution and retrieval method. The TDM Program Manager will support the ETC's in the survey activities. Employees who work for employers with less than 100 employees will also be able to fill out and respond to the survey request electronically via the Oaks website.

A minimum of 85 percent of each employer's employees must respond to the survey each year. In order to achieve the 85 percent response rate, the OBPOA TDM Program Manager will hold annual workshops with the Employer Transportation Coordinators in August/September for survey/reporting training. The OBPOA TDM Program Manager will develop incentives/prizes to encourage employee response, and individual employers may add additional incentives. Examples of incentives include raffles for gift certificates, transit passes, and electronic accessories.

Each employer with 100 or more employees will be required to prepare and submit to the TMA an annual TDM Report, in a format specified by the TDM Program Manager (see Appendix C for example). The TDM Report will provide the following information:

- Results of the employee survey, including number of employees;
- An update concerning that employer's implementation of the measures and activities discussed in the previous TDM Report;
- Additional or alternative TDM measures that the employer will voluntarily implement during the following year;

- Any penalties the employer will be subject to due to non-compliance with established Baseline or Supplemental requirements.

- If the Park does not meet the specified VTR goal Supplemental Requirements that will be implemented within the following year.

Each individual employer ETC must keep copies of all surveys, both hard copy and electronic copy, for three years from date of survey. These surveys will be made available to City staff upon request.

4.2 Reporting

The OBPOA TDM Program Manager will be responsible for summarizing the information contained in the employer TDM Reports into a single Oaks Business Park TDM Annual Report. A copy of this TDM Annual Report will be submitted to the City of Livermore for review and comments. The TDM Annual Report will be submitted to the City of Livermore by February 15 of each year. Copies will also be sent to employers.

The first report documenting compliance will be provided within one year of the issuance of the first occupancy permit for the first building constructed on-site (provided there are more than 300 employees in the park). The first report shall document the establishment of a TDM Program Coordinator for the Oaks Business Park, the implementation of required Baseline measures (for phase I, II or III) and a survey of participation.

In the second year the park is open and in all subsequent years, a complete report shall be submitted to the City (on Feb. 15th) and shall include required vehicle counts to demonstrate compliance. Compliance with the percentage reduction requirement shall be measured based on the peak hour vehicle trips projected for the square footage of office, industrial and other uses occupied at the time the traffic counts are taken.

The calculation of the Park's current peak hour trip rate shall be based on the total number of vehicular trips entering and leaving the Park's boundaries during the a.m. and p.m. peak hours, divided by the occupied building square footage in the Park, measured in thousands of square feet. Any "through" trips (trips not having origins or destinations within the Park or trips to and from the Ashwell Parcel) will be excluded when making the calculation. The a.m. and p.m. peak hours, for the purposes of these calculations, will be the one hour period containing the greatest amount of entering vehicles in the four consecutive 15-minute periods in the a.m. and p.m. commute periods as measured at the intersection of Isabel Avenue and Jack London Boulevard. The City Engineer may adjust this calculation methodology as required.

Note that peak hour vehicle trips will be measured for the park as a whole, and not for individual property owners or businesses.

The TDM Annual Report will be in a similar format as the employer TDM Report, and will include the following information:

- The current calculated trip rate for the Park and the VTR goal for the Park;

- Park-wide results of the employee surveys, including number of employees;

- List of employers and number of employees;

- Appendices summarizing individual employer results, including number of employees, number of contractors, and measures employer has implemented;

- An update concerning the measures and activities discussed in the previous TDM Annual Report;

- List of measures recommended to be discontinued based on their lack of success (see Section 3.3);

- Additional or alternate TDM measures that the Park and employers will implement during the following year;

- Report on the status of the OBPOA, and each individual employer (of 100 or more), meeting the Baseline Requirements;

4.3 Non-Compliance Requirements

The following steps will cause the project to lapse into non-compliance:

1. Failure to implement Baseline implementation measures.
2. Failure to implement required secondary implementation measures.
3. Failure to meet the required percentage trip reduction in any year.

The following steps shall be taken in the event of non-compliance:

1. Failure to implement Baseline implementation measures will result in a fee, as shown in the attached table. The fee would go into effect in the first year of the TDM program and thereafter would increase annually based on the percentage increase in the Bay Area Consumer Price Index.

2. In the event that Baseline measures have been implemented and the required reduction is not reached, secondary measures shall be implemented in the first year after non-compliance is reported. There is no fee for this first year of non-compliance. After two consecutive years of compliance with the required peak hour trip reduction percentage, the program coordinator may propose a schedule for phasing out secondary measures. This schedule would be reviewed and approved by the City.

3. Failure to implement required secondary implementation measures will result in a fee, as shown in Table IV.

4. In the event that secondary measures have been required and compliance is still not achieved, the following requirements shall apply:

   a. The TDM program coordinator shall submit a plan to achieve compliance in the following year. The plan should include additional measures or modifications to existing measures designed to achieve compliance.
   b. A fee shall be paid to the City based on the attached fee schedule.

5. The final (4^{th}) phase of the Final Tract Map shall not be approved unless the business park is in compliance with TDM program requirements at the time of the request and

has demonstrated compliance for at least 50 percent of the lifetime of the program, or two consecutive years of compliance prior to the final map request.

Selective findings of the annual survey will be posted on the Oaks website.

4.4 City of Livermore Monitoring

The City of Livermore staff will monitor the Oaks TDM program efforts on an annual basis. A fee equivalent to the fees for a Minor Conditional Use Permit (currently set at $2,887) will be paid by the OBPOA to the City of Livermore for monitoring the TDM program, reviewing survey results and identifying the need for additional measures or penalty fees. The OBPOA will pay this fee to the City at the time of submittal of the annual survey (on or before February 15).

5. PROGRAM ELEMENTS

This chapter summarizes the TDM strategies and measures identified for Oaks Business Park. Section 3.2 presented the implementation matrix for the OBPOA and each individual employer. The general strategies are described first, followed by the measures included in the Baseline Requirements, Supplemental Requirements and Optional Measures.

5.1 TDM Program Strategies

The TDM program focuses on five primary strategies: provision of commute alternatives, marketing and promotion, on-site amenities, financial incentives and parking management.

Commute Alternatives

The TDM program includes shuttle service to transit providers in the area, including BART and LAVTA, and will be expanded to accommodate the needs of the Oaks employees. Extension of LAVTA service into Oaks Business Park will be pursued with the City of Livermore.

Marketing and Promotion

The TDM Plan includes a marketing program to make employees at the Park aware of the available commute options and services provided by the transit agencies, the OBPOA, and each employer, and to encourage employees to use commute alternatives. The marketing and promotion effort will include distribution of information on available commute services, assistance with commute planning, and other services that make the use of commute alternatives more convenient.

The provision of a transportation network within Oaks that facilitates bicycle and walk modes will also influence an employee's decision to use an alternate commute mode to the automobile. The design guidelines for site planning for Oaks incorporate specifications for sidewalks that will enhance the pedestrian environment.

Financial Incentives

Employers will be encouraged to provide financial incentives for alternative commute modes. These incentives could include transit allowances (Commuter Check) and direct subsidies of transit, ridesharing and walk and bicycle travel modes to Oaks.

Parking Management

Parking management measures include a wide variety of actions that can influence the availability, cost and location, as well as demand for, parking. Parking management actions can range from the provision of specially signed, optimally located spaces reserved for rideshare vehicles, to actions that may involve monthly fees for all vehicles, and/or reduced fees for rideshare vehicles.

5.2 Baseline Requirements

The Baseline Requirements include actions to develop and implement a TDM program by the OBPOA and individual employers, and the provision of shuttle service between Oaks Business Park and BART.

OBPOA TMA

The primary responsibility for implementing this TDM program will be the OBPOA, which will serve as the Transportation Management Association ("TMA") of the Oaks Business Park project. As specified in the CC&Rs, all employers will be required to participate in the TMA, and those with 100 or more employees will be required to develop an individual TDM program.

OBPOA TDM Program Manager

The OBPOA TDM Program Manager will have the primary responsibility for developing and marketing the TDM program. The specific responsibilities of the Program Manager are outlined in Section 3.5.

Employer Transportation Coordinator

Each employer with 100 or more employees at the Park will be required to designate an Employer Transportation Coordinator. Each Employer Transportation Coordinator will have the responsibility for coordinating with the OBPOA TDM Program Manager, including obtaining current transit and marketing materials, conducting surveys, and for implementing required and optional employer-specific TDM measures. The specific responsibilities of the Employer Transportation Coordinator are outlined in Section 3.6.

Shuttle service will be directed to the Dublin/Pleasanton BART station. The shuttle service in Phase I will consist of 10-passenger to 20-passenger vans that will provide peak period connections to the BART station. A schedule will be developed for the shuttle service and distributed to all employees so that they can plan their BART trips to meet the Oaks Business Park shuttle service. When the occupancy of shuttle vans consistently exceeds 90 percent of seating capacity, either a larger capacity van, more frequent service, or an additional van shall be provided.

Information on each trip between Oaks and the BART station will be recorded by the driver (including arrival/departure time at transit stations and Oaks, and the number of passengers). This information will be used to determine when the transition to a vehicle with greater capacity or more intensive shuttle service is warranted, or if changes to the route and schedule are appropriate.

The shuttle service in Phase II will consist of a range from 10-passenger vans to 25-person shuttles to 40-passenger buses that will provide peak period connections to the Dublin/Pleasanton BART station. At minimum, the shuttle service to the nearest BART station will be provided every 15 minutes for a total of four hours per standard workday (two hours during the AM peak period and two hours during the PM peak period).

Information on each trip between the Oaks Business Park and the BART station will be recorded by the driver (including arrival/departure time at transit stations and Oaks, and the number of passengers). If a shuttle is operating at an average ridership of 50% of normal capacity (e.g., an average of 20 or fewer riders on a 40-passenger bus) or less for a three month period, the City will agree to a reasonable adjustment (e.g., smaller shuttles, fewer shuttles and/or longer headways) that will result in average ridership that will exceed 50% of normal capacity. The adjustment may be sought and approved at any time throughout the year since the drivers will be keeping this data continuously. The adjustment may only be made with City review and approval. Review of compliance with implemented, applicable Baseline and Supplemental Requirements that encourage shuttle use may be a part of this review for adjustment of service. In any case, any adjustments will not decrease the service levels to a point below those provided in the Phase I Baseline Requirements.

The shuttle service in Phase III will involve increasing service to include at least one a.m. and one p.m. trip to the Livermore ACE train station - unless this benchmark is changed in agreement with the City) to meet demand and will be dependent on the commute information developed during the first, second and third phases. The level of shuttle service will be agreed upon by the OBPOA and the City of Livermore, based on exhibited demand.

LAVTA Service

In addition to providing shuttles to and from existing transit service in Phase I, the OBPOA TDM Program Manager will work with LAVTA to identify potential extensions to routes that would directly serve the site Extensions of these routes might provide local bus service to and from residential areas in Livermore, as well as provide additional capacity to Oaks Business Park shuttles running to the BART transit stations.

Quarterly Newsletters

The OBPOA TDM Program Manager will be responsible for preparing a quarterly newsletter in both hard copy and electronic format for distribution to all employees, and to new hires. The newsletter will contain items such as information on commute alternatives, benefits of using commute alternatives, Park services, upcoming promotional events, results of annual employee surveys, status of planned improvements to transit services in the area, and personal profiles/features.

Quarterly ETC Workshops

The OBPOA TDM Program Manager will conduct quarterly workshops with the Employer Transportation Coordinators that will include training on annual surveys and reporting and assisting employees with transit access and ridesharing services. Additional meetings will be held, as appropriate, to transmit information on changes to the Park TDM Program.

Commuter Website

A commuter website will be established for Oaks (for example: www.oaksbp.com). The website will include information on commute alternatives, schedules and services (including links to RIDES and transit operator websites), and provide assistance with commute planning. A carpool match map that shows the number of people living in each zip code will be provided. Relevant information on regional transportation projects (e.g., transit service extensions, HOV lanes) will be provided. In addition, information from each quarterly newsletter will be posted on the website, including special promotions and events.

The OBPOA TDM Program Manager will be responsible to ensure that information is updated quarterly. An email connection to the OBPOA TDM Program Manager will be provided within the website (for example: commute@oaksbp.com).

Move-in Consultation and Packet for New Employers

The OBPOA TDM Program Manager will be responsible for developing move-in packets for new employers that will contain:

- Information on the Park TDM program;
- Requirements, if any, for an employer TDM program; and

- Information on commute alternatives and marketing efforts.

The OBPOA TDM Program Manager will meet with each employer to review and answer questions on the Park-wide TDM program and to provide assistance in developing the Employer TDM program.

Move-in Commute Guides for New Employees

This measure is aimed at providing information and encouragement through personal contacts with employees. Employee information packets will be developed by the OBPOA TDM Program Manager and distributed to employers. Packets will describe alternatives to driving alone and the benefits of such options, and include critical information such as BART and LAVTA public transit schedules and information, information on the RIDES service, OBPOA shuttle schedules, information on ridesharing, a description of the TDM program and services and other educational materials. Orientation for new employees is considered particularly important because they have not yet gotten used to a particular commute pattern.

Special Promotions

The marketing element will include special promotions, such as periodic prize drawings, contests, awards for ridesharing, commuter or bicycle clubs, and other activities to attract the attention of commuters, generate excitement about the use of commute alternatives, and reward use of alternative modes. These promotions will be conducted throughout the year, and could coincide with area-wide commuter promotions, such as Rideshare Week, Bike to Work Day, Spare the Air Day program, and Earth Day. RIDES could be a featured speaker at one of the promotions. At least one additional visible special event will be held per year.

Guaranteed Ride Home (GRH) Program

The Guaranteed Ride Home program provides "insurance" that a person who uses a commute alternative will be able to get a ride home (or to another location, as appropriate) in case of personal or family illness, unscheduled overtime or other emergency. The Alameda County Congestion Management Agency (CMA) provides a Guaranteed Ride Home program that is available to employers with at least 100 employees in Alameda County. To be eligible for a guaranteed ride home, an employee must be a regular fulltime or part-time employee, live within 100 miles of the work place, and both employers and employees must pre-register with the program. The Alameda County CMA Guaranteed Ride Home program will be described to eligible employers, and information will be provided on the Oaks Business Park TDM website. Employers with 100 or more employees will be encouraged to utilize the Alameda CMA Guaranteed Ride Home program or provide their own program.

Alternative Work (Telecommuting/Flextime) Hours

This measure might include programs that reduce the number of days commuters need to travel to the worksite or shift commute travel to non-peak period times of the day. These can include compressed work weeks, flexible work schedule and telecommuting. Information on alternative work hours will be provided to ETC's during the quarterly workshops, and employers will be encouraged to support and implement these programs.

- Compressed work weeks, in which employees work a full 40-hour work week in fewer than the typical five days;

- Flexible work schedules, which allow employees to shift their work start and end times to less congested times of the day; and
- Telecommuting, in which employees work one or more days at home or at an alternate location closer to their homes.

Rideshare Matching

Ridesharing, which includes carpooling and vanpooling, is anticipated to be a primary alternative to driving alone. Carpool ride matching information will be promoted to employees in the new hire guide, at commuter fairs, and as part of the annual survey. Employer Transportation Coordinators will be educated about ride matching services during the move-in orientation, at quarterly workshops, and through quarterly newsletters.

A description of services provided by RIDES, a private, non-profit corporation that provides the various alternative mode services, will also be included in the move-in packets for employees and employers (see below). Employers will be encouraged to partner with RIDES to provide commute solutions and services to their employees. The Oaks website will include a link to the RIDES web page. Carpool and vanpool match lists can be requested on-line at www.rides.org.

RIDES for Bay Area Commuters

RIDES is a private, non-profit corporation that provides the following transportation services:

- Consultations to determine the best commute alternative
- Carpool and vanpool referrals
- Bicycle information and referrals
- Assistance to take public transit or telecommute
- Information on using HOV lanes, park & ride lots, Commuter Check, etc.
- Assistance in forming a carpool or vanpool
- Vanpool services and support
- On-site marketing events and commute fairs

A RIDES application will be included as part of the annual surveys.

Bicycle/Pedestrian Facilities

Measures promoting the use of bicycles and walking as alternative modes of transportation will include the following key elements as part of the Baseline Requirements:

- A clearly designated pedestrian circulation network within the Park, linking the Park with the City of Livermore roadway network
- Secure bicycle parking in buildings or parking garages;
- Bicycle racks adjacent to retail/commercial uses
- Safety amenities such as lighting, sidewalks, and off-street pedestrian/bicycle paths will be incorporated into the site planning

Commute Information Center

A commute information center will be established within the Oaks Business Park, and will provide a centralized location for information about transportation alternatives and the Park's TDM program. The information center will include:

- Information, including maps with bicycle routes, lanes and paths, pedestrian routes, location of tools and air pumps for on-site emergency repairs.
- Bulletin board display with current transit information, including service maps and fares
- Transit shuttle information and schedule
- Information on transit ticket sales
- Description of TDM Program and services
- Carpool/vanpool information
- Training materials for employers considering alternate work hour programs
- Other important information on transportation alternatives

Employers with 100 or more employees will be required to include a commute information center in a visible location within their property. The OBPOA TDM Program Manager will provide information as to format and content, and will be responsible for sending current information to Employer Transportation Coordinators for display in the information centers.

5.3 Supplemental Requirements

These measures will be implemented if the VTR goal for the Park is not being met. The Implementation Matrix presented in Section 3.2 identifies whether the OBPOA or the employer is responsible for the measure and during what phase.

Preferential Parking

Preferential parking programs set aside parking spaces near the entrances to buildings for use by carpools/vanpools. The spaces set aside for preferential parking will depend on the arrangement of the parking serving the buildings. Preferential parking is most effective in larger parking facilities where walking distances are longer. A minimum of two percent of the total parking spaces will be set-aside for registered carpool/vanpool users.

Park and Ride Information

Information on Park-and-Ride facilities where employees are commuting from (e.g., Tracy, Fairfield, Milpitas) will be identified and included in the marketing information.

Rideshare Matching

In addition to the matching items under the Baseline Requirements, Supplemental Requirements will include the more in-depth items including in-house matching and zip code solicitation.

Bicycle/Pedestrian Facilities

In addition to the measures promoting the use of bicycles and walking as alternative modes of transportation as part of the Baseline Requirements, the following will be Supplemental Requirements:

Access to convenient and safe showers and lockers (for overnight storage of clothes, etc.) in one of every three new ("new" is defined as building permit received after this Supplemental Requirement is imposed) office buildings owned by same owner), or in every new building not owned by same owner; and Bicycle Commuter Club.

Guaranteed Ride Home Program

The Guaranteed Ride Home Program is a Supplemental Requirement for all employers with 100 or more employees at the Park, and will be offered to all employees using a commute alternative to the single-occupant vehicle, including walking or bicycling, or using a van pool, carpool, bus or train. As a Supplemental Requirement, the OBPOA will provide Guaranteed Ride Home services to employees that work for employers with fewer than 100 employees, limited by the following annual expenditures: $5,000 per year in Phase I, $10,000 per year in Phase II and $15,000 per year in Phase III. These annual expenditures will be adjusted annually per the Bay Area Consumers Price Index (CPI). Employers with 100 or more employees will not be assessed for this cost, but employers with fewer than 100 employees will be assessed for this cost by the OBPOA. The employer shall pay all costs associated with the provision of the Guaranteed Ride Home Program when it is being implemented as a TDM Program requirement.

The Alameda County Congestion Management Agency (CMA) provides a Guaranteed Ride Home program that is available to employers with at least 100 employees in Alameda County. To be eligible for a guaranteed ride home, an employee must be a regular full-time or part-time employee, live within 100 miles of the work place, and both employers and employees must pre-register with the program. The Alameda County CMA Guaranteed Ride Home program will be described to eligible employers, and information will be provided on the Oaks TDM website. Employers with 100 or more employees may choose to utilize the Alameda CMA Guaranteed Ride Home program, however, in the event that it is discontinued or its guidelines change such that the employer is not eligible, the employer will still be required to provide the program.

5.4 Optional Measures

The following Optional Measures represent a "toolbox" of actions that could be implemented voluntarily by the OBPOA or employers to promote commute alternatives.

Alternative Mode (Transit/Carpool) Subsidies

Each employer will be encouraged to provide a subsidy to all permanent employees who ride transit or participate in a qualified vanpool an average of four or more days per week.

The Commuter Check program is a program administered by the Metropolitan Transportation Commission (MTQ that allows employers to offer their employees a financial benefit for using commute alternatives. Commuter Checks are either purchased by the employer or purchased by the employee with a pre-tax salary deduction (or a combination of both funds). Employees receive up to $780 a year of tax-free income and employers avoid paying payroll taxes. The employer must establish the Commuter Check program, for employees to receive this benefit.

Financial Incentives - The OBPOA may institute financial incentives to employees of Oaks to use transit or other alternatives. Incentives may fall within the IRS limitations, which are currently set at $780 per year per employee.

Station Cars/Taxi Service

Station cars include set aside vehicles at BART facilities that would be used by employees to travel between the transit station and Oaks. The availability of station cars and/or subsidized taxi service between Oaks Business Park and the BART station would eliminate the need to drive a car to work to have it available for workday activities, particularly during the midday when shuttle service may not be available.

Fleet Vehicles

Set aside vehicles for use during the day by employees who rideshare or take transit. These vehicles could be made available for the Guaranteed Ride Home program.

Bicycle Fleet

Provide a fleet of bicycles for intra-park trips, nearby lunchtime excursions or errands. Having a bicycle fleet on-site could potentially reduce the need to drive a car to work to have it available for workday activities and errands.

Parking Pricing/Parking Cash Out

Parking pricing, aimed at providing economic disincentive to driving (especially alone), could be implemented by OBPOA and/or employers. OBPOA could institute a parking fee for parking spaces, which could be geared towards non-compliant employers, new employers, or implemented park wide. The parking fee will be determined following a survey of parking fees at major employers and business parks in the Bay Area. Employers could then price parking by either charging for previously free parking or "cashing out" subsidies (paying employees who now enjoy parking subsidies cash instead, that they can use on alternative modes). Employers would also be able to decide to provide price preference to carpools and vanpools.

APPENDIX A

EMPLOYER TRANSORTATION COORDINATOR DESIGNATION FORM

OAKS BUSINESS PARK OWNER'S ASSOCIATION
EMPLOYER TRANSPORTATION COORDINATOR
DESIGNATION FORM

The purpose of this form is to notify the OBPOA TDM Program Manager of the individual whom your organization has designated to service as the Employer Transportation Coordinator. Please submit this form within 60 days of beginning occupancy at the Oaks Business Park. Please promptly resubmit this form to the OBPOA TDM Program Manger within 60 days of the departure or reassignment of the Employer Transportation Coordinator.

Please complete all sections. Maintain a copy for your records and send the originals to:
Oaks Business Park Owner's Association, TDM Program Manager
Street Address, Livermore, CA

Name and Type of Business: _____

_____

Address of Business: _____

_____

Phone Number: _____ Fax Number: _____

Employer Transportation Coordinator Name and Title: _____

_____

Percentage of Job Duties (or Time) dedicated to TDM: _____

Full Time: _____ Part Time (specify hours): _____

Mailing Address of ETC (if different from Business Address): _____

_____

Employer Transportation Coordinator Phone Number: _____

Employer Transportation Coordinator Email Address: _____

Number of Regular Employees Currently Located at this Office: _____

Number of Contract Employees Currently Located at this Office: _____

Number of Regular Employees Who Worked Less Thank 30 Hours per Week: _____

Number of Contract Employees Who Worked Less Thank 30 Hours per Week: _____

Business Hours of this Office: _____

_____

Date: _____

APPENDIX B

SAMPLE EMPLOYEE SURVEY FORM

MEMO

Date: October 1, 2003

To: All Employees; including part-time and contract employees

From: Employer Transportation Coordinator

Re: TDM Program Annual Survey

As part of the Oaks Business Park development, we are required to perform a survey of the travel characteristics of commute trips to and from work for each employee on an annual basis. The purpose of the survey is to determine the mode of travel to and from work, and to help in the development of programs to encourage more people to take alternative modes.

To ensure that we meet the TDM Program's standards, we request that every employee participate in this survey. Please follow the instructions below, and return the completed survey to the Transportation Coordinator by September 28, 2003.

Instructions:

1) Please answer all questions regarding your trips to and from work for the survey week indicated on the form.
2) Return the survey as indicted on the form. The survey can be submitted in hardcopy or electronically via the Oaks Business Park website.

If you have any questions regarding the survey or would like additional information regarding Oaks Business Park TDM Program, please contact your Transportation Coordinator or go to the Oaks Business Park website at www.oaksbusinesspark.com.

All information will be kept confidential. Thank you for your participation.

Employee Transportation Survey

Please complete this survey describing your commute to and from work during the workweek of Monday _____ through Friday _____.

Please return the completed form to _____ by _____.

Oaks Business Park thanks you for your help.

1. **Employee name or number:** _____

2. **What is your home zip code?** ___ ___ ___ ___ ___

3. **Please describe your work schedule during the survey week (check one).**

( ) Full-time (5 or more days per week)
( ) Compressed work week (e.g., 9/80)
( ) Part-time, more than 20 hrs per week
( ) Part-time, less than 20 hrs per week
( ) Did not work during survey week
( ) Other _____

4. **What time did you typically start and end work during the survey week?**

Start time: ___:____ AM/PM End time: ____:_____ AM/PM

5. **How did you travel to work each day during the survey week?**
(Please enter one letter into each box, indicating your mode of travel to or from work for each day of the survey week. If you did not travel to work on a day, please indicate the reason. Only one letter per box. If you used more than one mode during the trip, choose the primary mode of travel.)

Commute Modes		***Reason for Not Reporting***
A) Drive Alone	G) ACE	M) Regular day off (weekend)
B) Carpool*	H) Capital Corridor	N) Compressed work week
C) Vanpool	I) Motorcycle/moped	O) Worked at home
D) BART	J) Bicycle	P) Time Off (vacation/sick)
E) AC Transit	K) Walk	Q) Worked off-site
F) VTA	L) Other _____	

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
To Work							
From Work							

**Note:* Carpool is two or more people traveling together and arriving together in Livermore, or driving more than 75% of the trip together. {NOTE: This added language covers the example where two commuters drive together from Tracy and one is dropped off in east Livermore while the driver continues to Oaks Business Park.}

6. **If you commute in a carpool or vanpool, how many people (including the driver) are normally in the vehicle?** _____ people

7. **If your primary commute mode is public transportation (AC Transit, BART, ACE), how do you normally travel between your home and transit stop?** (check one)

( ) Drive Alone
( ) Dropped-Off/Picked up
( ) Motorcycle/moped
( ) Bicycle
( ) Walk
( ) Other _____

8. **If you are a passenger in a carpool or vanpool, how do you normally travel between your home and the pick-up/drop –off point?** (check one)

( ) Carpool/vanpool stops at house ( ) Motorcycle/moped ( ) Walk
( ) Drive Alone ( ) Transit ( ) Other _____
( ) Dropped-Off/Picked up ( ) Bicycle

9. **Which of the following factors do you consider when choosing your means of travel to/from work?** (check up to three)

( ) Travel Time
( ) Cost
( ) Convenience/flexibility
( ) Ability to make stops to or from work
( ) Comfort and Safety
( ) Reducing pollution/conserve energy
( ) Traffic

10. **If you drive alone to/from work, what are the main reasons that you do not use an alternate mode of travel (such as carpool, transit or bicycle)?** (check up to three)

( ) Transit not convenient
( ) Transit too expensive
( ) Difficult to find others to rideshare
( ) Work late or irregular hours
( ) Cannot get home in an emergency
( ) Poor bicycle or pedestrian access
( ) Long distance between home and work
( ) Need car for job
( ) Need to make stops to or from work
( ) Prefer to travel in private automobile

11. **If you drive alone to/from work, would you be willing to use any of the following commute alternatives one or more days a week?** (check all that apply)

( ) Carpool ( ) Transit ( ) Walk
( ) Vanpool ( ) Bicycle ( ) Telecommute

12. **If you drive alone to work, which of the following incentives/programs would encourage you to use a commute alternative?** (check up to three)

( ) Financial subsidies
( ) Guaranteed ride home in emergencies
( ) Awards/prizes
( ) Sale of transit passes at work
( ) Assistance with transit information
( ) Assistance in finding carpool/vanpool
( ) Bicycle lockers/showers at work
( ) Better bicycle/pedestrian access
( ) Flexible work schedule
( ) On-site services (e.g., ATM, childcare)
( ) More frequent shuttle from transit
( ) Other

_____
to work

13. **If you are interested in ride matching, please provide your full address:**

_____

14. **Comments:**

_____

_____

_____

APPENDIX C

MODEL EMPLOYER TDM REPORT

OAKS BUSINESS PARK
EMPLOYER TDM REPORT
Year ending October 31, 2003

Due: December 15, 2003

This form has been prepared to simplify the preparation of your annual report, which is required by the Oaks Business Parks TDM Plan. This form is divided into four sections addressing: (I) employer information, (II) required elements, (III) supplemental elements, and (IV) operational elements. Please complete all four sections.

Be sure to keep a copy for your records, and return the original to:

Oaks Business Parks Owner's Association
OBOA
Street Address
Livermore, CA
Tel:
Fax:
Email:

I. EMPLOYER INFORMATION

A. Business

Name: _____

Address of Business: _____

Phone Number: _____ Fax Number: _____

B. Employer Transportation Coordinator

Name and Title: _____ Date Designated: _____

Phone Number: _____ Fax Number: _____

Email Address: _____

C. Total Number of Employees

Number of *Regular* Employees Currently Located at this Office: _____

Number of *Contract* Employees Currently Located at this Office: _____

D. Survey Results

Dates of Survey: _____

Overall Response Rate: _____

Based on your employee transportation survey, provide the percent of employees that:

Drive Alone	Carpool	Vanpool	Public Transit	Motorcycle	Bike	Walk	Other

Please attached calculation forms to this report.

II. BASE REQUIREMENTS

Indicate the actions that you have taken to implement the requirements in this table by specifying date of implementation or frequency and a short description of the program (please feel free to use additional paper if necessary for this description):

A. New Employee Information

Action	Date Implemented	Program Description
1. TDM information packet for new employees		
2. Employer Transportation Coordinator in place		
3. Personal visit or phone call from ETC (optional)		
4. Commute information area		
5. Internal Rideshare Matching		
6. Preferential HOV parking		
7. Other		

B. Providing Transportation Information Developed by OBPOA to All Employees – (Please list which information-distribution methods your company is utilizing (a possible list of those methods is included below.)

Method	Frequency		
	Monthly	Quarterly	Other
1. Post on bulletin board			
2. Display in common area			
3. Presentation at meetings			
4. Via email			
5. Via web page			
6. Via U.S. mail			
7. Upon request			
8. Commute fair			
9. Company newsletters			
10. Hand deliver			
11. Flyers			
12. Company meetings			
13. Other (specify)			

III. SUPPLEMENTAL REQUIREMENTS (if applicable)

Action	Date Implemented	Program Description
1. Guaranteed Ride Home Program		
2. Consider Telecommuting/Flextime Policies		
3. Provide transit, carpool and vanpool incentives.		

IV. OPTIONAL ELEMENTS

Please indicate date of implementation, if applicable.

A. Management Support		
Action	**Date Implemented**	**Program Description**
1. Alternative work hour programs		
2. Flextime policy		
3. Schedule meetings during core work hours to encourage ridesharing		
4. Institute telecommuting program		
5. Promotional activities		
6. Other		
7. Other		

B. Carpooling and Vanpooling		
Action	**Date Implemented**	**Program Description**
1. Distribute RIDES carpooling applications		
2. Arrange for RIDES display		
3. Assist potential riders in forming carpools		
4. Provide preferential parking spaces for those that rideshare		
5. Offer rewards/drawings for ridesharing		
6. Provide company vehicles for carpooling		
7. Provide company cars for business purposes		
8. Allow flextime to accommodate carpools		
9. Other		
10. Other		

C. Transit: BART, AC Transit, VTA, Shuttles		
Action	**Date Implemented**	**Program Description**
1. Promote ticket information by OBPOA		
2. Subsidize transit tickets		
3. Participate in special transit promotions		
4. Provide company cars and/or bicycles for business purposes		
5. Request personalized trip planning information		
6. Other		
7. Other		
8. Other		

D. Bicycles and Walking		
Action	**Date Implemented**	**Program Description**
1. Provide secure bicycle storage		
2. Form a company bicycle or walk club		
3. Promote "Bike/Walk to Work Day"		
4. Allow employees to dress casually		
5. Provide showers/lockers in building		
6. Provide company bicycles for commute or business purposes		
7. Other		
8. Other		
9. Other		

E. Other Marketing and Incentive Programs		
Action	**Date Implemented**	**Program Description**
1. Provide on-site amenities (list)		
2. Feature commute alternatives users in newsletter		
3. Have a commuter of the year drawing		
4. Establish an annual recognition event		
5. Sponsor in-house commute promotions		
6. Participate in OBPOA commute promotions		
7. Other		
8. Other		