LIVERMORE DRAFT GENERAL PLAN AND DOWNTOWN SPECIFIC PLAN ENVIRONMENTAL IMPACT REPORT

VOLUME III: FINAL EIR - RESPONSES TO COMMENTS

SCH No. #2003032038

LSA

September 2003

LIVERMORE DRAFT GENERAL PLAN AND DOWNTOWN SPECIFIC PLAN ENVIRONMENTAL IMPACT REPORT

VOLUME III: FINAL EIR - RESPONSES TO COMMENTS

SCH No. #2003032038

Submitted to the:

City of Livermore
1052 So. Livermore Avenue
Livermore, CA 94550
(925) 960-4462

Prepared by:

LSA Associates, Inc.
2215 Fifth Street
Berkeley, CA 94710
(510) 540-7331

LSA

September 2003

TABLE OF CONTENTS

I. INTRODUCTION

A. PURPOSE OF THE RESPONSE TO COMMENTS DOCUMENT

This report has been prepared to respond to comments submitted on the June 2003 Public Review Draft Environmental Impact Report (Draft EIR) for the proposed *Draft City of Livermore General Plan 2003-2025* (Draft General Plan) and the *Draft City of Livermore Downtown Specific Plan 2003* (Downtown Specific Plan). The Draft EIR identifies the likely environmental consequences associated with implementation of the Draft General Plan and Downtown Specific Plan.

This document responds to comments on the Draft EIR and makes revisions to the Draft EIR, as necessary, in response to these comments, to clarify any previous errors, omissions, or misinterpretations of material in the Draft EIR, or as a result of City-initiated revisions. Comments and responses on the Draft General Plan and Downtown Specific Plan will be presented to the decision-making body, the City of Livermore City Council, for discussion and approval on September 29, October 13 and October 20, 2003.

B. FINAL EIR

This document, together with the Draft EIR (consisting of Volume I, Master Environmental Assessment (MEA) and Volume II, Impacts and Mitigation Measures and Technical Appendices (DEIR)), will constitute the Final EIR if the City of Livermore City Council certifies the Final EIR as complete and adequate under the California Environmental Quality Act (CEQA) on October 20, 2003.

C. ENVIRONMENTAL REVIEW PROCESS

According to CEQA, lead agencies are required to consult with public agencies having jurisdiction over a proposed project, and to provide the general public with an opportunity to comment on the Draft EIR.

On March 10, 2003, a Notice of Preparation (NOP) was issued. The Draft EIR was made available for public review on June 13, 2003 and distributed to the State Clearinghouse and local and State responsible and trustee agencies. The general public was advised of the availability of the Draft EIR through public notices of availability in the local newspapers. The Draft EIR was also posted on the City's Draft General Plan website at www.livermoregeneralplan.org. CEQA mandates a minimum 45-day public comment period on the Draft EIR, which ended on July 30, 2003.

Copies of all written and oral comments received on the Draft EIR during the comment period are contained in this report.

The Draft General Plan and Downtown Specific Plan, Final EIR, and all comments were or will be presented to the Planning Commission on September 23, 2003 and the City Council at public hearings

on September 29, October 13 and October 20, 2003 at which time the City Council will consider a recommendation from the Planning Commission regarding the approval of the Draft General Plan and Downtown Specific Plan and certification of the EIR. Upon this approval and recommendation from the Planning Commission, the City Council will certify the EIR based on the findings of the Notice of Determination.

D. DOCUMENT ORGANIZATION

This Response to Comments document consists of the following chapters:

- *Chapter I: Introduction.* This chapter discusses the purpose and organization of this Final EIR.
- *Chapter II: List of Commenting Agencies, Organizations, and Persons.* This chapter contains a list of agencies, organizations, and persons who submitted written comments or verbal comments at the July 15, 2003 public hearing on the Draft EIR.
- *Chapter III: Comments and Responses.* This chapter contains reproductions of all comment letters received on the Draft EIR, as well as summaries of oral comments received on the Draft EIR. A written response for each CEQA-related comment received during the review period is provided. Each response is keyed to the preceding comments.
- *Chapter IV: Draft EIR Text Revisions.* Corrections to the Draft EIR necessary in light of comments received and responses provided, or necessary to clarify any errors, omissions or misinterpretations, are contained in this chapter.
- *Chapter V: Mitigation Monitoring and Reporting Program.* This chapter contains the mitigation, monitoring, and reporting program for the proposed project, based on the mitigation measures contained in the Draft EIR.
- *Chapter VI: Report Preparation.* A summary of those involved in report preparation is contained in this chapter.

II. LIST OF COMMENTING AGENCIES, ORGANIZATIONS AND PERSONS

The following list of written comments was submitted to the City of Livermore City Council during the public review period on the Draft EIR. The comments are grouped by the affiliation of the commenting entity as follows: Section (A): federal, State, regional, and local agencies, (B) organizations, (C) individuals, and (D) public hearing comments.

A. FEDERAL, STATE, REGIONAL, AND LOCAL AGENCIES

A1 State of California, Governor's Office of Planning and Research, State Clearinghouse; Terry Roberts, Director, July 31, 2003

A1a State of California, Governor's Office of Planning and Research, State Clearinghouse; Philip Crimmons, Project Analyst, July 31, 2003

A2 U.S. Department of Transportation, Federal Aviation Administration, Western-Pacific Region Airports Division, San Francisco Airports District Office; Barry Franklin, Environmental Planning Specialist, July 7, 2003

A3 Sandia National Laboratories (U.S. Department of Energy) Environmental Operations Department; Barbara Larsen, Environmental Planning Lead, July 15, 2003

A4 California Regional Water Quality Control Board; Keith H. Lichten, P.E., Water Resource Control Engineer, July 14, 2003

A5 East Bay Regional Park District; Brad Olson, Environmental Programs Manager, July 15, 2003

A6 Lawrence Livermore National Laboratory, Environmental Protection Department; Kenneth C. Zahn, Leader, Environmental Evaluations Group, July 29, 2003

A7 Zone 7 Alameda County Flood Control and Water Conservation District; Jim Horen, Principal Engineer, Advance Planning Section, July 30, 2003

A8 San Francisco Bay Area Rapid Transit District; Val Menotti, Manager, Alameda County Planning, July 30, 2003

A9 Bay Area Air Quality Management District; William C. Norton, Executive Officer/APCO, July 30, 2003

A10 Alameda County Congestion Management Agency; Diane Stark, Senior Planner, July 30, 2003

A11 City of Dublin; Janet Harbin, Senior Planner, July 31, 2003

A12 State of California, Department of Fish and Game; Robert W. Floerke, Regional Manager, Central Coast Region, August 1, 2003

A13 State of California, Governor's Office of Planning and Research, State Clearinghouse; Terry Roberts, Senior Planner, August 12, 2003 cover letter for State of California, Department of Transportation; Timothy C. Sable, District Branch Chief, August 11, 2003

B. ORGANIZATIONS

B1 Livermore Chamber of Commerce; Mark Triska, Chairman, Board of Directors and John Mahoney, Chairman, Government Affairs Committee, July 30, 2003

B2 California Native Plant Society East Bay Chapter, Alameda and Contra Costa Counties; Nathan Smith, August 1, 2003

C. INDIVIDUALS

C1 John Stein, July 3, 2003

C2 John Stein, July 8, 2003

C3 John Stein, July 18, 2003

C4 John Stein, July 20, 2003

C5 John Stein, July 29, 2003

C6 William L. Clarke, July 30, 2003

C7 Katie Myers, July 29, 2003

C8 Valerie Raymond, July 29, 2003

C9 William Raymond, July 29, 2003

C10 Michael G. van Hattem, July 30, 2003

C11 Sharon and Owen Parker, Courtney Cooke, John Canfield, Bonnie and Don Hughes; July 28, 2003

C12 Livermore Venture Partners, L.P., Gordon D. Jacoby, Project Manager, July 28, 2003

D. PUBLIC HEARING COMMENTS

D Minutes of the City of Livermore Planning Commission Hearing on the Draft EIR, July 15, 2003

D1-1 to D1-11	John Stein
D2-12 to D2-14	Clarence Honig
D3-15	Gordan Jacoby
D4-16 to D4-21	Valerie Raymond
D5-22	Nancy Bankhead

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III. COMMENTS AND RESPONSES

This chapter includes a reproduction of each letter received during the review period or comment made during the July 15, 2003 public hearing that commented on the Draft EIR, grouped by the affiliation of the commenting entity as follows: (A) federal, State, regional and local agencies, (B) organizations, (C) individuals, and (D) public hearing comments on the Draft EIR. The comments are numbered consecutively following the A, B, C, or D designation. The letter number (for example A1, the first agency comment letter) is shown in a box in the upper right-hand corner of each page of the letter. Specific comments on the Draft EIR are annotated in the margin of each letter according to the following code:

Federal, State, Regional, and Local Agencies:	Letter Number A# and comment #
Organizations:	Letter Number B# and comment #
Individuals:	Letter Number C# and comment #
Public Hearing Comments	Speaker Number D # and comment #

When cross-referenced in the text, the comment is referred to as A#-# where the number following the letter refers to the letter number, and the number following the hyphen refers to the comment number within that letter. For example, comment C3-8 refers to the eighth comment within the third letter submitted by an individual.

Persons who had a comment on the Draft EIR during the public hearing are listed in Section D, in order of appearance at the hearing.

Letters received during the public comment period on the Draft EIR are provided in their entirety in the following pages. Each letter is immediately followed by responses keyed to the specific comments.

The Draft EIR consists of three documents, Volume I, Master Environmental Assessment (called the MEA in the following responses to comments), Volume II, Impacts and Mitigation Measures (called the DEIR in the following responses to comments) and Technical Appendices, which is a third separately bound volume.

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A. FEDERAL, STATE, REGIONAL AND LOCAL AGENCIES

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Letter
A1

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse

Gray Davis
Governor

Tal Finney
Interim Director

July 31, 2003

Susan Frost
City of Livermore
1052 S Livermore Ave
Livermore, CA 94550

Subject: General Plan Update and Downtown Specific Plan
SCH#: 2003032038

Dear Susan Frost:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on July 30, 2003, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. 1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

RECEIVED
AUG - 4 2003
PLANNING DIVISION

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
(916)445-0613 FAX(916)323-3018 www.opr.ca.gov

Letter
A1
Attach.

Document Details Report
State Clearinghouse Data Base

SCH# 2003032038
Project Title General Plan Update and Downtown Specific Plan
Lead Agency Livermore, City of

Type EIR Draft EIR

Description Comprehensive update to the Livermore Community General Plan involving all State- mandated elements, except Housing. The Housing Element is undergoing separate updates. The project also includes preparation of a Downtown Specific Plan to support the redevelopment and revitalization of the city's downtown area.

Lead Agency Contact

Name Susan Frost
Agency City of Livermore
Phone 925 960-4462 **Fax**
email
Address 1052 S Livermore Ave
City Livermore **State** CA **Zip** 94550

Project Location

County Alameda
City Livermore
Region
Cross Streets
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 84, I-580
Airports Livermore
Railways Union Pacific
Waterways Various arroyos
Schools Liv. Valley Joint Unified School District
Land Use various

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 3; Regional Water Quality Control Board, Region 2; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 4; Department of Housing and Community Development; Native American Heritage Commission; Public Utilities Commission; State Clearinghouse

Date Received 06/13/2003 **Start of Review** 06/13/2003 **End of Review** 07/30/2003

Note: Blanks in data fields result from insufficient information provided by lead agency.

COMMENTOR A1
State of California, Governor's Office of Planning and Research, State Clearinghouse; Terry Roberts, Director (July 31, 2003)

A1-1: This letter acknowledges that the City of Livermore has complied with the State Clearinghouse review requirements for draft environmental documents. This letter does not relate directly to adequacy of the Draft EIR or the analysis contained therein. Therefore, no further response is necessary.

Letter
A1a

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Tal Finney
INTERIM DIRECTOR

Memorandum

Date: July 31, 2003

To: All Reviewing Agencies

From: Philip Crimmins, Project Analyst

Re: SCH # 2003032038
General Plan Update and Downtown Specific Plan

The State Clearinghouse distributed the above named EIR to your agency on July 30, 2003 with incorrect review dates. The correct review period is:

Review period began: June 13, 2003
Review period ends: July 30, 2003

We regret this error, and request that you note the above information for your files.

Cc Susan Frost
City of Livermore
1052 S. Livermore Ave.
Livermore, Ca 94550

COMMENTOR A1a
State of California, Governor's Office of Planning and Research, State Clearinghouse; Philip Crimmons, Project Analyst (July 31, 2003)

A1a-1 This memo acknowledges an error in the State Clearinghouse Document Details Report regarding the review period. The Document Details Report stated an end of review date of July 28, 2003; whereas, the final end of review date was July 30, 2003. No further response is necessary.

Letter
A2

U.S Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region
Airports Division
San Francisco Airports District Office

831 Mitten Road, Suite 210
Burlingame, CA 94010-1300

July 7, 2003

City Of Livermore
Attn: Ms. Susan Frost, Senior Planner
1052 S. Livermore Ave.
Livermore, CA 9450-4899

Dear Ms. Frost:

Re: Notice of Completion of a Draft Environmental Impact Report for the Livermore General Plan Update and Downtown Specific Plan, Livermore, Alameda County, CA

Thank you for notifying our office of the preparaton of a Draft Environmental Impact Report (DEIR) for the Livermore General Plan Update and Downtown Specific Plan. We have reviewed the documents for potential impacts to Federal Aviation Administration (FAA) programs related to aviation safety and efficiency for the Livermore Municipal Airport(LVK).

The proposed Plan would not effect FAA funded Airport Improvement Program (AIP) projects that would take place at LVK as it relates to aviation safety and/or efficiency on LVK operations. 1

If you have any questions you may contact me at (650) 876-2795.

Sincerely,

Barry Franklin
Environmental Planning Specialist

RECEIVED
JUL 10 2003
PLANNING DIVISION

COMMENTOR A2

U.S. Department of Transportation, Federal Aviation Administration, Western-Pacific Region Airports Division, San Francisco Airports District Office; Barry Franklin, Environmental Planning Specialist (July 7, 2003)

A2-1: This letter acknowledges receipt and review of the Draft EIR by the Federal Aviation Administration. This letter does not contain comments on the adequacy of the Draft EIR or the analysis contained therein. Therefore, no further response is necessary.

Letter
A3

Sandia National Laboratories
Operated for the U.S. Department of Energy by
Sandia Corporation
P. O. Box 969, MS- 9221
Livermore, CA 94551-0969

July 15, 2003

Ms. Susan Frost
Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

Subject: Comments on Draft EIR

Dear Ms. Frost:

Thank you for the opportunity to review the Livermore Draft General Plan and Downtown Specific Plan Environmental Impact Report. I have the following comments regarding the location of Sandia National Laboratories, as presented in the document.

1. Volume II, page 14, 2nd full paragraph: Sandia is incorrectly identified as located within the Livermore city limits. Although Sandia is situated within the sphere of influence of the City of Livermore, it is located east of Livermore in the unincorporated area of Alameda County. **1**
2. Figure V-2, page 235 / 236: the city limit boundary along the eastern side of Livermore and adjacent to Sandia is not accurately placed. **2**

Sincerely,

Barbara Larsen

Barbara Larsen
Environmental Planning Lead
Environmental Operations Department

cc:
Jim Bartel (8516), MS 9221

COMMENTOR A3
Sandia National Laboratories (U.S. Department of Energy); Barbara Larsen, Environmental Planning Lead (July 15, 2003)

A3-1: Comment and correction are noted. Page 14 of the DEIR is revised as follows:

> The area within the Livermore City limits is mostly built out, with limited land available for development. Livermore's Downtown lies exactly at the geographic center of the City, about 1.5 miles from I-580. Historically, the City's founders set up the commercial core near the railroad line and at the intersection of SH 84 (First Street) and Livermore Avenue, a major north-south route through the City. The residential neighborhoods of the City are generally developed at suburban densities. Industrial and commercial areas exist in the eastern and western areas of the City.~~, and t~~The Lawrence Livermore National Laboratory ~~Labs~~ and Sandia National ~~Labs~~ Laboratories are located to the east of the Livermore City limits.~~in the southeastern portions of the City.~~

A3-2: Comment and correction are noted. A revised Figure V-2: Balanced Alternative on page 235 of the DEIR that shows the City limit boundary accurately placed is included in Chapter IV of this document.

Letter
A4

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

Date: JUL 14 2003
File No. 2198.09 (KHL)

RECEIVED
JUL 17 2003
PLANNING DIVISION

Ms. Susan Frost, Senior Planner
Livermore Community Development Dept.
1052 South Livermore Avenue
Livermore, CA 94550

Subject: Livermore General Plan Update and Downtown Specific Plan DEIR
SCH No. 2003032038

Dear Ms. Frost:

We have received the Draft Environmental Impact Report (DEIR) for the above-referenced plans. Thank you for the opportunity to comment on it.

We want to take this opportunity to commend the City on its efforts to incorporate plans and policies that are appropriately protective of water quality and waters of the State, including creeks and wetlands. Further, we recognize that the City has been a leader in the Bay Area in working to ensure appropriate measures are incorporated into built projects, and that City staff are generally well-educated regarding necessary types of mitigation measures for projects—at a minimum, City staff seem to know with whom they should work within the City to ensure such measures are incorporated into projects during the planning process.

We have two areas of comment on the proposed General Plan Update. First, while the stormwater impact mitigation measure in the DEIR (pp. 195-7) is reasonably comprehensive, we would suggest that additional detail be provided, as discussed below, to clarify its actual requirements. Second, the February 2003 reissuance of the City's NPDES municipal stormwater permit included requirements to appropriately update General Plans to reflect permit requirements. We appreciate the language that has been added to Chapter 7 of the General Plan, and would suggest that there is an opportunity for additional language, as discussed below. 1

Stormwater Impact Mitigation Measure Language

The DEIR's stormwater runoff mitigation measure (pp. 195-7) appropriately references the need for impacting projects to comply with the Statewide NPDES General Permits for Discharges of Storm Water Associated with Construction and Industrial Activity. In addition, it appropriately discusses the need for the City to comply with its NPDES 2

Letter
A4
cont.

municipal storm water permit, including participating with the ACCWP. This section would be improved by briefly stating the most important requirements of each permit with respect to potential impacts from new development and significant redevelopment.

Under the City's municipal NPDES storm water permit, the approach is that new development and significant redevelopment projects include: appropriate source controls to prevent the discharge of urban runoff pollutants; design measures to minimize impervious surface; and, treatment controls to treat urban runoff from the projects. While all projects must incorporate such measures, as appropriate, there are substantially more detailed requirements for projects with given thresholds of impervious surface, as identified in the General Plan (pp. 7-20 – 7-22). These thresholds (1 acre of new or replaced impervious surface as of February 15, 2005, falling to 10,000 square feet in August 2006) should be mentioned in the DEIR.

2 cont.

The NPDES Construction General Permit requires implementation and maintenance of appropriate erosion and sediment controls and site management controls in construction projects that disturb 1 acre or more of land. Please add this detail to the mitigation measure.

Finally, we would suggest that the DEIR would benefit from the addition of a similar very brief summary of the types of mitigation measures required under the NPDES Industrial General Permit.

3

General Plan Revisions as per the City's NPDES Permit Reissuance

We support the City's efforts to include appropriate language in its General Plan to support the requirements of the City's NDPES Municipal Stormwater Permit. In particular, we note that a number of policies are included in the Plan that directly support the implementation of stormwater controls. We would ask that the City again go through the Permit to ensure that it has included appropriate measures to fully address Permit requirements. Also, we would suggest that there may be the following opportunities for revisions and/or additions to General Plan policies:

Policy PS-2.1.P3 requires new development projects to prepare drainage studies to assess storm runoff impacts to the local and regional storm drain and flood control system, and to develop recommended detention and drainage facilities to ensure that increased risks of flooding do not result from new development. We would suggest that, pursuant to Permit provision C.3.f, this policy be revised to include an analysis and recommended mitigation of project impacts to increases in peak runoff flow and increased runoff volume, for all projects where such increased flow and/or volume is likely to cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses. This is different from flooding, in that significant erosion impacts are generally thought to be due to smaller storms,

4

such as the 1-year to 10-year storms, and not the larger 25-year to 100-year flood flows. In addition, we would suggest that this policy also be applied to both new development and significant redevelopment projects, except where a project discharges stormwater runoff into creeks or storm drains where the potential for erosion or other impacts to beneficial uses is minimal.

Based on our review, it is not clear that the General Plan includes policies that appropriately support City efforts to revise design standards and guidance to minimize directly connected impervious surface, per Permit provision C.3.j, although policy OSC-2.1.P2 might be viewed as a catch-all for this issue. Action A4 of the community character element (CCE)(p. 4-15) does address this issue with respect to streets. However, it is not clear that similar policies are present for other key site design issues, including on- and off-street parking, residential driveway design, and emergency accessways that are otherwise untraveled. Indeed, CCE policy P12, which requires off-street parking areas to be screened, "preferably...with [vegetated] earth berms" (p.4-14) works against the incorporation of appropriate stormwater controls, by taking a large landscaping area and effectively preventing its use for stormwater control. Worse, such berms are often over-irrigated, resulting in the discharge of chloraminated irrigation flows to creeks, with resulting potentially significant impacts to aquatic species.

4 cont.

We would support the incorporation into the General Plan of policies reflecting the language of provision C.3.j. Also, we note that policy P12 seems quite specific. Could it be made more flexible, perhaps by referencing CEE policy P6? For example, would it not also be appropriate to address the visual impacts of allowing large amounts of surface parking by placing buildings along the street corridor and putting the parking out of sight behind them? This might have the additional benefit of creating a streetscape that is closer to human scale and interesting enough for people to walk on. This latter point is not a water quality issue, except insofar as, for example, allowing flexible setbacks to allow alternative parking designs allows incorporation of appropriate stormwater controls. For that reason, we would welcome added flexibility in policy P12. In addition, we would support the addition of a new policy to address provision C.3.j. At a minimum, we would support revision of CCE policy A4 to include allowing for revision of guidance and standards for parking, sidewalks, driveways, and related impervious surface.

Finally, we would suggest that CEE policy P5's green building examples be expanded to include green roofs, the use of cisterns to capture runoff water for irrigation, and the design into projects of flexible parking, such as parking that is shared between uses based on time-of-day occupancy, parking designed as a part of multiple-use "streets" or "courts" on dead-end single-family residential streets, and similar applications.

Letter
A4
cont.

Again, we would like to congratulate the City on its efforts to date, and request that you consider the revisions discussed above. We would welcome the opportunity to discuss this matter with you further. **4 cont.**

If you have any questions or further comments, please contact me via email to khl@rb2.swrcb.ca.gov, or at (510) 622-2380.

Sincerely,

Keith H. Lichten, P.E.
Water Resource Ctrl. Engr.

Cc Dale Bowyer, RWQCB
Brian Wines, RWQCB

Mr. Jim Scanlin
Executive Director
Alameda Countywide Clean Water Program
951 Turner Court, Room 300
Hayward, CA 94545-2698

COMMENTOR A4
California Regional Water Quality Control Board; Keith H. Lichten, P.E., Water Resource Control Engineer (July 14, 2003)

A4-1: Comment noted. The specific comment regarding the DEIR discussion of storm water impacts (pages 195-197 in the DEIR) is discussed below in response A4-2, and the comment on storm water permit requirements is discussed below in response A4-4.

A4-2: Comment noted regarding the most important requirements of each permit with respect to potential impacts from new development and significant redevelopment. The following revision will be made on page 196 of the DEIR, under the subsection *New Construction* as follows:

> Projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the Statewide General Permit for Discharges of Storm Water Runoff Associated with Construction Activity. ~~A developer must propose control measures that are consistent with the State General Permit.~~ Under the City's municipal NPDES storm water permit, new development and significant redevelopment projects shall include appropriate source controls to prevent the discharge of urban runoff pollutants; design measures to minimize impervious surface; and, treatment controls to treat urban runoff from projects. There are more detailed requirements for projects with thresholds of 1 acre of new or replaced impervious surface as of February 15, 2005, falling to 10,000 square feet in August 2006. The NPDES Construction General Permit requires implementation and maintenance of appropriate erosion and sediment controls and site management controls in construction projects that disturb 1 acre or more of land. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. A SWPPP must include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project.

A4-3: Comment noted and the following sentence will be added on page 196 of the DEIR, under subsection *Industrial Activity*, prior to last sentence in the paragraph.

> Projects shall be required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures, to reduce the discharge of stormwater pollutants to the maximum extent practicable.

A4-4: Comment noted. This comment suggests revisions and additions to Draft General Plan policies to address storm water issues and specifically the requirements of the NPDES Municipal Stormwater Permit. This comment does not raise questions or identify errors contained in the Draft EIR. To respond to this comment, policy PS-2.1.P3 on page 10-22 of the Draft General Plan is revised as follows:

PS-2.1.P3 The City shall require new development and significant redevelopment projects to prepare drainage studies to assess storm runoff impacts on the local and regional storm drain and flood control system, and to develop recommended detention and drainage facilities to ensure that increased risks of flooding do not result from ~~new~~ development. The drainage study shall include an analysis and recommended mitigations for projects that would increase peak runoff flows and increase runoff volume, and for all projects where such increased flow and/or volume is likely to cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses.

In addition, this policy would be applied to both new development and significant redevelopment projects, except where a project discharges stormwater runoff into creeks or storm drains or where the potential for erosion or other impacts to beneficial uses is minimal.

Letter
A5

EAST BAY REGIONAL PARKS FOR THE FUTURE PARK DISTRICT

RECEIVED
JUL 18 2003
PLANNING DIVISION

July 15, 2003

Ms. Susan Frost
Livermore Community Development Department
1052 South Livermore Ave.
Livermore, CA 94550

Subject: Comments on Livermore Draft General Plan and EIR
Brushy Peak Regional Preserve

Dear Susan:

Thank you for meeting with Eric Brown, Larry Tong and myself on July 14, 2003, to discuss our comments on the three-volume City of Livermore draft General Plan and Environmental Impact Report. The following is a summary of our comments and the attached provides more detailed comments.

Brushy Peak Regional Preserve:

The draft General Plan and EIR do not fully evaluate potentially significant effects on Brushy Peak Regional Preserve and adjacent agricultural and open space areas of northeastern Livermore. This is because the General Plan defers informative discussion about the proposed BART Transit Oriented Development (TOD) to a future Specific Plan and EIR. While a Specific Plan for the BART TOD is likely several years away, we believe it is important that the City adopt General Plan policies now to protect Brushy Peak for significant impacts. We request that the City adopt additional policies to protect and buffer Brushy Peak Regional Preserve area in the 1.) Land Use Element, 2.) Open Space and Conservation Element, and 3.) Open Space Action Program (per Government Cost Section 65564). The attached detailed comments are being provided for the City's consideration in revising the General Plan to meet this goal. **1**

A total of 4,474 housing units are proposed for the BART TOD, whereas, the existing general plan land use designations allow for 270 units. This is a 1,600% increase in the number of housing units proposed for this area. Density would increase from three units to a new maximum of 55 dwelling units/acre. In order to achieve such high densities, large areas of the BART property would need to be up to three stories, while the earlier densities could be achieved with one-story structures. Such dramatic changes will alter the rural character and open space character of areas east of Laughlin Road. The General Plan should consider Objectives that protect and buffer open space views of and from Brushy Peak Regional Preserve and adjacent ridgelines. Please the attached photographs from the Dyer property at Brushy Peak of the adjacent BART TOD properties. **2**

2950 Peralta Oaks Court P.O. Box 5381 Oakland, CA 94605-0381
TEL 510 635-0135 FAX 510 569-4319 TDD 510 633-0460 www.ebparks.org

Letter
A5
cont.

Brushy Peak provides habitat for known populations of a number of special-status species, including San Joaquin kit fox, California tiger salamander and California red-legged frog. All of these species have been observed at Brushy Peak within the past year. There are also four rare plants present at Brushy Peak. Some of these species are present on the 406-acre Dyer property, which was acquired as mitigation for another housing development and is managed specifically for the purpose of conserving and enhancing habitat for these species. A Land Use Plan, environmental document and management plan have been prepared and approved for the Dyer property, and a conservation easement is being recorded, which will be held by the Department of Fish and Game (DFG). Development of the BART TOD properties, placing up to 14,000 new residents adjacent to Brushy Peak Regional Preserve, appears to be in conflict with the District's adopted plans and policies for Brushy Peak. We urge the City to review our Land Use Plan and consider revisions to its proposed General Plan Objectives to protect the important natural and cultural resources at Brushy Peak. Some suggested revisions are contained in the attached letter.

3

Iron Horse Trail:

The General Plan has done a good job of identifying the Iron Horse Trail as an important amenity for the City of Livermore. There are also a number of positive policy statements in the General Plan that require development set backs to allow for trail completion. We plan to continue to work closely with the City on the development of this important trail.

4

Please call me should you have any questions regarding our comment letter or if you would like to schedule another meeting to discuss potential revisions to draft General Plan Objectives. I can be reached at (510) 544-2622.

Sincerely,

Brad Olson
Environmental Programs Manager

Attachments: Detailed Comments on draft General Plan and EIR
Two photographs of existing views from Brushy Peak Regional Preserve

cc. Eric Brown, City of Livermore
Janice Gan, Department of Fish and Game
Kenneth Craig, LARPD
Peter Albert, BART
Larry Tong, EBRPD

Letter
A5
Attach.

East Bay Regional Park District Comments on
Livermore Draft General Plan and Downtown Specific Plan
Environmental Impact Report
July 15, 2003

Volume I: Master Environmental Assessment

Page 13: Brushy Peak is a 2035-acre preserve, which is jointly owned and operated by LARPD and EBRPD. The Livermore tarplant is not known to occur at Brushy Peak; however, there are other rare plants present, which are not listed on this page. Please see Appendix B of the Brushy Peak Regional Preserve Land Use Plan for a complete listing of plants and animals known to be present at the preserve. **5**

Page 35: Figure 3-3 does not show the 406-acre former Dyer property, which has been part of Brushy Peak Regional Preserve for the past three years. This property abuts the proposed BART TOD area. This comment is also relevant to all other maps, which show land uses in the North Livermore area. **6**

Page 145: The District conducted its first prescribed fire at Brushy Peak on June 19, 2003. Approximately 350 acres of the former Dyer property were burned. Other prescribed fires will be conducted on the Dyer property and elsewhere at Brushy Peak in the coming years. Prescribed fire, along with livestock grazing, mowing and pest management are all important management tools that must be available for use at Brushy Peak to manage and enhance the preserve to meet the management goals of the District's Land Use Plan and the management requirements of the two conservation easements. Urban development adjacent to the Preserve will complicate the logistics and increase land management costs, which may ultimately hinder some of the required parkland management efforts. **7**

The General Plan and EIR need to identify land management conflicts and adopt appropriate mitigation measures and policies that support and protect existing agricultural and open space land management practices along the City's Urban Growth Boundary (UGB). Contra Costa County's "Right-to-Farm" Ordinance may serve as a model which could be adopted by the City in an effort to acknowledge and support on-going agricultural and open space land management practices which may conflict with the City's proposed land use changes. Such measures will ultimately serve to protect the City's UGB by keeping existing adjacent land uses viable. **8**

Page 150: The Brushy Peak Preserve is 2,035 acres in size. A Land Use Plan has been completed and adopted by the District's Board of Directors in June of 2002. Draft copies of the Plan and Mitigated Negative Declaration (MND) were provided to the City during the public comment period in April of 2002. A final copy of the Plan and MND were provided to the City in July of 2002 and again in April of 2003 with our scoping comments for this General Plan. **9**

Page 151: The text on page 149 notes that there are regional parks in the area, yet the only parks shown on this figure are those operated by LARPD. In addition to their parks, the Livermore **10**

area is also served by Brushy Peak Regional Preserve, Del Valle Regional Park and Shadow Cliffs Regional Recreational Area, all of which are owned and/or operated by the District. **10 cont.**

Page 153: Table 7-5 statement that there are 1,309 acres of Regional Park in Livermore. Which parks are counted in this figure? How are the 6,000 acres of District Regional Parks accounted for in this analysis? Does the analysis take into consideration land use restrictions or increased demand for regional parks that may not be provided for through the City's analysis? Given the dog restrictions or prohibitions at existing regional parks, how and where will the City provide for off-leash dog facilities for Livermore's growing population? **11**

Page 221: Douglas's pogogyne is not known from the East Bay. **12**

Page 223: Mixed evergreen forest is included in the list of plant community types present in Livermore. Is this community type actually present in the planning area? **13**

Page 226-227: Table 11-1 lists several special status plants as being potentially present in the Livermore Planning Area. Three of these are dependent upon tidally influenced wetlands of the Sacramento-San Joaquin Delta; a habitat type not present in or near the planning area. These are Suisun Marsh aster, Rose-mallow and Mason's lilaeopsis. All specimens of showy Indian clover collected from the East Bay were mis-identified and this plant has no valid historic records or extant occurrences in the East Bay. **14**

Page 251: The geology and Seismicity section appears to lack a discussion of the Alquist-Priolo Special Studies Zone and accurate mapping of the active fault locations in the north Livermore Area that would affect or restrict local land uses, such as housing. **15**

Page 259: Altamont Creek is a significant drainage area of north Livermore that is not listed on this page or depicted on Figure 13-1 on page 260. **16**

Page 292: The Greenville Road Interchange appears to be another important "Gateway" to Livermore for motorists traveling west bound on Interstate 580 from San Joaquin County to the Lawrence Livermore Laboratory, local wineries, Del Valle Regional Park or Brushy Peak Regional Preserve. Existing land uses in the interchange area, such as the BMX facility, automobile storage and construction yards degrade the visual character of this gateway area. The General Plan should consider aesthetic improvements to this interchange in future development plans, and roadway and interchange improvement projects. This would also be consistent with a number of proposed General Plan objectives to preserve the I-580 Scenic Corridor (see objectives CC-4.16.P1 and CC-4.16.P2, regarding I-580 Scenic Corridor and scenic corridors, respectively in Vol. II on page 211). **17**

The discussion of urban edge identifies Laughlin Road as a good example of road serving as a clear boundary between urban development and rural open space areas. We concur that Laughlin Road is a good boundary, because it provides a buffer between development and sensitive habitats at Brushy Peak. The proposed General Plan designations will change the open space character of the Laughlin Road area by creating a new high-density transit oriented center **18**

for about 10,000 to 14,000 people in the midst of agriculture and open space. This change in character is not discussed or mitigated in the subsequent analysis in volume II. **18 cont.**

Page 295: The discussion under Open Space provides no mention of the more than 6,000 acres of District Regional Parks that surround Livermore and provide important open space and recreational opportunities for Livermore residents. **19**

Page 298-315: The References Section in Vol. I (and Vol. II) contain no citations of the District's Master Plan, or Land Use Plan and MND for Brushy Peak. We have also produced or received numerous other documents on the cultural and natural resources of our regional parks that would serve as useful baseline information in developing the affected environment, impacts and mitigation measure analyses for the subject General Plan and EIR.

The references cited in the Biological Resources" subsection on pages 303-304 of Vol. I (and Vol. II) contain citations for several documents on the biological resources of the Antioch-Brentwood area of Eastern Contra Costa County, but contain relatively few citations for studies conducted in the Livermore area. There are literally dozens of studies that have been conducted of the North Livermore area (alone) that could provide substantial information about the biological resources of this area, including Brushy Peak. **20**

Volume II - Impacts and Mitigation Measures

Pages 20-21: General Plan Objectives LU-4.1, LU-4.2, LU-5.1 and LU-6.1 speak to the goals of preventing development in inappropriate areas, minimizing impacts on the environment, maintaining the UGB and protecting scenic resources in North Livermore. While these are all laudable objectives, the proposal to construct 4,474 homes on the BART TOD site could be in conflict with all of these General Plan objectives. The TOD site contains riparian wetlands, special-status species habitats, scenic open space values and active earthquake faults. Construction of 4,474 units on this site may not leave sufficient remaining undisturbed acreage to meeting these objectives. A new large population and high densities in this area would place pressure on adjacent agricultural, open space and habitat lands, creating land use conflicts and potentially threatening the long-term viability of the UGB. **21**

In order to successfully implement these objectives in the TOD area, there would need to be sufficient buffers provided on the TOD properties to protect Frick Lake, Altamont Creek, Brushy Peak and the special-studies zone along the Greenville Fault. There would also need to be on-site preservation of tiger salamander aestivation habitat, kit fox movement corridors thru the Greenville Road/I-580 Interchange, fuel break management areas and scenic open space areas. When all of these buffers and constraints are overlaid on the TOD properties, it's likely that a significantly smaller development footprint could be approved. The General Plan should analyze other alternatives where the shortfall can be made up, such as creating higher density in the Downtown Specific Plan Area. **22** **23**

Page 31: Similarly to the comments above regarding conflicts between the proposed BART TOD land uses, the same conflicts with the Open Space and Conservation Element would apply to OSC-1.1, OSC-1.4 and OSC-2.1. **24**

Page 32: Objective OSC-5.4 has a laudable goal to "maintain and enhance public access to Livermore's unique natural resources". While the District is actively working to acquire and develop more open space for public access, some of these areas do have access restrictions that have been placed on these properties by the District and State and federal regulatory agencies in an effort to minimize conflicts between resource preservation and public access. In the case of the former Dyer property at Brushy Peak, public access is only allowed on one trail, the "Dyer Ranch Trail", as shown on Figure 9 of the Land Use Plan and Figure 6 of the Brushy Peak MND. The conservation easement and management plan for this property specifically limit public access to daylight hours. No off-trail travel is permitted through this property and construction of any new trails on this property is prohibited by the conservation easement. **25**

Providing homes for up to 14,000 residents on the BART TOD properties will greatly increase the need for recreation. With the former Dyer property sharing a 3,000-foot common boundary with the TOD properties, much of the recreational demand will be centered on this adjacent property. As noted above, this property can only be accessed from one trail; however, this restriction will not stop new residents from accessing this property via back yards and other points of entry. The TOD development will likely increase the District's operational costs to patrol and enforce access restrictions to this property.

Public access to the former Dyer property is allowed only so long as it does not compromise the conservation values for which the property was acquired. If this property were to experience a significant growth in usage due to development in Livermore, there will also likely be an unacceptable level of impact to special-status species habitats. The property would then be subject to further use restrictions or even closure. Such levels of use would likely conflict with District's *Master Plan* policies for protecting natural and cultural resources in this sensitive Preserve and they would also conflict with the subject General Plan objectives. Please see our 2002 land Use Plan pages 5 and 7, and our 1997 *Master Plan* on pages 40-41 for a full explanation of District policies relating to Preserves. These plans and policies were set in place prior to the preparation of the City's General Plan and the significant amount of growth this plan provides for adjacent to Brushy Peak Regional Preserve. Accordingly, the General Plan needs to address consistency with these already adopted District plans and policies. **26**

Page 33: Object PS-3.1 provides a general statement to protect lives and property for wildland fire hazard. The District is actively managing Brushy Peak and its other parklands to reduce fuel loads and to prevent wildland fire spreading into adjacent developed areas. Such techniques include livestock grazing, prescribed fire, pest management and mowing. The General Plan should also contain a companion objective statement to prevent the spread of residential fires into wildlands by the use of fire buffers on developing properties and homeowner education about fire safety and prevention. At present, there is no conflict between existing land management practices at Brushy Peak and adjacent agricultural uses; however, development of up to 4,474 units on the BART TOD site will create a conflict with existing uses at Brushy Peak. **27**

Page 36: Table III-1 would be more useful if it also contained a column showing how many jobs and housing units were contemplated in the previous projections. This information is provided much later in the document on page 221. **28**

Page 72: The General Plan and EIR do not adequately consider existing land uses, land management practices, sensitive natural and cultural resources, and adopted District plans and policies for the adjacent Brushy Peak Regional Preserve. The General Plan and EIR state that implementation of Objective LU-3.1.P1 (BART TOD Specific Plan) will mitigate significant impacts to Brushy Peak to a less-than-significant level. Unfortunately, an impact assessment has not be prepared to determine if impacts to Brushy Peak can be mitigated to a less-than-significant level. In order to assure that such impacts can be mitigated, the General Plan should set forth specific objectives now to be complied with when a future Specific Plan is developed. **29**

Page 73: The analysis of farmland conversion does not provide information on the potentially significant indirect effects to farmland that could result from implementation of this plan. For example, complaints about livestock odors, use of farm chemicals, noise, dust and nuisance civil suits by adjacent residential property owners can create a hostile environment for farmers and ranchers. As previously noted, a "right-to-farm" ordinance would be helpful to protect agricultural uses along the UGB. Furthermore, trespass, vandalism and illegal dumping in agricultural areas may also increase operational costs for farmers and ranchers along the UGB. These indirect effects need to be addressed in the General Plan policies and mitigated in the EIR. **30**

Page 111: Objective OSC-7.1.P1 provides for the City to promote construction of wind turbines. Wind energy production in the Altamont Hills has had a significant cumulative impact on raptor populations in the Altamont Hills area of Alameda and Contra Costa Counties. Golden eagle and burrowing owls are especially vulnerable to being maimed or killed by wind turbines. Golden eagles are a fully protected "no take" species, so any loss would be considered significant under CEQA. The newer generation of wind turbines are purported to reduce raptor mortality, however, there are insufficient field data to support this conclusion. The District recently learned that golden eagle chicks fledged and banded at Del Valle Regional Park were killed in the Altamont Hills by wind turbines. We remain concerned that wind turbine installations will continue to kill and maim raptors in the area. Any new installation of wind turbines should fully mitigate for these significant impacts to raptor populations. **31**

Pages 116-119: The discussion in these sections do not identify the proposed routing of new water, sewer and storm water lines that would be required to service up to 14,000 new residents in the BART TOD area. Recent proposals by Zone 7 Water Agency included three separate alignments for treated water pipelines through Brushy Peak. If the development on the BART TOD site would require construction of treated water storage reservoirs or tanks, where would such facilities be located? Since Brushy Peak is upslope of this development, would the City be considering gravity fed water storage reservoirs on District land? The General Plan and EIR need to evaluate the potential effects of this infrastructure on Brushy Peak. **32**

Page 120: Similar to the discussion about, earlier proposals in the PG&E Tri-Valley Project for electrical conveyance to the North Livermore Area included the construction of new power lines **33**

through Brushy Peak. Would such facilities be required to meet the electrical needs for the BART TOD development site? **34**

Page 125: The discussion of the potential users of the Chain of Lakes near Pleasanton should also include the District. Please note that our 1997 *Master Plan* map identifies this as a potential Regional Park. **35**

Page 130-131: The Infrastructure and Public Services Element should also provide policies that require creation of fuel breaks and buffers in areas developed under this plan that abut open space and agricultural areas to prevent the spread of fire from developed areas into open space and agricultural areas. In flat areas, such buffers should be at least 250 feet wide and on steeper slopes, buffers may need to be larger to contain fires and manage fuel break areas. In addition, there should also be a policy statement that acknowledges and supports the use of livestock grazing, prescribed fire, pest management and mowing on open space and agricultural areas. These are important management tools in areas adjacent to development for preventing the spread of wildfire and for managing biological diversity in protected open space areas. **36**

Page 136-137: The Public Services Element should also identify, discuss and mitigate for the increased demand in police and fire services that will be placed on the District as a result of up to 14,000 new residents seeking to recreate at Brushy Peak. As previously noted in our comments, this includes increased incidence of trespass, vandalism and illegal dumping, plus increased costs to manage feral cats, dogs and other introduced predators, invasive landscape plant species, fuel loads, litter and debris, fence repair, off-road vehicle controls and enforcement of access restrictions, all of which are required by the conservation easement on the former Dyer property. **37**

Page 139: We support Livermore's objective (OSC-5.1.P5) "to develop adequate regional park space for foreseeable population increases"; however, there also needs to be adequate funding set aside to acquire, develop and maintain new park lands to meet this objective. The General Plan and EIR identify funding mechanisms, such as assessment districts, development fees or other funding sources; however, we could find no explanation of how and under what circumstances such fees would be collected or how they would be disbursed to affected agencies. **38**

Page 178: Frick Lake is an important and sensitive ecological resource in the North Livermore area that should be called out on the list of "natural amenities" in the Livermore area. Frick Lake functions as a vernal sag pond, which is a relatively unique geologic and natural feature in the East Bay. It provides habitat for several rare plants, fairy shrimp and a very large breeding population of tiger salamander. The District has acquired a significant portion of the lake's watershed in order to protect it from water quality degradation and water supply diversions. Development on lands in the watershed of Frick Lake will impact it by changes in runoff water quality, patterns and timing, and loss of upland aestivation habitat for tiger salamander. **39**

The Springtown Alkali Sink is another important natural amenity in Livermore that should be called out in this section. It provides home to a number of special-status species, including the best remaining population of the palmate-bracted bird's-beak and the Livermore tarplant, a recently described rare endemic of this area. **40**

Pages 178-180: The Open Space and Conservation Element contains a number of laudable policy statements regarding the conservation of open space and habitats, and it promotes cooperation with other local, State and federal agencies in conserving such resources. It appears that development of the BART TOD property could be in conflict with a number of the objectives set forth on these pages, including OSC-1.2.P1, OSC-1.2.P6, OSC-1.2.P8, OSC-1.2.P11, OSC-1.3.A1 and OSC-1.4.P1. Some of these potential conflicts are acknowledged on page 182, however, the General Plan and EIR determined that these impacts could be mitigated to a less than significant level. There is insufficient information provided in the subject documents to demonstrate how such impacts would be mitigated. **41**

Page 182: The last paragraph of this page notes that General Plan policies to support the preservation of habitats at Corral Hollow and Cedar Mountain are desirable goals. The habitats present at Corral Hollow or at Cedar Mountain would not be impacted by the General plan and they are not present in the General Plan area. Protection of Frick Lake and Springtown Alkali Sink, two habitats that are present and will be affected by the General Plan, should be included as natural amenities worthy of preservation in the Livermore Planning Area. Perhaps more appropriately, the General Plan could include statements that promote the protection of these valuable natural resources. Acquisition of such habitats would also be more appropriate locations to mitigate for loss of similar habitats in the Livermore Planning Area. **42**

Page 192: Consistent with our comments regarding Frick Lake and Springtown Alkali Sink on page 178 of the subject document, Frick Lake and Springtown should also be included on the list of natural amenities and protected by the objectives of the Hydrology and Water Quality section. **43**

Page 205: Under Land Use Objective LU-6.1.P2, the General Plan needs to define what is meant by a "deep setback". This is a subjective requirement and can be interpreted broadly. In the case of the BART TOD area, such setbacks should be a minimum of 250 feet on properties that abut Brushy Peak Regional Preserve along its western and southern boundaries (a similar setback is also necessary to protect Frick Lake). This setback or buffer should also prohibit development on the slopes below Brushy Peak Preserve to reduce visual impacts and prevent the spread of fire from the developed areas to Brushy Peak. With these revisions, this objective would also be consistent with objective CC-1.1P2 regarding prohibition of "geometrically terraced building sites with are contrary to the natural landforms" (see page 206) and objective CC-1.1.P10, CC-1.1.P11, CC-4.16.P1 and CC-4.16.P2, regarding open space buffers, grassland development, I-580 Scenic Corridor and scenic corridors, respectively (see pages 207 and 211). **44**

Page 207: Frick Lake and Springtown Alkali Sink should also be added to the list of natural amenities and be protected by the objectives that preserve the Livermore Community Character. **45**

Page 210: Objective CC-4.10.P3 is unclear in its intent because it references "Scenic C, -580 Scenic Corridor Implementation" which could not be located in the subject documents. Please clarify the intent of this objective. Is this a typographical error? **46**

Page 226-233: The Redistributed Alternative shows exactly the same development footprint and housing units for the BART TOD properties as were proposed for the General Plan. The substantive difference between the proposed General Plan and the Redistributed Alternative **47**

being a 43% reduction in housing units in the Downtown Specific Plan, which are displaced to and slightly increased at other locations. Such a redistribution of downtown units elsewhere with no proposed reduction of units in the BART TOD area does not mitigate the impacts of the General Plan or the Redistributed Alternative on Brushy Peak Regional Preserve.

47 cont.

The Redistributed Alternative appears to be a response to reducing downtown densification. A similar alternative should also be considered which reduces the density and development footprint in the BART TOD area at Greenville Road by at least 50% and reallocates these units to the downtown area where they could be coupled with a TOD for the downtown area, using BART light or heavy rail (i.e. DMU's), ACE Train, bus ways, Iron Horse Trail and other connections to the BART System and other destinations. We could find no explanation about why such an alternative was not considered in the General Plan and EIR.

48

A transit oriented development alternative in the downtown area (in lieu of or in addition to a greatly scaled back Greenville Road TOD) would be consistent with BART's plans under Options 1, 2 and 3 if the June 2003 Final Report on the I-580 Corridor Transit Study, Phase2. BART's study concluded on page 5-4 that the BART median extension along I-580 did not meet a number of screening criteria or cost effectiveness criteria, whereas Options 1 thru 3 meets these criteria. The stated reasons why Options 1 thru 3 are superior to Option 4 are as follows:

- Four times as many stations
- Four times as many riders
- Half the capital cost
- A third the operating cost
- A third the cost per new rider

49

It appears that such benefits would also be conducive to higher densities and transit oriented development in Livermore's Downtown Specific Plan area. This could also greatly reduce or even eliminate the need for a large TOD in the Greenville Road area at Interstate 580.

Page 233-241: The Balanced Alternative proposes a slight reduction (about 6%) from 4,474 to 4,200 housing units for the BART TOD area. Such a reduction does not eliminate any of the potentially significant effects to Brushy Peak, as described in this letter and in the General Plan and EIR. As with the General Plan and the Redistributed Alternative, the Balanced Alternative does not avoid or mitigate significant impacts to Brushy Peak.

Page 241-242: The discussion of the Environmentally Superior Alternative does not consider that all three of the project alternatives will result in very similar significant impacts to Brushy Peak because there is only a 6% variation in the proposed number of housing units between the three alternatives proposed for the BART TOD properties area. These three alternatives effectively provide no discernable project alternative to major residential development on the BART TOD properties for consideration in the General Plan and EIR. The only project alternative that actually considers a substantial reduction in the development impacts to Brushy Peak is the No Project Alternative.

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COMMENTOR A5
East Bay Regional Park District; Brad Olson, Environmental Programs Manager (July 15, 2003)

A5-1: In this initial comment and many of the subsequent comments, the commentor states that the Draft General Plan and Draft EIR do not fully evaluate potentially significant effects on Brushy Peak Regional Preserve (including the Dyer property) and adjacent agricultural and open space outside of the City's planning area in northeastern Livermore. The commentor goes on to say that this is so because the Draft General Plan contains policies requiring a Specific Plan and subsequent EIR to address development in the Greenville BART Transit-Oriented Development (TOD) change area. EBRPD requests that the City adopt additional policies to protect and buffer the Brushy Peak Regional Preserve area. The following comments go on to detail specific areas in the Draft General Plan and Draft EIR that the commentor finds inadequate and to recommend revisions to the Draft General Plan.

The City of Livermore as lead agency and the EIR authors do not agree that the Draft EIR is inadequate in the evaluation of the potential impacts associated with the TOD change area. The Draft General Plan is a long range land use and development policy document that articulates a vision for the City's future physical form and development. The Draft General Plan addresses the broad issues associated with potential future growth that have been identified in the initial planning stages. The Draft EIR is a Program EIR that analyzes the potential impacts of projected growth at the same level of detail as the proposed actions. Before the actual projects identified in the General Plan are implemented, they will be subject to subsequent CEQA review, and project-specific mitigation measures will be identified. All subsequent projects must also be in compliance with federal, State and regional permitting and regulatory agencies.

Requiring the preparation of a Specific Plan for the Greenville TOD area (per policy LU-3.1.P1) prior to or concurrent with approval of any development application will allow the City of Livermore to examine and plan for actual development projects in the TOD area (that are consistent with the Draft General Plan) and evaluate and mitigate their potential impacts on environmental resources and adjacent land uses, including Brushy Peak Regional Preserve area. The actual design and layout of the TOD area development cannot be reasonably determined during this general plan phase, and attempts to adequately analyze potential impacts from hypothetical projects could easily overlook a significant impact that would be obvious during the project definition and design phase. The City of Livermore has determined that preparation of a specific plan and subsequent EIR is the appropriate planning tool to address the specifics of future development in the Greenville TOD area.

The Draft General Plan and its associated Draft EIR provides sufficient information for City of Livermore decision-makers to understand the environmental impacts of the proposed General Plan. The Draft EIR also permits a reasoned evaluation of a range of environmental alternatives, which could feasibly attain most of the project's basic

objectives and avoid or lessen any of the significant effects of the Draft General Plan. The Draft General Plan also allows sufficient flexibility to encompass differing projects over an extended period of time. Note that policy LU-3.1.P2 states that development of the Greenville TOD shall be contingent upon BART establishing a firm timeframe and funded extension of BART services to the Greenville area. Before development in the TOD area is implemented, EBRPD will have an opportunity to review and comment on the actual project design, both in the early consultation period and in response to the resulting environmental document.

The Draft General Plan shall be amended as follows:

On page 3-36, policy LU-3.1.P1 shall be amended as follows:

> LU-3.1.P1 Prior to or concurrent with approval of any development applications, a specific plan shall be prepared and approved for the Greenville BART TOD. The specific plan shall provide detailed guidance for project-related land use, provision and financing of public services and facilities, open space preservation (including appropriate setbacks and buffers from adjacent open space areas), visual resources, and recreational amenities, and shall include mitigation measures to reduce the impacts of individual projects on existing neighborhoods and environmental resources.

On page 3-82, the Greenville BART Transit-Oriented Development (TOD) Area description shall be amended as follows:

> **Greenville BART Transit-Oriented Development (TOD) Area**
> The purpose of the Greenville TOD is to provide land use appropriate to a future commuter transit station. At such time that the City receives a commitment from BART ~~or another rail agency~~ to extend service to Livermore, a ~~neighborhood~~ specific plan for the area shall be developed. The plan would include ~~approximately 50 acres~~ sufficient acreage for a station area, maintenance yard and parking, to be determined in coordination with BART, with the remainder of the area to be designated mixed-use residential and residential. Densities in the ~~neighborhood~~ specific plan should feather from the highest mixed-use density closet to the BART station to single-family urban residential designations at the edges. Preparation of a specific plan shall be coordinated with BART and other responsible agencies (such as LVJUSD, LARPD, EBRPD, Zone 7 and California Department of Fish and Game) to ensure that appropriate public services and facilities are provided and that potential environmental impacts are mitigated to the extent feasible.

On page 8-11, a new policy OSC-1.1.P5 shall be added as follows:

> OSC-1.1.P5 The City shall support efforts to preserve and protect the Brushy Peak Regional Preserve consistent with the goals of EBRPD's Master Plan for the Preserve. The City's efforts shall include coordination with EBRPD and LARPD during preparation of a specific plan for the BART TOD to address concerns relating to potential impacts to the protection of the Preserve.

On page 8-14, Open Space and Conservation policy OSC-1.4.P3 shall be amended as follows:

> OSC-1.4.P3 The City shall encourage and cooperate with the County, EBRPD, LARPD, and other agencies and organizations to establish a program to preserve representative examples of natural and near-natural landscape communities, such as the Springtown Alkali Sink, Brushy Peak, Corral Hollow, Cedar Mountain and Sycamore Grove.

A5-2: In this comment, it is unclear where, specifically, in the Draft EIR the commentor disagrees with the analysis. Generally, this comment identifies suggested revisions to Draft General Plan objectives and policies and not analysis contained in the Draft EIR.

A5-3: This comment is a request that the City review the Land Use Plan for the Dyer property and consider revisions to proposed Draft General Plan objectives. Specific revisions are identified in the following comments within the letter.

A5-4: Comment noted regarding the Iron Horse Trail and EBRPD's plan to continue to work closely with the City of Livermore on the development of the trail.

A5-5: Comment noted and page 13 of the MEA has been revised as follows:

> The ~~2,000~~ 2,035-acre preserve is jointly owned and operated ~~managed~~ by the East Bay Regional Park District and the Livermore Area Recreation and Park District. Elements in the preserve landscape include steep slopes, sandstone outcrops, rolling grasslands, oak woodlands, and seasonal wetlands ranging in elevation from 1,700 feet to 550 feet. The Brushy Peak Regional Preserve provides outdoor recreation and regional trails for the public while protecting a large area of open space that contains habitat for numerous special-status animal and plant species such as the tiger salamander, red-legged frog, fairy shrimp, the kit fox, golden eagle, burrowing owl, and the heartscale *(atriplex cordulata)*~~Livermore tarplant~~.

A5-6: Comment noted. The City of Livermore is currently preparing amendments to the Draft General Plan and supporting documents, including preparing new maps, updating information, and revising policies and objectives. When updated, Figure 3-3: Livermore Valley Open Space, will be revised to show the Dyer property as permanently protected open space.

A5-7: Comment noted regarding the management techniques the EBRPD and LARPD will use at Brushy Peak and the former Dyer property. See Response to Comment A5-1 regarding the speculative nature of determining impacts related to potential future urban development in the Greenville TOD area.

A5-8: The Draft EIR describes and addresses potential land use (which would include land management) in the DEIR on pages 72-73 at an appropriate level of detail for a General Plan level EIR (see Response to Comment A5-1). The Draft General Plan contains numerous policies that support and protect existing agricultural and open space land

management practices along the City's UGB. The commentor notes that a "Right-to-Farm" ordinance would be helfpul to protect the agricultural uses along the UGB. Note that the City Council has adopted a Right-to-Farm Ordinance, which as been codified as Municipal Code, Chapter 8-16. The purpose of the Ordinance is to protect agricultural land uses from conflicts with non-agricultural land uses by advising purchasers and residents of land adjacent or near agricultural operations of the inherent potential inconveniences associated with the purchase of such properties. The right to farm notices inform purchasers of those inconveniences such as sounds, odors, dust and chemicals and include activities such as grazing, mowing and pest management. The ordinance also encourages alternative dispute resolution and declares that property operated agricultural operations are not a nuisance.

A5-9: Comments noted regarding the current size of Brushy Peak Preserve and the final dates for the Land Use Plan and Mitigated Negative Declaration. When updated, the City will revise the MEA Figure 3-3: Livermore Valley Open Space to show the property lines of the Brushy Peak Preserve.

A5-10: Comment noted. The intent of MEA Figure 7-2: Parks on page 151 is to show the parks owned and operated by the LARPD and the City of Livermore primarily within the City limits, but parks located in the immediate vicinity of the City limits are shown as well. When updated, MEA Figure 7-2 shall be amended to include the Dyer property. Additionally, the following text shall be added to the MEA on page 150 as the ninth paragraph:

> The Vasco Caves (in conjunction with LARPD) and the Brushy Peak Regional Preserve are the only facilities owned by EBRPD with the Planning Area. EBRPD facilities within the immediate vicinity include Shadow Cliffs Regional Recreational Area located south of Stanley Boulevard and west of Isabel Avenue and Del Valle Regional Park located at the south end of Arroyo Road.

A5-11: Table 7-5: Park Types and Standards in the MEA on page 153 is intended to show the park standards and acreage of the LARPD (as described on page 150 of the MEA). City and LARPD owned and operated parks are counted in this table. Note that the information was provided by LARPD. As noted on page 149, LARPD is responsible for the operation of most of Livermore's parks and community facilities, as well as many miles of trails.

The total regional parks acreage, as specified in Table 7-5 in the MEA, is 1,305 acres. The following parks within the Livermore Planning Area are included in the total acreage count for regional parks: Brushy Peak; Garaventa Wetlands; Sycamore Grove; and Veterans Park. However, these parks are considered to be regional parks by LARPD for the purposes of this DEIR analysis. Additional regional park acreage outside of the Planning Area was not directly incorporated into the tally of regional park acreage contained within the MEA. Implementation of the proposed project would not result in significant impacts to regional parks, as described on pages 138 to 140 of the DEIR. The addition of regional park acreage outside the Planning Area into the Regional Park acreage tally contained within the MEA would not alter the analysis contained in the

DEIR, or result in the identification of additional significant impacts to park and recreational facilities.

Additionally, it should be noted that the analysis contained in the DEIR was conservative in that it evaluated the maximum population growth (approximately 28,377 additional persons) that could occur over the course of Draft General Plan build out. The total additional population included 10,200 residents, or 36 percent of the total, in the Greenville TOD area. As noted previously, prior to any development in the TOD area, policies LU-3.1.P1 and LU-3.1.P2 require that a specific plan be prepared and BART's commitment to extend the BART line to the Greenville area be firm and funded. The City acknowledges that future residents of the City, including those in the Greenville TOD area should it develop, would require park services. In accordance with policy OSC-5.1.P5, the City will continue to coordinate with LARPD and EBRPD to develop adequate regional park space to serve future residents. It is reasonable to assume that this type of coordination would occur as part of the preparation of a specific plan for the TOD area. Furthermore, EBRPD and LARPD's knowledge of the carrying capacity and ability of the Brushy Peak Preserve and the Dyer property to provide regional park services for development in the area would probably be much further advanced at the time a specific plan may be prepared.

LARPD's website, www.larpd.dst.ca.us, identifies the off-leash dog facilities that serve Livermore, and the City has no reason to believe that the available facilities are currently inadequate.

A5-12: Comment and correction noted. The CNPS shows the Douglas's pogogyne only in Monterey, San Benito, and San Luis Obispo counties.

A5-13: Comment and correction noted. Mixed evergreen forest is not present in the planning area and should be deleted from the MEA as a habitat in the planning area. Page 223 of the MEA shall be revised as follows:

> One ~~Two~~ woodland/forest community is ~~communities are~~ present in the Livermore Planning Area depending on the microclimate of the site: oak woodland. ~~and evergreen forest. Additionally, these woodland types may overlap considerably and share many common plant and animal species.~~

The following change shall also be made to page 223 of the MEA.

> ~~**b. Mixed Evergreen Forest.** This forest type occurs in the cooler, moister canyons and the east or north facing slopes. The mixed evergreen forest varies from the coast live oak woodland by having a more closed canopy, greater vegetation diversity, and greater density of understory vegetation. The common tree species include coast live oak, California bay, big leaf maple (*Acer macrophyllum*), and madrone (*Arbutus menziesii*). The understory vegetation typically includes poison oak, hazelnut (*Corylus cornuta*), creambush (*Holodiscus discolor*), and coffeeberry (*Rhamnus californica*).~~

~~The mixed evergreen forest also supports a diverse fauna. Because it is generally moister than oak woodland, several species of amphibian, such as the California newt (*Taricha tarosa*), rely on it for a summer retreat. Others, like the slender salamander (*Batrachoseps attenuatus*) and yellow-eyed salamander (*Ensatina eschscholtzi xanthipotica*), spend their entire life in the leaf litter of the forest floor. The many bird and mammal species that use this forest are similar to those that are common to oak woodlands.~~

A5-14: Comment and corrections noted. Suisun marsh aster, rose-mallow, and Mason's lilaeopsis should be removed from MEA Table 11-1 on page 226 as no suitable habitat is present in the planning area. The California Native Plant Society's Inventory of Rare and Endangered Plants of California (6th Edition 2001), lists the showy Indian clover as extirpated, but historically occurring in Alameda County. Information on the status of this plant in the East Bay is new information. Table 11-1 on pages 226 and 227 of the MEA is revised as follows:

~~*Aster lentus* —Suisun marsh aster~~	~~-/-/1B~~	~~Rhizotamous perennial herb~~	~~Brackish and fresh water marshes and swamps.~~	
~~*Hibiscus lasocarpus* —Rose mallow~~	~~-/-/2~~	~~Perennial herb~~	~~Freshwater marshes and swamps~~	~~Jun—Sept~~
~~*Lilaeopsis masonii* —Mason's lilaeopsis~~	~~-/CR/1B~~	~~Perennial herb~~	~~Tidal zones in muddy or silty soil of brackish and freshwater marshes, swamps, and riparian scrub~~	~~Apr—Oct~~

A5-15: Comment noted and the following response is provided. Page 247 of the MEA is revised to add the following as the fourth full paragraph:

> Under the Alquist-Priolo Earthquake Fault Zoning Act, the State Geologist is required to delineate "Earthquake Fault Zones" along known active faults in California. Cities and counties affected by the zones must regulate certain development projects within the zones. The types of projects covered by the Act include structures for human occupancy. The city or county must withhold development permits for sites within these zones until geologic investigations demonstrate the sites are not threatened by surface displacements from fault rupture. The Earthquake Fault Zones that affect the Livermore planning area are shown on Figure 12-5a. Upon receiving an application for a building permit, the City Community Development Department reviews the application. If the property is with an Earthquake Fault Zone, the City requires a geologic investigation to confirm that the project would not be directly damaged by fault rupture (i.e. the building site is not located on an active fault trace) prior to approval of the permit.

In addition, Figure 12-5a: Alquist Priolo Fault Zones is added to the MEA as page 249a, and included in Chapter IV of this document.

A5-16: Comment noted, and page 259 of the MEA is revised as follows.

> Several creeks and arroyos, which typically flow from east to west, cross the Livermore Valley. The principal waterways within the Planning Area are shown in

Figure 1, and include Arroyo Las Positas, Cayetano Creek, Arroyo del Valle, Arroyo Mocho, ~~and~~ Arroyo Seco~~.~~, and Altamont Creek.

In addition, Figure 13-1: Livermore Valley Watershed, on page 260 is revised and included in Chapter IV of this document.

A5-17: The area referenced in this comment is located within Alameda County. When and if the City of Livermore were to annex this land into its boundaries, it would be subject to all City objectives, policies and ordinances.

A5-18: Comment noted regarding the visual changes that occur with development. Visual changes associated with development within the Greenville TOD and adjacent to the UGB is discussed in the DEIR on pages 212-213.

A5-19: Comment noted and see Response to Comment A5-11. Additionally, on page 295 in the MEA, the discussion concerns visual resources associated with open space located within the City limits.

A5-20: Comment noted and page 307 of the MEA and page 258 of the DEIR is revised to include the following references.

East Bay Regional Park District. 2002. Brushy Peak Regional Preserve Land Use Plan. June 20, 2002. Oakland, CA.

East Bay Regional Park District. 2002. Initial Study and Proposed Mitigated Negative Declaration for Brushy Peak Regional Preserve Land Use Plan, Alameda County. June 2002. Oakland, CA.

A5-21: Comment noted and see Response to Comment A5-1.

A5-22: Comment noted and see Response to Comment A5-1 regarding the development of a specific plan for the Greenville TOD area.

A5-23: The DEIR analyzes a Balanced Alternative in which there is more development in the Downtown and less in the Greenville TOD area. It should also be noted that there is no "magic" number for projected development in the General Plan, and that if less development is identified or occurs in the Greenville TOD area, the remaining development does not need to be "made up" elsewhere to meet a set number.

A5-24: Comment noted and see Response to Comment A5-1.

A5-25: Comment noted regarding restricted public access at the Dyer property. See Response to Comment A5-11 regarding the analysis and provision of recreation facilities, and Response to Comment A5-8 regarding conflicts with adjacent land uses.

A5-26: Comment noted regarding restricted public access at the Dyer property. See Response to Comment A5-1 regarding the speculative nature of determining impacts related to potential future urban development in the Greenville TOD area.

A5-27: Comment noted regarding the management techniques to reduce fuel loads that EBRPD is using at Brushy Peak and the former Dyer property. In addition, action PS-3.1.A1, on page 10-25 of the Draft General Plan, requires that all new development in wildland-urban interface areas shall conform to the provisions of the Wildland-Urban Interface Code.

A5-28: Comment noted. The purpose of Table III-1: Draft General Plan 2025 Jobs and Housing Units Summary on page 36 is to describe the proposed project. The purpose of Table V-2: Livermore No Project Alternative 2025 Jobs and Housing Units Summary on page 221 is to provide a summary of an alternative development proposal, in this case the existing 1976 Community General Plan for comparison with the proposed project.

A5-29: In this comment, it is unclear where, specifically, in the Draft EIR the commentor disagrees with the analysis. Generally, this comment addresses the Draft General Plan and not analysis contained in the Draft EIR. See also Response to Comment A5-1.

A5-30: See Response to Comment A5-8 above regarding potential impacts to adjacent agricultural land and the City's Right-to-Farm Ordinance. Regarding increased operational costs related to trespass, vandalism and illegal dumping, the comment is noted and see Response to Comment A5-1 regarding the speculative nature of determining impacts related to potential future urban development in the Greenville TOD area. Note that Alameda County has law enforcement authority over the area outside the City limits.

A5-31: Comment noted regarding the potential impacts of wind turbine to raptor populations in the Altamont Hills. Generally, this comment addresses an objective in the Draft General Plan and not analysis contained in the Draft EIR.

A5-32: To support potential development in the TOD area, the City will likely need to provide additional water reservoirs. The potential environmental impacts associated with the provision of utilities to serve the TOD area would be evaluated in the required Specific Plan. Additionally, Draft General Plan Objective INF-1.2.P6 on page 7-8 in the Draft General Plan and page 107 of the DEIR shall be revised as follows:

> INF-1.2.P6 A water storage tank site study shall be conducted to identify the location of proposed water storage tanks. The location selection and construction of these storage tanks should seek to minimize the visual <u>and environmental</u> impacts that such facilities could have to the surrounding areas.

A5-33: Comment noted regarding the PG&E Tri-Valley Project through Brushy Peak.

A5-34: The PG&E Tri-Valley Project for the construction of new power lines is not contingent on the need to serve the Greenville TOD area with electricity. The setting for electricity is discussed in the MEA on pages 135-138 and energy requirements associated with Draft General Plan are analyzed on pages 119-120 in the DEIR.

A5-35: Comment noted and the last sentence of the sixth paragraph on page 125 of the DEIR is revised as follows:

> Dublin San Ramon Services District (DSRSD) has expressed interest in use of the lakes for disposal of reverse osmosis water, ~~and~~ Zone 7 has plans to use these lakes for recharge of the groundwater basin, and EBRPD identifies this area as a potential Regional Park.

A5-36: This comment generally identifies requested revisions to policies and objectives in the Draft General Plan Infrastructure and Public Services Element and does not specifically comment on analysis in the DEIR. See also Response to Comments A5-8 regarding management tools and A5-1 regarding coordination with EBRPD on preparation of the specific plan for the BART TOD.

A5-37: This comment generally identifies requested revisions to policies and objectives in the Draft General Plan Infrastructure and Public Services Element and does not specifically comment on analysis in the DEIR. See also Response to Comments A5-1 regarding conflicts in land uses and coordination with EBRPD on preparation of the specific plan for the BART TOD.

A5-38: Discussions in the Draft General Plan and Draft EIR refer to funding alternatives primarily for local park and recreation facilities. Other sources of funding and acquisition may be available for regional parks and open space such as open space funding set-asides (e.g. the Altamont Landfill settlement), grants and possibly from the City's transferable development credits program. The City is willing to assist EBRPD in identifying and securing additional funding sources for regional parks and open space.

A5-39: The comment regarding Frick Lake and the request to add it to the list of natural amenities in Draft General Plan policy CC-1.1.P12 is noted. Policy CC-1.1.P12 on page 4-5 shall be amended, as follows, to add Frick Lake as (n) and Springtown Alkali Sink as (o) to the list of natural amenities to be preserved and protected.

A5-40: The comment regarding the Springtown Alkali Sink and the request to add it to the list of natural amenities in Draft General Plan policy CC-1.1.P12 is noted. Policy CC-1.1.P12 shall be amended to add the Springtown Alkali Sink to the list of natural amenities to be preserved and protected.

A5-41: As noted in the comment, potential impacts to listed species associated with the future development of the Greenville TOD is discussed on page 182 in the DEIR. See Response to Comment A5-1 regarding the use of tiering and preparation of a Specific Plan.

A5-42: Comment regarding the request to add policies that promote the protection of Frick Lake and Springtown Alkali Sink. See also Response to Comments A5-39 and A5-40.

A5-43: See Response to Comments A5-39 and A5-40 regarding the addition of these resources to policy CC-1.1.P12.

A5-44: See Response to Comment A5-1 regarding coordination with EBRPD on the preparation of the specific plan for the BART TOD.

A5-45: See Response to Comments A5-39 and A5-40 regarding the addition of these resources to policy CC-1.1.P12.

A5-46: On page 210 of the DEIR, the reference to "*Section C, -580 Scenic Corridor Implementation,*" in policy CC-4.10.P3 is correct; however the word "below" was left off the end of the policy. On page 4-32 of the Draft General Plan, the word "below" at the end of the policy statement references Section C, I-580 Scenic Corridor Implementation starting on page 4-38. The intent of the policy is to direct the reader to any exemptions to the requirements in policy CC-4.10.P3 as described in Draft General Plan Section C. The EIR authors apologize for any confusion this may have caused you.

A5-47: As discussed in Response to Comment A5-1, the Draft General Plan requires that a specific plan be prepared prior to development in the Greenville TOD area to address specific site constraints and potential environmental impacts (including those to the Brushy Peak Regional Preserve). Furthermore, CEQA requires a range of reasonable alternatives to the proposed project which could feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the proposed project. One of the objectives of the Draft General Plan is to provide sufficiently dense development in the vicinity of a potential BART station to support future expansion of the BART system to the area. The No Development Alternative, the No Project Alternative, and the Balanced Alternative were described and evaluated in the DEIR and all would provide less development in the Greenville TOD area.

A5-48: The amount of growth projected within the Draft General Plan is not a "magic" number that the City would attempt to meet by allocating the same number of housing units or jobs to various locations in the City in response to real or potential development constraints. Rather it is a best guess of the buildout potential of the land use designations identified in the Draft General Plan. The potential buildout of the Downtown was identified through a public workshop process that is described in the Downtown Specific Plan. The alternatives developed and evaluated in the Draft EIR include varying degrees of development in the Downtown that respect the objectives, in terms of size and intensity, agreed upon during the Downtown Specific Plan process. While agreeing that intensifying development in the vicinity of transit opportunities is an important objective (as stated in both the Draft General Plan and the Downtown Specific Plan), the City sees no need to prepare and evaluate a new alternative that allocates additional units to the Downtown in order to lessen the number at the BART TOD and meet the total projected amount of development for the Draft General Plan.

A5-49: Comment noted regarding the June 2003 Final Report on the I-580 Corridor Transit Study. See also Response to Comment A5-48.

A5-50: See Response to comment A5-47.

Letter
A6

Lawrence Livermore National Laboratory

Environmental Protection Department

July 29, 2003

Susan Frost, Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

Subject: Comments on the Livermore Draft General Plan and Downtown Specific Plan Environmental Impact Report

Dear Ms. Frost,

Thank you for sending a copy of the EIR for our review. Our comments are listed below.

1. On page 7 of Volume I, where existing land use is categorized, and in Figure IV.A-I, LLNL appears under the "Industrial" category. We suggest you consider two alternatives to this designation: 1) exclude LLNL from the classifications, and label the parcel as "Lawrence Livermore National Laboratory," or 2) create a new sub-category for LLNL and Sandia National Laboratories called "Government Research and Development" under the Community Facilities category. The former alternative is appropriate given that LLNL is called out as a major feature in the area, and is described in several sections of the document. The latter alternative identifies the National Laboratories as government-owned and operated facilities and sets them apart from the privately owned industrial facilities. This would be appropriate because the activities and regulatory oversight are distinct from the other industrial land uses in and around Livermore. **1**

2. The EIR should reflect the fact that East Avenue will be closed to public access south of LLNL, between Vasco and Greenville Roads. Edits are suggested in the following places: **2**
   - Table 5-1. East Avenue is listed as a major street roadway between S. Livermore Avenue and Greenville Road. Greenville Road should be changed to Vasco Road.
   - Figure 5-2 depicts this segment of East Avenue as a "major street." Delete the blue line segment of East Avenue south of LLNL. **3**
   - Figure IV.C-2 shows a bike lane on East Avenue south of LLNL. While there is a bike lane in that location, it will no longer be accessible to the general public, and therefore should not be included in this map of proposed bikeways and trails network. **4**

3. LLNL supports the proposed thresholds for managing the Municipal Airport, as shown on page 92 of Volume II. Should an Airport Master Plan be developed and periodically updated, LLNL would like the opportunity to review it. **5**

EEG03-020

4. Page 246 of Volume II lists the projects included in the cumulative effects analysis. The following San Joaquin County projects should be added to the list: 1) Tracy Hills development, 2) other proposed housing developments in the Tracy Urban Management Plan, and 3) River Islands Project in Lathrop (sites 11,000 homes on 5,000 acres - there is more information available on the internet). These projects would definitely impact traffic on Interstate 580. Furthermore, the proposed Tracy Hills development would also impact traffic on Tesla and Patterson Pass Roads. **6**

5. Consider clarifying the last sentence in the first paragraph of Page 138 of Volume II. It is a conclusory statement that does not logically follow from the preceding sentences. Earlier sentences indicate that individual projects will be evaluated for impacts as each project arises. Then the paragraph concludes with "Therefore, the development of new public services facilities as part of Draft General Plan implementation would result in a less-than-significant impact." We do not find environmental impact analyses or discussions that support that conclusion. **7**

6. The first paragraph of Page 138 of Volume II states that projects would be subject to environmental review under CEQA. Consider adding to this sentence: "and possibly NEPA." In the event that proposed projects involve federal funding or decisionmaking, review under NEPA also would be required. **8**

7. Consider the following changes for Table 9-3 in Volume I: **9**
   - Note that California standards also exists for pollutants H_2S, vinyl chloride, sulfates, and visibility-reducing particles.
   - The averaging time for nitrogen dioxide should be an "annual average," not an "annual mean".
   - Change the pollutant name "suspended particulate matter (PM_{10})" to "particulate matter (PM_{10})." Also, three other suggested edits to that row include: 1) changing the averaging time to "annual arithmetic mean," 2) changing the concentration to 20, and 3) changing the attainment status to "nonattainment" (see footnote to table addition below)
   - Add two rows for $PM_{2.5}$ similar to what is shown below:

$PM_{2.5}$	Annual Arithmetic Mean	12 microgram/ cubic meter	Nonattainment[1]	15 microgram/ cubic meter	unclassified
	24 hour	N/A	N/A	65 microgram/ cubic meter	unclassified

[1]in June 2003, the California Air Resources Board established new annual standards for $PM_{2.5}$ and PM_{10}.

Letter
A6
cont.

8. LLNL, when spelled out, should consistently appear as "Lawrence Livermore National Laboratory." It is inconsistently spelled out in the EIR; some examples are listed below:
   - "Lawrence Livermore National Labs" (Volume I, page 48; Volume II pages 14 and 130)
   - "Lawrence Livermore National Laboratories" (Volume II, page 201)
   - "Lawrence Livermore National Lab" (Table 14-1)
   - "Lawrence Livermore Lab" (Table 14-3)

   10

9. For the 50% of LLNL employees who commute from the Bay Area, and the approximately 10% of employees who commute from the Central Valley, proposed initiatives such as the widening of Interstate 580 (Volume I, page 114) and interchange improvements (Volume II, page 91, CIR-4.1.A1) will be important objectives.

   11

10. For safety and security reasons, LLNL prefers adjacent land uses that do not increase vehicular traffic above present levels on Vasco Road, Greenville Road, and Patterson Pass Road.

    12

11. The extensive network of bikeways in Livermore is important to the safety of the numerous LLNL employees who bike to work. Figure IV.C-2 shows proposed bike lanes on the western segment of East Avenue. This extension of the existing bikeway on East Avenue would be a valued improvement to the employees who bike to LLNL from the west side of town. Current conditions on this segment of East Avenue – namely, fast-moving cars and no bike lane – are unfavorable for biking.

    13

12. There is a typo in Table 4-22. "Laden Lane" should be Alden Lane.

A hard copy will be forwarded via U.S. mail. Should you have any questions regarding these comments, they may be directed to Katie Myers at (925) 423-5037 or the undersigned at (925) 422-2140.

14

Sincerely,

Kenneth C. Zahn, Leader
Environmental Evaluations Group
Environmental Protection Department

Attachments

cc: EEG File
Bert Heffner L-797

KM:rw
EEG03-020

COMMENTOR A6

Lawrence Livermore National Laboratory, Environmental Protection Department; Kenneth C. Zahn, Leader, Environmental Evaluations Group (July 29, 2003)

A6-1: Comment noted. The Draft General Plan shall be amended to add "CF-Government Research and Development" to the list of Community Facilities designations on page 3-23. The designation shall be applied to the Lawrence Livermore National Laboratory and the Sandia National Laboratories on the land use map.

A6-2: The comment is noted and the following change is made to Table 5-1 on page 90 in the MEA:

~~East Avenue~~	~~S. Livermore Avenue~~	~~Greenville Road~~

A6-3: The comment is noted. Figure IV.C-1: Proposed Roadway Functional Classification System on page 85 of the DEIR will be revised and is included in Chapter IV of this document. Additionally, DEIR Figure IV.C-3: Proposed Truck Route System and IV.C-5: Proposed Intersection and Roadway Improvements will also be revised and are included in Chapter IV of this document. None of the changes made to these graphics effect the text or findings of the Draft EIR.

A6-4: The comment is noted and Figure IV.C-2: Proposed Bikeways and Trails Network on page 87 of the DEIR will be revised and is included in Chapter IV of this document.

A6-5: The comment is noted. When an Airport Master Plan is developed, it will be distributed to public and private agencies and individuals for review, as appropriate.

A6-6: Page 245 of the DEIR states: "Specific projects that are incorporated into the cumulative analysis in this EIR *include* the following:" (italics inserted for emphasis). The list that follows on the top of page 246 of the DEIR includes major projects that are anticipated to be developed in the vicinity of Livermore. This list is not intended to be a comprehensive inventory of *all* projects that are anticipated to occur around Livermore; rather, the list is intended to provide the reader with a sample of typical developments that were used to analyze the cumulative impacts of the proposed project. The projects listed on page 246 of the DEIR, the projects listed by the commentor, and municipal General Plans that account for future growth were incorporated into the cumulative analysis completed for the proposed project. Anticipated projects in Alameda, Contra Costa, and San Joaquin Counties, including those specified by the commentor, are incorporated into the Metropolitan Transportation Commission (MTC) Regional Baycast model, the Contra Costa County Transportation Authority Countywide Model, and the City of Pleasanton Model, which were used by the City to determine the cumulative traffic and roadway-related impacts that would occur as a result of project implementation. Therefore, the traffic-related effects of the projects listed by the commentor are already accounted for in the traffic analysis contained with Section IV.G. Traffic and Circulation, of the DEIR.

A6-7: The EIR authors disagree with the commentor's conclusions. The statement that the development of new public services facilities proposed as part of the Draft General Plan would result in a less-than-significant impact is based on the following premises, outlined in the paragraph at the top of page 138 of the DEIR: 1) Draft General Plan policies INF-7.3.P1 through P4 would help reduce the environmental impacts of new school development through State requirements relating to the siting of new schools and integration of schools with parks and recreational facilities; and 2) impacts resulting from individual public services facilities developed as part of the Draft General Plan would be evaluated and mitigated during environmental review. The DEIR is a program-level EIR that evaluates the environmental impacts that could reasonably be expected to occur as a result of implementation of the Draft General Plan and Downtown Specific Plan. In a program-level EIR, projects are analyzed based on the available level of detail. Based on the level of detail contained in the Draft General Plan on the location and siting of public services facilities, it is not anticipated that public services facilities developed as part of the proposed project would have a significant adverse environmental effect.

A6-8: Typically, the construction of elementary schools, middle schools, and high schools does not utilize federal funds. Therefore, such school projects would not be subject to NEPA analysis.

A6-9: The suggested revisions made by the commentator would not alter the air quality analysis contained in the Draft EIR or the findings in the Draft EIR regarding air quality impacts that could result from implementation of the proposed project. Although attainment standards exist for H_2S, vinyl chloride, sulfates, and visibility-reducing particles, the State (including the San Francisco Bay Air Basin) has long been in attainment for these pollutants. The proposed project would not substantially affect the concentrations of these pollutants. Therefore, these pollutants were not analyzed in detail in the Draft EIR and were not included in Table 9-3 of the MEA. The "annual mean" is the "Annual Arithmetic Mean," as shown in Table 9-3. Replacing "annual mean" with "annual average" in Table 9-3 of the MEA was considered but is not necessary. In addition, *suspended particulate matter* is an appropriate name for particulate matter that affects air quality. Such nomenclature is commonly used by air quality regulatory agencies. Although $PM_{2.5}$ has been identified by the EPA and State Air Quality Management Districts as a pollutant of significance, data is currently being collected on the pollutant and no measurement or enforcement protocol have been developed. Therefore, $PM_{2.5}$ was not included in Table 9-3 of the MEA.

A6-10: Comments noted and the MEA and DEIR are revised as follows:

The second paragraph on Page 48 of the MEA is revised as follows:

> Table 4-8 explores the underlying relationships between residents' employment at all locations and the local jobs present in the City of Livermore and the immediate vicinity during 1990. This figure includes employment at Lawrence Livermore National Lab<u>soratory</u> (LLNL) and Sandia National Lab<u>soratories</u>, which are located

outside of Livermore's city boundaries and have often been excluded from City of Livermore jobs data.

The seventh paragraph on Page 108 of the MEA is revised as follows:

Tri Delta Transit has one existing commuter route serving the Livermore area and one commuter route currently in the testing stage. The Delta Express provides service from East Contra Costa County to Lawrence Livermore National Labsoratory and Sandia National Labsoratories. Two buses make two morning and two evening trips. Passengers are picked up in Antioch, Oakley, Brentwood, and Byron and connect non-stop to Livermore.

Table 14-1: Hazardous Material Sites in the City of Livermore Currently or Formerly Overseen by the Department of Toxic Substances Control on page 280 of the MEA is revised as follows:

Site Name/Address	List	Site Status
Lawrence Livermore National Laboratory 7000 East Avenue	Annual Work Plan	The site has been affected by releases of volatile organic compounds and petroleum hydrocarbons. Groundwater treatment and soil vapor extraction are continuing. This site is also listed on the U.S. Environmental Protection Agency's National Priority List of hazardous waste sites, commonly referred to as Superfund sites.

Table 14-2: Current and Former Leaking Underground Storage Tank Cases in the City on page 282 in the MEA is revised as follows:

Lawrence Livermore National Laboratory Building 298	7000 East Avenue

Table 14-3: Current and Former Spill, Leak, Investigation, and Cleanup Cases in the City on page 283 of the MEA is revised as follows:

Lawrence Livermore National Laboratory DOE		1/31/1992

See Response to Comment A3-1 regarding revisions to page 14 of the DEIR.

Policy INF-6.1.P3 in the Draft General Plan on page 7-38 shall be amended as follows:

The City shall maintain its mutual aid agreements with both Lawrence Livermore National Labsoratory and Alameda County in order to provide adequate fire protection to unincorporated parts of the Planning Area.

The paragraph under the heading **(1) Less-than-Significant Impacts** on page 201 of the DEIR is revised as follows:

New residential uses are generally not being proposed or intensified in areas of known existing risks (e.g., the Lawrence Livermore National Labsoratori~~es~~y).

A6-11: Comment noted. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A6-12: Comment noted. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A6-13: Comment noted. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A6-14: Comment noted and Table 4-22 on page 59 of the MEA is modified as follows:

Project Name	Project Status	Sold
Aladen Lane Holmes St. @ Alden Lane *The Verbena* *The Lantana* *The Mariposa* *The Hawthorn* *The Acacia*	25 units being built	24

Letter
A7

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588-5127 ♦ PHONE (925) 484-2600 FAX (925) 462-3914

July 30, 2003

Mrs. Susan Frost, Senior Planner
Community Development
City of Livermore
1052 S. Livermore Avenue
Livermore, CA 94550-4899

Re: Draft Environmental Impact Report for City of Livermore General Plan Update and Downtown Specific Plan

Dear Mrs. Frost:

Zone 7 has reviewed the referenced CEQA document and we have a number of comments, which are made in the context of Zone 7's responsibilities to provide wholesale treated water, non-potable water for agriculture and irrigated turf, flood protection, and groundwater and stream management in the Livermore-Amador Valley. Our comments are as follows:

Volume 1: Draft Master Environmental Assessment

Chapter 6. Infrastructure and Utilities

1. In Chapter 6. Infrastructure and Utilities a description of Zone 7 Water Agency is provided. On page 121, third paragraph, it summarizes untreated water for agricultural use. The last sentence states, "Zone 7 meets untreated water demand through deliveries from the South Bay Aqueduct, which is part of the State Water Project, as mentioned above, is currently planning up to a 130 cubic feet per second (cfs) enlargement of the South Bay Aqueduct to meet its anticipated future raw water conveyance needs for both future treated and untreated water demands." It should be noted that future untreated water demands have no viable financial plan. Therefore at this time, the additional raw water conveyance provided by the proposed enlargement of the South Bay Aqueduct is currently to meet future treated water demands and provide additional reliability for existing and future Zone 7 Municipal & Industrial (M&I) customers. Zone 7's Integrated Water System Master Plan, currently ongoing, is investigatng the potential for additional untreated water demands and potential funding options. **1**

2. On page 130, under c. Water Reclamation or Recycling, it briefly describes the City of Livermore's current practices and future needs as it relates to their water reclamation/recycling program. It should be noted that water reclamation/recycling impacts the groundwater as it increases the salt loading. **2**

Chapter 13. Hydrology and Water Quality

On Page 262, first sentence under subsection 3. Flood Control, states that "Zone 7 has embarked on a watershed-wide Flood Control Master Plan." Zone 7's watershed-wide effort, that is currently in development is called the Stream Management Master Plan (SMMP), not Flood Control Master Plan, therefore, the text should be revised to reflect the correct title. For your use, the following text summarizes this watershed-wide effort: **3**

The Stream Management Master Plan (SMMP) is a collaborative effort with local cities, resource agencies, regulatory agencies, and other interested stakeholders. The consulting engineering firm of Raines, Melton and Carella (RMC) is assisting us in the development of the SMMP. The SMMP is scheduled for completion in April 2004. The SMMP will develop projects that provide multiple benefits and comply with regulations effecting non-point source water quality, meet public demand for access to flood control facilities for recreational purposes, and address public interest in habitat protection and enhancement. The SMMP builds on the draft Flood Control Master Plan (FCMP) work, previously developed by Zone 7 with assistance from West Yost and Associates (WYA), to address multiple stream management issues.

3 cont.

The SMMP will also incorporate the recent experience and recommendations of other agencies regarding the integration of flood control and other stream management issues into the development of projects. The SMMP will include a program of recommended projects and policies to address flood control facilities design and construction criteria and maintenance issues, while also integrating water supply, water quality, environmental and recreation issues, and Chain of Lakes issues in the development of projects. Existing reports and studies from Zone 7 and other agencies will be utilized to define needs in each of the resource areas and identify projects and policies for inclusion in the SMMP to address the identified needs. Projects and policies with multiple benefits and partnership opportunities will be recommended for inclusion in the SMMP.

2. On page 264, in the first paragraph under Section D. Goundwater Supply, Extraction, and Recharge, there is a brief description of where the City of Livermore's Planning Area lies over the Livermore-Amador Valley Groundwater Basin (Main Basin). The last sentence states, "Groundwater recharge takes place in Livermore, but the well heads are in Pleasanton." This sentence should be revised to include the fact that California Water Service (CWS) has drinking water wells located in Livermore. **4**

3. On page 264, in the last paragraph under Subsection 2, Groundwater Quality, the first sentence states, "In general, the groundwater quality in the Main Basin meets primary drinking water standards, except for the parameters of total dissolved solids and hardness." However, these two parameters are not included in the primary drinking water standards. This statement should be revised using language such as that used in the Groundwater Quality section of Chapter 8 (Open Space and Conservation Element) in the Draft General Plan Update. Most importantly, parts of Livermore's groundwater exceed the primary standard for nitrates and halocarbons, volatile organic compounds. **5**

   Zone 7's concerns for protection of groundwater quality are the potential for excess salt loading and other contaminants. Beneath portions of the City, the groundwater quality has already been degraded with respect to total dissolved solids, nitrates, and volatile organic compounds due to various land uses and the fact that the soils have a high gravel content and are very porous and the aquifer is unconfined. The statement referenced above should be revised to include this information.

4. On page 271, under subsection 3. Alameda County Flood Control and Water Conservation District, Zone 7, the following text should be added: "Zone 7 also administers the well and soil boring permit program for Livermore and the surrounding area." **6**

Chapter 14. Hazardous Materials

For your information in regard to Local and Regional Agency Responsibilities for Contaminated Site Cleanup (pages 279 – 280), Zone 7 has spoken to the Regional Water Quality Control Board (RWQCB) about assuming responsibility for some Spills, Leaks, Incidents, and Cleanup cases. The RWQCB is **7**

receptive to this; however, a formal proposal from Zone 7 will be necessary, and will most likely be submitted by the end of this year. **7 cont.**

Volume II: Impacts and Mitigation Measures

II. Summary

On page 11, Table II-1: Summary of Impacts and Mitigation Measures, Topic K, Hydrology and Water Quality is missing and should be included. **8**

IV. Setting, Impacts and Mitigation Measures

B. Population, Employment, and Housing

One of the most important policies identified in this document as well as in the Draft General Plan Update (GPU) is Policy LU.2.1.P3 (page 76) as quoted below:

"Future Growth shall not exceed the community's capability to provide services. School classroom facilities, sewage treatment capacity, treated domestic water, public parks and recreation, and public safety services shall be the principal factors considered."

It states that "less-than-significant" impacts that would result from the population, employment, and housing of the proposed project. However, each of these public services will require additional space to meet increasing levels-of-service and regulatory standards. The GPU exacerbates this issue by allowing the proposed densification within the current city limits. The City realizes that it cannot and should not stop growth. Therefore, each of the public services will be competing not only against each other, but also against the private market for a very short supply of land. Size and location also narrow the supply based on the given public service need. **9**

Not extending sewer service to all developments within the City limits will increase the number of septic systems. Alameda County Health Care Services Agency and Zone 7 Water Water Agency have stated that septic systems threaten the quality of our groundwater, which is used for supplying water to our homes in Livermore, as well as Pleasanton and Dublin. Once this resource is contaminated, additional supplies will be needed. This will lead to increases in water rates and will result in another natural resource to be depleted. **10**

The Draft City of Livermore General Plan Update and Downtown Specific Plan proposes densification within the current city limits. Densification will increase the demand on Zone 7's existing transmission system. Currently, there is no analysis as to whether Zone 7's existing transmission system can absorb the growth within the Downtown area. Currently, Zone 7's transmission system is at capacity. During peak summer months, Zone 7 will often need to pump treated water from the west side of the Valley back towards the east side. It is important to note that the amount of water that can be pumped back to the east side of the Valley is constrained due to the limited capacity of Zone 7's existing pump and rate control stations and water storage facility at the Patterson Pass Water Treatment Plant. Zone 7 is currently developing a Transmission System Hydraulic Model of its existing transmission system. Improvements to the existing system will be defined through this effort in order increase the operational/maintenance efficiencies and ensure that Zone 7 meets its goals and objectives to its retailers for existing and future demands. If Zone 7's existing transmission system cannot absorb the growth alternative proposed in the Draft General Plan and the Downtown Specific Plan, an improvement program would need to be **11**

developed to ensure that the level of service Zone 7 provides to its retail customers be maintained at a high level. The development of this improvement program will lead to a reevaluation of Zone 7's M&I Connection Fee Program since improvements to the existing transmission system would be necessary to accommodate growth. An outcome of this reevaluation may lead to an increase in Zone 7's current M&I Connection Fees. **11 cont.**

D. Utilities, Infrastructure, and Energy

1. Policies INF-1.2.P4 and P5 state that extensions of water service beyond City limits, and water storage and distribution system extensions beyond the City-approved service area shall be prohibited. Note that California Water Service is governed by the CPUC, and not the City of Livermore, and that these policies are unenforceable with respect to this retail water service provider. **12**

2. Policy INF-3.2.A1 states that requiring the use of detention/infiltration basins might be one strategy to reduce the impact caused by the creation of impermeable surfaces as a result of new development (page 109). Proposals for infiltration treatment measures will need to comply with the conditions in the Alameda Countywide Clean Water Program's NPDES Permit and involve consultation with Zone 7 in order to protect the groundwater basin from potential contamination as a result of using such treatment measures. **13**

E: Public Services

1. Policy INF-3.3.P3 states, "Primarily bikeways and trails shall be located adjacent to the arroyo and creek corridors as outlined in a master plan prepared for bikeways and trials." (Page 131) Note that this is only possible if the primary function of the corridor, i.e., storm drainage and flood control, is not compromised. **14**

I. Biological Resources

1. On page 181, the third paragraph under Sensitive Habitat Areas, Objective OSC-1.4.A5 is referenced, however, this objective is not identified in the previous section that summarizes the policies and actions that concern biological resources and is not defined in the Open Space and Conservation Element in the Draft General Plan. The referenced objective should be identified and defined accordingly. **15**

K. Hydrology and Water Quality

1. Policy CC-1.1.P12 states, "Development adjacent to streams, canals, reservoirs, and other bodies of water should be in a manner that will preserve the natural scenic qualities of the area, or when scenic qualities are minimal shall be designed and treated so as to result in naturalistic forms." (page 192) This should be subject to local jurisdictional approval. The City of Livermore should jointly work with Zone 7 on improvements made to arroyos and creeks. Zone 7 will need assurance that improvements will not impact capacity either upstream or downstream of the improvements. A hydraulic model may be required to assure system integrity. **16**

2. Policy OSC-1.2.P10 states, "Dams to store water for agriculture may be permitted in riparian corridors, but only if water is released in quantities and at times so as not to impair aquatic life or riparian vegetation." (page 192) If this goal includes areas within the 100-year flood plain, the previous comment above would apply. **17**

Letter
A7
cont.

3. On page 196, third paragraph titled, *Flooding Hazard*, Action PS-2.2.A5 and A6 are referenced, however these actions are not identified in the previous section that summarizes the policies and actions that concern hydrology and water quality and is not defined in the Public Safety Element in the Draft General Plan. The referenced action should be verified and revised accordingly. **18**

4. On page 196, the last paragraph titled, *Alteration of Waterways*, Action OSC-1.3.A3 and Policy OSC-2.2.P1 are referenced, however the action and policy is not identified in the previous section that summarizes the policies and actions that concern hydrology and water quality and is not defined in the Open Space and Conservation Element in the Draft General Plan. The referenced action and policy should be verified and revised accordingly. **19**

5. On page 197, second paragraph under *Groundwater*, Action OSC-1.3.A6 is referenced, however this action is not identified in the previous section that summarizes the policies and actions that concern hydrology and water quality and is not defined in the Open Space and Conservation Element in the Draft General Plan. The referenced action and policy should be verified and revised accordingly. In addition, Policy OSC-2.1.P1 is referenced, however, Policy OSC-2.1.P3 is the appropriate policy to reference under this subsection as it relates to groundwater recharge and that development shall mitigate adverse impacts to the greatest extent possible. Lastly, the last sentence should be revised to read: "Policies OSC-1.4.A2, OSC-2.1.P3, P4, and P5, which require the City to work with Zone 7 on stream management and to address salt-loading would mitigate impacts associated with this issue to a less-than-significant level." **20**

Previous correspondence requested that the Draft EIR address Hydrology and Water Quality impacts to both Altamont Creek (Line R) between Laughlin Road and Greenville Road. Another area that Zone 7 requested specifics on is the confluence of the relocated Arroyo las Positas (Line H) and Arroyo Seco (Line P). Even though Cottonwood Creek (Line L), Collier Creek (Line M), and Cayetano Creek (Line N) appear to be in the Urban Growth Boundary amendments for North Livermore, improvements can still occur with impacts to these creeks. Zone 7 has adopted Interim Design Standards and Practices for future construction improvements of channels. Any development within arroyos and creeks fall under these standards and are subject to Zone 7's review to ensure there are no impacts to Zone 7 facilities. **21**

We appreciate the opportunity to comment on these documents. If you have any questions, please feel free to contact me at (925) 484-2600, ext. 400, or Mary Lim at ext. 405 at your earliest convenience.

Sincerely,

Jim Horen
Principal Engineer
Advance Planning Section

Letter
A7
cont.

JH:mdl

cc:	Ed Cummings	Assistant General Manager
	John Mahoney	Engineering Services Manager
	Y.K. Chan	Principal Engineer, Capital Projects
	Dennis Gambs	Principal Engineer, Water Facilities Engineering
	Dave Lunn	Water Resources Manager
	Joe Seto	Senior Engineer, Flood Control
	Matt Katen	Senior Engineer, Groundwater Protection and Projects
	Jack Fong	Associate Engineer, Advance Planning
	Mona Olmsted	Associate Engineer, Water Facilities Engineering

COMMENTOR A7
Alameda County Flood Control and Water Conservation District; Jim Horen, Principal Engineer (July 30, 2003)

A7-1: Comment noted regarding Zone 7's current investigation of the potential for additional untreated water demands and potential funding options. The following will be added to the fourth paragraph on page 121 of the MEA as follows:

> It should be noted, however, that future additional untreated water demands have no funding plan at this time. As of 2003, Zone 7 is preparing their Integrated Water System Master Plan that will include an Untreated Water Master Plan component. Zone 7 also will be evaluating the potential for additional untreated water demands and potential funding sources.

A7-2: Comment noted regarding water recycling, and the following is added to the second full paragraph on page 130 of the MEA:

> Finally, it should also be noted that water reclamation/recycling has the potential of increasing salt loading in the groundwater which could have an adverse effect on water quality.

A7-3: To make the correction requested in this comment, page 262 of the MEA under section **3. Flood Control** will be revised as follows:

> The Alameda County Flood Control and Water Conservation District, Zone 7 has embarked on a watershed-wide Stream Management Master Plan (SMMP. ~~Flood Control Master Plan.~~

Additionally, the following paragraphs will be added after the first paragraph on page 267 in the MEA:

> The Stream Management Master Plan (SMMP) is a collaborative effort with local cities, resource agencies, regulatory agencies, and other interested stakeholders. The SMMP will develop projects that provide multiple benefits and comply with regulations affecting non-point source water quality, meet public demand for access to flood control facilities for recreational purposes, and address public interest in habitat protection and enhancement. The SMMP builds on the draft Flood Control Master Plan (FCMP) work, previously developed by Zone 7 to address multiple stream management issues.
>
> The SMMP will also incorporate recommendations of other agencies regarding the integration of flood control and other stream management issues into the development of projects. The SMMP will include a program of recommended projects and policies to address flood control facilities design and construction criteria and maintenance issues, while also integrating water supply, water quality,

environmental and recreation issues, and Chain of Lakes issues in the development of projects. Projects and policies with multiple benefits and partnership opportunities will be recommended for inclusion in the SMMP.

A7-4: Comment noted. Page 267 of the MEA, in the first paragraph under **Section D. Groundwater Supply, Extraction, And Recharge** will be revised as follows:

Groundwater recharge takes place in both Livermore and Pleasanton, and well heads are also located in both cities. ~~in Livermore.~~

A7-5: Comment noted and in response the following revisions will be made to the MEA.

One page 268 of the MEA, the first paragraph under section **2. Groundwater Quality** will be revised as follows:

In general, the groundwater quality in the Main Basin meets ~~primary~~ drinking water standards, except for the parameters of total dissolved solids (TDS) and hardness. TDS and hardness are "secondary standards," which relate to the aesthetic (not health and safety) qualities of the water. Small parts of Livermore's groundwater exceed the primary standard for nitrates, halocarbons, and volatile organic compounds. However, the drinking water that is delivered to Livermore does meet all State and federal drinking water standards.

On page 269 of the MEA, under section **3. Salt Loading**, the following paragraph will be inserted as the second paragraph as follows:

Zone 7's concerns for protection of groundwater quality address the potential for excess salt loading and other contaminants. Beneath portions of the City, the groundwater quality has been degraded with respect to total dissolved solids, nitrates, and volatile organic compounds due to various land uses and the fact that the soils have a high gravel content, are very porous and the aquifer is unconfined.

On page 269 of the MEA, under section **3. Salt Loading**, the second full paragraph will revised as follows:

Zone 7-in conjunction with EOA, Inc., a technical advisory group (TAG) composed of retailers, and a groundwater management advisory committee (GMAC) composed of Zone 7 citizens – ~~has~~ prepared a Salt Management Plan (SMP) to implement strategies that fully offset current and future sources of salt loading in the Main Basin...Zone 7 ~~was working on~~ prepared~~ing~~ a ~~and reviewing~~ ~~the~~ draft SMP report in December 2002.~~draft which was expected to be completed in the Fall of 2002.~~

A7-6: Comment noted and in on page 271 of the MEA, under subsection **3. Alameda County Flood Control and Water Conservation District, Zone 7**, the following text will be added before the last sentence as follows:

Zone 7 also administers the well and soil boring permit program for Livermore and the surrounding area.

A7-7: The commentor states that Zone 7 may submit a formal proposal to the Regional Water Quality Control Board (RWQCB) by the end of 2003 to assume over sight for some Spills, Leaks, Incidents, and Cleanup (SLIC) cases in Livermore. SLIC sites are sites with potential groundwater contamination that is not associated with a leaking underground storage tank. The comment is noted for the record.

A7-8: Comment noted and Table II-1 starting on page 9 of the DEIR will be revised as follows to add topic K. Hydrology and Water Quality to page 11. Note that no significant impacts related to hydrology and water quality were identified in the DEIR.

K. HYDROLOGY AND WATER QUALITY
There are no significant impacts to hydrology and water quality.

A7-9: Comment noted regarding the commentor's belief that there is a potential for increased competition among public services and the private market for office space associated with intensification of development within the City limits. Furthermore, CEQA does not require an analysis of the fiscal and financial impacts resulting from a proposed project. The purpose of CEQA is to provide an analysis of the potential adverse *physical* impacts of a proposed project.

A7-10: It is not the intent of the City of Livermore to approve new sewer septic systems. In fact, the City discourages septic systems whenever possible. Septic tanks will only be allowed in agricultural zones with approval by the Alameda County Health Department. To clarify this position, policy INF-2.1.P2 on page 7-14 of the Draft General Plan shall be revised as follows:

INF-2.1.P2. Septic tanks shall be allowed only in agricultural zones if ~~when~~ approved by Zone 7 and the Alameda County Health Department.

A7-11: Comment noted. It is recognized that a change in population densities and location could change Zone 7's future water transmission system design due to changed demand patterns, and that an improvement program may need to be developed in the future.

A7-12: The comment relates specifically to policies in the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

A7-13: Comment noted regarding the need to comply with the conditions in the NPDES Permit and consult with Zone 7.

A7-14: Comment noted regarding the need to protect the storm drainage and flood control functions of drainage corridors.

A7-15: Comment noted, and the sixth paragraph on page 181 of the DEIR will be corrected as follows:

> To identify and reduce site specific impacts, implementation of policy LU-3.1.P1 would require the preparation of a specific plan prior to development of the TOD area. Implementation of Draft General Plan policy LU-4.1.P1 and policies and actions under objectives OSC-1.1 and OSC-1.2 (specifically OSC-1.2.P7~~, OSC-1.4.A5~~), would reduce impacts to sensitive habitat areas to a less-than-significant level.

A7-16: Comment noted regarding the need to work jointly with Zone 7 on improvements made to arroyos and creeks.

A7-17: Comment noted.

A7-18: The comment relates specifically to the policies and actions in the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

A7-19: Comment noted. The fourth paragraph on page 196 of the DEIR shall be revised as follows:

> Flooding resulting from extreme storm events and/or catastrophic dam failure could affect the new and existing development within the General Plan area. However, policies contained in the Livermore Draft General Plan and existing programs adequately mitigate potential flooding impacts. Specifically, policies PS-2.1.P1 through P9 ~~and actions PS-2.2.A5 and A6~~ require new development to be completed in a way that will minimize flood-related hazards and will not create new hazards for existing development. Therefore, potential impacts associated with flooding are considered less than significant.

A7-20: Comment noted, and the last paragraph under subsection *Groundwater* on page 197 of the DEIR will be revised as follows:

> Policies OSC-1.4.A2 ~~OSC-1.4.A6~~, OSC-2.1.P~~1~~3, P4, and P5 which require the City to work with Zone 7 to stream management and address salt-loading would mitigate impacts associated with this issue to a less-than-significant level.

A7-21: Comment noted regarding Zone 7's adopted Interim Design Standards and Practices for future construction improvements of channels. To address this comment, policy CC-4.15.P2 on page 4-37 of the Draft General Plan shall be revised as follows:

> CC-4.15.P2 Development adjacent to streams, canals, reservoirs, and other bodies of water should be in a manner that will preserve the natural scenic qualities of the area, or when scenic qualities are minimal shall be designed and treated so as to result in naturalistic forms. Zone 7 has adopted Interim Design Standards and Practices for future construction improvements of channels. Any development within arroyos and creeks fall under these standards and are subject to Zone 7's review to ensure there are no impacts to Zone 7 facilities.

Letter
A8

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

July 30, 2003

Ms. Susan Frost
Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

Dear Ms. Frost

Thank you for providing the San Francisco Bay Area Rapid Transit District (BART) with an opportunity to comment on the City of Livermore's Draft General Plan, Draft Downtown Specific Plan and Environmental Impact Report. BART is very interested in Livermore's future plans as BART is currently working with our planning partners, including the City of Livermore, on how to expand transit service in the Tri-Valley.

To the extent that the City may maintain or prepare separate administrative records for these documents, BART is submitting this letter as a comment for the record on each document.

Comments on the Status of the I-580 Corridor Study

As noted in the I-580 Corridor/BART to Livermore Policy Advisory Committee (I-580 Committee) meeting minutes from September 17, 2002, the I-580 Committee, which is guiding the transit study effort, unanimously approved an I-580 median alignment as the preferred alignment for future transit investments. However, the Committee also directed BART staff to explore in more detail the alternative rail technologies throughout the study area. This Phase 2 transit study has produced some initial findings and the study is expected to be completed in late Summer 2003. If the I-580 Committee provides a recommendation, and the BART Board of Directors provides direction on the corridor study, the next step would be to initiate the environmental review process for the transit improvements in late 2003. This process would be accompanied by a Ridership Development Plan, to be developed cooperatively with BART and local jurisdictions, that would identify coordinated land use and access strategies to enhance the anticipated ridership for transit service. 1

Page 110 of the Master Environmental Assessment (Volume 1 of the EIR) indicates that the I-580 Committee "recommended that an I-580 median alignment be studied." More accurately, the minutes indicate that the I-580 Committee "approved the I-580 median alignment" as the preferred alignment "without a specific rail technology" being specified. This recommendation has not yet been brought forward to the BART Board of Directors for their consideration, but is pending a final recommendation from the I-580 Committee on the Phase 2 study.

BART Policies

Three policies adopted by the BART Board of Directors relate to the coordination of future transit service and land use planning: the System Expansion Policy, Access Management and Improvement Policy, and Station Area Planning. The System Expansion Policy, adopted by the BART Board in December 2002, includes the following goals:

- Enhance regional mobility, especially access to jobs; and
- Demonstrate a commitment to transit-supportive growth and development.

In order to provide guidance on improving access to the BART system, the BART Board adopted an Access Management and Improvement Policy in May 2002. Two of the goals include: 2

- Increase ridership by enhancing access to the BART system;
- Create access programs in partnership with communities.

In addition, the goals of BART's Policy Framework for Station Area Planning, adopted May 2001, include the following:

- Promote transit ridership and enhance the quality of life by encouraging and supporting transit-oriented development within walking distance of BART stations and along transit corridors that serve BART stations.

Comments on General Plan, Downtown Specific Plan and EIR

Based upon the BART policies discussed above, BART has the following comments:

1. Land Use Designation for Greenville BART Transit-Oriented Development (TOD) Area. BART's Strategic Plan and System Expansion Policy support the location of high-density uses near BART stations. Accordingly, we are pleased to see the designation of a BART Transit-Oriented Development Area in the Land Use Element of the Draft General Plan (p. 3-82). BART currently owns two parcels totaling 169 acres in the vicinity of Greenville Road - a 50-acre parcel designated for a future station and parking site, and the 119-acre parcel that would partially be used for a future rail yard, shop and warehousing facilities. At this time, BART has not prepared a detailed site plan for these facilities. However, we note that, to support future expansion of the existing BART system to the area, a sizeable portion of the BART-owned parcels will likely be needed for a future rail yard and associated facilities. Accordingly, BART requests that the land use designation retain sufficient flexibility for this future use. In addition, we note that the configuration of a new mixed-use neighborhood at Greenville Road would need to take into account these future BART support facilities as well as the rail alignment itself. 3

Page 3-82 and Figure 3-7 of the General Plan identifies the Greenville BART TOD Area as a New Mixed-Used Neighborhood that could be planned in more detail should there be a commitment for future rail service to this site. BART agrees that this is an appropriate designation for the area at this time. Furthermore, as identified in the EIR 4

(p. 72, *Land Use Plans and Policies*), BART requests acknowledgement in the General Plan that the 119-acre BART parcel is outside of the Livermore city limits, and is under the jurisdiction of Alameda County. 4 cont.

2. Isabel BART Property - Land Use Designation. BART currently owns 54 acres near Airway Boulevard and Kitty Hawk Road (future Isabel Avenue). The current land use designation is Public Use, as a large portion of the property is used as a BART park and ride facility. as indicated in the Master Environmental Assessment (p. 109). The proposed designation appears to be for Low Intensity Industrial (LII). BART wishes to confirm that this proposed change in land use designation does not affect the use of the parcel as a park and ride facility. As no final decisions have been made as part of either the BART to Livermore study, or the Isabel Avenue/I-580 Interchange effort, BART would like to retain the use of this site for park and ride purposes. Moreover, the traffic impacts analysis discussed in the EIR (p. 99) incorporates existing BART service. It appears that this analysis relies on the continued availability of existing access, including the park and ride facility, for its conclusion of less-than-significant impacts on existing service. If such continued use would be considered in any way inconsistent with the designation proposed in the Draft General Plan, BART requests that the parcel remain designated for Public Use at this time. 5

3. General Plan - Land Use Designation (Figure 3-3). The proposed General Plan map (Figure 3-3) indicates there could be as many as six "light rail" transit station serving Livermore and located adjacent to the Union Pacific rail alignment. Page 5-14 of the General Plan further suggests that this type of rail transit system serving downtown Livermore is currently under consideration by the I-580 Committee as part of the Phase 2 study. BART agrees that the station locations identified on Figure 3-3 are generally consistent with the stations being considered in the I-580 transit study. However, the Greenville Road "light rail" station would be located on one of the existing rail alignments under consideration, located south of the I-580 freeway. Should the I-580 Committee and the BART Board decide to move the project into the next phase of analysis, BART will confer with the City of Livermore in further defining the station locations and station layouts to support both BART's and the City's goals and to increase transit ridership. 6

4. Land Use Element: Goal LU-3.1 - High-Density Mixed-Use Development Near Transit. The City's goal, objective and policies outlined under Goal LU-3.1 support the important concept of detailed and coordinated land use and transportation planning at a future Greenville BART station site. The General Plan calls out the need for a Specific Plan should BART, the City and other project partners decide to move forward with major transit improvements. BART supports these measures, as they encourage future transit ridership, and are consistent with BART's policies. In particular, we note that policy LU-3.1.P1, calling for a specific plan for the Greenville BART TOD area prior to or concurrent with approval of any development applications, will help reserve the important opportunities for transit-supportive uses in this area. 7

5. Circulation Element: Goal CIR-3.1 - Viable Alternatives. The City's goal, objective and actions outlined under Goal CIR-3.1 support future transit improvements in Livermore. BART agrees that the outlined measures are important for providing viable alternatives to single-occupant vehicle travel. Preserving critical right-of-way, whether for a future I-580 median or downtown transit investment, is important to ensure that the public has alternative travel options as Livermore and the region continue to grow. 8

6. Circulation Element: Goal CIR-3.2, CIR-3.3 and CIR-3.4 - Trip Reduction and Bicycle/Pedestrian Networks. Access to future transit stations is a critical factor. The City's goal, objective and actions outlined under Goals CIR-3.2, CIR-3.3 and CIR-3.4 support future transit improvements by acknowledging the importance of auto access and parking, local bus and comprehensive bicycle and pedestrian networks. BART agrees that the outlined policies and actions are critical to ensure the success of any future transit investment and to enhance the quality of life in Livermore. In particular, BART's station access policy seeks to increase the station access mode share from pedestrians, bicycles, and local transit services. BART looks forward to working with city staff in more detail on station access strategies should the transit project move forward. 9

BART concurs with the conclusion in the EIR (p. 99) that implementation of the Circulation Element policies through land use actions, trip reduction strategies and, especially, preservation of right-of-way for transit will help to mitigate impacts on the existing transit system from implementation of the Draft General Plan. 10

7. Open Space and Conservation Element: Goal OSC-6.1 - Minimize Air Pollution Emissions. The City's goals and policies outlined under Goal OSC-6.1 seek to minimize air pollution emissions. In particular, Policy 7 (P7) commits the City to actively support funding and construction of a BART or light/commuter rail extension to Livermore and encourages the development and maximum use of regional and local mass transit systems. Policy P7 is consistent with BART's policies for ensuring proper stewardship of the regional transit investments. 11

8. Noise Element: Goal N-1.4 - Reduce Noise Levels from Traffic. Goal N-1.4 seeks to minimize noise levels from traffic, which is the single largest source of unacceptable noise in the city. Highly productive transit service is one strategy that can effectively reduce automobile traffic noise. If any or all the proposed transit improvements should move into the environmental review phase, BART will evaluate and, as necessary, mitigate noise impacts on existing development in compliance with applicable requirements of state and federal law. Local jurisdictions and the public will have the opportunity to comment on potential noise impacts and mitigation measures as part of the environmental review process. For this reason, BART concurs with the conclusion in the EIR (p. 166) that noise impacts from a potential BART extension should be considered less than significant at the program level. However, it should be noted that BART is exempted by statute from the requirements of local general plans, including noise elements. Accordingly, BART requests that Noise Element action N-1.4.A5 be modified to acknowledge that assessment of potential 12

Letter
A8
cont.

impacts of BART vehicle noise on existing development areas and development of mitigation measures will be conducted by BART pursuant to federal and state law. 12 cont.

9. Specific Plan: The Strategy for Downtown. The primary goal of the Livermore Downtown Specific Plan is to revitalize Downtown as the most public district in the city - the indisputable functional, symbolic and activity "heart" of the community (p. 3-1 of the Downtown Specific Plan). Such a concentrated activity-generating cluster, with good pedestrian connections, typically provides a productive setting for transit. In addition, revitalization strategy #14 (p. 3-10) seeks to "Maximize transit opportunities for commuters to conveniently travel to Downtown Livermore" and to "encourage future development of integrated mass transit systems, including BART or other rail technology to Downtown." BART agrees that transit would play an important role in helping the City to achieve its goals for the Downtown. As such, a Downtown alignment using an alternative rail vehicles (Diesel Multiple Unit - DMU) is currently being considered by the I-580 Committee. As indicated earlier, should the I-580 Committee recommend, and the BART Board of Directors advance the transit study, the next major step would be to analyze the project and alternatives in the environmental review process. A Downtown rail alignment for the DMU rail vehicle would be considered in the environmental review process. This process would include substantial opportunity for public input. Upon completion of environmental review, the BART Board could potentially adopt a downtown alignment for the DMU rail vehicle. Accordingly, BART requests that the City acknowledge that it would need to review and revise the Downtown Specific Plan in a later proceeding to ensure that the provision of additional rail transit service to Downtown Livermore is consistent with all of the City's Specific Plan policies. 13

10. EIR Appendix D: Traffic Analysis. BART is still completing technical review of Appendix D, and reserves the right to provide comments at a later date. 14

Thank you for considering our comments. We look forward to working with the City of Livermore in the coming years to improve transit service in the Tri-Valley.

Sincerely,

Val Menotti
Manager - Alameda County Planning
BART

cc: Marianne Payne
Desha Hill
James Gravesande
Sherwood Wakeman

COMMENTOR A8
San Francisco Bay Area Rapid Transit District; Val Menotti, Manager, Alameda County Planning (July 30, 2003)

A8-1: Comment noted and page 110 of the MEA is modified as follows:

> The study will analyze alternative transit alignments and modes in the I-580 corridor, and provide estimates of transit ridership and project capital and operating costs. In addition to traditional BART service, the analysis will consider alternative transit modes for the corridor, such as Express Bus and tBART (a diesel rail system similar to light rail except with diesel engines that provide power for electrical motors). The draft final report from the Policy Advisory Committee working on this project identified ~~recommended that~~ an I-580 median alignment ~~be studied~~ as the preferred alignment. The draft final report did not specify a specific rail technology that should be developed as part of future transit improvements. However, due to low transit ridership forecasts in the first-phase study, a second phase was undertaken to account for reverse commute trips into the Tri-Valley, and intra-Tri-Valley trips. The Phase 2 study compared a BART extension in the I-580 median to Greenville Road plus express bus service to Tracy and up the I-680 corridor to San Ramon and Walnut Creek against tBART (also referred to as diesel multiple units or DMU) in existing rail corridors. Preliminary results of this study were unveiled in May 2003, and showed increased ridership for each of the study options, particularly for the DMU concept. The Policy Advisory Committee will consider the results of the Phase 2 study in the Summer of 2003. The final recommendation of the Policy Advisory Committee for transit improvements in Livermore will be forwarded to the BART Board of Directors for consideration.

A8-2: Comment noted. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-3: Comment noted. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-4: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-5: Comment noted. The land use designations in the 1976 General Plan for the BART-owned property located at Airway Boulevard and Kitty Hawk Road are Low Intensity Industrial (LII), Open Space (along the arroyo) and an icon for a future BART station. These land use designations are not proposed to change under the proposed Draft General Plan. The LII designation does not preclude the continuing use of the park and ride lot nor would it preclude the development of a BART station on the site. Public facilities are allowed in all land use designations, except Open Space.

A8-6: The light rail stations were shown on Figure IV.A-1 Draft General Plan Land Use Designations in error and will be removed. A revised Figure IV.A-1 is included in Chapter IV of this document.

A8-7: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-8: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-9: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-10: This comment denotes agreement with the findings of the DEIR, as they relate to the impacts of the proposed project on the existing transit system. No further response is necessary.

A8-11: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-12: Comment noted. The City recognizes that BART is exempted by statute from the requirements of local general plans, including noise elements. Noise Element Action N-1.4.A5 will be modified to acknowledge that assessment of potential impacts of BART vehicle noise on existing development areas and development mitigation measures will be conducted by BART pursuant to federal and State law.

The Draft General Plan Action N-1.4-A5 on page 9-30 shall be amended as follows:

> Prior to the construction or implementation of future transit systems, quantify noise levels and assess impacts generated by vehicle noise. Identify noise impacts of transit vehicles, (such as BART) on existing development and evaluate the transit project's compatibility with existing land use. In coordination with transit service providers, ~~develop~~ identify mitigation measures to ensure that existing developed areas are not subject to excessive noise levels from proposed transit operations.

A8-13: Comment noted. This comment relates to potential future revisions to the Downtown Specific Plan to allow for the inclusion of a Downtown rail alignment, and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A8-14: Any comments received from BART after the end of the public review period for the Draft EIR would be considered by the City.

Letter
A9

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

ALAMEDA COUNTY
Roberta Cooper
Scott Haggerty
(Chairperson)
Nate Miley
Shelia Young

CONTRA COSTA COUNTY
Mark DeSaulnier
Mark Ross
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MARIN COUNTY
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Jake McGoldrick

SAN MATEO COUNTY
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Patrick Kwok
Julia Miller
Dena Mossar

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Torliatt

William C. Norton
EXECUTIVE OFFICER/APCO

July 30, 2003

Susan Frost, Senior Planner
Community Development Department
City of Livermore
1052 South Livermore Avenue
Livermore, CA 94550

RECEIVED

AUG - 4 2003

PLANNING DIVISION

Subject: Livermore General Plan Update and Downtown Specific Plan

Dear Ms. Frost:

Bay Area Air Quality Management District (District) staff have received the Draft Environmental Impact Report (DEIR) for the Livermore General Plan Update and Downtown Specific Plan. The General Plan will consider full development or "build-out" of the City of Livermore and is intended to provide guidance for land use and development decisions until 2025. The Downtown Specific Plan will help to guide growth and change specifically in the downtown area. We have reviewed the DEIR as well as the Draft General Plan and Downtown Specific Plan, and we are providing information and comments on the air quality aspects of future development in the Livermore area.

The Bay Area is currently a nonattainment area for federal and state ambient air quality standards for ground level ozone and state standards for particulate matter. The air quality standards are set at levels to protect public health and welfare. Motor vehicles are the largest source of air pollution in the Bay Area. Air pollution from vehicles is influenced not only by the vehicle's emission rate, but also by how much the vehicle is driven. Implementing land use patterns and transportation options that reduce our dependence on single-occupant driving is critical to achieving clean air. Therefore, we believe it is important for the District to partner with Bay Area cities and counties to encourage local actions that can significantly improve air quality both locally and throughout the region. 1

We commend Livermore's approach to its General Plan Update, especially the fact that the Plan's goals, objectives, policies and programs focus on smart growth and development within Livermore's Urban Growth Boundary. Many of the Plan's programs and policies will help to improve air quality by: linking land use and transportation; guiding development in a manner that minimizes impacts to the environment; improving connectivity and accessibility; working to reduce automobile dependence; and facilitating construction of a diversity of housing types.

We believe the addition of an air quality element to the General Plan Update could be a comprehensive way for the City to ensure continued progress toward clean air. In addition, the General Plan can be improved by including the following information: 1) a discussion about the relationship between land use, transportation and air quality; 2) a discussion about how existing policies and programs in Livermore have affected air quality; and 3) what the City anticipates as future opportunities for improving air quality. We are aware that the City is working with other jurisdictions in 2

the Tri-Valley to draft an ozone plan for your sub-region, and we are supportive of those efforts.

The General Plan Update should acknowledge that air pollution in Livermore affects local and regional air quality and that the Livermore air quality monitoring station tends to have the highest number of federal and state ozone exceedences in the region. Livermore's ozone exceedences are partly a local issue and partly a result of air pollutants traveling to Livermore from other parts of the region. We disagree with the statements made in the Draft General Plan that carbon monoxide (CO) is typically the pollutant of greatest concern in the Bay Area (*page 8-30*). In fact, the Bay Area has been in attainment of the ambient air quality standards for CO since 1990. On the other hand, as indicated earlier, the Bay Area is nonattainment for ozone and fine particulate matter standards. **2 cont.**

Air Quality Policy P3 states that "the City shall work with local and regional municipalities and agencies to reduce automobile-related vehicle emissions" (*p. 8-32*). We encourage the City to include more specific examples of how Livermore will implement such a policy. We suggest that the City consider including Transportation Demand Management (TDM) measures for reducing future vehicle trips in Livermore including: trip reduction programs, vanpools, preferential parking, flex time, shuttles to transit, provisions for bike facilities, transit subsidies for local employees, parking cash-out programs, better access to transit and services, pedestrian / bicycle-friendly urban design, and compatible mixed use neighborhoods. Clearly, there is no single solution to reducing motor vehicle use, and we support the City in undertaking a multifaceted approach to the problem. **3**

Planning the future of public transit in Livermore should include not only current bus and rail service but should also include planning for future transit facilities such as the proposed Greenville BART station. The City should carefully consider which land uses will be most appropriate for development near proposed transit stations. We support the General Plan's *Air Quality Policy P5* which states that "high-density, transit-oriented developments shall be strongly encouraged and promoted" (*p. 8-32*). The General Plan Update should include discussion on opportunities for improving the City's transportation network including ways to make transit more accessible and convenient. **4**

A footnote on page 153 of the *DEIR vol II* says that the requirement to compare the rate of increase in vehicle miles traveled (VMT) and population growth has been eliminated from the Health and Safety Code. While Health and Safety Code Section 40919 (d) was amended in 1996, the requirement for "reasonably available transportation control measures sufficient to substantially reduce the rate of increase in passenger vehicle trips and miles traveled" remains part of the measures required for all serious nonattainment areas under the California Clean Air Act, such as the Bay Area. **5**

We recommend that the City complete the analysis of the General Plan's consistency with the *Bay Area 2000 Clean Air Plan (CAP)* by determining whether the rate of increase of VMT exceeds the population projections for Livermore. If planned appropriately, new development in Livermore does not necessarily mean that vehicle use will increase at a rate inconsistent with the CAP. Using a smart growth model of development can encourage more walking, biking and transit use and can reduce the rate of increase in VMT. If the Final EIR determines that the Livermore General Plan will result in a significant air quality impact, then we strongly urge the City to commit to aggressive mitigation measures in order to reduce air quality impacts as much as possible.

We are concerned about the Plan's statements regarding off-street parking. According to *Circulation Objective CIR-9.2*, the City plans to limit excess off-street parking development. However, in *Circulation Policy CIR-2.1P1*, the City states that they plan to maximize the carrying capacity of arterial roadways in part by requiring sufficient off-street parking (*DEIR vol II, p. 151*). An over-supply of parking is one of the reasons many residents do not consider alternatives to the single-occupant vehicle. We recommend that the City actively seek to reduce the number of off-street parking spaces and implement parking cash-out programs for retail and commercial land uses. Parking cash-out requires employers to provide transit and/or ridesharing subsidies to non-driver employees in amounts equivalent to the subsidized parking, thereby encouraging those who would normally drive alone to consider a commute alternative. **6**

In several places in the Draft General Plan and the DEIR, the City mentions the possibility of instituting a population cap. *Air Quality Policy OSC-6.1 P6* specifies that the "city shall monitor air quality and shall consider implementing a population cap if air quality declines over the next five to ten years" (*p. 8-32*). It is unclear what such a policy means, whether a population cap is legally feasible, or how it would be implemented. Furthermore, capping population growth in Livermore may limit local air pollutant emissions, but would have little effect on regional production of ozone or fine particulate matter carried into Livermore from upwind sources. In the FEIR, please explain the logistics of adopting and implementing a population cap policy and how it relates to improving air quality. **7**

In the *Hazards* chapter, the DEIR indicates that the demolition of existing structures could expose people to hazardous building materials such as asbestos or lead-based paint. The remediation of petroleum-contaminated soil can also have air quality ramifications and may be subject to District regulations. Any of these actions require careful mitigation planning and may need prior approval from the District. For more information on District regulations regarding demolition and treatment of contaminated soil, please contact our Compliance and Enforcement Division at (415) 749-4762. **8**

Again, we applaud your efforts towards making Livermore a sustainable community and urge you to consider further how air quality will be affected by your City's development plans. While these comments are in response to the DEIR, we hope our suggestions will help the City improve the air quality policies and programs throughout the General Plan. As your agency continues work on the General Plan Update, District staff are available to provide guidance and technical assistance related to air quality. If you have any questions regarding these comments, please contact Suzanne Bourguignon, Environmental Planner, at (415) 749-5093. **9**

Sincerely,

William C. Norton
Executive Officer/APCO

WN:SB

cc: BAAQMD Director Roberta Cooper
BAAQMD Director Scott Haggerty
BAAQMD Director Nate Miley
BAAQMD Director Shelia Young

COMMENTOR A9
Bay Area Air Quality Management District; William C. Norton, Executive Officer/APCO (July 30, 2003)

A9-1: This comment expresses approval of the Draft General Plan's focus on smart growth and development within Livermore's Urban Growth Boundary (UGB). This comment does not raise questions about or address the adequacy of the DEIR; therefore, no further response is necessary.

A9-2: Comment noted. This comment relates to the content of the Draft General Plan and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A9-3: A fundamental principle of the Draft General Plan is to promote a more compact development pattern utilizing "new urbanism" approaches to new development. These fundamental principles are reflected in numerous policies throughout the Draft General Plan including Land Use Objective LU-1.1 (create a consolidated pattern of development); Land Use Goal LU-3 (provide areas for high density mixed use development near transit), Community Character policy CC-2.1.P6 (promote ... human scaled design, pedestrian oriented design features and connections to pedestrian, bikeway and site amenities ...) and Circulation Goal CIRC-3 (promote alternative transportation modes). These goals and policies, as well as others, are supported by land use designations for mixed use development, the BART TOD and the Downtown Specific Plan.

A9-4: Comment noted. Refer to Response to Comment A9-3.

A9-5: The number of vehicle miles traveled (VMT) within the City of Livermore is projected by the traffic model to increase from 306,900 currently to 515,800 during the AM peak hour, and from 331,000 to 572,300 during the PM peak hour by 2025. This projection represents the VMT on surface streets and excludes trips on I-580, and equates to a 68 percent increase in VMT in the City during the AM peak hour and 73 percent during the PM peak hour. The concurrent population growth is projected to be 37 percent. One key reason that the VMT is projected to grow faster than population is that the City will experience a disproportionate increase in commercial and industrial land uses (and therefore employment) as compared to population. Vehicle trips and VMT will increase due to the net importing of employees and work-related trips into the City for the new commercial opportunities. Even with trip reduction measures, it would not be possible to balance VMT and population growth percentages since many of the new trips in City are not related to population growth and are instead related to growth in employment in Livermore.

It is important to note that the modeling analysis represents the worst case in that it assumed full buildout of all land uses by 2025. It is anticipated that build out of the industrial and commercial land uses will not occur by 2025, due to anticipated economic

conditions. Therefore, the growth in VMT as compared to population will be more balanced for many years, and the difference in growth rates will not be as large as noted above.

The Draft EIR, in Chapter IV, section G. Air Quality (p. 149) presents 43 separate policies and actions contained in the Draft General Plan that relate to air quality. These policies and actions are presented in the following elements of the Plan: Open Space and Conservation; Land Use; Circulation; and Public Safety. The Draft EIR also summarizes (p. 155) the 15 policies and actions of the Draft General Plan and Downtown Specific Plan that constitute implementation of the requirement for Clean Air Plan transportation control measures (TCM). Each of the cited TCM policies and actions is provided verbatim at the earlier location (p. 149) in the Draft EIR.

The Draft EIR finds two impacts related to air quality to be significant and unavoidable. Impact AQ-1 states that "the Draft General Plan and Downtown Specific Plan would allow employment and population growth that would generate additional air emissions from vehicular travel". Impact AQ-2 addresses the Draft General Plan's contribution to the same impact, under cumulative conditions.

While the Draft General Plan includes the 43 separate policies and actions related to air quality, 15 of which fit into the TCM category, these two adverse effects cannot be mitigated to a level that does not exceed the criteria of significance set by the City and the BAAQMD. The City recognizes this and, in order to certify the EIR and adopt the Plan, would have to adopt a Statement of Overriding Considerations, explaining the City's reasoning for certification of the EIR and adoption of the Plan.

A9-6: This comment relates to the content of the Draft General Plan and Downtown Specific Plan regarding the provision of off-street parking and does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A9-7: Comment noted. The intent of policy OSC-6.1.P6 is to direct the City to re-examine its growth trends should air quality deteriorate in the future. In that event, the City would consider a population cap as one method of addressing decreases in air quality. Draft General Plan policy OSC-6.1.P6 on page 8-32 is proposed to be amended as follows:

> OSC-6.1.P6 The City shall monitor air quality and shall consider implementing a population cap if air quality declines ~~over the next five to ten years~~.

The City shall add a new action OSC-6.1.A6 to page 8-33 of the Draft General Plan as follows:

> <u>OSC-6.1.A6 Triennially, concurrent with the development of each three year Housing Implementation Program, review and report changes in local air quality levels, based on reports published by the Air Quality Management District, to the City Council to determine if consideration of a population cap is warranted.</u>

A9-8: The commentor points out that the Bay Area Air Quality Management District (BAAQMD) has regulations in place to address air quality affects arising from the remediation of hazardous materials such as asbestos and petroleum-contaminated soils. BAAQMD regulations related to the remediation of hazardous materials within the project site include Regulation 11, Rule 2, Asbestos Demolition, Renovation and Manufacturing; Regulation 8, Rule 40, Aeration of Contaminated Soil and Removal of Underground Storage Tanks; and Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations. Compliance with these regulations would ensure that the adverse air quality effects resulting from remediation activities would be reduced to a less-than-significant level.

A9-9: Comment noted. The City will collaborate with BAAQMD on future development plans.

Letter
A10

ALAMEDA COUNTY CONGESTION MANAGEMENT AGENCY

1333 BROADWAY, SUITE 220 • OAKLAND, CA 94612 • PHONE: (510) 836-2560 • FAX: (510) 836-2185
E-MAIL: mail@accma.ca.gov • WEB SITE: accma.ca.gov

July 30, 2003

Ms. Susan Frost
Livermore Community Development Department
City of Livermore
1052 South Livermore Avenue
Livermore, CA 94550-4899

SUBJECT: Comments on Draft Environmental Impact Report for the City of Livermore Draft General Plan and Downtown Specific Plan

Dear Susan:

Thank you for the opportunity to comment on the Draft Environmental Impact Report for the City of Livermore Draft General Plan and Downtown Specific Plan.

The ACCMA respectfully submits the following comments:

- The ACCMA does not have thresholds of significance as stated on page 99.

- Page 99, CMA's Threshold of Significance: The phrase "except where the roadway link was already at LOS F under no project conditions" in the second paragraph on page 99 must be deleted and the analysis of MTS roadways for all alternatives done to reflect this change. In 1991, when the first LOS Monitoring study of *existing conditions* was done, the LOS F roadway segments were exempt from the preparation of future Deficiency Plans. This standard does not apply to the Land Use Analysis Program and LOS F segments measured in 1991 are not precluded from identification of impacts and the development of mitigation on the regional transportation system in the long term. In addition, the ACCMA has concerns that using this approach does not identify impacts on segments that were LOS F in 1991 and an opportunity to develop mitigation, if feasible, could be missed. This correction also applies to the applicable sections of Appendix D Transportation Technical Report. **1**

- The CMA requests that there be a discussion on the proposed funding sources of the transportation mitigation measures identified in the environmental documentation. The CMP establishes a Capital Improvement Program (See 2001 CMP, Chapter 7) that assigns priorities for funding roadway and transit projects throughout Alameda County. The improvements called for in the DEIR should be consistent with the CMP CIP. Given the limited resources at the state and federal levels, it would be speculative to assume funding of an improvement unless it is consistent with the project funding priorities established in the Capital Improvement Program (CIP) of the CMP, the federal Transportation Improvement Program (TIP), or the adopted Regional Transportation Plan (RTP). Therefore, we are requesting that the environmental documentation include a financial program for all roadway and transit improvements. **2**

- The adequacy of any project mitigation measures should be discussed. On February 25, 1993 the CMA Board adopted three criteria for evaluating the adequacy of DEIR project mitigation measures:

- Project mitigation measures must be adequate to sustain CMP service standards for roadways and transit;
- Project mitigation measures must be fully funded to be considered adequate;
- Project mitigation measures that rely on state or federal funds directed by or influenced by the CMA must be consistent with the project funding priorities established in the Capital Improvement Program (CIP) section of the CMP or the Regional Transportation Plan (RTP). **3**

It would be helpful to indicate in the DEIR the adequacy of proposed mitigation measures relative to these criteria. In particular, the DEIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and what would be the effect on LOS if only the funded portions of these projects were assumed to be built prior to project completion.

- We support policies such as CIR-3.1 to provide visible alternatives to single-occupant vehicle travel and CIR-3.2, CIR-3.2, encourage vehicle trip reduction and CIR-3.3, provide a bicycle and trails network. Bicycle and pedestrian networks should be coordinated with the Alameda Countywide Bicycle Plan and routes should also be acknowledged in this section. The Countywide Bicycle Plan can be reviewed on line at accma.ca.gov. **4**

- The following policies are consistent with recent recommendations by Livermore City Council and the I-580/BART to Livermore Phase 1 Policy Advisory Committee recommendation for BART in the median as well as BART's I-580 Transit Corridor Study that is reviewing rail options using existing rail right-of-way corridors in Livermore: LU-3.1.P2 Development of the BART TOD shall be contingent upon BART establishing a firm timeframe and funded extension of BART services at the Greenville area., and CIR-3.1, Continue to explore other rail transit options along the existing railroad right –of way throughout the City. Preserve adequate right –of-way for this option. You may wish to consider other options, such as transit corridor setbacks, in addition to right-of-way acquisition, which can be costly. **5**

- LU-1.4P Regional and community serving retails centers would be limited to retail uses that are regional serving, e.g., big box retailers. Where would these be located? How would their location affect traffic, circulation and access to transit? **6**

Once again, thank you for the opportunity to comment on the DEIR. Please do not hesitate to contact me if you require additional information. I can be reached at 510/836-2560.

Sincerely,

Diane Stark

Diane Stark
Senior Planner
file: CMP - Environmental Review Opinions - Responses - 2003

COMMENTOR A10
Alameda County Congestion Management Agency; Diane Stark, Senior Planner (July 30, 2003)

A10-1: The second full paragraph on page 99 of the DEIR is modified as follows:

> The CMA's threshold of significance for significant project-related impacts is as follows: if the addition of project-related traffic would result in a level of service (LOS) value worse than LOS E on CMA roadways~~, except where the roadway link was already at LOS F under no project conditions~~. For those locations where the baseline condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic is at least 3 percent of the total traffic.

This text revision does not affect the analysis or conclusions that are presented in the Draft EIR, including Appendix D. All roadway segments with LOS F conditions were assessed to determine those that would experience a change in volume/capacity (V/C) ratio of 3 percent or more. There are three analyzed roadway links where the LOS is F without the proposed project that would experience a 3 percent or greater change in V/C as a result of implementation of the proposed project. All three of these roadway links are identified in the Draft EIR as being adversely affected by the proposed project, and have associated recommended improvements.

A10-2: The DEIR identifies significant impacts to the MTS roadway system at five locations (refer to Impact TRAF-GP-5 in the DEIR). Improvements to the MTS roadway system that are consistent with the policies, planning efforts, and funding programs of the Alameda Congestion Management Agency, Metropolitan Transportation Commission, and the Federal Highway Administration include: high occupancy vehicle lanes on I-580 with express bus service, BART/rail extension to Livermore, and improvements to State Route 84. However, full funding for these projects is beyond the jurisdiction of the City. The City cannot impose a financial program that it cannot enforce as a mitigation measure. Therefore, significant impacts to the five roadway and I-580 segment locations are identified in the EIR as significant and unavoidable. The City of Livermore is participating with other regional and local agencies in developing full funding programs for the aforementioned regional improvement projects. These efforts include developing funding through the CMA's Countywide Transportation Plan process, the TriValley Transportation Development Fee expenditure plan, and the City of Livermore traffic impact fee program.

A10-3: As indicated in pages 101 to 104 of the DEIR, the significant traffic and circulation impacts that would occur as a result of implementation of the proposed project cannot be mitigated to a less-than-significant level and are considered unavoidable. Therefore, recommended mitigation measures do not meet all the criteria listed in comment A10-3.

A10-4: Draft General Plan policy CIR-3.3, P2 requires that the City coordinate the development of bicycle, pedestrian and equestrian facilities with other agencies. Therefore, the City would collaborate with the Alameda Countywide Bicycle Plan on future bike and trail

improvements. The specifics of this coordination is discussed in the City's Bikeways and Trails Master Plan. This plan is consistent with the Alameda Countywide Bicycle Plan. The City's Bikeways and Trails Master Plan includes policies and actions that guide coordination with other public agencies that are involved in the development of multi-use trails. However, the plan does not specifically cite the Alameda Countywide Bike Plan and routes, because the City's plan was adopted prior to adoption of the Countywide Bike Plan. References to the Countywide Bike Plan and routes will be incorporated into the next update of the Bikeways and Trails Master Plan.

A10-5: Comment noted. This comment notes that several Draft General Plan policies are consistent with recommendations by the City Council, Livermore Phase I Policy Advisory Committee, and the BART I-580 Transit Corridor Study. This comment does not raise questions about or address the adequacy of the Draft EIR; therefore, no further response is necessary.

A10-6: Regional and community serving retail centers are located on major streets and near I-580 interchanges. These land uses were included in the traffic modeling and traffic analysis conducted as part of the DEIR, and associated impacts to traffic, circulation and transit have been included in the DEIR.

Letter
A11

CITY OF DUBLIN
100 Civic Plaza, Dublin, California 94568
Website: http://www.ci.dublin.ca.us

RECEIVED
AUG - 4 2003
PLANNING DIVISION

July 31, 2003

Susan Frost, Senior Planner
Livermore Community Development Dept.
1052 South Livermore Avenue
Livermore, CA
Fax: (925) 960-4459

Re: **Notice of Completion of Draft EIR for the City of Livermore General Plan Update and Downtown Specific Plan**

Dear Ms. Frost:

The City of Dublin appreciates the opportunity to review and comment on the Draft EIR for the City of Livermore General Plan Update and Downtown Specific Plan. The following are the City of Dublin's comments on the Draft EIR and the updated General Plan.

Draft EIR

- Many of the maps contained in the Draft EIR and the General Plan document do not show the Dublin city boundaries. These maps should be amended to show the location of Dublin's boundaries relative to Livermore, and labeled as such. **1**

- What is the proposed timing for the extension of North Canyon Parkway in Livermore to Dublin Boulevard in Dublin? Was this extension taken into account in the projection of traffic on I-580, as some motorists may use this surface roadway rather than I-580 to travel between cities? **2**

- On page 101, Impact TRAF-GP-2, states,

  > *Relative to 2003 conditions, implementation of the Draft General Plan would result in significant impacts at nine intersections at or near I-580 by the year 2025. (S)*

  The discussion states that the future General Plan policy would allow these intersections to operate at a standard of LOS E, even though the impacts with mitigation on a project-by-project basis may not be reduced to a less-than-significant level. A standard of LOS E for these intersections would allow further congestion at these intersections, less of an effort to mitigate any foreseeable impacts, and create more congestion on I-580 and traffic back-up near the off-ramps. Additionally, new development near these intersections would have less of a responsibility to contribute toward the implementation of measures to reduce their share of traffic. Creating and implementing this new policy through the General Plan should be reconsidered. **3**

Letter
A11
cont.

Draft General Plan

- Many of the General Plan maps (i.e., Figures 1-2, 3-1, and 3-4) show the streets and roadways in Livermore, but do not label the streets. Labeling of the local streets and any shown outside the City boundaries would assist in orienting the reader and locating particular uses or features in the City and on the map. **4**

- See comment in section on the Draft EIR, above, regarding labeling location and boundaries of Dublin on the General Plan maps. **5**

- The Land Use Element of the General Plan addresses coordination of planning efforts with Alameda County and Pleasanton in Goal LU-17 and Objective LU-17.1. Coordination of planning efforts between Livermore and Dublin would be beneficial to both communities and the county. Dublin requests that a goal be added to address coordination of planning efforts between these two cities, also. **6**

- As discussed in the previous section on the Draft EIR, Livermore is proposing to adopt Policy P3 under Objective CIR-4.1 which would allow certain intersections near freeway interchanges to operate at a standard of LOS E, even though the impacts with mitigation on a project-by-project basis may not be reduced to a less-than-significant level. A standard of LOS E for these intersections would allow further congestion at these intersections, less of an effort to mitigate any foreseeable impacts, and create more congestion on I-580 and traffic back-up near the off-ramps. Additionally, new development near these intersections would have less of a responsibility to contribute toward the implementation of measures to reduce their share of traffic. Creating and implementing this new policy through the General Plan should be reconsidered. **7**

Once again, thank you for this opportunity to comment on the Draft EIR and related General Plan Update. Should you have any questions or concerns regarding these comments, please contact me at (925) 833-6610.

Sincerely,

Janet Harbin
Senior Planner

Cc: Eddie Peabody, Jr., Community Development Dir.
Jeri Ram, Planning Manager
Lee Thompson, Public Works Dir.

COMMENTOR A11
City of Dublin; Janet Harbin, Senior Planner (July 31, 2003)

A11-1: Boundaries and local street names for the cities of Dublin and Pleasanton will be added to appropriate figures with the next update of the MEA.

A11-2: The North Canyons Parkway extension to Dublin Boulevard is currently scheduled to be completed by 2008. This roadway link was included in the traffic model network for General Plan buildout conditions (i.e., year 2025 conditions).

A11-3: Allowing Level of Service (LOS) E conditions at selected freeway/arterial interchanges is not expected to create more congestion on I-580. The implementation of ramp metering would control the amount of traffic volume reaching the freeway from arterial interchanges so that I-580 would not be substantially adversely affected. Allowing intersections at or near I-580 to operate at LOS E is considered an appropriate measure to reduce the potential impacts of cut-through traffic on the City of Livermore. Also, the type of improvements that would be needed to improve LOS to D or better at these locations may not be feasible due to right-of-way and environmental constraints. The application of a LOS E standard is consistent with the State of California Congestion Management program guidelines, and is being implemented throughout California in many communities at various locations, including Downtown areas and freeway interchanges.

A11-4: See Response to Comment A11-1.

A11-5: Refer to Response to Comment A11-1.

A11-6: Comment noted. Draft General Plan Land Use Objective LU-5.5 on page 3-47 shall be added as follows:

> Objective LU-5.5 Coordinate land use planning for the area north of I-580 between Livermore and Dublin with Alameda County and the City of Dublin so as to increase certainty over future land uses, to reduce speculation and enhance preservation of open space.

A new policy LU-5.5.P1 shall be added to page 3-47 as follows:

> LU-5.5.P1 Encourage the cooperation of Alameda County, Livermore and Dublin in coordinating land uses adjacent to the Doolan Canyon-North Livermore area.

A11-7: Refer to Response to Comment A11-3.

Letter
A12

STATE OF CALIFORNIA - THE RESOURCES AGENCY
GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

August 1, 2003

Ms. Susan Frost
City of Livermore
Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550
Fax (925) 960-4459

Dear Ms. Frost:

Livermore General Plan and Downtown Specific Plan
Draft Environmental Impact Report
City of Livermore, Alameda County

Department of Fish and Game (DFG) personnel have reviewed the Livermore General Plan and Downtown Specific Plan Draft Environmental Impact Report (DEIR), dated June 2003. The document addresses the Downtown Livermore Specific Plan Area and land use changes reflected as general plan amendments which extend up to four miles beyond the City limits to the north and south.

General Comments

The General Plan specifies up to 4,474 units in the Greenville BART Transit Oriented Development (TOD), an area north of I-580 near Frick Lake, Altamont Creek, and Brushy Peak. The land use changes proposed would result in significant loss of sensitive biological resources in the north Livermore area. Development of areas near Frick Lake, Altamont Creek, and Brushy Peak Reserve will affect a number of special status species and habitat types within and well beyond the planning area boundary. 1

The California Environmental Quality Act (CEQA) Guidelines define "project" as the "whole of the action." The broad concept of the proposed project under CEQA also extends by definition to environmental impacts. The guidelines definition of a project, once again, refers to the whole of the action, "which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." [CEQA Guidelines Section 15378(a)]. In this case, DFG views the future development of the TOD area as a reasonably foreseeable consequence of the current project. 2

DFG has concerns about the level of commitment and detail in the document and the deferral of project specific mitigation measures which prevents an adequate evaluation during the public review process. A thorough description of specific requirements for impacts to species and habitats known to exist in the planning area should be included. In addition, a monitoring program, required by Assembly Bill 3180, must be required to ensure that mitigation measures are effective, and must provide for corrective action if they are not. **3**

It is inappropriate to make the determination that surveys to be conducted at a later time, or mitigation measures to be identified at some future time, will reduce the impacts from this project to a less than significant level. It has been determined by court ruling that such studies and mitigation measures would be improperly exempted from the process of public and governmental scrutiny which is required under the California Environmental Quality Act (CEQA). A document which requests future studies or future identification of mitigation will be considered inadequate. **4**

The document relies on implementation of Livermore Draft General Plan policies to reduce impacts on biological resources from the proposed project to less than significant levels. Even at a program level, it is feasible to formulate specific policies to better ensure adequate mitigation of impacts particularly in this case since resources in the area have been well documented over many years through a number of studies. The policies, as written, are not specific enough to provide a basis to conclude that impacts to biological resources will be less than significant. In addition to existing policies, the following should be required as conditions of approval for projects within the General Plan area. **5**

The policies offer general guidance on avoidance and mitigation. Specific requirements, protocols, and setbacks have been developed for a number of habitat types and special status species known to occur in the area by the U. S. Fish and Wildlife Service (USFWS) and DFG including burrowing owl, San Joaquin kit fox, California tiger salamander and others. Specific conditions from these protocols and guidelines should be expressly required or the documents should be incorporated by reference with conditions that require compliance with the protocols and any changes which have been adopted.

This requirement is of particular importance to species which are not State or Federally listed as threatened or endangered, but are considered special status species. These species, a number of which are known to occur in the planning area, are afforded conservation consideration through the CEQA process. Therefore, to ensure their protection, the City must include in this CEQA document specific survey and mitigation requirements. Alternatively, the City may require express written approval from the resource agencies regarding the avoidance, mitigation, and monitoring requirements as a condition of approval for any project which has the potential to have adverse impacts on special status species. **5 cont.**

The value of wetlands and biological resources is dependent on their landscape position; in other words, they contribute value as part of a mosaic of habitat types. Mitigation for impacts to wetland and biological resources should be required to fully replace their ecosystem function, not just their gross acreage. **6**

General Plan policies support the preservation of habitats at Corral Hollow and Cedar Mountain, areas of very different habitats than those present in the General Plan area. Preservation of these areas is not appropriate to off-set losses within the General Plan area. Frick Lake and Springtown Alkali Sink should be considered for preservation as part of a conservation plan to compensate for impacts to similar habitats in the General Plan area. **7**

Biological Resources
Volume 1, Chapter 11

California tiger salamander and California red-legged frog should be included as grasslands dependent species. **8**

Movement Corridors

This section of the document needs to acknowledge the importance of grassland and agricultural areas as movement corridors. The majority of critical movement corridors to be preserved for all species, except the few species which are entirely aquatic, are uplands including agricultural and grassland areas. **9**

It is stated that preserved creek corridors in the development area will provide habitat and facilitate movement of some native species. It is also stated that these corridors can serve as connections between parks and open space and "increase the likelihood that parks and open spaces in the urban areas will be able to support native species and sustain viable populations over time."

While it is true that resources, particularly wetlands and waters, within the developed area will continue to have value from a water quality perspective, wetland and open space features within developments generally do not provide habitat for a sustainable population of native wildlife. These species are often sensitive to human disturbance and competition and cannot persist over time without preservation of effective buffers and movement corridors to disperse and recolonize parts of their range from which they had been extirpated. **9 cont.**

Volume 2, Biological Resources, Impacts and Mitigation

It is stated that, "There are no significant biological resources in the Downtown area." Areas downtown may support burrowing owls, a California species of special concern. Protocol-level surveys should be required for all potential habitats. Mitigation consistent with DFG guidelines for loss of habitat should be required. **10**

Active Raptor Nests

In addition to bird surveys during the breeding season, surveys for nests should be conducted in suitable habitat at all times of the year. If a nest is identified for a species known to have high site fidelity and there will be direct take of the nest, DFG should be contacted and mitigation measures agreed upon before any action is taken. If disturbance occurs outside of the breeding season or there is not direct take of the nest site, no further action is required. The following is a partial list of birds known to reuse nest sites: osprey, bald eagle, burrowing owl, red-shouldered hawk, red-tailed hawk, ferruginous hawk, golden eagle, and barn owl. **11**

Species Specific Information

Frick Lake and the surrounding area represent an ecologically significant population of California tiger salamanders (CTS). Mitigation for CTS must take into account the different biological and ecological requirements of the aquatic early and breeding stages and the largely terrestrial adults. Failure to adequately consider either of these life history stages may lead to elimination or reduction of the animals. CTS move long distances between breeding habitats and estivation sites. Impacts such as habitat fragmentation and blocking of movement corridors need to be identified and addressed. Surveys should be conducted, according to established DFG protocol, on the project site during the appropriate time of year with enough time before project construction to allow appropriate efforts to minimize direct take.

12

Currently, unavoidable impacts to CTS may be mitigated both by: 1) implementing a program approved by DFG to minimize "take" and, 2) developing and implementing a detailed program, with DFG concurrence, to compensate for the loss of CTS habitat. Existing occupied habitat of CTS must be preserved at a site acceptable to DFG. DFG currently requires a minimum of a 1:1 compensation ratio for both estivation and breeding habitat. Due to the potential that this species will be listed throughout its range by the USFWS prior to build-out of the planning area, we recommend that the USFWS be consulted regarding potential permit requirements.

The Planning Area is in the range of the San Joaquin kit fox (*Vulpes macrotis mutica*) and is considered to be suitable habitat. The nearby Greenville Road underpass as it exists is one of the few grade-separated crossings available for animals to disperse across Interstate 580. The Planning Area contributes to a critical corridor needed to maintain the connection between San Joaquin kit fox in the northernmost part of their range and core populations to the south. DFG, USFWS, East Bay Regional Parks District, the Kit Fox PACT group with Cal Trans, and Diablo Ridgelands Working Group have all recognized the importance of preserving open space adjacent to grade separated crossing of Interstate 580, and are actively working to identify and conserve these parcels. Despite the fact that kit fox occur in low numbers and the detection rate is low even in areas where they are known to be denning, there have been recent sightings of kit

13

fox near the project area. Residential development of this proposed magnitude and location could result in an adverse and unmitigatable impact to kit fox in the northern range. **13 cont.**

Burrowing owls have been documented in the planning area. The General Plan should require surveys and mitigation measures which follow established DFG protocol for burrowing owls on a site and within a 250-foot buffer of any proposed project site during the appropriate time of year. Impacts to burrowing owls or their burrows should be mitigated by permanent conservation of occupied habitat. **14**

California red-legged frogs (*Rana aurora draytonii*) have been documented in the Planning Area. Filling, realigning, changes in hydrology due to urban runoff of creeks and ponds, and development of adjacent land may result in significant impacts to dispersal, breeding, and foraging habitat of the red-legged frog. The project should be designed to provide a minimum 300-foot buffer along both sides of the creek or development on one side of the creek only. Recent research has shown that red-legged frogs frequently utilize upland habitat adjacent to water features. Regular movement of red-legged frogs has been documented between 200-300 feet from the edge of the creek, and several frogs in one study were documented moving over one and one-half miles during dispersal. No roads, buildings, yards, fences or detention basins are permitted within this buffer. Trails should be located outside of any riparian areas as far away from the creek as possible. Enhancement of creeks in permanently preserved open space areas may be considered to offset impacts to red-legged frog habitat. Nuisance flows should be contained on site. **15**

Creeks and Wetlands

Altamont Creek is important drainage in the Livermore Valley. Changes may affect the Springtown Alkali Sink and a number of locally occurring special status plants and animals. Impacts to creeks and wetlands should be avoided where possible. Impacts would include, but are not limited to, road crossings, culverts, channelization, and rip rap. Unavoidable impacts should be identified and mitigation provided for in the document. There should be no-net-loss of either wetland acreage or wetland habitat function or value. Mitigation for lost wetlands or creeks must include the creation of new wetlands on at least a **16**

1:1 basis. Higher value wetlands will require higher ratios for compensation. Areas proposed as wetland mitigation sites must be identified specifically in the document. Riparian vegetation removed should be replaced on a 3:1 in-kind basis using native species.

16 cont.

Water Quality

Potential impacts caused by water quality changes due to grading, increased storm water runoff, hydrocarbons and sediments from streets and parking lots, potential oil spills, and fertilizer, herbicide and pesticide applications, must all be discussed. Potential changes in groundwater availability and the changes that may occur to the creeks and wetlands within the project site must be carefully evaluated. Projects should be designed to reduce introduction of summer flows to creeks. All summer nuisance flows should be retained on-site and allowed to evaporate.

17

Adjacent Land Uses

Impacts on adjacent land use have been underestimated. The 406-acre former Dyer property is a part of Brushy Peak Regional Preserve and is adjacent to the proposed BART TOD area. The primary purpose of this property, as identified in the management plan and conservation easement, is for the benefit of special status species and wetlands, not public access. Public access to this property is restricted. Frick Lake, a unique and valuable resource which should be preserved, is also near the proposed TOD area.

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The intense development proposed in this area would negatively impact these resources, decreasing their value for native species populations as a result of uncontrolled public access, introduction of exotic plant and animal species to the property, interference with land use practices currently used on the preserve such as grazing, prescribed fire, and pest management, and disruption of associated upland areas. These impacts should be evaluated and mitigation measures including project changes should be considered.

Letter
A12
cont.

Conclusion

The Draft General Plan as written will result in significant impacts to biological resources. If the City chooses to allow urbanization to proceed with project by project approval, the City should develop a conservation strategy for the General Plan area. Policies in the General Plan should have specific requirements for surveys, avoidance and minimization measures, and mitigation and monitoring requirements for unavoidable impacts. These measures should protect unique habitats and special status species in large preserves of high quality habitat and should allow development to occur in marginal habitats. This approach allows for both the potential long-term sustainability of functioning ecosystems and necessary economic development.

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We appreciate your consideration of our comments. DFG personnel are available to discuss our concerns. If you have any questions regarding our comments, please call Ms. Janice Gan, Environmental Specialist, at (209) 835-6910; or Mr. Scott Wilson, Habitat Conservation Supervisor, at (707) 944-5584.

Sincerely,

Robert W. Floerke
Regional Manager
Central Coast Region

cc: See Next Page

Letter
A12
cont.

cc: Ms. Sheila Larsen
U. S. Fish and Wildlife Service
3310 El Camino Avenue, Suite 130
Sacramento, California 97232-6340

State Water Resources Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Ms. Michael Monroe
Environmental Protection Agency
65 Hawthorne Street
San Francisco, California 94105

Mr. Ed Wylie
U. S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

COMMENTOR A12
State of California, Department of Fish and Game; Robert W. Floerke, Regional Manager, Central Coast Region (August 1, 2003)

A12-1: In this introductory comment, the commentor states that the land use changes the Draft General Plan proposes in the Greenville TOD area would result in significant loss of sensitive biological resources in the north Livermore area. Further in the letter (see comment A12-19), the commentor states that, "The Draft General Plan as written will result in significant impacts to biological resources. If the City chooses to allow urbanization to proceed with project by project approval, the City should develop a conservation strategy for the General Plan area." In general, it is unclear where, specifically, in the Draft EIR the commentor disagrees with the analysis of impacts to biological resources. The comments generally address the commentor's concern that the Draft General Plan lacks policies to protect specific biological resources. However, to this initial comment and the inference that the Draft EIR does not sufficiently identify and mitigate significant impacts to biological resources, the City of Livermore as lead agency and the EIR authors have the following response.

The City of Livermore and EIR authors believe that the Draft General Plan does in fact contain a conservation strategy primarily in the Open Space and Conservation Element that provides, goals, objectives, policies and actions that are generally adequate to ensure the comprehensive and long-range preservation and management of biological resources. Additionally, as listed on pages 177 through 180 in the DEIR, the Draft General Plan contains policies and actions in other portions of the Plan to protect sensitive biological resources. In subsequent responses additional policies have been identified to address specific requests by CDFG.

In Response to Comment A5-1, the EIR authors note that the Draft General Plan is a long range land use and development policy document, and the Draft EIR is a Program EIR that analyzes the potential impacts of projected growth at the same level of detail as the proposed actions. Before the actual development projects (e.g., the Greenville TOD) identified in the General Plan are implemented, they will be subject to subsequent CEQA review, and project-specific mitigation measures will be identified. This "project by project" review of development when it has been adequately considered and designed at a sufficient level of detail to determine project-specific impacts and mitigation measures is an entirely appropriate and reasonable process. All subsequent projects must also be in compliance with federal, State and regional permitting and regulatory agencies.

The use of "tiering" of subsequent CEQA documents on future projects allows the City of Livermore to deal with broad environmental issues at the general planning stage, followed by a more detailed examination of actual development projects (that are consistent with the Draft General Plan) in subsequent environmental review documents. Later CEQA documents will incorporate, by reference, the general discussions from the broader EIR on the Draft General Plan, but will concentrate primarily on the issues specific to the later project under evaluation (Public Resources Code (PRC) Section

21093: State *CEQA Guidelines*, CCR Section 15152). Tiering is encouraged throughout CEQA (PRC Section 21000 et seq) and the California *CEQA Guidelines* (Sections 15146, 15152, 15166) as a means of avoiding repetition and duplicative analysis and encouraging project-specific reviews necessary to adequately evaluate potential impacts.

On pages 215 to 236, the MEA provides setting information for biological resources found within and in the vicinity of the City of Livermore, and the DEIR evaluates potential impacts to biological resources on pages 177 to 184. In the DEIR, potentially significant impacts to biological resources are identified and discussed, and the analysis found sufficient policies and actions in the Draft General Plan to reduce the potential adverse impacts to a less-than-significant level. The commentor also contends that there would be a loss of sensitive biological resources in north Livermore associated with the development of the Greenville TOD. In Response to Comment A5-1, the EIR authors detail why Draft General Plan policies (namely LU-3.1.P1 requiring a Specific Plan and LU-3.1.P2 requiring a commitment from BART prior to development) would sufficiently mitigate potential adverse impacts to open space areas in north Livermore (primarily Brushy Peak and the Dyer property).

A12-2: The Draft General Plan developed for the City of Livermore deals with issues in broad generalities. As noted in Atherton v. Board of Supervisors of Orange County [(1983) 146 Cal. 3d 346], the EIR need not engage in a speculative analysis of environmental consequences for future and unspecified development. For example, projects associated with the Greenville TOD can vary from a residential development to a BART rail yard. Although the general maximum potential level of development is explored within the Draft General Plan document, actual project development in any location will be subject to environmental review when specific projects are proposed, as indicated in Response to Comment A12-1. These later CEQA evaluations could even result in a change to a land use designation.

A12-3: Regarding the "deferral of project specific mitigation measures," see Response to Comment A12-1. On pages 215 to 236, the MEA provides setting information for biological resources found within and in the vicinity of the City of Livermore, and the DEIR evaluates potential impacts to biological resources on pages 177 to 184. The City of Livermore and the EIR authors believe that there is sufficient information in these pages and throughout the documents regarding biological resources to allow for an adequate evaluation of potential impacts associated with implementation of the Draft General Plan during the public review process. A Mitigation Monitoring and Reporting P Program (MMRP) need not be included in the Draft EIR. The MMRP is included in this Final EIR document as Chapter V.

A12-4: The Draft EIR does not exempt projects from public review, but merely places the task of conducting such surveys, assessing project-related impacts, and determining specific mitigation measures to the specific plan EIR or project-specific EIR. At the general plan level, policies have been developed that would minimize or avoid impacts. These policies were developed based on the premise that public review at subsequent levels of the CEQA process would occur. The EIR authors, therefore, do not believe that mitigation has been improperly exempted from public review. See Responses to

A12-11: In response to this comment, page 183 of the DEIR Section will be modified as follows:

> *Active Raptor Nests.* Development resulting from implementation of the Draft General Plan could result in loss of active raptor nests or nests that are used in multiple years by particular raptor species. Active raptor nests are protected under the California Fish and Game Code, Section 3503.5. As such, activities that result in the destruction or abandonment of the nest are violations of the State code. A number of raptor species occur in the Livermore Planning Area including common species such as red-tailed hawks as well as special-status species such as Swainson's hawks and burrowing owls. Habitats that support nesting raptors may be large or small. Urban areas as well as natural habitats may provide nesting sites. Active raptor nests should be avoided during the nesting season (approximately February 1 through September 1). Preconstruction surveys of nests should be conducted no more than 30 days prior to the initiation of construction activities to identify and avoid active nests. During the non-breeding season, raptor nests should also be avoided as some species may exhibit high nest site fidelity from year to year. In the non-breeding season, preconstruction surveys should be conducted to assess the location of potential nests and avoidance measures incorporated into the development plan. If nest sites are to be removed, then the California Department of Fish and Game should be consulted regarding appropriate mitigation measures. Implementation of policies OSC-1.2.P6 and P8 would reduce impacts to potential active raptor nests to a less than significant level.

A12-12: Comments on the California tiger salamander (CTS) are noted. Specific mitigation measures will be developed for impacts to individual species identified during the specific plan or subsequent project-specific environmental review.

A12-13: Comments noted regarding the San Joaquin kit fox. The DEIR analyzes potential impacts to special status species, including the San Joaquin kit fox on pages 181 to 182. See also Response to Comment A12-1 and A12-2 regarding development in the Greenville TOD area.

A12-14: Comments noted on burrowing owls. The DEIR analyzes potential impacts to special status species on pages 181 to 182. Specific mitigation measures will be developed for impacts to individual species identified during the specific plan or subsequent project-specific environmental review.

A12-15: Comments noted regarding the California red-legged frog. The DEIR analyzes potential impacts to special status species, including the California red-legged frog on pages 181 to 182. Specific mitigation measures will be developed for impacts to individual species identified during the specific plan or subsequent project-specific environmental review. To address comments concerning movement corridors, the following policy shall be added to page 8-13 of the Draft General Plan.

> Policy OSC-1.2.P12 The City shall require the maintenance of adequately-sized terrestrial and aquatic movement corridors that connect natural open space areas.

A12-16: The comments regarding wetlands and requirements for mitigation are noted. Impacts to wetlands are discussed in the DEIR on page 183. Specific mitigation measures for wetlands will be determined during project-specific CEQA review.

A12-17: The commentor notes that increased urbanization results in potential impacts to surface water quality. The DEIR discusses impacts to surface water quality and the existing programs that are in place to address these impacts on pages 195-196. The existing NPDES programs would be expected to adequately protect water quality for typical project impacts. Specific water quality impacts that may not be covered by existing programs would be addressed in subsequent CEQA review at the project level.

The preparers of the DEIR agree that a substantial increase in urban development may affect groundwater availability, creeks, and wetlands. Specific projects that are proposed for development within the Draft General Plan area will be subject to additional environmental review. As part of these more detailed project-level reviews, specific impacts to these resources will be evaluated. The reduction of summer nuisance flows would also be required to minimize impacts to these resources.

A12-18: See Response to Comments A5-1, A5-8 regarding the comment that impacts on adjacent land use (i.e., former Dyer property, Brushy Peak Regional Preserve, and Frick Lake) have been underestimated; and A12-7 regarding Frick Lake.

A12-19: The General Plan does not intend to address all specific issues related to biological impacts at a project approval level. Instead, it provides broad policies to guide the development of specific projects and the subsequent review of those projects. Specific mitigation measures and compensation ratios to address specific impacts will be addressed in future project-specific CEQA reviews. Specific measures, therefore, are not included in the Draft EIR. See Response to Comment A12-1.

Letter
A13

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse

Gray Davis
Governor

Tal Finney
Interim Director

LSA ASSOCIATES, INC.

SEP 04 2003

Berkeley

August 12, 2003

Susan Frost
City of Livermore
1052 S Livermore Ave
Livermore, CA 94550

Subject: General Plan Update and Downtown Specific Plan
SCH#: 2003032038

Dear Susan Frost:

The enclosed comment (s) on your Draft EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on July 30, 2003. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project. 1

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2003032038) when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Senior Planner, State Clearinghouse

Enclosures
cc: Resources Agency

RECEIVED

AUG 14 2003

PLANNING DIVISION

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
(916)445-0613 FAX(916)323-3018 www.opr.ca.gov

Letter
A13
Attach.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5513
TTY (800) 735-2929

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August 11, 2003

ALA000187
SCH 2003032038

Ms. Susan Frost
City of Livermore
Community Development Department
1052 S. Livermore Avenue
Livermore, CA 94550

Dear Ms. Frost:

GENERAL PLAN UPDATE - DRAFT ENVIRONMENTAL IMPACT REPORT

Thank you for continuing to include the California Department of Transportation (Department) in the early stages of the environmental review process for the General Plan Update. The following comments are based on the Draft Environmental Impact Report.

Traffic Analysis

1. The Department estimates that traffic demand volume along the mainline Interstate 580 (I-580) section west of North Livermore Avenue is 441 vehicles per hour over the roadway capacity. Evaluation of this excess demand, which could result in a queue over two and a half miles long and would extend to the upstream freeway segment, should be included in the level of service analysis for this segment of I-580. Financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. **2**

2. The City should prevent any new access openings along the future State Route 84/Isabel Avenue (SR 84) corridor. **3**

3. The first sentence of Paragraph No. 2 on Page 113 should read, "As the future SR 84, Isabel Avenue is ultimately planned to be a six-lane *expressway* facility from I-580 to Stanley Boulevard..." **4**

4. The City should plan for the eventual relocation of the multi-use trail that parallels Isabel Avenue and encroaches into the future State Right-of-Way (ROW) just north of Concannon Boulevard. **5**

5. The following policies should be added to the Circulation Plan to support Goal CIR-7 that endeavors to, "Ensure a well-coordinated regional transportation system that serves Livermore and the surrounding region": 6
   - Plan for eventual relocation of existing utilities on future SR 84, and
   - Prevent installation of any new utilities on the future SR 84.

Please send two copies of the Final EIR to the address below as soon as it is available. 7

Patricia Maurice, Associate Transportation Planner
Office of Transit and Community Planning, Mail Station 6E
California DOT, District 4
111 Grand Avenue
Oakland, CA 94612-3717

Right of Way

Work that encroaches onto the state Right-of-Way (ROW) requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans, clearly indicating State ROW, must be submitted to the address below. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. 8

Sean Nozzari, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Please feel free to call or email Patricia Maurice of my staff at (510) 622-1644 or patricia_maurice@dot.ca.gov with any questions regarding this letter.

Sincerely,

Timothy C. Sable

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: Philip Crimmins, State Clearinghouse

COMMENTOR A13
State of California, Governor's Office of Planning and Research, State Clearinghouse; Terry Roberts, Senior Planner (August 12, 2003) This letter provides a cover letter for the attached comment letter.

State of California, Department of Transportation; Timothy C. Sable, District Branch Chief (August 11, 2003)

A13-1: This comment from the State Clearinghouse provides a cover letter for the comments that follow from the Department of Transportation.

A13-2: Potential mitigations for significant impacts to I-580 include construction of HOV lanes, auxiliary lanes, ramp metering, improvements to Route 84 south of Livermore, and/or a BART extension to Livermore. The Draft General Plan includes policies supporting these projects. Livermore development would help fund these improvements through the Tri-Valley Transportation Development Fees. However, since full funding for these or other potential mitigations on I-580 has not been identified or included in the Regional Transportation Plan, the impacts to I-580 west of Livermore Avenue are considered in the DEIR as significant and unavoidable.

A13-3: The City is planning one additional access on Isabel Avenue approximately midway between Jack London Boulevard and Stanley Boulevard. This access would serve development on the west side of Isabel Avenue and south of Jack London Boulevard. This new access point would reduce the traffic impacts of future development at the intersection of Isabel Avenue and Jack London Boulevard. The City is processing a design exception for this new access point with Caltrans as part of the Route 84 Transfer and Relinquishment Project.

Additionally, to correct a typographical error in the DEIR, the following changes on page 103 are made to Impact TRAF-GP-4, the first paragraph following that impact, and to Mtitigation Measure TRAF-GP-4 to change the number of impacted roadway segments from 15 to 10. The 10 roadway segments are listed on page 103.

> **Impact TRAF-GP-4: Relative to 2003 conditions, implementation of the Draft General Plan would produce significant impacts at 10 ~~15~~ roadway segment locations. (S)**
>
> At the following 10 ~~15~~ roadway segments, the City has determined that it is not feasible to provide enough lane capacity to accommodate the level of traffic predicted by the traffic model because of local environmental constraints, right-of-way constraints or cut-through traffic.
>
> Mitigation Measure TRAF-GP-4: The City shall require on-going project development review of circulation system impacts, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing

roadway links to relieve congestion at impacted locations. However, the impacts at the 10 ~~15~~ roadway segments cannot be reduced to a less-than-significant level. (SU)

A13-4: The City notes that the State has adopted Route 84 along the Isabel Avenue corridor as a future expressway, as noted in the last sentence on page 113 to 114 of the MEA.

A13-5: The City is planning to relocate the encroaching bike path outside the future State right of way road right-of-way upon change of the existing non-conforming commercial land use that fronts Isabel Avenue in this area.

A13-6: Comment noted and a new policy will be added to page 5-31 of the Draft General Plan under Circulation Objective 7.2 that states:

> CIR-7.2.P5 Preserve the integrity of Isabel Avenue as a future expressway by prohibiting the installation of additional longitudinal utilities and by partnering with state and regional agencies on developing future projects to relocate existing longitudinal utilities.

A13-7: Comment noted regarding the request to send two copies of the Final EIR to the address identified in the comment.

A13-8: Comment noted regarding the State Right-of-Way requirements.

B. ORGANIZATIONS

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Letter
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LIVERMORE
CHAMBER OF COMMERCE

July 30, 2003

Mrs. Susan Frost, Senior Planner
Community Development
City of Livermore
1052 S. Livermore Avenue
Livermore, CA 94550-4899

Re: Draft Environmental Impact Report for City of Livermore General Plan Update
and Downtown Specific Plan

Dear Mrs. Frost:

The Livermore Chamber of Commerce thanks you for the opportunity to comment on the subject documents. In general, we feel that the documents do not adequately identify all of the environmental impacts and requisite mitigation measures. Furthermore, the developed alternatives are limited and do not contain the same level of analysis as the preferred project. Finally, it took several months to assemble the many pages of detailed information (over 600) into a complex document. We request that you extend the public review period an additional 30 days. CEQA guidelines recommend the minimum duration for public review. Surely, an important document such as this necessitates more time than has been allotted. **1**

As we reviewed the document, we felt that we have many unanswered questions. Attachment A is a consolidation of the top issues we've identified and would welcome the opportunity to discussed with you in more detail, if appropriate.

Please contact us at 925.447.1606 at your earliest convenience if you should have any comments or questions.

Sincerely,

Mark Triska

Mark Triska
Chairman, Board of Directors
Livermore Chamber of Commerce

John Mahoney
Chairman, Government Affairs Committee
Livermore Chamber of Commerce

cc: Livermore Chamber Board of Directors
Nadine Horner, President/CEO

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JUL ~~29~~ 30 2003
PLANNING DIVISION

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ATTACHMENT A

Land-Use Planning

As identified on Page 1, Volume II of the subject EIR, the project is based on the Draft General Plan. This is a significant point as the Draft P has many flaws and its ability to be implemented is questionable, at best.

Policy P-3 (Page 3-29 of the Draft GP) is a critical policy as it states:

> *"Future Growth shall not exceed the community's capability to provide services. School classroom facilities, sewage treatment capacity, treated domestic water, public parks and recreation, and public safety services shall be the principal factors considered."*

With respect to land-use planning, each of these public services will require additional space to meet increasing levels-of-service and regulatory standards, without growth. The Draft GP (as the EIR's preferred project) exacerbates this issue by allowing the proposed densification within the current city limits. The city realizes that it cannot and should not stop growth. Therefore, each of the public services will be competing not only against each other, but also against the private market for a very small supply of land. Size and location also reduce the supply based on the given public service need. The subject EIR does not address these impacts, (thereby omitting any mitigation measures) nor does it substantially offer any alternative to reduce this impact. **2**

This impact has a negative "ripple" effect on other areas. For instance, the Draft GP proposes to densify the use and population of downtown will increase the number of calls to the fire department. Occurrences can and will be compounded. In order to meet local and federal response times (i.e., level-of-service), space is needed at existing fire station for additional units. Currently, the Fire Department has stated that they cannot expand their existing facilities. Rather, they will ask units from other stations to respond. This result is longer distances to travel, thereby increasing response times and diminishing the level of service to the community originally served by the "auxiliary". Based on the implied solution offered by the Draft GP, the level-of-service is lowered in two communities. The EIR does not address these impacts and should. **3**

Land Use/space planning impacts arising from increased levels of service from public agencies are not addressed. As demand on all public services grows, additional employees will be needed to maintain an acceptable level of service. Additional People need additional office space. Not all public service agencies pay taxes. The limited space they take away from private use increases the tax burden on residents. The Draft GP and EIR fail to address these issues. **4**

The schools will be at capacity within the next 5 to 7 years. Specifically, the elementary schools will be at capacity by 2006, Jr. high by 2010 and HS by 2004. THE GPU does not provide/dedicate areas for future schools. 11 acres is needed for an elementary school, 20 acres for a Jr High, and 40-45 acres for a HS. Instead the Draft GP and EIR make the schools compete for space against other private/public entities. **5**

The parks will compete for space because the Draft GP & EIR identify some areas as future parks and/or school sites. Based on the information provided, the parks are already deficient in providing community (by 114 acres), and special use (by 12 acres) parks.

The Draft GP & EIR do not address the impacts caused by densification on the availability of parkland to meet the current (126 acres) and future (an additional 34 acres) needs. Please note that open-space which cannot be accessed by the public is NOT a recreation park (e.g., Brushy Peak). Therefore, LARPD and the City should not count the Brushy Peak area as credit for regional park facilities. Placing parks outside of the city limits will either decrease patronage (and thus decrease annual park income) or increase traffic. Both are negative impacts **6**

Letter
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not identified by the EIR. Additionally, if outdoor recreation increases, LARPD will need more people and more equipment to take care of the additional park space (if delivered). This requires more space, which has not been adequately planned for. **6 cont.**

Utilities and Infrastructure

The Draft GP and related EIR do not address water storage requirements for fire fighting due to additional population. Emergency reserves are a functional maximum day use and hydrant flow. As population increases the number of hydrants should increase, the max-daily flow increase and the amount of emergency storage should increase. If the system is to "absorb" this impact, then the Draft GP & EIR failed to identify the reduction in service. **7**

Not extending sewer service to all developments within the City limits will increase the number of septic systems. Alameda County Health and Zone 7 Water Agency have stated that septic systems threatens our groundwater table which is used for supplying water to our homes in Livermore, as well as Pleasanton & Dublin. Once this resource is contaminated, additional supplies will be needed. The Draft GP and related EIR does not address these adverse impacts nor the effect they would have on increasing water rates and depletion of another natural resource. **8**

Densification will increase the demand on Zone 7's transmission system. There is no analysis as to whether Zone 7 can absorb the growth. If not, level of service to all Zone 7 customers (including Dublin & Pleasanton) will be affected. **9**

Because California Water Service is governed by the CPUC, and not the City of Livermore, Policies P-4 & P-5 are unenforceable.

Similarly, the subject EIR does not address these impacts, (thereby omitting any mitigation measures) nor does it substantially offer any alternative to reduce this impact. **10**

Traffic & Air Quality

Currently, children from Springtown commute across town to Arroyo Mocho and Mendenhall schools. Continuing this type of facility planning will impacts traffic. It will be exacerbated if additional school space cannot be properly located and supplied. This type of planning unnecessarily increases traffic (increasing rider-ship time) resulting in increased the air pollution. **11**

While growth will increase the air pollution, the elements of the GPU provide additional detrimental effects on air quality by needlessly creating longer commute distance for daily tasks (e.g., taking children to school, more people going to the same grocery store). The mismatch between local Jobs and local residents will increase traffic into Livermore and decrease air quality. These adverse impacts and requisite mitigations measures are not addressed in the EIR. **12**

Overall, The GPU creates additional impacts to Livermore citizens as well as other cities. They include longer emergency response times & diminished emergency reserves, decreased air and water quality, increased traffic, and limited growth for schools and parks. This plans does not completely address all the impacts associated with densification and nor does it offer an acceptable solutions. **13**

Jobs/Housing Match

The EIR does not list an objective that would identify what or how higher-wage jobs would be created, whether they would actually attract people to live in Livermore, or ensure that affordable housing will be provided for the existing workforce. The EIR does not address the negative impacts (e.g., traffic, air quality) associated with the planned imbalance. **14**

Alternatives

The information provided in the EIR for the Alternatives Section is significantly less than that provided for the preferred project. The Alternatives were created and presented in a manner where the preferred alternative becomes a self-fulfilling prophecy. **15**

The analysis of the alternatives is confusing and needs to be re-evaluated. The Redistributed Alternative identifies a high rate of commuting, increased noise, decreased air quality, and increased housing prices. The same alternative has fewer jobs and slightly more housing. It would seem to be a more balanced plan, but is not presented that way. This alternative also has fewer environmental impacts, but the preferred project is designated as the environmentally superior project. Similarly, the Balanced Alternative has the highest potential for achieving a jobs/housing match. It discusses several positive regional effects from this alternative including a reduction in longer-distance commuting. That does not make sense. **16** **17**

COMMENTOR B1
Livermore Chamber of Commerce; Mark Triska, Chairman, Board of Directors and John Mahoney, Chairman, Government Affairs Committee (July 30, 2003)

B1-1: In this introductory comment, the commentor outlines issues that are further developed in the following specific comments. These issues are that the Draft EIR does not adequately identify all environmental impacts and provide requisite mitigation measures, and the alternatives are limited and not analyzed at the same level as the proposed project. The commentor also requests that the City extend the public review period an additional 30 days. In response to the last comment, the City, as lead agency, identified a standard 45-day review period for the Draft EIR which is in compliance with CEQA guidelines. The commentor has additional opportunities to comment at the numerous public hearings on the Draft General Plan, Downtown Specific Plan and Draft EIR being held in September and October of 2003. The other issues will be addressed in the following comments.

B1-2: See Response to Comment A7-9 regarding the comment that intensification of the proposed development within the City limits will cause competition among public services for office space.

B1-3: The impacts to public services, including the provision of fire and emergency services to serve projected growth, are addressed on pages 135 to 137 of the DEIR.

B1-4: CEQA does not require an analysis of the fiscal and financial impacts resulting from a proposed project. The purpose of CEQA is to provide an analysis of the potential adverse *physical* impacts of a proposed project.

B1-5: The impacts to schools were identified and evaluated in the DEIR on pages 137. In the DEIR, on Figure III-3: Draft General Plan Revised Land Use Designations, potential locations were shown for two high school sites and four elementary school sites. As the General Plan notes, the City's ability to plan for school facilities is limited by State law in that cities can no longer require the dedication of school sites in conjunction with the planning process. Further, a city is prohibited from denying or refusing to approve, for example, a land use entitlement on the basis that school facilities are inadequate.

The City will continue on-going coordination with the School District to identify potential sites for future schools. In order to provide options and flexibility for the School District, sites for future elementary and/or middle schools are designated on the Land Use map more generally as "Community Facility - School" rather than specifically for an elementary or a middle school.

B1-6: The EIR authors agree that potential school and park sites were generally identified on the Land Use map. The impacts to parks were discussed and evaluated in the DEIR on pages 138 to 140. Comment noted regarding constrained public access to Brushy Peak Regional Preserve. The Brushy Peak Regional Preserve provides outdoor recreation and regional trails for the public while protecting a large area of open space that contains

habitat for numerous special-status animal and plant species. The public is allowed to visit Brushy Peak, and therefore it does provide a regional park recreation experience. Sufficient acreage of neighborhood, community and special use parks was found within the City limits to meet LARPD standards assuming that the projected development does occur. It is not the purpose of the Draft General Plan and EIR to plan for the spatial needs of other public agencies.

B1-7: This comment regarding the need for more water storage capacity for fire fighting applies particularly to Downtown Livermore. Cal Water has identified the need to upgrade their water system to accommodate projected and planned for growth in the Downtown area. They have identified the need to replace many of their older mains, install new fire hydrants, increase their storage capacity and install new pump stations. See page 9-6 of the Downtown Specific Plan, and Water Service Improvement policies 1 through 3 for the Downtown Specific Plan. These policies are listed in the DEIR on page 112, and fire fighting services are discussed on pages 136 to 139.

B1-8: See Response to Comment A7-9.

B1-9: See Response to Comment A7-10.

B1-10: It is unclear to which policies "P-4 and P-5" the commentor is referring, and therefore what impacts could result. See Response to Comment B1-7 regarding Cal Water's plans to upgrade service in the Downtown area.

B1-11: Comment noted regarding the facility planning of schools related to traffic congestion. The comment does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

B1-12: The EIR authors disagree that implementation of the Draft General Plan would create longer commutes for daily tasks. When implemented, the policies aimed at intensifying the Downtown and underutilized land within the UGB should shorten commute distances to accomplish daily tasks. The Draft General Plan contains policies aimed at decreasing the mismatch between local jobs and local residents (see DEIR pages 81 to 82).

B1-13: This comment does not identify specific areas where the Draft EIR provides insufficient information and analysis. See Response to Comment B1-3 regarding emergency response; Response to Comment B1-5 regarding impacts to schools and B1-6 regarding impacts to parks. Air quality impacts are identified and addressed in the DEIR on pages 149 to 160. Water quality impacts are identified and addressed in the DEIR on pages 195 to 197. Traffic and congestion impacts are identified and addressed in the DEIR on pages 83 to 104.

B1-14: The Draft General Plan contains an Economic Development and Fiscal Element that identifies goals, objectives and policies to encourage economic vitality and attract new businesses to Livermore. The current and future jobs/housing (and employed residents/jobs) ratio is discussed in the Draft EIR on pages 75 to 82. Objectives from the

Economic Development and Fiscal Element are listed in that section. As noted previously, CEQA does not require the evaluation of socioeconomic factors in an EIR.

B1-15: As stated on page 217 of the DEIR, the *CEQA Guidelines* require an analysis of a range of reasonable alternatives to the proposed project. The EIR authors and lead agency believe that the Draft EIR includes sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Table V-1: Alternatives Comparison, on page 219 of the DEIR, provides a summary matrix that compares the significant environmental effects of each alternative. The alternatives are then described and compared to the proposed project in subsequent pages of text (218 to 240), tables and figures.

B1-16: The EIR authors agree with the comment that greater impacts associated with traffic, air quality and noise were found for the Redistributed alternative, but disagree with the comment that the alternatives need to be re-evaluated. The backup model runs and technical information is contained in the Technical Appendices. The proposed project, the Draft General Plan, was found to generate fewer trips and associated noise and air quality impacts than the Redistributed alternative. For those reasons the proposed project was designated as the environmentally superior alternative.

B1-17: Comment noted. The rationale for choosing the proposed project as the environmentally superior alternative is stated on page 242 of the Draft EIR. In short, the Balanced alternative would have more focused traffic, noise, and air quality impacts within the City than the other project alternatives.

Letter
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EAST BAY CHAPTER
Alameda & Contra Costa Counties
California Native Plant Society

July 30, 2003

Susan Frost, Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

Dear Ms. Frost

The purpose of this letter is to provide comments on the City of Livermore's Draft General Plan Update and the associated Draft EIR. The California Native Plant Society (CNPS) is supportive of the objectives and policies in the Draft General Plan Update that call for the protection of threatened and endangered plants, wildlife, and special habitats. Alternatively, several revised land use designations allow for potential significant environmental impacts. Impacts to the alkali habitats located in the north and east of the Livermore area and impacts to sycamore alluvial woodlands and rangeland/grassland habitat in the south of Livermore are described in detail below in addition to comments on the general structure of the EIR. 1

CNPS is a non-profit organization of more than 10,000 lay persons and professional botanists organized into 32 chapters throughout California.
The mission of CNPS is to increase understanding and appreciation of California's native plants and to conserve them and their natural habitats through education, science, advocacy, horticulture and land stewardship.
Our members work closely with local, state and federal agencies to manage and conserve native botanical resources in California. 2

With a very rich and diverse flora of almost 2,000 plant species, the East Bay is richer in species than several other entire states. Of these species, 112 are rare or endangered statewide and are afforded protection under the federal or state Endangered Species Acts, or the California Environmental Quality Act (CEQA). In addition, the CNPS East Bay Chapter has found, through many years of extensive research and close monitoring, that an additional 588 native plant species are in grave danger of disappearing in Alameda and Contra Costa Counties. Seventy-three of these species may already be gone as they have not been reported since 1950 or before, 304 currently occur in only one or two locations in the two counties, and 211 occur in only three to five places in the two counties. 3

North Livermore

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North Livermore

In the Livermore area, the alkali wetlands north and east of Springtown, along Greenville Road, and in the vicinity of Altamont Creek, and the upland habitat that surrounds these wetlands are of particular interest to CNPS. CNPS supports the continued designation of the majority of the Springtown alkali wetlands area as open space. This rare alkali wetland habitat is a remnant of a habitat type that was once more widespread throughout the Livermore area. These alkali wetlands and surrounding uplands support many rare plants and animals, and the protection of this habitat is an important part of preserving the biodiversity of the area.

The Springtown open space area is of statewide importance to preservation of three very rare and endangered plants, palmate-bracted bird's-beak *(Cordylanthus palmatus)*, hispid bird's-beak *(Cordylanthus mollis* ssp. *hispidus)*, and Livermore tarplant *(Deinandra bacigalupii)*, in addition to several other plant species of concern including San Joaquin spearscale *(Atriplex joaquiniana)*, and heartscale *(Atriplex cordulata)*. These alkali areas are also potential habitat for several rare or endangered plant species that may have already been extirpated in the Livermore Valley, including the caper-fruited tropidocarpum *(Tropidocarpum capparideum)*, and alaki meilk-vetch (*Astragalus tener* var. *tener*). In addition, wetlands and uplands in this area provide habitat for rare and endangered wildlife species including burrowing owls *(Athene cunicularia)*, California red-legged frogs *(Rana aurora draytonii)* and California tiger salamanders *(Ambystoma californiense)*.

3 cont.

There are several modifications to land use designations in the Draft General Plan Update that potentially allow for significant impacts to rare and endangered plants including the high intensity industrial designations adjacent to Greenville Road, the urban medium high residential designation north of Scenic Road and south of the Springtown open space, and the residential and multiuse designations north of Interstate 580 and east and west of Laughlin Road.

Significant natural habitats occur in the land use change area north of I-580 and east of Laughlin Road. This area encompasses almost one mile of Altamont Creek, occurs directly south of Frick Lake, and includes additional important upland and alkali sink habitat. We disagree with the determination in the Draft General Plan Update EIR that the designation of this area as urban high residential and high density mixed use creates a less than significant impact to the environment even when considered in light of land use and open space objectives that preserve special status plants, wildlife and habitats. In this area, a very narrow strip of open space habitat is designated adjacent to Altamont Creek. This small open space is inadequate to support the native plant and animal populations in this area. Grasslands throughout this area provide upland estivation sites for the California tiger salamander. In addition, these uplands provide important migration corridors for species that utilize both Frick Lake and Altamont Creek including California red-legged frogs. Water quality in Frick Lake and Altamont Creek is also likely to be adversely impacted by the run-off of herbicides, fertilizers and other chemicals if this

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area was to be developed as high-density residential and mixed use. Alkali habitats also extend east of Vasco Road, and this area is known to support special status plants species including San Joaquin spearscale *(Atriplex joquiniana)* and brittlescale *(Atriplex depressa)*.

4 cont.

The Livermore tarplant is currently known from only three locations in the world all of which are located immediately north or east of the City of Livermore. Two of these populations are located just east of Greenville Road and south of Interstate 580 and north of Patterson Pass Road. Three areas along Greenville Road are vacant or underutilized and are designated for development as high intensity industrial or Greenville BART TOD. Because the distribution of this plant is so limited, the loss of any of these populations would jeopardize the viability of this rare species. Development west of Greenville road should be directed to avoid impacts to this species and the alkali habitat that it occurs in. The area adjacent to Greenville road and immediately south of I-580 includes development areas both west and east of Greenville. The designation of high intensity industrial east of Greenville Road is opposed because the proximity of this area to one of the three Livermore tarplant populations.

5

The urban medium high residential land use designation in undeveloped area north of Scenic Road and south of the Springtown open space also allows for potential significant impacts to rare plants and wildlife. This area is adjacent to land known to support threatened and endangered plant and wildlife species, and it buffers the existing open space from impacts from the adjacent subdivision. In addition, this area has the potential to support the species of plants and wildlife known to occur in the Springtown open space. Similarly, important alkali habitat occurs in the land use change area located west of Vasco Road and north of Altamont Creek Drive.

6

South Livermore

Important natural resources in South Livermore include upland/rangeland habitat and sycamore woodlands. The land use designation of open space is particularly important along Arroyo Mocho in areas that are adjacent to viticulture. The current open space designation should be widened to prevent significant impacts to the sycamore woodlands in this area from encroaching adjacent vineyards.

7

The uncultivated rangeland and grassland in South Livermore is important as an agricultural resource and as habitat for many upland species, and it contributes to the scenic appeal of South Livermore. Land Use objective LU-19.1 requires any urban development proposal within the South Livermore Valley to meet criteria intended to promote agriculture and discourage irresponsible development. In particular, this objective includes policies that require the development of cultivatable soil to be mitigated by the creation of vineyards or associated facilities at a ratio greater than one-to-one. This policy has the potential to lead to a significant loss of grassland/rangeland in this area. Development in South Livermore should also be mitigated with the permanent preservation of rangeland if rangeland is lost during development.

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Open Space Objectives

Open space objectives OSC-1.1 and OSC-1.3, which strive to maintain biodiversity and native vegetation within open space areas by preserving habitat and prohibiting the use of invasive non-native plants in new developments, are strongly supported. In particular, open space objective OSC-1.3 requires the conservation of Livermore's native trees and vegetation, which are important biological resources within the Planning Area. The language in this area should be strengthened with policy that requires any landscaping in open space include only native species from local sources. In particular, riparian areas adjacent to developments are frequently adversely impacted when non-native landscaping plants are used in these areas. Landscaping in riparian areas can be accomplished in an aesthetically pleasing way using only site appropriate native species. In addition, when site appropriate native species are used they typically require much less maintenance than other non-native landscaping plants. 9

OSC-1.1 specifically calls for efforts to preserve open space in the Corral Hollow and Cedar Mountain areas. The preservation of open space in these two biologically diverse areas is highly supported. An additional policy should also be included to preserve the Springtown alkali wetlands open space and special status plants and wildlife that occur there and the sycamore woodlands along Arroyo Mocho and Arroyo Del Valle. 10

Stronger language for open space objective OSC-1.2 is also recommended. The goal of this object is to "minimize impacts to sensitive natural habitats including alkali sinks, riparian vegetation wetlands and woodland forest." The alkali wetlands that occur around the Livermore area, and many of the species they support are too rare and sensitive to support even minimal impacts of development. 11

EIR Analysis

The discussion and consideration of rare and endangered plants in the EIR for the General Plan Update is inadequate. The EIR does not include any discussion of the specific resources or analysis of how specific resources will be impacted by the General Plan Update. 12

In an effort to clarify and simplify the process of determining which plant species are protected and need to be considered in land planning and management decisions, and to streamline this aspect of the environmental review, the East Bay Chapter of CNPS has compiled a report, *Unusual and Significant Plants of Alameda and Contra Costa Counties*, that addresses all of the statewide and locally rare native plant species of our area, plus an additional 323 species that could potentially become rare or threatened here. This report is updated regularly and is now in its sixth edition (2001). 13

A list, compiled from that report, of rare and endangered plants that occur or have historically occurred in and adjacent to the City of Livermore is attached to this letter. In addition to plants that are rare or endangered statewide, and afford protection under CEQA, the list includes native plant species that are in grave danger of disappearing in

Letter
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the Livermore area. These additional species, designated as locally rare or "unusual", are afforded protection under CEQA in Sections 15380 and 15125(a), which address species of local concern and place special emphasis on environmental resources that are rare or unique to a region. Yet, these species are often ignored in land planning and management decisions because it has not always been clear just which species are covered by these sections. We encourage you to incorporate this list into the Livermore General Plan EIR, and include measures to ensure protection of the unusual and significant plants as well as the traditional CEQA plants.

13 cont.

Thank you for your consideration of these comments. If you have any questions, please contact Lisa Paterson at (925) 371-1433. It is our goal that the information provided in this document will prove helpful in planning to conserve botanical resources as your agency moves forward with the update of the City of Livermore General Plan.

Sincerely,

Nathan Smith

Corresponding Secretary

P.S. Note that this document is a copy of one sent electronically on July 30, 2003

Letter
B2
Attach.

CEQA-Protected Rare and Unusual Plants for City of Livermore

(Statewide Rare Plants in Upper Case)

Rank in East Bay	Species	Common Name	Habitat
A2	Allenrolfea occidentalis	iodine bush	Alkali areas
A1	Astragalus didymocarpus var. didymocarpus (A. gambelianus is more common)	two-seeded milkvetch	Grassland
*A1	ASTRAGALUS TENER VAR. TENER	alkali milk-vetch	Alkali areas; Grassland; Vernal Pools; Misc. Wetlands
A2	Atriplex argentea var. mohavensis	silverscale	Alkali areas
*A2	ATRIPLEX CORDULATA	heartscale	Alkali areas; Grassland; Misc. Wetlands
*A2	ATRIPLEX CORONATA VAR. CORONATA	crownscale	Alkali areas; Grassland; Vernal Pools
*A2	ATRIPLEX DEPRESSA	brittlescale	Alkali areas; Grassland; Misc. Wetlands
*A2	ATRIPLEX JOAQUINIANA	San Joaquin saltbush	Alkali areas; Grassland; Misc. Wetlands
*A1	BALSAMORHIZA MACROLEPIS VAR. MACROLEPIS	big-scale balsamroot	Grassland; Serpentine
A2	Brodiaea terrestris ssp. terrestris	dwarf brodiaea	Grassland; Woodland; Misc. Wetlands
A2	Carex nudata	torrent sedge	Rock, Tallus or Scree; Riparian; Sand or Sandstone areas
A2	Carex senta	rough sedge	Riparian areas; Misc. Wetlands
A2	Centromadia pungens ssp. maritima Hemizonia pungens ssp. maritima in Jepson Manual) ssp. pungens is more common)	common spikeweed	Salt Marsh
A2	Chamaesyce ocellata ssp. ocellata	valley spurge	Sand or Sandstone
A1x	Chamomilla occidentalis (historical-1938) (C. suaveolens is more common)	valley pineapple weed	Alkali areas; Salt Marsh; Vernal Pools
*A1	CORDYLANTHUS MOLLIS SSP. HISPIDUS	hispid bird's-beak	Alkali areas; Grassland
*A1	CORDYLANTHUS PALMATUS	palmate-bracted bird's-beak	Alkali areas; Grassland
A1	Cryptantha intermedia	common cryptantha	Forest; Rock, Tallus or Scree; Sand or Sandstone; Woodland
A1	Cucurbita foetidissima	calabazilla	Gravel; Rock, Tallus or Scree; Sand or Sandstone
A1	Cuscuta californica var. californica	California dodder	Chaparral; Grassland; Misc. habitats
A1	Cuscuta indecora var. indecora	pretty dodder	Misc. habitats
*A1	DEINANDRA BACIGALUPII	Livermore tarplant	Alkali areas
A2	Deinandra kelloggii (Hemizonia kelloggii in Jepson Manual)	Kellogg's tarweed	Misc. habitats

Letter
B2
Attach.

A2	Deinandra lobbii (Hemizonia lobbii in Jepson Manual)	three-rayed tarweed	Misc. habitats
A1	Downingia bella	Hoover's downingia	Vernal Pools
A2	Downingia cuspidata	cuspidate downingia	Vernal Pools
A2	Downingia insignis	cupped downingia	Vernal Pools
A2	Draba verna	spring whitlow-grass	Misc. habitats
A2	Ericameria arborescens	golden-fleece	Chaparral; Forest; Woodland
A2	Eriogonum luteolum var. luteolum	golden carpet	Gravel; Sand or Sandstone; Serpentine
*A2	FRITILLARIA AGRESTIS	stinkbells	Alkali areas; Grassland
*A2	HESPEREVAX CAULESCENS (H. sparsiflora is more common)	hogwallow starfish	Vernal Pools
A1	Heterotheca oregona var. scaberrima	Oregon goldenaster	Dry Washes
A1	Hutchinsia procumbens	prostrate hutchinsia	Alkali areas
A2	Juncus articulatus	jointed rush	Misc. habitats
A2	Keckiella breviflora var. breviflora	gaping penstemon	Rock, Tallus or Scree
*A2	LASTHENIA FERRISIAE	Ferris's goldfields	Alkali areas; Vernal Pools
A2	Lasthenia fremontii	Fremont's goldfields	Vernal Pools; Misc. Wetlands
A2	Lasthenia glaberrima	smooth goldfields	Vernal Pools; Misc. Wetlands
A2	Lasthenia minor	woolly goldfields	Grassland
A2	Layia chrysanthemoides	smooth layia	Grassland
A2	Lepidium dictyotum var. acutidens	sharp-toothed pepper-grass	Alkali areas
*A1	LINANTHUS GRANDIFLORUS	large-flowered linanthus	Grassland; Gravel; Sand or Sandstone; Scrub
A1	Linanthus liniflorus	flax-flowered linanthus	Scrub; Serpentine; Woodland; Misc. habitats
A2	Lotus strigosus	strigose trefoil	Chaparral; Scrub
A1	Lupinus affinis	lupine	Misc. habitats
A2	Madia elegans ssp. vernalis (ssp. densifolia is more common)	common madia	Grassland
A1	Mentzelia laevicaulis	blazing star	Dry Washes; Rock, Tallus or Scree; Sand or Sandstone
A2	Microseris campestris	San Joaquin microseris	Grassland; Vernal Pools
*A2	MYOSURUS MINIMUS SSP. APUS	little mousetail	Alkali areas; Freshwater Marsh; Vernal Pool
A2	Myosurus minimus ssp. minimus	common mouse-tail	Freshwater Marsh; Vernal Pools
A2	Myosurus sessilis	sessile mouse-tail	Grassland; Vernal Pools
*A2	NAVARRETIA COTULIFOLIA	cotula navarretia	Misc. Wetlands
A1	Nicotiana attenuata	coyote tobacco	Dry Open Slopes
A2	Nicotiana quadrivalvis	Indian tobacco	Dry Open Slopes; Dry Washes
A1	Nitrophila occidentalis	nitrophila	Alkali areas
A2	Orobanche bulbosa	bulbous broom-rape	Chaparral
A2	Orobanche vallicola	California broom-rape	Forest; Woodland
A2	Penstemon heterophyllus var. purdyi	foothill penstemon	Chaparral; Forest; Grassland
A1	Phyla nodiflora var. incisa (var. nodiflora is more common)	narrow-leaved fog-fruit	Misc. Wetlands
A2	Pilularia americana	pillwort	Vernal Pools; Misc.

			Wetlands
*A2	PIPERIA MICHAELII	purple-flowered piperia	Forest; Scrub; Woodland
*A1x	PLAGIOBOTHRYS GLABER (historical-1942)	hairless popcorn flower	Alkali areas; Vernal Pools; Misc. Wetlands
A2	Plagiobothrys leptocladus	alkali plagiobothrys	Alkali areas
A1	Puccinellia nuttalliana	Nuttall alkali grass	Alkali areas
A2	Puccinellia simplex	little alkali grass	Alkali areas
A1	Pyrrocoma racemosa var. racemosa	racemose pyrrocoma	Alkali areas; Grassland; Salt Marsh; Misc. habitats
A2	Rumex salicifolius var. denticulatus	willow dock	Misc. Wetlands
A2	Salicornia subterminalis	Parish's glasswort	Alkali areas; Salt Marsh
A2	Scirpus fluviatilis	river bulrush	Misc. Wetlands
A2	Scutellaria californica	California skullcap	Scrub; Woodland; Misc. habitats
A2	Senecio flaccidus var. douglasii	shrubby butterweed	Dry Washes; Rock, Tallus or Scree; Sand or Sandstone
A2	Sesuvium verrucosum	sea-purslane	Alkali areas
A2	Spergularia macrotheca var. leucantha	large-flowered sand spurry	Alkali areas; Vernal Pools
A2	Sporobolus airoides	alkali sacaton	Alkali areas
A1	Torreyochloa pallida var. pauciflora	weak mannagrass	Freshwater Marsh; Riparian
A1	Trifolium barbigerum var. andrewsii	Gray's clover	Misc. habitats
A2	Trifolium barbigerum var. barbigerum	bearded clover	Misc. habitats
*A1	TRIFOLIUM DEPAUPERATUM VAR. HYDROPHILUM (vars. amplectens and truncatum are more common)	saline clover	Alkali areas; Salt Marsh
*A1x	TROPIDOCARPUM CAPPARIDEUM (historical-1932)	caper-fruited tropidocarpum	Alkali areas; Grassland
A1x	Vicia hassei (historical-1891)	slender vetch	Grassland; Scrub
A2	Viola purpurea ssp. purpurea	mountain violet	Chaparral; Scrub; Woodland

Explanation of Ranks

***A1 or *A2**: Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x: Species previously known from Alameda or Contra Costa Counties, but now believed to have been extirpated, and no longer occurring here.

A1: Species currently known from 2 or less regions in Alameda and Contra Costa Counties.

A2: Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

COMMENTOR B2
California Native Plant Society, East Bay Chapter, Alameda and Contra Costa counties, Nathan Smith (July 30, 2003)

B2-1: This comment summarizes general concerns regarding the proposed project's impacts on sensitive biological resources. These concerns are described in more detail in comments B2-2 to B2-13 and are addressed in the corresponding responses.

B2-2: This comment describes the California Native Plant Society and does not address the adequacy of the Draft EIR. Therefore, no further response is necessary.

B2-3: Comment noted and the following policy is added to page 8-11 of the Draft General Plan:

> OSC-1.1.P6 The City shall preserve and maintain Frick Lake and the Springtown Alkali Sink area as important wildlife and plant habitats through the preservation of open space in and around these areas.

B2-4: The City disagrees with the commentor's conclusions. Figure III-2: Draft General Plan Change Areas, depicts the geographical boundaries of proposed land uses within the City. The residential, mixed-use, and industrial designations in the Draft General Plan do not assume the exclusion of open space land uses. Thus, sensitive habitat may be preserved on lands designated for these land uses. In addition, Draft General Plan policies, which require compliance with all federal and State regulations that protect rare and endangered species, and mandate the mapping and preservation of sensitive habitat and species, would require the protection of the biological resources listed by the commentor. Furthermore, the Draft EIR is a program-level EIR; additional buffer areas and mitigation areas may be imposed as part of environmental review of specific development projects. As described on page 196 of the DEIR, compliance with Regional Water Quality Control Board (RWQCB) and Alameda Countywide Clean Water Program (ACCWP) policies, and implementation of Draft General Plan policies OSC-2.1.P1 and OSC-2.1.P2 would reduce the impact of urban chemical use on water bodies to a less-than-significant level.

B2-5: The presence of special-status plant and animal populations, including the Livermore tarplant, is described in Section 11, Biological Resources, of the MEA. Implementation of Draft General Plan policies LU-3.1.P1, OSC-1.2.P1, OSC-1.2.P6, and OSC-1.2.P8 would reduce the proposed project's impacts on protected plant and wildlife species to a less-than-significant level. Site-specific projects, such as the development of high-intensity industrial uses east of Greenville Road, and medium-high density residential uses north of Scenic Road and south of the Springtown open space, would be subject to project-specific CEQA review. At that time, impacts to specific populations of protected plant and animal species would be reduced to a less-than-significant level.

B2-6: See Response to Comment B2-5.

B2-7: Comment noted and the following policy is hereby added to page 8-13 of the Draft General Plan. Implementation of this policy would protect sycamore alluvial woodlands without a concurrent expansion of existing open space designations.

> OSC-1.2.P13 The City shall preserve sycamore alluvial woodlands along the Arroyo Mocho and Arroyo Del Valle as important wildlife and plant habitat through the preservation of open space and appropriate buffers in and around these areas.

B2-8: Rangeland that contains protected habitat or protected plant or wildlife species would be protected, consistent with Draft General Plan policies OSC-1.1.A1, OSC-1.1.A2, OSC-1.2.P1, OSC-1.2.P6, and OSC-1.2.P8. These rangeland protections would apply to all types of proposed land uses, including agricultural uses. The loss of rangeland that does not contain protected habitat or plant and animal species would not be considered a significant adverse impact to biological resources.

B2-9: Comment noted and the following Draft General Plan policy and action on page 8-13 are revised as follows:

> OSC-1.3.P1. Require new developments to incorporate native vegetation into their landscape plans, and prohibit the use of invasive non-native species. Propagules (seeds or plants) of native plants shall be from native sources.
>
> OSC-1.3.A1. Restore areas adjacent to existing open space areas with native plant and animal communities. Restoration should be accomplished with native plants from local sources.

B2-10: Refer to responses B2-3, B2-7, and B2-8.

B2-11: The biological resources policies contained within the Draft General Plan are intended to offer broad protection to sensitive and protected resources within the planning area. During subsequent CEQA review of specific projects, potential impacts to alkali wetlands would be identified and mitigated, as appropriate. At the program level of detail, Objective OSC-1.2 adequately protects alkali wetlands.

B2-12: The tasks of conducting surveys for sensitive resources, assessing project-related impacts, and determining specific mitigation measures would be completed during subsequent environmental documentation for specific projects. The Draft General Plan provides programmatic policies that adequately protect rare and endangered plants. These policies were developed based on the premise that public review at subsequent levels of the CEQA process would occur.

B2-13: Unusual plant species are not afforded blanket protection under CEQA. Although unusual plants may be considered on a case-by-case basis for inclusion during the CEQA review process, it is not appropriate under CEQA to require that impacts to such plants (or plant populations) be considered significant or subject to compensation. The City, as lead agency, may require consideration of unusual plants in its analysis of impacts and may further require mitigation for impacts to plants on the "unusual" species list, but only on a project-by-project and species-by-species basis.

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C. INDIVIDUALS

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Letter
C1

JOHN STEIN, 1334 KATHY COURT, LIVERMORE, CALIFORNIA 94550

July 3, 2003

Livermore Planning Commission
C/O Miss Susan Frost, Senior Planner
City of Livermore
1052 Livermore Avenue
Livermore, California 94550

Commissioners:

I have read the June, 2003 Draft Downtown Specific Plan and have the following comments and questions.

The appearance of the Draft Plan is attractive. The cover, bindings, paper quality, layout, type fonts, use of white space and colors are outstanding. I particularly like the landscape layout and use of illustrations of outstanding buildings throughout the Bay Area. The design guidelines are very good and spare no cost in the use of detail and materials. While an outstanding sales document, the report's contents have some small errors, missing sections and structural defects.

The most glaring omission is the Financing Strategy. This is important for several reasons. First, is the proposed plan feasible or do we have a champagne plan with a beer budget? Second, since the Downtown represents almost 50% of the entire General Plan residential development, how will the economics of this plan drive the ability to develop a viable Transfer of Development Credits plan, an integral portion of the General Plan Amendment? Third, how will financing this project affect the economic well-being of existing residents who may have to suffer reduced services or increased fees to subsidize the plan? How will the financing and costs affect the marketability of units? Finally, when will the public be able to see and effectively comment on the financial assumptions and results and their economic impacts? 1

A great deal of the Downtown Historic Building Preservation police is missing. The inventory of historic buildings in the downtown has cryptic comments such as 6Z and what is the difference between NHRP and NRHP? What criteria were used to determine the ratings shown on page 4-19 and 4-20? How was the historic significance, province, local importance, age, and state of preservation weighted and rated? Was this just a windshield survey? Where is the documentation? Why are so few (10) buildings rated significant and protected from demolition from an inventory of almost 500 structures many 50 to 100 years old? 2

What specific actions and policies that will protect any of the structures rated 4 and higher from demolition? What means are proposed to fund relocation and siting of the many structures that need to be moved to allow for the large residential units in the core area?

JUL 3

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cont.

The numbers in appendix C-2, Downtown Specific Plan assumptions do not seem to add up. Why are the net totals for Retail square feet and Restaurant Square Feet not –92,500 square feet and –15,500 square feet? In addition there seems to be a loss of –96,500 of automotive related retail. Since many of these businesses will not either survive or be able to relocate in Livermore, based on latest Franchise board numbers, what will the loss of sales and business tax revenue be? Where is the location of the various TAZ blocks shown? Is there really no loss of existing residential units? **3**

Based on historical numbers for the mix of single and multiple units, the proposed plans 3,259 residential units will generate about 1700 school age children. Where specifically does the school district plan to place them? Where will the neighborhood school be located? Where are the parks they will use? Where will they skateboard, ride the bikes and trikes, play with their pets, play soccer and baseball? **4**

The Livermore station of the BAAQMD has the highest pollutant levels and has been the sole limit in the Bay Area of the attainment of State and Federal standards. This is the cause of costly implementation Smog Check II and the delays in road improvement funds. What specific affects on the air quality measurements at the Livermore station will caused by the proposed development plans congestion and traffic increases? **5**

Development Standards

Are the development standards for he Downtown core correct in allowing for seven story 95-foot tall buildings (page 5-8)? How will residential requirements for light and air be met in small buildings clustered with zero rear and side yard setbacks? Are dry cleaners an acceptable use in a residential building? What are the health hazards of cleaning solvents to adults and small children? How will the conflicts between bars, nightclubs and 24-hour restaurants and health clubs and nearby residents be handled? Why are the specific Alameda County requirements for the treatment and storage of storm drainage not mentioned and where will facilities needed to implement them be located? **6**

Where is the discussion of the light rail station shown on the General Plan map at L Street? How will traffic, parking and design standards be handled? **7**

Traffic

How is the need for high levels of pedestrian movements addressed at downtown intersections particularly first and Livermore? Why is there no illustration of the traffic flow on various street segments shown? How will the effect of the downtown diversion of traffic into neighborhoods change levels of service on Arroyo, Old First Street, Vancouver, Chestnut, College, El Caminito, Murdell, Murrieta, Junction as well as north and south L, P and Livermore and their intersections? How is the issue of the long-term street excavation and replacement for the installation of sanitary and storm sewer, water, phone, cable, gas and electricity and its effect on traffic addressed? **8**

Letter
C1
cont.

Parking

The previous General Plan zoning standards for off street residential parking were generally two spaces for single family units and condominium projects and 1.5 to 1.75 spaces for apartments. One visitor space per every four units was also added for condo projects. It appears that the development guidelines for downtown seem to be far short of these standards. What is the justification for this change? Why was this not considered in any detail at the Steering Committee level? Historically, even with the present standards there is significant spill over onto the public streets. With a potential shortage of about 1000 residential parking spaces, how could this spill over affect commercial parking and traffic? How could this be remedied and what would it cost? **9**

Should there be clearance and turning circle standards for private parking structures? A number of major parking structures will be a significant feature of the downtown. Why are there no design guidelines for these structures? **10**

Since the Downtown Specific Plan, General Plan and EIR are so interconnected could you please include these comments as part of my comments on the Draft EIR?

Thank you for the opportunity to comment.

Sincerely,

John Stein (925) 449-7896 stein53@aol.com

COMMENTOR C1
John Stein (July 3, 2003)

C1-1: Comments noted regarding the appearance of the Downtown Specific Plan. The Financing Strategy is currently being prepared by Freedman Tung & Bottomley. When complete, it will be released to the public prior to the City Council action on the Downtown Specific Plan at the October 20, 2003 meeting. The Financing Strategy will be included in the final Specific Plan as Chapter 11. Note that CEQA does not require an analysis of the fiscal and financial impacts resulting from a proposed project. The purpose of CEQA is to provide an analysis of the potential adverse *physical* impacts of a proposed project.

C1-2: The Historic Buildings Survey presented in the Historic Resources Inventory Appendices of the Downtown Specific Plan was an initial draft and a placeholder for the final study. The text of the Downtown Specific Plan referenced the study on page 4-19 in this way:

> ...(please see the **Title and Final Date TBD,** for further detail on this rating system). A preliminary inventory of buildings, showing their National Register of Historic Places Status Code, is included in the Appendices (please see Appendix: Historic Resources Inventory.

The final study has now been completed. The survey portion of the study will be included as an appendix to the Downtown Specific Plan, replacing the preliminary inventory of buildings contained in the Downtown Specific Plan. A full explanation of the ratings and the criteria used to determine historic resources is available in the final study entitled *Final Draft, Historic Resources Inventory, July 7, 2003*. A copy of the report is available at the Planning Division offices, 1052 South Livermore Avenue. The revised text in the final Downtown Specific Plan on page 4-19 referencing this will read:

> (~~p~~Please see the *Historic Resources Inventory, July 2003,* included as Appendix E ~~**Title and Final Date TBD**~~, for further detail on this rating system).

The Draft EIR addresses historical resources in the City of Livermore, including the Downtown, in the MEA on pages 159 to 190, and in the DEIR on pages 141 to 148. Cultural resource inventories are also included in the Technical Appendices for these documents. There is sufficient information on historical resources to prepare adequate environmental analysis for this issue.

C1-3: The comment references numbers in the table contained in Appendix C-2 in the Draft EIR Technical Appendices document. Note that in the Land Use Summary note at the bottom of the table the third line states that "210,000 sf underperforming retail discounted." This discounted square footage accounts for the two marginal strip centers on Railroad Avenue (in Traffic Analysis Zone or TAZ 100), which were found by the economist (The Concord Group) to be barely performing. Therefore, it would have been misleading to show them as a net loss of 210,000 square feet of retail. A TAZ map for

the Downtown has been prepared and is included Chapter IV of this document.

C1-4: Comment noted that there could be a regarding additional school children associated with new (multi-family) residential units constructed in the Downtown. The Draft General Plan shows a new school site on the site of the decommissioned 5th Street school. See Response to Comment B1-5 regarding the provision of schools. See Response to Comment A5-11 regarding the provision of parks.

C1-5: Although the Livermore air quality monitoring station tends to have the highest number of federal and State ozone exceedances in the region, it is partly a local issue and partly a result of air pollutants traveling to Livermore from other parts of the region. In addition, other monitoring stations, such as San Martin-Murphy Avenue, Gilroy-9th Street, Bethel Island Road, Los Gatos, Suisun STP, Fremont-Chapel Way, Vallejo-304 Tuolumne Street, Fairfield-Bay Area AQMD, San Jose-4th Street, Redwood City, and San Jose-935 Piedmont Road, all have had exceedances of the ozone standards in the past three years. The Draft General Plan promotes smart growth and includes programs and policies that will help to improve air quality by linking land use and transportation, guiding development in a manner that minimize impacts to the environment, improving connectivity and accessibility, working to reduce automobile dependence, and facilitating construction of a diversity of housing types. It is anticipated that, with the coordinated effort from all government agencies within the region and the advanced technology to be developed and utilized, future ambient air quality monitored at the Livermore station will improve from it current conditions.

C1-6: The commentor asks if the Downtown Specific Plan allows buildings that can be seven story, and 95-feet tall. To correct any misinterpretation, the language on page 5-8 of the Downtown Specific Plan under 2. Special Condition: Height Variation has been revised as follows:

> In order to encourage variation in buildings heights, ~~An additional~~ a height allowance of up to four (4) floors and fifty (50) feet in height (including subsurface or podium parking) may be allowed for buildings with a street frontage of at least ~~one hundred~~ ninety (~~100~~ 90) feet in length.

In the Downtown Specific Plan, Chapter 5 contains Development Standards and Chapter 6 contains Design Standards and Guidelines. The standards and guidelines for new development in the Downtown are intended to provide for a mix of land uses throughout the Plan area and to address the potential for land use conflicts. Additionally, uses such as dry cleaners must comply with all local and State guidelines for operation. See also the Right to Downtown Operations policy contained on page 4-16 of the Downtown Specific Plan. See Response to Comment A4-2 regarding the treatment and storage of storm drainage. Storm drainage facilities in the Downtown shall be built consistent with goals, objectives, policies and actions included in the Infrastructure and Public Services Element of the Draft General Plan. The remainder of the questions concern the development standards contained in the Downtown Specific Plan and do not address the analysis contained in the Draft EIR.

C1-7: The light rail stations were shown on Figure IV.A-1 Draft General Plan Land Use Designations in error and will be removed. A revised Figure IV.A-1 is included in Chapter IV of this document.

C1-8: Pedestrian street crossings in Downtown will be facilitated by the narrowing of First Street, and also the sidewalk "chokers" or curb "bulb outs" that are proposed as part of the Downtown Specific Plan. These improvements will lower the amount of time required for pedestrians to cross First Street at intersections, as the crossing distances will be shorter. Traffic signals will be timed to facilitate the flow of pedestrians and vehicles, and the pedestrian crossing times will not require additional signal phases or longer traffic signal cycles. An analysis of pedestrian movements was completed in the Downtown area, which indicated that levels of service for pedestrian flows would be acceptable. There are also recommendations that sidewalks be widened on Livermore Avenue, south of First Street, to facilitate pedestrian travel. In all other locations the analysis indicated that sidewalk widths are adequate to provide good levels of service for pedestrians.

The streets that are expected to serve as the primary redistribution routes for some of the First Street traffic are Isabel Avenue, Railroad Avenue and Fourth Street. Proposed roadway improvements and signing modifications will be designed to encourage those three routes as the primary routes to take some of the redistributed traffic. Other streets, including Arroyo, Old First Street, Vancouver, Chestnut, College, El Caminito, Murdell, Murrieta and Junction are not expected to experience increases in traffic due to the changes on First Street. The analysis of potential impacts to L Street, P Street and Livermore Avenue are included in the EIR traffic study documentation. Should some changes in traffic on other streets in and near Downtown occur, the City would address those impacts through the neighborhood traffic control processes that have been followed in the past.

Street excavation for utility work is addressed prior to the time that work is ready to commence, and will include detour plans that will facilitate the flow of traffic during the temporary construction period. Measures such as signage for detour routes, improvements along detour routes, maintaining access to businesses, temporary business signage, traffic signal retiming, and other measures are implemented as part of the construction period plans. Such plans are not appropriate as part of the Draft General Plan as the specific details of the construction activity, locations, extent and timing are not known at this time. Also, construction impacts are temporary and short term in nature, and, therefore, are not appropriate for inclusion in a long-term analysis such as that for the Downtown Specific Plan and Draft General Plan.

C1-9: New residential parking demand in Downtown, as a result of the construction of new residential units, will be accommodated on-site within each development at the rates specified in the Downtown Specific Plan. Those parking ratios will be adequate to handle the parking requirements for new residential uses in Downtown. Also, as part of the Draft EIR analysis, existing parking demand and patterns were observed on typical weekdays and weekends. The parking surveys did not reveal any significant intrusion or spillover of residential parking onto City streets or into commercial areas. Parking

requirements in all other areas of the City, except Downtown, are not changed by the Draft General Plan.

Within Downtown, shared parking will occur between various commercial uses due to the proximity of land uses and the different times of day that parking is required by those uses. Therefore, within the Downtown area, the same parking requirements as throughout the remainder of City are not applicable. A commercial land use parking demand study was undertaken to identify the future parking demand for Downtown, taking into account the sharing of parking space resources. The future parking demand model revealed the number of spaces that would be required and recommendations are included to provide the number of spaces needed to handle future parking demand, taking the shared use of parking into account. No impacts of commercial or residential use parking onto other land uses in Downtown are anticipated.

C1-10: Private parking structures would need to comply with City of Livermore standards for parking structures. The Downtown Specific Plan design guidelines would be applied by the City of Livermore to any new structure in the Downtown area, including new parking structures.

Letter
C2

JOHN STEIN, 1334 KATHY COURT, LIVERMORE, CALIFORNIA 94550

July 8, 2003

Livermore Planning Commission
C/O Miss Susan Frost, Senior Planner
City of Livermore
1052 Livermore Avenue
Livermore, California 94550

Commissioners:

I have read the June, 2003 Draft General Plan and have the following comments and questions.

On the draft map there five light rail stations. Why are they not addressed in the noise, land use or transportation elements? 1

The map also has a number of parcels that have been designated permanent open space and the developer has granted easements to the City. These are located near Pulte, Valhallah, and Warmington projects. Why are they still shown as residential? 2

The map shows a number of potential park sites. Should the potential acreage be shown? 3

Based upon my long-term experience in commuting on RT-84 it appears that the level of service at the intersection of Vallecitos with Isabel Ave. the level of service is level F four out of five days. How was the rating of LOS D determined? 4

The traffic analysis is difficult to understand. There should be an explanation of the results both in terms of how pedestrian phases are accounted for and how increases in friction cased by diagonal parking and driveways are incorporated. At intersections with LOS F the actual volume to capacity ratio should be provided. What will the affect if unfunded regional improvements are not built on levels of cut through traffic? What assumptions were made on the No Project and No Development plan on planned local and regional improvements? 5

In the noise analysis the Daily Average Traffic numbers do not all agree with the traffic analysis for the Existing and No Project Alternative? Why? Will this affect the illustrated noise contours shown? The impact of ACE trains does not seem to be addressed in the noise element. Why? 6

In addition to public safety equipment won't staffing levels and number of emergency vehicle have to be disproportionately increased to account for increased traffic congestion and service provision in multifloor and multiunit structures? Why is ambulance service not addressed in the public services portion? 7

Letter
C2
cont.

Why are there two separate sites for the new movie theater along L Street? Will both be built? 8

In the past, the goal was to have growth pay its own way, now there is the goal of a "fair share" what is the difference and is there a specific definition of fair share? For completeness could the SAVE Initiative be included with all of the other existing City initiatives? 9

Is there any idea of how the TDR program will economically fit with the housing development of the existing City land? Will there be a goal in terms of dollars or acreage be included in the Transfer of Development Credits section? What will this goal be? 10

The General Plan says that growth can range from 140 to 700 units per year. The Downtown Specific Plan Says 200 units to downtown per year. Which of the lower growth limits takes precedence? How will the Housing Element be brought into compliance with the Proposed General Plan and proposed air quality moratorium? 11

Since the Downtown Specific Plan, General Plan and EIR are so interconnected could you please include these comments as part of my comments on the Draft EIR?

Thank you for the opportunity to comment.

Sincerely,

John Stein (925) 449-7896 stein53@aol.com

COMMENTOR C2
John Stein (July 8, 2003)

C2-1: See Response to Comment C1-7.

C2-2: The City of Livermore has continued to make revisions and corrections to Figure IV.A-1: Draft General Plan Land Use Designation (on page 67 of the DEIR). Revised Land Use Designation maps (DEIR Figure IV.A-1 and DEIR Figure III-3: Draft General Plan Revised Land Use Designations on page 41) are shown in Chapter IV of this document. Revisions to the map include identifying selected parcels as permanent open space.

C2-3: Potential acreage of land uses, including parks, is not shown on the Land Use Designation map. Additionally, the park symbol indicates potential, not specific, sites for parks.

C2-4: The methodology for determining the existing level of service for streets in Livermore is described on pages 96 through 104.

C2-5: Refer to Response to Comment C1-9 for an explanation of how pedestrian phases are accounted for in the intersection analysis. In addition to that response, note that it is anticipated that the traffic signal cycle time required for pedestrian movements will be equal to or shorter than the time required to clear vehicular traffic, therefore, the pedestrian phases are not anticipated to directly affect the intersection level of service.

At mid-block locations, the diagonal parking, driveways, and pedestrian crossings at unsignalized locations were accounted for in the traffic model by reducing the assumed capacity of First Street. Within the model, the assumed lane capacity of First Street was reduced to account for the change from four lanes to two lanes, and the assumed vehicular speeds were also reduced in the model to account for the additional friction that will occur as a result of the physical and operational changes to First Street. These model assumptions allow the redistributed traffic from First Street to other roadway facilities to be properly forecast and analyzed. Note that Appendix D-8, an explanation of the traffic model entitled *City of Livermore General Plan Travel Model Development*, has been added to the Technical Appendices document, and is included in Chapter IV of this Final EIR document. A copy of the travel model description document is also available for review at the Planning Division offices. Additionally, Appendices D-1, D-2, D-3 and D-6 have been updated and revised and are also included in Chapter IV of this document. None of the changes to the appendices affect the analysis and findings identified in the MEA and DEIR.

The intersection analysis results are based on the Highway Capacity Manual methodology of the Transportation Research Board. This methodology, which represents the most current national standard, bases the measurement of level of service on average vehicle delay, not on the intersection volume-to-capacity ratio. Using this methodology, volume-to-capacity ratio is not used to determine how well the intersection operates.

The Highway Capacity Manual methodology does produce volume-to-capacity ratios, however, they are not the basis of the level of service. The appendices to the EIR provide volume-to-capacity ratios, average vehicle delay and level of service for each intersection that was analyzed. Revised traffic appendices are included in Chapter IV of this document.

Unfunded regional improvements are not included in the traffic model. Regional improvements are based on the 2000 Regional Transportation Plan Track 1 projects, which are all programmed and funded. The same network assumptions were applied for all model runs.

C2-6: Traffic analysis is based on both AM and PM peak hour traffic flow as well as Average Daily Traffic (ADT), whereas noise analysis is based on Average Daily Traffic flow only.

C2-7: The EIR authors do not know of any relationship between increased traffic congestion and the need for a proportionate number of additional public safety staff and emergency vehicles. Ambulance service was not addressed in the public services section of the Draft EIR because it is a privately-owned for profit service.

C2-8: The Downtown Specific Plan supports the development of a cinema complex on the site located north of Railroad Avenue and west of L Street. To clarify the City's intent, the paragraph under strategy 4. item c. Catalyst Project #3 on page 3-6 of the Downtown Specific Plan shall be revised as follows

> Groth Brothers Site (northwest corner of First and L Streets) – Consider ~~possible entertainment~~ uses on this site ~~(e.g., movie theatre)~~ that can be a catalyst/anchor for ~~complementary uses, including~~ restaurants, entertainment (such as live music, comedy clubs or similar uses) retail or second-story office space.

C2-9 The comment appears to relate to a goal within the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR. The text of the SAVE initiative will be included as an appendix (D) for the Draft General Plan.

C2-10 The commentor seems to be referring to the Transferable Development Credits Program (TDC) program contained in the Draft General Plan. A first phase study of the TDC program is currently underway and will be available to the public by the end of September 2003. CEQA does not require an analysis of the financial impacts resulting from a proposed project. The purpose of CEQA is to provide an analysis of the potential adverse *physical* impacts of a proposed project.

C2-11: Draft General Plan policies LU-2.1.P6 through P10 address the residential growth policies of the City of Livermore.

Letter
C3

JOHN STEIN, 1334 KATHY COURT, LIVERMORE, CALIFORNIA 94550

July 18, 2003

Planning Commission
City of Livermore
1052 Livermore Avenue
Livermore, California 94550

Chairman West and Planning Commissioners:

At your Draft General Plan Environmental Impact Report meeting on July 15, 2003 I pointed out that the new EIR failed to address the cumulative impacts of potential changes in use in the North Livermore Area. Mr. Marc Roberts, the Director of Livermore's Development Services strongly stated that impacts of changes did not have to be addressed. He stated that because of the initiative process the City not have do an EIR at that time. Furthermore, no City EIR will ever be required in the future, cumulative impacts of changes in that area do not have to be addressed and new City Projects in that area will not require EIR. Only other agencies will have to provide environmental analysis. While I respect Mr. Roberts planning experience and knowledge I disagree. I am also concerned about the City's potential exposure to future litigation.

The California Environmental Quality Act attempts to balance the need for reporting to the decision makers and the public the environmental changes caused by land use changes or other projects with environmental effects with other governmental concerns. One of these concerns is the ability to allow for citizen sponsored initiatives without the chilling effect of requiring expensive environmental studies(1).

1

This concern is addressed in the CEQA Guidelines 15378 (b) (3) which states "A project that requires an EIR is not.... The submittal of proposals to a **vote of the people** of the state or of a particular community." It should be noted that while an initiative is not a project for the purpose of triggering an EIR there is no mention of extension of time after an initiative is adopted. The presumption can be made, that since an EIR is primarily designed to ring a warning bell about environmental impacts, future EIRs should address the cumulative impacts resulting from a proposal approved by a vote of the people.

There is also a case that states that discretionary acts of the decision making body require an EIR (2). The Livermore Council majority used their discretion to directly adopt the initiative. The same majority also voted not to let the staff do a preliminary assessment of environmental impacts and refused to do any environmental assessments after the fact. It could appear to an outside observer that the council majority was intent on evading the CEQA requirements.

Finally, the guidelines refer to the proposals being submitted to the voters. It should be questioned if there was ever any intent to submit this proposed Initiative to the voters. First, the Mayor and two council members said that if enough signatures were collected

Letter
C3
cont.

they would consider adopting the initiative without a vote. They worked with and gave input to the initiative supporters in drafting the initiative. The signature gatherers say they told signers the initiative would not have to go to a vote. They collected a much larger number of signatures than required and asked that the Council directly adopt the measure. The same majority without a vote, bypassing the electorate, adopted it. This could be considered a City sponsored initiative. It has been ruled that a City sponsored initiative **does** require an EIR [3]. Also the issue, on its face, does not meet the requirements for placement before the voters.

This is a complex topic and I am sure that lawyers could write interesting and creative briefs for both sides. I am not sure which is the stronger argument or which way the courts would decide. I cannot find any blue-line law on the issue. I do not believe that the issues have yet been fully tested in court. Please get an independent evaluation of the risk to Livermore. Please ask Mr. Roberts to give his justification for this opinion.

1 cont.

While I am certainly not an attorney I have been involved on various sides of referenda and initiatives for over twenty years, I have attended City Attorney land use seminars at League meetings for 15 years and enjoy reading legal briefs. To quote a former City Attorney "It is better to do things right than to do them over". It would be foolish to place a two million-dollar General Plan at risk without a legal opinion.

Thank you.

Sincerely,

John Stein (925) 449-7896 stein53@aol.com

Cc: Susan Frost, Senior Planner

Footnotes:

1. This was litigated in *John J. Stein v. the City of Santa Monica (1980) 110 Cal.App.3d 458)* No relation.

2. See *Richard M. DeVITA et al., Plaintiffs and Appellants, v. COUNTY OF NAPA et al., Defendants and Respondents*. 9 Cal.4th 763 No. S037642. Supreme Court of California, In Bank. March 6, 1995

3. See *FRIENDS OF **SIERRA MADRE** et al., Plaintiffs and Appellants, v. CITY OF **SIERRA MADRE** et al., Defendants and Appellants.* No. S085088. Supreme Court of California. March 29, 2001

COMMENTOR C3
John Stein (July 18, 2003)

C3-1: The commentor notes that the Draft EIR should have analyzed the environmental impacts of potential changes in the North Livermore area or, alternatively, that the City should have analyzed the environmental impacts of the North Livermore Urban Growth Boundary Initiative (NLUGBI). The NLUGBI completed an urban growth boundary (UGB) around the northern edge of the City and excluded urban development outside the boundary. The City Council adopted this initiative in December of 2002. At the time of initiative adoption, Council had the discretion to request an environmental impacts analysis pursuant to the Elections Code prior to adopting this voter-sponsored initiative. The Council opted to not obtain such an impacts report, which was a legally proper action and an action to which the Council was legally entitled. See Response to Comment A5-1 regarding the use of environmental analysis tiering and the timing for individual projects that are proposed in the North Livermore Area. All other comments regarding the initiative process are noted.

Letter
C4

JOHN STEIN, 1334 KATHY COURT, LIVERMORE, CALIFORNIA 94550

July 20, 2003

Historic Preservation Commission
City of Livermore
1052 Livermore Avenue
Livermore, California 94550

Commission Members:

I am sorry that I will be out of town on the date of your meeting. I do, however, have some questions and concerns about the New General and Downtown Specific Plans (DSP) and the Draft EIR. Most of these focus on the Downtown where the largest number and oldest city buildings are located. In fact much of the charm of the existing downtown is due to the many small and irregularly spaced buildings and odd shaped lots. We are depending upon that charm and historical character to form the basis of a commercial and tourist based revival. It would be a shame to lose most of it.

Under the new plans the major economic pressure seems to be to demolish many of the downtown core's older mercantile buildings to allow the assembly of parcels for efficient construction of large residential structures with first floor commercial uses and the required large parking structures. These buildings require the assembly of large compact lots to allow for design freedom and maximizing the ratio of parking to ramp structures. 1

While the Downtown Specific Plan seems to devote most of its historical section to design and case studies it does not seem to give specific goals or actions for protecting or preserving more than a handful of existing buildings (about 10). Only for two buildings does there seem to be an absolute standard for preservation. Why? More effort seems to be to creating new buildings with a historical appearance than protecting and preserving existing buildings.

Questions:

Why are the height limits and setbacks between new tall buildings and historic structures so meager? Based upon architectural history it would seem that the golden section or ratio would be a better and simpler starting point. This means that a new building would have to be set back 1.6 times the difference in height. For example a 36 foot high building next to a 16 foot building would have to have a 32 foot set back ((36-16)X1.6). 2

How were buildings assessed for historical significance? There is a figure, 4-8, showing historical ratings but no list or study explaining how this map was generated. Which buildings were considered? Which architectural styles were considered important? Which historic individuals and events were considered of importance? While there are a list of resources used how were individual issues weighted? Were large assemblies of 3

Letter
C4
cont.

buildings evaluated together as a potential mercantile district? Were buildings considered individually or were groupings given special consideration? 3 cont.

While the General Plan historical policies are good where are the specific goals and implementation? Why are all of the design decisions on protecting historical buildings discretionary? Why are there no funding source set-asides for historical preservation? 4

There is a table in the DSP but no title, explanation of the ratings, or how they were obtained. They are cryptic ratings like 6Z, what do they mean? What for example do NHRP and NHRP mean and how are they different? Where is a map to show the location of all these buildings? 5

The Secretary of Interior's Standards for the Treatment of Historical Buildings is a 177-page document. Why is so many of the applicable techniques and standards left out? Alternatively why are parts of it included in the DSP in place of a study identifying a broad range of historic structures and specific ways of financially and through government regulations protecting, repairing, rehabilitating and restoring them? 6

I am concerned that rather than building on Livermore's fertile historical past and the buildings that give it a concrete form, this plan seems to ignore most of these buildings. The plan seems to allow even encourage their demolition and replacement with the construction of a new more modern buildings with historical appearance. 7

How will this massive change affect Livermore's historic appearance and the ability to continue to be a vital part of the tourist-based wine-growing region?

I would hope that the questions in this letter would be included in the Draft EIR Comments.

Thank you.

Sincerely,

John Stein (925) 449-7896 stein53@aol.com

Cc: Susan Frost, Senior Planner

COMMENTOR C4
John Stein (July 20, 2003)

C4-1: This letter is addressed to the Historic Preservation Commission. In the final sentence the commentor states that he "would hope that the gist of this letter will be included in the Draft EIR Comments." Specific comments relating to analysis contained in the Draft EIR are answered in this and the following responses. This comment relates specifically to goals, policies and actions contained in the Downtown Specific Plan and does not identify errors or inadequate analysis contained in the Draft EIR. Additionally, see Response to Comment C1-2.

C4-2: This comment relates specifically to goals, policies and actions contained in the Downtown Specific Plan and does not identify errors or inadequate analysis contained in the Draft EIR. Additionally, see Response to Comment C1-6.

C4-3: Historical resource analyses were conducted for the Downtown Specific Plan and the Draft General Plan. See Response to Comment C1-2.

C4-4: The comment relates specifically to policies and actions in the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

C4-5: See Response to Comment C1-2 regarding the Historic Resources Inventory conducted for the Downtown that is available for public review.

C4-6: The comment relates specifically to policies and actions in the Downtown Specific Plan and does not identify errors or inadequate analysis contained in the Draft EIR. Also see Response to Comment C1-2.

C4-7: The comment relates specifically to policies and actions in the Downtown Specific Plan and does not identify errors or inadequate analysis contained in the Draft EIR. Also see Response to Comment C1-2.

Letter
C5

JOHN STEIN, 1334 KATHY COURT, LIVERMORE, CALIFORNIA 94550

July 29, 2003

Miss Susan Frost, Senior Planner
City of Livermore
1052 Livermore Avenue
Livermore, California 94550

Dear Miss Frost:

The Livermore Draft General Plan and Downtown Specific Plan Environmental Impact Report (DEIR) together with its support documents is a complex and somewhat user-unfriendly document. There are a total of six separate but interrelated volumes with no single unifying index or table of contents. There is no clear way of determining how some of the appendices relate to the main document. There also may be some specific errors both in wording and in content. I have noted some of them in my comments and letters to the Planning Commission, Historical Preservation Commission and staff. 1

It is important that the form and content of the DEIR be clear and understandable: to the general public to allow meaningful comments, and to the decision-makers to allow them to fully understand the alternatives and their impacts and mitigations. While there is a great deal of useful information presented in these documents I am not sure it meets this standard. What action is planned to improve the publics ability to comment more fully and effectively? While there has been the form of meetings that allow for public comment the reality seems to have been to ignore much of that input in favor of a predetermined outcome. The scheduling and incomplete documentation is the result of wanting to maintain a schedule rather than wanting to have the public comment in any significant way. 2

The major difficulty with the DEIR is the lack of completeness, which limits the ability of the public to offer meaningful comment or to judge the reasonableness of the document or the final plan. The single largest missing component of the DEIR needed to address the cumulative impacts is any description of what could happen in North Livermore. Other missing components are: any financial analysis of the Draft Downtown Specific Plan (DSP) and the Draft General Plan (GP), how a Transfer of Development Credits or Rights (TDR) will affect densities and other land use effects, an understandable traffic analysis and what changes might be required to gain State agreement that the Housing Element has come into compliance. Again, with so many significant missing components it is impossible for the public to evaluate the feasibility or reasonableness of the various alternatives or their potential individual and cumulative environmental impacts. How and when will the public gain sufficient information on these issues to be able to comment fully and meaningfully on the DEIR? How can proceeding with the Final EIR be justified? 3 4 5

The lack of any analysis of North Livermore is the single largest hole. The most likely outcome is voter-approved development either in the City or County. The next most likely is development of intensive irrigated agriculture. The least likely is that nothing at all will happen. The potential impacts of development are massive. It could be argued that since voters there will take the actions is no way for the City of Livermore to mitigate the impacts. This is false; the DEIR by informing the voters of the cumulative impacts helps them to make decisions that will limit the impacts. This is one of the few cases where the EIR is in a sense self-mitigating. **6**

I am curious, what procedural, legal or environmental basis convinced an experience planning staff, legal staff and a broad of set of well recommended consultants to do a DEIR that ignored the potential cumulative impacts of changes to a large developable area right on its boundaries? Was this decision was unanimous or how was consensus reached? **7**

The DSP implementation looks very expensive with a number of "incentives", utility upgrades, street changes, architectural upgrades and land and relocation costs. There is no financial analysis. Property tax loss to the Redevelopment Agency will affect operational funding. Where will the funding come from to do all these things as well as provide for the required citywide environmental mitigations? How will these additional costs affect the ability of the city to maintain its existing levels of service and needed capital improvement program? How will this affect existing residents? The financial analysis is scheduled for a later date. How will the public be able to offer meaningful comment before the preparation of the final EIR? **8**

In the appendix over 215,000 square feet of existing commercial development and over 70,000 square feet of restaurant uses are proposed to be removed from the downtown. Most or all of these businesses may go to other communities or not remain in business. How much loss of sales tax revenue does this represent? Where is the map showing the TAZ block locations? **9**

In the same way the TDR program will have large financial costs and environmental impacts and is an integral part of the new GP. It has not yet been completed. How can the public offer meaningful comments on the GP without the availability of this study? How can anyone determine the reasonableness of the entire GP's set of alternatives with so much information missing? How can any complete public response to the new GP and DSP be offered? **10**

Measure D has not yet been finally decided. If it is defeated on appeal what impact would that have on the DEIR? I realize this is a low probability event, yet one with potentially major impacts. Why was this possibility not addressed? **11**

There does not seem to be an understandable traffic study only some raw data and output tables of selected results. Is there a clear description of the logical operation of the model? How was the trip generation for each of the proposed GP options determined? **12**

Where are the TAZ blocks identified? Which road improvements are included for each option? How was the impact of traffic calming modifications to streets such as Murdell, South L Street and other heavily traveled residential streets that may be modified in the future handled. Twenty-five streets are planned to be modified over the next 25 years. These could include College Avenue, Fourth Street, Vancouver, El Caminito, North L Street and North and South Livermore. Downtown how did the model accommodate the light rail station, the increased pedestrian traffic, more driveways, diagonal parking, and the increased number of cars looking for parking? How can people find how streets and intersections near their homes will be impacted by the GP? Why is it that only if they exceed level D are they included in the DEIR tables? **13**

Why is there no comparison of proposed and standard size park and school sites? The LARPD minimum neighborhood park site is 5 acres. Schools are elementary 10 acres, middle 20 acres and high school 40 acres. What is the size of Fifth Street school site? Where is the new needed middle school site? Didn't the Steering Committee support keeping the current requirement that sites be designed for required schools? Where will the approximately 1700 downtown students find school spaces? Where will the youngsters find places play catch or basket ball, to bike and roller blade? Can a study of future park sites or school sites be used as mitigation? **14**

In the downtown why were residential parking requirements substantially reduced without any Steering Committee input? What are the justifications for the reductions? Mr. Freedman said that 2.25 spaces per unit would be the standard, why are we down to 1.1 spaces per unit for some homes? What are the risks if these justifications are not valid? Will we see parking management techniques like parking meters, gated lots, alternate side of the street parking, residential parking permits and towing? **15**

Why have the downtown residential public and private open space requirements been reduced without Steering Committee input? What percentage of these spaces must be landscaped? **16**

The Center for Disease Control has put out a study showing that people who live in the suburbs are healthier that those who live in cities or small towns. The majorities of the new homes in the preferred alternative are shown near railroad tracks, heavily traveled truck routes and surrounded by heavy industrial and commercial uses. There is gridlock traffic with increased air pollution. Could the added stress have health effects and how should they be addressed? In the event of conflicting uses in a mixed use environment which has priority, public health or the right of a business to carry on in the most profitable manner consistent with state law? How will these conflicts be decided? **17**

In the air pollution section why are not increased particulate levels caused by construction evaluated? With 10-25 years of construction downtown as well as the upgrading and replacement of utilities through the city why is this not a major impact? **18**

One potential solution to the lack of a full and complete DEIR would be to submit the final DSP and GP to a vote of the people before adoption. This could help clarify the **19**

issues and provide a more balanced and complete idea of both the feasibility and array of cumulative impacts to the public.

19 cont.

Thank you.

Sincerely,

John Stein (925) 449-7896 stein53@aol.com

COMMENTOR C5
John Stein (July 29, 2003)

C5-1: The EIR authors do not agree with the comment that the Draft EIR does not meet CEQA standards for clear and understandable form and content. Rather, the Draft EIR, across three volumes addresses: setting, impacts and mitigation measures, and technical background information. The Draft EIR provides a carefully formatted and clearly written detailed presentation of setting information, potential impacts and then specifically links each potential adverse impact to mitigatory policies in the Draft General Plan and Downtown Specific Plan. In many instances, the mitigatory policies in the Plans derive from the iterative process used to prepare them: i.e., preliminary impact findings were used to develop internal mitigation. Such a "self-mitigating" plan (in which the eventually proposed plan can be found to create very few or no significant adverse environmental impacts) is entirely consistent with CEQA and the *CEQA Guidelines*. Sufficient documentation on setting, impacts, mitigation measures and alternatives is contained in the Draft EIR for the public and decision-makers to understand the issues and make a decision. Each appendix included in the Technical Appendices document is identified in the appropriate topical section of DEIR. The Technical Appendices are listed in the Table of Contents for the MEA and the DEIR. The public has had ample opportunity to comment on the preparation of the Plans and the Draft EIR, and will have additional opportunities at the hearings before the Planning Commission and the City Council.

C5-2: The public has been provided extensive opportunities to comment on the Draft EIR, Draft General Plan and Downtown Specific Plan. A public hearing for the Draft EIR was held before the Planning Commission on July 15,2003. Public hearings before the Planning Commission for the Draft General Plan and Downtown Specific Plan have been held on the following dates: July 22, August 14, August 26, September 4, September 9, and September 11, 2003. Meetings before the Redevelopment Project Area Committee and Design Review Committee were held on July 16, 2003, and before the Historic Preservation Commission on July 24, 2003. Additional hearings are scheduled for Planning Commission on September 23, 2003 and before the City Council on September 29, October 13 and October 20, 2003. The hearing schedule and related staff reports have been made available on the General Plan Update website. See Response to Comment C5-1 regarding documentation in the Draft EIR.

C5-3: See Response to Comment C5-1 regarding completeness of the Draft EIR and the public's ability to comment. Land use designations are identified for areas in north Livermore and potential development scenarios in north Livermore are addressed in the Draft General Plan and in the alternatives section. The North Livermore Development Alternative was considered but rejected from further consideration because it did not meet the basic objectives of the proposed project and deemed to be infeasible as determined by the lead agency, the City of Livermore.

C5-4: See Response to Comment C1-1 regarding financial analysis. See Response to Comment C2-9 regarding Transferable Development Credits. See Responses to Comments C1-5 regarding the traffic analysis. The draft Housing Element has been made available to the public as early as June of 2002 and continues to be available to the public. The Planning Commission recommended approval of the Housing Element to the City Council on August 19, 2003 and the City Council is scheduled to consider approval of the Housing Element on September 15, 2003.

State law requires housing elements be updated every five years. The City received an extension from the State to complete an update of its Housing Element. As noted, the State Department of Housing and Community Development (HCD) responded to the Element and revisions to the Element were necessary. Staff and consultants incorporated HCD comments into the draft Element. HCD has reviewed these changes and has found the revised July 2003 Draft Housing Element to be in compliance with State law. On August 12, 2003, the City received a letter from HCD verifying compliance. A negative declaration has been prepared analyzing the environmental impacts of the policies contained in the Housing Element.

C5-5: See Response to Comment C5-1 regarding the public's ability to comment. See Response to Comment B1-15 regarding alternatives.

C5-6: Comment noted regarding potential development in north Livermore. See also Response to Comment C5-3.

C5-7: Foreseeable cumulative impacts from probable future projects in the vicinity of the City of Livermore were identified in the DEIR on pages 245 to 249. Under current planning and zoning in Alameda County and per stated County and City policy, the north Livermore area is not a feasible future project at this time.

C5-8: See Response to Comment C1-1 regarding financial analysis of the Downtown Specific Plan.

C5-9: See Response to Comment C1-3.

C5-10: See Response to Comment C2-9 regarding the TDC program. See Response to Comment B1-15 and C5-3 regarding alternatives.

C5-11: Measure D was decided in favor of Alameda County in July of 2003.

C5-12: The EIR authors disagree that the traffic analysis is not understandable. The methodology, traffic model and trip generation assumptions are described in the DEIR on page 95. The same trip generation assumptions were used for each alternative evaluated in the DEIR. See also Response to Comment C2-5.

C5-13: Comment noted and a TAZ map is provided in Chapter IV of this document.

The Appendix D: Traffic lists the location of all proposed roadway improvements. Roadway widenings and intersection improvements are listed in the traffic section and Appendix D materials. Neighborhood traffic calming and associated physical or operational modifications to the local residential street system must be conducted specifically for each street and each affected neighborhood when it occurs. Within the context of the Draft General Plan it is neither feasible nor appropriate to identify measures on local residential streets for a long-term plan. The traffic model is designed to forecast traffic flow on collector streets, arterial streets and the freeway system. Should traffic volume changes occur on local residential streets in the future, those changes would be addressed through the normal City process, which addresses speeds and traffic volumes on local streets via neighborhood traffic calming and other appropriate measures.

No light rail station was assumed in the Downtown traffic analysis. See Response to Comment C1-8 regarding pedestrian traffic and C1-9 regarding parking.

The EIR appendices provide the analysis results for all intersections that were included in the Draft General Plan analysis, including those at LOS D or better. Only those at LOS E or F have proposed improvements beyond the Circulation Plan.

C5-14: See Responses to Comments A5-11 and C1-4 regarding the provision of parks. See Responses to Comments B1-5, B1-6, and C1-4 regarding school and park sites.

C5-15: See Response to Comment C1-9 regarding parking.

C5-16: The comment relates specifically to policies and guidelines in the Downtown Specific Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

C5-17: Comment noted. It is unclear from the comment what analysis in the Draft EIR is inadequate. Potential adverse impacts related to land use conflicts, noise, air quality and traffic were addressed in the Draft EIR.

C5-18: Potential impacts related to construction-related emissions, including fine particulate matter (PM_{10}), are described and evaluated in the DEIR on pages 154 and 156.

C5-19: As stated in Response to Comment C51, the EIR authors do not agree with the comment that the Draft EIR is not full and complete. Comment noted regarding submitting the final Downtown Specific Plan and Draft General Plan to a vote of the people prior to adoption.

Letter
C6

William L. Clarke, P.E., L.A.
Civil Engineer . Landscape Architect

July 30, 2003

Community Development Department
City of Livermore
1052 S. Livermore Ave.
Livermore, CA 94550

Attn: Susan Frost, Senior Planner

Re: **Environmental Impact Report for the Livermore General Plan Update and Downtown Specific Plan**

Dear Ms. Frost,

We have the following comments on the Draft General Plan and Draft Environmental Impact Report (DEIR) dated June 2003.

Significant impacts relating to ability to meet regional housing fair share are not addressed in the DEIR

The DEIR (Vol II, page 79) states that implementation of the draft General Plan would have a significant impact pertaining to population, employment and housing if *"the project would hinder the accomplishment of projected "fair share" housing needs."* The analysis in the DEIR does not take into account the impact of the Greenville TOD policies and as a consequence does not identify nor mitigate a significant impact.

The General Plan and DEIR assumes that all 11,860 new housing units in the plan will be constructed by 2025. It goes on to state that this is about a 37% growth in housing and this percentage is consistent with ABAG's regional fair share allocations (Vol II, page 80). These statements do not take into account the following land use policy which limits, if not prevents, a large percentage of these homes being constructed by 2025. 1

Policy LU-3.1 P2 (GP page 3-36):

> *"Development of the BART TOD shall be contingent upon BART establishing a firm timeframe and funded extension of BART services to the Greenville area."*

There are 4,474 new housing units and 3,744 new jobs in the Greenville TOD that are allowed only if such a commitment is received from BART. This is a significant constraint on the development of this housing. This constraint must be evaluated in the project EIR.

P.O. Box 516 · Ross, California 94957 · Phone: 415.459.1845 · Fax: 415.459.1341 · Email: marinclarke@att.

Further to this point, rather than a 38% increase in population by 2025 (Vol II, page 80) the increase would only be 10% in the event this housing cannot be constructed due to the policy limitation imposed by Policy LU-3.1 P2. This is significantly different than the 37% growth (Vol. II, page 80) allocated to Livermore in the regional fair share numbers.

The EIR must at a minimum evaluate the possible consequences of this land use policy on the City's ability to meet its regional housing fair share. Further, as it seems unlikely that BART will commit and fund an extension to Greenville any time early in the period from 2003 to 2025, the environmental document must evaluate the possibility that none of this housing is constructed during this period. To not do so would be to conjecture about an outcome that the EIR author cannot reasonably forecast as a certainty.

1 cont.

The mismatch in the General Plan between jobs and housing constitutes a significant unidentified environmental impact

The DEIR (Vol II, page 81) states that the jobs/housing balance in the draft plan is 2.2. This compares with a stated jobs/housing balance in the city today of 1.6. The plan goes on to say that a ratio of 1.5 is ideal. The DEIR also states that implementation of the draft General Plan would have a significant impact pertaining to population, employment and housing if the project would create a substantial jobs/housing imbalance (Vol II, page 79).

The General Plan anticipates growth of 11,860 new housing units and 46,460 jobs. This translates to 3.92 new jobs per new home; compared with the stated ideal of 1.5 jobs per home. Were one to consider the affect of the land use policy preventing the development of the Greenville TOD (see discussion above) the imbalance between jobs and housing would be 7,386 new homes in the plan against some 42,716 new jobs. This would result in some 5.8 jobs for each new home.

2

We submit that the 2.2 jobs/housing balance ratio reflected in the DEIR, as well as the fact that creating from 3.9 to 5.8 new jobs for each new home, will result in a substantial jobs/housing imbalance and that this significant impact is not addressed in the DEIR.

The Housing Element to the General Plan is not available to the public and no meaningful analysis of the jobs/housing situation can be made in the absence of this document.

The General Plan states (pages 1-5 and 1-7) that the Housing Element *"...was updated by the City in 2003 and is a stand alone element."* This is an erroneous statement. The City currently has no approved Housing Element.

3

The current Housing Element expired at the end of 2001. In mid-2002 the City issued a draft Housing Element which was reviewed by the city council and forwarded to the State for review. It is our understanding that the State responded to the draft Housing Element and suggested that the element would need major revisions in order to be

certified as adequate. As of this date no revised Housing Element has been issued by the City.

It is not adequate to evaluate the population, employment and housing impacts of the General Plan policies in the absence of a Housing Element. At the very least the DEIR should admit to the existence of a draft Housing Element and evaluate the General Plan against proposed policies.

3 cont.

The City must publish a draft Housing Element and evaluate the General Plan against the policies of this Housing Element. As an alternative a complete, separate draft EIR could be prepared at such time as the Housing Element is available so as to evaluate the impact of the policies of the element on the General Plan as considered in these General Plan documents.

Thank you for this opportunity to comment on the General Plan DEIR. We look forward to the above issues being addressed in the Final EIR.

Sincerely,

William L. Clarke

cc: Mr. Martin W. Inderbitzen
Mr. Jim Tong

COMMENTOR C6
William L. Clarke (July 30, 2003)

C6-1: The EIR authors disagree with the statement that the analysis of fair share housing in the Draft EIR did not take into account Greenville TOD policies. No fair share housing was allocated to the Greenville TOD area. Therefore, the City's commitment to meeting their fair share allocation is not contingent on the development of the Greenville TOD area.

C6-2: Comment noted. Because of factors associated with the location of job centers, housing development, and available transportation choices, jobs/housing balance is a regional issue. The City of Livermore has included objectives and policies in the Draft General Plan and the Downtown Specific Plan (see DEIR pages 75 through 82) that strive to provide more opportunities for residential development and a more balanced jobs/housing ratio within the City limits.

C6-3: The commentor notes that the Housing Element is not available to the public and, therefore, no meaningful analysis of the jobs/housing situation can be made. The draft Housing Element has been made available to the public as early as June of 2002 and continues to be available to the public. The Planning Commission recommended approval of the Housing Element to the City Council on August 19, 2003 and the City Council is scheduled to consider approval of the Housing Element on September 15, 2003.

State law requires housing elements be updated every five years. The City received an extension from the state to complete an update of its Housing Element; therefore, the City disputes that its Housing Element has "expired". The commentor notes that the State Department of Housing and Community Development (HCD) responded to the element and that revisions to the element were necessary. Staff and consultants incorporated HCD comments into the draft report. HCD has reviewed these changes and has found the revised July 2003 Draft Housing Element to be in compliance with State law. On August 12, 2003, the City received a letter from HCD verifying compliance. A negative declaration has been prepared that analyzes the environmental impacts of the policies contained in the Housing Element.

Letter
C7

Susan Frost, Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550
FAX: 960-4459

July 29, 2003

Reference: Comments on the Livermore Draft General Plan and Downtown Specific Plan Environmental Impact Report

Dear Ms. Frost,

My comments are listed below. I will follow my fax with a hard copy via U.S. mail.

Sincerely,

Katie Myers
2552 6th Street
Livermore CA 94550

1. On page 11 of Volume II, you mention purchasing A/C units to mitigate for airport noise. This sounds ineffective. People without A/C in their homes typically open up their windows at night to let cool air in, then seal it in by closing their windows during the day. There are few flights during the night when windows are open, and many during the day, when windows are closed. The best solution to noise abatement would be for those homeowners to buy double-pane windows. While the A/C units would be a very nice gesture, they don't solve the problem. Anyone who purchased a home in the airport protection area probably knew of the noise issue when they purchased the home. If there is any doubt of potential buyers awareness of this issue, then the City should require that legal documents be involved with the sale of any home in the airport protection area. These documents should disclose the noise issue, and require the buyer's signature before close of escrow. **1**

2. On page 22 of Volume II, Goal LU-17, shouldn't Dublin be included in the coordination?

3. Page 24 of Volume II: add green building and LEED criteria to Goal CC-2.

4. Page 51 of Volume II: objective #12 should be re-examined. Civic buildings should be placed outside of the downtown core. These buildings need convenient parking, not only for the numerous employees, but the visitors as well. For instance, for the resident stopping in for a quick consultation with the building **2**

COMMENTOR C7
Katie Myers (July 29, 2003)

C7-1: Airport-related interior noise levels would be reduced to a less-than-significant level through the closure of windows. Therefore, no building facade upgrades such as double-pane windows would be required. The air conditioning system, a method of mechanical ventilation, is recommended to ensure that windows can remain closed for prolonged periods of time (during daytime or nighttime periods) while maintaining adequate air exchange inside buildings.

C7-2: Refer to Response A11-6 regarding coordination with Dublin. LEED criteria are addressed in Policy CC-2.1.P5. Comment noted regarding location of civic buildings outside of the Downtown core. The Downtown Specific Plan includes detailed development and design standards for future residential and commercial development. In addition to the standards outlined in the Downtown Specific Plan, future development must be consistent with the broader Community Character Element goals, objectives, policies and actions contained in the Draft General Plan. Comment noted regarding avoidance of farmland in future development.

C7-3: The installation of recycled water pipe is not always possible because of existing health code requirements, which mandate that potable and non-potable water lines be separated by a minimum of ten horizontal feet. Comment noted regarding the need to educate people about recycled water.

C7-4: Although the City supports the use of green construction and development techniques, the implementation of green building practices is not required to mitigate significant environmental impacts to a less-than-significant level.

Letter
C8

Comments on Environmental Impact Report on Livermore General Plan by Valerie Raymond

RECEIVED
JUL 2 9 2003
COMMUNITY DEVELOPMENT DEPARTMENT

July 29, 2003

Planning Department
City of Livermore

COMMENTS ON EIR FOR PROPOSED GENERAL PLAN

General Comments:

This EIR, I believe, is a fundamentally inadequate document because it fails to explore a range of reasonable alternatives. Instead it sets up a group of "strawman" alternatives that seem designed to demonstrate that the preferred alternative is the only realistic option. This does not reflect on the consultants or city staff but is the result of the unreasonable constraints that were imposed on the General Plan process by the City Council majority. General Plans are supposed to be comprehensive in their scope. It is hard to argue that this one is. For 30 years the city of Livermore has been planning the eventual urbanization of the North Livermore area. As city officials have testified to on several occasions to the Alameda County Board of Supervisors, the City has laid pipes in furtherance of its plan to allow for that to happen. Its circulation element, in particular, has been laid out to provide appropriate linkages throughout the city that are not possible if that area stays undeveloped.

Yet, the EIR doesn't even discuss this issue or evaluate any of these impacts. It seems obvious that the EIR should have addressed the consequences of the very restrictive UGB that was put in place by the council majority on December 16, 2002. The presence of that UGB and the decisions it is forcing the City to take have not been analyzed. Why? For example, the EIR (Vol. I, page 149-150) states that the City has a current shortfall of approx. 110 acres of community park - i.e. 3-4 parks of 30-40 acres each. How could a comprehensive general plan address this shortfall? Is there a discussion of how this shortfall might be addressed, or the rather obvious point that with a very restrictive UGB that leaves very little vacant land available for any use, there probably is not enough land available to ever make up this deficit? Also, where will the General Plan find the 57 acres of new community parks to accommodate the population increase shown? **1**

Similarly, the UGB has a considerable impact of the ability of the City to provide adequate school sites. Why are there are no middle school sites identified in the plan or any discussion of whether additional middle schools will be needed? In the North Livermore Specific Plan, which had almost the same mount of housing, there were two middle schools planned. Surely at least one is needed to accommodate the population planned for this GP? Again, why are the consequences to school site availability as a consequence of such a restrictive UGB not evaluated. What about adequate sized elementary school sites? **2**

The circulation impacts of the UGB should also have been explored. Two significant road connections were part of the City's previous GP. These connections would have provided significant traffic relief and would have connected the Springtown/Vasco area to the Las Positas Community College/TKG Business Park area. The Plan calls for a circulation element that provides good connections throughout the City. (G.P. p.5-21, Objective CIR-2.1) How is this goal being met when the approx. 15,000 residents north of I-580 are forced to use either the freeway or a circuitous route south of the freeway in order to access their own community college or the jobs in that area? There are anecdotal reports of it taking people as much as 40 minutes to get between these two parts of town. **3**

The EIR is particularly confusing with respect to the issue of adequate housing. It seems almost Alice in Wonderlandish to throw out a previous plan that contained almost all of the housing that the community planned to meet its future needs, and then say, in effect, oh look how much better our new plan is to the now totally denuded current plan because it does a much better job of meeting our housing needs and jobs/housing balance! (Vol. II, p.81) Never mind that the previous plan had a much better jobs/housing balance than the preferred plan - that's off the table, we can't even mention it. **4**

The Plan has a policy that the City should aim for a jobs/housing balance but the Preferred Plan conspicuously fails to do so. (G.P. pages 3-8 and 3-30, Policy P2). The explanation for this failure is that other values, such as community character and open space, were more important. How was this determination made? Arguments for the UGB said that a jobs/housing balance could be achieved within the existing City boundaries. The alternative that would have achieved a jobs/housing balance was also contained within the city limits, would have no impact on open space, and would cause little more change to community character than the Preferred Plan, since community character has already been substantially impacted by the almost total shift to multi-family housing shown in the Preferred Plan. How would the additional multi-family housing shown in the Balanced Alternative change community character that much more? **5** **6**

In Policy 9 there is a disconnect between the 200 units that would be set aside for downtown housing for 10 years and the 140-700 range for the growth rate. What prevails - the former or the latter? Why is there no discussion as to what the implications for the city would be if the rate were set at the low end and the downtown were to be the only place that housing would be allowed for as much as 10 years? Is the effective limit 2000 units or 10 years? **7**

Comments on Vol. I – Master Environmental Assessment

On page 23 of Vol. I (MEA), there is a discussion of restrictions under Measure D. This discussion is totally inadequate. The claim is made that Measure D "effectively limits the potential for new residential uses." This is incorrect. Measure D has explicit language that nothing in Measure D shall prevent the County from meeting its state housing obligations. The County has committed to the judge hearing the Measure D court challenge, that it would absolutely meet its housing obligations. It is very clear that the County can, indeed must, breach the UGB if necessary to meet that obligation. Currently the County does not have an approved Housing Element and, given the very tight UGB imposed by Measure D are certain, over time, to not be able to meet their needs within the UGB. The North Livermore area is virtually the only unincorporated area that meets other Measure D requirements that development outside the UGB must be next to existing infrastructure and below a 25% slope.

Indeed, the Amicus Brief filed by the cities of Berkeley, Oakland, Albany, Pleasanton and Livermore, makes the following conclusion: "Measure D, in contrast, is a clear statement by the voters that however much they value open space and agriculture, affordable housing comes first. As such, Measure D is more closely attuned to state law than the land use plan it amended and explicitly subordinates itself to housing needs."(p.30) The brief also notes (p.15) that: "Thus, while Measure D sets a very high substantive standard for expanding the UGB, the Board has a great deal of discretion in determining whether that standard has been met." Finally, the brief notes (p.27) that "it (Measure D) provides that if a sufficient showing can be made that it is necessary to avoid a violation of state housing requirements, the Board of Supervisors may approve housing outside the UGB, without voter approval, as long as, *inter alia,* the proposal contains a high enough percentage of affordable units." **8**

The voters of Alameda County also have the right by majority vote to approve any level of urban development

outside the County UGB. At this time, have the courts reached a final decision on measure D? In light of these comments, and the totally open-ended nature of Measure D, how can the statement that Measure D "effectively limits the potential for new residential uses" be considered valid? Why, as an upper limit, aren't the cumulative effects on Livermore of major urbanization on its borders addressed? **8 cont. 9**

On page 28 of the MEA, it states that the soil study conducted by the Natural Resources Conservation Service showed that agricultural lands outside the UGB "have climate and soil for competitive agricultural growth and expansion." I believe this is a misreading of the study. While the study shows that climate and soil are suitable for a variety of possible crops, the study says nothing about whether this is "competitive". In fact, as the latest Water Task Force Update (May 9, 2003) states, Terry Huff, who oversaw the study, noted that the "true limitations to Ag enhancement in the Tri-Valley region are not soils and climate but water cost and availability, infrastructure and the interest of consumers, markets and landowners." Furthermore, the crop study conducted by William Penn Mott Jr. makes it clear that commodity crops cannot be grown economically and that niche markets would need to be developed. To date, there are no potential crops that have been identified as clearly profitable or competitive, particularly given the high cost of bringing water to agricultural areas.. **10**

Furthermore, the EIR, while claiming to have a number of policies that support agriculture, fails to discuss a number of issues that would be essential to support successful agriculture. For starters, the report doesn't even make clear that just defining land as agricultural does not mean it is being used as such or can be made to do so. Outside of the South Livermore Valley vineyards, there is very little agricultural activity taking place around the city's boundaries. In fact, there are virtually no farmers left in this area and serious agriculture has not taken place for years. These are lands that were barely profitable before adjacent urbanization, and recent other factors such as globalization, affected their operations.

Why doesn't the EIR contain a serious discussion as to what it would take to bring agriculture to the areas around the city? Currently, is there water, infrastructure to bring it into the valley and a likelihood that it could be supplied at prices that might allow profitable farming? Where is the discussion as to the subsidies that would be required to bring water to lands outside the City? There is no agricultural infrastructure left in the area outside of the South Livermore vineyard area . Successful agriculture requires that farmers have access to feed and fertilizer and pesticide outlets, to tractor and equipment repair places. As a recent report on Agricultural Infrastructure for Senator Torlakson's Agricultural Task Force pointed out, there are none left in either Alameda or Contra Costa Counties that really cater to farmers. How could this problem be overcome? **11**

There is also no discussion of the difficult economic climate facing farmers and whether it is at all realistic to assume that agriculture can be profitable in this area. Property owners currently receive approx. $12-$15 per acre per year as rent. Nobody could consider this anywhere near a satisfactory or reasonable return on their property. Furthermore, aren't other places such as Brentwood that have much better soil and cheap water struggling to keep their farmers going? Livermore would have to figure out how to bring in farmers since we have none left in most of the flatland areas. Why is there no discussion of this problem?

Harvesting crops is another problem. Small farmers cannot afford to have their own harvesting equipment in many cases and rely on businesses that contract to do this. There are no such operations left in the area and outfits that provide this service are not willing to make several hour trips on a crowded freeway to harvest a few acres of land. Why does the EIR not address these issues (which, incidentally, were brought to the attention of the Steering Committee)?

Intensive agriculture needs an abundant source of low cost labor. Why is the issue of farmworkers and their housing needs also not addressed? Again, it is unreasonable to expect that farmworkers can be imported from **12**

miles away to harvest a few crops in the Livermore Valley. Finding help is a big issue for ranchers in the area and would be an even bigger issue if agriculture were to be established around the city's boundaries. Provision has to be made for farmworker housing and support facilities. Why is the EIR silent on this issue? **12 cont.**

Could you explain why the city has policies addressing agriculture in the Planning Area? Since the council majority has chosen to repudiate annexation and urbanization of the area to Livermore, and the area is not within the City's sphere of influence, what specific control or effects can the City's have as to what happens there? If the City is going to have policies for the area, then they should be realistic and comprehensive. So far, they are neither. **13**

On page 48 of the MEA, 1990 employment data is used. While I appreciate that this is the latest available, is it reasonable to used such dated information? The Tri-Valley Vision 2010 project conducted in 2000 included more recent data with respect to valleywide employment. Has this source been checked to see if more up-to-date information is available? **14**

On page 73 of the MEA there is a statement to the effect that jobs have been attracted to the area because of the "abundant housing". Isn't this statement in conflict with other comments and other data that make it clear the Tri-Valley already has a significant jobs/housing imbalance in favor of jobs that is projected to become even worse? In fact, there are numerous places in the EIR where jobs/housing balance is discussed in the context of how various plans help meet the shortfall. Therefore, could you define the term "abundant housing' and how it relates to other parts of the EIR? **15**

On page 108 it states that long-term bus service from North Livermore to BART will occur if development there occurs. Since development is not now envisioned for the area, what are the implications for the 12,000 - 15,000 Livermore residents who already reside in North Livermore and have no direct bus service to BART? **16**

On page 121, the EIR discusses a "big" increase in demand for agricultural water in South Livermore. There are currently around 4,000 acres of viticulture and other crops such as olives in the South Livermore area. The South Livermore Valley Agricultural Plan goal is 5,000 acres. It may be possible to get somewhat more than that, but probably not much. How is this a "big" demand? Why isn't there a discussion of water demand for other areas since the Plan specifically calls for agricultural activity in areas such as East and North Livermore? Furthermore, the section on water on pages 129-130 should also include a discussion of the constraints on the use of Reverse Osmosis water with respect to storage. Why is there no discussion of the implications of a several-year wait to get such storage facilities approved and constructed? If you don't have viable agriculture today, what will a multi-year wait for water do to the ability of any remaining farmers to stay in business? How will the increased costs for RO water be allocated? **17**

Comments on Volume II - EIR

On page 31 of the EIR it states as Goal OSC-5 that the City should "Develop a full complement of parks and other recreational lands for public use and enjoyment." Yet, while the EIR identifies an existing shortage of 110 acres, or 3-4 community parks, it fails to propose any means of addressing this goal. In light of the very limited availability of land that could be used for parks, why doesn't the Plan specifically identify sites where this shortfall could be made up, as well as strategies for actually acquiring them? **18**

On page 34, the EIR shows Goal Ed-2 to "Balance the supply of job and housing opportunities in Livermore and match jobs and wages to housing prices. There is an objective listed to attract higher-wage jobs. However, there is no objective listed to ensure that there is sufficient housing to meet the needs of Livermore workers, particularly those who cannot find affordable housing here. Since a jobs/housing balance or match requires **19**

both sides of the equation to be satisfied, why is there not an objective to ensure the housing side is also addressed? Just attracting jobs, even higher-wage ones, will not address commuting issues since those jobs will be added to the already existing base. What is the difference between an in-commuter and an out-commuter? Both add to traffic. Why doesn't the EIR address the issue of through-commute traffic. For example, a Pleasanton job previously held by a Livermore resident who is then able to find employment in Livermore, does not eliminate the pre-existing Pleasanton job which may well be filled by a Tracy commuter cutting through Livermore. What impact will the lack of new upscale housing have on the ability to attract high paying jobs? **19 cont.**

In fact, given the Plan's acknowledgement that, despite policies, goals and objectives to the contrary, that it does not achieve a jobs/housing balance or match, why is this issue not shown as a Significant and Unavoidable impact of the Project? **20**

Page 51 of the EIR includes Strategy 13, which is "Take every opportunity to revive Downtown's role as a primary job center." There should be more discussion of this strategy and what its implications would be. At buildout of this proposed Plan, the City will have almost 88,000 jobs. The vast majority of them will not be in the Downtown. It is unclear how much office development the Downtown could support and retail development is planned to be not much different than now exists. In fact, many businesses would end up being relocated out of the Downtown area if this Plan builds out as proposed. Most of the retail jobs are unlikely to be high-paying. Why is there not more discussion of likely job possibilities in the Downtown and how that may relate to the housing that is proposed for the area? Only 304 new jobs are projected for the Downtown. This seems to be well short of what would be needed to create a "job center." Furthermore, if the intent is to create pedestrian-oriented development, it would seem desirable that there be a strong relationship between Downtown jobs and suitably priced housing. Why is there no discussion as to the likelihood that Downtown housing will be affordable to the type of jobs that are likely to be created? **21**

On page 80 it states that one of the criteria for significant impact is that a project would: "Substantially alter the location, distribution, or density of the population of the City;" Most of the proposed new housing would seem to meet that criteria. Clearly, for example, adding over 3,000 new housing units to the Downtown is a very substantial increase over what is there now and is bound to impact surrounding neighborhoods. The Greenville TOD would almost double the population north of the freeway and is of a substantially different density than most of what is there now. It seems very contorted and circular reasoning to say that these are not significant impacts essentially because that's what the Plan set out to do. The paragraph goes on to say that increased density within the UGB would have anticipated benefits that could include, among others, "minimizing the costs and impacts associated with the expansion of public services, utilities and infrastructure." How has this supposed benefit been substantiated? Generally infill housing and redevelopment has more expensive infrastructure. New water supply and sewer facilities will have to be constructed no matter where the development occurs. Digging up and replacing existing pipes and streets within a developed area is not necessarily cheaper than bringing infrastructure to new areas. **22**

It is also far from clear that open space would be preserved by an infill policy. In the absence of effective policies and resources to permanently protect these areas, development within the General Plan time line is still likely to occur. How is this being addressed? **23**

The statement on page 81 that implementation of the Draft General Pan would not create a substantial demand for additional housing, also seems questionable. Since Plan buildout would result in 50% more jobs than employed residents, why would it not be reasonable to presume that many of those workers would rather live in Livermore than have to commute here? Clearly, all those workers cannot find homes in Livermore under the proposed Plan no matter how creative they are. **24**

In the same paragraph, the statement is made that implementation of the Draft General Plan would not hinder the accomplishment of the City's regional housing needs allocation. Why is this not an incorrect statement? One of the specific policies of the Plan is a growth rate that has an upper limit of 700 units. Given the number of units that have been built to date, how is it literally possible for the City to meet its 1999-2006 allocation even it if were to allow the full 700 units for the new three years? Shouldn't this be listed as a Significant and Unavoidable Impact of the Plan? **25**

Finally, this section also lists a number of policies that prevent improvement and expansion of utilities and services that would serve growth beyond what the Plan envisions. General Plans are supposed to cover 20-25 years - not eternity. Previous General Plans have not attempted to tie the hands of future residents and councils to meet future needs. There is no reason to assume that by 2025 Livermore will not need to add one more house, or one more school, or provide for one more job, nor that it might not wish to do a better job of addressing its projected jobs/housing imbalance. Courts have generally held that communities may not have permanent moratoria on new development. Population projections are likely to continue to show the need for some new development. Shouldn't the Plan address the implications of such a restrictive approach to utilities and services? **26**

Page 80 discusses the impact of a Greenville TOD on surrounding land uses noting that "increased density within the UGB is considered a beneficial and desired effect of establishing the UGB." Again, there have been no studies regarding the UGB and its impact, beneficial or otherwise. While it may be true that UGB's as a general proposition have a beneficial effect from increasing density within their boundary, without analysis of this particular UGB how can the assertion that this is beneficial be made? This is a very tight UGB that substantially limits the city's options with respect to providing different types of housing and with respect to meeting school and park needs. Why isn't there an analysis of whether, given these problems, there are, in fact, any beneficial effects of this particular UGB? **27**

The assertion, also on page 80 that there is a less than significant impact from a Greenville TOD because it is within the UGB, adjacent to existing development and necessary for BART, is part of this untested and circular reasoning. The adjacent development is of much lower density and the lifestyles of those residents may well be substantially impacted by such a massive high-density development close by. How can the EIR assert that its impact is less than significant when no detailed analysis of it has been conducted? How can a future Specific Plan that is supposed to be conducted prior to any development of a TOD be shown to be able to mitigate the impacts on adjacent neighborhoods? Can an EIR be tiered on a nonexistent future plan? **28**

On page 81 the EIR notes that the 1976 General Plan would generate a jobs/housing ratio of 2.8 and a jobs/employed residents ratio of 1.9. Again, this is really a bizarre comparison. The 1976 GP, as amended, would have provided a jobs/employed residents ratio of 1.3, considerably better than the Preferred Plan. It seems basically dishonest to gut a plan of most of its housing and then turn around and note its inadequacy in meeting housing needs. The previous GP, including the NLGPA, is a reasonable alternative that should have been studied. Is stating, as the EIR does, that it was not necessary to do so because it would require a public vote to allow development outside of the new UGB, a good and sufficient reason? There is nothing to prevent this or any future council from submitting such a proposal to the voters, nor from the voters themselves choosing to put an issue on the ballot. Why, therefore, are this and future councils not being given the comparisons that would allow them to decide if this was a better option than the proposed plan? **29** **30**

The section on traffic and circulation includes mention of the City's Trail Plan, most of which is a carryover from the previous GP and consistent with the City's previously adopted Master Trail Plan. There is no discussion of the impacts of the Preferred Plan on the ability to actually achieve the goals of the Trail Plan. For example, many of the trails are in the North Livermore area. It would have been easy to ensure that these trails **31**

were built as part of the comprehensive development that was planned for that area. It is quite another matter to get those trails built in the absence of such development. Most private property owners are extremely reluctant to allow public trails to bisect their property. Should the unlikely event of the area ever becoming a viable agricultural region ever take place, this would likely be an even greater problem since serious farmers are not interested in dealing with the potential liability and vandalism that can result from public access to their properties. Should the EIR discuss this issue and develop strategies to address liability issues of trails on private property, as well as strategies to address the problem of providing trails in a very different environment that was envisioned when the Trail Plan was originally adopted? I would note that this is another consequence of the UGB that also underscores why the UGB itself should have been analyzed.

31 cont.

On page 106, the EIR notes that water distribution and storage systems shall be sized only to serve development anticipated within the GP and that extensions of services beyond the approved service area shall be prohibited. The UGB initiative adopted by the council majority specifically provides that the council may approve development beyond the UGB should that be necessary to meet State housing requirements (similar to the requirement in Measure D). Again, these policies seem to presume that a) there will never be any requirement by the State for housing beyond what is currently planned for, and b) that the City will never need to go beyond the boundary to meet housing needs. Why is there no discussion of future needs and the difficulties this Plan seems to impose on the future choices that Livermore residents might wish or might have to make? Potentially the City could find itself having to dig up major portions of its utility systems in order to make very expensive but necessary future expansions of the system. Isn't this contrary to the goals of a General Plan?

32

On page 112, Water Policy 2, and again on pages 115 and 116 it is noted that a number of areas in the City may require extensive expansions of their existing systems. Yet, particularly in the downtown, where the parcels are relatively small and most of them have existing development on them, it is probably difficult to predict how much redevelopment will ever actually take place. Shouldn't the EIR be discussing how a comprehensive overhaul of the system can occur when there is so much uncertainty about what will occur, where it will occur and when it will occur, and how and when the money to pay for it will become available? Isn't the same issue also relevant to the issue of sewers, gas, phone and electrical systems?

33

Page 123 discusses reclamation of wastewater. It notes that between 1050 and 1300 acres of land must be available for irrigated agriculture with the expected supply of reclaimed water. It is my understanding that most crops would not be able to tolerate the continued application of wastewater at the level of salts it generally contains. Some dilution would be required, either from RO or from some other non-potable source. Why is there no discussion of this issue and where this additional water would come from? Why is the question of salt buildup and disposal not addressed?

34

Page 132, OSC-5.4.P2 states that recreational access to the open space surrounding the City shall be encouraged to the extent that it is compatible with provisions of the Land Use Element. What does this mean exactly? Is it a recognition that agricultural use and trails may not be compatible? Does it mean that recreational access shall be available only if the City acquires the land for that kind of activity? How will this be explained?

Page 137 addresses schools. Yet, nowhere in the listing of potential future schools is there any mention of a site for a middle school. The population proposed in this General Plan is approximately three-quarters of what would have been allowed under the previous GP which included the NLGPA. That amendment provided for two middle schools. It is hard to believe that the level of development in the Preferred Plan doesn't even require ONE middle school. Why is this not discussed, including the further question of where land would be available for such a school? Surely such a marked divergence from what was previously identified as being needed for future growth, deserves some explanation.

35

Page 138 does, helpfully, give the standards for parks so that a reader has a basis to draw conclusions. However, there seems to be an inconsistency that is not explained. In a previous section, it is noted that a Community Park is generally 30-40 acres. Especially given the existing shortage of community parks, which is also not addressed either in the Plan or in the EIR, it would be reasonable to assume that TWO community parks are necessary. Yet only one is planned for. Why is there no explanation for this? Furthermore, how will a community park bounded by the freeway, the railroad tracks and an industrial area provide the most desirable location to provide the kind of relaxation that parks are generally supposed to do? **36**

Pages 139-140 discuss the lack of a neighborhood park for the Downtown and the fact that this would constitute a Significant Impact. Yet, the mitigation measure proposed, that the city, LARPD and private developers should work to develop such a park in or adjacent to the Downtown, doesn't even pass the giggle test. I would draw your attention to the EIR prepared for the North Livermore Specific Plan. In that Plan there were two or three intersections or road segments that were significantly impacted by the Project. These impacts could have successfully been mitigated with certain identified improvements. Yet, because no source of funding for these improvements could be identified, it was noted that the impacts had to be left at Significant and Unavoidable. **37**

I would suggest that this is a totally analogous situation. In this case, before the impacts can be dismissed as Less than Significant, sufficient space to accommodate all or most of the roughly 29 acre shortfall should be identified. Where, in or around the Downtown, is there such space? If no land is available anywhere then can the impacts be so lightly dismissed? Is a study a mitigation? The proposed mitigation measure is just not good enough. If the Plan can identify where possible parks can be located elsewhere, then it clearly should also do so for this one.

Page 149 notes that (OSC-6.1.P5 that the City shall attempt to increase the employment to population ratio to reduce commuting rates and associated vehicle-related pollution emissions. Does this make sense and is it not directly contradictory to other policies regarding the desirability of jobs/housing balance? The City currently has a jobs/housing balance and, in fact, slightly more jobs than it does employed residents. Why would you want to make this ratio worse? How does attracting even more in-commuters help air quality? **38**

OSC-6.1A4 on page 150 discusses the possibility of a population cap. Why is this supposed to help in the absence of any restraints on job creation? Most experts and most of the literature on the subject acknowledge that air quality is largely a regional issue and impacted only very little by the relatively minor decisions made by individual communities. In fact, given the fact that air pollution blows from the inner Bay Area westward to the Livermore Valley and beyond, could you not argue that the recent ABAG moves to concentrate more development in the inner Bay Area will have much more of an adverse impact on Livermore's air quality than trying to stop population growth in Livermore? Additionally, the factors cited in the Plan as those that would be considered to determine the growth rate do not include air quality. Isn't this inconsistent? How would this affect the ability to meet state housing goals? What are the impacts of not meeting those requirements? **39**

At the top of page 151 it states that additional housing in the range of 140 to 700 units annually allows housing growth to more closely match job growth in the area. Isn't this directly contradictory to the proposal that a moratorium on population growth should be considered? If adding enough housing to keep up with job growth will "conceivably reduce vehicle miles traveled", then wouldn't less housing, by definition, result in more vehicle miles traveled? I note also that this rate of growth is not, in fact, sufficient to keep up with the anticipated rate of job generation. Therefore, shouldn't the proposed reduction in the growth rate from a maximum of 3-1/2% down to a maximum of 2-1/2% be discussed with respect to the negative effect it may have on both jobs/housing balance and air quality? **40**

Page 152, CIR-3.3.P3 discusses facilities and services necessary to allow bicycle, pedestrian, and equestrian **41**

travel to assume a significant role as a local alternative mode of transportation and recreation. Much as I am a supporter of equestrian facilities, do we really want to encourage equestrian activity in crowded areas such as the Downtown? Shouldn't this be modified in some way to reflect that there are places where this doesn't make sense? **41 cont.**

On page 244, the statement is made that "Because outward growth in Livermore is highly constrained by the presence of the UGB, growth associated with the proposed project would have beneficial effects on both the local and regional levels." Many people might disagree with that statement. At the very least, should there not be some explanation of why this is the case. Development outside of the UGB could provide a number of community amenities such as a regional park, a sports park, and the ability to make up for the shortfalls in community parks, as well as provide ample space for schools. Both of these things are very constrained by the Preferred Plan and many residents might well feel that schools and parks in the middle of industrial areas are not what they want for their city. Since the Plan also has no effective mechanism for permanently preserving open space (unlike the previous plan which had an extensive and funded program to protect as much as 10,000 acres) could you detail what these supposed benefits are? Development outside the UGB would also allow for a much wider range of housing choices that would be more likely to attract people who now look to the Central Valley for the single-family housing they want. The Bay Area is now proposing, under its new guidelines, to build a substantial amount of high-density housing. While that type of housing is necessary and meets the needs of a significant segment of the population, how does it meet the needs of many, if not most, young families with children - a group that Livermore has always prided itself on attracting? **42**

Furthermore, to state that the proposed project would not induce unanticipated population growth outside the UGB, is a patently absurd and unsupported statement. Outside the UGB covers a large area. To the degree that Livermore does not provide housing either for all its workers or for certain population groups, won't population growth outside the UGB inevitably occur, either in the Central Valley, eastern Contra Costa County, or in the unincorporated areas of Alameda County as it struggles to meet its housing obligations? (see previous comments on this subject.) **43**

Similarly, on page 245, unsupported assertions are made that implementation of the Draft General Plan policies would ensure that farmland would not be developed and that such lands are preserved and protected. These comments make it clear that the very little is understood about what constitutes agricultural lands and what it takes to preserve them . Since, for all practical purposes, agricultural activities are not now taking place on most of the lands adjacent to the city, nor is more than a fraction of that land actually owned by farmers, won't preserving it and establishing agriculture be a far more monumental undertakjng than these plan policies even begin to address? **44**

On page 247, it is stated that an anticipated inability to meet regional parkland needs would be considered Significant. However, on page 249 E where Unavoidable Significant Effects are listed, this is not included. Since there do not appear to be any mitigation proposed for this shortfall of regional parks, why is this not included as one of the Significant and Unavoidable Effects of the Project? **45**

The discussion of Alternatives beginning on page 217 seems to contain a number of contradictory statements that seem designed to "prove" that somehow the Preferred Alternative is, like Goldilocks, the "just right" option. Page 226, in discussing the Redistributed Alternative states this alternative suggests "a relatively high rate of commuting (along with corresponding noise and air quality effects) and upward pressure on housing prices. Yet this alternative has somewhat fewer jobs and slightly more housing and is thus more "balanced" than the Preferred Plan. So, how is it that these effects are not even more true with respect to the Preferred Plan? On page 230, it is stated the implementation of the (Redistributed) alternative would enable Livermore to exceed its current "fair share" housing allocation.." What is the point of this statement? Livermore's current **46**

"fair share" allocation of some 5000 plus units is supposed to be achieved by 2006. This plan is supposedly the "build-out" plan for 2025. It further goes on to say that "Even though the Redistributed alternative would result in the construction of more housing and fewer jobs than the proposed project, the alternative would still result in a jobs/housing ratio of 1.4, representing a potential housing shortage and the generation of associated environmental impacts, such as increased traffic, and noise and air pollution." If this is the outcome of the Redistributed Alternative, then how can the Preferred Plan, which has an even worse jobs/housing balance, not also generate these same effects, only more so?

46 cont.

The comment that the Redistributed alternative would "alter the population distribution of the City by increasing the residential population on the outskirts of the City without a corresponding increase in central portions of Livermore, needs explanation. Why is this an issue? Over the years, Livermore's population has shifted many times. First it built to the east, then south, then north and west, then east and south again. Is there supposed to be some inherent desirable "balance" that all cities must have and, if so, why is this not explained, particularly with respect to how it would apply to Livermore? I note on page 238 that it states that "the traditional population distribution of Livermore, which is characterized by a dense downtown..." But is this really true? Historically, Livermore's downtown has been a commercial and distribution center surrounded by low density residential development. In fact, Michael Friedman has stated that the big problem for Livermore's downtown is that it doesn't have housing close to it. Virtually all of the housing surrounding the downtown is fairly standard single-family with an occasional apartment complex. How can this be characterized as "dense?" Also, how is the TOD development at Greenville consistent with this model?

47

On page 241, it is noted that "residential development that is excluded from cities in Contra Costa and Alameda Counties will occur in areas where land is less expensive ..." Doesn't this statement validate the point that by not building sufficient housing to accommodate its anticipated job growth, the Preferred Plan is contributing to this situation? What are the impacts of this redistribution?

48

On page 242 the rationale for choosing the Preferred Plan as the environmentally superior alternative seems very strained and not well justified. First, it acknowledges that regional agencies are "recognizing that environmentally sound development occurs within or immediately adjacent to existing urban areas". Clearly, North Livermore falls into that category. It is surrounded on three sides by urban development, it is immediately adjacent to residential development to the east (Springtown/Vasco area) and to industrial development to the west, TKG and Shea Business Parks. Furthermore, it is, despite some assertions to the contrary, rather marginal agricultural land that not been seriously farmed in decades. There is also nothing to say that development in this area could not be built at densities that would support all of the transit/pedestrian friendly type of development that one might wish. These comments would reinforce the point that development in North Livermore is a reasonable option that should have been considered as one of the alternatives.

49

Similarly, it notes on this page that the Balanced alternative clearly offers the best potential for achieving not only a jobs/housing balance but also a match. It discusses several positive regional effects from this alternative including a reduction in longer-distance commuting. The primary reason for then choosing the Preferred alternative as the environmentally-superior one is that the focused effects of the Balanced alternative are quantitatively higher. Given some of the contradictions that have been made in discussing the other alternatives, particularly with respect to jobs/housing mixes, how is it fair to say that these effects, even should they exist, are sufficient to find the Preferred Plan superior to either the Balanced alternative or the Redistributed alternative?

50

<u>Comments on Transfer of Development Credits Program (TDC)</u>

Finally, even though the proposed Transfer of Development Credits Program has not yet been developed, it is incomprehensible that it has not even been discussed in the EIR. This Program would have significant impacts on the Project. As has been stated repeatedly, for a TDC program to work, value has to be created at the receiver sites. There are basically only two ways that this issue can be approached. The City can either decrease the amount of development that would otherwise be allowed and require developers to "purchase" credits that would allow them to build up to the planned level, or additional units can be added to the planned level as an inducement. There is also the issue of whether purchase of these credits would be optional or mandatory. Either way, this issue needs a lot of discussion. Why is this important discussion missing and when will it be provided? **51**

We have been told that downtown development will not pencil out unless 3-4 story structures are provided for. Yet in most of the downtown , heights are limited to no more than 3 stories and in some cases two. How will a TDC program affect the financial viability of downtown development? It does not seem likely that this area can sustain any additional requirements that it, for all practical purposes, also subsidize open space outside the UGB. Reducing the amount of density that is now planned and, either requiring or hoping that the developers will choose to buy credits from landowners outside the UGB (assuming they can find any willing sellers, which may be questionable), in order to build up to the allowed amount would only make the problem worse. Conversely, adding even more units to the Downtown is unlikely to be acceptable to Livermore residents. In fact, it is far from clear that even the current level is acceptable. **52**

The Greenville TOD would likely be years away and, again, if this level of development is necessary to attract BART, then adding more density appears to be the only viable option for making a TDC program work. Such an increase has not been considered in the EIR. Similarly, the remaining development in the industrial areas would either have to have their base count reduced, or be allowed bonus densities if TDCs are purchased. This is a very complex issue that would have a real impact on the number of units the City would be providing, and there are at least a couple of theoretical outcomes:

1. The City reduces the base density allowance and encourages (or requires) builders to buy TDCs to achieve the remaining density. The outcome of this option is that developers may not choose to or may be unable to buy TDCs, resulting in potentially many fewer units than planned for. Shouldn't the potential impact of this outcome on jobs/housing balance, in particular, be examined as well as the implications for Livermore being able to meet its regional housing obligations?

2. The City allows additional density over and above what has been shown in the Plan. If developers are willing and able to buy the TDCs, the outcome is that more housing is built than the Plan provides for. Shouldn't those impacts be considered?. **53**

Under either of the above potential outcomes, there is the real possibility that developers are either unable or unwilling to purchase any TDCs. If that happened, a major tenet of the Plan, i.e. the preservation of open space beyond the UGB, would not be able to achieve its goals.

It makes no sense that a program that would have such a considerable impact on the City's ability to meet its goals, or rather to not meet its goals, should not have been discussed at least with respect to the components such a program must include and how it might affected the Plan. When was it intended that these impacts would be discussed since the EIR comment period closes well before the TDR program is developed?

I would appreciate your attention to these comments.

Sincerely,

Valeri A. Raymond

COMMENTOR C8
Valerie Raymond (July 29, 2003)

C8-1: The EIR authors and the City of Livermore as lead agency disagree with the statement that the EIR is "a fundamentally inadequate document." The Draft EIR explores a range of reasonable alternatives that generally meet the objectives of the proposed project. See Responses to Comments B1-15 and C5-1 regarding the range of alternatives evaluated in the DEIR, and Responses to Comments C3-1, C5-3 and C5-7 regarding analysis of the UGB. As stated previously, it is not necessary to evaluate the environmental impacts of the initiative and the UGB in this Draft EIR. See Responses to Comments A5-11 and B1-6 regarding the provision of parks.

C8-2: The commentator notes that the UGB has a considerable impact on the ability of the City to provide adequate school sites. Comment noted. The comments also point out that no middle school sites are identified in the Draft General Plan, nor is there discussion relative to whether additional middle schools will be needed. As the Draft General Plan notes, the City's ability to plan for school facilities is limited by State law in that cities can no longer require the dedication of school sites in conjunction with the planning process. Further, a City is prohibited from denying or refusing to approve, for example, a land use entitlement on the basis that school facilities are inadequate.

The City will continue on-going coordination with the School District to identify potential sites for future schools. In order to provide options and flexibility for the School District, sites for future elementary and/or middle schools will be designated on the Land Use map more generally as "Community Facility - School" rather than specifically for an elementary or a middle school.

C8-3: The circulation impacts of the UGB do not need to be explored, because the Initiative process is exempt from CEQA analysis, and providing roadway circulation outside of the UGB does not satisfy the goals of the Draft General Plan. Comments noted regarding residents north of I-580.

C8-4: Comment again appears to refer to North Livermore Specific Plan and the comparison between the proposed General Plan and the Specific Plan. The North Livermore Specific Plan was never adopted; the determination of "impacts" under CEQA is based on a comparison of a proposed action (in this case, the proposed General Plan) and an existing condition. A significant impact is found in cases where the net change exceeds the established threshold(s) of significance. In a programmatic EIR like this one, the comparison between the existing plan and the proposed plan can also be a useful one, with regard to the net differences in effects on certain natural resources or urban systems. Such a comparison would not determine the creation of an impact, but it could be helpful to readers of the EIR in terms of how the two plans differ. However, in no case does CEQA require that some other unadopted plan should also be part of this comparison.

C8-5: Aiming for a jobs/housing balance can be a policy of the City of Livermore while, at the same time, the City also pursues other values such as community character or open space. The application of a complex set of policies and actions to all of the various choices faced by elected and appointed decision makers in the City nearly always requires some prioritizing among values. The formation of the proposed General Plan's policies and actions was initially the responsibility of the Steering Committee, aided by staff and the consultant team.

C8-6: Comments noted regarding multi-family housing. The EIR authors disagree with, what they believe to be the general comment that building additional multiple-family housing in the City of Livermore would have an adverse impact on the community character. The Draft General Plan and Downtown Specific Plan contain policies and guidelines to guide the development of new and infill development so that it meets the City's goals of maintaining and enhancing the City's community character.

C8-7: Draft General Plan policies LU-2.1.P6 through P10 address the residential growth policies of the City of Livermore. Land Use policy LU-2.1.P6 establishes a residential growth rate between 140 and 700 units per year. The policy further states that the City may guarantee allocations through specific plans. In this circumstance, the City-wide yearly housing allocation shall not be less than the number of dwelling units guaranteed under approved specific plans. Therefore, it is possible for the minimum growth rate to be more than 140 allocations per year if a greater number of allocations are guaranteed through approved specific plans. Consistent with the provisions of LU-2.1.P6, Land Use policy LU-2.1.P9 would guarantee 200 units per year for a ten-year period for the Downtown Specific Plan.

C8-8: Comments regarding Measure D and the County's need to meet its fair share housing allocations noted. Note that the courts reached a decision on Measure D in July of 2003 in favor of the County. Additionally, page 23 of the MEA is revised as follows.

> These conditions, combined with the agricultural and resource management designations applied in North Livermore, ~~effectively~~ would tend to limit the potential for new residential uses in North Livermore under County jurisdiction. For the South Livermore Valley Vineyard Area, Measure D requires that expansion of residential uses occur within the South Livermore Urban Growth Boundary.

C8-9: Any "major urbanization" at Livermore's borders is addressed by the way cumulative impacts were measured. See Response to Comment A6-6.

C8-10: The MEA states that "...the Tri Valley Areas studied have the climate and soil needed for competitive agricultural growth and expansion, but also found that water resources are constrained to accommodate this agricultural growth and expansion." (The underlined text completes the sentence, as printed in the MEA, but excluded from the Comment.) Contrary to the Comment, this conclusion in the MEA does not say that agriculture is competitive; in fact the MEA appears to be consistent with the theme of the Comment.

C8-11: Several more arguments are set forth about agriculture in Livermore, its profitability, whether subsidies would be needed, water supplies, and the adequacy of farm "infra-structure" (such as feed, fertilizer, and pesticide outlets as well as equipment supply and repair outlets). None of these questions or comments relates to the adequacy of the Draft EIR. No further response is necessary.

C8-12: It is unclear how the issue of farm worker labor and farm worker housing needs relates to the Draft General Plan. As illustrated on Figure III-2 (Draft General Plan Change Areas) and Figure III-3 (Draft General Plan Revised Land Use Designations), the Draft General Plan policy and land use changes are not so substantial that they would cause a measurable impact on agriculture and the need for agricultural labor.

C8-13: The agricultural policies in the Draft General Plan address the South Livermore Area which is an agricultural area within the City's Planning Area. Generally, the comment relates specifically to the UGB, and policies and actions in the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

C8-14: Comment noted regarding the use of 1990 place of work and residence employment data used on page 48 of the MEA. The 2000 Census place of work employment data was not available at the time the Draft EIR Notice of Preparation was prepared (March 2003) or as of August 2003, for that matter. When revised and updated by the City, the MEA will use the most up to date and available data regarding employment. However, the use of 1990 employment data does not effect the analysis and findings of the Draft EIR.

C8-15: The commentor makes a valid point in regard to the MEA's use of the term "abundant" when referring to housing, in the *Demographic, Economic and Market Conditions* section that addresses the *Office and Industrial Market*. While the comparison is clearly a relative one that compares conditions in Livermore to other office and industrial market competitors such as those in the Silicon Valley and San Francisco Peninsula, that relativity should have been made explicit in the text. The MEA is hereby revised on page 73, paragraph 6, sentence 1, as follows:

> Throughout the Tri-Valley, technology and other office-based companies have been attracted by relatively more abundant housing than is found elsewhere in the Bay Area, the skilled labor force, shorter commute times, and available land.

C8-16: The citation referenced summarizes a portion of the LAVTA Vision 2010 report that relates to projects initiated sometime in the 2006 to 2010 time frame. At this time, it is not known what level of bus service may be provided to current residents of the area in the absence of future additional development there.

C8-17: The MEA at page 121 states "The City of Livermore anticipates the potential for a large increase in agricultural production in the South Livermore Valley over the next 20 years." Goals and policies in the Draft General Plan support agricultural uses outside the UGB consistent with the provisions of Alameda County's South Livermore Valley Area Plan and Measure D, and further supported by the provisions of the North Livermore Urban

Growth Boundary Initiative. The areas outside the City's UGB are under County jurisdiction and studies are underway regarding the expansion of agricultural uses in the Livermore Valley. However, the nature and extent of agriculture in the area is speculative at this time and the amount of water necessary to support future agricultural uses cannot be specifically determined. Sources of agricultural water are being explored; however, the use of reverse osmosis or recycled water has not been determined.

C8-18: See Responses to Comments A5-11 and B1-6 and regarding the provision of parks. New neighborhood parks are proposed in four areas where new or increased residential development is proposed. These areas include east of Arroyo Road and south of Arroyo Mocho, north of Las Positas Road and east of First Street, east of Vasco Road and south of Brisa Street and in the BART TOD on Laughlin Road. A new community park is proposed in the area north of Las Positas Road and south of Southfront Road. Acquisition of the sites can occur in several ways including use of in-lieu fees and/or land dedications as requirements of development. CEQA does not require an analysis of the fiscal and financial impacts resulting from a proposed project. The purpose of CEQA is to provide an analysis of the potential adverse *physical* impacts of a proposed project.

C8-19: See Response to Comment C6-2 regarding jobs/housing balance.

High rates of in-commuting and out-commuting are symptoms of two different issues related to a community's jobs/housing balance. A high rate of in-commuting typically occurs when there is a shortage of housing in a community and people commute from outside areas to jobs within the community. A high rate of out-commuting typically occurs in residential areas with few jobs. Although both types of commuting can result in adverse environmental impacts (e.g., traffic and air pollution), the distinction between in- and out-commuting is an important one to make because it indicates what kind of a jobs/housing imbalance exists in a community (and what measures would be needed to improve the imbalance). That is, a close inspection of in- and out-commuting rates may help determine whether a community is experiencing a shortage of jobs or housing.

In addition, given a defined number of commuters per day, roadway impacts may be different depending upon the ratio of in-commuting to out-commuting. A given number of trips that consists only of trips going *into* a community would have a different effect on roadways than a given number of trips that comprises an equal percentage of trips *into* and *out of* a community.

Through-commute traffic is addressed at several locations in the DEIR Subsection (2), Impacts to Regional Roadway System, on page 96 of the DEIR describes the impacts of the proposed project on regional roadways. This analysis takes into account trips generated by other municipalities around Livermore. The discussion following Impact TRAF-GP-5 on page 104 of the DEIR also incorporates data regarding regional trips, including through-commuting. In addition, the following Draft General Plan policies and objectives specifically address regional and through-commute traffic: CIR-1.2.P1; CIR-1.2.P2; Objective CIR-7.1; LU-1.4.P6; and LU-1.4.P7.

Provision of housing of a type and quality that would be in demand by employed residents in relatively higher paying jobs would probably assist in the ability of Livermore to attract businesses providing such jobs. But, as the comment suggests, the relationship between available jobs and available housing would not ensure that the potential match between the two would be accomplished. Some employees working in Livermore might still prefer to live elsewhere and some Livermore residents might prefer to work in nearby communities.

C8-20: The failure to comprehensively meet a City policy like one addressing jobs and housing would not, in and of itself, represent a significant adverse environmental impact as defined by CEQA. Such impacts must involve a physical effect, and not merely a lack of absolute consistency with a policy. This conclusion is especially true in the case of jobs/housing effects, where even the perfect accomplishment of a mathematical balance (i.e., a 1:1 relationship) would not ensure that the adverse physical effects that such a policy aims to avoid would actually be avoided. The closer a community gets to achieving an jobs/housing balance, the more an opportunity is provided to minimize the ill effects of a substantial imbalance. But achievement of a perfect balance would not necessarily avoid all such effects.

C8-21: Regarding likely job possibilities, the economist's findings stated that there could be at a maximum a demand for another 40,000 square feet of office space over the next 10 years in the Downtown. In general, the small parcel sizes and lack of large redevelopment sites in the Downtown means that new jobs would be confined to small-scale uses (e.g., staff for retail establishments, small scale professional offices, etc.).

C8-22: Although it is true that it is generally less expensive to extend utilities to new developments rather than upgrade utilities in existing developed areas, it is sometimes still necessary to "upgrade" existing downstream utilities in order to accommodate additional flow from new development. For example, development in the Greenville TOD area will require new sewer extensions as well as upsizing of some downstream mains in order to accommodate additional flows.

C8-23: The proposed project is an update of the City's General Plan. Nowhere is the notion of permanent protection of open space a prerequisite for the impact findings in the Draft EIR. The Draft General Plan sets forth land use designations that apply for the period during which the Draft General Plan is in effect. The City has a process for amending the Draft General Plan over time.

C8-24: As compared with the existing 1976 General Plan, the Draft General Plan would generate approximately the same number of total jobs (about 90,000 jobs in the existing General Plan and about 88,000 jobs in the Draft General Plan). The jobs/employed resident ratio is better under the Draft General Plan (1.5 jobs/employed resident) as compared to the existing General Plan (1.9 jobs/employed resident). Draft General Plan policies LU-1.1.P4 and LU-2.1.P5, P7, and P10 are designed to assist in meeting Livermore's projected regional housing needs. In addition, the Draft General Plan provides policy ED-2.1.P3 that would ensure a range of quality housing options to serve different lifestyles, incomes and households while increasing homeownership opportunities for all

income levels. The EIR authors agree that it is certainly reasonable to assume that workers would prefer to live closer to their jobs. However, as noted by the commentor, the DEIR states that implementation of the Draft General Plan wold not create a substantial demand for additional housing.

C8-25: The City believes that there is no inherent conflict between the City's growth management program and meeting the City's regional housing needs allocation. Therefore this would not be considered a significant and unavoidable impact. The Growth Review Committee is currently meeting to formulate recommendations for the growth rate for year 2005-2007. In addition, policies in the Draft General Plan and Downtown Specific Plan would allocate 200 units per year over a ten year period for the Downtown area. This is similar to the growth management program used for the South Livermore Valley Specific Plan, and these units may be utilized at any time during the ten year period, but shall not exceed a total of 2,000 units.

C8-26: The Draft EIR addresses potential impacts to Public Services associated with implementation of the proposed project on pages 129-140 and impacts to Utilities on pages 105-128. The comment relates specifically to the policies and actions in the Draft General Plan and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

C8-27: See Response to Comment C8-1 regarding the UGB.

C8-28: Page 80 of the Draft EIR addresses potential impacts to Population, Employment and Housing conditions in Livermore and vicinity. See the Land Use section of Chapter IV of the EIR (pp. 65-74) for analysis of the types of potential impacts that are raised in this comment. Additionally, see Response to Comment A5-1 regarding potential development of the Greenville TOD, and Response to Comment A12-1 regarding the use of "tiering" of EIRs.

Program-level CEQA documentation (like the EIR on the Livermore General Plan) must address the project that is being proposed, at the level of detail that is available. A future Specific Plan would be subject to its own environmental review (like the EIR on the Livermore Downtown Specific Plan), at that more detailed level, once the plan was prepared. CEQA cautions against speculation where project details are not yet known.

The question "Can an EIR be tiered on a nonexistent future plan?" is unclear.

C8-29: See Response to Comment C8-1.

C8-30: See Response to Comment C8-1.

C8-31: See Response to Comment C8-1 regarding North Livermore. The Draft General Plan incorporates the City's Bikeways and Trails Master Plan adopted in 2001. The Master Plan includes planned on-street bike lanes and off-street multi-purpose trails throughout the City. It also addresses trail connections in areas outside of the City, including the North Livermore area. Trails outside the City would primarily be developed by other

agencies such as East Bay Regional Park District and the Livermore Area Recreation and Park District. The City would coordinate with these agencies, as well as Alameda County regarding the alignments, funding and development of the trails. Policies and actions in the City's Master Plan recognize the potential concerns of private property owners regarding the location of trails and the need for coordination in determining trail alignments and acquiring easements.

C8-32: This comment applies to the Draft General Plan. Typically, cities can only design and provide for approved, planned growth. Capital improvement dollars must be carefully spent on what is known at the time the system is designed. Utility systems are not usually designed for what may or may not occur in the future.

C8-33: The Draft General Plan and the Draft EIR addressed the anticipated need to improve the water system (e.g., additional supply from Zone 7, new water distribution lines, storage and pump stations). The City is currently updating the Water Master Plan that will reflect the new demands anticipated from the build out of the new General Plan. The Master Plan will include priority projects that can be included in the City's Capital Improvement Program. Upon completion of the Water Master Plan, the City plans to complete a new fee study to determine the appropriate funding mechanisms in order to complete the recommended water improvement projects. This process is how a comprehensive overhaul of the system will be accomplished.

C8-34: If the North Livermore Storage and Irrigation alternative is selected as the City of Livermore's preferred alternative, this would require an environmental review which would address this issue in detail. Dilution of reclaimed water for agricultural uses would likely be required. The options to achieve this would include either blending it with a water source provided by Zone 7, or blending it with RO water to reduce salt loading.

C8-35: Comment addresses the implementation of a General Plan policy and does not relate to the adequacy of the Draft EIR. No further response is necessary.

C8-36: Table 7-5 on page 153 of the MEA states that community parks generally comprise "30+ Acres," indicating that a community park will typically comprise a minimum of 30 acres (however, no maximum acreage is maintained for community parks in the MEA). The commentator's statement that "a Community Park is generally 30-40 acres" (in size) is incorrect. Community parks may exceed 40 acres in size. Page 139 of the DEIR specifies that the development of planned park and open space areas *in conjunction* with policies that require developers to provide land or funding for new parks would result in adequate provision of park space, including community park space. Therefore, all 57 acres of required community park space would not need to be provided in the community park specified in the Draft General Plan; additional community park space could be provided as part of new development that is anticipated to occur in the City.

The City disagrees with the commentator's assertion that land surrounded by a freeway, industrial areas, and railroad tracks is inappropriate for a community park. Some of the Bay Area's most successful and well-used community parks, including the Presidio (San

Francisco), Cesar Chavez Park (Berkeley), and Point Isabel (Richmond) are surrounded by such land uses.

C8-37: Residential development in the Downtown will be subject to in-lieu park fees. The City and LARPD will determine the appropriate use of these fees, including improvements to existing neighborhood parks near Downtown to accommodate increased use. In addition, the development standards for the Downtown Specific Plan require usable public open space as part of residential and office development. The City, LARPD and developers have an established history of cooperation in providing public open space as evidenced by such neighborhood parks as Altamont Creek, Northfront, Lester J. Knott and Summit and the expansion of Sycamore Grove Park.

C8-38: Maintaining a jobs/housing balance in a community is a desirable objective that is intended to reduce commuting rates. However, the ability of a jobs/housing balance to *actually* reduce commuting rates is affected by several factors, including the so-called "match" between jobs and housing. The concept of a jobs/housing match indicates that a jobs/housing balance may result in an actual reduction in commute rates only when the types of jobs offered in a community are those that would constitute desirable employment for those living in the community (or, vice-versa, only when housing in the community is affordable in relation to wages offered by employment opportunities in the community).

Although Livermore currently has an ostensible jobs/housing balance (a jobs/employment ratio of approximately 1.1, as indicated on page 81 of the DEIR), the City experiences a high commute rate. One of the major reasons for this discrepancy is that housing in Livermore is disproportionately expensive compared to available wages in the City. This situation manifests itself through high rates of in-commuting (by persons living in more affordable housing outside of Livermore, but working at lower-pay jobs in Livermore) and high rates of out-commuting (by persons living in relatively higher-cost housing in Livermore who work at higher-pay jobs, mostly in the inner Bay Area). One of the ways to rectify this jobs/housing mismatch is to increase the number of high-paying jobs in the City, which is the intent of Draft General Plan policy OSC-6.1.P5. As noted on page 82 of the DEIR, Draft General Plan actions ED-1.1.A3 and A5, and policies ED-2.1.P2 and P3 are also intended to increase the number of high-paying jobs in the City to reduce commute rates. Although the net effect of these policies could be a slight increase in the City's jobs/housing balance, the creation of more high-paying jobs in the City is anticipated to reduce high commute rates caused by the existing jobs/housing mismatch, and associated air pollution.

C8-39: The potential future growth of jobs in the City is limited by the presence of Livermore's Urban Growth Boundary (UGB), in conjunction with the limited availability of land zoned for commercial and industrial uses in the City. Therefore, there are physical constraints on job creation in the City. The maintenance of these restraints, in combination with the potential future implementation of a population cap, could reduce the likelihood that a substantial jobs/housing imbalance would be created in the City (along with associated air quality impacts).

The commentator's comments are contradictory: if "recent ABAG moves to concentrate more development in the inner Bay Area" (moves which are being implemented by *individual* municipalities such as Berkeley and Oakland) will result in an adverse impact on air quality on Livermore, then decisions made by individual communities (such as Berkeley and Oakland) *do* have an impact on regional air quality. Even if the commentator's premise ("that air quality is . . . impacted only very little by the relatively minor decisions made by individual communities") was true, the City would not be responsible for analyzing, in the DEIR, the comparative air quality impacts associated with increased development in the Bay Area versus increased population growth in Livermore. The primary purpose of the DEIR is to analyze the impacts of the proposed project and to recommend feasible mitigation measures to reduce adverse impacts, not to analyze the relative benefits and impacts of mitigation measures proposed in other policy documents.

In addition, the City disagrees with the commentator's statement that "the factors cited in the Plan as those that would be considered to determine the growth rate do not include air quality." In fact, several policies in the Draft General Plan link air quality to population growth, including policy OSC-6.1.A4 (cited by the commentator) which states that a population cap would be studied "in the event of a decline in air quality over the next five to ten years." The ability of the City to meet State housing goals is discussed in Section IV.B., Population, Employment, and Housing, of the DEIR. If a municipality does not provide for its Regional Housing Needs Determination in its Housing Element, it may be denied State housing assistance.

C8-40: The comment relates to the policies and actions in the Draft General Plan regarding growth management and does not identify errors or inadequate analysis contained in the Draft EIR; therefore, no further response is necessary.

C8-41: Comment addresses an aspect of a General Plan policy and does not relate to the adequacy of the Draft EIR. No further response is necessary.

C8-42: The comment addresses a statement in the EIR in the Chapter that evaluates potential Growth-Inducing Impacts and it is in that context that this conclusion was drawn. To be more explicit, the UGB would tend to concentrate growth within or immediately adjacent to urbanized areas of Livermore, instead of accommodating it by growing outward at its edges. Development in the City's existing urbanized areas would have less of a growth-inducing effect than greenfield development because key infrastructure (e.g., water, sewer, storm drainage, roads) is already in place.

C8-43: The *perspective* of the growth induction question is primarily that of the City of Livermore and secondarily that of nearby County lands; in no case do the *CEQA Guidelines* suggest that this evaluation should extend to consider distant expressions of regional growth such as might occur in the Central San Joaquin Valley. The *proximity* of the growth induction effect to be considered should be relatively close; the question pertains to the physical provision of infrastructure or the removal of physical or policy constraints that would lead to growth within or adjacent to the study area. The growth that might express itself elsewhere in Northern California in the event that Livermore

discourages it here by way of the UGB would not be said to be "induced"; it would have little to do with the City of Livermore per se.

C8-44: On page 245 of the DEIR, under the heading of Consumption of Non-Renewable Resources, in the CEQA-mandated section titled Significant Irreversible Changes, provides examples of the three ways in which General Plan policies would result in minimal conversion of agricultural land. The policies cited there address: protection of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland is not developed; agricultural land preservation outside the Livermore UGB; and the agricultural preserve program. The comment suggests a definition of "agricultural land" that is more strict than (or perhaps simply different from) that intended in the EIR. The definition of agricultural land used in the EIR does not, for example, include any land ownership criteria that exclude land from the category if owned by other than "farmers."

C8-45: The commentator's statement alludes to a discrepancy between project-specific impacts and cumulative impacts. As discussed on pages 138 and 139 of the DEIR, implementation of the proposed project would result in a shortfall of approximately 426 acres of regional park space. However, this significant project-specific impact would be mitigated to a less-than-significant level through implementation of Draft General Plan policy OSC-5.1.P5 and the planned construction of additional regional park space, including an extension of the Iron Horse Trail.

The combination of project-related population growth and growth resulting from implementation of the cumulative projects would result in a significant unavoidable *cumulative* impact to regional parks, as described on page 247 of the DEIR, under the subheading "Public Services." This significant unavoidable cumulative impact is referenced in subsection E, Unavoidable Significant Effects, on page 250 of the DEIR, which states: "In addition, as discussed previously in this section, the proposed project would result in significant unavoidable cumulative impacts in the following topical areas: traffic and circulation; utilities; infrastructure and energy; *public services*; air quality; noise; and biological references" (italics added for emphasis).

C8-46: See Responses to Comments B1-15, B1-16, and B1-17 regarding the analysis of alternatives.

C8-47: Comment noted. The statement in the Draft EIR regarding the Redistributed Alternative was descriptive of a shift in the population distribution in the alternative and was not identified as a potential significant impact.

C8-48: As detailed in Chapter III, Project Description, of the Draft EIR, the Draft General Plan would allow for the development of 11,861 new housing units, for a total of 40,160 units in the City in 2025. Such an increase in housing is consistent with Livermore's Regional Housing Needs Allocation (prepared by ABAG) of 5,107 per year for the City's current Housing Element cycle of 1999 to 2006. In general, the additional units are projected to be built in (1) Downtown Livermore, (2) the area of the future Greenville BART station, (3) residential infill areas, and (4) on redesignated commercial and industrial areas. See Response to Comment C6-2 regarding regional development issues Regarding "the

Letter
C9

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JUL 2 9 2003
COMMUNITY DEVELOPMENT DEPARTMENT

July 29, 2003

Susan Frost, Planner City of Livermore

Comments on Draft Livermore Environmental Impact Statement

The Livermore EIR is a basically flawed document. While it acknowledges a proper planing area (ref fig III-1) it dramatically fails to assess the impacts of reasonable alternatives within that area. In particular, the location of the Urban Growth Boundary (UGB), which is used as justification for determining environmental impacts throughout the document, makes achieving any kind of objective analysis impossible..

This UGB does not demonstrate proper, rational planning in the context of what UGB's are meant to achieve. Would you agree that a UGB is intended to provide a means to allow reasonable growth within a city's boundaries for the next 20-25 years? To construct this line, it is necessary to do it in a public manner such that, this community, the County, surrounding jurisdictions, and affected landowners can all say, "We can live with this". Such a line would be a compromise after much PUBLIC discourse and analysis..

What is the history of attempts to establish a meaningful UGB to the north of LIvermore? It is not a new concept. In 1995, the City of Livermore, the County of Alameda, and area property owners began working cooperatively to develop a comprehensive and environmentally acceptable 20 year plan to include all the ingredients of an enlightened smart growth project; abundant parks, adequate schools, coordinated transportation (including public transit), range of housing types, some 10,000 adjacent acres of land to be put under conservation easements paid for by contributions from developers, and a UGB at approximately May School Road to separate the urban development from non-urban uses. (See enclosed map). This proposal moved forward through the draft EIR stage.

1

So, there has been a firm project in existence with a definite alternative UGB that has not been evaluated in any way in the current EIR. Is the UGB in this document environmentally superior to that previous UGB?

And then, in 1999, a group of Livermore zealots succeeded in putting an initiative on the Livermore ballot that would require Livermore to cease working with Alameda County and to establish a UGB between May School and the I-580 freeway. While this initiative (CAPP) was handily defeated by the Livermore electorate (60% voted to keep Livermore engaged in determining the future of the area north of Livermore), it did designate a specific location for a UGB. Is this documented UGB environmentally superior to the one now under consideration?

The history continues. In 2000, this same group of Livermorons teamed up with the Bay Area Chapter of the Sierra Club to mount a $1.5 million dollar campaign to require Alameda County to withdraw from the joint comprehensive planning efforts. With voters of Oakland and Berkeley carrying the day, this initiative succeeded, thereby halting City/County cooperation in planning for this area.

Now, on to the latest UGB effort. By hi-jacking the initiative process to artificially force all growth into a confined area, rather than accommodating future urban growth in a responsible manner (as required by law), this same small cadre connived with the majority of the Livermo

Letter
C9
cont.

City Council (3-2 vote) into adopting an extremely restrictive UGB without a vote of the electorate, and without any analysis or public discourse. This General Plan Amendment, and the UGB it contains, is probably illegal for the following reasons:

1- There has been no environmental impact analysis of the General Plan Amendment as required by law

2- The ordinance, without a vote of the Livermore electorate, contains the requirement it can only be changed by a vote of the electorate

If the latest initiative with its peculiar UGB had been adopted by a vote of Livermore citizens, that is one thing, but to adopt an General Plan Amendment ordinance based upon the initiative is a legislative act, and is therefore subject to the laws and rules governing general plan amendments.

1 cont.

Has the validity of the initiative and its coercive UGB been covered in this draft EIR?

Since there are other valid, reasonable alternative UGB's, is it not appropriate and necessary to provide adequate comparative evaluation of foreseeable environmental impacts? Could it be that this EIR is not an objective look at reasonable alternatives within the recognized planning area, but rather a dubious and directed attempt to not evaluate certain logical planning considerations?

For example, urban development, such as a high density Transit Oriented Development (TOD) located near a transit station, adjacent to existing housing, served by existing infrastructure, but outside the current questionable UGB, is the same as the one considered as having no significant environmental impacts because it 'is inside the UGB'. A proper evaluation would consider more than whether it is inside or outside a UGB. Where is this evaluation?

Livermore's General Plan and its housing element are to be in agreement. But Livermore's housing element has yet to be approved by the state. With the former North Livermore comprehensive plan and its 12,500 units over the next 20 years, meeting state requirements would appear to be eminently doable. By taking away these 12,500 housing units north of the freeway on land that is logical to put under urban development
and trying to shove them into the existing city limits seems to require an analysis of the environmental impacts of these two alternatives. Are you saying that the area north of I-580 that has had considerable previous study for development simply doesn't exist?

2

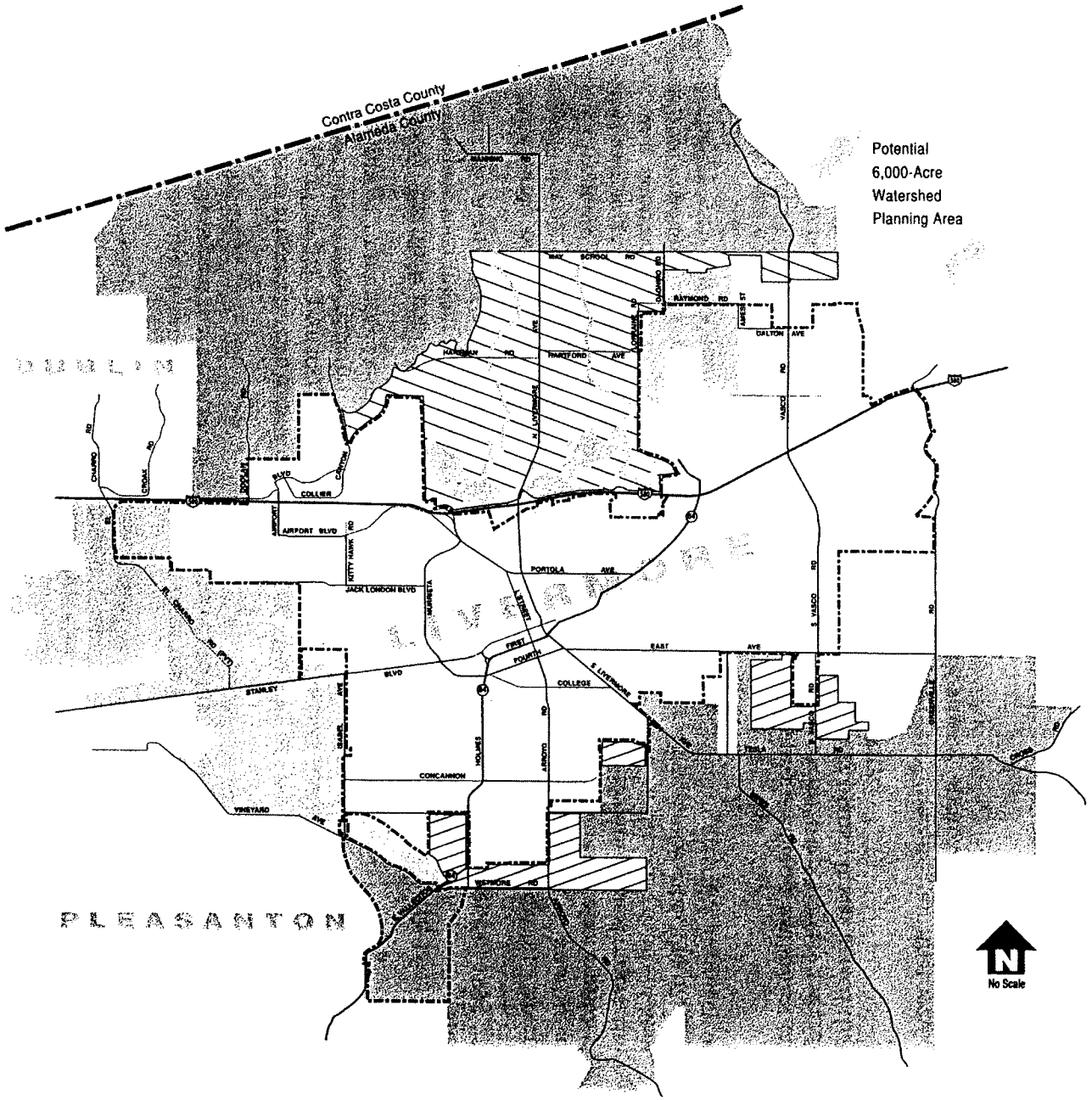
I personally attended almost all of the General Plan and downtown Specific Plan presentations. Public participation was quite low. The General Plan Steering Committee, appointed by a divided council, was also not representative of the community with regard to ethnicity, age, income level, and home ownership/renter. This lack of participation/representation culminated in attendance at the one draft environmental impact statement hearing of just 8 persons. My view is that this environmental document is more a political statement than an objective analysis.

3

Encl: Livermore Open Space Program

William Raymond
2368 Buena Vista Avenue
Livermore, Ca 94550

LIVERMORE'S OPEN SPACE PROGRAM



- North Livermore Planned Protected Open Space
- Proposed North Livermore Annexations
- Quarry (Future Chain of Lakes Recreation Area)
- Livermore City Limits
- South Livermore Permanently Protected Open Space
- Approved South Livermore Annexations

Letter C9 Attach.

Letter
C9
Attach.

What You Should Know About North Livermore

The entire 13,000 acre North Livermore planning area is outside the boundaries of the City of Livermore - it is under the jurisdiction of Alameda County. The part proposed for urbanization is surrounded on 2-1/2 sides by the City of Livermore

The city and the county fought over the area from the early 1970's until 1995. The city consistently argued that because the area is adjacent to Livermore, the city should control its development.

The area is affected by two existing General Plans. The City of Livermore adopted its plan in 1993. This plan provides for approximately 12,500 homes south of May School Road, and includes a requirement for substantial open space. This city plan won the prestigious Ahwahnee Community Design Award in 1994.

Arguing that their concerns had not been incorporated into the plan, North Livermore developers sued the city over the adequacy of its Environmental Impact Report (EIR), and turned to Alameda County, which adopted its own General Plan Amendment in 1994.

The County originally planned for nearly double the city's desired population - about 62,000 people. County supervisors cited strong concern over the shortage of housing in the Livermore Valley relative to the number of anticipated jobs. However, after considerable lobbying by the Sierra Club, Greenbelt Alliance, the City of Livermore and others, the county adopted a plan for about the same number as Livermore, in the same south-of-May School Road area. However, they left open the option of again expanding back to 62,000. Unhappy with this loophole, the City of Livermore sued the county over the adequacy of its EIR.

In 1995, the City of Livermore, Alameda County and developers reached a settlement on the two lawsuits. The settlement obligated the three parties to work cooperatively towards a new plan that combined the best features of the two existing plans. It was agreed that at the end of this process the area would be annexed to the city.

The parties also agreed to come up with an open space/agriculture program that would protect all the land around the area proposed for development - approximately 80% of the planning area, or in excess of 10,000 acres.

The three parties have been working on this plan since 1995. The developers have consented to pay $25,000/acre, for a total of over $50 million to permanently secure the 80% in open space/agriculture. The North Livermore Plan is expected to build out over a 20-25 year period.

Measure B (the CAPP initiative) requires the city to withdraw from this joint planning process and return full control to Alameda County (Section IIIC). The county and the developers would be relieved of any legal obligation to honor the city's concerns, and would be free to build whatever plan they felt appropriate.

Provided by Caring About Livermore - 1999
P.O. Box 2009 • Livermore, CA 94551 • 925-447-4027

COMMENTOR C9
William Raymond (July 29, 2003)

C9-1: The Draft EIR authors disagree with the statement that the Draft EIR is a flawed document because it fails to assess the impacts of reasonable alternatives including alternative UGBs. See Responses to Comments B1-15 and C5-1 regarding the range of alternatives evaluated in the DEIR and Responses to Comments C3-1 and C5-3 regarding analyzing the UGB. Comments noted regarding past UGB efforts. As stated previously, it is not necessary to evaluate the environmental impacts of the initiative and the UGB in this Draft EIR.

C9-2: See Response to Comment C5-4 regarding the Housing Element and the Draft General Plan.

C9-3: Comment noted regarding the attendance Draft General Plan and Downtown Specific Plan presentations.

Letter
C10

JUL-30-03 WED 04:42 PM

Michael G. van Hattem Comments
City of Livermore General Plan

July 30, 2003

Susan Frost, Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

Dear Ms. Frost

The purpose of this letter is to provide comments on the City of Livermore's Draft General Plan Update and the associated Draft EIR. I am a Professional Wildlife Biologist and resident of Livermore.

North Livermore

These comments will primarily focus on impacts to the remaining population of California tiger salamanders (*Ambystoma californinense*) at and within proximity to Frick Lake. I strongly disagree with the less than significant determination for development plans within proximity to Laughlin Road and Frick Lake. How is it not significant when critical upland habitat is covered with residential and industrial development? Remember the biology of this state endemic species; it spends greater than 90% of its life in burrows away from the breeding pond (Frick Lake). This development plan will definitely threaten the viability and long-term sustainability of this remaining population. I find it troubling that the City of Livermore's Revised Land Use Determination is proposing to develop on some of the most biologically unique and diverse land left in the Tri-valley. It is your responsibility to provide an unbiased and objective determination under the guidelines of the California Environmental Quality Act. I do not believe a less than significant determination can be rendered for this development plan and its impact on endemic plants and animals. If agricultural practices are considered "irreplaceable natural resources" (OSC-3) how is the City of Livermore willing to remove vital habitat for the California tiger salamander and endemic plants that occur only in a handful of locations. I'd suggest re-examining the cities priorities, I'm sure the Livermore public would agree. Have you considered cumulative impacts such as; hydrologic changes, vehicle strikes, collection, run-off, trespassing, invasive species, and increases in predator numbers? At a minimum admit that the north Livermore Development plan is what it is, a significant impact to endemic species. 1

Open Space For The Preservation of Natural Resources

- Open Water (page 8-7): The paragraph is written in a way that suggests bullfrogs (*Rana catesbeiana*), bluegill (*Lepomis macrochirus*), and bass (*Micropterus sp.*) are desirable species? Besides habitat loss and fragmentation, invasive non-native species such as the species above are extirpating remaining populations of California red-legged frogs (*Rana aurora draytonii*) and California tiger salamanders. It is important that the City of Livermore truly understands that i 2

has a land and resource stewardship responsibility to protect declining species. In OSC-1.3 I'd suggest stronger wording and specifics, i.e. bullfrogs will be removed within City jurisdiction. It isn't enough to say what has been said in A1, the necessary teeth are missing. The invasive non-native predators are well known and can easily be found in the literature or in your own document.

Objective OSC-1.2

- P10. Allowing dams in riparian areas (i.e. arroyos) will not allow for fish passage, in previous sections the importance of arroyos within the plan for fish migration was stated. I believe allowing dams will not work even with water releases. These "reservoir" situations are known to harbor invasive species such as bullfrog and bass that may not occur in a flowing or ephemeral system.

2 cont.

Objective OSC-1.3

- P1. Rather than "incorporate," it would be better to require a percentage of native plants? The current wording could be interpreted to include one native plant, and therefore the wording "incorporate" would be satisfied, I'm sure this wasn't your intent?

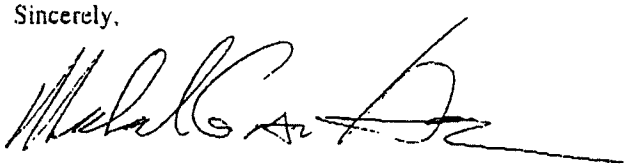
Objective OSC-3

- P3. Do we really need more vineyards in Livermore, especially at the expense of true open space?

Please consider alternative building sites that will not permanently destroy the natural diversity of the Livermore Valley. I strongly believe that the current proposal to develop land south and west of Frick Lake will greatly diminish the long-term viability of possibly the greatest concentration of California tiger salamanders left in the Livermore Valley. I understand the need for housing and certainly advocate mass transit but not at the expense of the last remaining populations of Livermore's natural heritage. Thanks for the opportunity to comment.

3

Sincerely,



Michael G. van Hattem
Wildlife Biologist/Livermore Resident
925-443-6659
BRDNRD@worldnet.att.net

COMMENTOR C10
Michael G. van Hattem (July 30, 2003)

C10-1: At the program level of analysis, impacts to the California tiger salamander would be mitigated to a less-than-significant level through implementation of the following Draft General Plan policies: OSC-1.1.A1, OSC-1.1.A2, OSC-1.2.P1, OSC-1.2.P8. These policies mandate the protection of protected plant and wildlife species, including the California tiger salamander, in all portions of the City. Future development in the vicinity of Frick Lake may have an impact on California tiger salamanders and other native species. However, these potential impacts would be identified and mitigated as part of the environmental review process that specific development projects would be required to undergo.

C10-2: Page 218 of the MEA identifies bullfrogs, bluegill, and bass as non-native predators. This description does not imply that these species are beneficial. These species are known to be predators of native amphibians and fish and as such have a detrimental effect on native species.

A Draft General Plan policy that would effectively remove all bullfrogs is infeasible to fund or implement, due to the widespread occurrence of bullfrogs throughout California. Instead, the City may require bullfrog eradication at specific sites where this method of control is likely to be effective and present the best opportunities to improve habitat for native amphibians and fish. Such determinations and requirements would be made during the environmental review period for specific projects.

Dams are known to have adverse effects on native species. Dams in riparian areas for any other purpose than agriculture would be subject to CEQA review at the project-specific level; appropriate mitigation measures would be imposed at that time.

Details of restoration or revegetation plans would be determined on a project-by-project basis. The planting of a single plant to fulfill Objective OSC-1.2.P1 would not satisfy the intent of Draft General Plan policies, which seek to encourage the large-scale incorporation of native plants into landscape plans.

Draft General Plan policies seek to encourage a balance between the preservation of natural open space and agricultural development.

C10-3: Refer to response C10-1. Alternate building sites are not necessary to reduce the Draft General Plan's impacts to the California tiger salamander to a less-than-significant level.

Letter
C11

July 28, 2003

To: Susan Frost, Senior Planner
Livermore Community Development Department
1052 South Livermore Avenue
Livermore, CA 94550

From: Sharon and Owen Parker
Courtney Cooke
John Canfield
Bonnie and Don Hughes

Subject: **Draft EIR on Draft General Plan and Downtown Specific Plan**

In reviewing the City of Livermore's Draft EIR on the Draft General Plan and Downtown Specific Plan we found that the missing connection of Mines Road from East Avenue to Tesla Road and the resulting traffic volume on Buena Vista Avenue were not addressed.

We are asking that they be addressed for the following reasons:

- The EIR states that:
  Mines Road from Las Positas to First Street is a "Collector" street,
  Mines Road from First Street to East Avenue is a "Major" street,
  Mines Road from East Avenue to Tesla Road is omitted (the Missing Link), and
  Mines Road from Tesla Road south is listed as a Rural Route.
- The EIR for the SVSP was flawed as stated in Attorney Trent Orr's letter to Marc Roberts dated July 14, 1997 (See attachment). The flaw in Fehr and Peers Associates analysis is very apparent as verified by the traffic counts conducted on Buena Vista Avenue by Alameda County from 1998 to 2003. (See attached Alameda County Mitron Systems Volume Count Report dated 6/4/03.)

1

Year	Average Weekday Volume	Average Weekend Volume
1996	1446	1240
1998	*	*
2000	1280	1030
2001	1330	1120
2002	1750	1180
2003	2196	1759

*Left turns were prohibited from East Avenue to Buena Vista Avenue

Letter
C11
cont.

- The City of Livermore preferred maximum of 2000 Average Daily Trips (ADT) has been exceeded by 200 ADT on Buena Vista Avenue, a rural residential road.
- The staff summary report dated October 27, 1997 (attached) regarding traffic forecast stated that the traffic volume on Buena Vista Ave. would be an estimated 2200 ADT's by 2010. **As you can see, we are NOW at the level of ADT's projected for 2010.**
- In 2003 we have reached the City's high-end estimate (2200 ADT's) with the SVSP at only about 50% build-out. In 2010 with 100% build-out of the SVSP, the impact on Buena Vista Avenue, a minor rural residential road, will be astronomical and unsafe.
- As part of the mitigation process for the SVSP in late 1997, Mayor Brown asked the city attorney if traffic volume required the connection of Mines Road between East Avenue and Tesla Road, could the land be removed from the South Livermore Valley Land Trust? The city attorney's answer was "YES" as documented in the minutes of the city council meeting.

The need to include the connection of Mines Road between East Avenue and Tesla Road in the General Plan is imperative for the safety of Buena Vista residents and the present and future traffic circulation in the City of Livermore.

1
cont.

If you have any questions, please contact one of us.

Sharon L. Parker Dawn Parker

Courtney Orr Joan Crawford

Bonnie Hughes Don Hughes

Attachments:

Trent Orr Letter to Marc Roberts dated 7/14/97
Mitron Systems Volume Count Report dated 6/4/03
City of Livermore Staff Summary Report dated 10/27/97

Mitron Systems Volume Count Report

Site Name	Buena Vista Avenue
Jurisdiction	400 m s/o East Avenue
Study Type	Volume (ch1)
Location Code	11
Direction	South
Date	6/4/2003
Real Time	11:43
Start Date	6/4/2003
Start Time	12:00
Sample Time	00:15
Operator Number	9
Machine Number	8

Wednesday, June 04, 2003

6/4/2003 Wed

HR Begin	HR Total	00-15	15-30	30-45	45-00
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13	55	16	8	14	19
14	60	12	14	12	22
15	66	20	10	21	15
16	63	13	21	16	13
17	62	16	16	19	11
18	86	18	28	30	10
19	71	23	15	19	14
20	32	5	9	9	9
21	23	4	4	7	8
22	17	7	3	5	2
23	6	1	4	1	0
	591	Total			

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5:00 17
6:00 18
7:00 19
8:00 20
9:00 21
10:00 22
11:00 23

AM Peak Hour Start	
AM Peak Hour Total	
AM Peak Hour Factor	
PM Peak Hour Start	18:15
PM Peak Hour Total	91
PM Peak Hour Factor	66.91 %

6/5/2003 Th

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	1	0	0	0	1
01	4	0	1	1	2
02	0	0	0	0	0
03	3	1	0	1	1
04	7	1	1	2	3
05	20	4	4	6	6
06	37	11	7	7	12
07	56	16	12	16	12
08	93	23	41	21	8
09	55	24	9	12	10
10	32	9	3	12	8
11	43	12	12	7	12
12	54	13	13	16	12
13	39	5	11	9	14
14	59	9	11	18	21
15	100	34	16	23	27
16	76	20	10	30	16
17	79	14	26	21	18
18	68	15	12	27	14
19	41	11	13	11	6
20	38	9	9	10	10
21	34	11	7	8	8
22	20	7	5	6	2
23	5	2	2	1	0
	964	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	97
AM Peak Hour Factor	59.15 %
PM Peak Hour Start	15:00
PM Peak Hour Total	100
PM Peak Hour Factor	73.53 %

6/6/2003 Fri

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	4	0	3	0	1
01	2	1	1	0	0
02	3	1	2	0	0
03	4	2	1	0	1
04	7	2	2	1	2
05	18	1	3	10	4
06	27	4	8	7	8
07	55	8	14	13	20
08	89	19	35	19	16
09	65	24	14	11	16
10	47	13	6	13	15
11	63	16	18	12	17
12	47	12	14	9	12
13	55	18	4	12	21
14	39	13	7	11	8
15	83	32	21	17	13
16	79	17	26	18	18
17	82	10	19	29	24
18	61	17	23	11	10
19	30	7	5	9	9
20	34	8	8	8	10
21	21	7	5	7	2
22	25	5	5	5	10
23	21	3	7	8	3
	961	Total			

AM Peak Hour Start	08:15
AM Peak Hour Total	94
AM Peak Hour Factor	67.14 %
PM Peak Hour Start	17:30
PM Peak Hour Total	93
PM Peak Hour Factor	80.17 %

6/7/2003 Sat

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	14	4	1	3	6
01	2	1	1	0	0
02	2	2	0	0	0
03	5	2	0	3	0
04	1	0	0	0	1
05	7	0	3	0	4
06	15	6	0	3	6
07	21	5	6	5	5
08	48	10	13	10	15
09	53	16	12	13	12
10	57	17	19	14	7
11	62	12	23	11	16
12	60	10	15	17	18
13	66	13	13	19	21
14	74	23	18	18	15
15	61	16	18	18	9
16	58	17	19	7	15
17	44	16	11	8	9
18	50	15	10	11	14
19	40	7	10	9	14
20	40	10	8	15	7
21	27	4	5	10	8
22	19	6	6	6	1
23	10	4	0	3	3
	836	Total			

AM Peak Hour Start	09:45
AM Peak Hour Total	62
AM Peak Hour Factor	81.58 %
PM Peak Hour Start	13:30
PM Peak Hour Total	81
PM Peak Hour Factor	88.04 %

Mitron Systems Volume Count Report

Site Name	Buena Vista Avenue
Jurisdiction	400 m s/o East Avenue
Study Type	Volume (ch1)
Location Code	11
Direction	South
Date	6/4/2003
Real Time	11:43
Start Date	6/4/2003
Start Time	12:00
Sample Time	00:15
Operator Number	9
Machine Number	8

Sunday, June 08, 2003

6/8/2003 Sun

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	4	1	1	1	1
01	3	0	2	1	0
02	2	0	1	0	1
03	2	0	0	0	2
04	3	0	2	0	1
05	7	3	1	1	2
06	11	5	4	2	0
07	31	6	8	6	11
08	30	7	3	8	12
09	46	19	9	10	8
10	57	18	21	9	9
11	47	7	12	13	15
12	70	23	27	9	11
13	61	16	14	17	14
14	40	7	13	11	9
15	39	8	15	16	10
16	44	11	14	9	10
17	44	9	9	11	15
18	31	9	8	9	5
19	42	10	10	16	6
20	21	10	6	2	3
21	18	7	2	5	4
22	10	4	4	1	1
23	2	2	0	0	0
	675	Total			

AM Peak Hour Start	09:30
AM Peak Hour Total	57
AM Peak Hour Factor	67.86 %
PM Peak Hour Start	12:00
PM Peak Hour Total	70
PM Peak Hour Factor	64.81 %

6/9/2003 Mon

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	5	1	3	1	0
01	1	0	0	0	1
02	1	0	0	0	1
03	2	2	0	0	0
04	5	1	1	1	2
05	20	5	3	7	5
06	36	8	5	9	14
07	44	6	11	10	17
08	84	24	34	14	12
09	40	13	10	12	5
10	56	22	13	9	12
11	45	7	19	11	8
12	46	9	14	9	14
13	58	17	12	12	17
14	56	16	11	18	11
15	82	20	17	25	20
16	77	14	18	14	31
17	76	16	16	29	15
18	58	15	14	19	10
19	44	14	15	9	6
20	42	8	11	16	7
21	33	13	9	7	4
22	10	7	1	1	1
23	3	1	1	0	1
	924	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	89
AM Peak Hour Factor	65.44 %
PM Peak Hour Start	16:45
PM Peak Hour Total	92
PM Peak Hour Factor	74.19 %

6/10/2003 Tue

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	12	6	3	1	2
01	2	2	0	0	0
02	1	1	0	0	0
03	2	1	1	0	0
04	10	2	0	3	5
05	16	1	2	7	6
06	34	11	4	8	11
07	66	16	17	13	20
08	95	24	42	13	16
09	51	16	11	15	9
10	33	7	8	10	8
11	51	15	11	14	11
12	43	6	9	17	11
13	68	14	20	19	15
14	47	7	14	7	19
15	72	30	14	17	11
16	75	14	24	20	17
17	86	19	20	29	18
18	60	22	11	11	16
19	53	9	17	16	11
20	36	6	10	9	11
21	27	13	9	3	2
22	10	5	2	2	1
23	5	1	1	3	0
	955	Total			

AM Peak Hour Start	07:30
AM Peak Hour Total	99
AM Peak Hour Factor	58.93 %
PM Peak Hour Start	17:15
PM Peak Hour Total	89
PM Peak Hour Factor	76.72 %

6/11/2003 Wed

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	0	0	0	0	0
01	1	1	0	0	0
02	2	1	0	1	0
03	3	2	1	0	0
04	6	1	1	1	3
05	19	2	6	3	8
06	39	5	11	7	16
07	50	11	8	14	17
08	85	21	32	17	15
09	47	14	14	14	5
10	49	16	11	13	9
11	49	16	9	18	6
12	36	13	5	9	9
13	77	22	18	22	15
14	43	10	13	10	10
15	64	21	8	17	18
16	58	14	15	15	14
17	94	28	21	28	17
18	47	8	13	10	16
19	51	18	14	10	9
20	35	6	9	7	13
21	29	10	8	6	5
22	8	2	2	3	1
23	10	2	4	3	1
	902	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	87
AM Peak Hour Factor	67.97 %
PM Peak Hour Start	17:00
PM Peak Hour Total	94
PM Peak Hour Factor	83.93 %

Letter C11 Attach.

Mitron Systems Volume Count Report

Site Name	Buena Vista Avenue
Jurisdiction	400 m s/o East Avenue
Study Type	Volume (ch1)
Location Code	11
Direction	North
Date	6/4/2003
Real Time	11:46
Start Date	6/4/2003
Start Time	12:00
Sample Time	00:15
Operator Number	0
Machine Number	12

Wednesday, June 04, 2003

6/4/2003 Wed

HR Begin	HR Total	00-15	15-30	30-45	45-00
00					
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12	77	11	19	18	29
13	58	20	15	9	14
14	68	15	20	20	13
15	95	28	24	20	23
16	103	15	30	26	32
17	171	45	40	47	39
18	97	25	25	23	24
19	79	23	19	17	20
20	68	14	17	22	15
21	37	7	10	12	8
22	27	13	5	3	6
23	3	1	0	0	2
	883	Total			

AM Peak Hour Start	
AM Peak Hour Total	
AM Peak Hour Factor	
PM Peak Hour Start	17:00
PM Peak Hour Total	171
PM Peak Hour Factor	90.96 %

6/5/2003 Th

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	7	1	1	2	3
01	3	1	0	2	0
02	2	0	1	1	0
03	4	2	1	1	0
04	1	0	0	0	1
05	10	0	3	7	0
06	30	6	4	15	5
07	54	10	9	14	21
08	98	32	31	20	15
09	48	18	13	10	7
10	45	14	10	8	13
11	51	14	8	14	15
12	74	17	19	19	19
13	55	16	11	11	17
14	84	25	23	18	18
15	107	28	31	28	20
16	134	25	41	24	44
17	124	29	43	23	29
18	123	33	38	35	17
19	88	29	16	16	27
20	64	19	16	13	16
21	54	22	15	10	7
22	22	9	6	4	3
23	6	2	2	1	1
	1288	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	104
AM Peak Hour Factor	81.25 %
PM Peak Hour Start	16:30
PM Peak Hour Total	140
PM Peak Hour Factor	79.55 %

6/6/2003 Fri

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	3	0	1	1	1
01	2	0	1	1	0
02	4	2	1	0	1
03	3	1	1	0	1
04	2	0	1	0	1
05	10	1	2	3	4
06	16	1	7	3	5
07	59	12	10	18	19
08	106	34	29	26	17
09	65	16	21	22	6
10	47	8	15	8	16
11	59	12	15	14	18
12	73	17	21	12	23
13	91	23	12	26	30
14	86	18	19	26	23
15	90	19	25	24	22
16	115	33	17	36	29
17	117	28	21	36	32
18	119	30	28	35	26
19	87	24	21	22	20
20	67	25	19	14	9
21	47	18	12	9	8
22	24	7	6	7	4
23	24	9	3	5	7
	1316	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	108
AM Peak Hour Factor	79.41 %
PM Peak Hour Start	17:30
PM Peak Hour Total	126
PM Peak Hour Factor	87.50 %

6/7/2003 Sat

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	9	3	4	1	1
01	8	2	3	2	1
02	3	2	1	0	0
03	5	0	1	2	2
04	0	0	0	0	0
05	4	0	0	2	2
06	17	4	4	2	7
07	28	4	6	9	9
08	53	12	9	16	16
09	61	17	15	13	16
10	68	13	17	18	20
11	57	18	12	14	13
12	88	24	21	19	24
13	84	13	21	26	24
14	71	24	20	14	13
15	87	25	22	18	22
16	82	28	24	16	14
17	64	9	21	16	18
18	95	29	24	27	15
19	67	21	15	15	16
20	56	13	16	17	10
21	29	6	9	4	10
22	33	11	7	6	9
23	20	1	7	8	6
	1089	Total			

AM Peak Hour Start	10:15
AM Peak Hour Total	73
AM Peak Hour Factor	91.25 %
PM Peak Hour Start	17:45
PM Peak Hour Total	98
PM Peak Hour Factor	84.48 %

Letter C11 Attach.

Mitron Systems Volume Count Report

Site Name	Buena Vista Avenue
Jurisdiction	400 m s/o East Avenue
Study Type	Volume (ch1)
Location Code	11
Direction	North
Date	6/4/2003
Real Time	11:46
Start Date	6/4/2003
Start Time	12:00
Sample Time	00:15
Operator Number	0
Machine Number	12

Sunday, June 08, 2003

6/8/2003 Sun

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	11	4	4	3	0
01	7	1	3	1	2
02	3	2	0	1	0
03	2	0	0	1	1
04	5	1	1	3	0
05	2	0	0	2	0
06	7	2	3	2	0
07	16	2	4	2	8
08	33	3	5	14	11
09	40	14	7	8	11
10	52	17	7	20	8
11	57	12	19	6	20
12	80	12	24	27	17
13	69	16	21	14	18
14	71	12	18	24	17
15	75	19	19	17	20
16	78	20	23	20	15
17	74	15	18	22	19
18	62	19	8	22	13
19	63	21	17	11	14
20	55	20	11	10	14
21	34	12	8	7	7
22	11	7	3	0	1
23	10	1	3	2	4
	917	Total			

AM Peak Hour Start	10:30
AM Peak Hour Total	59
AM Peak Hour Factor	73.75 %
PM Peak Hour Start	12:15
PM Peak Hour Total	84
PM Peak Hour Factor	77.78 %

6/9/2003 Mon

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	7	3	1	2	1
01	0	0	0	0	0
02	2	2	0	0	0
03	5	3	2	0	0
04	1	0	0	1	0
05	10	0	2	6	2
06	23	2	6	9	6
07	63	7	16	18	22
08	88	28	27	16	17
09	37	10	7	11	9
10	36	14	5	11	6
11	67	12	18	11	26
12	71	18	17	8	28
13	65	17	12	9	27
14	85	18	17	25	25
15	93	29	17	27	20
16	112	24	28	27	33
17	121	44	31	25	21
18	117	42	36	20	19
19	79	18	23	18	20
20	61	14	15	19	13
21	44	14	12	10	8
22	24	8	8	8	0
23	11	2	3	2	4
	1222	Total			

AM Peak Hour Start	07:30
AM Peak Hour Total	95
AM Peak Hour Factor	84.82 %
PM Peak Hour Start	16:30
PM Peak Hour Total	135
PM Peak Hour Factor	76.70 %

6/10/2003 Tue

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	3	0	2	0	1
01	2	0	0	0	2
02	5	3	2	0	0
03	3	1	2	0	0
04	2	0	0	1	1
05	6	1	2	1	2
06	33	0	11	12	10
07	61	11	16	11	23
08	96	33	24	20	19
09	60	15	9	15	21
10	59	11	11	22	15
11	57	12	14	16	15
12	71	20	12	19	20
13	71	17	13	16	25
14	74	17	17	14	26
15	75	23	11	23	18
16	131	34	26	33	38
17	122	35	33	33	21
18	123	29	31	32	31
19	81	19	21	25	16
20	61	16	13	17	15
21	36	15	8	7	6
22	20	8	5	5	2
23	8	2	1	4	1
	1260	Total			

AM Peak Hour Start	07:45
AM Peak Hour Total	100
AM Peak Hour Factor	75.76 %
PM Peak Hour Start	16:30
PM Peak Hour Total	139
PM Peak Hour Factor	91.45 %

6/11/2003 Wed

HR Begin	HR Total	00-15	15-30	30-45	45-00
00	6	3	2	0	1
01	3	0	0	3	0
02	4	1	0	2	1
03	6	2	2	2	0
04	1	0	0	0	1
05	7	2	1	4	0
06	28	3	9	7	9
07	61	11	12	15	23
08	87	33	27	15	12
09	50	16	10	13	11
10	31	7	11	6	7
11	67	13	15	13	26
12	59	14	17	11	17
13	67	23	21	17	6
14	78	12	25	22	19
15	88	13	19	29	27
16	105	24	23	29	29
17	132	27	38	39	28
18	98	31	26	24	17
19	62	15	14	18	15
20	80	28	15	25	12
21	41	16	10	12	3
22	26	5	8	11	2
23	12	2	6	3	1
	1199	Total			

AM Peak Hour Start	07:30
AM Peak Hour Total	98
AM Peak Hour Factor	74.24 %
PM Peak Hour Start	17:15
PM Peak Hour Total	136
PM Peak Hour Factor	87.18 %

Letter C11 Attach.

Letter
C11
Attach.

CITY OF LIVERMORE

STAFF SUMMARY REPORT

DATE: October 27, 1997

TO: HONORABLE MAYOR & CITY COUNCIL

FROM: MARC ROBERTS, ASSISTANT TO THE CITY MANAGER

SUBJECT: South Livermore Valley Specific Plan
General Plan Amendment #76-97;
General Plan Amendment #43-97;
General Plan Amendment #88-97;
Zoning Ordinance Text Amendment #T-281; and
Prezoning #Z-504

SYNOPSIS

The City has initiated consideration of the South Livermore Valley Specific Plan and related actions to implement the Urban component of the South Livermore Valley Area Plan which was formulated to protect and enhance agriculture, particularly viticulture, in the South Valley.

BACKGROUND

The South Livermore Valley Area Plan (SLVAP) was adopted by the County of Alameda and the City of Livermore to protect and enhance agriculture, particularly viticulture, in the South Valley. The Urban Component of the adopted SLVAP was designed to create and protect approximately 2,000 acres of additional intensive agriculture in the South Valley by allowing development of new residential units along the City's southern boundary, with the exact number and location of units to be determined through the City's planning process.

This meeting is the second before the City Council and follows four hearings at the Planning Commission on the Specific Plan, General Plan Amendment, and related actions. Related actions include a General Plan Amendment to create an Urban Growth Boundary south of I-580, a Zoning Ordinance Text Amendment to create a new Planned Development - South Livermore Valley Specific Plan Zoning District, and Prezoning to apply the new District to the seven subareas of the Specific Plan.

10-27-97
DATE

2.1
AGENDA ITEM NO.

REMAINING PROJECT ISSUES, ANALYSIS, AND RECOMMENDATIONS

ISSUE: **Mines Road Extension - Buena Vista Avenue Traffic**

Analysis: A substantial amount of written and oral testimony has been received regarding the likely amount of future traffic on Buena Vista Avenue and the need for an extension of Mines Road between East Avenue and Tesla Road. Residents of Buena Vista Avenue have offered testimony both for and against the Mines Road extension. Some residents hired Barton-Aschman Associates to provide detailed comments on the traffic analysis included in the Draft EIR.

A detailed response to those comments is included in the Final EIR. The Draft EIR concluded that traffic volume on Buena Vista Avenue in 2010 would be approximately 1,300 vehicles per day. The Barton-Aschman comment estimated the volume would be approximately 2,700 vehicles per day in 2010 based on the growth in traffic on parallel routes.

In preparing the Final EIR for consideration by the Council, the City staff and the City's traffic consultants reexamined the EIR's traffic analysis in light of the comments submitted by Barton-Aschman and some residents of Buena Vista Avenue. As reflected in the FEIR and discussed further below, the staff and the City's consultants have concluded that the impacts to Buena Vista Avenue will not be significant. This conclusion is supported by the methodology used in the Draft EIR as well as the methodology set forth in Barton-Aschman's comments.

Barton-Aschman's comments estimated this Project and cumulative development would lead to 2,700 Average Daily Trips (ADT) on Buena Vista Avenue in the year 2010. This estimate was based in part on inaccurate assumptions regarding (1) the volume of cut-through traffic, (2) existing traffic volumes, (3) projected volume increases on parallel routes, and (4) model connections between Almond Avenue and Tesla Road. When corrected to account for these assumptions, the Barton-Aschman methodology results in a projection of approximately 2,200 ADT for Buena Vista Avenue in 2010. For the reasons discussed in more detail in the FEIR, the staff concludes this number over estimates traffic as well. The Barton-Aschman methodology assumes routes parallel to Buena Vista Avenue, including Vasco Road and South Livermore Avenue, are equally attractive to all drivers from all directions (not only those driving to or from Mines Road) and will experience the same percentage increase in traffic growth over time. Because both Vasco Road and South Livermore Avenue are or will be wider and have higher speed limits than Buena Vista Avenue, the staff concluded that traffic growth on the wider, higher speed roads will be greater that on Buena Vista Avenue. For this reason, the staff does not recommend the Council rely upon the 2,200 ADT estimate.

While the City's analysis continues to show that projected traffic will be well within the 2,000 to 3,000 ADT environmental capacity of Buena Vista Avenue, some residents of Buena Vista Avenue advocate construction of a new parallel roadway. The South Livermore Valley Specific Plan EIR concludes that a new roadway is not required as a mitigation for impacts created by the project. Moreover, the FEIR concludes that construction of the new roadway would have several significant adverse environmental impacts. Finally, the staff does not recommend the construction of a new roadway as a matter of policy due to the high cost ($3.2 million) for a new two lane roadway which would provide a relatively modest reduction of trips on a single local street.

However, the Planning Commission has recommended another alternative to reduce vehicle volumes on Buena Vista Avenue. The Commission recommends construction of the landscaped median which is currently planned for East Avenue between Mines Road and Loyola Way with the development of Subarea 2. Building the median without a break at Buena Vista Avenue would eliminate left turns into and out of Buena Vista Avenue at East Avenue, and would reduce average daily traffic volume on Buena Vista Avenue.

The City's traffic consultant, Fehr and Peers Associates, has analyzed the impact of the new median on Buena Vista Avenue traffic patterns. The median would generally discourage only cut-through traffic since local residents would continue to use the street regardless of the median. Although Fehr and Peers did not complete a detailed cut-through estimate, a minimum cut-through estimate would be 48 percent based on an ADT of 1,540 and 800 local trips per day. Sixty percent of the 2010 a.m. peak traffic movements would be prevented by the median and 39 percent of the 2010 p.m. peak movements would be prevented based on data in Figure 4.5-25 in the DEIR. Combining the minimum estimate for cut-through traffic with the proportion trips prevented by the median results in a reduction of 29 percent for the a.m. peak and a reduction of 19 percent for the p.m. peak and an overall reduction of ADT between the two estimates.

Barton-Aschman concluded that 85 percent of the traffic on Buena Vista Avenue was cut-through traffic. Using this cut-through rate, the reduction due to the median would be 51 percent for the 2010 a.m. peak and 33 percent for the p.m.peak.

Regardless of which volume estimate is used (the 1,300 ADT City Estimate, 2,200 ADT City High-End Estimate, or the 2,700 ADT Barton-Aschman estimate), the median would reduce average daily traffic on Buena Vista Avenue to below the City's preferred maximum of 2,000 trips per day.

The median project is currently included in the City's Traffic Impact Fee (TIF) program but is not a high priority. The median would not significantly impact emergency response to the Buena Vista Avenue neighborhood since both the County fire (first response) and

Livermore/Pleasanton Station 6 (mutual aid second response) would make right turns onto Buena Vista Avenue.

Staff Recommendation: Implement the Planning Commission recommendation to require construction of the TIF funded median in East Avenue from Loyola Way to Mines Road to further reduce traffic volumes on Buena Vista Avenue. Change the priority of the median in the TIF program and coordinate the construction with the median east of Mines Road that will be constructed with Subarea 2.

ISSUE: **Subarea 1**

Analysis: At the October 6 City Council meeting, the Council directed the staff to investigate a land swap between Subarea 1 property owners and DOE (Sandia's landlord) to move residential development approximately 100-200 feet further from the Lab's existing operations.

The staff has reviewed several options to accomplish a land transfer. In addition, several designs were considered as a part of the process. The design the staff recommends is illustrated on Attachment #6, page 3, and would not result in a loss of lots for any Subarea 1 property owner. This approach would transfer approximately three acres from the Frydendal property to the Department of Energy and approximately six acres from DOE to Frydendal. Units on the Coast Realty property would be reorganized to place agricultural mitigation land and require an ag easement in the triangular portion of the property originally proposed for transfer. Rather than involve three property owners, the revised transfer program would involve only the Frydendal property and the DOE property which will significantly simplify the transfer process. Sandia Laboratories has agreed to provide all of the required document preparation, surveying, and processing to accomplish the transfer and is proposing to accomplish the entire process within one year (or less) of Specific Plan adoption. Sandia is in the process of drafting a formal Letter of Interest outlining this process to the City.

Staff Recommendation: Adopt the revised diagram (Attachment #6, page 3) for Subarea 1. Direct the staff to revise the discussion of Subarea 1 to incorporate the concept of the land transfer.

ISSUE: **Subarea 3**

Analysis: At the October 6 City Council meeting, the Council directed the staff to revise the Specific Plan to incorporate the following modifications. Development located within Subarea 3 shall meet the following requirements:

1. All detached garages and accessory structures developed immediately adjacent (i.e., no intervening open space buffer) to existing residential development at subarea boundaries shall be single story. (Recommended by the Planning Commission.)

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July 14, 1997

Via fax and U.S. mail

Marc Roberts
City of Livermore Planning Department
1052 South Livermore Ave.
Livermore, CA 94550-4899

Re: Comments on behalf of Concerned Citizens for the Completion of Mines Road on the Draft Environmental Impact Report on the South Livermore Valley Specific Plan

Dear Mr. Roberts:

I am writing on behalf of the Concerned Citizens for the Completion of Mines Road ("CCCMR") to offer comments on the Draft Environmental Impact Report ("DEIR") prepared on the proposed South Livermore Valley Specific Plan ("SLVSP" or "the Project"). Pursuant to a conversation with Fred Osborne of your office on July 3, 1997, I am submitting these comments to your office today by fax and by mailing a hard copy, which you will receive shortly. Thank you for this opportunity to comment on the DEIR on behalf of CCCMR.

As you know, my clients, an unincorporated group of Buena Vista Avenue neighbors, are very concerned about the potential negative impacts of the implementation of the SLVSP on their quiet residential neighborhood and are particularly concerned that the Project, both by itself and in conjunction with reasonably foreseeable cumulative development affecting the area, will significantly increase traffic on Buena Vista Avenue, to the substantial detriment of their safe and peaceful enjoyment of their homes and neighborhood. Buena Vista Avenue is classified in the Livermore General Plan as a "rural residential" street, intended to serve the neighborhood, not to be a major or collector roadway. Given its narrowness and the fact that about 80 homes have driveways that open onto Buena Vista, this road is simply not suitable to be either a collector or a major roadway as these are defined by the Livermore General Plan. This issue was discussed in detail in my letter of June 5, 1996 to the City Council regarding the potential effects of the SLVSP on the Buena Vista neighborhood. (A copy of this letter is included herewith and incorporated by reference herein as part of CCCMR's comments on the DEIR.)

Unfortunately, the DEIR does not properly analyze the potential traffic impacts of the SLVSP, either by itself or cumulatively with other development, on Buena Vista Avenue. Its conclusion that implementation of the SLVSP would not have a significant traffic impact on that street is based on the application of a traffic model that is very far from the mark in predicting actual existing traffic volumes on the street and that cannot, therefore, be reasonably relied upon to predict traffic impacts there in the future. CCCMR employed traffic experts at Barton-Aschman Associates, Inc., to review and comment upon the DEIR's analysis of traffic impacts on Buena Vista Avenue. Their comments on behalf of my clients are also being submitted by fax and mail today, in a document entitled "South Livermore Valley Specific Plan: Impacts on Buena Vista Avenue" ("B-A Report").

What the B-A Report reveals quite plainly is that the Tri-Valley Transportation Model

("TVTM"), relied upon in the DEIR to predict the SLVSP's traffic impacts on Buena Vista Avenue, is by no means an accurate or reliable predictor of traffic volumes on Buena Vista Avenue (or nearby roads) and cannot defensibly be used to analyze the SLVSP's impacts on that street. The TVTM, validated with 1990 traffic counts, shows 90 vehicles per day on Buena Vista as the current situation and predicts that this will rise in 2010 to 97 vehicles per day without the Project and to 130 vehicles per day with the Project, according to the DEIR's technical appendix on traffic. However, an actual traffic count made in September 1995 by the Alameda County Public Works Department showed traffic on Buena Vista Avenue ranging from 1,624 to 1,736 vehicles on weekdays, with an average of 1,686 vehicles per day. (Relying on this count, the B-A Report soundly assumes a rounded average of 1,700 vehicles per weekday on Buena Vista.) City of Livermore counts done three times in a week in October 1996 (during a Lawrence Livermore Laboratory holiday) recorded a highest daily volume of 1,539.

Both the County's and the City's counts exceed the TVTM's assumptions about current traffic volume on Buena Vista Avenue by more than an order of magnitude (the County's count of average daily volume is nearly 19 times the TVTM's 90 vehicles per day!). The same is true of the TVTM's predictions for 2010; County counts in 1995 and City counts in 1996 are again more than an order of magnitude greater than the TVTM's projections for thirteen years in the future, when the population and development of the area will have significantly increased. Without a doubt, the TVTM severely underestimates both current and future traffic on Buena Vista Avenue. The absurdity of the DEIR's reliance on the TVTM for traffic impacts in the Buena Vista area is well-illustrated, for example, by the traffic map on page 4.5-50, which purports to predict project-generated intersection traffic volumes. Based on the TVTM, this map claims that *no more than three trips* would be generated by the SLVSP development in any one direction on Buena Vista Avenue during either the a.m. or p.m. peak hour. That conclusion is simply unbelievable for a project that will create 574 new housing units in Subarea 2, in the immediate vicinity of Buena Vista Avenue.

Given the gross inaccuracy of the TVTM as a predictor for Buena Vista, the DEIR's analysis of the Project's impacts on traffic on that street, which expressly relies on this inapt model, is wholly unreliable. (Indeed, the B-A Report demonstrates that the TVTM also seriously underestimates other roadway traffic volumes in the area near the Buena Vista neighborhood. See B-A Report, Section 4.) A revised draft EIR must provide a new analysis employing a model that far more accurately reflects the actual and observable traffic conditions on Buena Vista Avenue. To continue to rely upon a traffic model to analyze the SLVSP's impacts on Buena Vista Avenue that so grossly understates current conditions on that street (and surrounding roadways) would be a plain violation of CEQA's requirement that the Project's potential environmental impacts be fully and objectively examined in the EIR.

The DEIR states that the lower limit on the environmental capacity of residential streets is 2000 vehicles per day. DEIR, p. 3.0-8. As a *rural* residential street and a narrow road with one-foot shoulders, Buena Vista Avenue's environmental capacity should reasonably be set at this lower limit. While my clients feel that the existing levels of traffic on Buena Vista Avenue already have a negative impact on their lives and that *any* observable increase in that volume would have a significant negative impact upon them, they certainly agree that an increase in existing traffic of over 300 more vehicles per day (assuming a current average daily volume of 1,700 vehicles) would significantly increase the negative impacts of traffic on their neighborhood. The B-A Report, which reflects a much more thorough and site-specific analysis of the SLVSP's likely traffic impacts on Buena Vista Avenue than does the DEIR, concludes that the Project, considered cumulatively with other foreseeable development, is realistically likely to result in an average of more than 2,700 vehicles per day on Buena Vista Avenue in 2010, far in excess of the DEIR's

stated threshold of significance for adverse impacts on environmental capacity. Barton-Aschman Associates arrived at this projection by estimating the current amount of "cut-through" traffic -- as opposed to traffic generated by the residences along Buena Vista Avenue -- using the street and by making the reasonable assumption that such north-south cut-through traffic on Buena Vista Avenue would increase by approximately the same percentage as north-south traffic would increase in general in the immediate area as a result of the Project and other foreseeable development. As Table 1 in the B-A Report shows, the DEIR projects a 71% increase in north-south traffic on the roadways nearest (and including) Buena Vista Avenue in 2010 if the SLVSP is implemented, and thus the Report reasonably assumes that cut-through traffic on Buena Vista Avenue would also increase by this amount. (Given that Almond Avenue is not a north-south through route as the DEIR's traffic analysis incorrectly asserts, the increase in cut-through traffic on Buena Vista Avenue might well exceed 71% more than current levels.)

It is a sad commentary on the inadequacy of the DEIR's analysis of the SLVSP's traffic impacts on Buena Vista Avenue that the neighbors who would be directly affected, despite long being on record with the City about the need for a full, fair, and accurate CEQA analysis of those impacts on their street, have had to hire a traffic consultant themselves in order to get any measure of the severity of those impacts. The DEIR relies on a regional traffic model that is off by an order of magnitude regarding traffic volumes on their street, and that significantly understates traffic volumes on adjacent and nearby roads, to reach its unsupportable conclusion that the Project would have no significant traffic impacts on Buena Vista Avenue. Again, this portion of the EIR must be redone to address the very serious concerns raised by the B-A Report and to present a traffic analysis based on an appropriate model that accurately reflects current, observable traffic volumes on Buena Vista Avenue and neighboring roads; that revised EIR must be recirculated for full public comment. The B-A Report makes some initial suggestions concerning how a more accurate and reliable model might be created for analyzing Project impacts to Buena Vista Avenue and nearby roadways, but clearly the responsibility for doing so rests with the City under CEQA. My clients, who are neither the proponents nor the beneficiaries of the Project, nor the decisionmakers thereon, should not have to bear any further financial burden to get the reliable information on the SLVSP's potential traffic and related safety, noise, air-quality, and other impacts on their neighborhood to which CEQA entitles them.

The B-A Report, building on data from the DEIR itself, makes plain that the SLVSP *will* have a significant negative traffic impacts on Buena Vista Avenue. That being the case, the revised DEIR on this subject must present mitigation measures and a reasonable alternative or alternatives to eliminate those impacts or to reduce them to a level of insignificance. CEQA clearly requires that the EIR on a proposed action, here the SLVSP, contain "a range of reasonable alternatives to the project...which could feasibly attain the basic objectives of the project, and evaluate the comparative merits of the alternatives." CEQA Guidelines §15126(d).

> The discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, *even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly*.

CEQA Guidelines §15126(d)(3)(emphasis added). Alternatives analysis is one of the central requirements of CEQA.

Because of its faulty analysis of traffic impacts on Buena Vista Avenue, the DEIR wrongly concludes that the SLVSP would produce no significant traffic impacts there and fails to propose any meaningful alternatives or mitigation measures to address the Project's significant traffic

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impacts. Traffic-calming measures on Buena Vista Avenue to be implemented by the County, which the DEIR suggests vaguely that the City encourage, are purported to address the problem of speeding on that street and are not measures that would necessarily reduce to insignificance the increased volume of traffic the Project and other development would entail. As the B-A Report notes, traffic calming devices of the sort that have been suggested for Buena Vista Avenue would not reduce traffic volumes significantly in the absence of some nearby alternative north-south route, which at present simply does not exist.

One obvious alternative to the SLVSP that would reduce traffic volumes on Buena Vista Road as a north-south cut-through route is the completion of Mines Road through the connection of its segments north of East Avenue and south of Tesla Road, as long proposed by CCCMR. The DEIR refuses to look at this proposal as an alternative to the SLVSP because of its faulty conclusion that the Project would not result in any significant traffic impacts on Buena Vista Avenue. DEIR, p. 3.0-10. Thus, while Mines Road completion is briefly discussed and then dismissed by the DEIR, it is expressly not treated as a CEQA alternative, nor are its traffic impacts quantitatively analyzed for fair comparison to the Project. To meet the standards of CEQA, the revised DEIR must thoroughly and neutrally analyze this alternative at a level of detail that will permit a reasoned comparison with the SLVSP as proposed. The completion of Mines Road is clearly a reasonable option for mitigating significant traffic and safety impacts to Buena Vista Avenue, a narrow, low-speed road not designed for carrying major arterial traffic.

The DEIR's unfounded assertion that the completion of Mines Road might not reduce traffic problems on Buena Vista Avenue -- referring only to speeding, since it refuses to acknowledge the significant traffic volume increases the Project would produce -- "since drivers would choose either road interchangeably" is both self-serving and indefensible. DEIR, p. 3.0-9. Surely the EIR's authors cannot seriously believe that drivers looking for a north-south cut-through route would make no distinction between a narrow rural residential street, lined with residential driveways and with a posted 25 mph speed limit, and a major north-south roadway. Moreover, under CEQA, alternatives are to be designed in a manner that will mitigate significant impacts, and there is no reason why those who revise the DEIR to create a Mines Road alternative cannot incorporate measures in that alternative that would encourage drivers to use that route.

To recapitulate, the DEIR's analysis of the SLVSP's traffic impacts on Buena Vista Avenue, based on the patently inaccurate TVTM, is insubstantial, unreliable, and legally inadequate. A revised DEIR must be prepared and circulated that provides a far more currently accurate and overall defensible analysis of the Project's traffic impacts on Buena Vista Avenue. Because a properly conducted traffic analysis will demonstrate that implementation of the SLVSP would have significant traffic impacts on Buena Vista Avenue, the revised DEIR must also set forth and seriously examine mitigation measures and alternatives, including the completion of Mines Road, that would eliminate or reduce to insignificance those traffic impacts.

Thank you for your consideration of these comments. If you have any questions or wish to discuss any of the matters raised in this letter further, please do not hesitate to contact me.

Very truly yours,

Trent W. Orr
Attorney for Concerned Citizens for the
Completion of Mines Road

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BARTON-ASCHMAN ASSOCIATES, INC.
A UNIT OF PARSONS TRANSPORTATION GROUP

100 Park Center Plaza, Suite 450 • San Jose, California 95113 • (408) 280-6600 • Fax (408) 280-7533

Sent Via FAX
July 14, 1997

Marc Roberts
City of Livermore Planning Department
1052 S. Livermore Avenue
Livermore, CA 94550-4899

Re: ***SLVSP DEIR Comments***

Dear Mr. Roberts:

We are a traffic and transportation engineering consulting firm. We have worked on several projects in the Tri-Valley area since the establishment of our Bay Area office in 1972. Barton-Aschman developed the original Tri-Valley Transportation Model (TVTM) in 1991.

We were hired by the *"Concerned Citizens for the Completion of Mines Road"* to review the DEIR for the South Livermore Valley Specific Plan (SLVSP). We have found some traffic forecasting issues in the DEIR that need to be addressed in the FEIR. Please see the attached report for specific detail on these issues. A hard copy of the report is being sent in the mail.

Sincerely,

BARTON-ASCHMAN ASSOCIATES, INC.

Gary K. Black,
Principal Associate

cc: Libby Mihalka
Trent Orr

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SOUTH LIVERMORE VALLEY SPECIFIC PLAN

IMPACTS ON BUENA VISTA AVENUE

Prepared by

Barton-Aschman Associates, Inc.

July 14, 1997

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Contents

Chapters

Tables

Figures

1. Introduction

The purpose of this study is to determine traffic impacts on Buena Vista Avenue as a result of implementation of the South Livermore Valley Specific Plan (SLVSP). The SLVSP includes a planning process to specify the number and location of additional housing units in the 1,887 acre unincorporated area. The SLVSP consists of 7 subareas that are located in the unincorporated area south of the City of Livermore, stretching from Vallecitos Road/State Route 84 on the west to the Sandia National Laboratories to the east. The Specific Plan designates 628 acres (33% of the total planning area) for the development of up to 1,494 dwelling units.

In addition, wineries make up a critical land use in the planning area. There are 11 wineries, ranging from large century-old wineries to small boutique wineries, that comprise 2,500 acres of vineyards. Some commercial development is included in the planning area as an amenity that will enhance the experience of the visitors to the South Livermore Valley wine country, and only those commercial uses that support wine-related tourism will be permitted. The Plan designates 13 sites, totaling 42 acres, for possible commercial development.

The specific plan constitutes a "project" under the California Environmental Quality Act (CEQA), and thus must be evaluated for its potential to create adverse effects on the environment, related to urban development. This includes new dwelling units, roadways, street extensions, and loss of vineyard lands that may have an adverse traffic impact on Buena Vista Avenue. More specifically, increased traffic volumes on Buena Vista related to future development in south Livermore is a key concern of local residents.

Buena Vista Avenue is currently a two-lane road that is 22 feet wide, and is classified as "rural residential" in the Livermore General Plan. The road itself serves 80 homes between East Ave. and Tesla Road (approximately 1 mile length). Buena Vista is the only north-south street between South Livermore Ave. and Vasco Road. Included in the Livermore Circulation Element and SLVSP, there are proposed extensions of nearby streets that could lead to increased traffic volumes in the area surrounding Buena Vista Ave. This includes connecting Mines Road between First St. and East Ave., as well as extending Concannon Boulevard from Arroyo Road to Wente Street.

2.
Review of DEIR Traffic Analysis

The Draft Environmental Impact Report (DEIR) traffic analysis for the SLVSP was conducted using the Tri-Valley Transportation Model (TVTM). The model was validated using 1990 traffic counts. Project impacts are evaluated using 2010 traffic forecasts. The capacity of Buena Vista Avenue is stated in the DEIR to be 2,000 vehicles per day. We concur with the capacity of 2,000 vehicles per day for Buena Vista Ave based on its designation as a rural- residential street. The 1990 TVTM validation, according to the DEIR traffic analysis technical appendix, shows 90 cars per day on Buena Vista. In September of 1995, the Alameda County Public Works Department conducted a traffic count around the midpoint of Buena Vista Avenue. The count was conducted for one week. The weekday traffic totals ranged from 1,624 cars to 1,736 cars. The average of the weekday counts was 1,686 cars. For the purposes of this traffic study, the average daily traffic (ADT) volume for Buena Vista is taken to be 1,700 cars. Also, the City of Livermore conducted a traffic count in August of 1996 on Buena Vista. This count only showed weekend volumes. The City also conducted another count in October of 1996 for one week. The highest volume recorded was 1,539. These October traffic counts were done during a Lawrence Livermore lab holiday, which might not make these counts representative of typical area traffic volumes.

Clearly the model is substantially underestimating traffic on Buena Vista. The increase in cars in the DEIR is shown to be up to 40 per day, which is the basis of the conclusion that there would be no impact. However, since the original (existing) forecast was substantially low, the 2010 forecasts and conclusions in the EIR are flawed.

3.
Revised Traffic Analysis

We have conducted a more thorough analysis for forecasting traffic impacts on Buena Vista Avenue by using the 1,700 ADT count data. Our approach first estimates the volume of resident trips versus cut-through trips and then estimates the increase in cut-through trips with the SLVSP.

There are 80 homes on Buena Vista, and each generate about 10 trips per day, making a total of 800 resident trips per day. The difference between these trips and the count of 1,700 are the cut-through trips on Buena Vista from either East Avenue or Tesla Road. If there were no cut-through traffic, the homes along Buena Vista would generate about 240 daily trips at the midpoint (see Figure 1A & B). The fact that the traffic count showed 1,700 cars indicates that 1,460 cars per day are using Buena Vista as a cut-through route at the midpoint.

According to the DEIR traffic technical appendix, there would be a 71 percent increase in total north/south traffic in the area in 2010 with the Plan (see Table 1). It is reasonable to assume that cut-through traffic on Buena Vista would increase by a similar percentage. Applying the 71 percent growth to existing cut-through traffic of 1,460 yields an estimated increase in cut-throughs of 1,037 per day. Thus, the total future traffic estimate for Buena Vista Avenue is 2,737 vehicles per day.

The South Livermore Valley DEIR concludes that a traffic volume of over 2,000 cars on Buena Vista Avenue would result in an impact on the neighborhood. Our revised traffic forecast shows over 2,700 vehicles per day on Buena Vista. Therefore, there would be a traffic impact on Buena Vista Avenue from the SLVSP.

The DEIR recommends traffic calming measures if the threshold of 2,000 vehicles per day is exceeded. However, it is highly questionable that any reasonable amount of traffic calming could reduce the volume to a level of insignificance. Traffic calming is effective at shifting volume only when there is a convenient alternate route. The nearest parallel north/south streets to Buena Vista are at least one mile away. It is unreasonable to assume that traffic would detour two miles (one mile over and one mile back) just to avoid some traffic calming measures on Buena Vista.

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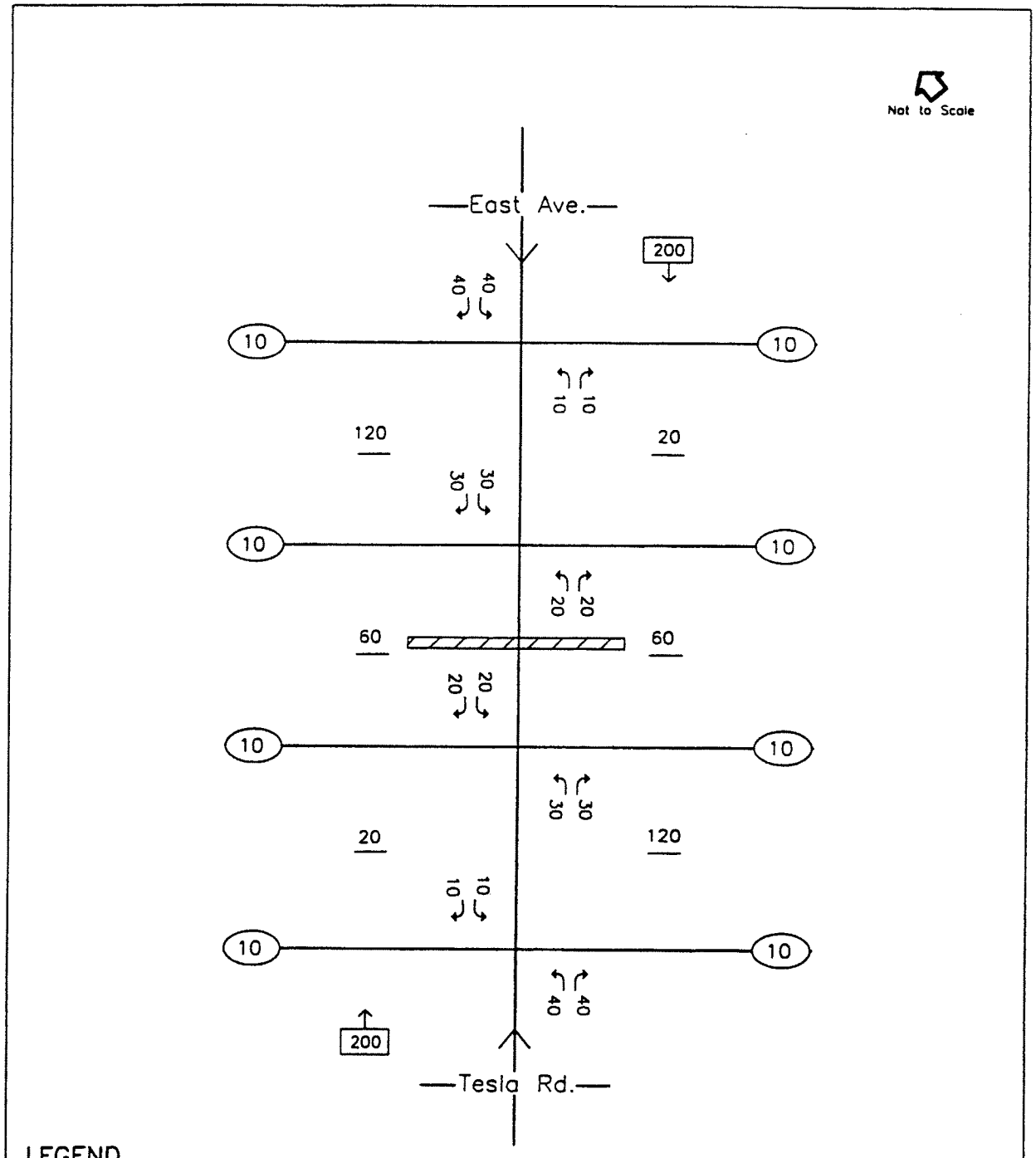

Figure 1A

IN-VOLUMES: BUENA VISTA AVE.

Barton-Aschman Associates, Inc.

South Livermore Valley

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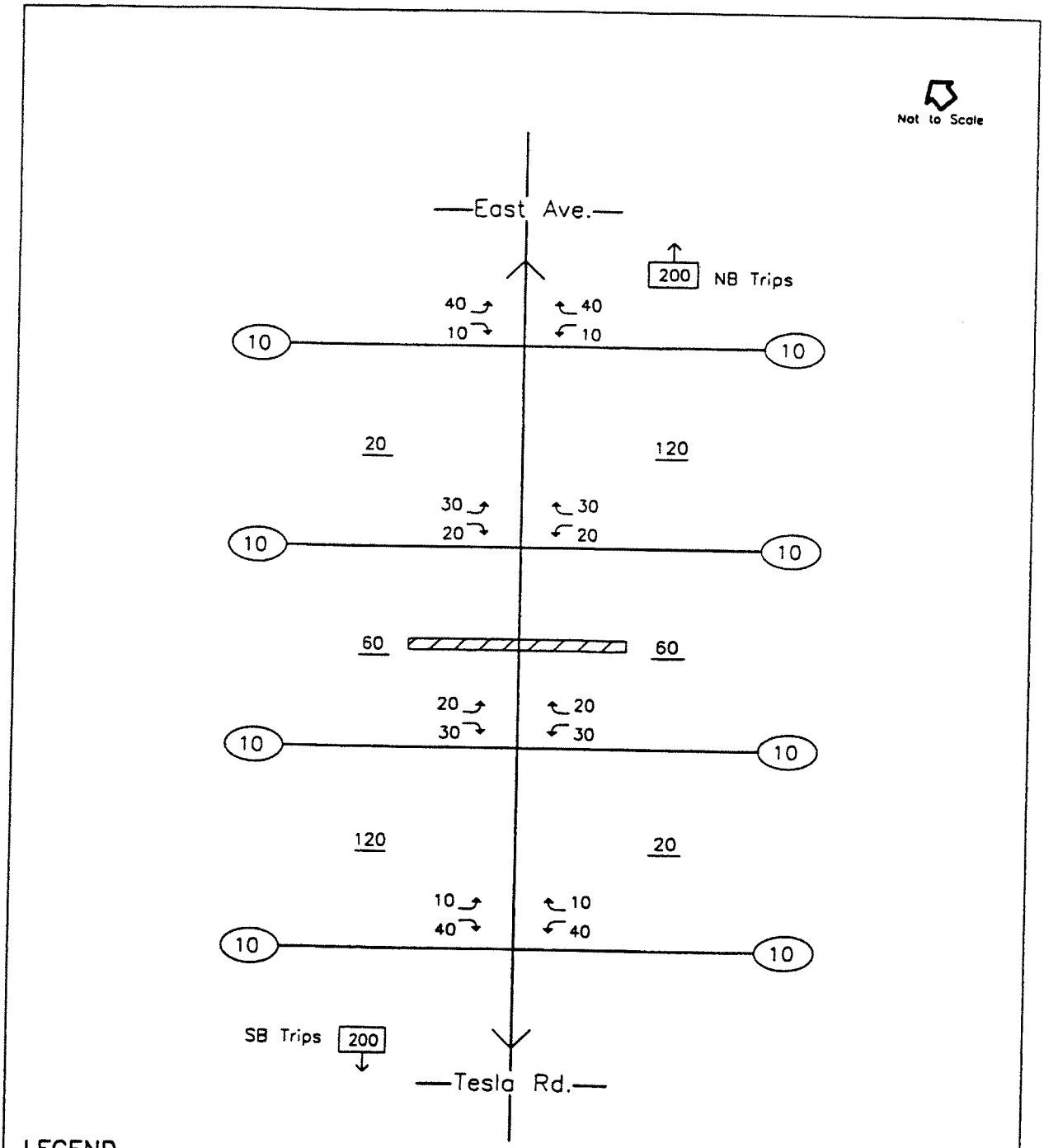

Figure 1B

OUT-VOLUMES: BUENA VISTA AVE.

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South Livermore Valley

Table 1
Two-Way Traffic Volume Analysis

	Existing	Background (2010)	Project (2010)
So. Livermore Ave.	7,275	8,781	10,308
Almond Avenue	4,467	7,098	7,253
Buena Vista Avenue	90	97	130
Vasco Road	2,510	4,297	6,889
Totals	14,342	20,273	24,580
% Growth to Background		41%	
% Growth to Project			71%

Source: *SLVSP Draft EIR*

4.
Review of the Model Results

The Traffic Appendix of the South Livermore Valley Draft EIR includes computer-generated plots that present year 1990 and year 2010 (with and without the Project) traffic volumes. These plots show the *model estimated* AM and PM peak-hour and the average daily traffic volumes for these years.

As stated earlier, the model substantially underestimates traffic volumes on Buena Vista Avenue. We also conducted a detailed analysis of the traffic on other streets in the vicinity of Buena Vista Avenue. The intersection turning-movement counts reported in the DEIR were summarized and used to calculate AM and PM peak-hour directional volumes on the roadways. The intersection counts were taken between 1994 and 1996. The "existing" traffic volumes on the roadways are presented on Figures 1 and 2 for the AM and PM peak hour, respectively. Figures 3 and 4 present the 1990 model-estimated traffic AM and PM peak-hour traffic volumes for the roadways in the vicinity of Buena Vista Avenue. Although the 1990 traffic volumes produced by the model can be expected to be a little lower when compared to the 1994/1996 traffic counts, the differences are too large to be acceptable. The combined traffic counts on East Avenue and Tesla Road, east of Buena Vista, amount to 2,120 vehicles in the AM peak hour. The model estimates a total of 1,169 vehicles per hour. The numbers for the PM peak hour are 2,321 and 1,553, respectively. Traffic counts on Buena Vista Avenue and Vasco Road, combined, just south of East Avenue show 869 vehicles in the AM peak and 778 vehicles in the PM peak hour. The model estimates 176 vehicles in the AM peak and 220 vehicles in the PM peak hour at those locations, respectively.

Clearly, the model underestimates "existing" conditions in this area of Livermore. As a result, the model will also underestimate the traffic volumes for future scenarios.

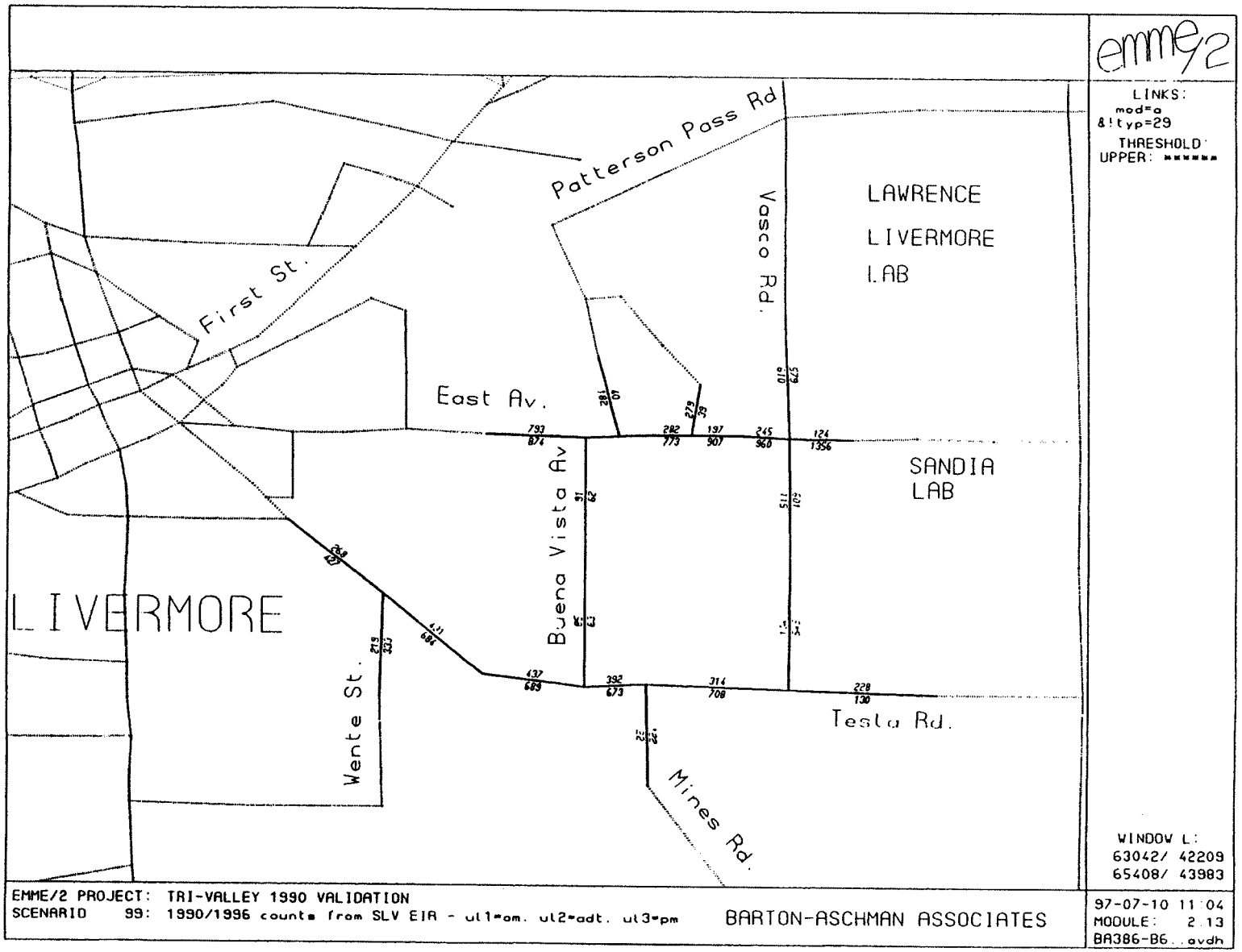

Figure1

1994/1996 AM PEAK-HOUR TRAFFIC COUNTS

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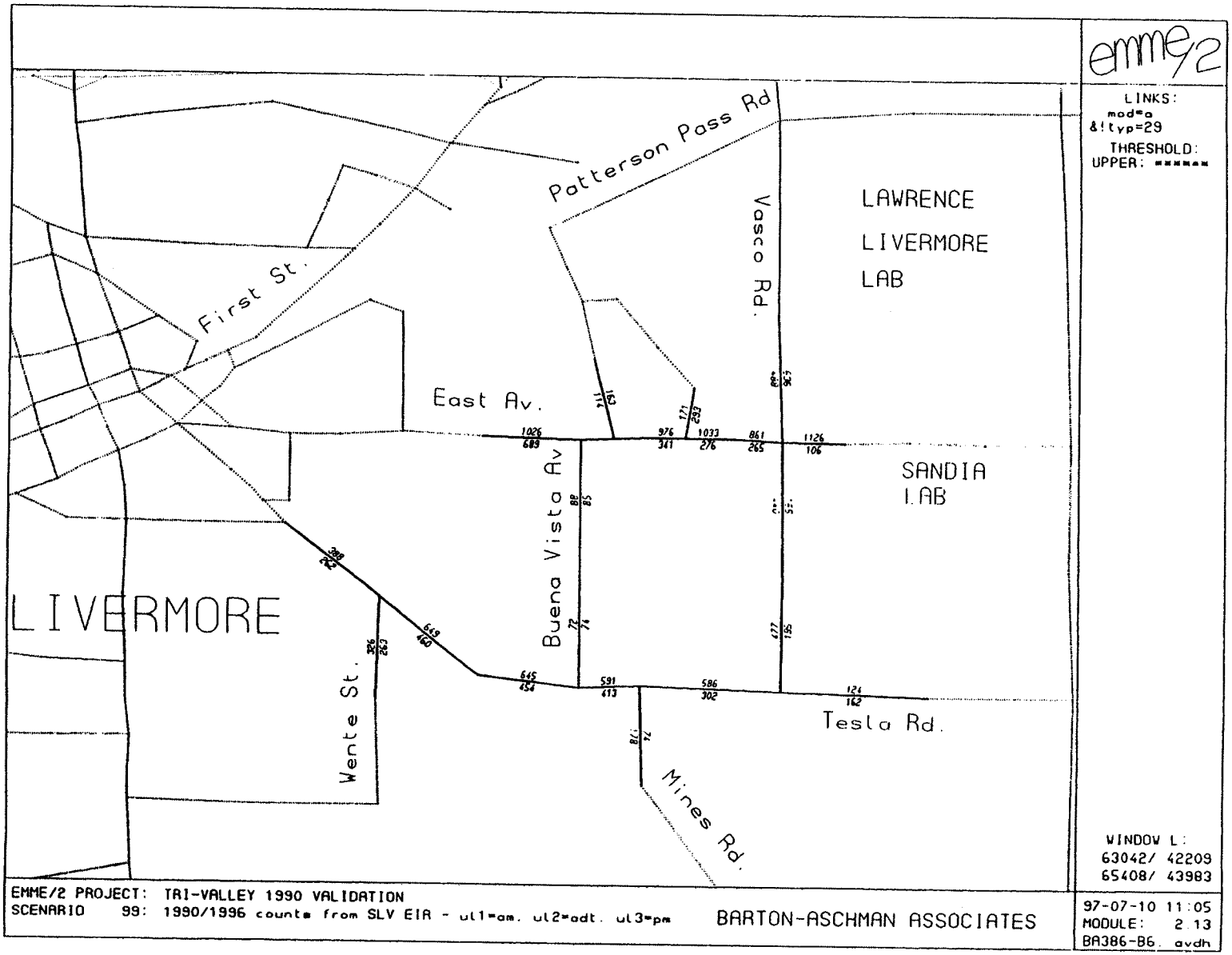

Figure 2

1994/1996 PM PEAK-HOUR TRAFFIC COUNTS

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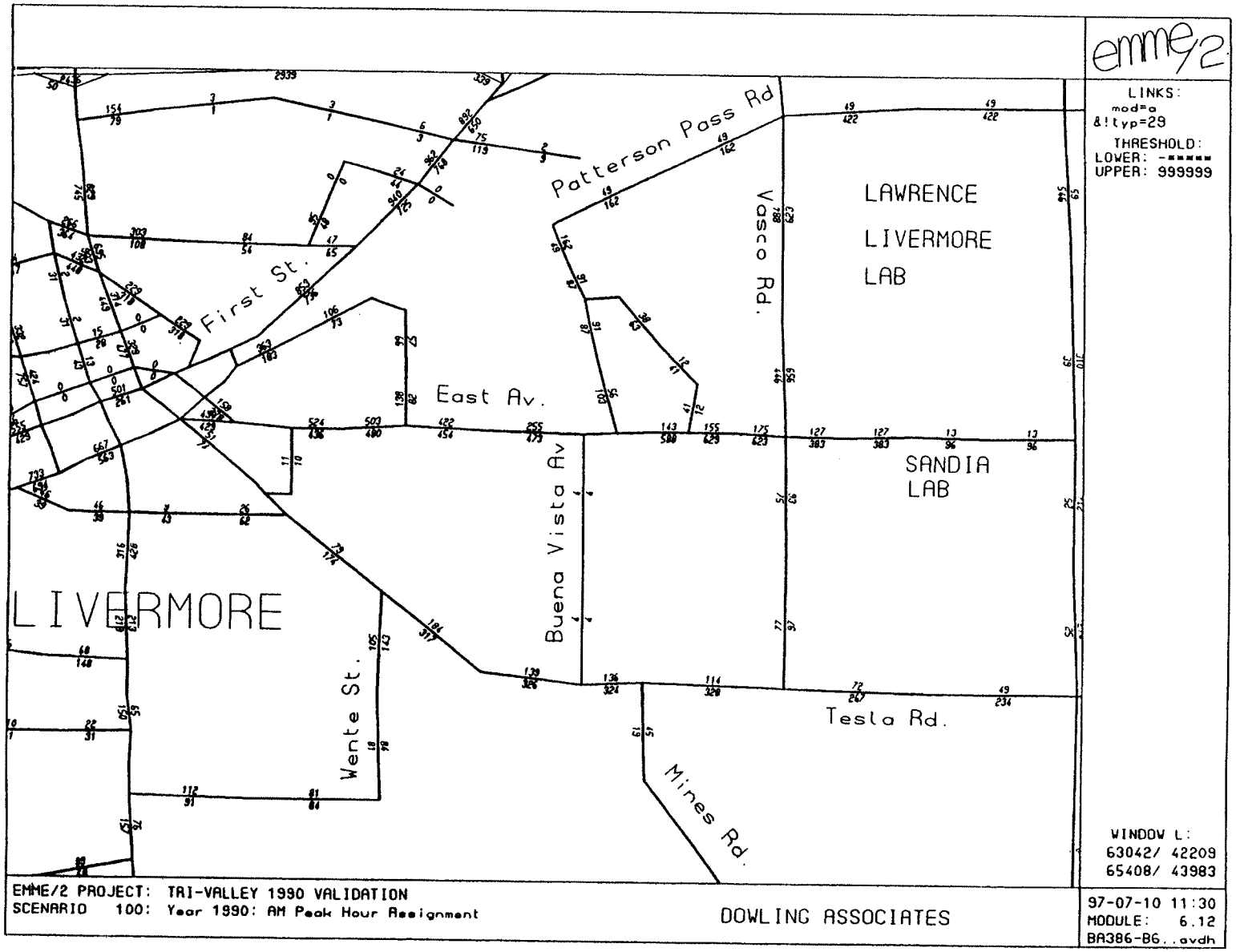

Figure 3

ORIGINAL MODEL:
ESTIMATED 1990 AM PEAK-HOUR TRAFFIC

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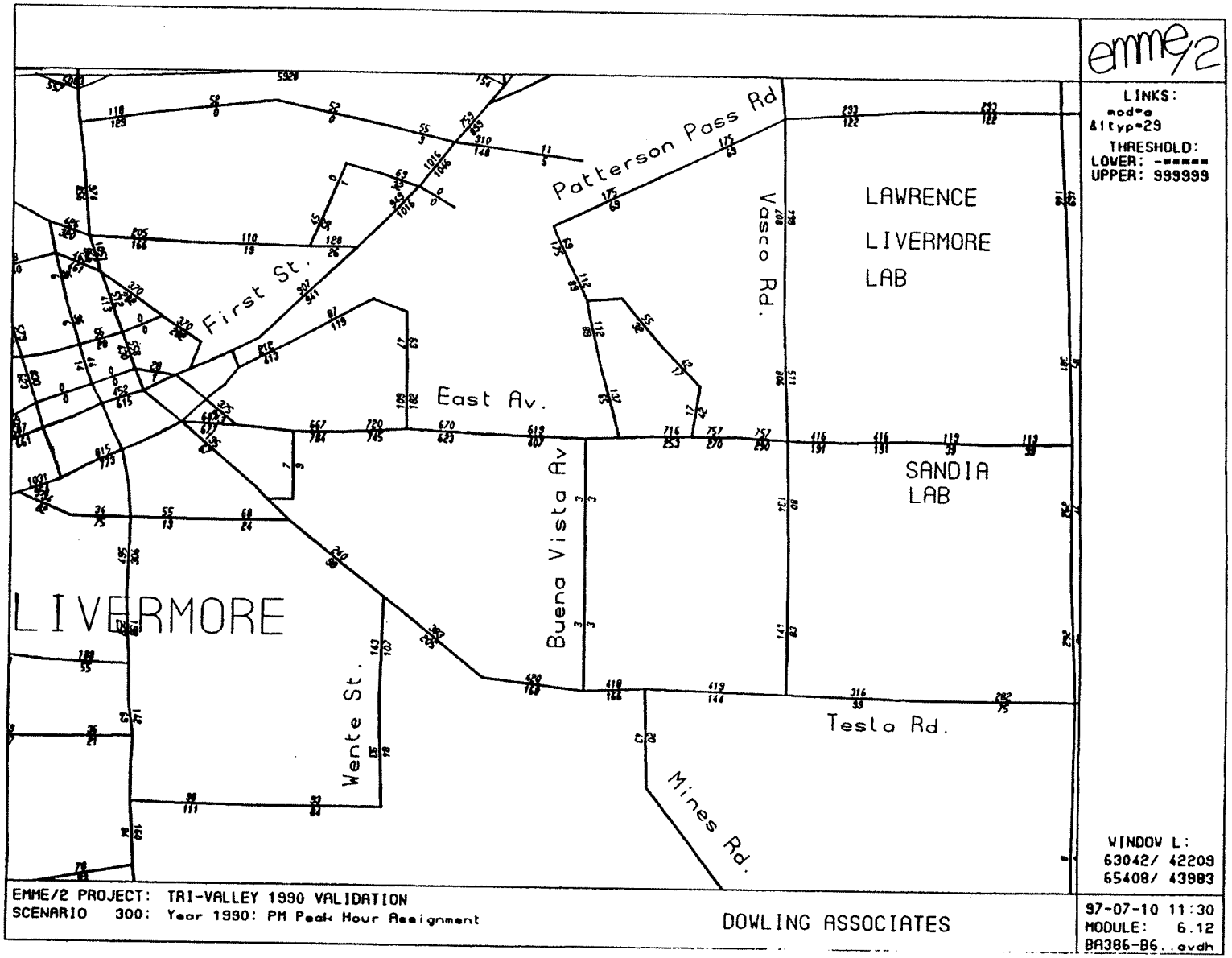

Figure 4

ORIGINAL MODEL:
ESTIMATED 1990 PM PEAK-HOUR TRAFFIC

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5.
Refinement of the Model

An effort was made to improve the model's ability to better estimate existing traffic conditions. Upon review of the existing model, the following refinements were made to the 1990 model:

- Changes to the speed and capacity assumptions of some roadways to reflect observed conditions.
- The model lumped together the homes along Buena Vista with the homes in the Almond Avenue area into one large zone. The zone had access to East Avenue and Tesla Road. In the refined model, the Buena Vista homes are treated independently and modeled as a separate zone with access to Buena Vista Avenue.
- The connection from the Almond Avenue area directly to Tesla Raod was incorrect and was removed.
- The points where the model loads the traffic onto the roadways in other locations was changed to better represent actual traffic patterns.

The AM peak-hour trips to and from the Livermore Lab were increased by 50 percent in the AM Peak and by 35 percent in the PM peak hour. The percentages were derived from peak hour trip generation data in other employment areas and checked for reasonableness against the traffic counts.

After the above changes to the model were made, a new 1990 forecast was developed. The results of the refined 1990 AM and PM peak hour forecasts are presented on Figures 5 and 6, respectively. The figures show a much better match of observed and estimated traffic volumes. The refined model estimates total traffic on East Avenue and Tesla Road, east of Buena Vista to be 1,916 (count=2,120) vehicles in the AM Peak hour. For the PM peak hour this number is 2,038 (count=2,321). The refined model estimates 833 vehicles (count=869) on Buena Vista Avenue and Vasco Road just south of East Avenue for the AM peak hour, and 921 (count=778) for the PM peak hour.

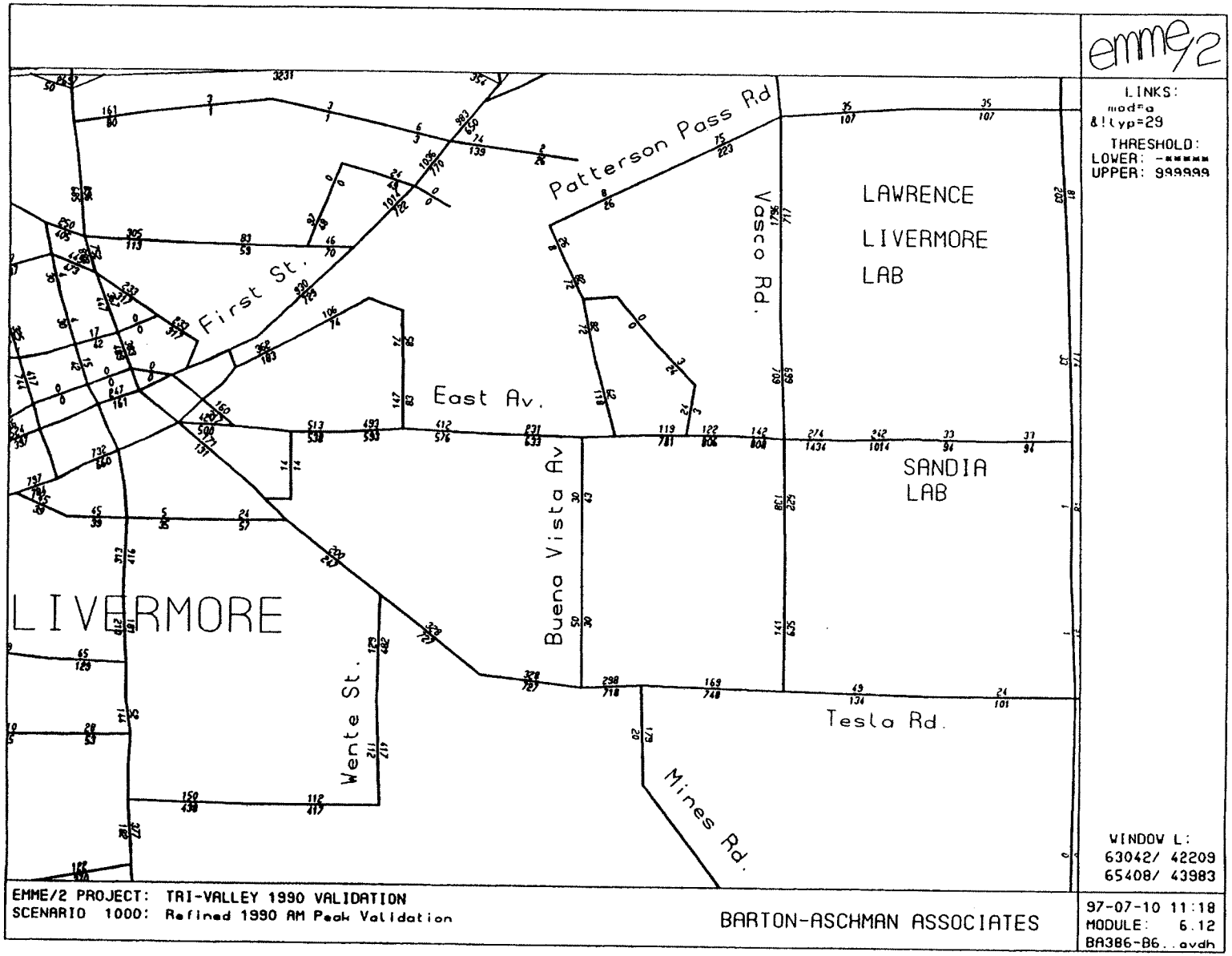

Figure 5

REFINED MODEL:
ESTIMATED 1990 AM PEAK-HOUR TRAFFIC

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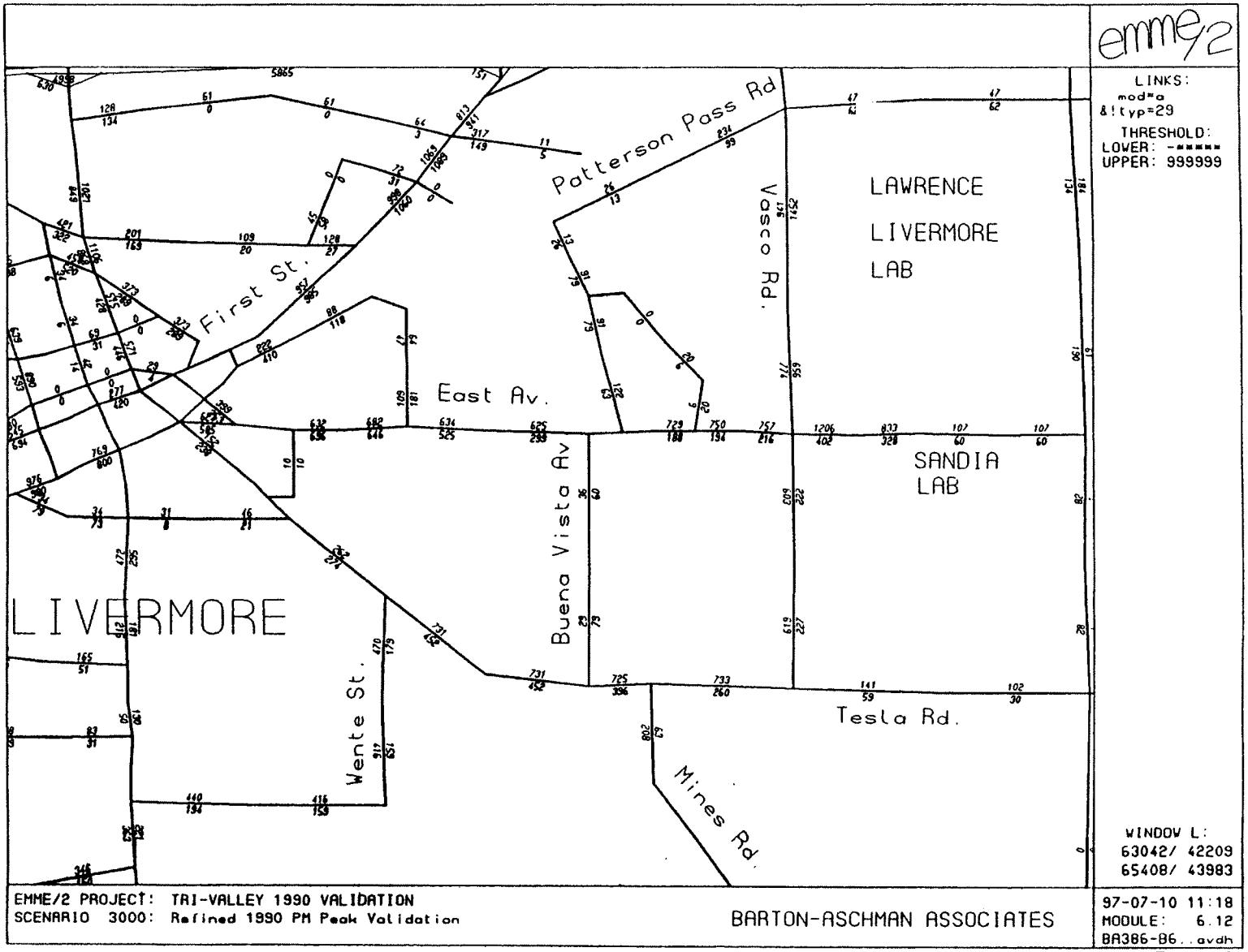

Figure 6

REFINED MODEL:
ESTIMATED 1990 PM PEAK-HOUR TRAFFIC

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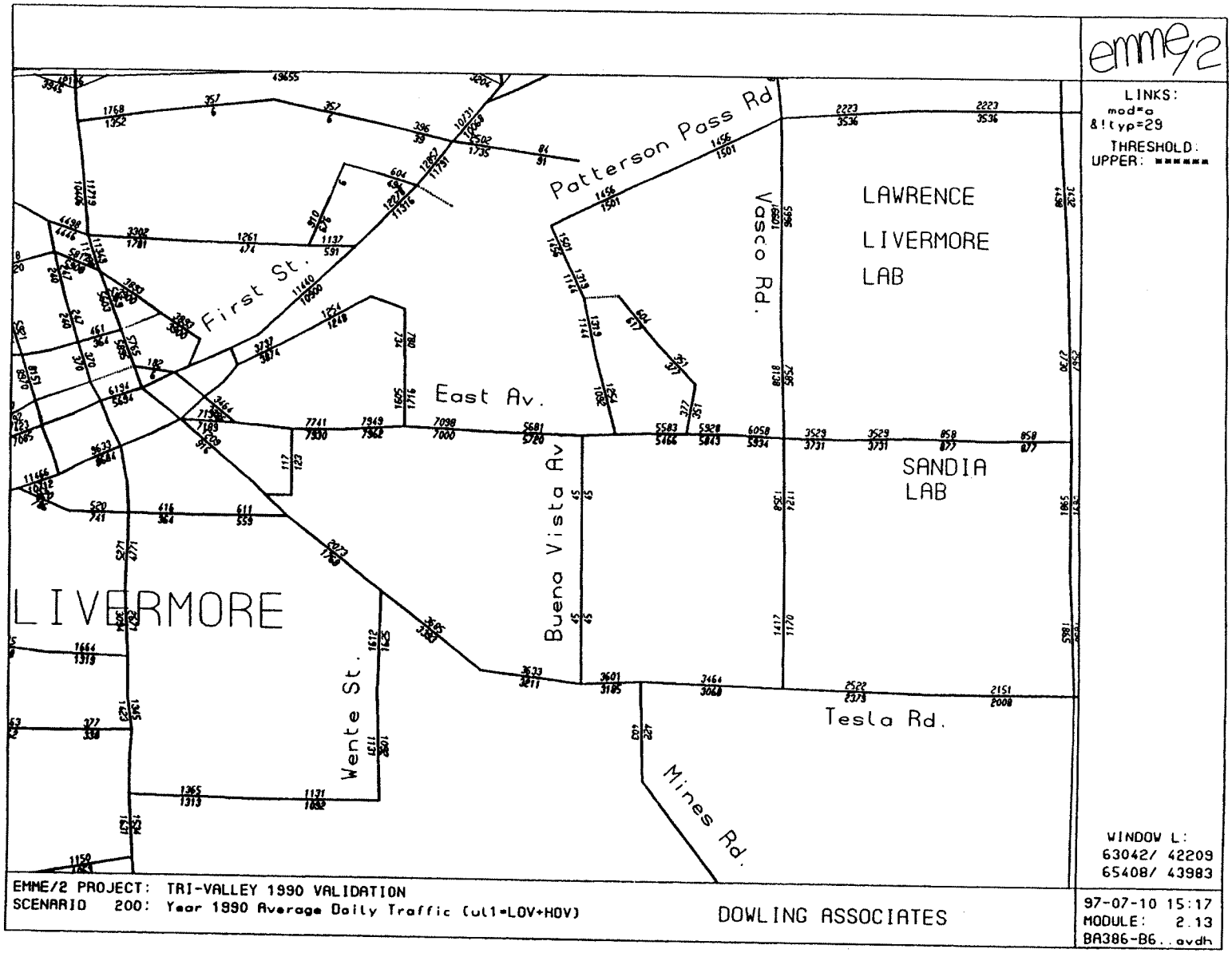

Figure 7

ORIGINAL MODEL:
ESTIMATED 1990 AVERAGE DAILY TRAFFIC

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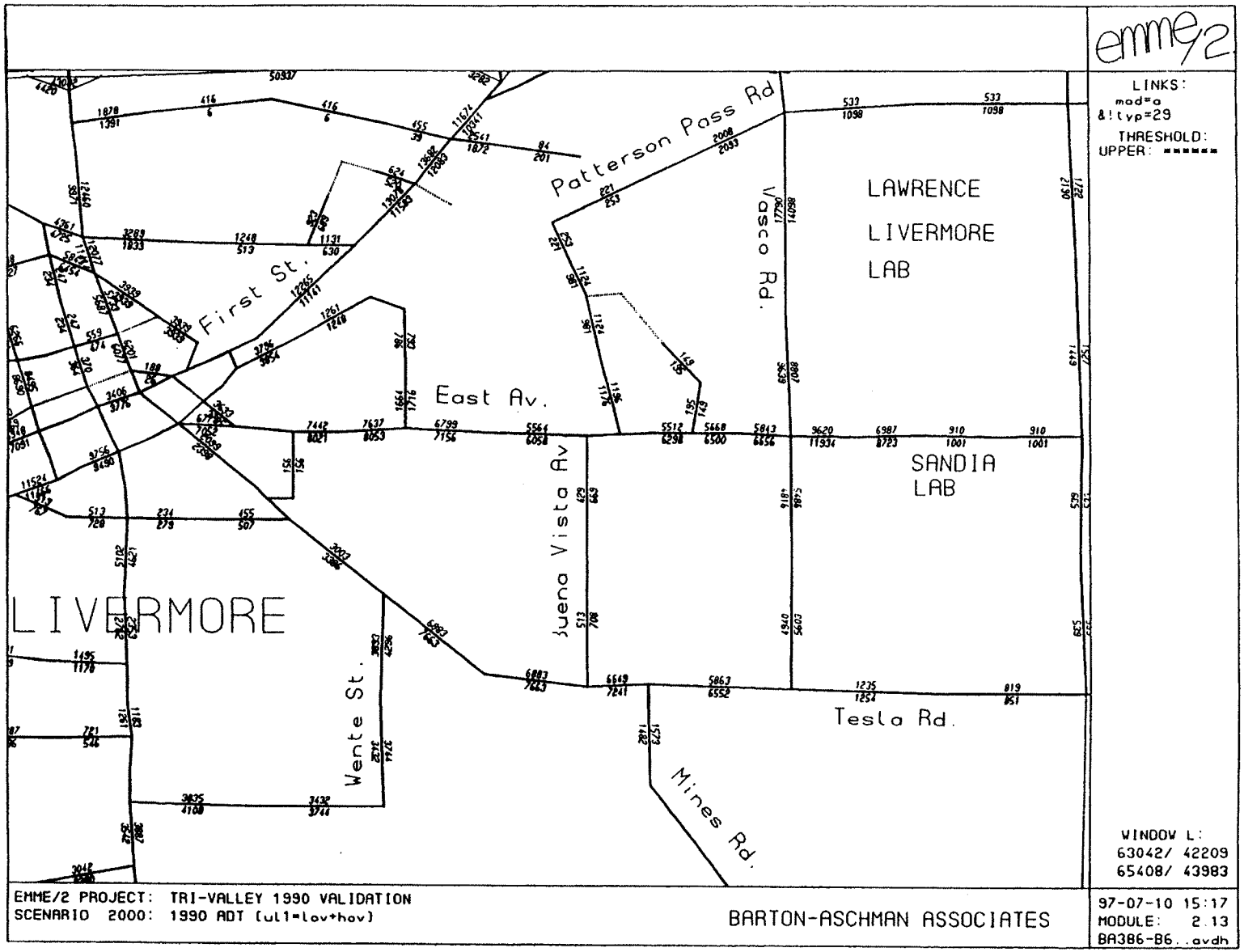

Figure 8

REFINED MODEL:
ESTIMATED 1990 AVERAGE DAILY TRAFFIC

Letter
C11
Attach.

The refinements made to the model greatly improved its accuracy and its ability to forecast future traffic. However, the model is still significantly underestimating traffic on Buena Vista. This is despite the fact that the model has been modified to correctly estimate traffic on East Avenue, Tesla Road, and Vasco Road. Clearly, there is traffic using Buena Vista that has not been accurately captured with the model.

If more time were available, the model could be further refined. Areas to check for accuracy would be the land use data and the trip generation rates. Also, the link type data for the streets in the area could be further refined based on existing speeds and volumes.

Table 2
Existing and Future Traffic Volumes

	1990/1996		
Roadway Segment	Count	o. model	r.model
AM Peak Hour			
East Avenue, east of Buena Vista	1,055	731	900
Tesla Road, east of Buena Vista	1,065	460	1,016
Vasco Road, south of East Av	716	168	760
Buena Vista, south of East Av	120	8	73
PM Peak Hour			
East Avenue, east of Buena Vista	1,317	969	917
Tesla Road, east of Buena Vista	1,004	584	1,121
Vasco Road, south of East Av	604	214	825
Buena Vista, south of East Av	173	6	96
Average Daily Traffic			
East Avenue, east of Buena Vista	n/a	11,049	11,810
Tesla Road, east of Buena Vista	n/a	6,786	13,890
Vasco Road, south of East Av	n/a	2,482	10,302
Buena Vista, south of East Av	1,700	90	1,098

o.model: original model
r.model: refined model
n/a: not available

COMMENTOR C11
Sharon and Owen Parker, Courtney Cooke, John Canfield, Bonnie and Don Hughes (July 28, 2003)

C11-1: The City does not intend to include a future roadway link of Mines Road from East Avenue to Tesla Road in the Draft General Plan for the following reasons:

(1) The Environmental Impact Report for the South Livermore Valley Specific Plan concluded that a new roadway is not required as a mitigation.

(2) Construction of a new roadway would have significant adverse environmental impacts.

(3) Construction of a new roadway would have a high cost ($3.2 million in 1997 dollars) and would provide a relatively modest reduction of trips on a single local street.

(4) The City does not agree that existing or projected traffic volumes on Buena Vista Avenue are "astronomical and unsafe." The City supports the measures identified to mitigate the impacts of the South Livermore Valley Specific Plan, including turn restrictions at the East Avenue/Buena Vista intersection and the median construction on East Avenue near Buena Vista Avenue.

Letter
C12

■ Livermore Venture Partners, L.P. ■

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Box 348
Oakland CA 94611
510-339-6367
Fax 550-339-1951
E-mail gdjacoby@aol.com

RECEIVED
JUL 2 8 2003
COMMUNITY DEVELOPMENT
DEPARTMENT

July 28, 2003

Mr. Marc Roberts
Community Development Director
1052 S. Livermore Avenue
Livermore, Ca 94550

Re: General Plan DEIR

Dear Mr. Roberts:

This letter is to provide responses and to request amendments to the Draft EIR for the City of Livermore General Plan and the Downtown Specific Plan.

Background on CEQA and General Plan Requirements

Documents prepared under the requirements of the California Environmental Quality Act (CEQA) have several important purposes including:

1) analysis of possible environmental impacts of proposed projects,
2) listing of mitigation actions needed to reduce the significant negative environmental consequences of proposed projects, and
3) a forum for public discussion on the proposed project.

The DEIR on the City of Livermore General Plan needs to be modified in order to achieve these purposes.

The laws governing General Plan in California provide for specific relationships between the Land Use Element and the Housing Element of the General Plan. Furthermore, the General Plan laws require "internal consistency" between the various elements of the General Plan. Such relationship between the Land Use, the Downtown Specific Plan and Housing Element should be discussed in the General Plan EIR. 1

The California Government Code, which establishes the Housing Element, requires the following:

a) An inventory of land suitable for residential development
b) Analysis of governmental regulatory constraints including those in the General Plan Land Use element and zoning ordinance
c) Analysis of potential and actual nongovernmental constraints
d) Analysis of the production of new rental housing
e) Identification of sites, subject to zoning and development standards, that are need to provide a variety of housing for all income, including rental housing.

All of the Housing Element inventories or analyses require coordination and consistency with the policies an standards in the City of Livermore Land Use Element and Downtown Specific Plan.

CEQA Guidelines and supporting legal rulings require that the DEIR look at the "whole of an action affecting the environment" that may result in either a direct or indirect physical changes to the environment. The General Plan and the Housing Element provide the "whole Action" and should be reviewed together. The public should be provided an opportunity to review and comment on the environmental impacts of the "whole action".

The DEIR does not provide analysis on the Housing Element of the General Plan. The DEIR indicates that a separate CEQA review will be conducted for the Housing Element in 2003 (DEIR, page 16). However, the Draft Housing Element was completed in June 2002 and was submitted to the State of California (Housing and Community Development Department). The document is reported to be scheduled for presentation to the Livermore Planning Commission in August/September, 2002 and later to the City Council. Based on the pending hearings on the Housing Element, there appears to be no clear reason why the two documents are not reviewed at the same time. The scheduling of the public review of the General Plan DEIR prior to the release of the final Housing Element precludes the public from understanding whether these two important Elements will enable sufficient new housing development.

1 cont.

CEQA does not focus exclusively on physical changes and it is not exclusively physical in its concern. If an economic impact will cause physical change, the impact should be considered. Therefore, if unfulfilled housing demand is a likely consequence of the Plan, the DEIR needs to consider its physical ramifications. Where, how and when will Livermore's regional share of housing be fulfilled?

DEIR Lacks Analysis of a High Risk Land Use Plan

The Housing Element reports a possible population growth to 100,000 by 2020, according to ABAG Projections (Draft Housing Element, page 2-2). That is a growth rate of about 1.8% per year or about 26,600 new residents.

The regionally-projected population growth rate is intended to correlate with a job growth of about 2.3% per year. As reported in the DEIR, such housing and job growth would create an "jobs-housing imbalance"

The General Plan provides for about 11,861 new homes (DEIR, page 36). Assuming 2.83 persons per household ((DEIR Table 4-7, page 47), the General Plan provides for an additional population of 33,566 new residents. Therefore, it would appear that the new General Plan provides for sufficient new housing to reach the regional housing need.

2

Yet, this appearance may be deceiving. The DEIR makes not attempt to analyze whether the Land Use Plan is realistic given the combination of market and governmental constraints. As reported above, General Plan laws require analysis of governmental and market constraints as part of the Housing Element

Reasons Why the Land Use Plan is High Risk

There is significant evidence in the DEIR and the Draft Housing Element that the Land Use Element ignores both market and governmental constraints on housing. About 65% of the future housing supply is located in either the Greenville TOD or in the Downtown. Both locations face significant difficulties in reaching their intended housing supply. The DEIR needs to analyze the following:

3

1. The Greenville Development can only occur if there is a BART transit connection. What are the possible constraints to a BART transit connection within the General Plan time period? Where are their alternative sites for the 4,474 residential units if the Greenville TOD does not occur?

2. Both the Greenville BART TOD and the Downtown Specific Plan provide for a significant proportion of high-density housing. Such densities are in the range of 18-22 units per acre and 38-55 units per acre. (It should be noted that the Draft Housing Element does not include such density ranges its inventories or analyzes.) The DEIR section of Demographics, Economics and Market Conditions reports success for only the townhome component of the "Multi-Family For-Sale" housing. A careful review of the DEIR Table 4-27 indicates the success has been limited generally to townhomes in the 12-16 units per acre range. There are **no reported sales** in the proposed high-density range. Furthermore, the DEIR indicates, on

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page 66, **that there were no newly constructed market-rate rental projects** leasing in Livermore. Presumably, such rental units could reach the proposed 18-55 units per acre but they appear to be cost prohibitive. **4 cont.**

3. The DEIR or the Draft Housing Element should analyze the governmental or nongovernmental constraints on the construction and leasing of higher density for sale and rental housing. Particular attention should be given to possible constraints caused by permit fees, structured parking costs, operating costs, and rent levels. **5**

4. The DEIR 30-day Review period is proposed to be completed before the release of the Downtown Specific Plan Market Feasibility and Financing Strategy. Perhaps this report will provide some market analysis that indicates whether high-density housing can be successful. The information contained in this yet-to-be-released section of the Downtown Specific Plan should be available for review before the close of the DEIR review period. **6**

Summary

The real question facing the public is whether the General Plan and Downtown Specific Plan provide a visionary solution versus an avoidance strategy for a future housing supply for Livermore. Only time will provide the answer. The DEIR has the obligation to provide analysis on both futures. All important documents, including the Housing Element and the Downtown Market Feasibility and Financial Strategy need to be released to the public and the DEIR needs to integrate the findings of such documents. The public should have an opportunity to comment on the impacts of such analyses.

The DEIR needs to be amended to include the following:

1. Analysis concerning the revised Housing Element so that the public can understand the "whole of the action affecting the environment". **7**
2. Analysis on the consistency between the Housing Element and the rest of the General Plan
3. Analysis and findings of the Downtown Market Feasibility and Financing Strategy
4. Analysis on whether the Greenville TOD or the Downtown can achieve their projected housing supply
5. Analysis of the market and governmental constraints on the Greenville and Downtown housing development.
6. Mitigation actions that should be taken if the City fails to realize the desired housing production.

Thank you for this opportunity to submit our comments.

Sincerely,

Gordon D. Jacoby
Project Manager

COMMENTOR C12
Livermore Venture Partners, L.P., Gordon D. Jacoby, Project Manager (July 28, 2003)

C12-1: The Draft EIR contains analysis of possible environmental impacts, identification of mitigation measures, and this Final EIR Response to Comments document provides a forum for public comment. See Response to Comment C5-4 regarding the Housing Element. The Housing Element inventories and analysis are consistent with the policies and standards of the Draft General Plan and the Downtown Specific Plan. As stated in Response to Comment C5-4 CEQA analysis, i.e., a negative declaration, was prepared for the Housing Element. The Housing Element contains policies and programs that describe how the City will meet its regional fair share of affordable housing.

C12-2: It is unclear in the comment to what combination of market and governmental constraints the comment is referring. Additionally, CEQA does not require an analysis of whether a Land Use Plan is "realistic."

C12-3: Comment noted. This Program Draft EIR evaluates potential environmental consequences of implementation of the Draft General Plan and the Downtown Specific Plan. Analyzing constraints to the BART extension to the Livermore area is outside the scope of this Draft EIR. See Response to Comments A5-23 and A5-48 regarding the need to identify alternative sites for development.

C12-4: Comments noted regarding high-density housing.

C12-5: The Housing Element contains an examination of the constraints to achieving the City's fair share allocation of affordable housing.

C12-6: The commentor shows shown confusion regarding the Market Feasibility versus the Financing Strategy. A Market Feasibility study for Downtown Livermore was completed by the Concord Group in August 2002, and was referenced in the document as an Appendix under separate cover. It is available from the City. Its full title is the *Downtown Revitalization Economic Analysis and Land Use Strategy Draft Report*, dated August 1, 2002. The Financing Strategy is currently in progress, and when complete, will be released to the public. It will be included in the final Downtown Specific Plan as Chapter 11.

C12-7: This comment summarizes the points made in the previous comments.

D. PUBLIC HEARING COMMENTS

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D
Hearing

MINUTES
CITY OF LIVERMORE
PLANNING COMMISSION
TUESDAY, JULY 15, 2003
CITY COUNCIL CHAMBERS
3575 PACIFIC AVENUE

Regular Meeting – 7:00 p.m.

CALL TO ORDER – ROLL CALL:

The meeting was called to order at 7:00 p.m. Present were Chairperson Darryl West and Commissioners Barbara Bailey, Doug Horner, and Marge Leider. Commissioner Martha Claassen was excused absent. Also present were Community Development Director Marc Roberts, Planning Manager Eric Brown, Assistant City Attorney Kevin Young, Senior Planner Susan Frost, Associate Planners Ingrid Rademaker, Jennifer Craven, Catherine Hagebusch, _____Jacqueline Solomon, _____ Bob Vinn, and Division Clerk Kim Phillips.

PLEDGE OF ALLEGIANCE

MINUTES APPROVAL:

Meeting Minutes of June 3, 2003

MOTION BY WEST, SECOND BY LEIDER, TO APPROVE THE PLANNING COMMISSION MEETING MINUTES OF JUNE 3, 2003, AS WRITTEN.

VOTE:

AYES: BAILEY, HORNER, LEIDER, AND WEST
NOES: NONE
ABSENT: CLAASSEN

OPEN FORUM: No one spoke.

COMMUNICATIONS:

1.1 City Council Meeting Minutes of April 28, 2003
1.2 City Council Meeting Minutes of May 12, 2003

1.3 City Council Agenda Summary of June 9, 2003
1.4 City Council Agenda Summary of June 23, 2003

The above communication were received and noted.

2. REPORT FROM COMMUNITY DEVELOPMENT DEPARTMENT STAFF:

AGENDA REVIEW – At this time, the Planning Commission may consider reordering or continuing agenda items.

3, CONSENT CALENDAR: None

4. PUBLIC HEARING ITEMS:

4.1 Hearing to consider a request to allow the remodel and expansion of an existing gymnasium building for church activities including sanctuary space, classrooms for religious education, administrative offices and a preschool during the weekdays. In addition, the proposal includes a request to amend Planned Development Industrial 00-181 to allow parking as a primary permitted use on the parcel located east of the proposed church building.

- Location: 348 North Canyons Parkway
- Applicant: Cornerstone Fellowship
- On-site and off-site public improvements: Sidewalk Changes proposed in the area
- Site Area: 8.3 +/- acres
- Zoning: Planned Unit Development (PUD) 116 and Planned Development Industrial (PD-I) 00-181
- General Plan: Business Commercial Park (BCP)
- CEQA: A Negative Declaration under the provisions of the California Environmental Quality Act (CEQA) will be considered.
- Application Number(s): Conditional Use Permit 02-026 and General Zoning Code Text Amendment 02-321
- Project Planner: Catherine Hagebusch

AP Hagebusch summarized the Staff Report. She noted a change on Page 10 of the Staff Report, finding number 4 and Page 3, No. 4 of the Resolution should read, "The proposed new allowed use has no adverse impact on the .....".

Chair West asked regarding the issue with the fence on the west side, it came closer to the sidewalk than is normally allowed. It wasn't clear why that was done that way.

AP Hagebusch replied the fence has to jog out slightly closer to the sidewalk than what is normally found because there is playground equipment located on that side of the building. Playgrounds are required to have a certain drop zone around that. In order to

accommodate the required fall area, the fence needed to jog out around that distance. The applicant looked into moving the equipment closer to building, but if they had done that they would have had to remove trees and adjust some of the architectural features; adjusting the fence was a better option.

Steve Madsen, Senior Pastor of Cornerstone Fellowship, stated that Cornerstone Fellowship is a ten-year-old Livermore church, started in his home. Now, there are about 2,500 attendees. They meet now in the Amish Shrine Event Center and their ministry center across the street from the Shrine Center. They are excited about this opportunity.

Sherman Balch, 6010 Alisal Street. Pleasanton, is representing the project's developer Balch Enterprises. He gave a PowerPoint presentation of the project.

CM Bailey asked what the species of trees that will be used. AP Hagebusch said the majority of them are Bradford pear trees, which are evergreens.

Chair West asked if the use of the sanctuary will be limited to church uses? Mr. Madsen answered no it would not. Any use would require church approval. For example, what would be a non-church use? Chair West noted musical performances and things of that sort. Mr. Sherman said yes, the church would like to give back to the City. It is going to be a 2,000-seat auditorium, which would be very helpful to be able to offer that. But it will be subject to the church approval.

The public hearing was opened. No one spoke and the public hearing was closed.

CM Bailey stated this is an excellent location for this use. It has the ability to enlarge the facility to meet the growing need of the congregation. The parking situation has been addressed and will not be a problem for the area. Childcare is a needed service for the church members, as well as the surrounding area. All the Development Standards have been met and there are more trees than are required. She is in favor of the project.

CM Leider agreed with CM Bailey. She especially likes the idea of having the childcare. So often, uses like these in the past have not been accepted into industrial areas. She believes that was a mistake. This doesn't impact the area with extra parking. We have seen that as a problem with other churches that have grown within the City and have an impact on surrounding neighbors. She approves of the project.

CM Horner stated he is always very concerned about where churches are placed. He actually voted against the last application that came before the Commission, which was being placed in an industrial park. He thinks this is a much better fit – a much better area to put a church than in an industrial area. It looks like the applicant has developed enough parking, which would have been a concern. He likes the project.

Chair West noted there is wrought iron fencing on the westerly side of the project. The play equipment will be exposed to the public right-of-way. He wanted to know if any of the Commissioners had any issues with that. None of the Commissioners did.

Mr. Balch stated the landscaping will grow up in that area to screen the playground equipment.

Chair West asked regarding the question of renting out the sanctuary. The City is trying to develop theaters downtown. He asked if any of the Commissioners saw that as a conflict? None of the Commissioners thought it would be a conflict. CM Horner noted the sanctuary will work better as an auditorium than a theater. Once there is a legitimate theater downtown, he's sure that will be the venue that most acts or performances will seek out. He doesn't see a lot of competition for the same kinds of shows.

Chair West added that the architect, civil engineer, and the landscape architect have done a terrific job at converting something that was just a mundane building into something that is really positive in the area. Generally, the Commission holds fast and hard on the one landscape island for every ten stalls, but in this case, there is the benefit of more trees than is required and better shading. If the small planters are done correctly, the trees will work.

MOTION BY WEST, SECOND BY TO ADOPT RESOLUTION 39-03 RECOMMENDING THE CITY COUNCIL APPROVE CONDITIONAL USE PERMIT 02-026 AND GENERAL ZONING CODE TEXT AMENDMENT 02-321 WITH STAFF RECOMMENDATIONS.

VOTE:

AYES:	BAILEY, HORNER, LEIDER, AND WEST
NOES:	NONE
ABSENT:	CLAASSEN

4.2 Hearing to receive comments on the Draft Environmental Impact Report (EIR) for the General Plan Update (GPA 02-005) and the Downtown Specific Plan (SP 02-001).

Project Description: The project analyzed in the Draft EIR includes two main components: a comprehensive revision and update of the Livermore General Plan, and a new Downtown Specific Plan.

Draft General Plan. Elements of the General Plan have been periodically revised and amended, with the latest comprehensive update occurring in 1976. The Draft General Plan includes six of the seven elements required by State law – Land Use, Circulation, Open Space and Conservation, Safety, and Noise. The Housing

Element is undergoing separate update and environmental review. The Draft General Plan outlines a vision of long-range physical and economic development and resource conservation that reflects the aspirations of the community. The Draft General Plan proposes some changes in land use that differ from the existing General Plan. Proposed new categories of land use include Neighborhood Mixed Use (Low Density and Medium Density Mixed Use) and Transit Oriented Mixed Use High Density. Additionally, changes in the land use designations for specific parcels may result in changes in the aggregate amount of land designated for each land use category.

Downtown Specific Plan. The purpose of developing a Downtown Specific Plan is to create a comprehensive framework of objectives, policies, and programs that will guide growth and change in the Downtown, and create conditions that will improve the district's vitality and economic performance, while enhancing district character and livability. The Specific Plan will include detailed land use and development standards and design guidelines intended to amend existing City policies and change zoning code standards. In addition, revisions to the City Zoning Ordinance and Municipal Code may also be included to facilitate development and address land use compatibility issues. Circulation, parking and utilities components will also be included in the Specific Plan.

Potentially Significant Impacts. The project, consisting of the Draft General Plan and the Downtown Specific Plan, was found to create significant unavoidable impacts in the areas of: Traffic and Circulation; Utilities, Infrastructure and Energy; Air Quality; and Noise. All other potential project impacts were found to be less than significant due to goals, policies, objectives and actions included in the Draft General Plan and the Downtown Specific Plan or due to identified mitigation measures.

SP Frost explained that the purpose of tonight's meeting is to conduct a public hearing to receive comments on the Draft Environmental Impact Report prepared for the General Plan Update and Downtown Specific Plan. The Draft EIR was prepared by LSA Associates in coordination with City staff and other consultants with specific technical expertise. The Draft EIR was circulated for public review on June 6, 2003, and the review period ends on Wednesday, July 30, 2003. David Clore who is a principal with LSA Associates will provide an overview of the Draft EIR.

David Clore, Managing Principal of the Berkeley Office of LSA, said LSA were the environmental consultants on this project. In addition to his staff, which includes Judith Malamut, who was the day-to-day Project Manager, is currently on vacation, so he is here in her absence. They had a variety of technical sub-consultants who assisted as well and they are all mentioned in the back of the report. He then gave an overview of explaining the documents that represent the Environmental Impact Report. He stated his role tonight is to listen to comments of the audience and the Commission, take

careful notes, so LSA can prepare the Responses to Comments document in the next month or so.

SP Frost reminded that once the comment period on the Draft EIR ends, we will be preparing the responses to comments and that will go into the Final EIR. That document is concurrently scheduled to be completed and available for public review on September 12, 2003. The comment period on the Draft EIR ends on Wednesday, July 30, 2003, and that all comments must be received at the Planning Division no later than 5 p.m. July 30. Those comments should be addressed to Susan Frost, Senior Planner, 1052 South Livermore Avenue.

The public hearing was opened.

Chair West asked the audience to keep their comments somewhat brief. The idea is to touch on general themes; any detailed comments should be in writing to the staff.

John Stein, 1334 Kathy Court, stated the major hole in the whole document seems to be North Livermore. Not that any specific outcome should be assumed, but the issue should be addressed. Either the EIR started in time to incorporate the Preserve Livermore Environment Outcomes, which are either intense agriculture and a transfer of development credits – both of which are not really addressed in the EIR. Or, voter approved intensive urbanization of that area at a maximum rate of, obviously, 700 units per year. Neither of those options have been addressed; this is a master EIR and it is required to look at cumulative impacts. It would seem as though that is a missing part of the EIR. In the event that it didn't address that Initiative, it should have just gone ahead with the previous plan. He doesn't believe there was a window where you could you neither. There are some problems with the Noise Element using different traffic numbers than the Traffic Element. It is unclear how the traffic study was done. All that is there is the outcome – the tables, the raw data, and the computer output. There is no methodology, there's no way of understanding, for example, what impacts traffic calming measures would have on friction or additional driveways in the downtown, or diagonal parking, or very heavy pedestrian use. It is unclear what assumptions were made; it's unclear how they were analyzed. So, that's a problem.

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Mr. Stein continued that In regard to the downtown, the major hole is there is no way of determining whether it is a feasible plan. The major element that would have told us whether it could be done, whether there was enough funding from any source to do it, it would have been the financial plan. Everywhere you look in that plan, it bleeds money and there doesn't seem to be very much money coming into it. A lot of the property tax goes to the Redevelopment Agency. It is unclear whether the sales tax increases since about 100,000 square feet of net commercial is removed. It looks like in spite of the attempts to have a right to do business; you and I know that if 500 people come down and say they don't want their street closed for two days in a row, chances are the Council won't close the streets. If someone wants to put a dry cleaner under an

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apartment building, most people are going to object to the chemicals and the odors since it is a health hazard and a real problem. There are a number of other problems. For example, the parking and the traffic downtown don't seem to work. The consultant's argument has consistently been that successful downtowns have high levels of traffic and parking problems. Therefore, if we can create a downtown that has high levels of traffic and parking problems, it will be a commercial success. That's arguing from a false premise. The mitigation for the park is not a real mitigation. It just says the Park District and the City will work together to find a site. A future study is not mitigation. That is a significant impact, not a less than significant impact. If you have 1,500 to 1,700 children downtown, you need a reasonable school site. The School District has certain standards. Nowhere in the downtown, or near the downtown, can those be met. That's a 10-acre elementary school and a 20-acre middle school. You're going to have about 800 elementary school children and they will have to go somewhere and all the schools are full. 3 cont. 4 5 6

Mr. Stein continued with the parking, a number of the units have one parking space per unit, including some single-family detached. Most people who live in Livermore know that it's a rare house that has less than two cars. There will be a lot of spillover parking. Most people, when you talk to them about the downtown, already complain about the parking problems. The new plan has much tighter commercial parking and now there will be spillover. There's no parking for the neighborhood commercial. You are creating essentially another level of problems for the traffic and it is unclear how that was addressed. If you have a lot of people circling looking for parking spaces that impedes traffic flow. Regarding the historical buildings, there's a nice section on the Secretary of the Interior on how to preserve and restore historical buildings. It is about a 14-page extraction from a 177-page document. He's not sure really why it is there. It's a very good document and he urges the Commission to read it. But there's no determination of inventorying historical buildings on the basis of persons who live there, important acts in City history or State history that occurred there, unique architectures. It is unclear how the historical buildings were inventoried and why they were selected and why so few were selected. Actually, only 10 are designated for permanent preservation. It is unclear how the setback distances were determined for putting very tall buildings next to historical buildings. Twenty feet is not a big distance – it is probably a little bit less between the podium and the dais in these Chambers. There doesn't seem to be any specific identified to protect historical buildings. The zoning doesn't do it; the land use doesn't do it. There's no funding source to do it. Mixed use is not well addressed, although it's not really an environmental impact, except for safety and health. It is unclear who has priority. The downtown seems to encourage commercial and all the land around the outlying areas on Vasco and off of First Street, seem to encourage industrial and yet there's no idea of which has priority. If for example somebody wants to go to 24-hour shift work directly adjacent to an existing housing development, his guess is there will be incredible levels of conflict. If you look at the site at East Avenue and Vasco, already there are probably 15 different industries that use hazardous, corrosive, explosive, toxic oxidizers, and all sorts of things. Yet, you are talking about 7 8 9

putting a residential development in there. The sites seem to have problem with noise on the industrial areas in terms of railroad tracks. There's the one on Vasco, which is actually between two railroad tracks, with a major street running down the middle, surrounded by heavy industry including the County's hazardous waste site. Nowhere, the way the priorities are going to be decided, what is considered hazardous? What minimal levels of safety will exist for the people who live there? He is concerned that issue is not really addressed. You need to set a priority. In the downtown, you need to figure out what level of development can be accommodated by the parking and the traffic, not the other way around. In other words, trying to impose 3,259 units is a very difficult thing to do in an existing downtown. He supports infill, with some respect for what's there already, including the character and the commercial community. Good examples are the recently approved, and now under development, congregate care facility – assisted living on Stanley Boulevard. One of the major justifications for locating it there was the commercial development directly to the east of that project. Yet, this plan, almost all of that is replaced by high-density housing. Where are a lot of these businesses going to go? It looks like a considerable loss of sales tax revenue in that area. Everywhere you look, there are subsidies for artists, subsidies for affordable housing, subsidies for infrastructure, subsidies for roads – it doesn't seem as though the plan is a feasible one. Somewhere along the way, that has to be justified. How will you economically justify it? It lists fees, assessment districts, and bonds. Fees are already at a high level and people complain; an assessment district will not be supported by the commercial development that is there and is being forced out by either eminent domain or rezoning and the only other one is a bond. How many people in Livermore will pay a few dollars per day to have increased levels of congestion, more air pollution, harder to park, and overcrowded schools.

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At this point, Chair West asked Mr. Stein if he was going to tie this information back to the EIR.

Mr. Stein said he notices that previous initiatives in the City have also been listed in one of the appendices. One that is missing is the SAVE Initiative, which passed a few years ago and is still on the books and before had a segment in the General Plan that specifically referred to it. It should be there unless people have rescinded that action. That assures that there will adequate sewer capacity, school capacity, and fire protection.

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Clarence Honig, 588 Tyler Avenue, said he would like to second Mr. Stein's comment about the inclusion of the SAVE Initiative in this documentation. It does exist; it's a matter of City law right now. Since it's a public initiative, it's important to have it in there. His main comments are in regard on page 9 to the Wastewater Disposal Capacity Summary. The summary states that City has not selected a preferred wastewater disposal alternative at this time and therefore this impact is considered significant and unavoidable. He certainly agrees with that. But, there should be a notation be made that the City is currently pursuing vigorously a wastewater disposal study. In particular,

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reclamation with North Livermore Storage and Irrigation. Also the matter of reclamation with Chain of Lakes Storage and Irrigation. So, this Draft EIR should at least allude to that. His question is to the Commission and to the staff, will that City study be complete prior to the final determination? That's an important endeavor for the City to pursue. This is a very important issue. Regarding this same topic, on page 9, line 2, "average dry weather flow expected to be 10.03 million gallons per day," he wondered if that 10.03 million gallons per day takes into account a significant amount of disposal right now with median strip irrigation. He knows the City has just recently opened a contract with Las Positas College for using treated wastewater for irrigation there. This is wastewater that wouldn't go into the pipeline. That's important to point out whether that 10.03 million gallons per day includes not only the amount of median strip irrigation we currently pursue, but what we might be expected to pursue during the lifetime of this plan. We are putting in more pipes every day – that's an important point. Also, the matter of wet season flow, which goes to the question of infiltration and infill for our existing sewer systems. That could be improved. That infiltration infill factor could be cut down by putting in a better and sounder piping system to the plan. Perhaps that should at least be mentioned parenthetically. There is also the question of average dry weather flow export capacity, which Livermore has loaned to Dublin-San Ramon Community Services District. That was an issue part of the LAVMA Agreement to build the second pipeline and DRSD has committed to repay that to Livermore. That should be noted and referenced in this section. His main point, however, is that the City study which is currently on-going and is expected to be completed soon and hopefully in time to make a contribution to this part of document.

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Gordan Jacoby representing property on Collier Canyon adjacent to the college stated he has a procedural question that hopefully can be answered as a result of the hearing today. When will the Housing Element of the General Plan be released and did this EIR, which is now being reviewed, include the latest version? It seems over the last six months or so the Housing Element has somewhat gone into a black hole and he isn't quite certain where it is. He raises this issue for both a procedural reason and a substantive reason. General Plan law treats (EIR and the General Plan) the Land Use Element and the Housing Element in a very unique way. It creates a lot of crosstie overs between the two. One needs to be consistent with the other; one can drive the other. The law requires that. For example, in the Housing Element it asks you to define certain sites, a whole inventory of sites, that can be built on, largely coming out of your General Plan residential component of the land use and then look at some of the problems that might be in building those homes and resolve some of those issues. The two are tied together. So, not knowing what the new Housing Element is, it is hard to then know whether the EIR assessed the combination of that new Housing Element and the General Plan. For example, when the Housing Element, as is required, went up to the State, it had a series of questions raised about it. We don't know whether the City, upon seeing some of those issues, have responded and made adjustments. Secondly, when it went up to the State the General Plan Committee was in the middle of its deliberations and hadn't completed its work. Again, we aren't certain whether the thoughts that came

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out of the Committee and are, therefore, in the General Plan are some how reflected in the new Housing Element. Those are the procedural questions.

Mr. Jacoby stated that substantive questions are equally and probably more important. Over the last year, he's been working with a non-profit as well as a market developer in trying to do a combined rental project in downtown Livermore. They thought given the direction of the Council it would make a lot of sense. But in doing the analysis, they found that once you adjust for the rents you get for both affordable and market, once you look at the operating costs, the other costs in the City probably precluded the kind of density rental housing that you desire simply because the cost of City permits is so high and the type of parking that is anticipated with the new form of development in downtown probably would increase the parking cost about three-fold and start to make it uneconomic. Why is that important in the EIR sense? It could well be that some of the growth that you were hoping for an anticipating in the downtown is over projected simply because it can't meet market constraints. Maybe those issues have been taken care of, as they might have been in the new Housing Element, and yet we don't know that. He would ask that the Commission get clarity as to when the Housing Element will be available. Then you provide sufficient time during this EIR process for the public to look at that and see if the impacts that are contained and resulting from that combination and land use in the Housing Element are the ones that are contained in that EIR.

15 cont.

Valerie Raymond, 2868 Buena Vista, stated she has been struggling as to how to phrase her comments because she has found the EIR somewhat inadequate and difficult to work with. In trying to put my finger on why there seems to be a sort of catch 22 feeling about it. Fundamentally, she thinks the problem is that the City has been put in such a constrained box by the way they have chosen to undertake this General Plan process that it has really limited the ability to have overall impacts on the City. EIR's are supposed to include reasonable alternatives. Since North Livermore was part of the City's General Plan for 10 years, it isn't unreasonable to suggest that is a reasonable alternative. But instead, all of the alternatives were considered in the context of the highly restrictive UGB that was adopted by the Council and not taken to the voters to give them an opportunity to speak on this. It was unanalyzed at the time, and it remains unanalyzed today. It seems to her that an adequate EIR would have looked at that. It may indeed be true that UGBs in general have some good consequences. Certainly, those are being referred to. But there is no indication of whether or not this particular UGB is a good UGB. There are a number of steps you really need to go through in order to get a good UGB. Those steps weren't gone through and it seems that we butt up against the fact that the UGB is defined as being a good thing, with no analysis. Therefore, anything that seems to create a substantial impact we're told it is not a substantial impact because it's within the UGB. She finds this a sort of circular analysis that bothers her. She was bothered about the alternatives analysis in a sense. It seems as though there was some inconsistency in the way that they were evaluated against each other, which seemed designed to show that the preferred plan was the just right plan. She finds the reasoning for choosing the preferred plan is the environmentally

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superior alternative just seemed not very well thought out or particularly convincing. For example, the redistributed alternative, which is slightly more houses and slightly fewer jobs than the preferred plan is essentially acknowledged to be about the same. It was compared in the wording and it says that the alternative will still result in a jobs/housing ratio of 1.4 representing a potential housing shortage and the generation of associated environmental impact such as increased traffic and noise and air pollution. On the other hand, when it discusses the preferred alternative, it just says, "therefore the proposed project and other anticipated future projects are not anticipated to contribute to a future jobs/housing imbalance. It seems as if there's one rule for the alternatives and a different rule for the preferred plan. Regarding the park issue with respect to downtown, one of the concerns she has is she doesn't think this is a very user-friendly document For example, there is a listing of the amount of park acreage you would need per 1,000 population and yet at the same time, it lists a number of sites that could supposedly supply this but there are no numbers given there. It doesn't tell you where you can go to go find those numbers. Going back to the UGB, because there is no analysis of the UGB, there is also no analysis of how the City could make up for its existing shortfall of 110 acres of community park. Nor is there any analysis of where a middle school should be. In fact, there seems to be no planning for a middle school, which she doesn't understand. But going back to the Downtown and the so-called mitigation, which in her opinion doesn't survive the giggle test, that would solve it because the park district and the City and the developers will work together.

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Ms. Raymond said she would like to draw the Commission's attention to the North Livermore Specific Plan Environmental Report in which a similar situation arose with respect to traffic. There were two or three intersections in which a very clear mitigation was available – it wasn't that they were unmitigatable, there were things that could be done – but they couldn't identify specifically where the funding for that was coming from. So they basically came to the conclusion that they would have to continue to show them as significant and unavoidable because they couldn't demonstrate how they would be solved. She would suggest that this falls into exactly the same category. Unless you can tell her where the 30 acres, according to the table is what you need, in or around the downtown is going to come from. She doesn't think this is an adequate mitigation.

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Ms. Raymond continued that she thinks the final point she will make, and she will be submitting a lot more detailed comments, is that she doesn't see how the TDR program fits into this. We will be through the EIR before the TDR program is even done and yet it should be pretty obvious that if you are going to have a TDR program (and she has a lot of doubts about whether one is possible, but assuming for the sake of argument that it is, it clearly has a major impact on this plan. You have to have real value in a receiver site for a TDR program to work. As far as she can see, there are only two approaches that can be done in dealing with those receiver sites. One of them is that the number of units that are given by right be reduced then you ask the developer to go buy the other units, which has implications – if it's mandatory, maybe people will just walk away. If it's optional, maybe they won't do it. Furthermore, it doesn't address the question of the

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other side of it, which is if the TDR program can't work what does that do to the City's goals for outside the UGB. The other alternative would be that in order to get that value, you add housing. We haven't analyzed that either. So, she has a real concern as to how this TDR program is supposed to fit in to the EIR work. Those are her general comments. She doesn't think the document is user-friendly as it can be. She finds herself wondering how easy it is for the public as a whole to comment on something like this. Maybe this just a general problem with EIR's, but you've got to be pretty obsessive, or whatever, to go through documents that thick and at least have enough understanding of issues to be able to look at something and say, that doesn't sound quite right. But if the City doesn't get a lot of comments on the EIR, she doesn't think it's because there aren't issues out there, she thinks it's extremely difficult for the average member of the public to be able to deal with it.

21 cont.

Nancy Bankhead, 530 Huntington Way, stated this is a very important EIR. There are less than 20 people in the audience. The word is just not getting out. You've got a very small percentage of Livermore talking about this. There was a meeting the third of July – everybody was going away at that time. She had relatives visiting and had to leave them at her store to come into the meeting. These meetings are important for Livermore and the information is just not getting out to the general public.

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No one else spoke and the public hearing was closed.

Chair West asked for specifics from the Commissioners.

CM Horner said his thoughts are really on the traffic. Reading over it there were more "SU's" for the traffic, but he remembers back to some of the things that the City's consultants said during the process. One that really stuck was that if we do nothing the traffic will get worse; if we add lanes through the downtown, it will get worse; if we constrict traffic and make it one lane each way, it will get worse, because development will continue to happen in Mountain House, in Tracy, to the east of Livermore and that is where the traffic is coming from and they will take whatever means possible to shorten their commute. Therefore, if it is going to get more congested, anything you do you might as well make it yours and decide what the downtown is going to look like, decide what Main Street is going to look like and it will be congested anyway. But at least it will be our design at that point. At least it's a place that we've made reflective of the community interest. That needs to be pointed out that these five significant impacts are probably going to happen regardless of what General Plan we choose.

CM Leider stated she spent the weekend in Monterey the past weekend and she stayed in Pacific Grove. She is amazed at how they have revitalized their downtown and she hopes that is what Livermore will look like in the future. They have made the speed limit in their downtown 15 mph and stops signs at almost every corner. There were people walking and it was exactly what the consultant said, it was very interesting and beautifully done. The buildings were all remodeled. She added that the school district

had withdrawn plans for a middle school and turned the development of part of it to housing. This was in the past year. This was in the area off of Concannon because they didn't feel the need for a middle school. When she called the school district and talked to them about a number of different things as far as the plans, at this point now, they are looking to close one of the elementary schools. She can't say that she is overly concerned about this. The number of incoming freshman in the high school district, and this is the district as a whole, is the same next year as the outgoing seniors this year. So they are not looking at an impact in the high schools at this point either. She does remember specifically when the middle school was talked about and the school district obviously didn't even feel that they needed it because they turned the land over for housing.

CM Bailey said she is very surprised that there are so few people in the audience. She's shocked; she thought there would be standing room only. Obviously, it didn't happen. She has taken detailed notes concerning the different people that got up to voice their opinions and she is going through the documents. At this point, she doesn't have any comments.

Chair West said they are all very concerned that there are aren't more citizens taking part in this process. At this point, that could be a function of trying to slam through the mountains of documents. Hopefully, the participation will pick up as we move through the process. He wants to emphasize a couple of things that struck him. One is the issue of whether or not; not evaluating North Livermore really is a hole in the document. He knows what the Council's directive was, but that ultimately could become a planning area – at least a passing statement on the impacts of the UGB relative to some of these issues that the Commission is hearing about tonight and being forced to work inside those boundaries. He asked about the Housing Element.

SP Frost said the last several months staff has been working with Housing and Community Development to respond to their comment letter that was received last year to work through those issues with them. We believe that we have come to an agreement on addressing their concerns with the Housing Element. We expect a response from them in about a week or so. When we get that, we will release the revised draft Housing Element. Staff hopes to go through a hearing process with that in August and September of this year and hopefully get it adopted.

Chair West asked if through this process, the Commission will be looking at a draft of the revision? SP Frost replied that is correct. Chair West said that partly answers the concerns he was hearing.

CM Leider said it is her understanding that Historic Preservation Commission will have a hearing on this plan too. So she said if people in the audience have a problem with the historical downtown that is the place to take their concern. Their advice is what the

Commission should take. If anyone feels that buildings in the downtown, which are of historical significance, are not being protected, that is the proper place to speak.

Chair West stated the question about the TDR program not being completely evaluated within the context in the EIR. Could he get some feedback on that?

CDD Director Marc Roberts answered the concept here is the TDC program is made up of two fundamental components. One is the sending site, which were in that program was set up by the Initiative. As you know, initiatives are not subject to the California Environmental Quality Act provisions. In fact, all of the impacts for example, permanently preserving that area's agriculture, doing easements on those properties, the mechanics on how that was done, and how that was set up in the Initiative itself actually were not the subject of an environmental document, nor are they going to be the subject of a future environmental document. At the other end, is the receiving site and those impacts do need to ultimately be analyzed because the Initiative, while it provided direction, it didn't ultimately set up the receiving site of that. Fundamentally, for purposes of this EIR, the densities, which are included in both the preferred plan and the alternatives, should be considered maximum densities with the transfer of development credits. In other words, the concept that one of the speakers tonight noted is the base densities would be lower than this, would be a correct assumption and that ultimately will be part of the TDC program. This EIR analyzes the worst-case scenario, i.e., the most intense development that would be possible under the various alternatives. There would be more information both in the TDC program and that is going to the City Council for its first stage, which is not the complete program, but an update to the Council on August 11. There will be more information available at that point. By fall, we will have a more complete program that will be subject to its own environmental process.

CM Bailey asked staff for clarification on what the Commission is or is not to do with North Livermore at this point. For the next 20 to 25 years, is the Commission not to address it all?

CDD Director Roberts said it is a multiple part answer. For purposes of urbanization in this General Plan Update, the direction from the Council was to not consider urban uses beyond the UGB. Obviously, even by the terms of the Initiative itself, from time-to-time, we may be considering urban projects beyond the UGB under an initiative process. Those ultimately need to go through the appropriate reviews and/or process at that time. The question is if there is a City-sponsored project in North Livermore that would be – for example the City wanted to export its wastewater into North Livermore – that would be subject to CEQA, City review, and approval. If it is another agency that this leading the regulatory process, for example, if Zone 7 were importing water from the State water project to North Livermore. It would be ultimately up to that agency to be the lead agency from an environmental standpoint and from an implementation standpoint, in that case, the City and its referring and advising bodies would be advising on that.

Obviously, the citizens of Livermore are free at any point to change the policy direction for what happens for North Livermore or provide additional butyric to what has already gone on there. At least for this process before the Commission at this particular point, the concept of urbanizing that, or in fact even having intensive agricultural programs is not part of the documents before the Commission.

5. UNFINISHED BUSINESS: None

6. NEW BUSINESS: None

7. MATTERS INITIATED BY PLANNING COMMISSION AND STAFF:

PM Brown mentioned there is a presentation by Michael Freedman before the RPAC Committee and Design Review Committee on July 16 on the Specific Plan. The next Planning Commission hearing is July 22, which will be focus on the Draft General Plan. There is a hearing before the Historic Preservation Commission on Thursday, July 24, was well to look at the historic component of the Specific Plan.

CM Leider asked if something could be put in the newspaper about the hearings. SP Frost said staff can publish the display ad again. She noted we have done display ads, legal ads for the hearings and also for the Draft EIR hearing. There were radio spots on KKIQ and ads on CTVU. All the meetings are listed on the City's website for the General Plan Update. SP Frost said she will have the display ad repeated in the newspaper and there were direct mailings for the various lists the City has for interest in the General Plan or Specific Plan, the Visioning list, to all City Committees/ Commissions. Although those mailings were to announce the introductory meetings, we did include a list of all the General Plan and Downtown Specific Plan meetings with that flyer.

CM Bailey asked about the Agenda for the PC meeting of July 22 and what is expected of the Commission. SP Frost said David Early will give a more detailed review of the General Plan than he did for the introduction meeting. The intent is to provide the public the opportunity to provide those specific comments and questions on the General Plan itself and also to begin to get the feedback from the Planning Commission to start identifying the issues that the Commission has regarding the General Plan itself. It will be a similar format that is used for the Downtown Specific Plan when the Commission has that meeting on August 14. She continued it isn't planned to take segment by segment in terms of receiving comments from the Commission or the public; however, Mr. Early will be providing a chapter-by-chapter review of particularly the big policy changes and issues for each of the elements.

CDD Director Marc Roberts added that fundamentally both our staff work and the presentations will be focusing on if this document were adopted, what are the policy changes that would involve. Then the Commission will help staff through that process of

evaluating whether the Commission believes that is the proper policy adjustments to the document.

PM Brown stated several of those things will actually be in a fairly comprehensive Staff Report that will be going out soon and will identify those changes and the major proposals.

Chair West stated Livermore Cyclery has moved and the other storefronts on the north side of First Street between South Livermore and Maple. What is going on? Are the buildings being torn down? CDD Director Roberts answered ultimately, yes, but not in the short run at this particular point. Those tenants were relocated in anticipation of moving forward portions of the Golden Triangle. Economic Development Department staff is in discussions with a commercial developer to do a Development and Disposition Agreement for two parcels of land immediately adjacent to First Street. At that point, staff hopes by fall there will be an Agreement with that commercial developer. In fact, the commercial portions of the site would hopefully be able to move forward early next year.

Chair West said the Grocery Outlet has come up with a clever way of circumventing the Commission's decision to not allow a larger sign by advertising on a vehicle parked in the lot. It sounds to him from the meeting Minutes that the Council almost encouraged the people there to advertise. In other words, saying that maybe some agreement on a temporary sign could be developed. How do we control a mobile sign? PM Brown said he would check into the matter.

Chair West said he and CM Bailey had a concern about the hospital buildings and corrugated metal. That's a real popular thing to do and it doesn't look good. He thinks the Commission compromised on that and the Commission shouldn't have. The first building that was constructed is a great looking building; the second one is not as attractive.

Chair West asked about the PC decision on the easement north of First Street been appealed? PM Brown said yes. That is going forward to the Council.

Chair West asked about an item on the Design Review Committee Agenda. The Agenda notes DRC will make recommendation on the Bruno's restaurant awning signage. Who are they making recommendations to? PM Brown answered recommendations to staff. Staff's issue on that is the signage in totality is larger than what is allowed by Code.

Chair West asked if that is the case with the Target sign as well? PM Brown said that is correct and the recommendations are recommendations for staff.

CM Bailey noted that the gas station on the corner of Catalina and Holmes the canopy has been repainted and it looks good. However, there is a sign out front. PM Brown said they installed a monument sign out there without approval. Staff will be contacting the owner.

CM Leider said there is a children's clothes recycling business downtown that just opened and there is another business too that have tacked up cloth signs that look bad.

CM Leider asked if the business on the corner of (one with wood-burning stoves) that is now a furniture outlet also has a tacked up sign. Are they going to put up a permanent sign? A temporary sign ought to be something more than a piece of cloth with drawings on it.

CM Bailey asked if there is anything happening on the vacant lot on First Street that used to be Adams Antiques? Chair West said he talked to Richard Dart recently and he said that the owner is very close to starting construction.

8. ADJOURNMENT: 8:37 p.m.

NEXT PLANNING COMMISSION MEETING DATES:

July 22, 2003 – General Plan Focus
August 5, 2003 – Regular Meeting
August 14, 2003 – Downtown Specific Plan Focus=

PUBLIC HEARING COMMENTORS

Minutes of City of Livermore Planning Commission (July 15, 2003)
Commentors are listed in the order in which they made their comments. The public comments start on page 6 of the public hearing minutes.

Commentor D1: John Stein

D1-1: John Stein submitted five written letters (see letters C1, C2, C3, C4, and C5). Most of the following verbal comments repeat written comments in those letters. See Responses to Comments C3-1, C5-3, and C5-7 regarding development in North Livermore.

D1-2: See Responses to Comments C1-5, C2-6, C5-12, and C5-13.

D1-3: See Responses to Comments C1-1 regarding the Financing Strategy for the Downtown Specific Plan.

D1-4: See Responses to Comments C1-8, C1-9 and C5-16 regarding parking and traffic in the Downtown.

D1-5: See Response to Comment A5-1 regarding a future study for a park site.

D1-6: See Responses to Comment C1-4 regarding a school site to serve the Downtown area.

D1-7: See Responses to Comments C1-8 and C1-9 regarding parking.

D1-8: See Response to Comment C1-2 regarding historical resources.

D1-9: See Response to Comment C1-6 regarding land use.

D1-10: See Responses to Comments C1-8, C1-9 and C2-5 regarding parking and traffic in the Downtown.

D1-11: See Response to Comment C2-8 regarding previous initiatives.

Commentor D2: Clarence Honig

D2-12: See Response to Comment C2-8 regarding previous initiatives.

D2-13: Comment noted that the City is pursuing a wastewater disposal study that is scheduled for completion by the end of 2003. The DEIR describes the reclamation with North Livermore storage and irrigation on pages 123 to 124 and the Chain of Lakes Storage and Irrigation on pages 125 to 126. On page 9 of the DEIR there is no mention of average dry weather flow. However, the current use and the potential for irrigation with recycled water was considered in the analysis of wastewater disposal options.

D2-14: Comments noted regarding wet season flow and average dry weather flow export capacity. These issues were noted in the DEIR analysis on pages 121 to 127.

Commentor D3: Gordan Jacoby

D3-15: See Responses to Comments C5-4 and C12-1 regarding the Housing Element and the Draft General Plan analysis. Comments noted regarding market constraints in the Downtown.

Commentor D4: Valerie Raymond

D4-16: Valerie Raymond submitted detailed written comments on the Draft EIR (see comment letter C8). The Draft EIR authors disagree with the comment that the EIR is inadequate because it does not include reasonable alternatives or an analysis of the UGB. See Responses to Comments B1-15 and C5-1 regarding the range of alternatives evaluated in the DEIR and Responses to Comments C3-1, C5-3 and C5-7 regarding analyzing the UGB. Comments noted regarding past UGB efforts. As stated previously, it is not necessary to evaluate the environmental impacts of the initiative and the UGB in this Draft EIR.

D4-17: See Response to Comment B1-15, B1-16, and B1-17 regarding the analysis of alternatives.

D4-18: See Response to Comment A5-11 regarding park acreages.

D4-19: The DEIR evaluates impacts to school services associated with projected growth on pages 137 to 138. The school district was contacted on numerous occasions during the preparation of the Draft General Plan, Downtown Specific Plan and the Draft EIR. The need for an additional middle school was not identified during that time.

D4-20: Comment noted regarding the adequacy of the mitigation measure for a park site to serve the Downtown. Contrary to the commentors opinion, a park site of 20 acres is not needed to serve the Downtown. The City has identified a number of potential sites that could be developed as a park site if necessary. See also Response to Comments C8-36 and C8-37.

D4-21: Comments noted regarding the potential for a TDR program and the ability of the public to understand the issues presented in the Draft EIR.

Commentor D5: Nancy Bankhead

D5-22: Comments noted regarding the timing of the EIR hearings. In regards to the City's noticing of the availability of the Draft General Plan, Downtown Specific Plan and Draft EIR and the public hearings, the City has published notices in the local newspapers, conducted mass mailings, posted notices on the General Plan Update website and identified 14 public hearings before the Design Review Committee, Historic Preservation Commission, Redevelopment Project Area Committee, Planning Commission and City Council on these documents. See also Response to Comment C5-2.

IV. DRAFT EIR TEXT REVISIONS

The following pages have been extracted from the Draft EIR, consisting of Volume I, Master Environmental Assessment (MEA), Volume II, Impacts and Mitigation Measures (DEIR) and the Technical Appendices, which is a third separately bound volume, and revised in response to comments raised during the public review. Revised text is indicated by underline text. Text deleted from the Draft EIR is shown in ~~strikeout~~ (text with a horizontal line running through it). Only pages that have been modified in response to comments are reprinted in this section. Page numbers correspond to the page numbers of the Draft EIR. Where additional pages resulted from modifications, the new page numbers are designated by the original page number followed by a, b, c, etc. These revised pages, in addition to the public comments and responses to comments, make up the Final EIR, which must be read with the Draft EIR to provide context. This Final EIR addendum, in conjunction with the Draft EIR, constitutes the complete EIR document.

A. TEXT REVISIONS TO VOLUME I: MASTER ENVIRONMENTAL ASSESSMENT

occupying 1,696 acres, while undeveloped parcels occupy 1,785 acres, and agriculture occupies 1,068 acres. Public uses occupy 703 acres and industrial uses occupy 960 acres. Office uses occupy 248 acres, retail 561 acres and churches and other institutional uses occupy 149 acres.

3. Major Features

The following section describes some of the major features within and in the vicinity of the Planning Area.

a. Altamont Pass. The Altamont Pass is located to the northeast of the Planning Area, and the adjacent ridgelines are an area utilized for wind generated energy. The Pacific Gas and Electric company has constructed one of the largest wind farms along the Altamont Pass ridgeline. The wind farm is 54 square miles in size, and the grassland below the wind turbines is used for grazing. Since 1981, over 20 manufacturers have installed over 7,300 wind turbines over the Altamont Pass. These turbines have produced more than six billion kilowatt-hours of electricity; enough electricity to meet the energy needs of approximately 800,000 California homes for one year.

b. Brushy Peak. The Brushy Peak Regional Preserve is located in the northeastern portion of the Planning Area at the end of Laughlin Road and southeast of the Los Vaqueros Reservoir. Brushy Peak is a landmark at the juncture of three distinct geographic regions: the greater Bay Area, the Delta, and the San Joaquin Central Valley. The ~~2,000~~ 2,035-acre preserve is jointly owned and operated ~~managed~~ by the East Bay Regional Park District and the Livermore Area Recreation and Park District. Elements in the preserve landscape include steep slopes, sandstone outcrops, rolling grasslands, oak woodlands, and seasonal wetlands ranging in elevation from 1,700 feet to 550 feet. The Brushy Peak Regional Preserve provides outdoor recreation and regional trails for the public while protecting a large area of open space that contains habitat for numerous special-status animal and plant species such as the tiger salamander, red-legged frog, fairy shrimp, the kit fox, golden eagle, burrowing owl, and the heartscale *(atriplex cordulata)*~~Livermore tarplant~~. The establishment of the Brushy Peak Regional Preserve provides land for an extension of a major wildlife corridor that includes the Mt. Diablo State Park and Black Diamond Preserve. In addition, Brushy Peak Regional Preserve also provides public access to a multiple-use trail system and four potential regional trails linking the preserve to Livermore, Contra Costa Water District watershed lands, and other regional parks in Contra Costa and Alameda Counties.

c. Lawrence Livermore National Laboratory. Lawrence Livermore National Laboratory (LLNL) is located in unincorporated Alameda County, directly adjacent to the eastern City limit, and has a job base of approximately 8,100 persons. LLNL is a U.S. Department of Energy national laboratory operated by the University of California. LLNL was founded in September 1952 as the second nuclear weapons design laboratory to promote innovation in the design of the nation's nuclear stockpile through creative science and engineering. LLNL has become a premier scientific center for the study of energy, biomedicine, and environmental science.

d. South Livermore Valley. The South Livermore Valley is an important agricultural and wine producing region of approximately 14,000 acres with scenic and historic resources. The *South Livermore Valley Area Plan,* part of the Alameda County General Plan, was prepared in 1993 by the County to preserve remaining vineyards and wineries, create incentives for investment in agriculture, establish a land trust, and coordinate policies of Alameda County, Livermore, and Pleasanton. This plan establishes goals, objectives and policies to guide development within an agricultural setting.

With the passage of Measure D, the remaining designations in the unincorporated areas outside of Livermore are:

- **Large Parcel Agriculture:** Allows for a minimum parcel size of 100 acres. Residential buildings are limited to 12,000 square feet including accessory buildings. Non-residential buildings are allowed a maximum FAR of .01, but not less than 20,000 square feet.
- **Resource Management:** Allows for a minimum parcel size of 100 acres and a maximum building intensity of .01. Residential buildings are limited to 12,000 square feet in area.
- **Water Management Lands:** Residential and residential accessory buildings are limited to 12,000 square feet, located on a contiguous development envelope not to exceed two acres.
- **Rural Density Residential:** Minimum parcel size is five acres and no more than one residential unit is allowed on the parcel, except for allowable secondary units. Residential buildings including accessory buildings are capped at 12,000 square feet.

Measure D also created the following series of new requirements that must be met before any new development parcels are created in the North Livermore Intensive Agriculture Zone:

- The County Board of Supervisors must find that an adequate, sustainable and safe supply of water exists for both agriculture and other new uses.
- Parcel owners must agree to transfer to a land trust a land conservation easement that bars development not included in the initiative.
- Agricultural land must be cultivated for a minimum time period.
- The County is to establish a trail system in intensive agricultural zones for public education purposes.
- Commercial uses are to be limited to agriculture-enhancing uses.
- Irrigation uses in the area will not diminish the quality of the drinking water supply.
- Customary development fees must be paid.

These conditions, combined with the agricultural and resource management designations applied in North Livermore, ~~effectively~~ would tend to limit the potential for new residential uses in North Livermore under County jurisdiction. For the South Livermore Valley Vineyard Area, Measure D requires that expansion of residential uses occur within the South Livermore Urban Growth Boundary.

section profiles Livermore's more recent economy by major industrial sector, identifies base sectors, and highlights major shifts in the local economy during the 1990s. This section also profiles retail sales trends comparing Livermore sales with the Tri-Valley and the Commute Region. Finally, this section provides ABAG's projection of future jobs growth in Livermore and related geographies.

1. 1990 Comparison of Livermore Area Jobs with Livermore's Employed Residents

Table 4-8 explores the underlying relationships between residents' employment at all locations and the local jobs present in the City of Livermore and the immediate vicinity during 1990. This figure includes employment at Lawrence Livermore National Labsoratory (LLNL) and Sandia National Labsoratories, which are located outside of Livermore's city boundaries and have often been excluded from City of Livermore jobs data. Data from the 1990 Census is the most recent data available until Census releases additional data for 2000. Overall, Table 4-8 indicates that in 1990, there were a total of 37,366 jobs located in Livermore, and a total of 31,491 employed residents living in Livermore. Livermore's residents worked in jobs within the region concentrated in "other" professional and related services, retail sales, durable manufacturing, and construction. Jobs located in Livermore, which comprise the local economic base, were also concentrated in "other" professional services, but to a higher degree and with many more actual jobs than residents held in this sector, as well as retail sales and durable manufacturing. These findings indicate that even if every employed resident of Livermore held a job located in Livermore, the economic base needed to "import" 5,875 workers in 1990, especially workers concentrated in the "other professionals," education, and transportation sectors.

2. 1990 Employment by Place of Work and Residence

This analysis addresses where Livermore's employed residents actually worked, and where the holders of jobs located in Livermore lived.

As stated above, Livermore and the immediate vicinity had an estimated 37,366 jobs and 31,491 employed residents in 1990. This figure includes employment at LLNL and Sandia National Labs, which are located outside of Livermore's city boundaries. As shown in Table 4-9, many of the jobs in Livermore were not held by Livermore residents; other workers commuted into Livermore to work, while many Livermore residents commuted elsewhere to their jobs. Approximately 22.2 percent of the jobs in Livermore were held by Livermore residents, while 28.2 percent were held by workers living in other parts of the Tri-Valley. A total of 90.8 percent of Livermore jobs were held by residents living in the Commute Region.

Table 4-1: Livermore Jobs by Place of Residence – 1990

Worker Residence	Percent
Livermore Jobs Held by Livermore Residents	22.2%
Livermore Jobs Held by Other Tri-Valley Residents	28.2%
Livermore Jobs Held by Other Commute Region Residents	40.5%
Livermore Jobs Held by Others Living Outside Commute Region	9.2%
Total Jobs in Livermore	**100.0%**

Source: 1990 U.S. Census, CTTP; BAE, 2000.

Table 4-9 shows over 90 percent of the 1990 Livermore jobs are held by residents of the three-county Commute Region. Since 1990, San Joaquin County has increasingly provided housing for Livermore workers. Highway I-580 as well as SMART buses and the ACE commuter railway provide access to Livermore for San Joaquin residents. In October 2000, the San Joaquin Partnership and the San Joaquin Council of Governments released the *Altamont Pass Commuter Survey* that quantified the origin and destination of auto, bus and rail commuters from San Joaquin County to the Bay Area. The various surveys conducted in 2000 received a 19.2 percent response rate for auto commuters and

Table 4-22: Tri-Valley Single-Family Projects Currently on the Market

Project Name	Project Status	Sold	Current Available	Absorp-tion	Units	Homes/ Acre	BR/Ba	SF	Sale Price or Rent	Interest	Amenities/Comments
LIVERMORE											
ALaden Lane	25 units being built	24	7	5	114	3 to 4				High	Started construction January 2002
Holmes St. @ Alden Lane											
The Verbena							4/2.5	2,661	$680,900		
The Lantana							4/3	3,068	$704,900		
The Mariposa							5/3.5	3,536-4,158	$733,900		
The Hawthorn							5/4.5	3,348	$664,900		
The Acacia							5/4.5	3,672-4,099	$845,900		
Dunsmuir	106 have sold	106	6	2	122	4 to 5				High	Open 2 years
East Ave. & Vasco Rd.											
Gregory							4/2	2,275	$605,900		
Morgan							4/3	2,845	$676,900		
Morris							5/3	3,011	$695,900		
Wright							6/3	3,522	$715,900		
Lindenwood	selling houses	12	109	4	121	N/A				High	Opened in March 2002; two sold.
Charlotte Way									Starting		
The Avondale							3+/3	2.781	from		
The Hawthorne							5/4	3,261	$679,950		
The Princeville							5+/4	3,544			
The Savoy							5/4	3,548			
Los Olivos	Selling, models	13	7		94	N/A				High	
Westmore Road	open about July 10, 2002										13 sales with models not open yet.
Lucini							3/2.5	3,079	$815,490		
Talinga							4/3.5	3,540	$865,490		
Carapelli							4/3.5	3,750	$911,490		
Lusitana							4/3.5	4,142	$958,490		
Verdala							4/2.5	4,365	$991,490		
Ponderosa Legacy		15	9	1.5	76	N/A					
Saraloga Court	In "Phase 3," 15 of										Slowed to three sales in the last four
The Bay	18 available for						4/4	3,436	$1,002,900		weeks due to lack of model availability
The Morgan	sale have sold						4/3.5	3,768	$1,075,900		during "Phase 3" – July 20th they will
The Palomino							4/4.5	4,451	$1,180,900		be releasing more units for sale.

(2) Planned Multi-Family Rental Projects in 2002 – Livermore and Tri-Valley. In May 2002, research indicated one planned market rate rental project in Livermore. However, the application for this project was incomplete at this time, as such, the project had not yet been processed or approved.

In the surrounding Tri-Valley communities, several market rate rental projects were identified as under construction or planned on Table 4-27, including 390 units under construction at Waterford Place in Dublin, and 100 units of mixed income rental approved at Valley Avenue Apartments in Pleasanton.

(3) Affordable Housing. Livermore has produced a large supply of affordable housing through the innovative use of federal, State, and local policies as well as assistance programs. In addition, the City has helped fund local affordable housing construction through the use of in-lieu fees, the Inclusionary Housing Ordinance (which requires a 10 percent set aside of units in market-rate projects), City rental agreements, and the Housing Implementation Program which is the City's residential growth management program. Seventeen rental housing projects totaling 1,247 units maintain 746 affordable units through deed restrictions or subsidy arrangements. An additional 220 affordable rental units have been approved in the Gardella Gardens and Valley Care developments. In addition, three existing for-sale housing projects have included 33 affordable ownership units for very low and moderate income homebuyers, and an additional 58 affordable ownership units have been approved by the City as part of other planned housing projects.

To plan for future affordable housing needs, the City of Livermore published the *Draft Housing Element* in May 2002. Specifically, Livermore's Housing Element describes methods to achieve production of the Regional Housing Needs Allocation of 875 very low, 482 low, and 1,403 moderate-income units needed for the 1999 to 2006 period.

2. Office and Industrial Market

Although Livermore has traditionally been developed to serve primarily warehouse and industrial users, recent office and business park developments in Livermore have placed the City within the Tri-Valley office market. In 2002, Livermore had a total inventory of more than 1,856,000 square feet of office space, representing approximately eight percent of Tri-Valley office space inventory.

Throughout the Tri-Valley, technology and other office-based companies have been attracted by relatively more abundant housing than is found elsewhere in the Bay Area, the skilled labor force, shorter commute times, and available land. However, market conditions varied widely in 2002 among communities in the Tri-Valley, and between different types of office and flex space. To illustrate the spatial pattern of the Tri-Valley office market, data from Colliers International *Tri-Valley Area 2002 First Quarter Market Statistics* are shown in Table 4-29. The data clearly portray increasing office rent levels as one moves geographically westward from Livermore to the I-680/I-580 intersection, as well as occupancy weaknesses in Livermore's office market segments relative to other established Tri-Valley locations.

In contrast to the emerging office market in Livermore, its supply and occupancy data for more established warehouse and industrial space places Livermore as the leading supplier of this type of space within Tri-Valley. Data available to compare Livermore with other Tri-Valley submarkets are published by Colliers International in their *Tri-Valley Area First Quarter Market Statistics 2002,* as summarized below. As shown on Table 4-30, in 2002, Livermore had almost 12 million square feet

Table 5-2: Major Streets

Roadway Segment	From	To
Highway		
Isabel Avenue	Jack London Boulevard	Vallecitos Road
Major Streets		
Concannon Boulevard	Isabel Avenue	S. Livermore Avenue
~~East Avenue~~	~~S. Livermore Avenue~~	~~Greenville Road~~
El Charro Road	I-580	Jack London Boulevard
First Street	Holmes Street	I-580
Fourth Street	Holmes Street	Livermore Avenue
Greenville Road	Altamont Pass Road	Tesla Road
Isabel Avenue	North Canyons Parkway	I-580
Jack London Boulevard	El Charro Road	Murrieta Boulevard
Las Positas Road	Livermore Avenue	Greenville Road
Livermore Avenue-Tesla Road	Northern City Limit	Southeastern City Limit
Mines Road	First Street	East Avenue
Murrieta Boulevard	Portola Avenue	Holmes Street
North Canyons Parkway	El Charro Road	Collier Canyon Road
Northfront Road	Vasco Road	East City Limit
Patterson Pass Road	Mines Road	Greenville Road
Portola Avenue	Collier Canyon Parkway	First Street
Railroad Avenue	Stanley Boulevard	First Street
Springtown Boulevard	Galloway Street	I-580
Stanley Boulevard	Western City Limits	First Street
Vallecitos Road-Holmes Street	First Street	Southern City Limit
Vasco Road	North City Limit	Tesla Road
Collector Streets		
Airway Boulevard	North Canyons Parkway	I-Portola Avenue
Alden Lane	Murdell Lane	Holmes Street
Arlene Way	Charlotte Way	Patterson Pass Road
Bluebell Drive	Hartford Avenue	Springtown Boulevard
Catalina Drive	El Caminito	Holmes Street
Charlotte Way	Mines Road	Carnegie Way
Chestnut Street	P Street	Junction Avenue
College Street	Fourth Street	Livermore Avenue
Daphne Drive	Arlene Way	Vasco Road
El Caminito	East Stanley Boulevard	Holmes Street
Encino Drive	Murdell Lane	El Caminito
Garaventa Ranch Road	Vasco Road	Scenic Avenue
Hagemann Drive	Daisyfield Drive	Jack London Boulevard
Herman Avenue	Scenic Avenue	Northfront Road
Hillcrest Avenue	Fordham Way	Devon Place
Jenson Street	Madeira Way	East Avenue
Joyce Street	Charlotte Way	Patterson Pass Road
Junction Avenue	Pine Street	Old First Street
L Street-Arroyo Road	Portola Avenue	Southern City Limits
Laughlin Road	Northern City Limits	Northfront Road
Lexington Way	Trinity Hills Lane	Superior Drive
Mines Road	Las Positas Road	First Street
Murdell Lane	Alden Lane	Stanley Boulevard

- **Prime Time** provides express bus service for commuters traveling to job sites in the Santa Clara Valley and a commuter express route to Walnut Creek only on weekdays.
- **Shuttles**. LAVTA provides shuttle service in its service area for various employers and special events. Shuttles typically serve the ACE Rail and BART stations, transporting employees directly to their job site. There are currently no shuttles that serve employers within Livermore. Special event shuttles operate from the ACE Rail and/or BART stations directly to the events.

Many transit connections can be made at the two main transit centers in the LAVTA system: the Livermore Transit Center and the Dublin/Pleasanton BART Station Transit Center. The Dublin/Pleasanton BART station is served on weekdays by nine of LAVTA's fixed routes and DART for Dublin and Pleasanton.

The LAVTA Vision 2010 report outlines several potential service changes for the mid- and long-term. Potential service improvements for the mid-term (2001 to 2005) include express service from South Livermore to BART via Jack London, and additional fixed bus routes in Pleasanton, Dublin, and Livermore. Long-term (2006 to 2010) projects include service from North Livermore, should development occur, to BART.

2. Altamont Commuter Express (ACE)

ACE provides passenger rail service from Stockton to San Jose via the Altamont Pass. Three morning and three evening trips provide connections to Livermore at two ACE stations, one located on Vasco Road near Brisa Street, the other is located Downtown on Railroad Avenue next to LAVTA's Livermore Transit Center. Shuttles at several of the ACE train stations provide connections to surrounding employment centers and other transit systems. Four shuttles provide connections to ACE train stations in Livermore and Pleasanton. Downtown is served by six of LAVTA's fixed routes.

3. Eastern Contra Costa Transit Authority (ECCTA) Tri Delta Transit

The ECCTA's Tri Delta Transit primarily serves the communities of Bay Point, Pittsburgh, Antioch, Oakley, and Brentwood. Twelve fixed routes provide local service, including connections to the BART system via the Pittsburgh/Bay Point BART station. Park-and-ride lots at Highway 4 and Hillcrest in Antioch, and at Walnut and Dainty in Brentwood serve regional commutes, including those to the LAVTA area.

Tri Delta Transit has one existing commuter route serving the Livermore area and one commuter route currently in the testing stage. The Delta Express provides service from East Contra Costa County to Lawrence Livermore National Labsoratory and Sandia National Labsoratories. Two buses make two morning and two evening trips. Passengers are picked up in Antioch, Oakley, Brentwood, and Byron and connect non-stop to Livermore.

In response to requests for service to the ACE train stop and elsewhere in Livermore, Tri Delta Transit is testing a trial commute service. The current configuration connects passengers from East Contra Costa County to the ACE station and the Hacienda Business Park in Pleasanton. Depending on ridership and passenger comments, this service may become permanent or may be modified to serve other destinations.

identified ~~recommended that~~ an I-580 median alignment ~~be studied~~ as the preferred alignment. The draft final report did not specify a specific rail technology that should be developed as part of future transit improvements. However, due to low transit ridership forecasts in the first-phase study, a second phase was undertaken to account for reverse commute trips into the Tri-Valley, and intra-Tri-Valley trips. The Phase 2 study compared a BART extension in the I-580 median to Greenville Road plus express bus service to Tracy and up the I-680 corridor to San Ramon and Walnut Creek against tBART (also referred to as diesel multiple units or DMU) in existing rail corridors. Preliminary results of this study were unveiled in May 2003, and showed increased ridership for each of the study options, particularly for the DMU concept. The Policy Advisory Committee will consider the results of the Phase 2 study in the Summer of 2003. The final recommendation of the Policy Advisory Committee for transit improvements in Livermore will be forwarded to the BART Board of Directors for consideration.

6. Park-and-Ride Lots

In addition to the BART parking located on Airway Boulevard as described above, a Caltrans park-and-ride lot is available at Portola Avenue at Alviso Place. The lot has approximately 100 spaces and is well-lit for early arriving and late departing commuters.

F. NON-MOTORIZED TRANSPORTATION (BIKEWAYS AND TRAILS)

The City of Livermore adopted the Bikeways and Trails Master Plan in December 2001. This plan updated the 1996 Bicycle/Pedestrian Plan Update and Equestrian Trails Study Policy Document and Background Report. A series of lanes, trails, and routes were recommended as a network to serve the entire City, from the Downtown area to the more rural fringes. Components of the Plan include pedestrian and bicycle facilities, and multiple-use trails with equestrian components. The goals and policies in the Plan include six main topics: 1) network connectivity and design, 2) planning and inter-agency coordination, 3) support facilities, 4) safety, education and promotion, 5) maintenance, and 6) implementation. A series of action steps are listed for each topic, along with general timeframes to guide implementation. The plan also discusses equestrian demand, equestrian centers and trails.

As of the 2001 Plan, there were 21.6 miles of mixed-use Class I trails in the City (Class I are completely separated right-of-way for exclusive use of bicycles and pedestrians), 45.9 miles of Class II bike lanes (striped lane of one-way bike travel on a street or highway), and no Class III facilities (shared use facilities indicated via signs). The proposed Plan calls for an additional 85.5 miles of Class I facilities, an additional 41 miles of Class II facilities, and 3.6 miles of Class III facilities.

G. AIR TRANSPORTATION

The Livermore Municipal Airport is the only municipal airport in the Livermore-Amador Valley. Airport improvements are undertaken in accordance with the City's 1975 Airport Master Plan. In 2003, the Airport Master Plan was in the process of being updated, and adoption is anticipated to occur later in the year.

Two major projects have been completed under the 1975 Airport Master Plan. In 1985, a 2,699-foot long secondary runway was constructed to ease congestion on the primary runway. Also in 1989, the primary runway was extended to a length of 5,255 feet. In addition, the City's General Plan, in response to the *Alameda County Airport Land Use Policy Plan*, reserves acreage for an airport runway approach protection zone. The protection approach zone is necessary for aviation operations safety. In July 2000, the City Council voted to continue disallowing commercial flights at the Airport.

increase the capacity of the Patterson Pass WTP to 20 MGD. Zone 7 also has roughly 32 MGD of groundwater production capacity from seven municipal wells located in Pleasanton.

Zone 7 is planning a third water treatment facility to address the increasing local water demand. The proposed Altamont Water Treatment Plant is expected to be constructed within the next six to ten years and is projected to provide an initial capacity of 12 to 24 MGD and up to 42 MGD, ultimately. Zone 7 recently completed its Treated Water Master Plan (February 2000) and its Water Conveyance Study (June 2001), which recommends projects to meet Zone 7's long-term raw water conveyance and treated water transmission needs. These projects include a South Bay Aqueduct Enlargement Project (additional 130 cubic feet per second increase in capacity for Zone 7), a treated water pipeline north of Livermore to link the new Altamont Water Treatment Plant with the existing Zone 7 water transmission system, and up to ten new production wells. These projects are currently programmed into Zone 7's Capital Improvement Program.

Once the water is treated at the Water Treatment Plants, it is then conveyed via transmission mains (typically 24 to 48 inches in diameter) to the City of Livermore and other retailer turnouts.

Zone 7 also supplies untreated water to agricultural users and golf courses in Livermore. In 2002, the demand for these uses was expected to be approximately 7,500 acre-feet per year. The City of Livermore anticipates the potential for a large increase in agricultural production in the South Livermore Valley over the next 20 years. Zone 7's Water Conveyance Study, completed in June 2001, evaluated various demand alternatives for untreated water within the Livermore Amador Valley up to a maximum of 27,000 acre-feet per year by the year 2020. Zone 7 meets untreated water demand through deliveries from the South Bay Aqueduct, which is part of the State Water Project, and, as mentioned above, is currently planning up to a 130 cubic feet per second (cfs) enlargement of the South Bay Aqueduct to meet its anticipated future raw water conveyance needs for both future treated and untreated water demands. It should be noted, however, that future additional untreated water demands have no funding plan at this time. As of 2003, Zone 7 is preparing their Integrated Water System Master Plan that will include an Untreated Water Master Plan component. Zone 7 also will be evaluating the potential for additional untreated water demands and potential funding sources.

b. California Water Service Company. Cal Water's Livermore District was established in 1927. Cal Water provides water to an area that generally includes the older Downtown and central and southern portions of the City. Its service area is generally south of I-580, east of Kitty Hawk Road (Isabel Avenue) and west of First Street to Trevarno Road, Barber Street to Colgate Way, Jackson Avenue to East Avenue, North Mines to Tesla Road and Wente Road (see Figure 6-2).

Cal Water's distribution system includes over 200 miles of transmission and distribution mains sized-up to 16 inches in diameter. Supply sources include 13 wells and eight Zone 7 turnouts. Twenty-five water tanks, totaling 12,090 million gallons, provide peak demand and fire flow storage. This system is divided into five pressure zones.

In 2001, average water supply to the Cal Water service area was 12 MGD. Approximately 80 percent of the water supplied by Cal Water to the Downtown came from the Zone 7 Water District, while the remaining 20 percent comes from wells that Cal Water owned and operated. Fire flow availability and system design are based on consumer demand, as well as the Livermore Pleasanton Fire Department's requirements. Any future changes in uses allowed or intensity of development in Downtown will more than likely require upgrades to portions of the water system in order to meet Fire Department requirements.

option, which is available through 2005, would increase Livermore's capacity to a peak wet weather flow of 12.4 MGD.

The unit cost for the City of Livermore to buy the additional LAVWMA effluent disposal capacity is estimated to cost approximately $700/acre-foot, with capital costs amortized over 20 years. However, a public vote would be necessary prior to the 2005 deadline to modify this decision and increase the City's discharge allocation beyond 8.5 MGD. After 2005, Livermore's capacity increase allocation will be distributed between the Dublin San Ramon Services District and the City of Pleasanton.

c. **Water Reclamation or Recycling**. Water reclamation or recycling is a potential alternative means for providing additional effluent disposal capacity at the Livermore Water Reclamation Plant. Water recycling has been used as an alternative water source for landscape irrigation and other uses in the vicinity of the Livermore Water Reclamation Plant since 1974. The City maintains approximately 10 miles of reclaimed water pipelines. Water recycling could be used as an alternative to participation in the LAVWMA expansion project. However, significant modifications to the system would be needed to provide reliable year-round additional disposal capacity. Additional demands would need to be developed to increase recycled water use, such as at golf courses, parks, and commercial landscaping. Recycled water use must be increased nearly four times, to an annual use of approximately 2,900 acre-feet, to provide sufficient disposal capacity. Also, additional storage and pumping facilities must be provided to store and distribute recycled water over the year to match demand, as the majority of recycled water demands would occur during the irrigation season between May and October. Finally, it should also be noted that water reclamation/recycling has the potential of increasing salt loading in the groundwater which could have an adverse effect on water quality.

It was concluded in the Livermore Water Reclamation Plant Master Plan, that additional recycled water use sites would not provide enough effluent disposal capacity to make up the anticipated future 2.6 MGD disposal shortfall. In addition, a recycled water system expansion of 500 acre-feet/year would cost approximately $1,500 per acre-foot. This is more than twice as expensive as a buy-in to the LAVWMA expansion project. In addition, a significant number of regulatory permits would be required in order to construct a storage reservoir of this size. The amount of time necessary to obtain these permits is unknown, however it can be assumed by the number of regulatory agencies involved, that at a minimum, it would take several years.

C. STORMWATER SYSTEM

The following provides a discussion of Livermore's stormwater system, describing the creeks and arroyos, the storm drain collection system, and stormwater pollution control.

1. Creeks and Arroyos

The Livermore Valley drains in a westerly direction to the Arroyo de la Laguna, thence to Alameda Creek, near Sunol. The Alameda Creek basin drains an area primarily east of the Coast Range to San Francisco Bay through Niles Canyon. The Livermore Valley watershed has three major drainage watersheds, each drained by a major channel: Arroyo del Valle, Arroyo Mocho, and Arroyo Las Positas.

Arroyo del Valle flows through the southwestern-most corner of the City. Peak flows in Arroyo del Valle through the City are controlled by releases from Lake del Valle, located south of the City.

funding comes from developer agreements, government bonds and leases, and capital grants. Since 1993, approximately half of Livermore's property tax revenue has been diverted to the Education Revenue Allocation Fund, resulting in a funding shortfall of almost $3.5 million annually for LARPD.

In 2002, LARPD was in the process of developing several new parks and recreation facilities in the Livermore Area, including:

- The William J. Payne Sports Park, which opened in 2002 and includes two ballfields, a soccer field and a BMX bike track, and two new neighborhood parks. This park is located at the northwest corner of Patterson Pass Road and Vasco Road.
- A new community center at Robert Livermore Community Park, which will house a new Senior Center, a Youth Center, meeting spaces, a gymnasium and two swimming pools. Excavation at this site had begun in 2002, construction was scheduled to be completed in late-2003, and the Center was scheduled to open in mid-2004. This park is located at the northwest corner of East Avenue and Loyola Way.
- More than 2,000 acres have been added to Brushy Peak Regional Preserve. LARPD and EBRPD were negotiating the joint operation of the Preserve in 2002, as well as developing a land use plan to guide recreational and non-recreational uses at the Preserve. Brushy Peak Regional Preserve is located northeast of the City limits.
- Renovations and improvements at several of Livermore's existing neighborhood parks were being undertaken in mid-2002.

LARPD's park standards are listed in Table 7-5. These standards are used to determine the various amounts and types of parkland needed to serve Livermore residents. According to these standards, the amount of Regional, Neighborhood, and Special Use parks provided in 2002 was adequate. There was a shortfall, however, of approximately 110 acres of Community Parks in the City in 2002, equal to 3 or 4 parks of 30 to 40 acres each.

In 2002, LARPD had begun an update of its 1995 Master Plan. The updated Master Plan will re-evaluate the park, bicycle, and trail facilities, and recreational programs covered in the 1995 document, and will expand its analysis to include a broader range of goals, objectives, and policies of the agency, along with timelines for their implementation. Community outreach efforts for the Master Plan process had been completed at this time by an outside consultant hired by LARPD to conduct phone, mail, and internet surveys. Although a schedule for the Master Plan Update has not yet been determined, in mid-2002 LARPD officials estimated that the update would be completed within the following 12- to 18-month period.

The Vasco Caves (in conjunction with LARPD) and the Brushy Peak Regional Preserve are the only facilities owned by EBRPD with the Planning Area. EBRPD facilities within the immediate vicinity include Shadow Cliffs Regional Recreational Area located south of Stanley Boulevard and west of Isabel Avenue and Del Valle Regional Park located at the south end of Arroyo Road.

E. LIBRARIES

The Livermore Public Library was established in 1878, and has been a full department of the City government since 1979. In 2002, Livermore was served by three libraries; the Main Library located in the Civic Center complex, and two branch libraries (one in Springtown, the other in the Rincon area). Each library contributes to the Library Department's mission – "The Livermore Public Library encourages the development of lifelong interest in reading and learning by providing materials and

Intensively-farmed lands do not typically support native plant communities. However, certain wildlife species use these fields for foraging and/or roosting, particularly migrating waterfowl. Birds may find suitable foraging habitat in newly-tilled soil or in certain crops. Mammals, such as mice, rabbits, hares, and their predators, may find food and cover in some crops, such as grains. As in grazing land, soaring, open country birds of prey are often found hunting over agricultural fields for rodents and other small mammals. The edges of agricultural fields, where disturbance is minimized, may provide opportunities for burrowing animals, such as California ground squirrels and burrowing owls. In addition, agricultural areas are often some of the few sites with readily available water, irrigation ditches, and stock ponds that are not heavily disturbed, and often support various species of reptiles and amphibians, such as western pond turtles (*Clemmys marmorata*), California red-legged frogs (*Rana aurora draytonii*), certain salamanders (including California tiger salamanders [*Ambystoma californiense*]), and some bird species.

Areas devoted to agricultural uses, particularly those devoted to livestock grazing, may provide important links between habitat areas. Developed areas typically do not provide habitat for sensitive native wildlife species, but grazing lands and lands cultivated for crops may provide suitable habitat for special-status wildlife and provide areas through which these species can move between other more suitable habitat area.

3. Grassland

The following discussion about grassland areas in the Livermore Planning Area includes descriptions of non-native annual grassland, valley needlegrass grassland, and alkali meadows. Grasslands provide movement areas for many wildlife species. Grasslands may provide foraging, sheltering, and breeding habitat for some species or in other cases may provide a critical linkage between other habitat types.

a. Non-Native Annual Grassland. Non-native annual grassland is the most common vegetation type in the Livermore Planning Area. It is abundant on the valley floor, as well as in the surrounding hillsides where it often makes up the understory of oak woodland. Non-native grassland is generally found in areas that have been grazed or in abandoned agricultural fields and is usually dominated by annual, introduced grasses, mustards, and filaree. Depending on the degree of disturbance or grazing, it may also be dominated by a number of thistle species, especially in seeps or slumps.

The most common species in non-native grassland in the Livermore area are: wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), yellow star thistle (*Centaurea solstitialis*), soft chess (*Bromus hordeaceous*), hare barley (*Hordeum marinum* ssp. *leporinum*), fescue (*Vulpia myuros*), filaree (*Erodium* sp.), and mustards (*Brassica and Hirschfeldia* sp.). Many native wildflowers can be found in these annual grasslands, particularly those that are good competitors, such as fiddleneck (*Amsinkia* sps.), bluedicks (*Dichelostemma capitatum*), lupine (*Lupinus* sps.), popcorn flower (*Plagiobothrys nothofulvus*), California poppy (*Eschscholzia californica*), clarkia (*Clarkia* sp.), and owl's clover (*Castilleja exserta* and *C. densiflora*). Where the vegetation is thin due to poor or shallow soils, other native species and possibly special-status species can be found.

b. Valley Needlegrass Grassland. Found in small remnants in the Livermore Planning Area, Valley needlegrass grassland is a perennial native grassland community that is typically dominated by purple needlegrass (*Nassella pulchra*). A variety of native and non-native spring wildflowers are also found in native Valley grassland. As a result of grazing, intensive agriculture, reduction in fire

frequency, and the introduction of exotic species, native grassland has been reduced to 10 percent of its former area in California. Because of the rarity of this once abundant vegetation type, the California Department of Fish and Game considers it a Significant Natural Community and monitors its status and distribution via the California Natural Diversity Database. The State may request mitigation for projects that impact native grassland. Additionally, special-status plants are more likely to be found in undisturbed native vegetation.

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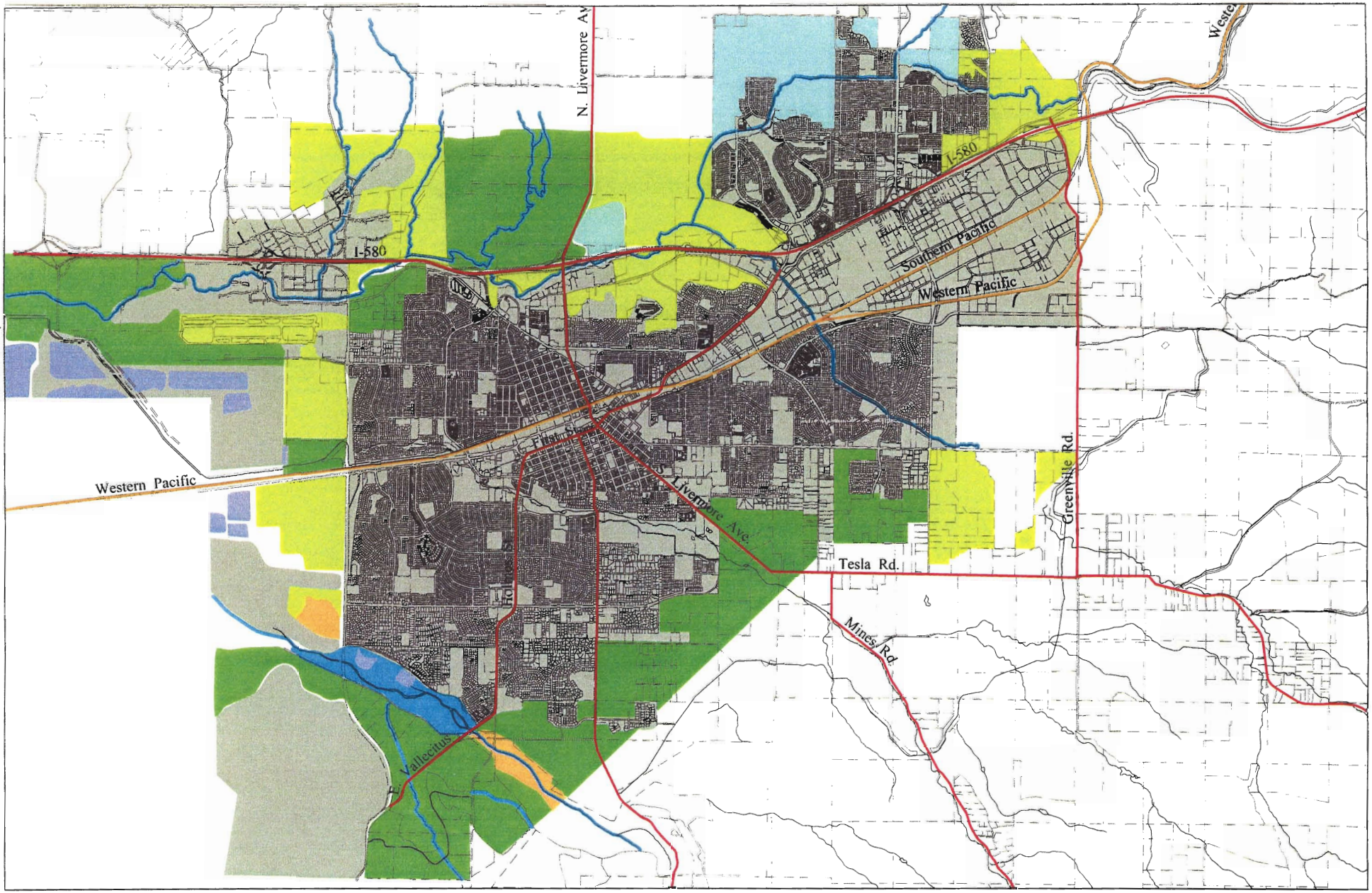


LSA

FIGURE 11-1

Livermore General Plan Update
Master Environmental Assessment
Existing Habitat Map

SOURCE: LSA ASSOCIATES, INC., 2003.

I:\IMAGES\GRAPHICS\JOBS\CLV135 LIVERMORE GP EIR\NEW MEA FIGURES\FIG_11-1.AI (08/21/03)

c. Alkali Meadows. Alkali meadows can be found within some grassland areas in the Livermore Planning Area, and favor a unique set of species. They are formed in shallow basins where the soil is particularly alkaline relative to surrounding grasslands. Alkali Meadows typically contain hare barley (*Hordeum marinum)*, saltgrass (*Distichilis spicata)*, alkaki heath (*Frankenia salina)*, California gold-fields (*Lasthenia californica)*, toad rush (*Juncus bufonius)*, and sand spurrey *(Spergularia* sp.*)*. Basins with a visible salt crust may support such species as Italian rye grass, alkaliweed (*Cressa truxillensis*), Douglas's dandelion (*Microseris douglasii*), dwarf carrot (*Daucus pusilla*), alkali mallow (*Malvella leprosa*), Mayweed (*Anthemis cotula*), blow wives (*Achyrachaena mollis)*, alkali heath, and special-status plants like brittlescale (*Atriplex depressa),* and San Joaquin saltbush (*A. joaquiniana)*. However, a visible salt crust is not necessary for any of these species to exist.

d. Wildlife Species in Grasslands. Many wildlife species use both non-native and native grassland during part or all of their life. Amphibians that use the grasslands for at least some portion of there life cycles include California red-legged frogs *(Rana aurora draytonii),* California tiger salamander *(Ambystoma californiense),* Pacific treefrogs *(Pseudacris regilla),* and western toad *(Bufo boreas).* Reptiles commonly found in grassland include western fence lizard, common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus viridis*). Birds that breed in grassland include northern harrier (*Circus cyaneus*), burrowing owl (which are generally dependent on presence of burrowing mammals), horned lark (*Eremophila alpestris*), grasshopper sparrow (*Ammodramus savannarum*), and western meadowlark (*Sturnella neglecta*). Other birds that commonly forage in grasslands include turkey vulture (*Cathartes aura*), red-tailed hawk, American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), and prairie falcon (*Falco mexicanus*). Several mammal species use grasslands including coyote, black-tailed deer, California ground squirrel, black-tailed jackrabbit (*Lepus californicus*), San Joaquin kit fox and many different rodents.

4. Wetlands

The Livermore Planning Area supports several different types of wetlands. All wetlands are characterized by plant and wildlife species that depend on year-round or seasonally-dependable sources of water. Such water sources are typically natural drainages, groundwater seeps, or seasonally inundated areas. Beyond the dependence on water, the different wetlands can vary considerably in their floral and faunal characteristics. Many of these wetland types can also be closely associated with one or more of the different habitat types described in this section.

a. Riparian Areas. Riparian vegetation refers to the native scrub or forest occurring along streams and riverbanks. In riparian areas, the roots of trees and other vegetation can easily reach the water table. Surface flow may be year-round or seasonal and such areas are often prone to frequent flooding. Riparian vegetation used to be found along most perennial and intermittent streams in the Livermore area, however, this vegetation type has become rare due to disturbance by agriculture, development, and the filling or channelizing of small streams in urban areas.

There are several arroyos in the Livermore area that still support riparian habitat. Arroyo Mocho is relatively undisturbed and, as a result, supports some mature riparian woodland with cottonwood, sycamore, and alder. Arroyo del Valle, particularly within the Sycamore Grove Regional Park, also supports mature riparian woodland. Other arroyos, such as Arroyo Las Positas and Arroyo Seco, have been largely modified for flood control purposes and impacted by grazing. As a result, the riparian vegetation is sparse and has been replaced in some areas with aquatic vegetation like cattails and rushes as well as exotic species from the surrounding grasslands.

Two kinds of riparian vegetation are found in the Livermore area. Riparian scrub is dense, brushy, and dominated by willows (*Salix* sps.). Other tree species that are occasionally found in riparian

6. Woodland/Forest

Woodland and forested habitats are largely restricted to the north and east-facing slopes or higher elevations in the southern and western sections of the Livermore Planning Area. The moist microclimate produced by the altitude, steepness and/or aspect of these areas allows the development of dense stands of trees. One ~~Two~~ woodland/forest community is ~~communities are~~ present in the Livermore Planning Area depending on the microclimate of the site: oak woodland, ~~and evergreen forest. Additionally, these woodland types may overlap considerably and share many common plant and animal species.~~

a. Coast Live Oak Woodland. This community is typically found higher on slopes and on ridgetops where there is a drier microclimate and well-drained soils. The dominant tree species is coast live oak (*Quercus agrifolia*). Other tree species commonly interspersed with the oaks are blue oak (*Quercus douglasii*), California bay (*Umbellularia californica*) and California buckeye (*Aesculus californica*). The canopy in this community is usually moderately dense and the understory is mostly grassland with scattered shrubs, such as poison oak (*Toxicodendron diversiloba*).

Oak trees provide food, cover, and nesting sites for many wildlife species. A number of amphibian and reptile species live in the cool understory and leaf litter. Acorns provide an important fall and winter food source for acorn woodpeckers (*Melanerpes formicivorus*), dusky-footed woodrat (*Neotoma fuscipes*), and black-tailed deer. Many cavity-nesting birds and birds of prey rely on oak woodlands for nesting sites.

~~**b. Mixed Evergreen Forest.** This forest type occurs in the cooler, moister canyons and the east or north facing slopes. The mixed evergreen forest varies from the coast live oak woodland by having a more closed canopy, greater vegetation diversity, and greater density of understory vegetation. The common tree species include coast live oak, California bay, big leaf maple (*Acer macrophyllum*), and madrone (*Arbutus menziesii*). The understory vegetation typically includes poison oak, hazelnut (*Corylus cornuta*), creambush (*Holodiscus discolor*), and coffeeberry (*Rhamnus californica*).~~

~~The mixed evergreen forest also supports a diverse fauna. Because it is generally moister than oak woodland, several species of amphibian, such as the California newt (*Taricha tarosa*), rely on it for a summer retreat. Others, like the slender salamander (*Batrachoseps attenuatus*) and yellow-eyed salamander (*Ensatina eschscholtzi xanthipotica*), spend their entire life in the leaf litter of the forest floor. The many bird and mammal species that use this forest are similar to those that are common to oak woodlands.~~

7. Scrub

Scrub communities in the Livermore Planning Area generally occur on arid, south-facing slopes and above woodlands on the ridges and provide a transition between woodland and grassland. Three types of scrub community have been identified in the Planning Area: diablan sage scrub, coastal sage scrub, and baccharis brushland. The vegetation composition of these habitats is similar but chamise (*Adenostoma fasciculatum*) dominates the diablan sage scrub; California sage (*Artemesia californica*) dominates the coastal sage scrub; and coyote bush (*Baccharis pilularis*) dominates the baccharis brushland. Other common plant species in these habitats include bush monkey-flower (*Mimulus aurantiacus*), interior goldenbush *(Ericarmeria linearifolia),* woolly paintbrush (*Castilleja foliolosa),* valley tassels (*C. attenuata),* deerweed (*Lotus scoparius)*, and goldback fern (*Pentagramma*

Table 11-3: Special-Status Plant Species Potentially Occurring in the Livermore Planning Area[a]

Species and Common Name	Legal Status[b]	Description	Habitat	Blooming Period
Amsinkia grandiflora Large-flowered fiddleneck	FE/CE/1B	Annual wildflower	Grassland, cismontane woodland.	Apr – May
Amsinckia lunaris Bent-flowered fiddleneck	-/-/1B	Annual wildflower	Grasslands, cismontane woodland, and coastal bluff scrub.	Mar – Jun
Arctostaphylos auriculata Mt. Diablo manzanita	-/-/1B	Evergreen shrub	Canyons and slopes in sandstone chaparral.	Jan – Mar
~~*Aster lentus*~~ ~~— Suisun marsh aster~~	~~-/?/1B~~	~~Rhizotamous perennial herb~~	~~Brackish and fresh water marshes and swamps.~~	~~Aug – Nov~~
Astragalus tener var. *ferrisiae* Ferris's milk-vetch	-/-/1B	Annual herb	Meadows and valley and foothill grassland – alkaline soils.	Apr – May
Astragalus tener var. *tener* Alkali milk-vetch	-/-/1B	Annual herb	Playas, valley and foothill grassland, and vernal pools – adobe and alkaline soils.	Mar – Jun
Atriplex cordulata Heartscale	-/-/1B	Annual herb	Alkaline flats and scalds in sandy chenopod scrub and grasslands.	May – October
Atriplex depressa Brittlescale	-/-/1B	Annual herb	Clay or alkaline chenopod scrub, playas, grassland.	May-October
Atriplx joaquiniana San Joaquin saltbush	-/-/1B	Annual herb	Alkaline chenopod scrub, meadows, and grasslands.	April – September
Balsamorhiza macrolepis var. *macrolepis* Big-scale balsamroot	-/-/1B	Perennial wildflower	Grasslands, chaparral, and cismontane woodland.	Mar – Jun
Blepharizonia plumosa ssp. *Plumosa* Big tarplant	-/-/1B	Annual herb	Dry annual grasslands with clay or clay-loam soils. Often on slopes or burns.	July – October
Calochortus pulchellus Mt. Diablo fairy lantern	-/-/1B	Perennial bulb	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland	Apr – Jun
Caulanthus coulteri var. *lemmonii* Lemmon's jewel flower	-/-/1B	Annual wildlflower	Pinyon and juniper woodland, valley and foothill grassland	Mar – May
Centromadia parryi ssp. *Congdonii* Congdon's tarplant	-/-/1B	Annual herb	Valley and foothill grassland – alkaline soils	Jun – Nov
Cordylanthus mollis ssp. *Hispidus* Hispid bird's beak	-/-/1B	Annual hemi-parasitic wildflower	Meadows, playas, valley and foothill grasslands – alkaline soils	Jun – Sept
Cordylanthus palmatus Palmate-bracted bird's beak	FE/CE/1B	Annual hemi-parasitic wildflower	Chenopod scrub, valley and foothill grasslands – alkaline soils	July – Sept
Deinandra bacigalupii Livermore tarplant	-/-/1B	Annual wildflower	Alkaline meadows	Jun – Oct
Delphinium californicum ssp. Interius Hospital canyon larkspur	-/-/1B	Perennial herb	Cismontane woodland and chaparral	Apr – Jun
Delphinium recurvatum Recurved larkspur	-/-/1B	Perennial wildflower	Chenopod scrub, valley and foothill grasslands – alkaline soils	
Eriogonum nudum var. *decurrens* Ben Lomond buckwheat	-/-/1B	Perennial herb	Chaparral and cismontane woodland – sandy soils	Jun – Oct

Species and Common Name	Legal Status[b]	Description	Habitat	Blooming Period
Eriogonum truncatum Mt. Diablo buckwheat	-/-/1A	Annual herb	Chaparral, coastal scrub, valley and foothill grasslands – sandy soils	Apr – Nov
Erodium macrophyllum Round-leaved filaree	-/-/2	Perennial wildflower	Cismontane woodland, valley and foothill grassland	Mar – Jul
Eschscholzia rhombipetala Diamond-petaled California poppy	-/-/1B	Annual wildflower	Alkaline slopes and flats in clay grasslands.	Mar – Apr
Helianthella castanea Diablo helianthela	-/-/1B	Perennial wildflower	Rocky soils on edge of chaparral or scrub and grassland or woodland.	Apr – Jun
~~*Hibiscus lasiocarpus* — Rose mallow~~	~~-/-/2~~	~~Perennial herb~~	~~Freshwater marshes and swamps~~	~~Jun – Sept~~
Lasthenia conjugans Contra Costa goldfields	FE/-/1B	Annual wildflower	Mesic grasslands, vernal pools, and cismontane woodland.	Mar – Jun
~~*Lilaeopsis masonii* — Mason's lilaeopsis~~	~~-/CR/1B~~	~~Perennial herb~~	~~Tidal zones in muddy or silty soil of brackish and freshwater marshes, swamps, and riparian scrub.~~	~~Apr – Oct~~
Madia radiata Showy madia	-/-/1B	Annual wildflower	Chaparral, grassland, cismontane woodland, and chenopod scrub – clay soils	Apr – May
Plagiobothrys glaber Hairless popcorn-flower	-/-/1A	Annual herb	Alkaline meadows, coastal marshes and swamps	Mar – May
Senecio aphanactis Rayless ragwort	-/-/2	Annual herb	Chaparral, cismontane woodland, and coastal scrub – alkaline soils	Jan – Apr
Streptanthus albidus ssp. *Peramoenus* Most beautiful jewel-flower	-/-/1B	Annual herb	Chaparral, cismontane woodland, valley and foothill grassland – serpentine soils	Apr – Jun
Trifolium amoenum Showy Indian clover	-/-/1B	Annual wildflower	Coastal bluff scrub, valley and foothill grasslands, and seeps	Apr – Jun
Trifolium depauperatum var. *hydrophilum* Saline clover	-/-/1B	Annual wildflower	Freshwater marshes, swamps, and valley and foothill grasslands	Apr – Jun
Tropidocarpum capparideum Caper-fruited tropidocarpum	-/-/1A	Annual wildflower	Valley and foothill grassland – alkaline hills	Mar – Apr

[a] Includes occurrences within one mile of the Planning Area boundary (high probability of also occurring within Planning Area).

[b] Legal Status: Federal/State/California Native Plant Society: FE = Federally listed as endangered; FT = Federally listed as threatened; CE = State of California listed as endangered; CT = State of California listed as threatened; CR = State of California listed as rare; CSNC = State of California significant natural community. California Native Plant Society Listings: 1A = Plants presumed extinct in California; 1B = Plants rare, threatened, or endangered in California and elsewhere; 2 = Plants rare threatened or endangered in California, but more common elsewhere.

Sources: Natural Diversity Database of the California Department of Fish and Game; Electronic Inventory of the California Native Plant Society. California Native Plant Society: Inventory of Rare and Endangered Plants of California.

Within the City of Livermore, geologic reports are required in connection with rezoning, specific plans, or subdivisions in areas of high damage susceptibility. Geologic and engineering studies are required for critical structures regardless of their location.

1. Faults

Two known active faults, the Greenville and Las Positas faults, are mapped within the Planning Area. The Greenville fault transects the northeast portion of the area. The Greenville fault is the eastern-most strand of the San Andreas fault system in the San Francisco Bay Region.[1] The Greenville fault is a northwest-trending strike-slip fault system that extends from near Clayton to the eastern margin of the Livermore Valley in northern Alameda County. The fault is recognized as a major structural feature. The Greenville fault is an active Holocene fault zoned under the Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA). Surface fault rupture occurred on the Greenville fault during an earthquake in 1980.[2] The fault has been divided into three distinct segments, North, Central, and South by the U.S. Geological Survey (USGS). Each segment is considered capable of generating earthquakes in the range of M6.6 to 6.9.[3] If all segments were to rupture in a single seismic event, a M7.2 earthquake would be expected. The USGS estimates the probability of a M6.7 or greater on the Greenville fault during the period 2000 to 2030 to be 6 percent (0.06).

The Las Positas fault, a northeast-southwest trending strike slip fault, crosses the southeast corner of the Planning Area. This fault is also considered to be active under the A-PEFZA. Two branches of the fault, North and South branches, have been identified. Active seismicity has been detected along the South branch of the fault near its intersection with the Greenville fault.[4] The Las Positas fault could potentially generate a M6.3 earthquake.[5] The probability of an earthquake on the fault has not been determined.

Under the Alquist-Priolo Earthquake Fault Zoning Act, the State Geologist is required to delineate "Earthquake Fault Zones" along known active faults in California. Cities and counties affected by the zones must regulate certain development projects within the zones. The types of projects covered by the Act include structures for human occupancy. The city or county must withhold development permits for sites within these zones until geologic investigations demonstrate the sites are not threatened by surface displacements from fault rupture. The Earthquake Fault Zones that affect the Livermore planning area are shown on Figure 12-5a. Upon receiving an application for a building permit, the City Community Development Department reviews the application. If the property is with an Earthquake Fault Zone, the City requires a geologic investigation to confirm that the project

[1] Unruh, J.R., Sawyer, T.L., 1997. *Paleoseismic Investigation of the Northern Greenville Fault, Eastern San Francisco Bay Area, California,* U.S. Geological Survey National Earthquake Hazards Reduction Program Award No. 1434-HQ-97-GR-03146.

[2] Ibid.

[3] USGS, 1999. Op. cit.

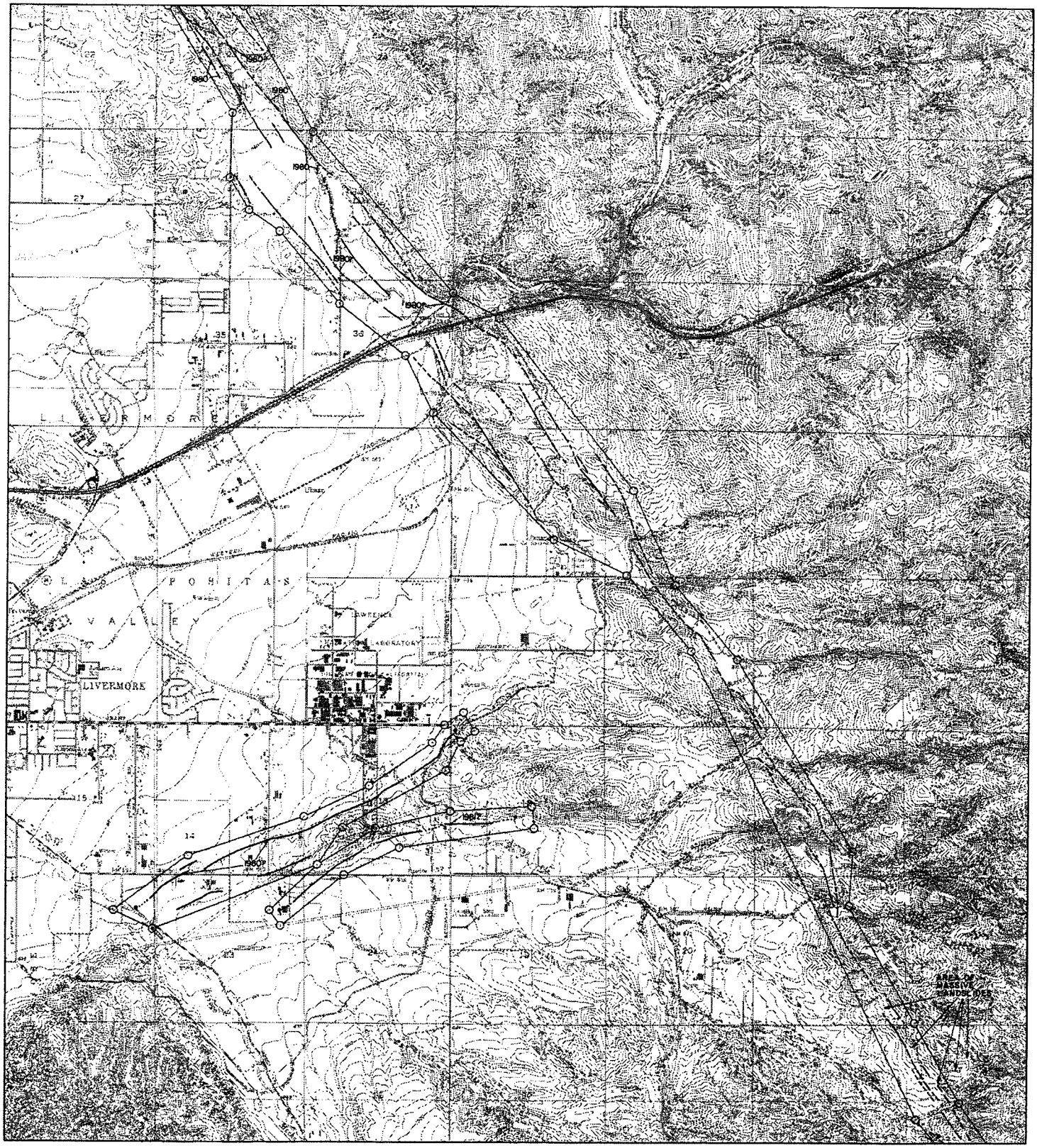
[4] Scheimer, J.F., Taylor, S.R., and Sharp, M., 1982. Seismicity of the Livermore Valley Region, 1969-1981, in Hart, E.W., Hirschfeld, S.E., and Schulz, S.S., eds., Proceedings, Conference on Earthquake Hazards in the Eastern San Francisco Bay Area, California Divisions of Mines and Geology Special Publication 62, p. 155-165.

[5] Wesnousky, S.G., 1986. Earthquakes, Quaternary Faults, and Seismic Hazard in California, Journal of Geophysical Research, Vol. 91, No. B12 p. 12,587-12,631.

would not be directly damaged by fault rupture (i.e. the building site is not located on an active fault trace) prior to approval of the permit.

In addition to the known active faults which are recognized under the A-PEFZA, recent research regarding the structural geology and tectonics of the Mount Diablo-Livermore region indicate that there is another potential source of large magnitude earthquakes in the region. A structural trend of folds and thrust faults have been mapped in the hills north of the Livermore Valley which reflect shortening of the earth's crust caused by contractional (compressional) tectonic forces.[6] The largest of these features is the Mount Diablo anticline. Recent research has interpreted this feature to be a

[6] Crane, R.C., 1995. Geology of the Mount Diablo Region and East Bay Hills, in Sangines, E.M., Anderson, D.W., and Buising, A.V., eds. Recent Geologic Studies in the San Francisco Bay Area: Society of Economic Paleontologists and Mineralogists, Pacific Section Volume 76, p. 87-114.



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MAP EXPLANATION

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

N

0 2500 5000

FEET

FIGURE 12-5a

Livermore General Plan Update
Master Environmental Assessment
Alquist Priolo Zones

SOURCE: CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1982.

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13. HYDROLOGY AND WATER QUALITY

The existing hydrological setting, including drainage, flooding, and water quality as of 2002, for the City of Livermore is described in this chapter. The discussion presented is based on information contained in previous technical and planning documents and interviews with State and local agency staff. In addition, the regulatory framework subsection provides a brief discussion of the role of federal, State, and local agencies that are involved in water resource issues.

A. CLIMATE

The climate of the Livermore area is characterized as Mediterranean, with cool wet winters and warm dry summers. Between 1930 and 2001, the mean annual rainfall in the area was approximately 14.5 inches. The majority of rain falls between October and April.[1] Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rainstorms occur at a frequency of about once every three years.

B. DRAINAGE AND SURFACE WATER BODIES

The City is located in the northern portion of the Livermore Valley watershed, mostly on the valley floor, with some upland areas to the northwest and south (see Figure 13-1). The valley is surrounded by the hills of the Diablo Range.

1. Waterways

Several creeks and arroyos, which typically flow from east to west, cross the Livermore Valley. The principal waterways within the Planning Area are shown in Figure 1, and include Arroyo Las Positas, Cayetano Creek, Arroyo del Valle, Arroyo Mocho, ~~and~~ Arroyo Seco~~.~~, and Altamont Creek.

The Arroyo del Valle flows through the southeastern portion of the Planning Area, but drains a relatively small area of the City (the majority of the drainage area contributing to Arroyo del Valle is in the central and southern portion of the Livermore Valley). Arroyo Mocho flows through the southerly portion of the Planning Area, draining approximately 4,000 acres of the Planning Area south of I-580, including much of the Downtown area.[2] Arroyo las Positas generally flows along I-580 through much of the Planning Area. The major tributaries to Arroyo Las Positas include Arroyo

[1] Western Regional Climate Center, 2002. Website: www.wrcc.dri.edu/elimsmsfo.html.

[2] City of Livermore, 1995. Final Report, Storm Drainage Master Plan, prepared by Camp Dresser & McKee. March.

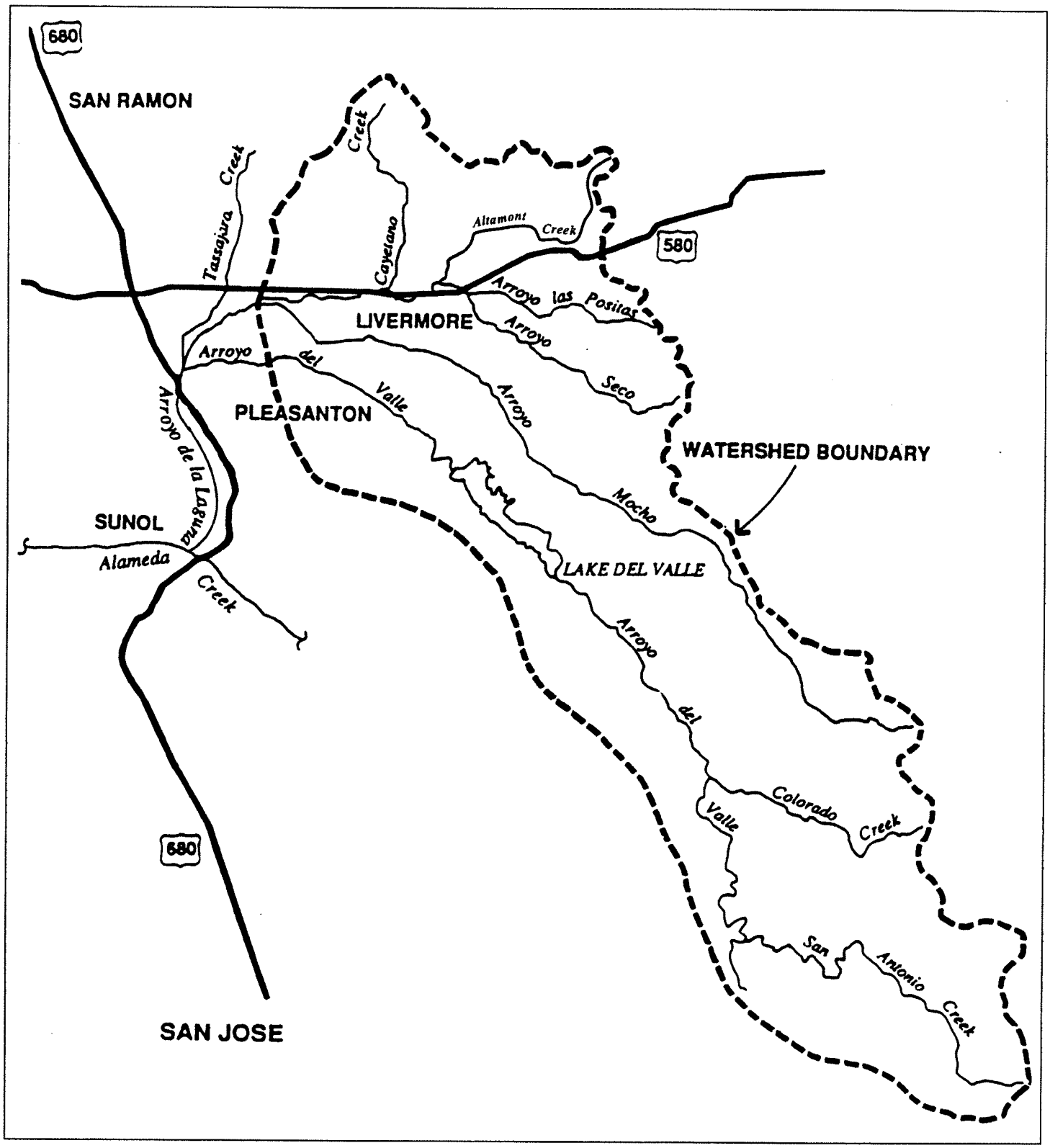

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FIGURE 13-1

Livermore General Plan Update
Master Environmental Assessment
Livermore Valley Watershed

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0 2 4
MILES

SOURCE: BASELINE ENVIRONMENTAL CONSULTING, 2002.

I:\IMAGES\GRAPHICS\JOBS\CLV135 LIVERMORE GP EIR\FIGURES\NEW MEA FIGURES\ FIG_13-1.AI (08/20/03)

Portions of the City are located within the 100-year and 500-year special flood hazard zones, as mapped by the Federal Emergency Management Agency (FEMA),[5] and are therefore, according to FEMA, susceptible to regional flooding hazards. The flood hazard maps (Flood Insurance Rate Maps or FIRMs) are used to determine eligibility areas for inclusion in the federal flood insurance program. Last updated in 1997 for Livermore, the FIRMs are used to identify flood prone areas, with the most susceptible areas denoted as special flood hazard zones. Except for a few areas as shown in Figure 2, the majority of the City is defined as being subject to minimal flooding.

2. Dam Failure Inundation

Portions of the City are located within the dam failure inundation hazard areas for nearby reservoirs, including for the Del Valle Dam and the Patterson Dam (Figures 13-3a and 13-3b).[6] Patterson Dam is located east of Greenville Road and north or Patterson Pass Road. Both of these dams are under the jurisdiction of the California Department of Water Resources (DWR), Division of Safety of Dams (DWR). Existing dams under DWR jurisdiction are periodically inspected to ensure adequate maintenance and to direct the owner (in this case, DWR) to correct any deficiencies found. Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure.

There are no State or local restrictions for development within dam failure inundation areas. The Emergency Services Act requires that cities and counties prepare emergency evacuation plans for areas that could be inundated in the event of a dam failure. The City is currently developing an evacuation plan for the Del Valle and Patterson dam failure inundation areas as an annex to the Overall Emergency Management Plan, which was anticipated to be completed in August 2002.[7]

3. Flood Control

The Alameda County Flood Control and Water Conservation District, Zone 7 has embarked on a watershed-wide Stream Management Master Plan (SMMP. ~~Flood Control Master Plan.~~ Zone 7 currently owns and maintains about 40 miles of flood control channels, including creeks and concrete-lined channels, in the watershed. Most of these channels are in the Pleasanton area. However, Zone 7 owns portions of Arroyo las Positas, Arroyo Seco, and Altamont Creek in the Livermore Planning Area. Zone 7 has an ongoing program of channel acquisition which is funded by developer fees. Under this program, the agency enters into an agreement with a developer to take ownership (including maintenance responsibilities) of facilities that are constructed to Zone 7 standards. The developer is reimbursed a predetermined amount for the channel improvements and right-of-way. When the flood control system is completed, Zone 7 could own and maintain about 120 miles of creeks and channels, including the primary

[5] Federal Emergency Management Agency (FEMA), 1997. Flood Insurance Rate Map, Community Panel Numbers 060008 0005 B and 060008 0010 B. September 17.

[6] Based on review of the dam inundation maps of the California Office of Emergency Services website: www.oes.ca.gov/dim.nsf.c.

[7] Sabina Imrie, 2002. EMS Manager and Disaster Preparedness Manager, Livermore-Pleasanton Fire Department. Personal communication with LSA Associates, Inc., July 10.

Leonardo-Regala, Janice, 2002. President, Dimensions Unlimited, Inc. Personal communication with LSA Associates, Inc., July 10.

drainage features in the City of Livermore. As of 2002, Zone 7 owned and maintained the portion of Arroyo Mocho westerly of El Charro Road to the confluence with the Arroyo de la Laguna. Zone 7 also owns and maintains the over-flow section of the Arroyo Mocho between Murrieta Boulevard and Isabel Avenue. Existing flood problems are in the downstream portion of Arroyo Las Positas in the city-owned portion of the Arroyo.

D. GROUNDWATER SUPPLY, EXTRACTION, AND RECHARGE

The Planning Area is located within the Mocho I, Mocho II, and Amador subbasins of the Livermore-Amador Valley Groundwater Basin (often referred to as the "Main Basin"). The Planning Area is underlain by an important groundwater aquifer and is designated an "area of hydrologic significance." Regional groundwater flow within the basin is generally to the west toward Arroyo de la Laguna. Major groundwater recharge occurs along Arroyo Mocho and Arroyo las Positas in the vicinity of the Planning Area.[8] Groundwater recharge takes place in both Livermore and Pleasanton, and well heads are also located in both cities. ~~in Livermore.~~

The Main Basin is an important water supply source for Zone 7, which supplies water to the City of Livermore. Zone 7 manages the Main Basin. Extraction of water resources is carefully balanced with natural and artificial recharge (surface water imports) so that overdraft of the system does not persist. The Main Basin has a capacity of approximately 250,000 acre-feet of water. Currently, the Main Basin holds approximately 200,000 acre-feet of water. In the event of drought, the groundwater stored in the Main Basin could supplement surface water supplies to sustain the entire Valley's population for 3 to 5 years.[9] A discussion of the water supply and distribution system is included in the *Public Utilities and Service Systems* chapter.

The Stream Management Master Plan (SMMP) is a collaborative effort with local cities, resource agencies, regulatory agencies, and other interested stakeholders. The SMMP will develop projects that provide multiple benefits and comply with regulations affecting non-point source water quality, meet public demand for access to flood control facilities for recreational purposes, and address public interest in habitat protection and enhancement. The SMMP builds on the draft Flood Control Master Plan (FCMP) work, previously developed by Zone 7 to address multiple stream management issues.

The SMMP will also incorporate recommendations of other agencies regarding the integration of flood control and other stream management issues into the development of projects. The SMMP will include a program of recommended projects and policies to address flood control facilities design and construction criteria and maintenance issues, while also integrating water supply, water quality, environmental and recreation issues, and Chain of Lakes issues in the development of projects. Projects and policies with multiple benefits and partnership opportunities will be recommended for inclusion in the SMMP.

[8] United Stated Geological Survey, 1985. Water-Quality Conditions and an Evaluation of Ground- and Surface-Water Sampling Programs in the Livermore-Amador Valley, California, Water Resources Investigations Report 84-4352.

[9] Zone 7 Water Agency, undated. Innovative Answers to the Tri-Valley's Water Supply and Flood Control Questions, 1999-2000 Report.

E. WATER QUALITY

The following subsection provides a discussion on the quality of surface water and groundwater.

1. Surface Water

The quality of surface water in the Planning Area is affected by land uses within the watersheds and the composition of the underlying geologic materials. Drainage from the City (and nearby upstream areas) contributes to the overall quality of water in the local creeks and arroyos.

The Regional Water Quality Control Board (the Board) periodically reviews available data on surface water bodies and evaluates whether beneficial uses for the water body may be impaired. If a water body is designated as "impaired" for a particular pollutant, then the water body is listed under Section 303(d) of the Clean Water Act. As of 2002, of the waterways that flow through the Planning Area,

only Arroyo Del Valle is listed as impaired for the pesticide diazinon. However, the draft 303(d) list,[10] which was in circulation and under review at the time of this writing (2002), also includes both Arroyo las Positas and Arroyo Mocho (and continued listing of Arroyo Del Valle) for diazinon.

Potential sources of diazinon include structural pest control applications around buildings or landscaped areas by homeowners or Pest Control Operators, as well as agricultural use. Diazinon use by homeowners and Pest Control Operators is being phased out by Environmental Protection Agency mandate over the next few years. However, agricultural uses are still allowed. Pending modifications to the City's next National Pollutant Discharge Elimination System Permit (see Section F.2) may include provisions to ensure that proposed new development projects do not increase the loading of 303(d) listed pollutants to any impaired waterbody. The Alameda Countywide Clean Water Program is developing a Diazinon Pollutant Control Plan to reduce diazinon discharge.

The Clean Water Act gave the State Water Resources Control Board and the U.S. Environmental Protection Agency the authority to establish Total Maximum Daily Loads for impaired waterways. As described by the Board, in a general sense, the Total Maximum Daily Load process leads to a "pollution budget" designed to restore the health of a polluted body of water. The Total Maximum Daily Loads process provides a quantitative assessment of water quality problems, contributing sources of pollution, and the pollutant load reductions or control actions needed to restore and protect the beneficial uses of a waterbody impaired from loading of a particular pollutant. A Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards which will insure the protection of beneficial uses. This calculation accounts for seasonal differences and also includes a margin of safety. In addition, the Total Maximum Daily Load contains the reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed.[11]

The proposed schedule calls for the implementation of a diazinon Total Maximum Daily Load by 2004 for the waterways described above. No other water bodies in the vicinity of the site are designated as impaired on the 303(d) list.

2. Groundwater Quality

In general, the groundwater quality in the Main Basin meets ~~primary~~ drinking water standards, except for the parameters of total dissolved solids (TDS) and hardness. TDS and hardness are "secondary standards," which relate to the aesthetic (not health and safety) qualities of the water. Small parts of Livermore's groundwater exceed the primary standard for nitrates, halocarbons, and volatile organic compounds. However, the drinking water that is delivered to Livermore does meet all State and federal drinking water standards.[12] Zone 7 monitors the quality of the groundwater through a network of monitoring wells and each retailer can, in turn, monitor at their individual turnouts, if necessary. In 2000, Zone 7 began working with the United States Geological Survey and the Lawrence Livermore

[10] Regional Water Quality Control Board, 2002. 2001 San Francisco Bay Regional Water Quality Control Board 303(d) and TMDL Priority List, available at http://www.swrcb.ca.gov/tmdl/docs/segments/region2/.

[11] Regional Water Quality Control Board, North Coast Region, 2002. Introduction to TMDLs, available at http://www.swrcb.ca.gov/rwqcb1/.

[12] Zone 7 Water Agency, undated. Innovative Answers to the Tri-Valley's Water Supply and Flood Control Questions, 1999-2000 Report.

National Laboratory on the Ambient Groundwater Assessment Program for the Main Basin. Eventually all the basins in the State are expected to be evaluated, but the Main Basin was one of the first selected. The purpose of the program is to assess how vulnerable

the groundwater basin is to contamination and to provide information on methods to enhance groundwater quality protection.

3. Salt Loading

Salts (generally measured as total dissolved solids are initially introduced into the Main Basin with imported water supplies and via runoff from saline/alkali soils which is eventually recharged into the Main Basin through the Arroyo system. Additional in-valley sources of salt include the use of recycled water and water softener regeneration. Although the water may leave the Main Basin by evaporation, evapotranspiration, or through surface and groundwater outflow, much of the salts stay behind, potentially leading to a build-up of salt in the soil and groundwater. Excessive salt loading can result in a degraded water supply, particularly if concentrations exceed the Secondary Drinking Water standard of 500 milligrams per liter (mg/L). It is estimated by Zone 7 that if the salt loading continues unchecked, the usability of the groundwater in the Main Basin could be affected within 10 years.[13]

Zone 7's concerns for protection of groundwater quality address the potential for excess salt loading and other contaminants. Beneath portions of the City, the groundwater quality has been degraded with respect to total dissolved solids, nitrates, and volatile organic compounds due to various land uses and the fact that the soils have a high gravel content, are very porous and the aquifer is unconfined.

Zone 7-in conjunction with EOA, Inc., a technical advisory group (TAG) composed of retailers, and a groundwater management advisory committee (GMAC) composed of Zone 7 citizens – ~~has~~ prepared a Salt Management Plan (SMP) to implement strategies that fully offset current and future sources of salt loading in the Main Basin. Data compilation work began in 1994, with technical analyses and presentations continuing through 1999. The SMP provides the technical information and analysis that support the August 1999 Zone 7 Board-approved salt management strategy. These include increased conjunctive[14] use and wellhead demineralization of shallow water with brine export in the western portion of the service area. Zone 7 ~~was working on~~ preparing~~d~~ a ~~and reviewing the~~ draft SMP report in December 2002.~~draft which was expected to be completed in the Fall of 2002.~~[15]

F. REGULATORY FRAMEWORK

The following section describes the regulatory agencies concerned with hydrology and water quality issues.

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[13] Zone 7 Water Agency, undated, Innovative Answers to the Tri-Valley's Water Supply and Flood Control Questions, 1999-2000 Report.

[14] Conjunctive use is defined as a coordinated and defined management scheme to maximize the efficient use of both surface and groundwater resources.

[15] Chahal, Jarnail, 2002. Engineer, Zone 7 Water Agency. Personal communication with LSA Associates, Inc. August 16.

1. Federal Emergency Management Agency (FEMA)

In 1968, Congress created the National Flood Insurance Program (Program) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Program makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The Program is managed by FEMA, the agency responsible for conducting floodplain studies and publishing

City require new and redevelopment projects to install controls to reduce pollutants in stormwater, and to implement alternate site designs to reduce the amount of impervious surfaces. The reissued permit is expected to strengthen these requirement to more specifically address the *volume* of runoff as a "pollutant," and require more prescriptive controls to reduce post development flow to pre-development levels where there is "potential" for increased downstream erosion or sedimentation. The permit also includes specific sizing requirements for treatment controls, and requires that agencies develop a Hydrograph Modification Plan to ensure that there is no increase in the potential for downstream erosion or sedimentation from potential projects.

3. Alameda County Flood Control and Water Conservation District, Zone 7

Zone 7 is one of 10 active zones of the Alameda County Flood Control and Water Conservation District. The District was established in 1949 to solve problems of flooding, drainage, channel erosion, and water supply and conservation in Alameda County. Zone 7 includes all of eastern Alameda County (including the City of Livermore), an area of approximately 425 square miles. Zone 7 is a multi-functional agency that is currently active in management of the groundwater basin for water supply, water quality monitoring, surface water treatment and conveyance, and flood control. Zone 7 also administers the well and soil boring permit program for Livermore and the surrounding area. Zone 7 has an elected Board with policy and oversight responsibilities.

Table 14-1: Hazardous Material Sites in the City of Livermore Currently or Formerly Overseen by the Department of Toxic Substances Control

Site Name/Address	List	Site Status
Lawrence Livermore National Laboratory 7000 East Avenue	Annual Work Plan	The site has been affected by releases of volatile organic compounds and petroleum hydrocarbons. Groundwater treatment and soil vapor extraction are continuing. This site is also listed on the U.S. Environmental Protection Agency's National Priority List of hazardous waste sites, commonly referred to as Superfund sites.
South Livermore School Site Wente Street/Robertson Park Road	School Site List	After review of a Phase I site assessment, the Department of Toxic Substances Control determined no additional investigation at the site was required.
Livermore Sewage Ponds Rincon Avenue at Sunset Drive	No Further Action	The site was investigated to determine if it was a source of low concentrations of volatile organic compounds in a nearby well. No source was identified at the site, and no further investigation or remediation is proposed.
Livermore Senior Housing East of Murrieta Boulevard	Voluntary Cleanup Program	Arsenic associated with former railroad tracks was identified in site soils. Affected soils were encapsulated under a parking lot and a deed restriction was implemented in accordance with an agreement with the Department of Toxic Substances Control.
Hexcel Corporation 10 Trevarno Road	Regional Water Quality Control Board Referral	Improper storage/disposal of waste solvents and other materials has affected groundwater. Regional Water Quality Control Board is overseeing cleanup of the site.
Livermore Arcade Site First Street and South P Street	Regional Water Quality Control Board Referral	Improper disposal of drycleaning solvents at the site has affected groundwater. Regional Water Quality Control Board is overseeing cleanup of the site.

Source: Department of Toxic Substances Control, 2003. Site Mitigation and Brownfields Reuse Program Database, http://www.dtsc.ca.gov/database/Calsites/Index.cfm, data refreshed March 5.

The Regional Water Quality Control Board also oversees sites on the Spills, Leaks, Incidents, and Cleanups database. These sites are those with reported releases of hazardous materials potentially affecting groundwater that are not associated with underground storage tanks. There were 16 Spills, Leaks, Incidents and Cleanup sites within the City of Livermore in 2002 (see Table 14-3). Five of these sites were active (indicating that investigation and/or remedial action may occur in the future) and the remaining 11 were either inactive or closed, with no further investigation or remedial action proposed.

c. Stormwater Pollution Prevention. The City of Livermore Water Resources Division manages the storm water program in Livermore. The City of Livermore participates in the Alameda County Urban Runoff/Clean Water Pollution Prevention program, to more closely monitor discharges into the stormwater system. The authority for this program comes from the Federal Clean Water Act Amendments of 1990. Unlike discharges to the sanitary sewer system, any discharge that enters the stormwater system in Livermore flows directly to surface water bodies without treatment. If stormwater were polluted with oils, soaps, or even food products, the pollution could affect surface water quality.

Table 14-2 *continued*

Site Name	Address
Las Positas Golf Course	909 Clubhouse Drive
Lawrence Livermore National Laboratory Building 298	7000 East Avenue
Leprino Foods	6211 Las Positas Road
Livermore Corporation Yard	2500 Railroad Avenue
Livermore Dublin Disposal Company	6175 Front Street South
Livermore Fire Station #1	4550 East Avenue
Livermore German Auto	2730 Old 1st Street
Livermore Honda	3800 1st Street
Livermore Municipal Airport	1800 Friesman
Livermore Municipal Airport	636 Terminal Court
Mill Springs Park Apartments	1809 Railroad Avenue
MTM General Store and Gas	115 Vasco Road South
North K Associates	2322-38 1st Street
Pacific Bell	2388 2nd Street
PG&E	3797 1st Street
Portola Meadows Apt Tract 5430	1830 Portola Avenue
Residential	1733 Murdell Lane
Robert & Edna Carpenter	524 Livermore Avenue South
Rynck Tire Center	1682 1st Street
Rynck Tire Center	1485 1st Street West
Shell	318 Livermore Avenue South
Shell	1155 Portola Avenue
Silver Metal Products	2150 Kitty Hawk Road
Springtown Golf Course	1968 Bluebell Drive
Tri-Valley Transportation	5481 Brisa Street
Unocal	900 Livermore Avenue South
Valley Memorial Hospital	1111 Stanley Boulevard East
Walmart	2700 Las Positas Road
Wente Brothers Winery	4590 Tesla Road

Source: San Francisco Bay Regional Water Quality Control Board, 2003. LUSTIS (UST) Database. January.

Table 14-3: Current and Former Spill, Leak, Investigation, and Cleanup Cases in the City

Site Name	Address	Last Database Update
CURRENT SPILL, LEAK, INVESTIGATION AND CLEANUP CASES (Currently Under Regulatory Oversight)		
Hexcel Corp	End of Trevarno Road	8/5/1989
Industrial Ladder	115 Mines Road North	8/5/1989
Intel Corp Livermore Fabrication Plant 3	250 Mines Road North	4/22/1992
Lawrence Livermore National Laboratory DOE		1/31/1992
Salinas Reinforcing Inc	355 South Vasco Road	3/20/1998
INACTIVE SPILL, LEAK, INVESTIGATION AND CLEANUP CASES (No Additional Investigation or Remedial Action Planned)		
Davey Tree	2617 South Vasco	1/14/1989
Livermore Arcade Shopping Center	1st and P Street South	4/3/1990
Livermore, City of	1767 Portola Avenue	9/18/1991
Livermore Department of Public Works	Rincon & Juniper & Spruce	8/4/1994
Livermore Sewage Ponds	Pine Street	None
Miller Outpost Shopping Center	1332 Railroad Avenue	8/4/1994
Norli Property	Adjacent to Hexcel (SW)	4/28/1989
PG&E	WPRR & North Street	2/23/1987
Portola Meadows Apt Tract 5430	1830 Portola Avenue	11/9/1992
CLOSED SPILL, LEAK, INVESTIGATION AND CLEANUP CASES (Remediation Complete or Not Necessary)		
Calico Lumberyard Former	3360 1st Street	4/27/1992
Pestana Construction	6709 South Front Road	9/26/1995

Source: San Francisco Bay Regional Water Quality Control Board, 2002. Spills, Leaks, Investigations, and Cleanup Database. October.

Under the Alameda County Urban Runoff/Clean Water Pollution Prevention program, the County has obtained an NPDES permit. A condition of this permit is that each municipality in the County implement a series of programs. Chapter 13.45 of the Livermore Municipal Code details the City's Stormwater Management and Control Program (see discussion in the *Hydrology and Water Quality* chapter).

4. Hazardous Waste Sources and Programs

Once a hazardous material has been used or processed, what remains is in some cases considered a hazardous waste. Many businesses and residences in Livermore generate some amount of hazardous wastes. The most common hazardous wastes generated by businesses in Livermore are generated from gasoline service stations, dry cleaners, automotive mechanics, auto body repair shops, machine shops, printers and photo processors. Wastes generated by these businesses include used or surplus cleaning and paint solvents, lubricants, and oils. Medical wastes, defined as potentially infectious waste from sources such as laboratories, clinics, and hospitals, are regulated differently than other hazardous wastes generated by businesses.

Regional Water Quality Control Board, North Coast Region, 2002. Introduction to TMDLs, available at http://www.swrcb.ca.gov/rwqcb1/.

Regional Water Quality Control Board, San Francisco Bay Region, 2002. 2001 San Francisco Bay Regional Water Quality Control Board 303(d) and TMDL Priority List, available at http://www.swrcb.ca.gov/tmdl/docs/segments/region2/.

Regional Water Quality Control Board, San Francisco Bay Region, 1995. *Water Quality Control Plan*. June 21.

United Stated Geological Survey, 1985. Water-Quality Conditions and an Evaluation of Ground- and Surface-Water Sampling Programs in the Livermore-Amador Valley, California, Water Resources Investigations Report 84-4352.

Western Regional Climate Center, 2002. Website: www.wrcc.dri.edu/elimsmsfo.html.

Zone 7 Alameda County Flood Control and Water Conservation District, 2000. Zone 7 Flood Control Facilities Base Map.

Zone 7 Water Agency, undated. Innovative Answers to the Tri-Valley's Water Supply and Flood Control Questions, 1999-2000 Report.

Hazardous Materials

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), 2002. Site Mitigation and Brownfields Reuse Program Database, http://www.dtsc.ca.gov/database/Calsites/Index.cfm, data refreshed 4 June.

California Health and Safety Code, §25401, et. seq.; §25501; §33459, et. seq.; and §57008, et. seq.

Regional Water Quality Control Board, San Francisco Bay Region, 2002. LUSTIS (UST) Database, May 1.

Regional Water Quality Control Board, San Francisco Bay Region, 2001. SLIC (Spills, Leaks, Investigations, and Cleanup) Database. December.

Public Services

Child Care Links, 2002. *2002 Annual Report.*

Design, Community and Environment, 2002. *Public Services Working Paper*. July.

East Bay Regional Park District. 2002. Brushy Peak Regional Preserve Land Use Plan. June 20, 2002. Oakland, CA.

East Bay Regional Park District. 2002. Initial Study and Proposed Mitigated Negative Declaration for Brushy Peak Regional Preserve Land Use Plan, Alameda County. June 2002. Oakland, CA.

Fehr & Peers Associates, Inc., 1996. *Livermore Bicycle/Pedestrian Plan Update and Equestrian Trails Study: Policy Document*. June. (Revised December 1998).

B. REVISIONS TO VOLUME II: IMPACTS AND MITIGATION MEASURES

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOISE-GP-2: The Draft General Plan would provide for an increase in flights at the Livermore Municipal Airport, exposing a larger area of the City, including existing housing, to aircraft noise.	S	NOISE-GP-2: The City of Livermore shall develop a program to identify residences subject to excessive Airport noise. The program shall ensure that the State's 45 dBA CNEL/L_{dn} interior noise standard for residential uses is achieved for these affected residences. One way of implementing this measure would be for the City to contract with a qualified acoustical engineer to conduct annual exterior noise measurements, beginning along the block nearest the eastern edge of the Airport and, over the years, moving eastward, away from the Airport. If/when the exterior noise levels are within one dBA of 60 dBA CNEL on any block, the City should purchase and install of air conditioning units for those single family residences exposed to such noise. The air conditioning units would allow these residences the option of keeping their windows closed during the summer months when it would otherwise be too hot to do so.	LTS
I. BIOLOGICAL RESOURCES			
There are no significant impacts to biological resources.			
J. GEOLOGY, SOILS, AND SEISMICITY			
There are no significant impacts to geology, soils, and seismicity.			
K. HYDROLOGY AND WATER QUALITY			
There are no significant impacts to hydrology and water quality.			
L. HAZARDS			
There are no significant impacts to hazards.			
M. VISUAL RESOURCES			
There are no significant impacts to visual resources.			

by the foothills of Mount Diablo. Unincorporated areas of Alameda County lie to the north, east, and south of the City limits. Several creeks and arroyos cross the City; portions of these creeks support vegetation and trees.

Livermore is bisected by Interstate 580 (I-580) which runs east-west through Alameda County and provides regional access to the inner San Francisco Bay cities to the west and to San Joaquin County communities to the east. Other regional access routes include State Route 84 (SR 84) along First Street. Other major regional connectors include Stanley Boulevard from the west, North Livermore Avenue and Vasco Road from the north, and Tesla Road, Mines Road, and South Livermore Avenue from the south and east. The Livermore Amador Valley Transit Authority (LAVTA) directs WHEELS, an inter-city bus system. Livermore has seven bus routes, three of which go to the Dublin/Pleasanton BART station, currently BART's furthest station east along the I-580 corridor. The Altamont Commuter Express (ACE), a regional rail line between Stockton and San Jose, runs on the Union Pacific rail lines and has two stops in Livermore, on Vasco Road and Downtown. The Livermore Municipal Airport is located in the western portion of the City just south of I-580.

The area within the Livermore City limits is mostly built out, with limited land available for development. Livermore's Downtown lies exactly at the geographic center of the City, about 1.5 miles from I-580. Historically, the City's founders set up the commercial core near the railroad line and at the intersection of SH 84 (First Street) and Livermore Avenue, a major north-south route through the City. The residential neighborhoods of the City are generally developed at suburban densities. Industrial and commercial areas exist in the eastern and western areas of the City. ~~, and t~~The Lawrence Livermore National Laboratory ~~Labs~~ and Sandia National ~~Labs~~ Laboratories are located to the east of the Livermore City limits. ~~in the southeastern portions of the City.~~

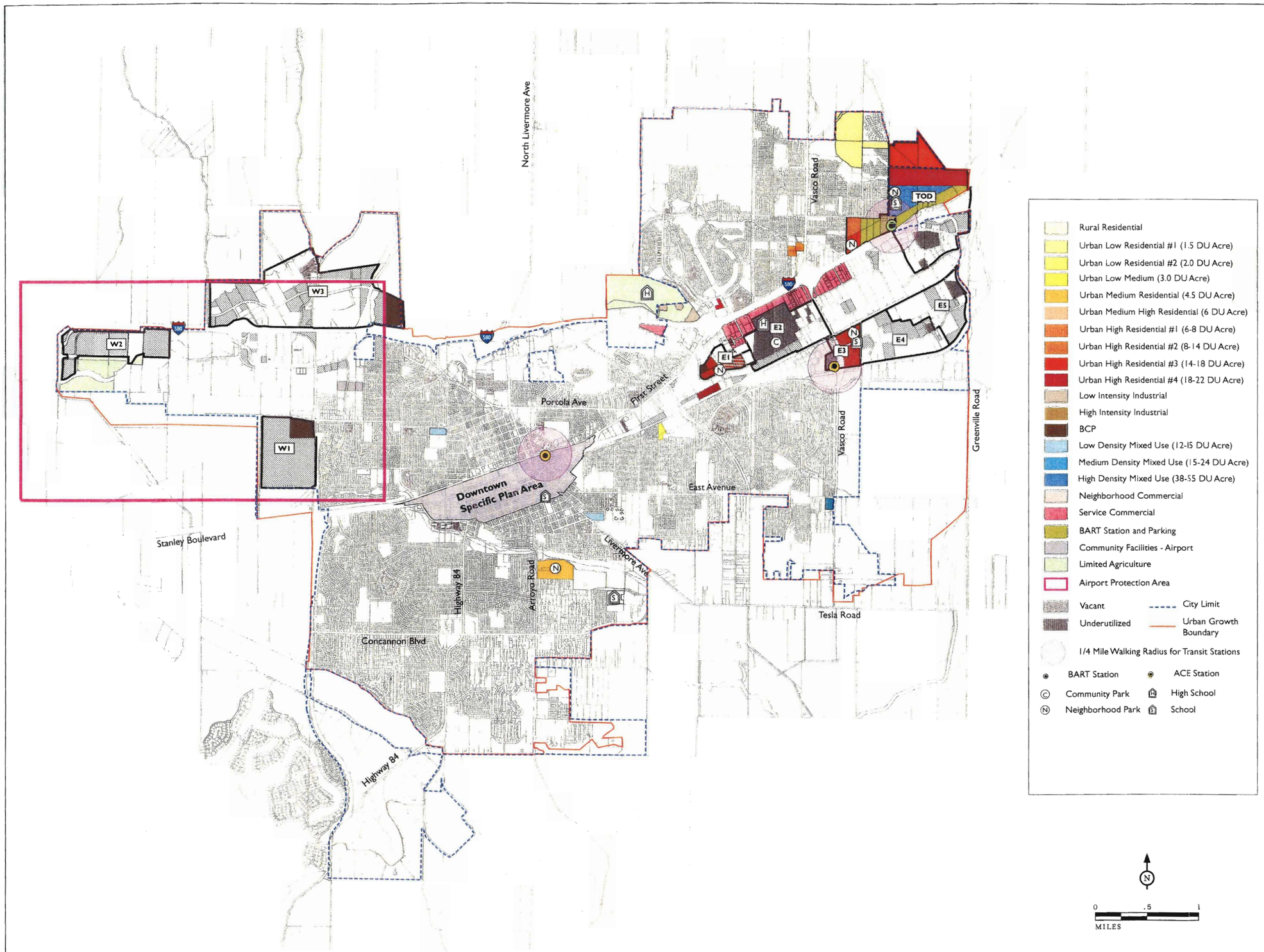
As of January 1, 2003, the City of Livermore's population (within the city limits) was estimated at 76,700 people, representing about 5 percent of Alameda County's estimated population of 1,433,300 people. The City contained an estimated 28,300 housing units and 41,500 jobs.

C. DRAFT GENERAL PLAN

A detailed description of the proposed Draft General Plan is presented below, and an overview of California law as it governs General Plans is provided. The remainder of the section provides a description of the planning process, a summary of the General Plan Elements goals and objectives, and housing, population and job projections as they are analyzed in this EIR. The Draft General Plan is hereby incorporated by reference into this Project Description, and should be referred to for a more detailed description.

1. Relationship to California State Law

California Government Code Section 65300 requires that the General Plan be comprehensive, internally consistent and long-term. The General Plan must provide for the physical development of the City and guide all land use and public improvement decisions. All general plans must include land use, transportation, housing, open space, conservation, noise, and safety elements, and may also include optional elements in response to specific community issues, values, needs, or local conditions. Although required to address the issues specified in State law, the General Plan may be organized in a way that best suits the City.



SOURCE: DESIGN, COMMUNITY & ENVIRONMENT, 2003.

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FIGURE III-3

Livermore Draft General Plan and Downtown Specific Plan EIR

Draft General Plan

Revised Land Use Designations

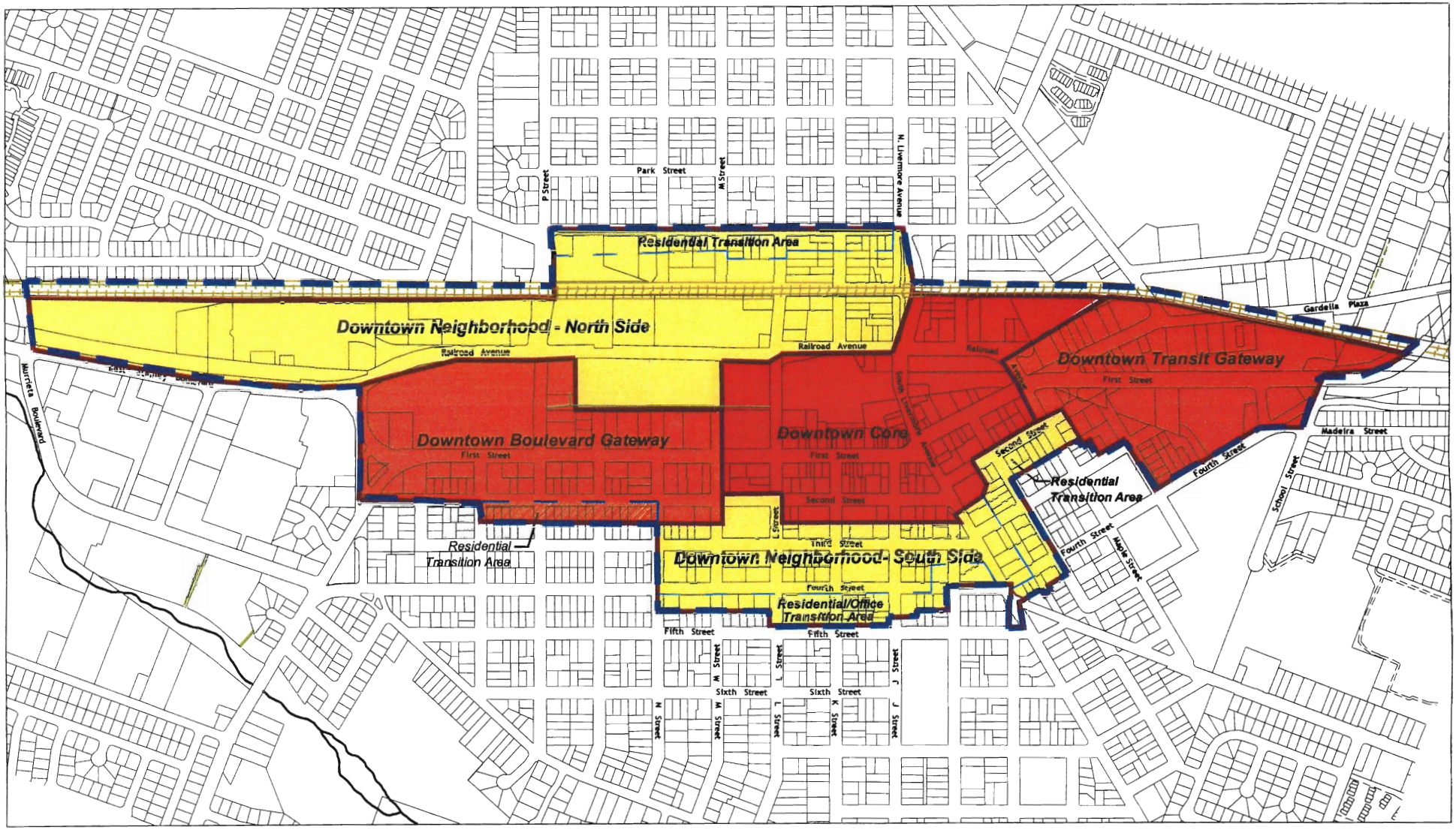

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FIGURE III-4

Livermore Draft General Plan and Downtown Specific Plan EIR

Downtown Specific Plan: Land Use Plan Areas

SOURCE: FREEDMAN, TUNG & BOTTOMLEY, 2003.

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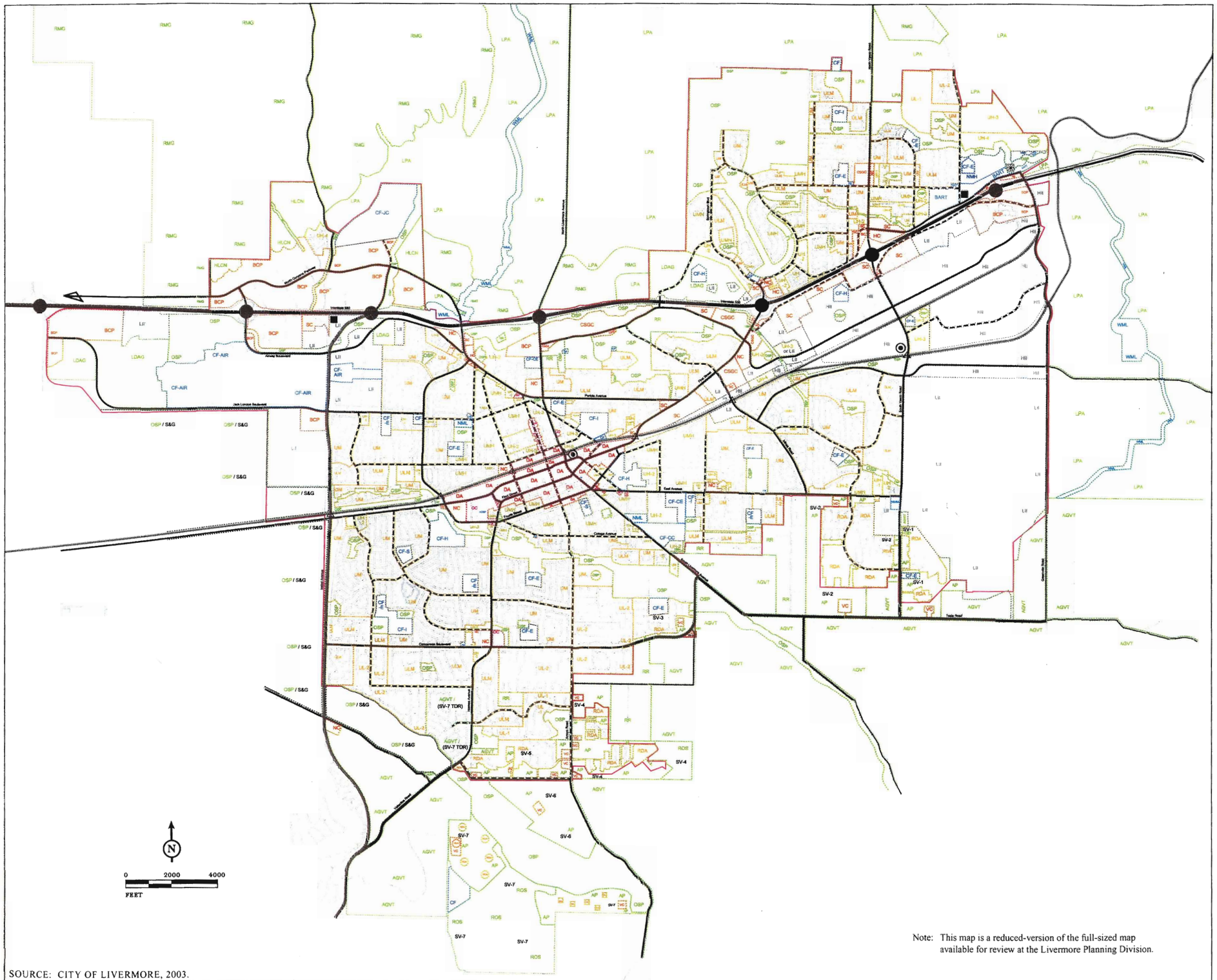

Note: This map is a reduced-version of the full-sized map available for review at the Livermore Planning Division.

SOURCE: CITY OF LIVERMORE, 2003.

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LSA

LIVERMORE COMMUNITY GENERAL PLAN

RESIDENTIAL
- RURAL RESIDENTIAL 1 to 5 Acre Site
- URBAN LOW RESIDENTIAL
- URBAN LOW MEDIUM RESIDENTIAL 2.0 - 3.0 d.u./ac.
- URBAN MEDIUM RESIDENTIAL 3.0 - 4.0 d.u./ac.
- URBAN MEDIUM HIGH RESIDENTIAL 4.0 - 8.0 d.u./ac.
- URBAN HIGH RESIDENTIAL
- RESIDENTIAL DEVELOPMENT AREA (SLV)

COMMERCIAL
- NEIGHBORHOOD COMMERCIAL 3 FAR
- SERVICE COMMERCIAL 3 FAR
- HIGHWAY COMMERCIAL 3 FAR
- OFFICE COMMERCIAL 3 FAR
- COMMUNITY SERVING GENERAL COMMERCIAL 3 FAR
- VINEYARD COMMERCIAL (SLV)

MIXED USE
- NEIGHBORHOOD MIXED LOW DENSITY
- NEIGHBORHOOD MIXED MEDIUM DENSITY
- NEIGHBORHOOD MIXED HIGH DENSITY
- DOWNTOWN AREA (See DSP)

OPEN SPACE
- PARKS, TRAIL WAYS, RECREATION CORRIDORS, AND PROTECTED AREAS
- LIMITED AGRICULTURE 20 Acre Minimum Site
- AGRICULTURE / VITICULTURE 1.0 - 2.0 d.u./ 100 ac.
- HILLSIDE CONSERVATION 1.0 d.u./ ac. - 1.0 d.u./ 100 ac.
- SAND AND GRAVEL
- LARGE PARCEL AGRICULTURE 100 Acre Minimum Site
- RESOURCE MANAGEMENT 100 Acre Minimum Site, 1 d.u./ parcel
- WATER MANAGEMENT LANDS 100 Acre Minimum Site, 1 d.u./ parcel
- AGRICULTURE PRESERVE (SLV)
- REGIONAL OPEN SPACE (SLV)

COMMUNITY FACILITIES
- ELEMENTARY SCHOOL K - 6
- INTERMEDIATE SCHOOL 7 - 8
- HIGH SCHOOL 9 - 12
- COMMUNITY COLLEGE
- SCHOOL - GENERAL
- POST OFFICE
- FIRE STATION
- HOSPITAL
- CIVIC CENTER
- CEMETERY
- GOVERMENT SERVICES
- AIRPORT
- BART STATION AND PARKING

INDUSTRIAL
- BUSINESS AND COMMERCIAL PARK 3 - 3 FAR
- LOW INTENSITY INDUSTRIAL 45 FAR
- HIGH INTENSITY INDUSTRIAL 6 FAR

CIRCULATION
- FREEWAY
- HIGHWAY
- MAJOR STREET
- COLLECTOR STREET
- LOCAL STREET
- INTRACOUNTY ROUTE
- SPECIAL RURAL ROUTE
- RAIL CORRIDOR
- BART
- FREEWAY INTERCHANGE
- GRADE SEPARATED INTERSECTION
- BART STATION
- INTERMODAL TRANSPORTATION FACILITY
- ACE Station
- Urban Growth Boundary
- SOUTH LIVERMORE VALLEY SPECIFIC PLAN
- SLV Transferrable Development Rights

FIGURE IV.A-1

Livermore Draft General Plan and Downtown Specific Plan EIR

Draft General Plan Land Use Designations

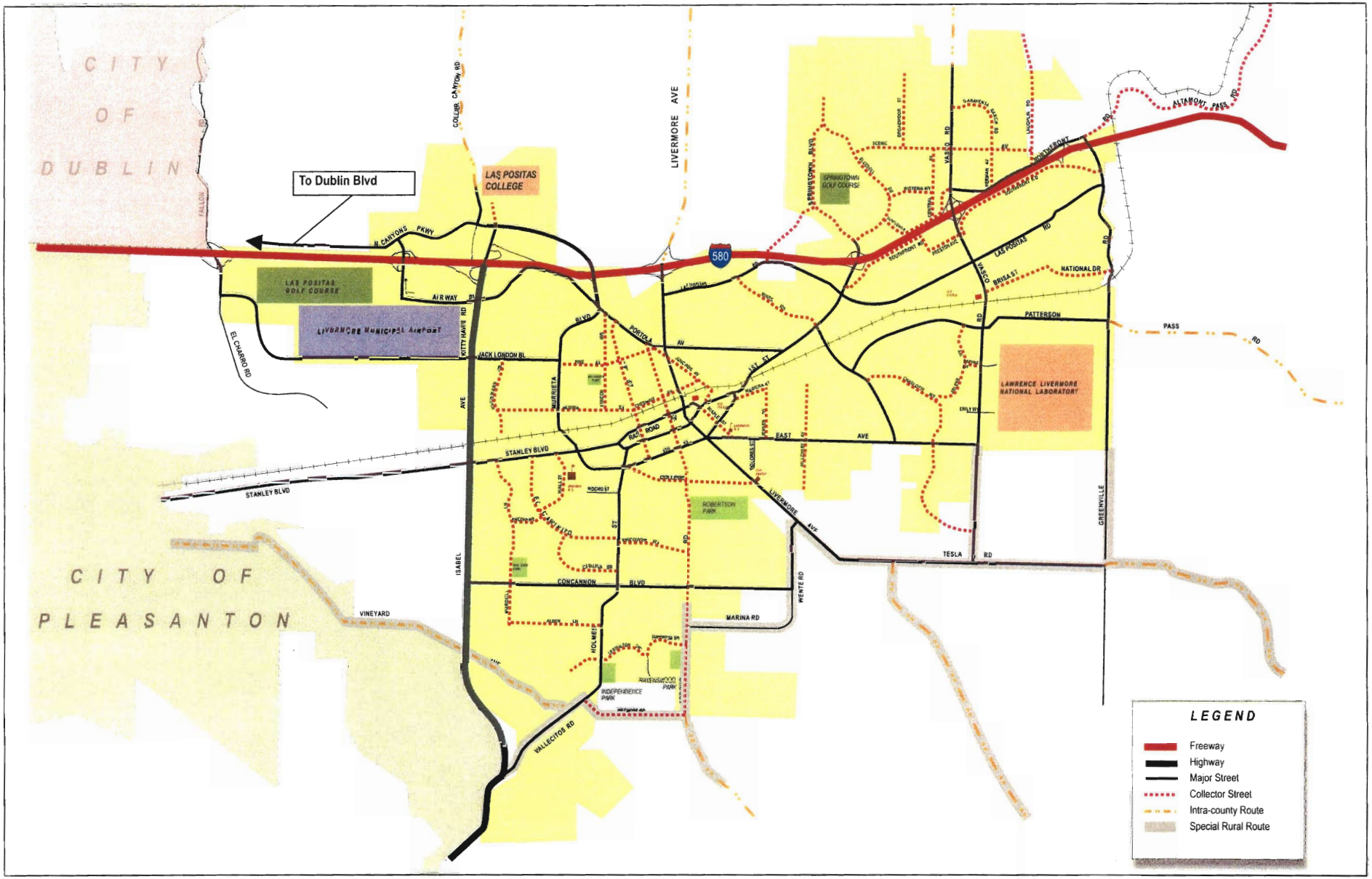

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FIGURE IV.C-1

Livermore Draft General Plan and Downtown Specific Plan EIR
Proposed Roadway Functional Classification System

SOURCE: MEYER,MOHADDESASSOC., 2003.

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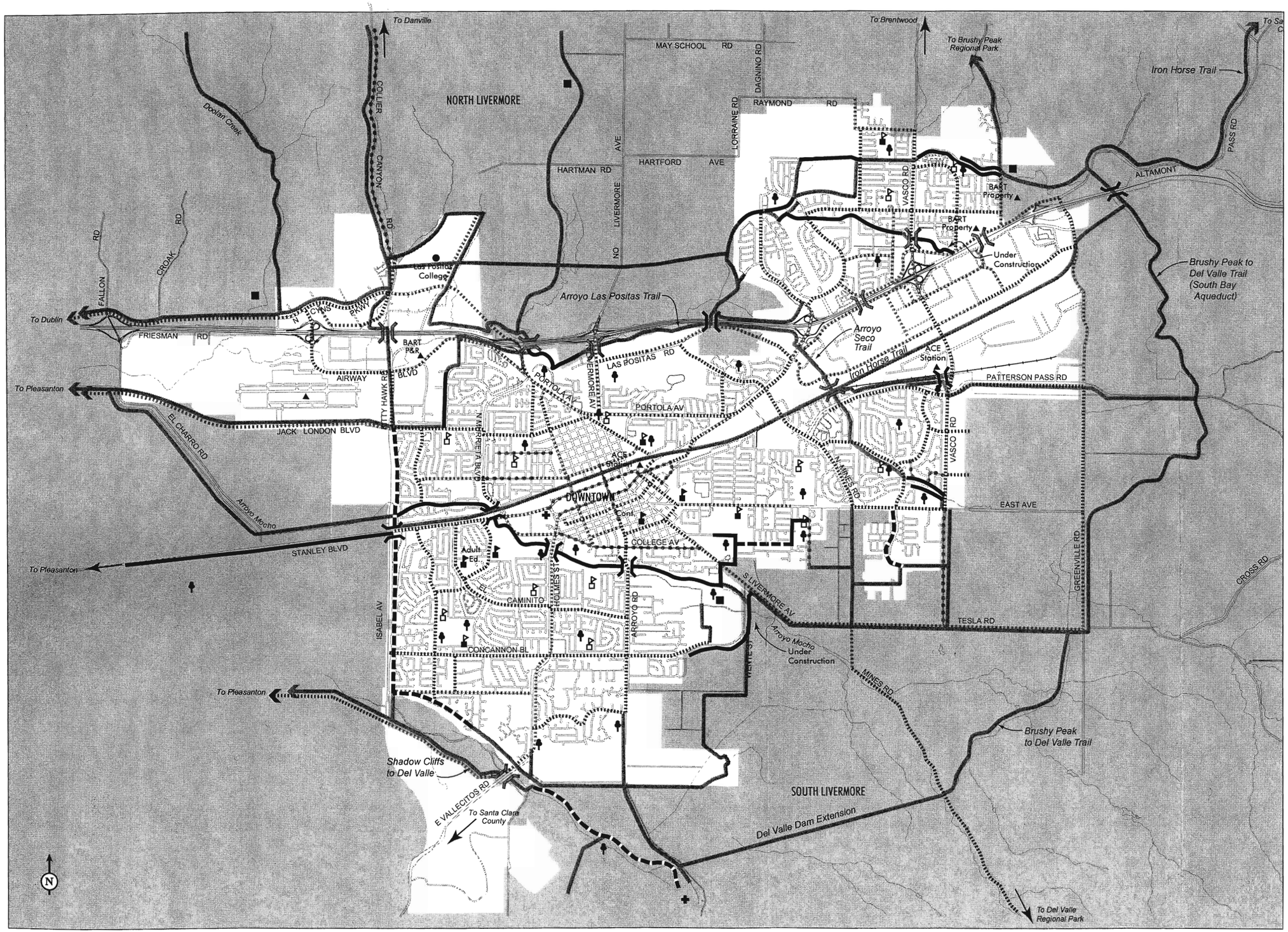


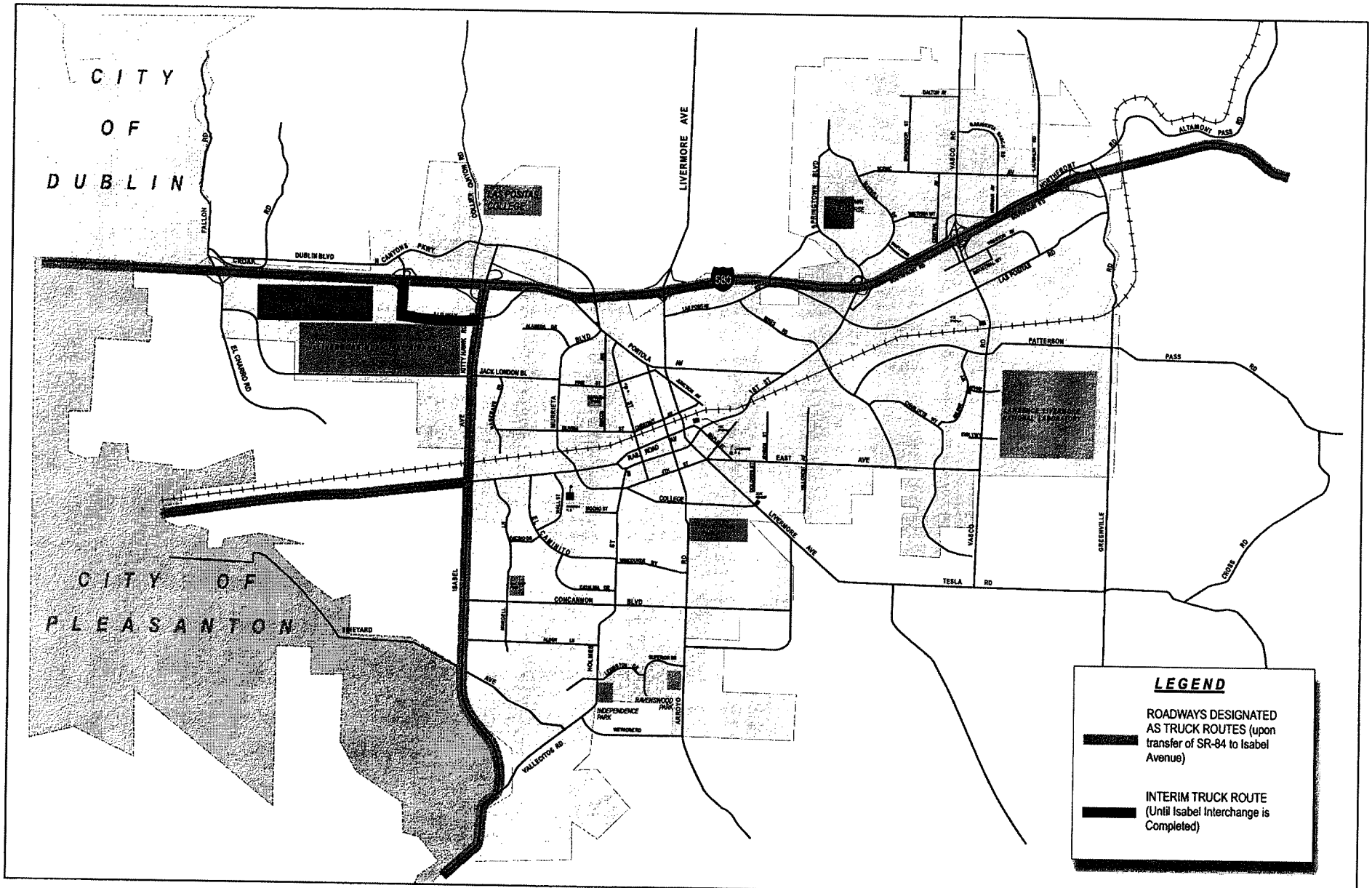
PROPOSED BIKEWAYS AND TRAILS NETWORK

- Existing Multi-Use Trails
- Existing Bike Lanes
- Existing Multi-Use Trails with Equestrian Component
- Existing Over/Undercrossing
- Proposed Over/Undercrossing
- Proposed Bike Lanes
- Proposed Trails
- Proposed Bike Routes
- Staging Area
- Elementary Schools
- Middle Schools
- High Schools
- Transportation Centers
- Hospitals
- Parks
- Area Outside City Limits

FIGURE IV.C-2

Livermore Draft General Plan and Downtown Specific Plan EIR
Proposed Bikeways and Trails Network

SOURCE: MEYER, MOHADDES ASSOC., 2002.
I:\IMAGES\GRAPHICS\JOBS\CLV135 LIVERMORE GP EIR\EIR FIGURES\FIG_IVC2.AI (09/04/03)



LSA

FIGURE IV.C-3

Livermore Draft General Plan and Downtown Specific Plan EIR

Proposed Truck Route System

SOURCE: MEYER,MOHADDESASSOC., 2003.

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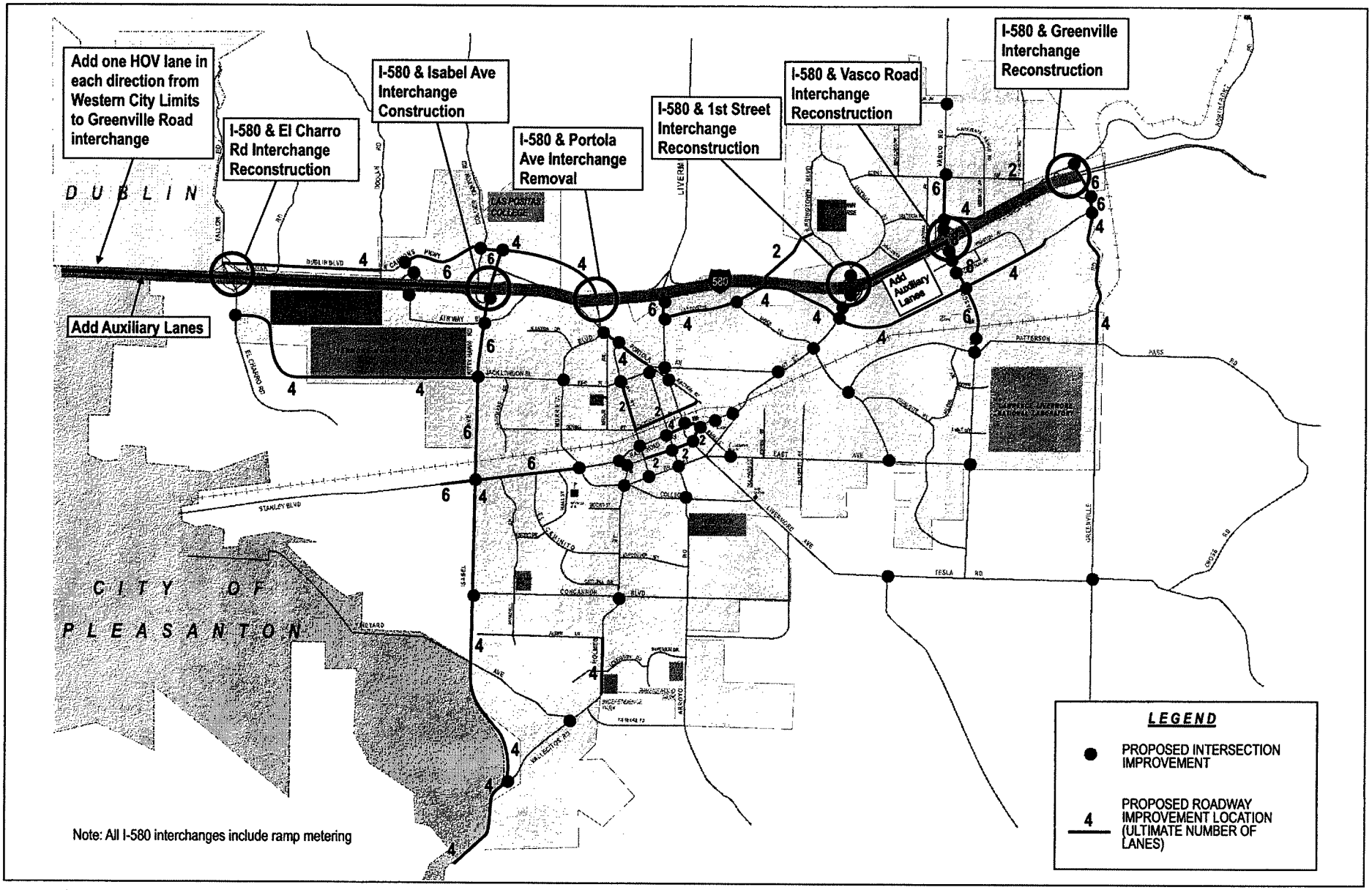

LSA

FIGURE IV.C-5

Livermore Draft General Plan and Downtown Specific Plan EIR

Proposed Intersection and Roadway Improvements

SOURCE: MEYER,MOHADDESASSOC., 2003.

I:IMAGES/GRAPHICS\JOBS\CLV135 LIVERMORE GP EIR\EIR FIGURES\FIG_IVC5.INDD (09/04/03)

locations identified based on discussions with ACCMA staff.[1] Transit impacts were addressed for LAVTA and BART.

The levels of service (LOS) for the designated links were analyzed in a spreadsheet using the Florida Department of Transportation LOS methodology,[2] which provides a planning level analysis based on *Highway Capacity Manual* methods. As a planning level analysis, the level of service is based on forecasts of traffic and assumptions for roadway and signalization control conditions, such as facility type (freeway, expressway, and arterial classification), speeds, capacity and number of lanes. The assumption for the number of lanes at each link location was extracted from the model and confirmed through field observations. The traffic baseline forecasts for 2010 and 2025 were extracted at the required CMP and MTS highway segments from the ACCMA Countywide Travel Model, for both the AM and PM peak hours. A detailed report and tables are provided in the Appendix D, which describes the analysis and includes all data for 2010 and 2025 forecast years.

The CMA's threshold of significance for significant project-related impacts is as follows: if the addition of project-related traffic would result in a level of service (LOS) value worse than LOS E on CMA roadways~~, except where the roadway link was already at LOS F under no project conditions~~. For those locations where the baseline condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic is at least 3 percent of the total traffic. This change is equivalent to about one-half of the change from one level of service to the next. For transit services, a significant impact is determined if the increase in ridership due to the project requires a decrease in headway (increase in service frequency) on one or more the transit routes serving project trips.

(3) Less-than-Significant Impacts of the Draft General Plan. Following is a summary of the less-than significant transportation impacts that would result from implementation of the Draft General Plan.

Transit Services. The project is not expected to result in significant impacts to the LAVTA transit buses or BART based on the CMA analysis (the CMA analysis is contained in Appendix D). Implementation of policy CIR-3.1.A1, A2, and A3, CIR-3.2.A1 will help to mitigate impacts on the transit system by advocating improvements to the system and helping facilitate those improvements through land use actions, preservation of right-of-way for transit and trip reduction strategies.

Emergency Access. The project is not expected to result in inadequate emergency vehicle access. Implementation of the following policies and actions would mitigate impacts to the emergency access system: policies CIR-1.1.P1, P2, P3, and P4 would require the management and development of the local roadway system to support the Land Use Element; policies CIR-1.3.P1 and P2 would minimize local cut-through traffic in residential neighborhoods; policies CIR-2.1.P1, P2, P3 and P4 would provide adequate road linkages throughout Livermore; policies CIR-4.1.P1, P5, P6 would maintain adequate levels of service for all areas of the City. Implementation of these policies will maintain the City's level of service standard at most key intersections throughout the City. Where the City's level of service standards will not be maintained, the emergency access routes must be coordinated to

[1] Please note that these link locations are similar to those identified in the Notice of Preparation response letter from Alameda County CMA included in Appendix A of this EIR.

[2] Florida Department of Transportation. Level of Service Standards and Guidelines Manual for Planning, 1995.

not expected to meet the mid-LOS D standard (and therefore will require a statement of overriding considerations) are shown in Table IV.C-4. Policies and actions CIR-1.1.P1, P2, P4, CIR-2.1.P1, P3 and A2 will help reduce significant adverse impacts to affected intersections; however this impact is still considered significant and unavoidable.

> Mitigation Measure TRAF-GP-3: The City shall continue on-going development review of circulation system impacts from individual projects, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. However, the impacts at the four intersections cannot be reduced to a less-than-significant level. (SU)

Impact TRAF-GP-4: Relative to 2003 conditions, implementation of the Draft General Plan would produce significant impacts at 10 ~~15~~ roadway segment locations. (S)

At the following 10 ~~15~~ roadway segments, the City has determined that it is not feasible to provide enough lane capacity to accommodate the level of traffic predicted by the traffic model because of local environmental constraints, right-of–way constraints or cut-through traffic. The locations that are not expected to be improved to the number of lanes as indicated in the analysis (and therefore will require a statement of overriding considerations) are shown below:

- Airway Boulevard from Portola Avenue to I-580
- Altamont Pass easterly from Greenville Road
- First Street from Holmes Street to Maple Avenue
- First Street from Inman Street to I-580
- Greenville Road from Los Positas Road to I-580
- North Mines Road from Los Positas Road to Patterson Pass Road
- Portola Avenue from Murrieta Boulevard to L Street
- Portola Avenue from Collier Canyon Road to I-580
- Vasco Road from West Gate to Patterson Pass Road
- Vineyard Avenue westerly from Isabel Avenue

Implementation of policies and actions including CIR-1.1.P1, P2, P4, CIR-2.1.P1, P3, and A2 would will help mitigate the impacts to roadway segments; however, impacts to these segments cannot be reduced to a less-than-significant level

> Mitigation Measure TRAF-GP-4: The City shall require on-going project development review of circulation system impacts, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. However, the impacts at the 10 ~~15~~ roadway segments cannot be reduced to a less-than-significant level. (SU)

- Construction of any necessary reclaimed water reservoir should include appropriate remediation of any landslide conditions to eliminate slide hazards and provide stable abutments and foundation for the dam. Geotechnical investigations shall be conducted at the reservoir site to provide a basis for design. The final design of the dam shall address the structural requirements of this facility to appropriately remediate any potential effects associated with ground shaking, surface rupture and earthquake induced landslides. The California Division of Dam Safety shall review and approve the design and construction of the storage reservoir.
- Construction of a reclaimed water reservoir and implementation of other aspects of a master plan for reclaimed water irrigation disposal may result in the loss of wetland habitat or the potential loss of sensitive plant or animal species. Mitigation for this impact shall consist of the creation and enhancement of new habitat to ensure no net loss of wetlands or sensitive species habitat.
- All modifications to wetlands or other waters that may result from implementation of a master plan for reclaimed water irrigation disposal shall be coordinated with California Department of Fish and Game and the U.S. Army Corps of Engineers to the extent required by state and federal law. All mitigation requirements and any design modifications resulting from this coordination should be incorporated into the planning and design of the master plan.
- Sensitive animal species that may be disturbed by implementation of this master plan shall be salvaged and re-located to suitable areas subject to resource agency approvals.

Reclamation with Chain of Lakes Storage and Irrigation. Another potential wastewater disposal strategy could be developed to meet the cumulative wastewater disposal needs of the City at buildout that would include increased water reclamation, storage in Zone 7's Chain of Lakes, and disposal via irrigation throughout the City. The description of this strategy is similar to that described above for the Reclamation with North Livermore Storage and Irrigation alternative. The City would continue to dispose of wastewater flows through LAVWMA within its currently contracted limits. Wastewater in excess of the LAVWMA export limit would be treated at the WRP to reclaimed water quality standards. This excess reclaimed water would then be delivered via a pipeline from the WRP to an existing excavated mining pond within the Chain of Lakes for temporary storage.

The Chain of Lakes is a combination of mining quarries in various stages of excavation, owned by Kaiser, Lonestar and Roads & Jamieson. The rate of excavation and estimated completion date for each of the lakes depends on the demand for gravel, which in turn depends on the state of the construction economy. The estimated completion of all mining operations is 2030. Zone 7 is currently pursuing an agreement with the three property owners for eventual conveyance of ownership of these quarries once all mining operations are complete, which is estimated in the year 2030. Zone 7 is considering plans to use the Chain of Lakes to store reclaimed water, "raw" agricultural water, and/or flood control water. Additionally, other agencies have expressed interest in using the Chain of Lakes. For example, the City of Pleasanton has suggested that at least one of the lakes be used for flood water storage. Dublin San Ramon Services District (DSRSD) has expressed interest in use of the lakes for disposal of reverse osmosis water, ~~and~~ Zone 7 has plans to use these lakes for recharge of the groundwater basin, and EBRPD identifies this area as a potential Regional Park.

Assuming that the Chain of Lakes could be used for temporary storage of reclaimed water, the reclaimed water would then be pumped out and used for irrigation during the dry season. This water could be used to irrigate areas within the City such as parks, greenbelts, commercial landscape areas, and landscaping along arterial roadways. Alternatively, or in addition to irrigation of urban

OSC-1.4.P4 The City shall encourage the State to continue and expand current fishery practices of stocking streams and reservoirs, including but not limited to Lake Del Valle, San Antonio Reservoir, Shadow Cliffs Park, Arroyo Del Valle and Arroyo Mocho.

OSC-1.4.A1 Work with local, regional, and State natural resource agencies and area non-profits to develop programs to fund preservation of sensitive biological resources, including arroyos, wetlands, and grasslands.

OSC-1.4.A2 Work with other agencies such as Zone 7 and RWQCB to develop an intergovernmental program to reestablish the riparian community along major drainage ways in the Planning Area.

OSC-1.4.A3 The City shall develop a list of priorities regarding acquisition and/or preservation of open space areas to assist with the use of open space and other preservation fees or funds received by the City.

OSC-2.1.P1 Require the implementation of Best Management Practices (BMPs) to minimize erosion, sedimentation, and water quality degradation resulting from the construction of new impervious surfaces.

OSC-2.1.P2 The City shall take all necessary measures to regulate runoff from urban uses to protect the quality of surface and ground-water.

b. Downtown Specific Plan. The Downtown Specific Plan does not contain specific policies relating to biological resources. However, it is the intent of the City that that in those instances where the Downtown Specific Plan does not provide policy guidance, the goals, objectives and policies of the Draft General Plan will apply.

3. Impacts and Mitigation Measures

The following section focuses on the potential adverse impacts of the proposed project. Significant biological resources are unlikely to occur in the Downtown area; however, vacant lots or railroad rights-of-way may provide habitat for burrowing owls or other special-status wildlife species that are more tolerant of disturbance. ~~Because there are no areas of significant biological resources in the Downtown area (although there may be some "ancestral trees"), this~~ This subsection evaluates potential impacts associated with biological resources for both plans concurrently. Where potentially significant impacts of the proposed project are found, mitigation measures are recommended.

a. Criteria of Significance. Implementation of the Livermore Draft General Plan and Downtown Specific Plan would have significant impacts to biological resources if the project would:

- Result in substantial reduction in numbers of, restriction in range for, or loss of habitat for a population of any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect by diminishing the area or quality of any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.s. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;

- Substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or State policies protecting biological resources, including the City's ancestral tree ordinance.

b. Impacts and Mitigation Measures. This section evaluates potential impacts to *biological resources* associated with the implementation of the Draft General Plan and Downtown Specific Plan and identifies mitigation measures to address these impacts, as necessary.

(1) Less-than-Significant Impacts. Following is a summary of the less-than-significant impacts that would result from implementation of the Draft General Plan and Downtown Specific Plan.

Sensitive Habitat Areas. Development resulting from implementation of the Draft General Plan and Downtown Specific Plan could adversely effect areas of ecological sensitivity, including hillsides, alkali springs, creek corridors and watersheds. Implementation of policy LU-4.1.P2 would encourage an overall reduction in the size of the development footprint when development occurs in an ecologically sensitive areas. Clustering of the development should have the effect of minimizing the footprint of the development.

It should be noted that subsequent specific development in some areas where clustering may not sufficiently avoid impacts to sensitive resources would be regulated by State or federal agencies. For example, such areas include: the BART Transit Oriented Development (TOD) area and Sensitive Habitat Parcels area where Altamont Creek crosses or borders the parcels and where jurisdictional wetlands may occur; the Adventus parcel bordered by the Arroyo Las Positas; the Arroyo Road parcel bordered by Arroyo Mocho; and West Side subareas W2 and W3 through which Arroyo Las Positas passes.

To identify and reduce site specific impacts, implementation of policy LU-3.1.P1 would require the preparation of a specific plan prior to development of the TOD area. Implementation of Draft General Plan policy LU-4.1.P1 and policies and actions under objectives OSC-1.1 and OSC-1.2 (specifically OSC-1.2.P7~~, OSC-1.4.A5~~), would reduce impacts to sensitive habitat areas to a less-than-significant level.

Special Status Species. Development resulting from implementation of the Draft General Plan and Downtown Specific Plan could adversely modify critical habitat for vernal pool fairy shrimp. On September 24, 2002, the U.S. Fish and Wildlife Service published a proposed rule to designate critical habitat for four vernal pool crustaceans and 11 vernal pool plants in California and Southern Oregon.[1] Portions of the Draft General Plan area overlap the proposed critical habitat Subunit 19C for the vernal pool fairy shrimp (*Branchinecta lynchi*). In particular, the area designated for the BART TOD change area and the Sensitive Habitat parcels in the northeast corner of the City, fall within the proposed critical habitat area. Development in these areas could result in adverse modifications to critical habitat that could affect the recovery of vernal pool fairy shrimp.

[1] U.S. Fish and Wildlife Service. 2002. Endangered and Threatened Wildlife and Plants; Critical Habitat Designation for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon. Federal Register 67(185): 59884-60039.

avoidance of riparian woodlands and freshwater marshes and compensation for impacts to this habitat (OSC-1.2.P4). Implementation of policy LU-3.1.P1 would require a specific plan be prepared prior to development at the TOD to protect biological resources, and policy OSC-1.2.P1 would protect habitat used by non-listed species. Implementation of these policies would reduce potential impacts to non-listed species to a less-than-significant level.

Special Status Plants. Development resulting from implementation of the Draft General Plan and Downtown Specific Plan could result in loss of or indirect impacts on special-status plant populations. Future development activities could cause the loss of special-status plants[2] or indirect impacts that could degrade the habitat of special-status plant populations within the Draft General Plan area. Potential habitat for 34 special-status plants occurs throughout the Planning Area with at least 22 of these species potentially occurring in grassland habitats. Grasslands represent the dominant plant community in the undeveloped portions of the Planning Area and will be particularly impacted by the future development in the following areas: BART TOD, Adventus property, Sensitive Habitats parcels, Arroyo Road property, Righetti property, and West Side Area. Direct impacts on special-status plants could occur through grading of project sites or indirectly through grading of adjacent areas that could result in erosion and sedimentation or alteration of hydrologic conditions in the vicinity of special-status plants. Implementation of policies LU-3.1.P1, OSC-1.2.P1, OSC-1.2.P6 and P8 afford protection to plants listed as rare or endangered and to habitat containing other special-status plants (i.e., candidates, CNPS Lists 1B, 2).

Wetlands. Future development in the Draft General Plan area may result in loss of waters of the U.S. (including wetlands) or waters of the State. Placement of fill or work within jurisdictional areas are subject to regulation by federal and State agencies including the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Game. Development in the BART TOD area, Adventus parcel, and West Side area may affect jurisdictional areas. These development areas may contain, or border on, creeks and associated wetlands and may contain other jurisdictional areas such as vernal pools. Policies in the Draft General Plan address avoidance (OSC-1.2.P3, OSC-1.2.P5, OSC-1.2.P9, OSC-1.2.P10, and OSC-1.2.P11) and compensation (OSC-1.2.P4) for impacts to riparian areas and wetlands. Policy OSC.1.2.P7 acknowledges the separate federal and State processes that should be completed prior to construction within jurisdictional areas.

Active Raptor Nests. Development resulting from implementation of the Draft General Plan could result in loss of active raptor nests or nests that are used in multiple years by particular raptor species. Active raptor nests are protected under the California Fish and Game Code, Section 3503.5. As such, activities that result in the destruction or abandonment of the nest are violations of the State code. A number of raptor species occur in the Livermore Planning Area including common species such as red-tailed hawks as well as special-status species such as Swainson's hawks and burrowing owls. Habitats that support nesting raptors may be large or small. Urban areas as well as natural habitats may provide nesting sites. Active raptor nests should be avoided during the nesting season (approximately February 1 through September 1). Preconstruction surveys of nests should be conducted no more than 30 days prior to the initiation of construction activities to identify and avoid

[2] Special-status species are defined as species listed as threatened, endangered, or candidate species under the state or federal endangered species acts, species listed as rare under the state Fish and Game Code, and species the California Native Plant Society's List 1b or 2.

active nests. During the non-breeding season, raptor nests should also be avoided as some species may exhibit high nest site fidelity from year to year. In the non-breeding season, preconstruction surveys should be conducted to assess the location of potential nests and avoidance measures incorporated into the development plan. If nest sites are to be removed, then the California Department of Fish and Game should be consulted regarding appropriate mitigation measures. Implementation of policies OSC-1.2.P6 and P8 would reduce impacts to potential active raptor nests to a less than significant level.

storm water pollution prevention. The RWQCB maintains permit compliance with the NPDES Storm Water Discharge Permit and promotes storm water pollution prevention within that context. City compliance with the NPDES Permit is mandated by state and federal laws. In addition, new construction projects and ongoing industrial activities are required to comply with the storm water General Permits, as described below. Implementation of policies OSC-2.1.P1 and P2 would also assist in reducing impacts to water quality to a less-than-significant level.

New Construction. Projects disturbing more than one acre of land[1] during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the Statewide General Permit for Discharges of Storm Water Runoff Associated with Construction Activity. ~~A developer must propose control measures that are consistent with the State General Permit.~~ Under the City's municipal NPDES storm water permit, new development and significant redevelopment projects shall include appropriate source controls to prevent the discharge of urban runoff pollutants; design measures to minimize impervious surface; and, treatment controls to treat urban runoff from projects. There are more detailed requirements for projects with thresholds of 1 acre of new or replaced impervious surface as of February 15, 2005, falling to 10,000 square feet in August 2006. The NPDES Construction General Permit requires implementation and maintenance of appropriate erosion and sediment controls and site management controls in construction projects that disturb 1 acre or more of land. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. A SWPPP must include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project.

Industrial Activity. Certain types of industrial facilities also need to file an NOI to comply with the statewide General Permit for Storm Water Discharges Associated with Industrial Activities. The General Permit presents the requirements for compliance of certain industries with the NPDES program. A wide range of industries are covered under the General Permit, including mining operations, lumber and wood products facilities, petroleum refining, metal industries, and facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage. Projects shall be required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures, to reduce the discharge of stormwater pollutants to the maximum extent practicable. Compliance with existing regulations and the continued participation of the City of Livermore with the ACCWP reduces this potentially significant impact to a less-than-significant level.

Flooding Hazards. Flooding resulting from extreme storm events and/or catastrophic dam failure could affect the new and existing development within the General Plan area. However, policies contained in the Livermore Draft General Plan and existing programs adequately mitigate

[1] The State Water Resources Control Board, Water Quality Order 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) states that:

> The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five (5) or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. Regulations (Phase II Rule) that became final on December 8, 1999 expand the existing NPDES program to address storm water discharges from construction sites that disturb land equal to or greater than one (1) acre and less than five (5) acres (small construction activity). The regulations require that small construction activity, other than those regulated under an individual or Regional Water Quality Control Board General Permit, must be permitted no later than March 10, 2003.

potential flooding impacts. Specifically, policies PS-2.1.P1 through P9 ~~and actions PS-2.2.A5 and A6~~ require new development to be completed in a way that will minimize flood-related hazards and will not create new hazards for existing development. Therefore, potential impacts associated with flooding are considered less than significant.

Alteration of Waterways. Implementation of the Livermore Draft General Plan would result in new construction near existing creeks and arroyos. Substantial alteration of the direction of a water-course or disruption of seeps or springs that support watercourses could be considered a significant impact. However, policies contained in the Livermore Draft General Plan (including LU-4.1.P2, OSC-1.2.P3, OCS-1.2.P4, OCS-1.2.P10, OCS-1.3.A3, OCS-2.2.P1) adequately mitigate potential impacts to creeks and arroyos from new development by restricting encroachments into riparian

corridors. Therefore, potential impacts associated with alteration of waterways are considered less than significant.

Groundwater. Implementation of the Livermore Draft General Plan could affect the quantity and quality of water available in the Livermore Valley Groundwater Basin. Implementation of the Livermore Draft General Plan would result in creation of new impervious surfaces that may reduce the net infiltration of precipitation and subsequent recharge of the aquifer within the Planning Area, potentially impacting the total volume of groundwater stored in the Livermore Valley Groundwater Basin. Draft General Plan objective OSC-2.1 and supporting policies would expand efforts to ensure that development does not harm the water quality of Livermore's surface or groundwater and would preserve recharge areas and high permeability soils. Under the policy, developers would be required to mitigate possible adverse impacts upon such areas and no development would be permitted that would have substantial adverse impact. Policy OSC-2.1.P3 would require the City to work with Zone 7 to develop a develop a recharge areas map to guide future development. Developments proposed in areas designated as valuable recharge areas would be required to mitigate possible adverse impacts.

Growth and new development that require additional import of water to the basin, may also increase the importation of dissolved salts to the basin, exacerbating the existing aquifer salt-loading problem. Policies OSC-1.4.A2 ~~OSC-1.4.A6~~, OSC-2.1.P~~1~~3, P4, and P5 which require the City to work with Zone 7 to stream management and address salt-loading would mitigate impacts associated with this issue to a less-than-significant level.

(2) Significant Impacts. No significant impacts related to implementation of the proposed project were identified.

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Bring people into direct contact with hazardous materials on a listed hazardous materials site compiled pursuant to Government Code section 65962.5; or
- Impair the implementation or interfere with an emergency response or evacuation plan.

b. Impacts and Mitigation Measures. Hazardous materials are a citywide issue, and therefore, both plans are evaluated together under the following subsection.

(1) Less-than-Significant Impacts. The following is a discussion of less-than-significant impacts. The land use and policy changes proposed in the Draft General Plan and Downtown Specific Plan are not the sort of proposals that would significantly increase risks associated with hazardous materials. New residential uses are generally not being proposed or intensified in areas of known existing risks (e.g., the Lawrence Livermore National Labsoratoriesy).

Impacts from Routine Transport, Use, Production, Upset, or Disposal, of Hazardous Materials. Policies PS-4.1.P3 require that businesses using and transporting hazardous materials implement transportation safety measures, emergency response plans, and employee training. These policies will not prevent all potential hazardous material releases, but would serve to minimize both the frequency and magnitude of hazardous material releases. In combination with existing hazardous materials regulations, these policies would reduce the potential impacts from routine hazardous material use to a less-than-significant level.

Impacts from Contamination at Listed Hazardous Materials Sites. Reported releases of hazardous materials may potentially occur in commercial and industrial areas of the City, resulting in listing on regulatory lists compiled pursuant to Government Code section 65962.5. Policy PS-4.1.P5, requiring environmental investigation on sites historically used for commercial or industrial uses would reduce impacts from listed hazardous material sites to a less than significant level.

Impacts from Building Demolition and Renovation. Demolition and renovation of buildings constructed prior to 1990 could expose construction workers and the general public to lead and asbestos in building materials. The Draft General Plan encourages the redevelopment of several areas of the City, which will result in the renovation and demolition of existing buildings. If asbestos-containing materials and/or lead-based paint were present in buildings planned for demolition or renovation, construction workers and nearby residents and workers could be exposed to asbestos fibers and lead-based paint dust. Prior to 1978, lead compounds were commonly used in interior and exterior paints. Prior to the 1980s, building materials often contained asbestos fibers, which were used to provide strength and fire resistance to the materials. Demolition or renovation of structures constructed prior to these dates has the potential to release lead particles and/or asbestos fibers to the air, where they may be inhaled by construction workers and the general public.

Lead is a suspected human carcinogen, a known teratogen (i.e., causes birth defects), and a reproductive toxin. Federal and State regulations govern the renovation and demolition of structures where lead or material containing lead are present. Regulations pertaining to demolition of structures with lead-based paint are promulgated by federal and State agencies.

implementation could include glass that would cause glare. Such projects would be subject to individual environmental review, as required by CEQA, and would be evaluated for consistency with the Draft General Plan policies noted above.

(2) Significant Impacts of the Draft General Plan. Implementation of the Draft Specific Plan would not result in any significant impacts to visual resources.

c. Impacts and Mitigation Measures of the Downtown Specific Plan. The following discussion describes visual impacts associated with implementation of the Downtown Specific Plan. Mitigation measures are recommended, as appropriate.

(1) Less-than-Significant Impacts of the Downtown Specific Plan. Following is a summary of the less-than-significant impacts on visual resources that could result from implementation of the Downtown Specific Plan.

Conflict With Policies. The Overall Downtown Redevelopment Goal in the *Redevelopment Strategy and Urban Design Plan* (adopted in 1984) is to "Improve the business, visual, and cultural vitality of the Downtown to make it an urban center of distinction and character, and reestablish this historic focus of the City of Livermore's community life." The Downtown Specific Plan, which also seeks to improve the visual quality of Downtown through development standards and design guidelines, historic preservation, and streetscape improvements, is consistent with and would supersede the *Redevelopment Strategy and Urban Design Plan.*

Scenic Vistas and Views. Hillside views are available along Downtown Livermore streets, where a lack of structures allows for views of outlying areas. Views to outlying areas are restricted in many parts of Downtown due to the presence of buildings, which are generally higher and denser than in other parts of the City. Although roadways in and around Downtown would be modified through implementation of the Downtown Specific Plan (e.g., by reducing or increasing roadway capacity, adding traffic signals, and adding turn lanes), no major roadways would be eliminated. Views to hillsides along north/south and east/west roadways would be altered, but not eliminated, through implementation of the Downtown Specific Plan. In addition, pedestrian improvements proposed by the Specific Plan, including new sidewalk seating areas, pocket plazas, and outdoor eating areas, would increase opportunities for enjoying existing views.

~~Maximum b~~Building height in the Downtown Core may not exceed a maximum height of 3 floors and 40 feet. With a conditional use permit, the height allowance may be increased up to 4 floors and 50 feet in height (including subsurface or podium parking) for buildings with a street frontage of at least 90 feet in length. ~~would be four stories, and maximum building height in adjacent areas would be three stories.~~ Although these maximum building heights would represent an increase over the height of existing buildings (which are generally one and two stories), this Downtown Specific Plan policy would not result in a substantial adverse change in existing views. The development of taller buildings in Downtown would not affect most view corridors in Downtown Livermore, which are located along roadways or pedestrian sidewalks. Therefore, implementation of the Downtown Specific Plan would not result in a substantial adverse impact on scenic views or vistas.

Scenic Resources. Scenic resources in Downtown Livermore include tree-lined residential streetscapes and many individual historic buildings, which include a wide range of architectural styles. Chapter 6, Design Guidelines of the Downtown Specific Plan, recommends that new and renovated buildings contribute to the "sense of place" in Livermore through the use of historic design

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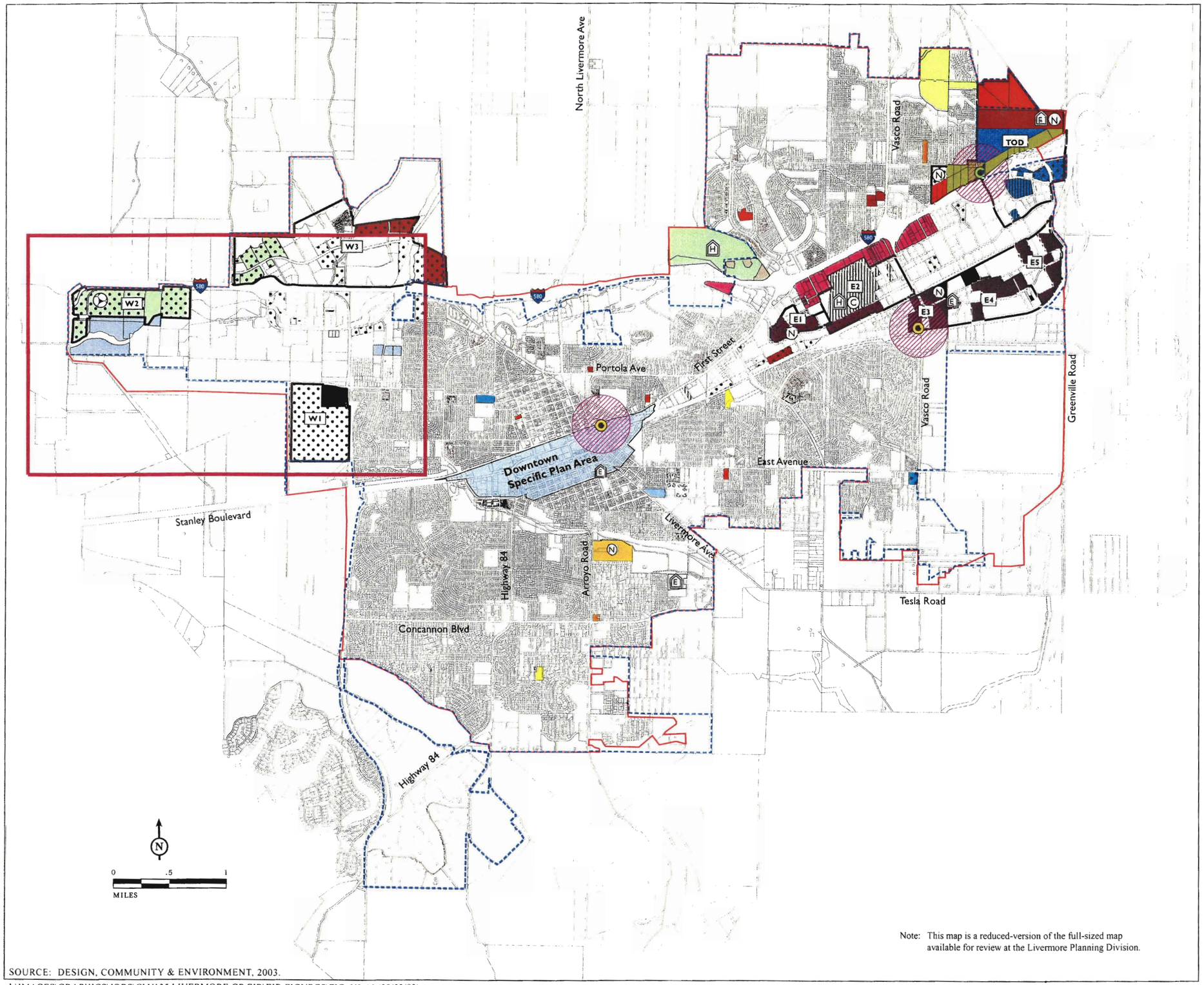

Urban Low Residential #1 (1.5 DU Acre)
Urban Low Residential #2 (2.0 DU Acre)
Urban Low Medium (3.0 DU Acre)
Urban Medium Residential (4.5 DU Acre)
Urban High Residential #2 (8-14 DU Acre)
Urban High Residential #3 (14-18 DU Acre)
Urban High Residential #4 (18-22 DU Acre)
Urban High Residential #5 (22-38 DU Acre)
Urban High Residential #6 (38-55 DU Acre)
Low Intensity Industrial
Low Density Mixed Use (12-15 DU Acre)
Medium Density Mixed Use (15-24 DU Acre)
High Density Mixed Use (38-55 DU Acre)
Service Commercial
BART Station and Parking
Airport Property Redesignation
Limited Agriculture
Airport Protection Area
Vacant
Underutilized
City Limit
Urban Growth Boundary
1/4 Mile Walking Radius for Transit Stations
BART Station
ACE Station
Sports Park
High School
Community Park
Elementary School
Neighborhood Park

Note: This map is a reduced-version of the full-sized map available for review at the Livermore Planning Division.

SOURCE: DESIGN, COMMUNITY & ENVIRONMENT, 2003.
I:\IMAGES\GRAPHICS\JOBS\CLV135 LIVERMORE GP EIR\EIR FIGURES\FIG_V2.AI (09/03/03)

FIGURE V-2

Livermore Draft General Plan and Downtown Specific Plan EIR
Draft General Plan Alternatives: Balanced Alternative

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C. REVISIONS TO DRAFT EIR TECHNICAL APPENDICES

APPENDIX C

PROJECTIONS BACKGROUND

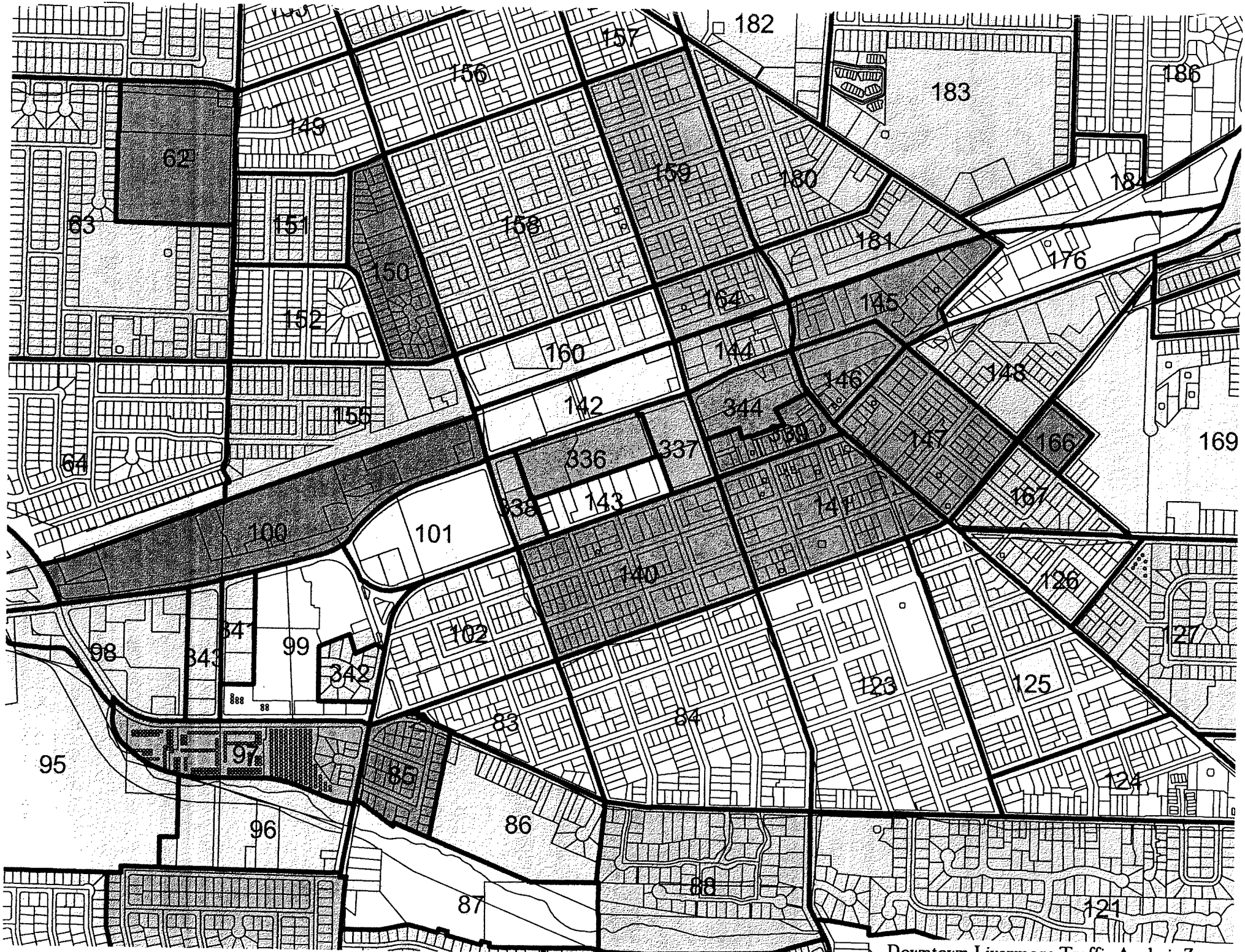
C-1 DRAFT GENERAL PLAN ASSUMPTIONS

C-2 DOWNTOWN SPECIFIC PLAN ASSUMPTIONS

C-3 DOWNTOWN TAZ MAP

APPENDIX C-3

DOWNTOWN TAZ MAP



Downtown Livermore Traffic Analysis Zones

APPENDIX D

TRAFFIC

APPENDIX D-1

PROPOSED FUTURE ROADWAY AND INTERCHANGE IMPROVEMENTS

Appendix D-1
Proposed Future Roadway and Interchange Improvements

Roadway	From / To	Existing Number of Lanes	Number of Lanes Indicated by Model Demand Estimates	Proposed No. Lanes with General Plan Improvements
I-580	El Charro to Greenville	8	n/a	8+Auxilliary+HOV
I-580/El Charro Rd Interchange		Existing	n/a	Ultimate
I-580/First St Interchange		Existing	n/a	Ultimate
I-580/Greenville Rd Interchange		Existing	n/a	Ultimate
I-580/Isabel Ave Interchange		0	n/a	Ultimate
I-580/Portola Ave Interchange		Existing	n/a	Remove
I-580/Vasco Rd Interchange		Existing	n/a	Ultimate
Route 84 (Vallecitos Rd)	Westerly from Isabel	2	4	4
Airway Blvd	Portola to I-580	2	4	2
Altamont Pass Rd	Easterly from Greenville	2	4	2
Chestnut St	P to Junction	4	2	2
First St	P to Maple	4	4	2
First St	Inman to Portola	4	6	4
First St	Portola to I-580	6	8	6
Greenville Rd	Patterson Pass to National	2	4	4
Greenville Rd	National to Los Positas	2	6	6
Greenville Rd	Los Positas to I-580	4	8	6
Greenville Rd	I-580 to Northfront	4	6	6
Isabel Ave	Portola to Jack London	0/4	6	6
Isabel Ave	Jack London to Stanley	2	6	6
Isabel Ave	Stanley to Vineyard	2	4	4
Isabel Ave	Vineyard to Vallecitos	2	4	4
Jack London Blvd	Westerly from Isabel	0	4	4
Las Positas Rd	N. Livermore to Lawrence	3-Feb	4	4
Los Colinas Rd extension	Los Colinas to Redwood	0	2	2
N Canyons Pkwy	westerly from Airway to Dublin	0	4	4
N Livermore Ave	I-580 to Las Positas	4	6	6
N Livermore Ave	Las Positas to Portola	4	6	4
North Mines Rd	Las Positas to First	2	4	2
North Mines Rd	First to Patterson Pass	4	6	4
Northfront Rd	Vasco to Herman	2	4	4
P St	Pine to Chestnut	4	2	2
Portola Ave	Murrieta to L	2	6	4
Portola Ave	Isabel to I-580	0	6	4
Portola Ave	Collier Canyon to Isabel	0/2	6	6
Railroad Ave	L to First	2	4	4
Scenic Ave	east end to Laughlin	0	2	2
Stanley Blvd	Isabel to Murrieta	4	6	6
Stanley Blvd	westerly from Isabel	4	6	6
Vasco Rd	West Gate to Patterson Pass	4	6	4
Vasco Rd	Patterson Pass to Las Positas	4	6	6
Vasco Rd	Las Positas to I-580	4	8	8
Vasco Rd	I-580 to Scenic	4	6	6
Vineyard Ave	westerly from Isabel	2	4	2

APPENDIX D-2

PROPOSED GENERAL PLAN ~~PROJECT~~ INTERSECTION IMPROVEMENTS RECOMMENDATIONS

Appendix D-2
Proposed General Plan Intersection Improvement Recommendations

ID	Intersection	Buildout LOS		Concept Improvements						
				Dual Left Turn Lanes	Add Thru Lanes	Add Right Turn Lane	Install Traffic Signal	LOS with Improvements		
		AM Peak	PM Peak					AM Peak	PM Peak	Notes
1	Airway Blvd/ I-580 EB Ramp	D	E					D	E	EBR & WBR overlap
2	Airway Blvd/ I-580 WB Ramp	F	C		1 NB			D	B	
3	Airway Blvd/ Kitty Hawk Road	B	F	SB				A	D	
6	College/ L street	E	F				X	A	A	Signal Warrants Satisfied, [a]
13	East Ave/ Maple St	C	D					B	B	WBR overlap
14	East Ave/ Mines Street	B	E	EB				C	D	
15	Fourth Street/ South Livermore to East Ave	E	F					E	F	[b]
17	East Stanley Blvd/ Isabel Connector Ramp	C	F			NB		B	B	NBR- Dual Right
19	East Stanley Blvd/ Murrieta Blvd	F	F	EB	1 SB, 1 NB			D	D	Restripe NB thu-left to left only, Restrip SB thru-left to thru only, Protective lefts NB/SB
22	First Street/ I-580 EB Ramps	F	C		1 SB			D	C	
23	First Street/ I-580 WB Ramps	D	F		1 NB			D	B	
24	First Street/ Inman Street	C	F					B	C	NBR overlap, [b]
25	First Street/ Las Positas Rd	F	F		1 EB, 1 WB			D	D	EBR & WBR overlap
26	First Street/ North Mines Rd	F	F		1 EB			E	E	[c]
27	First Street/ Old First Street	F	D					C	C	[b]
28	First Street/ Portola Ave	E	C		1 SB			D	C	
29	First Street/ Railroad Ave- Maple Street	F	F					F	F	[b]
30	First Street/ South L Street	C	E					C	E	[b]
31	First Street/ South Livermore Street	D	F					C	F	[b]

ID	Intersection	Buildout LOS		Concept Improvements						
								LOS with Improvements		
		AM Peak	PM Peak	Dual Left Turn Lanes	Add Thru Lanes	Add Right Turn Lane	Install Traffic Signal	AM Peak	PM Peak	Notes
33	First Street/ Southfront Street	E	F	SB, EB				E	E	Protective lefts EB/WB, NBR overlap, [c], [d]
37	Las Positas Road/ Greenvile Road	B	D		1 NB, 1 SB			B	C	
39	Northfront Rd/ Greenville Rd	F	F			NB	X	B	C	NBR - Dual right, Add WBL, Signal Warrants Satisfied, [a]
40	Patterson Pass Rd/ Greenville Rd	F	F				X	C	C	Add WBL, Signal Warrants Satisfied, [a]
41	Southfront Road/ Greenville Rd	E	E					A	C	Restripe SB thru to thur-right lane, SBR & EBR overlap, [d]
44	Concannon Blvd/ Holmes Street	C	E	EB, WB				C	D	
46	Fourth Street/ Holmes Street	D	D					D	D	[b]
49	Concannon Blvd/ Isabel Ave	F	E	WB	1 SB			D	B	NBR & WBR overlap
50	Stanley Connector Ramp/ Isabel Ave	F	D		1 NB, 1 SB	WB		C	C	WBR- Dual Right
51	East Vineyard Ave/ isable Ave	D	D		1 NB, 1 SB			B	B	SBR overlap
52	East Jack London Blvd/ Isabel Ave	F	F	SB		SB, EB, WB		D	D	WBR overlap
53	Las Positas Rd/ North Mines Rd	F	F	WB			X	A	C	Signal Warrants Satisfied, [a]
55	Patterson Pass Rd/ North Mines Rd	D	C					B	B	WBR overlap
56	Tesla Road/ Mines Road	F	F					A	A	Signal Warrants Satisfied, [a]
58	Jack London Blvd/ Murrieta Blvd	F	F					D	B	Restripe NB thru to thru-left, NB/SB to split phase, WBR overlap
60	North Canyons Parkway/ Airway Blvd	E	F	NB		EB		C	D	EBR-Dual Right
61	North Canyons Parkway/ Collier Canyon Rd	F	E	SB		SB		C	D	SBR & WBR overlap
64	North Livermore Ave/ I-580 EB Ramp	C	E	EB				B	B	
66	Las Positas Rd/ North Livermore Ave	F	F	SB		EB		B	C	Add NB thru-right lane
67	Portola Ave/ Livermore Ave	D	D					D	D	SBR overlap
68	Railroad Ave/ North Livermore Ave	F	F					F	F	[b]

ID	Intersection	Buildout LOS		Concept Improvements						
				Dual Left Turn Lanes	Add Thru Lanes	Add Right Turn Lane	Install Traffic Signal	LOS with Improvements		Notes
		AM Peak	PM Peak					AM Peak	PM Peak	
69	Junction Ave/ North Livermore Ave	F	F				X	A	B	Volume Warrant Satisfied, [a]
71	Northfront Road/ I-580 WB Ramp	[f]	[f]							
72	Pine Street/ North L Street	F	D				X	B	D	Signal Warrants Satisfied, [a]
73	Pine Street/ North P Street	F	D				X	A	B	Delay Warrant Satisfied, [a]
74	Portola Ave/ North L Street	C	D	NB				B	C	
75	Portola Ave/ Murrieta Blvd	C	F		1 NB, 1 SB			C	D	Add EB & SB right turn lane Unsplit EB & WB Phasing
76	North P Street- Paseo Laguna Seco/ Portola Ave	F	F				X	A	A	Signal Warrants Satisfied, [a]
77	Railroad Ave/ North L Street	D	F					D	F	[b]
78	Railroad Ave/ North P Street	C	D					B	D	[b]
79	Greenville Road / Tesla Road	F	F		1 EB, 1 WB, 1 SB		X	A	B	Signal Warrants Satisfied, [a]
82	Southfront Road/ I-580 EB Ramp	[f]	[f]							
83	Vallecitos Road/ Isabel Avenue	F	F		1 NB	EB		D	B	EBR - Dual Right
84	East Vineyard Avenue/ East Vallecitos Rd	D	F					A	B	Signal Warrants Satisfied, [a]
85	Brisa Street/ South Vasco Rd	C	F	EB				B	D	WBR overlap
86	Dalton Ave/ North Vasco Rd	F	F		1 NB	SB	X	B	C	Signal Warrants Satisfied, [a]
87	East Ave/ South Vasco Rd	C	D					C	C	SBR & WBR overlap
89	Industrial Drive/ South Vasco Rd	B	E					B	C	WBR overlap
90	Las Positas Rd/ South Vasco Rd	E	F	NB	1 NB, 1 SB			C	D	Add WB thru-right lane, WBR overlap
92	Northfront Rd/ North Vasco Rd	F	F					E	F	EBR overlap, [d]
93	Patterson Pass Rd/ South Vasco Rd	F	E	NB	1 NB, 1 WB	SB, WB		D	D	EB/WB protective lefts, EBR & WBR ovelap
94	Scenic Ave/ North Vasco Rd	E	C	WB				D	B	

ID	Intersection	Buildout LOS		Concept Improvements						
				Dual Left Turn Lanes	Add Thru Lanes	Add Right Turn Lane	Install Traffic Signal	LOS with Improvements		Notes
		AM Peak	PM Peak					AM Peak	PM Peak	
111	Isabel/ Airway	F	F	NB, SB		NB, 2 EB, SB		D	F	EBR & WBR overlap, [d]
112	Isabel/ I-580 EB Ramps	B	E					A	B	Requires 5-lane off ramp
114	Isabel/ Portola Extension	D	F			EB		B	B	EBR- Dual Right
117	Greenville Road / I-580 EB Ramps	F	F		1 NB, 1 SB			C	B	[d]
118	Greenville Road / I-580 WB Ramps	F	E	WB	1 NB, 1 SB	SB		B	A	
120	Vasco Road/ Preston	F	F	SB	1 NB, 1 SB	WB		C	E	Add WB right-thru lane, WBR overlap, [d]
122	Vasco Road/ WB Ramps	C	F			WB		B	C	WBR- Dual Right
123	Vasco Road/ EB Ramps	F	F	SB	1 NB, 1 SB	NB Free or Dual		D	F	[d]

Notes:

[a] This intersection may require signalization in the future. Peak Hour Volume and Peak Hour Delay signal warrants (per CalTrans) were assessed. Installation of a traffic signal would be recommended only upon completion of further studies, analyses of the other signal warrants and review and approval of the City Traffic Engineer.

[b] Improvements to this intersection are consistent with those described in the Downtown Livermore Specific Plan. Downtown Plan improvements are considered to be the maximum feasible/desirable improvements. In some cases, the resulting level of service is LOS E or F. Per General Plan Steering Committee, no level of service standard is proposed for Downtown.

[c] Forecast volumes would warrant additional intersection capacity beyond what is proposed in this table, however, further widening beyond what is proposed is not considered feasible or desirable due to right-of-way constraints, impacts to structures, impacts to residential neighborhoods or other reasons.

[d] Forecast volumes would warrant an eight-lane facility or other type of significant roadway widening/ improvement, however this location experiences significant non-local cut-through traffic, therefore widening beyond a six lane cross section is not recommended since it would only provide additional capacity for regional cut-through traffic intrusion.

[e] Level of Service E or F condition is projected on the minor street, while major street operates at an acceptable Level of Service. In some cases, it is acceptable to allow LOS E or F for minor street traffic since the minor street volumes are much lower, and the overall average vehicle delay is not critical.

[f] This intersection would not exist in the future based on the Planned Roadway improvements.

APPENDIX D-3

INTERSECTION ANALYSIS SUMMARY

Appendix D-3
Intersection Analysis Summary

No.	SIGNALIZED INTERSECTION	Existing Conditions				Future with Plan Buildout (2025) and Improvements				Locations Exceeding Mid-LOS D
		AM Peak		PM Peak		AM Peak		PM Peak		
		LOS	Average Control Delay (Sec/Veh)	LOS	Average Control Delay (Sec/Veh)	LOS	Average Control Delay (Sec/Veh)	LOS	Average Control Delay (Sec/Veh)	
1	Airway Blvd/ I-580 EB Ramp	E	74	C	32	D	39	E	75	X
2	Airway Blvd/ I-580 WB Ramp	B	13	B	16	D	53	B	13	X
3	Airway Blvd/ Kitty Hawk Road	C	28	C	22	A	9	D	39	
4	Concannon Blvd/ Arroyo Road	C	28	C	28	C	24	C	31	
5	Bluebell Drive/ Springtown Blvd	C	21	C	34	C	24	C	35	
7	Concannon Blvd/ S. Livermore	B	18	C	26	B	18	D	51	X
8	Concannon Blvd/ Murdell Lane	V	13	B	8	A	7	A	4	
9	East Ave/ Charlotte Way	C	27	B	18	B	16	B	12	
10	East Ave/ Dolores Street	B	18	C	20	B	12	C	22	
11	East Ave/ Hillcrest Ave	B	17	B	12	B	20	D	36	
12	East Ave/ Loyola Way	A	6	A	7	A	5	A	10	
13	East Ave/ Maple Street	B	11	B	11	B	13	B	20	
14	East Ave/ Mines Street	B	19	B	14	C	21	D	38	
15	Fourth Street/ South Livermore to East Ave	C	30	C	34	E	60	F	116	X
16	East Stanley Blvd/ Fenton Street	A	8	B	12	A	7	A	7	
17	East Stanley Blvd/ Isabel Connector Ramp	B	13	A	8	B	12	B	17	
18	East Stanley Blvd/ Murdel Lane	B	13	B	10	A	9	A	8	
19	East Stanley Blvd/ Murrieta Blvd	D	39	C	29	D	36	D	41	
20	East Stanley Blvd/ Wall Street	B	17	C	23	B	16	B	17	
21	East Stanley Blvd-Railroad Ave/ South S Street	B	16	B	15	C	22	D	38	
22	First Street/ I-580 EB Ramps	B	18	B	18	D	37	C	28	
23	First Street/ I-580 WB Ramps	D	35	C	33	D	47	B	14	X
24	First Street/ Inman Street	C	22	C	24	B	17	C	32	
25	First Street/ Las Positas Rd	B	13	C	32	D	53	D	53	X
26	First Street/ North Mines Rd	C	27	D	36	E	68	E	56	X
27	First Street/ Old First Street	B	16	B	17	C	23	C	33	
28	First Street/ Portola Ave	B	17	C	20	D	40	C	27	
29	First Street/ Railroad Ave- Maple Street	D	39	E	58	F	162	F	191	X
30	First Street/ South L Street	B	19	C	20	C	33	E	65	X
31	First Street/ South Livermore Avenue	C	27	C	31	C	32	F	87	X
32	First Street/ South P Street	B	19	C	21	C	23	D	36	
33	First Street/ Southfront Street	D	46	D	46	E	69	E	67	X
34	Fourth Street/ South P Street	B	10	B	11	A	5	A	7	
35	Fourth Street/ Inman Street	C	24	B	12	C	20	B	15	
36	Fourth Street/ Maple Street	C	21	B	12	B	13	B	17	
37	Las Positas Rd/ Greenville Rd	A	9	A	10	B	15	C	29	
38	National Drive/ Greenville Rd	A	4	A	8	A	8	B	12	
41	Southfront Road/ Greenville Rd	B	13	B	17	A	10	C	34	
43	Catalina Drive/ Holmes Street	B	18	B	16	A	9	B	10	
44	Concannon Blvd/ Holmes Street	C	24	C	26	C	23	D	39	
45	First Street/ Holmes Street	A	10	B	15	A	5	B	12	
46	Fourth Street/ Holmes Street	D	42	D	38	D	41	D	48	X
47	Mocho Street/ Holmes Street	B	10	A	7	A	7	A	6	
48	Vancouver Way- El Caminito/ Holmes Street	C	21	B	15	B	11	A	9	
49	Concannon Blvd/ Isabel Ave	C	20	C	25	D	43	B	18	
50	Stanley Connector Ramp/ Isabel Ave	C	23	C	24	C	31	C	21	
51	East Vineyard Avenue/ Isabel Ave	C	22	B	19	B	14	B	15	
52	East Jack London Blvd/ Isabel Ave	C	27	C	21	D	50	D	49	X
54	Audry Street- Charlotte Way/ North Mines Rd	C	30	C	29	C	23	C	22	
55	Patterson Pass Rd/ North Mines Rd	C	28	C	25	B	13	B	16	
57	Murrieta Blvd/ Fenton Street	A	7	A	9	A	7	A	5	
58	Jack London Blvd/ Murrieta Blvd	E	72	C	32	D	37	B	19	
59	Olivina Avenue/ Murrieta Blvd	C	29	C	27	C	32	D	44	
60	North Canyons Parkway/ Airway Blvd	B	15	B	14	C	23	D	41	
61	North Canyons Parkway/ Collier Canyon Rd	B	19	C	23	C	35	D	45	
62	Chestnut Street/ North Livermore Ave	C	30	C	21	C	27	C	35	
63	Cromwell Way/ North Livermore Ave	A	10	B	13	A	6	A	10	
64	North Livermore Ave/ I-580 EB Ramp	B	16	C	21	B	13	B	16	
65	North Livermore Ave/ I-580 WB Ramp	C	25	C	23	B	14	B	11	
66	Las Positas Rd/ North Livermore Ave	C	28	C	33	B	18	C	24	
67	Portola Ave/ North Livermore Ave	D	35	C	32	D	36	D	36	
68	Railroad Ave/ North Livermore Ave	C	28	C	30	F	172	F	84	X
70	Olivina Avenue- Chestnut Street/ North P Street	C	24	C	23	C	20	C	26	
74	Portola Ave/ North L Street	B	15	C	29	B	16	C	32	
75	Portola Ave/ Murrieta Blvd	B	20	C	28	C	23	D	44	
77	Railroad Ave/ North L Street	C	20	C	24	D	36	F	114	X
78	Railroad Ave/ North P Street	C	25	C	29	B	20	D	52	X
80	Fourth Street/ South L Street	B	16	B	16	B	18	D	36	
81	Second Street/ South L Street	B	14	B	16	A	7	A	9	
83	Vallecitos Road/ Isabel Avenue	C	34	B	17	D	36	B	15	
85	Brisa Street/ South Vasco Rd	B	16	C	25	B	12	D	40	
87	East Ave/ South Vasco Rd	C	28	C	29	C	21	C	32	
88	Garaventa Ranch Rd/ North Vasco Rd	NA	NA	B	16	B	11	C	22	

Appendix D-3
Intersection Analysis Summary

89	Industrial Drive/ South Vasco Rd	B	10	C	23	B	12	C	30	
90	Las Positas Rd/ South Vasco Rd	B	17	B	18	C	32	D	43	
91	Mesquite Way- Emily Way/ South Vasco Rd	A	7	A	10	A	4	A	3	
92	Northfront Rd/ North Vasco Rd	C	34	C	25	E	78	F	83	X
93	Patterson Pass Rd/ South Vasco Rd	D	40	C	21	D	43	D	42	
94	Scenic Ave/ North Vasco Rd	B	19	B	18	D	38	B	17	
111	Isabel/ Airway					D	45	F	126	X
112	Isabel/ I-580 EB Ramps					A	8	B	14	
113	Isabel/ I-580 WB Ramps					B	11	A	9	
114	Isabel/ Portola Extension					B	14	B	13	
117	Greenville Road / I-580 EB Ramps					C	24	B	17	
118	Greenville Road / I-580 WB Ramps					B	14	A	9	
120	Vasco Road/ Preston					C	20	E	79	X
122	Vasco Road/ WB Ramps					B	19	C	31	
123	Vasco Road/ EB Ramps					D	45	F	149	X

6	College/ L street*	E	38	D	28	A	7	A	9	
72	Pine Street/ North L Street*	NA	NA	A	9	B	17	D	25	
73	Pine Street/ North P Street*	B	13	B	11	A	9	B	12	
79	Greenville Road / Tesla Road*	F	65	F	62	A	5	B	11	
82	Southfront Road/ I-580 EB Ramps*	B	12	E	47	A	8	A	4	

39	Northfront Rd/ Greenville Rd*	F	75	F	261	B	11	C	33	
40	Patterson Pass Rd/ Greenville Rd*	F	OVRFL	F	OVRFL	C	35	C	26	
42	Alden Lane/ Holmes Street*	E	40	F	133	A	4	A	8	
53	Las Positas Rd/ North Mines Rd*	F	64	F	114	A	7	C	27	
56	Tesla Road/ Mines Road*	E	37	E	47	A	2	A	2	
69	Junction Ave/ North Livermore* Ave	F	130	F	62	A	8	B	13	
71	Northfront/ I-580 WB Ramps*	F	176	C	23	C	31	A	2	
76	North P Street- Paseo Laguna Seco/ Portola Ave*	F	OVRFL	F	50	A	6	A	2	
84	East Vineyard Avenue/ East Vallecitos Rd*	D	31	F	515	A	3	B	12	
86	Dalton Ave/ North Vasco Rd*	E	38	F	503	B	16	C	24	

*** Intersection to be signalized in Future with Plan Buildout (2025) Conditions**

APPENDIX D-6

GENERAL PLAN BUILDOUT LEVEL OF SERVICE WORKSHEETS

Future Preferred AM Wed Aug 20, 2003 17:14:58 Page 1-1

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Scenario Report

Scenario:	Future Preferred AM
Command:	Future Preferred AM
Volume:	Future Preferred AM
Geometry:	Future Scenarios Modified to Planned AM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Paths
Routes:	Default Routes
Configuration:	AM Peak

Future Preferred AM Wed Aug 20, 2003 17:15:03 Page 2-1

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Airway Blvd./I-580 Eastbound r	D	38.8	0.990	D	38.8	0.990	+ 0.000 D/V
# 2 Airway Blvd./ I-580 Westbound	D	53.0	1.081	D	53.0	1.081	+ 0.000 D/V
# 3 Airway Blvd./ Kitty Hawk	A	8.6	0.577	A	8.6	0.577	+ 0.000 D/V
# 4 Concannon Boulevard/ Arroyo Ro	C	23.9	0.619	C	23.9	0.619	+ 0.000 D/V
# 5 Bluebell Drive/ Springtown Bou	C	24.2	0.534	C	24.2	0.534	+ 0.000 D/V
# 6 College/ L Street	A	7.0	0.463	A	7.0	0.463	+ 0.000 D/V
# 7 Concannon Boulevard/ S. Liverm	B	18.2	0.666	B	18.2	0.666	+ 0.000 D/V
# 8 Concannon Boulevard/ Murdell L	A	5.7	0.362	A	5.7	0.362	+ 0.000 D/V
# 9 East Avenue/ Charlotte Way	B	16.4	0.703	B	16.4	0.703	+ 0.000 D/V
# 10 East Avenue/ Dolores Street	B	12.1	0.554	B	12.1	0.554	+ 0.000 D/V
# 11 East Avenue/ Hillcrest Avenue	B	19.7	0.712	B	19.7	0.712	+ 0.000 D/V
# 12 East Avenue/ Loyola Way	A	4.9	0.454	A	4.9	0.454	+ 0.000 D/V
# 13 East Avenue/ Maple Street	B	12.5	0.839	B	12.5	0.839	+ 0.000 D/V
# 14 East Avenue/ Mines Road	C	21.0	0.691	C	21.0	0.691	+ 0.000 D/V
# 15 Fourth Street/ South Livermore	E	59.5	0.959	E	59.5	0.959	+ 0.000 D/V
# 16 East Stanley Boulevard/ Penton	A	6.7	0.440	A	6.7	0.440	+ 0.000 D/V
# 17 East Stanley Boulevard/ Isabel	B	11.8	0.775	B	11.8	0.775	+ 0.000 D/V
# 18 East Stanley Boulevard/ Murdel	A	9.1	0.653	A	9.1	0.653	+ 0.000 D/V
# 19 East Stanley Boulevard/ Murrie	D	35.7	0.901	D	35.7	0.901	+ 0.000 D/V
# 20 East Stanley Boulevard/ Wall S	B	15.7	0.749	B	15.7	0.749	+ 0.000 D/V
# 21 East Stanley Boulevard-Railroa	C	21.8	0.625	C	21.8	0.625	+ 0.000 D/V
# 22 First Street/ I-580 Eastbound	D	36.6	0.985	D	36.6	0.985	+ 0.000 D/V
# 23 First Street/ I-580 Westbound	D	46.9	1.050	D	46.9	1.050	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 24 First Street/ Inman Street	B	16.5	0.705	B	16.5	0.705	+ 0.000 D/V
# 25 First Street/ Las Positas Road	D	52.7	1.016	D	52.7	1.016	+ 0.000 D/V
# 26 First Street/ North Mines Road	E	68.1	1.138	E	68.1	1.138	+ 0.000 D/V
# 27 First Street/ Old First Street	C	22.7	0.869	C	22.7	0.869	+ 0.000 D/V
# 28 First Street/ Portola Avenue	D	39.9	0.945	D	39.9	0.945	+ 0.000 D/V
# 29 First Street/ Railroad Avenue-	F	164.2	1.395	F	164.2	1.395	+ 0.000 D/V
# 30 First Street/ South L Street	C	32.9	0.919	C	32.9	0.919	+ 0.000 D/V
# 31 First Street/ South Livermore	C	31.7	0.900	C	31.7	0.900	+ 0.000 D/V
# 32 First Street/ South P Street	C	23.1	0.785	C	23.1	0.785	+ 0.000 D/V
# 33 First Street/ Southfront Road	E	69.2	1.020	E	69.2	1.020	+ 0.000 D/V
# 34 Fourth Street/ South P Street	A	5.1	0.286	A	5.1	0.286	+ 0.000 D/V
# 35 Fourth Street/ Inman Street	C	20.4	0.828	C	20.4	0.828	+ 0.000 D/V
# 36 Fourth Street/ Maple Street	B	13.0	0.756	B	13.0	0.756	+ 0.000 D/V
# 37 Las Positas Road/ Greenville R	B	14.6	0.632	B	14.6	0.632	+ 0.000 D/V
# 38 National Drive/ Greenville Roa	A	8.4	0.544	A	8.4	0.544	+ 0.000 D/V
# 39 Northfront Road/ Greenville Ro	B	11.1	0.892	B	11.1	0.892	+ 0.000 D/V
# 40 Patterson Pass Road/ Greenvill	C	34.9	0.940	C	34.9	0.940	+ 0.000 D/V
# 41 Southfront Road/ Greenville Ro	A	9.6	0.865	A	9.6	0.865	+ 0.000 D/V
# 42 Alden Lane/ Holmes Street	A	4.2	0.595	A	4.2	0.595	+ 0.000 D/V
# 43 Catalina Drive/ Holmes Street	A	9.1	0.593	A	9.1	0.593	+ 0.000 D/V
# 44 Concannon Boulevard/ Holmes St	C	23.3	0.700	C	23.3	0.700	+ 0.000 D/V
# 45 First Street/ Holmes Street	A	5.4	0.358	A	5.4	0.358	+ 0.000 D/V
# 46 Fourth Street/ Holmes Street	D	38.4	0.940	D	38.4	0.940	+ 0.000 D/V
# 47 Mocho Street/ Holmes Street	A	6.7	0.565	A	6.7	0.565	+ 0.000 D/V
# 48 Vancouver Way- El Caminito/ Ho	B	10.9	0.516	B	10.9	0.516	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 49 Concannon Boulevard/ Isabel Av	D	42.5	0.985	D	42.5	0.985	+ 0.000 D/V
# 50 Isable Avenue/Stanley Connecto	C	30.5	0.974	C	30.5	0.974	+ 0.000 D/V
# 51 East Vineyard Avenue/ Isabel A	B	13.7	0.767	B	13.7	0.767	+ 0.000 D/V
# 52 East Jack London Boulevard/ Is	D	49.5	1.026	D	49.5	1.026	+ 0.000 D/V
# 53 Las Positas Road/ North Mines	A	6.7	0.692	A	6.7	0.692	+ 0.000 D/V
# 54 North Mines Road/Charlotte Way	C	23.0	0.479	C	23.0	0.479	+ 0.000 D/V
# 55 Patterson Pass Road/ North Min	B	13.4	0.816	B	13.4	0.816	+ 0.000 D/V
# 56 Tesla Road/ Mines Road	A	1.8	0.648	A	1.8	0.648	+ 0.000 D/V
# 57 Murrieta Boulevard/ Fenton Str	A	6.7	0.692	A	6.7	0.692	+ 0.000 D/V
# 58 Jack London Boulevard/ Murriet	D	37.0	0.911	D	37.0	0.911	+ 0.000 D/V
# 59 Olivina Avenue/ Murrieta Boule	C	32.2	0.802	C	32.2	0.802	+ 0.000 D/V
# 60 North Canyons Parkway/ Airway	C	23.3	0.763	C	23.3	0.763	+ 0.000 D/V
# 61 North Canyons Parkway/ Collier	C	34.9	0.867	C	34.9	0.867	+ 0.000 D/V
# 62 Chestnut Street/ North Livermo	C	26.9	0.825	C	26.9	0.825	+ 0.000 D/V
# 63 Cromwell Way/ North Livermore	A	6.1	0.481	A	6.1	0.481	+ 0.000 D/V
# 64 North Livermore Avenue/ I-580	B	12.6	0.642	B	12.6	0.642	+ 0.000 D/V
# 65 North Livermore Avenue/ I-580	B	13.9	0.586	B	13.9	0.586	+ 0.000 D/V
# 66 Las Positas Road/ North Liverm	B	18.3	0.755	B	18.3	0.755	+ 0.000 D/V
# 67 Portola Avenue/ North Livermor	D	36.0	0.904	D	36.0	0.904	+ 0.000 D/V
# 68 Railroad Avenue/ North Livermo	F	171.5	1.462	F	171.5	1.462	+ 0.000 D/V
# 69 Junction Avenue/ North Livermo	A	7.6	0.679	A	7.6	0.679	+ 0.000 D/V
# 70 Olivina Avenue- Chestnut Stree	B	19.5	0.674	B	19.5	0.674	+ 0.000 D/V
# 71 Northfront/ I-580 Westbound Ra	C	31.4	0.978	C	31.4	0.978	+ 0.000 D/V
# 72 Pine Street/ North L Street	B	16.9	0.624	B	16.9	0.624	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 73 Pine Street/ North P Street	A	8.5	0.480	A	8.5	0.480	+ 0.000 D/V
# 74 Portola Avenue/ North L Street	B	16.1	0.881	B	16.1	0.881	+ 0.000 D/V
# 75 Portola Avenue/ Murrieta Boule	C	23.0	0.927	C	23.0	0.927	+ 0.000 D/V
# 76 North P Street - Paseo Laguna	B	13.0	0.929	B	13.0	0.929	+ 0.000 D/V
# 77 Railroad Avenue/ North L Stree	D	36.1	0.916	D	36.1	0.916	+ 0.000 D/V
# 78 Railroad Avenue/ North P Stree	B	19.9	0.665	B	19.9	0.665	+ 0.000 D/V
# 79 Tesla Road/Greenville Road	A	5.0	0.461	A	5.0	0.461	+ 0.000 D/V
# 80 Fourth Street/ South L Street	B	17.8	0.726	B	17.8	0.726	+ 0.000 D/V
# 81 Second Street/ South L Street	A	7.4	0.422	A	7.4	0.422	+ 0.000 D/V
# 82 Southfront Road/ I-580 Eastbou	A	7.6	0.622	A	7.6	0.622	+ 0.000 D/V
# 83 Vallecitos Road/ Isabel Avenue	D	35.7	1.015	D	35.7	1.015	+ 0.000 D/V
# 84 East Vineyard Avenue/ East Val	A	3.0	0.508	A	3.0	0.508	+ 0.000 D/V
# 85 Brisa Street/ South Vasco Road	B	11.6	0.655	B	11.6	0.655	+ 0.000 D/V
# 86 Dalton Avenue/ North Vasco Roa	B	15.5	0.900	B	15.5	0.900	+ 0.000 D/V
# 87 East Avenue/ South Vasco Road	C	21.1	0.698	C	21.1	0.698	+ 0.000 D/V
# 88 Garaventa Ranch Road/ North Va	B	10.7	0.739	B	10.7	0.739	+ 0.000 D/V
# 89 Industrial Drive/ South Vasco	B	12.0	0.893	B	12.0	0.893	+ 0.000 D/V
# 90 Las Positas Road/ South Vasco	C	31.9	0.866	C	31.9	0.866	+ 0.000 D/V
# 91 Mesquite Way- Emily Way/ South	A	3.5	0.377	A	3.5	0.377	+ 0.000 D/V
# 92 Northfront Road/ North Vasco R	E	77.7	1.092	E	77.7	1.092	+ 0.000 D/V
# 93 Patterson Pass Road/ South Vas	D	42.9	0.998	D	42.9	0.998	+ 0.000 D/V
# 94 Scenic Avenue/ North Vasco Roa	D	37.7	1.034	D	37.7	1.034	+ 0.000 D/V
#111 Isabel/Airway	D	44.7	0.969	D	44.7	0.969	+ 0.000 D/V
#112 Isabel / I580 eb Ramps	A	7.5	0.678	A	7.5	0.678	+ 0.000 D/V
#113 Isabel/I580 wb Ramps	B	10.9	0.749	B	10.9	0.749	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
#114 Isabel/Portola Extension	B	13.7	0.791	B	13.7	0.791	+ 0.000 D/V
#117 Greenville Rd/ I-580 EB Ramps	C	24.0	0.968	C	24.0	0.968	+ 0.000 D/V
#118 Greenville Rd/ I-580 WB Ramps	B	14.3	0.827	B	14.3	0.827	+ 0.000 D/V
#120 Vasco Rd/ Preston	C	20.2	0.960	C	20.2	0.960	+ 0.000 D/V
#122 Vasco/ WB Ramps	B	18.9	0.952	B	18.9	0.952	+ 0.000 D/V
#123 Vasco/ EB Ramps	D	44.9	1.025	D	44.9	1.025	+ 0.000 D/V

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #1 Airway Blvd./I-580 Eastbound ramp

Cycle (sec):	90	Critical Vol./Cap. (X):	0.990
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	38.8
Optimal Cycle:	161	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ignore			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	2	0 1	0 1	1	0 1	0 1
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	0.19	0.19	0.14	0.28	0.00	0.52	0.52	0.57	0.01	0.01	0.16
Volume/Cap:	0.13	0.99	0.99	0.99	0.13	0.00	0.84	0.33	0.91	0.97	0.99	0.40
Delay/Veh:	41.4	68.1	68.1	91.3	24.0	0.0	22.3	12.9	30.6	203.7	209	34.9
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:	41.4	68.1	68.1	91.3	24.0	0.0	22.3	12.9	30.6	203.7	209	34.9
DesignQueue:	1	29	0	11	5	0	41	8	20	1	1	4

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #2 Airway Blvd./ I-580 Westbound ramp

Cycle (sec):	50	Critical Vol./Cap. (X):	1.081
Loss Time (sec):	9 (Y+R = 4 sec)	Average Delay (sec/veh):	53.0
Optimal Cycle:	164	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Permitted		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 3	0 1	0	0 3	0 1	0	0 0	0 0	1	1 0	0 2
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #3 Airway Blvd./ Kitty Hawk

Cycle (sec): 105 Critical Vol./Cap. (X): 0.577
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 8.6
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 1	1	0 1	2	0 1	1 0	0	1 0	0 1	0	1 0	0 1
Volume Module:												
Base Vol:	0	0	0	218	0	1	0	853	0	0	727	605
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	0	0	218	0	1	0	853	0	0	727	605
User 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
PHF 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
PHF Volume:	0	0	0	218	0	1	0	853	0	0	727	605
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	218	0	1	0	853	0	0	727	605
PCE 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
MLF 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
Final Vol.:	0	0	0	218	0	1	0	853	0	0	727	605
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	0.92	0.95	0.81	1.00	1.00	1.00	1.00	1.00	0.85
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1805	3610	1900	3502	1805	1534	0	1900	1900	0	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.45	0.00	0.00	0.38	0.37
Crit Moves:				****				****				
Green/Cycle:	0.00	0.00	0.00	0.11	0.00	0.11	0.00	0.78	0.00	0.00	0.78	0.78
Volume/Cap:	0.00	0.00	0.00	0.58	0.00	0.01	0.00	0.58	0.00	0.00	0.49	0.48
Delay/Veh:	0.0	0.0	0.0	46.8	0.0	41.8	0.0	5.3	0.0	0.0	4.5	4.4
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	0.0	0.0	46.8	0.0	41.8	0.0	5.3	0.0	0.0	4.5	4.4
DesignQueue:	0	0	0	12	0	0	0	13	0	0	10	9

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #4 Concannon Boulevard/ Arroyo Road

Cycle (sec): 80 Critical Vol./Cap. (X): 0.619
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 23.9
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	115	200	138	42	218	136	71	519	100	121	586	58
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:	115	200	138	42	218	136	71	519	100	121	586	58
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:	115	200	138	42	218	136	71	519	100	121	586	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	200	138	42	218	136	71	519	100	121	586	58
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.:	115	200	138	42	218	136	71	519	100	121	586	58
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	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 Sat.:	1805	1900	1615	1805	1900	1615	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.06	0.11	0.09	0.02	0.11	0.08	0.04	0.27	0.06	0.07	0.31	0.04
Crit Moves:	****				****		****				****	
Green/Cycle:	0.10	0.24	0.24	0.05	0.19	0.19	0.06	0.45	0.45	0.11	0.50	0.50
Volume/Cap:	0.62	0.45	0.36	0.45	0.62	0.45	0.62	0.61	0.14	0.61	0.62	0.07
Delay/Veh:	40.6	26.8	26.1	40.1	33.3	30.1	46.4	17.8	12.9	39.1	15.8	10.5
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:	40.6	26.8	26.1	40.1	33.3	30.1	46.4	17.8	12.9	39.1	15.8	10.5
DesignQueue:	5	7	5	2	8	5	3	14	2	5	14	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #5 Bluebell Drive/ Springtown Boulevard

Cycle (sec): 105 Critical Vol./Cap. (X): 0.534
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 24.2
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1	1 0	1	0 2	0 0	0	0 0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	274	274	157	741	0	0	0	0	829	0	34
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	274	274	157	741	0	0	0	0	829	0	34
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	274	274	157	741	0	0	0	0	829	0	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	274	274	157	741	0	0	0	0	829	0	34
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	274	274	157	741	0	0	0	0	829	0	34
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.88	0.88	0.95	0.95	1.00	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	0.00	1.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	1670	1670	1805	3610	0	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.16	0.16	0.09	0.21	0.00	0.00	0.00	0.00	0.24	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.31	0.31	0.16	0.47	0.00	0.00	0.00	0.00	0.44	0.00	0.44
Volume/Cap:	0.00	0.53	0.53	0.53	0.44	0.00	0.00	0.00	0.00	0.53	0.00	0.05
Delay/Veh:	0.0	30.7	30.7	42.2	18.7	0.0	0.0	0.0	0.0	21.6	0.0	16.6
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	30.7	30.7	42.2	18.7	0.0	0.0	0.0	0.0	21.6	0.0	16.6
DesignQueue:	0	12	12	8	24	0	0	0	0	29	0	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #6 College/ L Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.463
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.0
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1
Volume Module:												
Base Vol:	56	476	108	49	298	57	9	167	57	133	117	42
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	476	108	49	298	57	9	167	57	133	117	42
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	476	108	49	298	57	9	167	57	133	117	42
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	476	108	49	298	57	9	167	57	133	117	42
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	476	108	49	298	57	9	167	57	133	117	42
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.94	0.94	0.85	0.91	0.91	0.85	0.99	0.99	0.85	0.79	0.79	0.85
Lanes:	0.11	0.89	1.00	0.14	0.86	1.00	0.05	0.95	1.00	0.53	0.47	1.00
Final Sat.:	189	1603	1615	244	1486	1615	96	1778	1615	800	703	1615
Capacity Analysis Module:												
Vol/Sat:	0.30	0.30	0.07	0.20	0.20	0.04	0.09	0.09	0.04	0.17	0.17	0.03
Crit Moves:		****									****	
Green/Cycle:	0.64	0.64	0.64	0.64	0.64	0.64	0.36	0.36	0.36	0.36	0.36	0.36
Volume/Cap:	0.46	0.46	0.10	0.31	0.31	0.06	0.26	0.26	0.10	0.46	0.46	0.07
Delay/Veh:	4.9	4.9	3.5	4.2	4.2	3.4	11.5	11.5	10.7	13.0	13.0	10.6
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:	4.9	4.9	3.5	4.2	4.2	3.4	11.5	11.5	10.7	13.0	13.0	10.6
DesignQueue:	1	5	1	1	3	1	0	3	1	2	2	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #7 Concannon Boulevard/ S. Livermore Avenue

Cycle (sec): 105 Critical Vol./Cap. (X): 0.666
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 18.2
Optimal Cycle: 48 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:												
Base Vol:	157	0	594	0	0	0	0	265	80	691	388	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:	157	0	594	0	0	0	0	265	80	691	388	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:	157	0	594	0	0	0	0	265	80	691	388	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	157	0	594	0	0	0	0	265	80	691	388	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.:	157	0	594	0	0	0	0	265	80	691	388	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	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	1900	1615	1805	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.09	0.00	0.37	0.00	0.00	0.00	0.00	0.14	0.05	0.38	0.20	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.13	0.00	0.70	0.00	0.00	0.00	0.00	0.21	0.21	0.57	0.78	0.00
Volume/Cap:	0.67	0.00	0.52	0.00	0.00	0.00	0.00	0.67	0.24	0.67	0.26	0.00
Delay/Veh:	50.6	0.0	7.7	0.0	0.0	0.0	0.0	42.4	34.9	17.1	3.2	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:	50.6	0.0	7.7	0.0	0.0	0.0	0.0	42.4	34.9	17.1	3.2	0.0
DesignQueue:	8	0	11	0	0	0	0	13	4	19	5	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #8 Concannon Boulevard/ Murdell Lane

Cycle (sec): 50 Critical Vol./Cap. (X): 0.362
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 5.7
Optimal Cycle: 29 Level Of Service: A

Approach:	North Bound			South Bound			East Bound						West Bound		
Movement:	L	T	R	L	T	R	L	T	R				L	T	R
Control:	Permitted			Permitted			Protected						Protected		
Rights:	Include			Include			Include						Include		
Min. Green:	0	0	0	0	0	0	0	0	0				0	0	0
Lanes:	0	1	0	0	1	0	1	0	0	0	1	1	0	2	0	1	1	0	2	0	1
Volume Module:																					
Base Vol:	110	20	22	49	20	87	34	439	42				14	916	20
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:	110	20	22	49	20	87	34	439	42				14	916	20
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:	110	20	22	49	20	87	34	439	42				14	916	20
Reduct Vol:	0	0	0	0	0	0	0	0	0				0	0	0
Reduced Vol:	110	20	22	49	20	87	34	439	42				14	916	20
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.:	110	20	22	49	20	87	34	439	42				14	916	20
Saturation Flow Module:																					
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900				1900	1900	1900
Adjustment:	0.76	0.76	0.85	0.81	0.81	0.85	0.95	0.95	0.85				0.95	0.95	0.85
Lanes:	0.85	0.15	1.00	0.71	0.29	1.00	1.00	2.00	1.00				1.00	2.00	1.00
Final Sat.:	1225	223	1615	1088	444	1615	1805	3610	1615				1805	3610	1615
Capacity Analysis Module:																					
Vol/Sat:	0.09	0.09	0.01	0.05	0.05	0.05	0.02	0.12	0.03				0.01	0.25	0.01
Crit Moves:		****			****			****						****	
Green/Cycle:	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.71	0.71				0.05	0.70	0.70
Volume/Cap:	0.36	0.36	0.05	0.18	0.18	0.22	0.36	0.17	0.04				0.17	0.36	0.02
Delay/Veh:	16.2	16.2	14.4	15.0	15.0	15.2	25.3	2.5	2.2				24.0	3.1	2.3
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:	16.2	16.2	14.4	15.0	15.0	15.2	25.3	2.5	2.2				24.0	3.1	2.3
DesignQueue:	2	0	0	1	0	2	1	4	0				0	8	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #9 East Avenue/ Charlotte Way

Cycle (sec):	50	Critical Vol./Cap. (X):	0.703
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	16.4
Optimal Cycle:OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	1	0	0 1	0	2	0 1	1	0 2	0 1
Volume Module:													
Base Vol:	64	11	62	169	8	240	77	1145	17	53	448	39
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:	64	11	62	169	8	240	77	1145	17	53	448	39
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:	64	11	62	169	8	240	77	1145	17	53	448	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	64	11	62	169	8	240	77	1145	17	53	448	39
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.:	64	11	62	169	8	240	77	1145	17	53	448	39
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.87	0.87	0.95	0.86	0.86	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	0.15	0.85	1.00	0.03	0.97	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1805	250	1409	1805	52	1572	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.09	0.15	0.15	0.04	0.32	0.01	0.03	0.12	0.02
Crit Moves:	****				****			****		****		
Green/Cycle:	0.05	0.09	0.09	0.18	0.22	0.22	0.13	0.45	0.45	0.04	0.37	0.37
Volume/Cap:	0.70	0.51	0.51	0.51	0.70	0.70	0.34	0.70	0.02	0.70	0.34	0.07
Delay/Veh:	45.3	25.1	25.1	19.9	24.4	24.4	20.8	12.5	7.6	49.5	11.6	10.3
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:	45.3	25.1	25.1	19.9	24.4	24.4	20.8	12.5	7.6	49.5	11.6	10.3
DesignQueue:	2	0	2	4	0	5	2	19	0	1	8	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #10 East Avenue/ Dolores Street

Cycle (sec):	65	Critical Vol./Cap. (X):	0.554
Loss Time (sec):	9 (Y+R = 4 sec)	Average Delay (sec/veh):	12.1
Optimal Cycle:OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	0	0	0 0	0	0	1	0	2	0 1	1	0	2	0 0
Volume Module:													
Base Vol:	72	0	207	0	0	0	2	947	20	156	1105	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:	72	0	207	0	0	0	2	947	20	156	1105	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:	72	0	207	0	0	0	2	947	20	156	1105	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	0	207	0	0	0	2	947	20	156	1105	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.:	72	0	207	0	0	0	2	947	20	156	1105	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	0.95	0.85	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	1805	3610	1615	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.00	0.13	0.00	0.00	0.00	0.00	0.26	0.01	0.09	0.31	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.23	0.00	0.23	0.00	0.00	0.00	0.00	0.47	0.47	0.16	0.63	0.00
Volume/Cap:	0.17	0.00	0.55	0.00	0.00	0.00	0.00	0.49	0.55	0.03	0.55	0.49	0.00
Delay/Veh:	20.2	0.0	23.8	0.0	0.0	0.0	102.8	12.6	9.1	27.7	6.7	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	23.8	0.0	0.0	0.0	102.8	12.6	9.1	27.7	6.7	0.0
DesignQueue:	2	0	6	0	0	0	0	19	0	5	16	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #11 East Avenue/ Hillcrest Avenue

Cycle (sec): 150 Critical Vol./Cap. (X): 0.712
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 19.7
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0
Volume Module:												
Base Vol:	98	12	27	96	12	39	45	1043	27	24	963	27
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:	98	12	27	96	12	39	45	1043	27	24	963	27
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:	98	12	27	96	12	39	45	1043	27	24	963	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	12	27	96	12	39	45	1043	27	24	963	27
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.:	98	12	27	96	12	39	45	1043	27	24	963	27
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.90	0.90	0.95	0.89	0.89	0.95	1.00	0.85	0.95	0.95	0.95
Lanes:	1.00	0.31	0.69	1.00	0.24	0.76	1.00	1.00	1.00	1.00	1.95	0.05
Final Sat.:	1805	524	1179	1805	396	1286	1805	1900	1615	1805	3497	98
Capacity Analysis Module:												
Vol/Sat:	0.05	0.02	0.02	0.05	0.03	0.03	0.02	0.55	0.02	0.01	0.28	0.28
Crit Moves:	****			****				****		****		
Green/Cycle:	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.77	0.77	0.02	0.72	0.72
Volume/Cap:	0.71	0.30	0.30	0.71	0.41	0.41	0.38	0.71	0.02	0.71	0.38	0.38
Delay/Veh:	83.8	66.8	66.8	84.2	68.4	68.4	69.2	10.4	4.0	125.7	8.0	8.0
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:	83.8	66.8	66.8	84.2	68.4	68.4	69.2	10.4	4.0	125.7	8.0	8.0
DesignQueue:	8	1	2	8	1	3	4	23	1	2	24	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #12 East Avenue/ Loyola Way

Cycle (sec): 95 Critical Vol./Cap. (X): 0.454
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 4.9
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	1	0	0	1	0	1	0
Volume Module:												
Base Vol:	0	0	0	40	0	41	25	1119	0	0	1029	225
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	0	0	40	0	41	25	1119	0	0	1029	225
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	0	0	40	0	41	25	1119	0	0	1029	225
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	40	0	41	25	1119	0	0	1029	225
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	0	0	40	0	41	25	1119	0	0	1029	225
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.95	0.95	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.64	0.36
Final Sat.:	0	0	0	1805	0	1615	1805	3610	0	0	2882	630
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.03	0.01	0.31	0.00	0.00	0.36	0.36
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.06	0.00	0.06	0.03	0.82	0.00	0.00	0.79	0.79
Volume/Cap:	0.00	0.00	0.00	0.40	0.00	0.45	0.45	0.38	0.00	0.00	0.45	0.45
Delay/Veh:	0.0	0.0	0.0	45.8	0.0	47.0	51.1	2.4	0.0	0.0	3.5	3.5
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	0.0	0.0	45.8	0.0	47.0	51.1	2.4	0.0	0.0	3.5	3.5
DesignQueue:	0	0	0	2	0	2	1	12	0	0	13	3

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #13 East Avenue/ Maple Street

Cycle (sec): 55 Critical Vol./Cap. (X): 0.839
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 12.5
Optimal Cycle: 62 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	1	0	0	1	1	0	1
Volume Module:												
Base Vol:	0	0	0	586	0	71	0	428	0	0	624	791
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	0	0	586	0	71	0	428	0	0	624	791
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	0	0	586	0	71	0	428	0	0	624	791
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	586	0	71	0	428	0	0	624	791
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	0	0	586	0	71	0	428	0	0	624	791
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.95	0.95	1.00	0.87	0.87
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	2.00	0.00	1.00	1.00	1.00
Final Sat.:	0	0	0	1805	0	1615	0	3610	0	1900	1653	1653
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.32	0.00	0.04	0.00	0.12	0.00	0.00	0.38	0.48
Crit Moves:				****							****	
Green/Cycle:	0.00	0.00	0.00	0.39	0.00	0.39	0.00	0.45	0.00	0.00	0.45	0.84
Volume/Cap:	0.00	0.00	0.00	0.84	0.00	0.11	0.00	0.26	0.00	0.00	0.84	0.57
Delay/Veh:	0.0	0.0	0.0	24.2	0.0	10.9	0.0	9.5	0.0	0.0	17.3	1.7
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:	0.0	0.0	0.0	24.2	0.0	10.9	0.0	9.5	0.0	0.0	17.3	1.7
DesignQueue:	0	0	0	12	0	1	0	7	0	0	11	4

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #14 East Avenue/ Mines Road

Cycle (sec): 90 Critical Vol./Cap. (X): 0.691
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 21.0
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	2	0	0	0	1	2	0	2	0	0	0	0	2	0	1
Volume Module:																				
Base Vol:	0	0	0	281	0	581	338	1295	0	0	780	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:	0	0	0	281	0	581	338	1295	0	0	780	102
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	0	0	281	0	581	338	1295	0	0	780	102
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	281	0	581	338	1295	0	0	780	102
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	0	0	281	0	581	338	1295	0	0	780	102
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.92	1.00	0.85	0.92	0.95	1.00	1.00	0.95	0.85
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	3502	0	1615	3502	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.08	0.00	0.36	0.10	0.36	0.00	0.00	0.22	0.06
Crit Moves:						****		****			****	
Green/Cycle:	0.00	0.00	0.00	0.38	0.00	0.54	0.16	0.52	0.00	0.00	0.36	0.36
Volume/Cap:	0.00	0.00	0.00	0.21	0.00	0.66	0.60	0.69	0.00	0.00	0.60	0.18
Delay/Veh:	0.0	0.0	0.0	18.8	0.0	16.7	37.0	17.3	0.0	0.0	24.4	19.9
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	0.0	0.0	18.8	0.0	16.7	37.0	17.3	0.0	0.0	24.4	19.9
DesignQueue:	0	0	0	9	0	14	15	34	0	0	26	3

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #15 Fourth Street/ South Livermore to East Avenue

Cycle (sec): 145 Critical Vol./Cap. (X): 0.959
Loss Time (sec): 28 (Y+R = 4 sec) Average Delay (sec/veh): 59.5
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted Ovl			Permitted		
Rights:	Include			Include						Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	1	0 1!	0	0	0 2	0	1	0 0 2 0 1
Volume Module:												
Base Vol:	539	418	48	151	167	45	0	1147	466	0	1129	16
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:	539	418	48	151	167	45	0	1147	466	0	1129	16
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:	539	418	48	151	167	45	0	1147	466	0	1129	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	539	418	48	151	167	45	0	1147	466	0	1129	16
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.:	539	418	48	151	167	45	0	1147	466	0	1129	16
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.99	0.99	0.96	0.96	0.96	1.00	0.95	0.85	1.00	0.95	0.85
Lanes:	1.00	0.90	0.10	1.26	0.58	0.16	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	1805	1679	193	2306	1061	286	0	3610	1615	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.30	0.25	0.25	0.07	0.16	0.16	0.00	0.32	0.29	0.00	0.31	0.01
Crit Moves:	****					****		****				
Green/Cycle:	0.31	0.31	0.31	0.16	0.16	0.16	0.00	0.33	0.64	0.00	0.33	0.33
Volume/Cap:	0.96	0.80	0.80	0.40	0.96	0.96	0.00	0.96	0.45	0.00	0.94	0.03
Delay/Veh:	76.9	53.5	53.5	54.5	95.6	95.6	0.0	64.6	13.3	0.0	61.8	32.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	76.9	53.5	53.5	54.5	95.6	95.6	0.0	64.6	13.3	0.0	61.8	32.8
DesignQueue:	32	25	3	10	12	3	0	67	14	0	66	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #16 East Stanley Boulevard/ Fenton Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.440
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 6.7
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0 0 1	0	1	0 0 1	1	0	2 0 1	1	0	2 0 1
Volume Module:												
Base Vol:	19	8	36	30	29	77	16	877	67	86	1097	1
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:	19	8	36	30	29	77	16	877	67	86	1097	1
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:	19	8	36	30	29	77	16	877	67	86	1097	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	19	8	36	30	29	77	16	877	67	86	1097	1
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.:	19	8	36	30	29	77	16	877	67	86	1097	1
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.75	0.75	0.85	0.82	0.82	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	0.70	0.30	1.00	0.51	0.49	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1005	423	1615	789	763	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.02	0.04	0.04	0.05	0.01	0.24	0.04	0.05	0.30	0.00
Crit Moves:						****	****				****	
Green/Cycle:	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.59	0.59	0.12	0.69	0.69
Volume/Cap:	0.17	0.17	0.21	0.35	0.35	0.44	0.44	0.41	0.07	0.41	0.44	0.00
Delay/Veh:	20.8	20.8	20.9	21.9	21.9	22.6	32.5	5.5	4.3	21.8	3.5	2.4
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:	20.8	20.8	20.9	21.9	21.9	22.6	32.5	5.5	4.3	21.8	3.5	2.4
DesignQueue:	0	0	1	1	1	2	0	11	1	2	10	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #17 East Stanley Boulevard/ Isabel Connector Ramp

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.775
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 11.8
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	0 2	0	0 0	0 0	0	0 3	0 1	2	0 3	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #18 East Stanley Boulevard/ Murdell Lane

****

Cycle (sec): 51 Critical Vol./Cap. (X): 0.653
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 9.1
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	0 1	0	0 0	0 0	1	0 3	0 1	1	0 3	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #19 East Stanley Boulevard/ Murrieta Boulevard

Cycle (sec): 90 Critical Vol./Cap. (X): 0.901
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 35.7
Optimal Cycle: 104 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	1	1 0	1 0	2	0 1	2 0	2	0 1	1 0	2	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #20 East Stanley Boulevard/ Wall Street

Cycle (sec): 65 Critical Vol./Cap. (X): 0.749
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 15.7
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	0 1	0	0	0 0	1 0	2	1 0	1 0	3	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #21 East Stanley Boulevard-Railroad Avenue/ South S. Street

Cycle (sec): 115 Critical Vol./Cap. (X): 0.625
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 21.8
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	1	0 0 1	1	1	0 0 1	1	0	1 1 0	1	0	1 1 0
Volume Module:												
Base Vol:	340	8	163	205	7	1	6	1192	103	76	1135	12
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:	340	8	163	205	7	1	6	1192	103	76	1135	12
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:	340	8	0	205	7	0	6	1192	103	76	1135	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	340	8	0	205	7	0	6	1192	103	76	1135	12
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.:	340	8	0	205	7	0	6	1192	103	76	1135	12
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	1.00	0.95	0.94	0.94	0.95	0.95	0.95
Lanes:	1.95	0.05	1.00	1.93	0.07	1.00	1.00	1.84	0.16	1.00	1.98	0.02
Final Sat.:	3538	83	1900	3506	120	1900	1805	3283	284	1805	3569	38
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.00	0.06	0.06	0.00	0.00	0.36	0.36	0.04	0.32	0.32
Crit Moves:		****			****			****		****		
Green/Cycle:	0.15	0.15	0.00	0.09	0.09	0.00	0.01	0.58	0.58	0.07	0.64	0.64
Volume/Cap:	0.62	0.62	0.00	0.62	0.62	0.00	0.50	0.62	0.62	0.62	0.50	0.50
Delay/Veh:	47.8	47.8	0.0	53.8	53.8	0.0	85.5	16.5	16.5	62.0	11.0	11.0
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:	47.8	47.8	0.0	53.8	53.8	0.0	85.5	16.5	16.5	62.0	11.0	11.0
DesignQueue:	19	0	0	12	0	0	0	35	3	5	28	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #22 First Street/ I-580 Eastbound Ramps

Cycle (sec): 85 Critical Vol./Cap. (X): 0.985
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 36.6
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Ignore			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2 0 1	1	0	2 1 0	1	0	0 0 2	0	0	0 0 0
Volume Module:												
Base Vol:	0	402	434	58	2457	102	109	0	1093	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	402	434	58	2457	102	109	0	1093	0	0	0
User 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
PHF 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
PHF Volume:	0	402	0	58	2457	102	109	0	1093	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	402	0	58	2457	102	109	0	1093	0	0	0
PCE 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
MLF 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
Final Vol.:	0	402	0	58	2457	102	109	0	1093	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	0.95	0.90	0.90	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	2.88	0.12	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1900	1805	4950	206	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.00	0.03	0.50	0.50	0.06	0.00	0.38	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.00	0.39	0.00	0.11	0.50	0.50	0.39	0.00	0.39	0.00	0.00	0.00
Volume/Cap:	0.00	0.28	0.00	0.28	0.99	0.99	0.15	0.00	0.99	0.00	0.00	0.00
Delay/Veh:	0.0	17.9	0.0	35.3	35.1	35.1	16.9	0.0	49.0	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	17.9	0.0	35.3	35.1	35.1	16.9	0.0	49.0	0.0	0.0	0.0
DesignQueue:	0	12	0	2	65	3	3	0	34	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #23 First Street/ I-580 Westbound Ramps

Cycle (sec):	60			Critical Vol./Cap. (X):			1.050					
Loss Time (sec):	12 (Y+R = 4 sec)			Average Delay (sec/veh):			46.9					
Optimal Cycle:	OPTIMIZED			Level Of Service:			D					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0	2	0	0	0	0	2	1	0	0	1
Volume Module:												
Base Vol:	114	597	0	0	1722	362	0	0	1031	0	0	24
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:	114	597	0	0	1722	362	0	0	1031	0	0	24
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:	114	597	0	0	1722	362	0	0	1031	0	0	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	597	0	0	1722	362	0	0	1031	0	0	24
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.:	114	597	0	0	1722	362	0	0	1031	0	0	24
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	0.95	0.85	1.00	1.00	0.75	1.00	1.00	0.87
Lanes:	2.00	2.00	0.00	0.00	2.00	1.00	0.00	0.00	2.00	0.00	0.00	1.00
Final Sat.:	3502	3610	0	0	3610	1615	0	0	2842	0	0	1644
Capacity Analysis Module:												
Vol/Sat:	0.03	0.17	0.00	0.00	0.48	0.22	0.00	0.00	0.36	0.00	0.00	0.01
Crit Moves:	****				****				****			
Green/Cycle:	0.03	0.49	0.00	0.00	0.45	0.45	0.00	0.00	0.35	0.00	0.00	0.31
Volume/Cap:	1.05	0.34	0.00	0.00	1.05	0.49	0.00	0.00	1.05	0.00	0.00	0.05
Delay/Veh:	129.4	9.6	0.0	0.0	52.9	12.0	0.0	0.0	62.3	0.0	0.0	14.3
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:	129.4	9.6	0.0	0.0	52.9	12.0	0.0	0.0	62.3	0.0	0.0	14.3
DesignQueue:	4	11	0	0	36	7	0	0	24	0	0	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #24 First Street/ Inman Street

Cycle (sec):	86			Critical Vol./Cap. (X):			0.705					
Loss Time (sec):	9 (Y+R = 4 sec)			Average Delay (sec/veh):			16.5					
Optimal Cycle:	50			Level Of Service:			B					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	0	1	1	0	0	1	0	1	0	2	0	1	1	0	2	0	0
Volume Module:																				
Base Vol:	185	0	428	0	0	0	0	703	279	603	1539	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:	185	0	428	0	0	0	0	703	279	603	1539	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:	185	0	428	0	0	0	0	703	279	603	1539	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	185	0	428	0	0	0	0	703	279	603	1539	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.:	185	0	428	0	0	0	0	703	279	603	1539	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	0.95	0.85	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	1.00	1.00	0.00	1.00	2.00	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	1900	1900	0	1900	3610	1615	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.10	0.00	0.27	0.00	0.00	0.00	0.00	0.19	0.17	0.33	0.43	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.15	0.00	0.62	0.00	0.00	0.00	0.00	0.28	0.28	0.47	0.75	0.00
Volume/Cap:	0.71	0.00	0.43	0.00	0.00	0.00	0.00	0.71	0.63	0.71	0.57	0.00
Delay/Veh:	43.4	0.0	8.8	0.0	0.0	0.0	0.0	30.3	30.0	20.6	5.0	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:	43.4	0.0	8.8	0.0	0.0	0.0	0.0	30.3	30.0	20.6	5.0	0.0
DesignQueue:	8	0	8	0	0	0	0	26	10	17	21	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #25 First Street/ Las Positas Road

Cycle (sec): 90 Critical Vol./Cap. (X): 1.016
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 52.7
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 3	0 1	2	0 2	0 1	2	0 2	0 1
Volume Module:												
Base Vol:	454	719	554	632	2379	746	51	588	137	453	190	61
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:	454	719	554	632	2379	746	51	588	137	453	190	61
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:	454	719	554	632	2379	746	51	588	137	453	190	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	454	719	554	632	2379	746	51	588	137	453	190	61
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.:	454	719	554	632	2379	746	51	588	137	453	190	61
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	0.92	0.95	0.85	0.92	0.95	0.85
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3502	5187	1615	3502	5187	1615	3502	3610	1615	3502	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.13	0.14	0.34	0.18	0.46	0.46	0.01	0.16	0.08	0.13	0.05	0.04
Crit Moves:	****				****			****		****		
Green/Cycle:	0.13	0.38	0.38	0.20	0.45	0.45	0.06	0.16	0.29	0.13	0.23	0.42
Volume/Cap:	1.02	0.37	0.90	0.90	1.02	1.02	0.23	1.02	0.29	1.02	0.23	0.09
Delay/Veh:	85.9	20.2	43.2	50.4	47.4	64.0	40.7	79.3	25.3	86.0	28.7	15.5
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:	85.9	20.2	43.2	50.4	47.4	64.0	40.7	79.3	25.3	86.0	28.7	15.5
DesignQueue:	20	23	19	26	73	23	2	26	5	20	7	2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #26 First Street/ North Mines Road

Cycle (sec): 100 Critical Vol./Cap. (X): 1.138
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 68.1
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	2	0 3	0 1	1	0 2	0 1	2	0 1	0 1
Volume Module:												
Base Vol:	79	1202	516	654	2518	33	86	471	85	749	806	563
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:	79	1202	516	654	2518	33	86	471	85	749	806	563
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:	79	1202	516	654	2518	33	86	471	85	749	806	563
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	79	1202	516	654	2518	33	86	471	85	749	806	563
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.:	79	1202	516	654	2518	33	86	471	85	749	806	563
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.92	0.91	0.85	0.95	0.95	0.85	0.92	1.00	0.85
Lanes:	1.00	3.00	1.00	2.00	3.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1805	5187	1615	3502	5187	1615	1805	3610	1615	3502	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.23	0.32	0.19	0.49	0.02	0.05	0.13	0.05	0.21	0.42	0.35
Crit Moves:	****				****		****				****	
Green/Cycle:	0.04	0.26	0.52	0.21	0.43	0.43	0.04	0.16	0.16	0.26	0.37	0.58
Volume/Cap:	1.14	0.90	0.62	0.90	1.14	0.05	1.14	0.83	0.33	0.83	1.14	0.60
Delay/Veh:	198.3	44.4	18.7	52.8	96.7	16.8	193.5	50.8	38.3	41.6	110	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:	198.3	44.4	18.7	52.8	96.7	16.8	193.5	50.8	38.3	41.6	110	14.6
DesignQueue:	4	52	15	30	91	1	5	23	4	33	32	14

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #27 First Street/ Old First Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.869
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 22.7
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	1	0	1	1	0	2
Volume Module:												
Base Vol:	103	151	1	38	314	69	94	635	3	76	1585	115
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:	103	151	1	38	314	69	94	635	3	76	1585	115
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:	103	151	1	38	314	69	94	635	3	76	1585	115
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	103	151	1	38	314	69	94	635	3	76	1585	115
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.:	103	151	1	38	314	69	94	635	3	76	1585	115
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.50	0.50	0.85	0.95	0.95	0.85	0.95	0.95	0.95	0.95	0.95	0.85
Lanes:	0.41	0.59	1.00	0.11	0.89	1.00	1.00	1.99	0.01	1.00	2.00	1.00
Final Sat.:	387	567	1615	194	1602	1615	1805	3589	17	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.27	0.27	0.00	0.20	0.20	0.04	0.05	0.18	0.18	0.04	0.44	0.07
Crit Moves:		****					****				****	
Green/Cycle:	0.31	0.31	0.31	0.31	0.31	0.31	0.06	0.46	0.46	0.11	0.51	0.51
Volume/Cap:	0.87	0.87	0.00	0.64	0.64	0.14	0.87	0.39	0.39	0.39	0.87	0.14
Delay/Veh:	46.2	46.2	16.9	23.5	23.5	17.7	80.7	12.7	12.7	30.3	20.1	9.3
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:	46.2	46.2	16.9	23.5	23.5	17.7	80.7	12.7	12.7	30.3	20.1	9.3
DesignQueue:	3	4	0	1	9	2	3	14	0	3	34	2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #28 First Street/ Portola Avenue

Cycle (sec): 95 Critical Vol./Cap. (X): 0.945
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 39.9
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	3	0	1	1	0
Volume Module:												
Base Vol:	319	843	0	7	1761	1295	1038	2	345	19	15	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:	319	843	0	7	1761	1295	1038	2	345	19	15	6
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:	319	843	0	7	1761	0	1038	2	345	19	15	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	319	843	0	7	1761	0	1038	2	345	19	15	6
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.:	319	843	0	7	1761	0	1038	2	345	19	15	6
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	0.91	1.00	0.95	0.95	0.85	0.96	0.96	0.96
Lanes:	1.00	2.00	0.00	1.00	3.00	1.00	1.99	0.01	1.00	0.47	0.38	0.15
Final Sat.:	1805	3610	0	1805	5187	1900	3611	7	1615	864	682	273
Capacity Analysis Module:												
Vol/Sat:	0.18	0.23	0.00	0.00	0.34	0.00	0.29	0.29	0.21	0.02	0.02	0.02
Crit Moves:	****				****			****			****	
Green/Cycle:	0.19	0.54	0.00	0.01	0.36	0.00	0.30	0.30	0.30	0.02	0.02	0.02
Volume/Cap:	0.95	0.43	0.00	0.43	0.95	0.00	0.95	0.95	0.70	0.95	0.95	0.95
Delay/Veh:	72.9	13.4	0.0	64.5	40.1	0.0	48.0	48.0	33.8	163.0	163	163.0
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:	72.9	13.4	0.0	64.5	40.1	0.0	48.0	48.0	33.8	163.0	163	163.0
DesignQueue:	14	22	0	0	65	0	41	0	13	1	1	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #29 First Street/ Railroad Avenue-Maple Street

****

Cycle (sec): 145 Critical Vol./Cap. (X): 1.395
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 164.2
Optimal Cycle: 180 Level Of Service: F

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	1	0	1!	0	0	1	0	0	1	0	1	0	2
Volume Module:												
Base Vol:	18	357	43	374	104	414	270	489	7	0	1148	1419
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:	18	357	43	374	104	414	270	489	7	0	1148	1419
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:	18	357	43	374	104	414	270	489	7	0	1148	1419
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	357	43	374	104	414	270	489	7	0	1148	1419
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.:	18	357	43	374	104	414	270	489	7	0	1148	1419
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	0.93	0.91	0.91	0.91	0.95	1.00	1.00	1.00	1.00	0.75
Lanes:	0.09	1.71	0.20	1.26	0.15	0.59	1.00	0.99	0.01	1.00	1.00	2.00
Final Sat.:	153	3031	365	2189	255	1016	1805	1869	27	1900	1900	2842
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.17	0.41	0.41	0.15	0.26	0.26	0.00	0.60	0.50
Crit Moves:	****					****	****				****	
Green/Cycle:	0.08	0.08	0.08	0.29	0.29	0.29	0.11	0.54	0.54	0.00	0.43	0.43
Volume/Cap:	1.39	1.39	1.39	0.58	1.39	1.39	1.39	0.48	0.48	0.00	1.39	1.15
Delay/Veh:	263.1	263	263.1	44.4	238	238.3	270.6	21.1	21.1	0.0	226	119.3
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:	263.1	263	263.1	44.4	238	238.3	270.6	21.1	21.1	0.0	226	119.3
DesignQueue:	1	27	3	22	7	26	20	19	0	0	62	72

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Future Preferred AM Wed Aug 20, 2003 17:15:03 Page 32-1

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #30 First Street/ South L Street

****

Cycle (sec): 100 Critical Vol./Cap. (X): 0.919
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 32.9
Optimal Cycle:OPTIMIZED Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	0
Volume Module:												
Base Vol:	65	432	96	44	275	96	28	444	51	56	1070	35
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:	65	432	96	44	275	96	28	444	51	56	1070	35
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:	65	432	96	44	275	96	28	444	51	56	1070	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	65	432	96	44	275	96	28	444	51	56	1070	35
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.:	65	432	96	44	275	96	28	444	51	56	1070	35
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.06	0.99	0.99	0.40	1.00	1.00
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.10	1.00	0.97	0.03
Final Sat.:	1805	1900	1615	1805	1900	1615	120	1679	193	754	1831	60
Capacity Analysis Module:												
Vol/Sat:	0.04	0.23	0.06	0.02	0.14	0.06	0.23	0.26	0.26	0.07	0.58	0.58
Crit Moves:		****		****							****	
Green/Cycle:	0.05	0.25	0.25	0.03	0.22	0.22	0.64	0.64	0.64	0.64	0.64	0.64
Volume/Cap:	0.66	0.92	0.24	0.92	0.66	0.27	0.37	0.42	0.42	0.12	0.92	0.92
Delay/Veh:	61.7	59.8	30.4	148.1	39.5	32.8	11.6	9.2	9.2	7.3	27.2	27.2
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:	61.7	59.8	30.4	148.1	39.5	32.8	11.6	9.2	9.2	7.3	27.2	27.2
DesignQueue:	3	19	4	2	12	4	1	10	1	1	26	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #31 First Street/ South Livermore Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 0.900
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 31.7
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	1	0 0 1	0	1	0 0 1	0	1	0 0 1 0
Volume Module:												
Base Vol:	72	275	60	32	238	118	90	425	77	130	954	49
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:	72	275	60	32	238	118	90	425	77	130	954	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	72	275	60	32	238	118	90	425	0	130	954	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	275	60	32	238	118	90	425	0	130	954	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	72	275	60	32	238	118	90	425	0	130	954	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.29	0.97	0.97	0.26	0.95	0.95	0.17	1.00	1.00	0.49	0.99	0.99
Lanes:	1.00	0.82	0.18	1.00	0.67	0.33	1.00	1.00	0.00	1.00	0.95	0.05
Final Sat.:	550	1518	331	488	1207	598	323	1900	0	940	1795	92
Capacity Analysis Module:												
Vol/Sat:	0.13	0.18	0.18	0.07	0.20	0.20	0.28	0.22	0.00	0.14	0.53	0.53
Crit Moves:	****				****		****				****	
Green/Cycle:	0.28	0.24	0.24	0.24	0.22	0.22	0.54	0.49	0.00	0.67	0.59	0.59
Volume/Cap:	0.46	0.75	0.75	0.27	0.90	0.90	0.51	0.46	0.00	0.21	0.90	0.90
Delay/Veh:	30.8	42.5	42.5	31.6	60.7	60.7	25.4	17.2	0.0	7.6	27.8	27.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	30.8	42.5	42.5	31.6	60.7	60.7	25.4	17.2	0.0	7.6	27.8	27.8
DesignQueue:	4	12	3	2	11	5	5	13	0	6	25	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #32 First Street/ South P Street

Cycle (sec): 105 Critical Vol./Cap. (X): 0.785
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 23.1
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 0 1	1	0	1 0 1	1	0	0 1 0	1	0	0 1 0
Volume Module:												
Base Vol:	80	134	26	66	143	101	90	448	28	14	1018	53
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:	80	134	26	66	143	101	90	448	28	14	1018	53
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:	80	134	26	66	143	101	90	448	28	14	1018	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	80	134	26	66	143	101	90	448	28	14	1018	53
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.:	80	134	26	66	143	101	90	448	28	14	1018	53
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.42	1.00	0.85	0.45	1.00	0.85	0.95	0.99	0.99	0.95	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.06	1.00	0.95	0.05
Final Sat.:	796	1900	1615	853	1900	1615	1805	1772	111	1805	1793	93
Capacity Analysis Module:												
Vol/Sat:	0.10	0.07	0.02	0.08	0.08	0.06	0.05	0.25	0.25	0.01	0.57	0.57
Crit Moves:	****						****				****	
Green/Cycle:	0.13	0.13	0.13	0.13	0.13	0.13	0.06	0.76	0.76	0.02	0.72	0.72
Volume/Cap:	0.79	0.55	0.13	0.60	0.59	0.49	0.79	0.33	0.33	0.33	0.79	0.79
Delay/Veh:	76.4	45.7	40.9	52.6	46.9	44.4	77.6	4.1	4.1	55.0	12.4	12.4
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:	76.4	45.7	40.9	52.6	46.9	44.4	77.6	4.1	4.1	55.0	12.4	12.4
DesignQueue:	4	7	1	3	7	5	5	7	0	1	19	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #33 First Street/ Southfront Road

****

Cycle (sec): 120 Critical Vol./Cap. (X): 1.020
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 69.2
Optimal Cycle: 180 Level Of Service: E

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Protected						Protected						Protected					
Rights:	Ovl						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	0	0	3	0	1		2	0	3	0	1		2	0	0	1	0		2	0	0	1	0	
Volume Module:																								
Base Vol:	0	709		103		168	2531		606		53	13		68	1336		147		45					
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	709		103		168	2531		606		53	13		68	1336		147		45					
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	709		103		168	2531		606		53	13		68	1336		147		45					
Reduct Vol:	0	0		0		0	0		0		0	0		0	0		0		0					
Reduced Vol:	0	709		103		168	2531		606		53	13		68	1336		147		45					
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	709		103		168	2531		606		53	13		68	1336		147		45					
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		0.85		0.92	0.87		0.87	0.92		0.97		0.97					
Lanes:	0.00	3.00		1.00		2.00	3.00		1.00		2.00	0.16		0.84	2.00		0.77		0.23					
Final Sat.:	0	5187		1615		3502	5187		1615		3502	267		1394	3502		1404		430					
Capacity Analysis Module:																								
Vol/Sat:	0.00	0.14		0.06		0.05	0.49		0.38		0.02	0.05		0.05	0.38		0.10		0.10					
Crit Moves:							****					****			****									
Green/Cycle:	0.00	0.12		0.44		0.42	0.53		0.53		0.05	0.04		0.04	0.33		0.32		0.32					
Volume/Cap:	0.00	1.17		0.14		0.12	0.92		0.70		0.33	1.17		1.17	1.17		0.33		0.33					
Delay/Veh:	0.0	147		20.0		21.5	30.9		23.6		56.6	220		219.8	127.5		31.3		31.3					
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:	0.0	147		20.0		21.5	30.9		23.6		56.6	220		219.8	127.5		31.3		31.3					
DesignQueue:	0	43		4		7	89		21		3	1		4	66		7		2					

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #34 Fourth Street/ South P Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.286
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 5.1
Optimal Cycle: OPTIMIZED Level Of Service: A

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Permitted						Permitted						Permitted					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0		0		0		0		0		0		0		0		0		0		0	
Lanes:	1	0	1	0	1		1	0	1	0	1		1	0	1	1	0		1	0	1	1	0	
Volume Module:																								
Base Vol:	30	62		4		65	47		25		15	439		1	4		672		57					
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:	30	62		4		65	47		25		15	439		1	4		672		57					
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:	30	62		4		65	47		25		15	439		1	4		672		57					
Reduct Vol:	0	0		0		0	0		0		0	0		0	0		0		0					
Reduced Vol:	30	62		4		65	47		25		15	439		1	4		672		57					
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.:	30	62		4		65	47		25		15	439		1	4		672		57					
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900	1900		1900	1900		1900		1900					
Adjustment:	0.73	1.00		0.85		0.72	1.00		0.85		0.36	0.95		0.95	0.49		0.94		0.94					
Lanes:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.99		0.01	1.00		1.84		0.16					
Final Sat.:	1387	1900		1615		1364	1900		1615		682	3602		8	939		3288		279					
Capacity Analysis Module:																								
Vol/Sat:	0.02	0.03		0.00		0.05	0.02		0.02		0.02	0.12		0.12	0.00		0.20		0.20					
Crit Moves:						****											****							
Green/Cycle:	0.17	0.17		0.17		0.17	0.17		0.17		0.71	0.71		0.71	0.71		0.71		0.71					
Volume/Cap:	0.13	0.20		0.01		0.29	0.15		0.09		0.03	0.17		0.17	0.01		0.29		0.29					
Delay/Veh:	18.0	18.3		17.4		18.9	18.0		17.8		2.1	2.4		2.4	2.1		2.6		2.6					
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:	18.0	18.3		17.4		18.9	18.0		17.8		2.1	2.4		2.4	2.1		2.6		2.6					
DesignQueue:	1	1		0		2	1		1		0	4		0	0		6		0					

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #35 Fourth Street/ Inman Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.828
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 20.4
Optimal Cycle:OPTIMIZED Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0	0 0	1	0	0 0 1	1	0	1 0 0	0	0 1	1 0
Volume Module:												
Base Vol:	0	0	0	155	0	719	411	178	0	0	313	213
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	0	0	155	0	719	411	178	0	0	313	213
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	0	0	155	0	719	411	178	0	0	313	213
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	155	0	719	411	178	0	0	313	213
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	0	0	155	0	719	411	178	0	0	313	213
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.95	1.00	1.00	1.00	0.89	0.89
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.19	0.81
Final Sat.:	0	0	0	1805	0	1615	1805	1900	0	0	2017	1373
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.00	0.45	0.23	0.09	0.00	0.00	0.16	0.16
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.54	0.00	0.54	0.28	0.46	0.00	0.00	0.19	0.19
Volume/Cap:	0.00	0.00	0.00	0.16	0.00	0.83	0.83	0.20	0.00	0.00	0.83	0.83
Delay/Veh:	0.0	0.0	0.0	5.9	0.0	16.3	28.1	8.1	0.0	0.0	28.4	28.4
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	0.0	0.0	5.9	0.0	16.3	28.1	8.1	0.0	0.0	28.4	28.4
DesignQueue:	0	0	0	2	0	10	9	3	0	0	7	5

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #36 Fourth Street/ Maple Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.756
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 13.0
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1	0 1	1	0	1 0 1	1	0	1 0 1	1	0	1 0 1
Volume Module:												
Base Vol:	214	540	535	26	607	11	36	126	157	416	257	118
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:	214	540	535	26	607	11	36	126	157	416	257	118
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:	214	540	535	26	607	11	36	126	157	416	257	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	214	540	535	26	607	11	36	126	157	416	257	118
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.:	214	540	535	26	607	11	36	126	157	416	257	118
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.26	1.00	0.85	0.31	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	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 Sat.:	500	1900	1615	585	1900	1615	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.43	0.28	0.33	0.04	0.32	0.01	0.02	0.07	0.10	0.23	0.14	0.07
Crit Moves:	****								****	****		
Green/Cycle:	0.57	0.57	0.57	0.57	0.57	0.57	0.06	0.13	0.13	0.30	0.38	0.38
Volume/Cap:	0.76	0.50	0.58	0.08	0.56	0.01	0.36	0.52	0.76	0.76	0.36	0.19
Delay/Veh:	19.3	6.9	8.0	5.0	7.6	4.7	24.9	22.2	35.7	21.6	11.5	10.6
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:	19.3	6.9	8.0	5.0	7.6	4.7	24.9	22.2	35.7	21.6	11.5	10.6
DesignQueue:	3	7	7	0	8	0	1	3	4	9	5	2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #37 Las Positas Road/ Greenville Road

****

Cycle (sec): 90 Critical Vol./Cap. (X): 0.632
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 14.6
Optimal Cycle: 43 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	1	0 3	0 1	1	1 0	0 1	0	0 1!	0 0
Volume Module:												
Base Vol:	228	346	4	17	1989	589	55	5	79	1	1	15
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	346	4	17	1989	589	55	5	79	1	1	15
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	346	4	17	1989	589	55	5	79	1	1	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	228	346	4	17	1989	589	55	5	79	1	1	15
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	346	4	17	1989	589	55	5	79	1	1	15
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.95	0.91	0.85	0.96	0.96	0.85	0.88	0.88	0.88
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.83	0.17	1.00	0.06	0.06	0.88
Final Sat.:	1805	5187	1615	1805	5187	1615	3330	303	1615	98	98	1473
Capacity Analysis Module:												
Vol/Sat:	0.13	0.07	0.00	0.01	0.38	0.36	0.02	0.02	0.05	0.01	0.01	0.01
Crit Moves:	****				****				****		****	
Green/Cycle:	0.20	0.71	0.71	0.10	0.61	0.61	0.08	0.08	0.08	0.02	0.02	0.02
Volume/Cap:	0.63	0.09	0.00	0.09	0.63	0.60	0.21	0.21	0.63	0.63	0.63	0.63
Delay/Veh:	36.6	4.2	3.9	37.0	11.7	12.0	39.3	39.3	50.3	84.0	84.0	84.0
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:	36.6	4.2	3.9	37.0	11.7	12.0	39.3	39.3	50.3	84.0	84.0	84.0
DesignQueue:	9	5	0	1	43	13	3	0	4	0	0	1

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City of Livermore
Future Preferred Alternative (Run 3) Mitigated
AM Peak

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

****

Intersection #38 National Drive/ Greenville Road

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.544
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 8.4
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 2	0 1	1	0 2	0 1	1	0 1	0 1	0	0 1!	0 0
Volume Module:												
Base Vol:	170	471	1	29	1174	324	124	0	12	2	2	2
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:	170	471	1	29	1174	324	124	0	12	2	2	2
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:	170	471	1	29	1174	324	124	0	12	2	2	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	471	1	29	1174	324	124	0	12	2	2	2
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.:	170	471	1	29	1174	324	124	0	12	2	2	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.94	0.94	0.94
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	0.34	0.33	0.33
Final Sat.:	3502	3610	1615	1805	3610	1615	1805	1900	1615	595	595	595
Capacity Analysis Module:												
Vol/Sat:	0.05	0.13	0.00	0.02	0.33	0.20	0.07	0.00	0.01	0.00	0.00	0.00
Crit Moves:	****				****		****				****	
Green/Cycle:	0.09	0.61	0.61	0.08	0.60	0.60	0.13	0.00	0.13	0.01	0.01	0.01
Volume/Cap:	0.54	0.21	0.00	0.21	0.54	0.34	0.54	0.00	0.06	0.54	0.54	0.54
Delay/Veh:	23.8	4.4	3.8	22.5	6.3	5.3	23.2	0.0	19.3	70.8	70.8	70.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.8	4.4	3.8	22.5	6.3	5.3	23.2	0.0	19.3	70.8	70.8	70.8
DesignQueue:	4	5	0	1	14	4	3	0	0	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #39 Northfront Road/ Greenville Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.892
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 11.1
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound						West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Permitted					Permitted					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	0		0		0	0		0		0	0		0		0	0		0		0
Lanes:	1	0	0	0	2	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	195		0		47	0		0		0	0		15		1230	1091		674		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:	195		0		47	0		0		0	0		15		1230	1091		674		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:	195		0		47	0		0		0	0		15		1230	1091		674		0
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
Reduced Vol:	195		0		47	0		0		0	0		15		1230	1091		674		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.:	195		0		47	0		0		0	0		15		1230	1091		674		0
Saturation Flow Module:																				
Sat/Lane:	1900		1900		1900	1900		1900		1900	1900		1900		1900	1900		1900		1900
Adjustment:	0.79		1.00		0.75	1.00		1.00		1.00	1.00		1.00		0.85	0.76		1.00		1.00
Lanes:	1.00		0.00		2.00	0.00		0.00		0.00	0.00		1.00		1.00	1.00		1.00		0.00
Final Sat.:	1495		0		2842	0		0		0	0		1900		1615	1435		1900		0
Capacity Analysis Module:																				
Vol/Sat:	0.13		0.00		0.02	0.00		0.00		0.00	0.00		0.01		0.76	0.76		0.35		0.00
Crit Moves:	****														****					
Green/Cycle:	0.15		0.00		0.15	0.00		0.00		0.00	0.00		0.85		0.85	0.85		0.85		0.00
Volume/Cap:	0.89		0.00		0.11	0.00		0.00		0.00	0.00		0.01		0.89	0.89		0.42		0.00
Delay/Veh:	54.3		0.0		18.7	0.0		0.0		0.0	0.0		0.5		9.9	10.7		1.0		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:	54.3		0.0		18.7	0.0		0.0		0.0	0.0		0.5		9.9	10.7		1.0		0.0
DesignQueue:	5		0		1	0		0		0	0		0		6	5		3		0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #40 Patterson Pass Road/ Greenville Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.940
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 34.9
Optimal Cycle: 180 Level Of Service: C

Approach:	North Bound			South Bound			East Bound						West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Protected					Protected				
Rights:	Include					Include					Include					Include				
Min. Green:	0		0		0	0		0		0	0		0		0	0		0		0
Lanes:	1	0	1	1	0	1	0	2	0	1	1	0	0	1	0	1	0	0	1	0
Volume Module:																				
Base Vol:	163	289		1		6	985		432		313	35		31		96	725		36	
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:	163	289		1		6	985		432		313	35		31		96	725		36	
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:	163	289		1		6	985		432		313	35		31		96	725		36	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
Reduced Vol:	163	289		1		6	985		432		313	35		31		96	725		36	
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.:	163	289		1		6	985		432		313	35		31		96	725		36	
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		0.85		0.95	0.93		0.93		0.95	0.99		0.99	
Lanes:	1.00	1.99		0.01		1.00	2.00		1.00		1.00	0.53		0.47		1.00	0.95		0.05	
Final Sat.:	1805	3598		12		1805	3610		1615		1805	937		830		1805	1797		89	
Capacity Analysis Module:																				
Vol/Sat:	0.09	0.08		0.08		0.00	0.27		0.27		0.17	0.04		0.04		0.05	0.40		0.40	
Crit Moves:	****						****				****						****			
Green/Cycle:	0.10	0.37		0.37		0.02	0.29		0.29		0.18	0.25		0.25		0.36	0.43		0.43	
Volume/Cap:	0.94	0.22		0.22		0.22	0.94		0.92		0.94	0.15		0.15		0.15	0.94		0.94	
Delay/Veh:	73.4	10.8		10.8		28.2	32.8		40.8		54.0	14.6		14.6		10.9	32.3		32.3	
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
AdjDel/Veh:	73.4	10.8		10.8		28.2	32.8		40.8		54.0	14.6		14.6		10.9	32.3		32.3	
DesignQueue:	4	5		0		0	21		9		7	1		1		2	13		1	

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #41 Southfront Road/ Greenville Road

Cycle (sec):	80			Critical Vol./Cap. (X):			0.865					
Loss Time (sec):	9 (Y+R = 4 sec)			Average Delay (sec/veh):			9.6					
Optimal Cycle:	80			Level Of Service:			A					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase Ovl			Split Phase Include		
Rights:	Include			Ovl								
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0	3	0	1	1	0	2	1	1	2	1	0	0	1	1	0	0	1	0
Volume Module:												
Base Vol:	58	369	0	0	2388	1800	51	0	195	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:	58	369	0	0	2388	1800	51	0	195	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:	58	369	0	0	2388	1800	51	0	195	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	369	0	0	2388	1800	51	0	195	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.:	58	369	0	0	2388	1800	51	0	195	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	0.85	0.85	0.92	1.00	0.85	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	1.00	2.28	1.72	3.00	0.00	1.00	1.00	1.00	0.00
Final Sat.:	3502	5187	1900	1900	3691	2782	5264	0	1615	1900	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.00	0.00	0.65	0.65	0.01	0.00	0.12	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.02	0.77	0.00	0.00	0.75	0.87	0.12	0.00	0.14	0.00	0.00	0.00
Volume/Cap:	0.87	0.09	0.00	0.00	0.87	0.75	0.08	0.00	0.87	0.00	0.00	0.00
Delay/Veh:	104.2	2.3	0.0	0.0	9.0	2.5	31.3	0.0	61.3	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:	104.2	2.3	0.0	0.0	9.0	2.5	31.3	0.0	61.3	0.0	0.0	0.0
DesignQueue:	3	4	0	0	31	12	2	0	8	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #42 Alden Lane/ Holmes Street

Cycle (sec):	100			Critical Vol./Cap. (X):			0.595					
Loss Time (sec):	9 (Y+R = 4 sec)			Average Delay (sec/veh):			4.2					
Optimal Cycle:	41			Level Of Service:			A					

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0
Volume Module:												
Base Vol:	18	404	0	0	985	68	24	0	12	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:	18	404	0	0	985	68	24	0	12	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:	18	404	0	0	985	68	24	0	12	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	404	0	0	985	68	24	0	12	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.:	18	404	0	0	985	68	24	0	12	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	1.00	0.85	0.95	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	1900	0	0	1900	1615	1805	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.21	0.00	0.00	0.52	0.04	0.01	0.00	0.01	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.02	0.89	0.00	0.00	0.87	0.87	0.02	0.00	0.02	0.00	0.00	0.00
Volume/Cap:	0.60	0.24	0.00	0.00	0.60	0.05	0.60	0.00	0.33	0.00	0.00	0.00
Delay/Veh:	77.1	0.9	0.0	0.0	2.3	0.9	70.3	0.0	53.5	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:	77.1	0.9	0.0	0.0	2.3	0.9	70.3	0.0	53.5	0.0	0.0	0.0
DesignQueue:	1	3	0	0	8	0	1	0	1	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #43 Catalina Drive/ Holmes Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.593
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 9.1
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	0	0	0	1	1	0	0	1	0	0	1	0	0	0	0	0
Volume Module:												
Base Vol:	13	524	0	0	988	170	205	0	72	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:	13	524	0	0	988	170	205	0	72	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:	13	524	0	0	988	170	205	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	524	0	0	988	170	205	0	72	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.:	13	524	0	0	988	170	205	0	72	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	0.93	0.93	0.71	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	2.00	0.00	0.00	1.71	0.29	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	3610	0	0	3012	518	1357	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.15	0.00	0.00	0.33	0.33	0.15	0.00	0.04	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.01	0.57	0.00	0.00	0.55	0.55	0.25	0.00	0.25	0.00	0.00	0.00
Volume/Cap:	0.60	0.26	0.00	0.00	0.59	0.59	0.59	0.00	0.17	0.00	0.00	0.00
Delay/Veh:	62.0	5.6	0.0	0.0	7.9	7.9	19.1	0.0	14.7	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:	62.0	5.6	0.0	0.0	7.9	7.9	19.1	0.0	14.7	0.0	0.0	0.0
DesignQueue:	0	7	0	0	13	2	4	0	2	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #44 Concannon Boulevard/ Holmes Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.700
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 23.3
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	1	1	0	2	0	1	1	0	2	0	1	0	1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #45 First Street/ Holmes Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.358
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 5.4
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	1 0	0	0 2	0 1	1	0	1! 0	0	0 0	0
Volume Module:												
Base Vol:	34	576	0	0	846	275	128	0	41	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:	34	576	0	0	846	275	128	0	41	0	0	0
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:	34	576	0	0	846	0	128	0	41	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	576	0	0	846	0	128	0	41	0	0	0
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.:	34	576	0	0	846	0	128	0	41	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.85	0.85	1.00	1.00	0.95	1.00	0.93	1.00	0.93	1.00	1.00	1.00
Lanes:	0.11	1.89	0.00	0.00	2.00	1.00	1.61	0.00	0.39	0.00	0.00	0.00
Final Sat.:	180	3044	0	0	3610	1900	2842	0	689	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.00	0.00	0.23	0.00	0.05	0.00	0.06	0.00	0.00	0.00
Crit Moves:					****				****			
Green/Cycle:	0.65	0.65	0.00	0.00	0.65	0.00	0.17	0.00	0.17	0.00	0.00	0.00
Volume/Cap:	0.29	0.29	0.00	0.00	0.36	0.00	0.27	0.00	0.36	0.00	0.00	0.00
Delay/Veh:	3.8	3.8	0.0	0.0	4.0	0.0	18.4	0.0	19.0	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:	3.8	3.8	0.0	0.0	4.0	0.0	18.4	0.0	19.0	0.0	0.0	0.0
DesignQueue:	0	6	0	0	9	0	3	0	1	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #46 Fourth Street/ Holmes Street

Cycle (sec): 90 Critical Vol./Cap. (X): 0.940
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 38.4
Optimal Cycle: 123 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 1	1 0	1	0 2	0 1	2	0 1	1 0
Volume Module:												
Base Vol:	253	535	497	140	846	45	22	889	166	368	1424	61
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:	253	535	497	140	846	45	22	889	166	368	1424	61
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:	253	535	497	140	846	45	22	889	166	368	1424	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	535	497	140	846	45	22	889	166	368	1424	61
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.:	253	535	497	140	846	45	22	889	166	368	1424	61
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.94	0.94	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.00	2.00	1.00	1.00	1.90	0.10	1.00	2.00	1.00	2.00	1.92	0.08
Final Sat.:	1805	3610	1615	1805	3400	181	1805	3610	1615	3502	3441	147
Capacity Analysis Module:												
Vol/Sat:	0.14	0.15	0.31	0.08	0.25	0.25	0.01	0.25	0.10	0.11	0.41	0.41
Crit Moves:	****				****		****				****	
Green/Cycle:	0.15	0.30	0.43	0.11	0.26	0.26	0.01	0.32	0.32	0.14	0.44	0.44
Volume/Cap:	0.94	0.50	0.71	0.68	0.94	0.94	0.94	0.78	0.32	0.78	0.94	0.94
Delay/Veh:	76.8	26.3	24.1	46.9	49.1	49.1	203.1	31.2	23.7	45.4	35.5	35.5
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:	76.8	26.3	24.1	46.9	49.1	49.1	203.1	31.2	23.7	45.4	35.5	35.5
DesignQueue:	11	19	15	6	33	2	1	32	6	16	44	2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #47 Mocho Street/ Holmes Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.565
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 6.7
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 1	1 0	0	0 1!	0 0	0	0 1!	0 0
Volume Module:												
Base Vol:	37	989	1	1	1164	107	102	0	29	3	0	18
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:	37	989	1	1	1164	107	102	0	29	3	0	18
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:	37	989	1	1	1164	107	102	0	29	3	0	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	989	1	1	1164	107	102	0	29	3	0	18
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.:	37	989	1	1	1164	107	102	0	29	3	0	18
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	0.94	0.94	0.93	1.00	0.93	0.88	1.00	0.88
Lanes:	1.00	1.99	0.01	1.00	1.83	0.17	0.78	0.00	0.22	0.14	0.00	0.86
Final Sat.:	1805	3606	4	1805	3263	300	1382	0	393	238	0	1430
Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.27	0.00	0.36	0.36	0.07	0.00	0.07	0.01	0.00	0.01
Crit Moves:	****				****		****					****
Green/Cycle:	0.04	0.67	0.67	0.00	0.63	0.63	0.13	0.00	0.13	0.02	0.00	0.02
Volume/Cap:	0.57	0.41	0.41	0.41	0.57	0.57	0.57	0.00	0.57	0.57	0.00	0.57
Delay/Veh:	34.7	4.0	4.0	111.1	5.6	5.6	23.6	0.0	23.6	42.9	0.0	42.9
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:	34.7	4.0	4.0	111.1	5.6	5.6	23.6	0.0	23.6	42.9	0.0	42.9
DesignQueue:	1	10	0	0	13	1	3	0	1	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #48 Vancouver Way- El Caminito/ Holmes Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.516
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 10.9
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 1	1 0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	12	624	25	35	992	11	121	65	14	91	75	52
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	624	25	35	992	11	121	65	14	91	75	52
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:	12	624	25	35	992	11	121	65	14	91	75	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	624	25	35	992	11	121	65	14	91	75	52
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.:	12	624	25	35	992	11	121	65	14	91	75	52
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.97	0.97	0.95	0.94	0.94
Lanes:	1.00	1.92	0.08	1.00	1.98	0.02	1.00	0.82	0.18	1.00	0.59	0.41
Final Sat.:	1805	3450	138	1805	3563	40	1805	1521	328	1805	1054	730
Capacity Analysis Module:												
Vol/Sat:	0.01	0.18	0.18	0.02	0.28	0.28	0.07	0.04	0.04	0.05	0.07	0.07
Crit Moves:	****				****		****				****	
Green/Cycle:	0.01	0.50	0.50	0.05	0.54	0.54	0.13	0.12	0.12	0.14	0.14	0.14
Volume/Cap:	0.52	0.36	0.36	0.36	0.52	0.52	0.52	0.35	0.35	0.35	0.52	0.52
Delay/Veh:	43.2	7.8	7.8	25.2	7.6	7.6	22.3	21.0	21.0	20.1	21.9	21.9
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:	43.2	7.8	7.8	25.2	7.6	7.6	22.3	21.0	21.0	20.1	21.9	21.9
DesignQueue:	0	9	0	1	14	0	3	2	0	2	2	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #49 Concannon Boulevard/ Isabel Avenue

****

Cycle (sec): 95 Critical Vol./Cap. (X): 0.985
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 42.5
Optimal Cycle:OPTIMIZED Level Of Service: D

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2 0 1	2	0	2 0 0	0	0	0 0 0	2	0	0 0 1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #50 Isable Avenue/Stanley Connector Ramp

****

Cycle (sec): 60 Critical Vol./Cap. (X): 0.974
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 30.5
Optimal Cycle:OPTIMIZED Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	3 0 1	2	0	3 0 0	0	0	0 0 0	1	0	0 0 2
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #51 East Vineyard Avenue/ Isabel Avenue

Cycle (sec): 45 Critical Vol./Cap. (X): 0.767
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 13.7
Optimal Cycle: 48 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	0 1	1	0 1!	0 0	1	0 1	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #52 East Jack London Boulevard/ Isabel Avenue-Kitty Hawk Boulevard

Cycle (sec): 80 Critical Vol./Cap. (X): 1.026
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 49.5
Optimal Cycle: 178 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 2	2	0 3	0 1	2	0 2	0 2	2	0 2	0 2
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #53 Las Positas Road/ North Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.692
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 6.7
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	0	0	1	0	1	1	0	1	2	0	2	0	0
Volume Module:																			
Base Vol:	311	16	84	0	4	9	51	811	513	84	1649	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:	311	16	84	0	4	9	51	811	513	84	1649	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:	311	16	84	0	4	9	51	811	513	84	1649	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	311	16	84	0	4	9	51	811	513	84	1649	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.:	311	16	84	0	4	9	51	811	513	84	1649	0
Saturation Flow Module:																			
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.73	0.73	0.85	1.00	0.91	0.91	0.77	0.77	0.85	0.26	0.95	1.00
Lanes:	0.95	0.05	1.00	0.00	0.31	0.69	0.12	1.88	1.00	2.00	2.00	0.00
Final Sat.:	1325	68	1615	0	530	1193	173	2744	1615	1006	3610	0
Capacity Analysis Module:																			
Vol/Sat:	0.23	0.23	0.05	0.00	0.01	0.01	0.30	0.30	0.32	0.08	0.46	0.00
Crit Moves:		****									****	
Green/Cycle:	0.34	0.34	0.34	0.00	0.34	0.34	0.66	0.66	0.66	0.66	0.66	0.00
Volume/Cap:	0.69	0.69	0.15	0.00	0.02	0.02	0.45	0.45	0.48	0.13	0.69	0.00
Delay/Veh:	18.6	18.6	11.6	0.0	11.0	11.0	4.3	4.3	4.6	3.2	6.2	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:	18.6	18.6	11.6	0.0	11.0	11.0	4.3	4.3	4.6	3.2	6.2	0.0
DesignQueue:	6	0	2	0	0	0	1	8	5	1	18	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #54 North Mines Road/Charlotte Way

Cycle (sec): 85 Critical Vol./Cap. (X): 0.479
Loss Time (sec): 24 (Y+R = 4 sec) Average Delay (sec/veh): 23.0
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	1	1	0	2	0	0	1	0	0	0	1	1	0	0	0	2
Volume Module:																				
Base Vol:	17	564	34	71	758	0	117	0	16	99	0	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:	17	564	34	71	758	0	117	0	16	99	0	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:	17	564	34	71	758	0	117	0	16	99	0	170
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	564	34	71	758	0	117	0	16	99	0	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.:	17	564	34	71	758	0	117	0	16	99	0	170
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.95	1.00	0.95	1.00	0.85	0.95	1.00	0.75
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	1.00	0.00	1.00	1.00	0.00	2.00
Final Sat.:	1805	3610	1615	1805	3610	0	1805	0	1615	1805	0	2842
Capacity Analysis Module:																				
Vol/Sat:	0.01	0.16	0.02	0.04	0.21	0.00	0.06	0.00	0.01	0.05	0.00	0.06
Crit Moves:	****				****			****				****
Green/Cycle:	0.02	0.37	0.37	0.09	0.44	0.00	0.14	0.00	0.04	0.22	0.00	0.12
Volume/Cap:	0.48	0.43	0.06	0.43	0.48	0.00	0.48	0.00	0.25	0.25	0.00	0.48
Delay/Veh:	51.1	20.5	17.5	38.2	17.2	0.0	35.5	0.0	41.6	27.7	0.0	35.7
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:	51.1	20.5	17.5	38.2	17.2	0.0	35.5	0.0	41.6	27.7	0.0	35.7
DesignQueue:	1	18	1	3	21	0	5	0	1	4	0	7

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #55 Patterson Pass Road/ North Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.816
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 13.4
Optimal Cycle: 56 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	1!	0	1
Volume Module:												
Base Vol:	0	676	159	682	663	0	0	0	0	201	0	978
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	676	159	682	663	0	0	0	0	201	0	978
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	676	159	682	663	0	0	0	0	201	0	978
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	676	159	682	663	0	0	0	0	201	0	978
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	676	159	682	663	0	0	0	0	201	0	978
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.95	1.00	1.00	1.00	1.00	0.87	1.00	0.87
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.17	0.00	1.83
Final Sat.:	0	3610	1615	1805	3610	0	0	0	0	1933	0	3021
Capacity Analysis Module:												
Vol/Sat:	0.00	0.19	0.10	0.38	0.18	0.00	0.00	0.00	0.00	0.10	0.00	0.32
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.23	0.23	0.46	0.69	0.00	0.00	0.00	0.00	0.13	0.00	0.59
Volume/Cap:	0.00	0.82	0.43	0.82	0.27	0.00	0.00	0.00	0.00	0.82	0.00	0.55
Delay/Veh:	0.0	24.6	17.3	17.8	3.0	0.0	0.0	0.0	0.0	25.0	0.0	6.5
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	24.6	17.3	17.8	3.0	0.0	0.0	0.0	0.0	25.0	0.0	6.5
DesignQueue:	0	15	3	11	6	0	0	0	0	5	0	12

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #56 Tesla Road/ Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.648
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 1.8
Optimal Cycle: 41 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0
Volume Module:												
Base Vol:	38	0	11	0	0	0	0	510	17	13	1180	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:	38	0	11	0	0	0	0	510	17	13	1180	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:	38	0	11	0	0	0	0	510	17	13	1180	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	0	11	0	0	0	0	510	17	13	1180	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.:	38	0	11	0	0	0	0	510	17	13	1180	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.97	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.84	1.00	1.00
Lanes:	0.78	0.00	0.22	0.00	0.00	0.00	0.00	0.97	0.03	1.00	1.00	0.00
Final Sat.:	1429	0	414	0	0	0	0	1831	61	1602	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.28	0.28	0.01	0.62	0.00
Crit Moves:	****										****	
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.96	0.96	0.96	0.96	0.00
Volume/Cap:	0.65	0.00	0.65	0.00	0.00	0.00	0.00	0.29	0.29	0.01	0.65	0.00
Delay/Veh:	41.5	0.0	41.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.9	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:	41.5	0.0	41.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.9	0.0
DesignQueue:	1	0	0	0	0	0	0	1	0	0	2	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #57 Murrieta Boulevard/ Fenton Street

****

Cycle (sec): 55 Critical Vol./Cap. (X): 0.692
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 6.7
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	1! 0	0	1	0	2	0	0
Volume Module:												
Base Vol:	0	0	0	26	0	102	26	930	0	0	1642	88
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	0	0	26	0	102	26	930	0	0	1642	88
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	0	0	26	0	102	26	930	0	0	1642	88
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	26	0	102	26	930	0	0	1642	88
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	0	0	26	0	102	26	930	0	0	1642	88
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.83	1.00	0.83	0.95	0.95	1.00	1.00	0.94	0.94
Lanes:	0.00	0.00	0.00	0.20	0.00	0.80	1.00	2.00	0.00	0.00	1.90	0.10
Final Sat.:	0	0	0	320	0	1255	1805	3610	0	0	3399	182
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.08	0.00	0.08	0.01	0.26	0.00	0.00	0.48	0.48
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.12	0.00	0.12	0.02	0.72	0.00	0.00	0.70	0.70
Volume/Cap:	0.00	0.00	0.00	0.69	0.00	0.69	0.69	0.36	0.00	0.00	0.69	0.69
Delay/Veh:	0.0	0.0	0.0	34.0	0.0	34.0	70.2	3.0	0.0	0.0	5.7	5.7
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:	0.0	0.0	0.0	34.0	0.0	34.0	70.2	3.0	0.0	0.0	5.7	5.7
DesignQueue:	0	0	0	1	0	3	1	9	0	0	17	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #58 Jack London Boulevard/ Murrieta Boulevard

****

Cycle (sec): 110 Critical Vol./Cap. (X): 0.911
Loss Time (sec): 24 (Y+R = 4 sec) Average Delay (sec/veh): 37.0
Optimal Cycle:OPTIMIZED Level Of Service: D

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Split Phase			Split Phase		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	1	1	0	0	0	0	1	1	0	1	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #59 Olivina Avenue/ Murrieta Boulevard

Cycle (sec): 85 Critical Vol./Cap. (X): 0.802
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 32.2
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 1	1 0	0	1 0	0 1	0	1 0	1 0
Volume Module:												
Base Vol:	312	1146	76	50	554	128	30	85	154	289	342	247
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:	312	1146	76	50	554	128	30	85	154	289	342	247
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:	312	1146	76	50	554	128	30	85	154	289	342	247
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	312	1146	76	50	554	128	30	85	154	289	342	247
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.:	312	1146	76	50	554	128	30	85	154	289	342	247
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.92	0.92	0.99	0.99	0.85	0.90	0.90	0.90
Lanes:	1.00	1.88	0.12	1.00	1.62	0.38	0.26	0.74	1.00	0.66	0.78	0.56
Final Sat.:	1805	3355	222	1805	2850	659	489	1386	1615	1120	1326	957
Capacity Analysis Module:												
Vol/Sat:	0.17	0.34	0.34	0.03	0.19	0.19	0.06	0.06	0.10	0.26	0.26	0.26
Crit Moves:		****		****				****		****		
Green/Cycle:	0.22	0.43	0.43	0.03	0.24	0.24	0.08	0.08	0.29	0.32	0.32	0.32
Volume/Cap:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.33	0.80	0.80	0.80
Delay/Veh:	42.4	24.4	24.4	91.5	35.5	35.5	65.3	65.3	23.9	30.7	30.7	30.7
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:	42.4	24.4	24.4	91.5	35.5	35.5	65.3	65.3	23.9	30.7	30.7	30.7
DesignQueue:	12	34	2	2	21	5	1	4	5	10	12	8

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #60 North Canyons Parkway/ Airway Boulevard

Cycle (sec): 85 Critical Vol./Cap. (X): 0.763
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 23.3
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	1 1	0	0 0	0 0	0	0 3	0 2	2	0 2	0 0
Volume Module:												
Base Vol:	1025	10	2066	0	0	0	0	493	566	1083	688	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:	1025	10	2066	0	0	0	0	493	566	1083	688	0
User 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
PHF 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
PHF Volume:	1025	10	0	0	0	0	0	493	566	1083	688	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1025	10	0	0	0	0	0	493	566	1083	688	0
PCE 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
MLF 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
Final Vol.:	1025	10	0	0	0	0	0	493	566	1083	688	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.75	0.92	0.95	1.00
Lanes:	2.00	1.00	1.00	0.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00	0.00
Final Sat.:	3686	1900	1900	0	0	0	0	5187	2842	3502	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.28	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.31	0.19	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.12	0.49	0.41	0.53	0.00
Volume/Cap:	0.76	0.01	0.00	0.00	0.00	0.00	0.00	0.76	0.41	0.76	0.36	0.00
Delay/Veh:	26.4	17.3	0.0	0.0	0.0	0.0	0.0	41.4	14.1	24.3	11.7	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:	26.4	17.3	0.0	0.0	0.0	0.0	0.0	41.4	14.1	24.3	11.7	0.0
DesignQueue:	33	0	0	0	0	0	0	21	14	33	16	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #61 North Canyons Parkway/ Collier Canyon Road

****

Cycle (sec): 105 Critical Vol./Cap. (X): 0.867
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 34.9
Optimal Cycle: 98 Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	2	0 1 0 2	2	0	3 0 1	1	0	3 0 1
Volume Module:												
Base Vol:	308	2	0	671	4	805	421	793	33	97	1629	358
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:	308	2	0	671	4	805	421	793	33	97	1629	358
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:	308	2	0	671	4	805	421	793	33	97	1629	358
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	308	2	0	671	4	805	421	793	33	97	1629	358
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.:	308	2	0	671	4	805	421	793	33	97	1629	358
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.92	1.00	0.75	0.92	0.91	0.85	0.95	0.91	0.85
Lanes:	1.00	1.00	0.00	2.00	1.00	2.00	2.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	1805	1900	0	3502	1900	2842	3502	5187	1615	1805	5187	1615
Capacity Analysis Module:												
Vol/Sat:	0.17	0.00	0.00	0.19	0.00	0.28	0.12	0.15	0.02	0.05	0.31	0.22
Crit Moves:	****					****	****				****	
Green/Cycle:	0.20	0.00	0.00	0.38	0.19	0.33	0.14	0.37	0.37	0.13	0.36	0.74
Volume/Cap:	0.87	0.50	0.00	0.50	0.01	0.87	0.87	0.41	0.06	0.41	0.87	0.30
Delay/Veh:	60.4	127	0.0	25.0	34.7	41.9	59.4	24.7	21.3	43.1	35.7	4.5
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:	60.4	127	0.0	25.0	34.7	41.9	59.4	24.7	21.3	43.1	35.7	4.5
DesignQueue:	15	0	0	25	0	33	22	30	1	5	66	6

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #62 Chestnut Street/ North Livermore Avenue

****

Cycle (sec): 75 Critical Vol./Cap. (X): 0.825
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 26.9
Optimal Cycle: OPTIMIZED Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 1	0	1	0 2 0 1	1	0	1 0 1	1	0	1 0 1
Volume Module:												
Base Vol:	400	888	196	3	1035	71	53	147	121	194	183	16
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:	400	888	196	3	1035	71	53	147	121	194	183	16
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:	400	888	196	3	1035	71	53	147	121	194	183	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	888	196	3	1035	71	53	147	121	194	183	16
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.:	400	888	196	3	1035	71	53	147	121	194	183	16
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	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.64	0.36	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	2877	635	1805	3610	1615	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.22	0.31	0.31	0.00	0.29	0.04	0.03	0.08	0.07	0.11	0.10	0.01
Crit Moves:	****				****			****		****		
Green/Cycle:	0.27	0.61	0.61	0.00	0.35	0.35	0.09	0.09	0.09	0.13	0.13	0.13
Volume/Cap:	0.83	0.50	0.50	0.50	0.83	0.13	0.31	0.83	0.80	0.83	0.74	0.08
Delay/Veh:	36.8	8.3	8.3	92.8	27.0	16.8	32.8	59.2	58.4	52.4	42.6	28.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.8	8.3	8.3	92.8	27.0	16.8	32.8	59.2	58.4	52.4	42.6	28.8
DesignQueue:	13	15	3	0	30	2	2	6	5	7	7	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #63 Cromwell Way/ North Livermore Avenue

Cycle (sec): 55 Critical Vol./Cap. (X): 0.481
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 6.1
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2 0 1	1	0	2 1 0	1	0	0 1 0	1	0	0 1 0
Volume Module:												
Base Vol:	12	1162	11	6	1023	31	48	2	9	43	0	39
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	1162	11	6	1023	31	48	2	9	43	0	39
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:	12	1162	11	6	1023	31	48	2	9	43	0	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	1162	11	6	1023	31	48	2	9	43	0	39
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.:	12	1162	11	6	1023	31	48	2	9	43	0	39
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.91	0.91	0.95	0.88	0.88	0.95	1.00	0.85
Lanes:	1.00	2.00	1.00	1.00	2.91	0.09	1.00	0.18	0.82	1.00	0.00	1.00
Final Sat.:	1805	3610	1615	1805	5014	152	1805	303	1363	1805	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.32	0.01	0.00	0.20	0.20	0.03	0.01	0.01	0.02	0.00	0.02
Crit Moves:		****		****			****					****
Green/Cycle:	0.02	0.67	0.67	0.01	0.65	0.65	0.06	0.06	0.06	0.05	0.00	0.05
Volume/Cap:	0.31	0.48	0.01	0.48	0.31	0.31	0.48	0.12	0.12	0.47	0.00	0.48
Delay/Veh:	31.1	4.6	3.0	53.6	4.2	4.2	28.8	25.3	25.3	29.3	0.0	29.9
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:	31.1	4.6	3.0	53.6	4.2	4.2	28.8	25.3	25.3	29.3	0.0	29.9
DesignQueue:	0	13	0	0	11	0	1	0	0	1	0	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #64 North Livermore Avenue/ I-580 Eastbound Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.642
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 12.6
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2 0 1	1	0	2 0 0	2	0	0 0 2	0	0	0 0 0
Volume Module:												
Base Vol:	0	918	381	24	578	0	327	0	736	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	918	381	24	578	0	327	0	736	0	0	0
User 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
PHF 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
PHF Volume:	0	918	0	24	578	0	327	0	736	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	918	0	24	578	0	327	0	736	0	0	0
PCE 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
MLF 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
Final Vol.:	0	918	0	24	578	0	327	0	736	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	0.95	0.95	1.00	0.92	1.00	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	0	3610	1900	1805	3610	0	3502	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.25	0.00	0.01	0.16	0.00	0.09	0.00	0.26	0.00	0.00	0.00
Crit Moves:		****		****					****			
Green/Cycle:	0.00	0.40	0.00	0.02	0.42	0.00	0.40	0.00	0.40	0.00	0.00	0.00
Volume/Cap:	0.00	0.64	0.00	0.64	0.38	0.00	0.23	0.00	0.64	0.00	0.00	0.00
Delay/Veh:	0.0	13.2	0.0	56.5	10.3	0.0	9.9	0.0	13.3	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:	0.0	13.2	0.0	56.5	10.3	0.0	9.9	0.0	13.3	0.0	0.0	0.0
DesignQueue:	0	16	0	1	10	0	6	0	13	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #65 North Livermore Avenue/ I-580 Westbound Ramps

Cycle (sec):	50	Critical Vol./Cap. (X):	0.586
Loss Time (sec):	9 (Y+R = 4 sec)	Average Delay (sec/veh):	13.9
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Permitted		
Rights:	Include			Ignore			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 1	0 0	0	0 2	0 1	0	0 0	0 0	1	1 0	0 1
Volume Module:												
Base Vol:	968	95	0	0	374	698	0	0	0	318	6	15
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:	968	95	0	0	374	698	0	0	0	318	6	15
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	968	95	0	0	374	0	0	0	0	318	6	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	968	95	0	0	374	0	0	0	0	318	6	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	968	95	0	0	374	0	0	0	0	318	6	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.85	0.85	1.00
Lanes:	2.00	1.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00	1.96	0.04	1.00
Final Sat.:	3502	1900	0	0	3610	1900	0	0	0	3170	60	1900
Capacity Analysis Module:												
Vol/Sat:	0.28	0.05	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	0.10	0.00
Crit Moves:	****				****						****	
Green/Cycle:	0.47	0.65	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.17	0.17	0.00
Volume/Cap:	0.59	0.08	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.59	0.59	0.00
Delay/Veh:	10.2	3.3	0.0	0.0	20.3	0.0	0.0	0.0	0.0	20.7	20.7	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:	10.2	3.3	0.0	0.0	20.3	0.0	0.0	0.0	0.0	20.7	20.7	0.0
DesignQueue:	15	1	0	0	9	0	0	0	0	7	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #66 Las Positas Road/ North Livermore Avenue

Cycle (sec):	65	Critical Vol./Cap. (X):	0.755
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	18.3
Optimal Cycle:	59	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	1 1	2	0 2	0 1	1	0 1	0 1	2	0 1	0 2
Volume Module:												
Base Vol:	74	466	1097	347	462	70	62	56	46	617	135	863
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:	74	466	1097	347	462	70	62	56	46	617	135	863
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:	74	466	1097	347	462	70	62	56	46	617	135	863
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	466	1097	347	462	70	62	56	46	617	135	863
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.:	74	466	1097	347	462	70	62	56	46	617	135	863
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.81	0.81	0.92	0.95	0.85	0.95	1.00	0.85	0.92	1.00	0.75
Lanes:	1.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00
Final Sat.:	1805	3095	3095	3502	3610	1615	1805	1900	1615	3502	1900	2842
Capacity Analysis Module:												
Vol/Sat:	0.04	0.15	0.35	0.10	0.13	0.04	0.03	0.03	0.03	0.18	0.07	0.30
Crit Moves:			****	****			****					****
Green/Cycle:	0.09	0.24	0.62	0.13	0.28	0.28	0.05	0.06	0.06	0.38	0.40	0.40
Volume/Cap:	0.46	0.64	0.57	0.75	0.46	0.16	0.75	0.46	0.44	0.46	0.18	0.75
Delay/Veh:	30.2	22.9	7.6	34.2	19.7	17.9	62.8	32.1	32.3	15.2	12.6	19.6
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:	30.2	22.9	7.6	34.2	19.7	17.9	62.8	32.1	32.3	15.2	12.6	19.6
DesignQueue:	2	13	16	11	12	2	2	2	2	14	3	20

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #67 Portola Avenue/ North Livermore Avenue

Cycle (sec): 66 Critical Vol./Cap. (X): 0.904
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 36.0
Optimal Cycle: 88 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	2	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	375	703	229	65	396	330	346	419	153	367	1167	179
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:	375	703	229	65	396	330	346	419	153	367	1167	179
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:	375	703	229	65	396	330	346	419	153	367	1167	179
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	375	703	229	65	396	330	346	419	153	367	1167	179
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.:	375	703	229	65	396	330	346	419	153	367	1167	179
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	0.95	0.85	0.92	0.91	0.91	0.95	0.95	0.85
Lanes:	1.00	1.51	0.49	1.00	2.00	1.00	2.00	1.47	0.53	1.00	2.00	1.00
Final Sat.:	1805	2622	854	1805	3610	1615	3502	2539	927	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.21	0.27	0.27	0.04	0.11	0.20	0.10	0.17	0.17	0.20	0.32	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.23	0.31	0.31	0.04	0.12	0.23	0.11	0.21	0.21	0.26	0.36	0.36
Volume/Cap:	0.90	0.87	0.87	0.87	0.90	0.89	0.90	0.79	0.79	0.79	0.90	0.31
Delay/Veh:	47.4	29.0	29.0	92.1	50.4	46.1	53.1	30.5	30.5	31.6	29.3	15.6
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:	47.4	29.0	29.0	92.1	50.4	46.1	53.1	30.5	30.5	31.6	29.3	15.6
DesignQueue:	11	19	6	2	13	10	12	13	5	11	30	4

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #68 Railroad Avenue/ North Livermore Avenue

Cycle (sec): 115 Critical Vol./Cap. (X): 1.462
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 171.5
Optimal Cycle:OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	46	298	8	262	281	766	713	1022	28	4	1497	590
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:	46	298	8	262	281	766	713	1022	28	4	1497	590
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:	46	298	8	262	281	766	713	1022	28	4	1497	590
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	46	298	8	262	281	766	713	1022	28	4	1497	590
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.:	46	298	8	262	281	766	713	1022	28	4	1497	590
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	0.85	0.95	0.95	0.95	0.95	0.95	0.85
Lanes:	1.00	1.95	0.05	1.00	2.00	1.00	1.00	1.95	0.05	1.00	2.00	1.00
Final Sat.:	1805	3502	94	1805	3610	1615	1805	3500	96	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.09	0.09	0.15	0.08	0.47	0.40	0.29	0.29	0.00	0.41	0.37
Crit Moves:	****					****	****				****	
Green/Cycle:	0.02	0.13	0.13	0.22	0.32	0.32	0.27	0.55	0.55	0.00	0.28	0.28
Volume/Cap:	1.46	0.67	0.67	0.67	0.24	1.46	1.46	0.53	0.53	0.53	1.46	1.29
Delay/Veh:	380.6	51.9	51.9	46.0	28.6	257.1	261.0	16.8	16.8	114.7	255	186.5
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:	380.6	51.9	51.9	46.0	28.6	257.1	261.0	16.8	16.8	114.7	255	186.5
DesignQueue:	3	17	0	14	12	37	37	32	1	0	76	29

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #69 Junction Avenue/ North Livermore Avenue

Cycle (sec):	50		Critical Vol./Cap. (X):		0.679
Loss Time (sec):	0 (Y+R = 4 sec)		Average Delay (sec/veh):		7.6
Optimal Cycle:	OPTIMIZED		Level Of Service:		A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1 0	1 0	0	1 0	1 0	0	0 1!	0 0	0	0 1!	0 0
Volume Module:												
Base Vol:	180	1011	11	87	544	439	140	43	15	10	133	196
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:	180	1011	11	87	544	439	140	43	15	10	133	196
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:	180	1011	11	87	544	439	140	43	15	10	133	196
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	180	1011	11	87	544	439	140	43	15	10	133	196
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.:	180	1011	11	87	544	439	140	43	15	10	133	196
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.66	0.66	0.66	0.71	0.71	0.71	0.52	0.52	0.52	0.91	0.91	0.91
Lanes:	0.30	1.68	0.02	0.16	1.02	0.82	0.71	0.22	0.07	0.03	0.39	0.58
Final Sat.:	376	2114	23	221	1380	1114	698	214	75	51	681	1004
Capacity Analysis Module:												
Vol/Sat:	0.48	0.48	0.48	0.39	0.39	0.39	0.20	0.20	0.20	0.20	0.20	0.20
Crit Moves:		****						****				
Green/Cycle:	0.70	0.70	0.70	0.70	0.70	0.70	0.30	0.30	0.30	0.30	0.30	0.30
Volume/Cap:	0.68	0.68	0.68	0.56	0.56	0.56	0.68	0.68	0.68	0.66	0.66	0.66
Delay/Veh:	5.3	5.3	5.3	4.0	4.0	4.0	21.8	21.8	21.8	18.6	18.6	18.6
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:	5.3	5.3	5.3	4.0	4.0	4.0	21.8	21.8	21.8	18.6	18.6	18.6
DesignQueue:	2	9	0	1	5	4	3	1	0	0	3	4

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #70 Olivina Avenue- Chestnut Street/ North P Street

Cycle (sec):	70		Critical Vol./Cap. (X):		0.674
Loss Time (sec):	12 (Y+R = 4 sec)		Average Delay (sec/veh):		19.5
Optimal Cycle:	52		Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 0	1 0	1	0 1	0 1	1	0 0	1 0
Volume Module:												
Base Vol:	163	158	54	18	193	58	17	227	147	111	614	14
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:	163	158	54	18	193	58	17	227	147	111	614	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	163	158	54	18	193	58	17	227	0	111	614	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	163	158	54	18	193	58	17	227	0	111	614	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	163	158	54	18	193	58	17	227	0	111	614	14
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.96	0.96	0.95	0.97	0.97	0.24	1.00	1.00	0.59	1.00	1.00
Lanes:	1.00	0.75	0.25	1.00	0.77	0.23	1.00	1.00	1.00	1.00	0.98	0.02
Final Sat.:	1805	1362	466	1805	1410	424	450	1900	1900	1119	1852	42
Capacity Analysis Module:												
Vol/Sat:	0.09	0.12	0.12	0.01	0.14	0.14	0.04	0.12	0.00	0.10	0.33	0.33
Crit Moves:	****				****						****	
Green/Cycle:	0.13	0.31	0.31	0.03	0.20	0.20	0.49	0.49	0.00	0.49	0.49	0.49
Volume/Cap:	0.67	0.37	0.37	0.37	0.67	0.67	0.08	0.24	0.00	0.20	0.67	0.67
Delay/Veh:	36.2	19.3	19.3	38.3	30.6	30.6	9.5	10.4	0.0	10.2	15.5	15.5
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:	36.2	19.3	19.3	38.3	30.6	30.6	9.5	10.4	0.0	10.2	15.5	15.5
DesignQueue:	6	4	1	1	6	2	0	5	0	2	13	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #71 Northfront/ I-580 Westbound Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.978
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 31.4
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0
Volume Module:												
Base Vol:	55	0	1030	0	0	0	0	433	6	255	453	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:	55	0	1030	0	0	0	0	433	6	255	453	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:	55	0	1030	0	0	0	0	433	6	255	453	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	0	1030	0	0	0	0	433	6	255	453	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.:	55	0	1030	0	0	0	0	433	6	255	453	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.87	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.55	0.55	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.72	1.28	0.00
Final Sat.:	1647	0	1615	0	0	0	0	1900	1615	750	1333	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.64	0.00	0.00	0.00	0.00	0.23	0.00	0.34	0.34	0.00
Crit Moves:			****								****	
Green/Cycle:	0.65	0.00	0.65	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.35	0.00
Volume/Cap:	0.05	0.00	0.98	0.00	0.00	0.00	0.00	0.66	0.01	0.98	0.98	0.00
Delay/Veh:	3.1	0.0	30.7	0.0	0.0	0.0	0.0	16.2	10.7	44.0	44.0	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:	3.1	0.0	30.7	0.0	0.0	0.0	0.0	16.2	10.7	44.0	44.0	0.0
DesignQueue:	1	0	12	0	0	0	0	8	0	5	9	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #72 Pine Street/ North L Street

Cycle (sec): 100 Critical Vol./Cap. (X): 0.624
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 16.9
Optimal Cycle: 38 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	1	0	0	1	0	1	0	0	1!	0	0	0	0	0	1	0
Volume Module:												
Base Vol:	25	301	3	83	118	253	302	70	4	0	815	9
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	301	3	83	118	253	302	70	4	0	815	9
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	301	3	83	118	253	302	70	4	0	815	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	301	3	83	118	253	302	70	4	0	815	9
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	301	3	83	118	253	302	70	4	0	815	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.86	0.86	0.86	0.70	0.70	0.70	0.50	0.50	0.50	1.00	1.00	1.00
Lanes:	0.15	1.83	0.02	0.41	0.59	1.00	0.80	0.19	0.01	0.00	0.99	0.01
Final Sat.:	248	2989	30	549	780	1329	768	178	10	0	1877	21
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.10	0.15	0.15	0.19	0.39	0.39	0.39	0.00	0.43	0.43
Crit Moves:						****					****	
Green/Cycle:	0.30	0.30	0.30	0.30	0.30	0.30	0.70	0.70	0.70	0.00	0.70	0.70
Volume/Cap:	0.33	0.33	0.33	0.50	0.50	0.62	0.57	0.57	0.57	0.00	0.62	0.62
Delay/Veh:	27.1	27.1	27.1	28.9	28.9	31.6	8.8	8.8	8.8	0.0	9.2	9.2
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:	27.1	27.1	27.1	28.9	28.9	31.6	8.8	8.8	8.8	0.0	9.2	9.2
DesignQueue:	1	12	0	3	5	10	5	1	0	0	16	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #73 Pine Street/ North P Street

Cycle (sec):	70		Critical Vol./Cap. (X):		0.480
Loss Time (sec):	0 (Y+R = 4 sec)		Average Delay (sec/veh):		8.5
Optimal Cycle:	28		Level Of Service:		A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 0	1 0	0	0 1!	0 0	0	0 1!	0 0
Volume Module:												
Base Vol:	75	109	17	7	115	15	16	134	38	18	706	12
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:	75	109	17	7	115	15	16	134	38	18	706	12
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:	75	109	17	7	115	15	16	134	38	18	706	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	75	109	17	7	115	15	16	134	38	18	706	12
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.:	75	109	17	7	115	15	16	134	38	18	706	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.44	0.98	0.98	0.45	0.98	0.98	0.92	0.92	0.92	0.99	0.99	0.99
Lanes:	1.00	0.87	0.13	1.00	0.88	0.12	0.09	0.71	0.20	0.02	0.96	0.02
Final Sat.:	840	1611	251	857	1652	216	149	1247	353	46	1806	31
Capacity Analysis Module:												
Vol/Sat:	0.09	0.07	0.07	0.01	0.07	0.07	0.11	0.11	0.11	0.39	0.39	0.39
Crit Moves:	****										****	
Green/Cycle:	0.19	0.19	0.19	0.19	0.19	0.19	0.81	0.81	0.81	0.81	0.81	0.81
Volume/Cap:	0.48	0.36	0.36	0.04	0.37	0.37	0.13	0.13	0.13	0.48	0.48	0.48
Delay/Veh:	27.8	25.5	25.5	23.5	25.6	25.6	1.4	1.4	1.4	2.2	2.2	2.2
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:	27.8	25.5	25.5	23.5	25.6	25.6	1.4	1.4	1.4	2.2	2.2	2.2
DesignQueue:	2	4	1	0	4	0	0	1	0	0	6	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #74 Portola Avenue/ North L Street

Cycle (sec):	65		Critical Vol./Cap. (X):		0.881
Loss Time (sec):	9 (Y+R = 4 sec)		Average Delay (sec/veh):		16.1
Optimal Cycle:	77		Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	0 1	0	0 1!	0 0	1	0 2	0 1	1	0 1	1 0
Volume Module:												
Base Vol:	352	0	130	15	7	5	2	929	146	170	2318	1
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:	352	0	130	15	7	5	2	929	146	170	2318	1
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:	352	0	130	15	7	5	2	929	146	170	2318	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	352	0	130	15	7	5	2	929	146	170	2318	1
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.:	352	0	130	15	7	5	2	929	146	170	2318	1
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	0.95	0.95	0.95	0.95	0.95	0.85	0.95	0.95	0.95
Lanes:	2.00	0.00	1.00	0.56	0.26	0.18	1.00	2.00	1.00	1.00	1.99	0.01
Final Sat.:	3502	0	1615	1001	467	334	1805	3610	1615	1805	3608	2
Capacity Analysis Module:												
Vol/Sat:	0.10	0.00	0.08	0.01	0.01	0.01	0.00	0.26	0.09	0.09	0.64	0.64
Crit Moves:	****			****			****				****	
Green/Cycle:	0.11	0.00	0.11	0.02	0.02	0.02	0.00	0.53	0.53	0.20	0.73	0.73
Volume/Cap:	0.88	0.00	0.71	0.88	0.88	0.88	0.88	0.48	0.17	0.48	0.88	0.88
Delay/Veh:	48.1	0.0	39.5	145.0	145	145.0	510.8	9.7	7.8	24.2	10.5	10.5
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:	48.1	0.0	39.5	145.0	145	145.0	510.8	9.7	7.8	24.2	10.5	10.5
DesignQueue:	12	0	4	1	0	0	0	17	3	5	27	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #75 Portola Avenue/ Murrieta Boulevard

Cycle (sec): 75 Critical Vol./Cap. (X): 0.927
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 23.0
Optimal Cycle: 101 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Ovl				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	2	0 2	0	1	1	0 2	0	1	2	0 1	0	1	1	0 0	1	0
Volume Module:																
Base Vol:	131	2317	42		28	576	205		532	3	266		30	12		1
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:	131	2317	42		28	576	205		532	3	266		30	12		1
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:	131	2317	42		28	576	205		532	3	266		30	12		1
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0		0
Reduced Vol:	131	2317	42		28	576	205		532	3	266		30	12		1
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.:	131	2317	42		28	576	205		532	3	266		30	12		1
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900		1900
Adjustment:	0.92	0.95	0.85		0.95	0.95	0.85		0.92	1.00	0.85		0.95	0.99		0.99
Lanes:	2.00	2.00	1.00		1.00	2.00	1.00		2.00	1.00	1.00		1.00	0.92		0.08
Final Sat.:	3502	3610	1615		1805	3610	1615		3502	1900	1615		1805	1733		144
Capacity Analysis Module:																
Vol/Sat:	0.04	0.64	0.03		0.02	0.16	0.13		0.15	0.00	0.16		0.02	0.01		0.01
Crit Moves:		****			****				****					****		
Green/Cycle:	0.13	0.69	0.69		0.02	0.57	0.57		0.16	0.15	0.29		0.02	0.01		0.01
Volume/Cap:	0.28	0.93	0.04		0.93	0.28	0.22		0.93	0.01	0.58		0.84	0.93		0.93
Delay/Veh:	29.5	16.7	3.7		169.7	8.2	7.9		52.3	27.1	24.7		125.1	239		239.2
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:	29.5	16.7	3.7		169.7	8.2	7.9		52.3	27.1	24.7		125.1	239		239.2
DesignQueue:	5	35	1		1	11	4		19	0	8		1	0		0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #76 North P Street - Paseo Laguna Seco - Portola Avenue

Cycle (sec): 50 Critical Vol./Cap. (X): 0.929
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 13.0
Optimal Cycle: 180 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Ovl				Ovl				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0 0	1	0	0	0 1!	0	0	1	0 2	0	1	1	0 1	1	0
Volume Module:																
Base Vol:	202	3	36		25	28	61		14	1009	41		18	2672		12
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:	202	3	36		25	28	61		14	1009	41		18	2672		12
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:	202	3	36		25	28	61		14	1009	41		18	2672		12
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0		0
Reduced Vol:	202	3	36		25	28	61		14	1009	41		18	2672		12
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.:	202	3	36		25	28	61		14	1009	41		18	2672		12
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900		1900
Adjustment:	0.95	0.86	0.86		0.92	0.92	0.92		0.95	0.95	0.85		0.95	0.95		0.95
Lanes:	1.00	0.08	0.92		0.22	0.25	0.53		1.00	2.00	1.00		1.00	1.99		0.01
Final Sat.:	1805	126	1512		382	428	933		1805	3610	1615		1805	3590		16
Capacity Analysis Module:																
Vol/Sat:	0.11	0.02	0.02		0.07	0.07	0.07		0.01	0.28	0.03		0.01	0.74		0.74
Crit Moves:	****				****				****					****		
Green/Cycle:	0.12	0.12	0.15		0.07	0.07	0.08		0.01	0.78	0.78		0.03	0.80		0.80
Volume/Cap:	0.93	0.20	0.16		0.93	0.93	0.83		0.93	0.36	0.03		0.36	0.93		0.93
Delay/Veh:	63.5	20.3	18.9		82.7	82.7	55.5		220.0	1.7	1.2		28.2	10.0		10.0
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:	63.5	20.3	18.9		82.7	82.7	55.5		220.0	1.7	1.2		28.2	10.0		10.0
DesignQueue:	5	0	1		1	1	2		0	7	0		0	18		0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #77 Railroad Avenue/ North L Street

Cycle (sec): 125 Critical Vol./Cap. (X): 0.916
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 36.1
Optimal Cycle: 133 Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0		0	0	0		0	0	0		0	0	0		0
Lanes:	1	0	1	1 0	1	0	1	1 0	1	0	1	1 0	1	0	2	0 1
Volume Module:																
Base Vol:	33	150		350	58	202		67	24	1640		27	211	1717		210
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:	33	150		350	58	202		67	24	1640		27	211	1717		210
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:	33	150		350	58	202		67	24	1640		27	211	1717		210
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
Reduced Vol:	33	150		350	58	202		67	24	1640		27	211	1717		210
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.:	33	150		350	58	202		67	24	1640		27	211	1717		210
Saturation Flow Module:																
Sat/Lane:	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900		1900
Adjustment:	0.95	0.85		0.85	0.95	0.91		0.91	0.95	0.95		0.95	0.95	0.95		0.85
Lanes:	1.00	1.00		1.00	1.00	1.50		0.50	1.00	1.97		0.03	1.00	2.00		1.00
Final Sat.:	1805	1615		1615	1805	2611		866	1805	3544		58	1805	3610		1615
Capacity Analysis Module:																
Vol/Sat:	0.02	0.09		0.22	0.03	0.08		0.08	0.01	0.46		0.46	0.12	0.48		0.13
Crit Moves:				****	****					****			****			
Green/Cycle:	0.05	0.24		0.24	0.04	0.22		0.22	0.02	0.50		0.50	0.13	0.62		0.62
Volume/Cap:	0.35	0.39		0.92	0.92	0.35		0.35	0.77	0.92		0.92	0.92	0.77		0.21
Delay/Veh:	59.5	40.4		66.8	143.8	41.5		41.5	134.8	36.3		36.3	91.1	19.4		10.7
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:	59.5	40.4		66.8	143.8	41.5		41.5	134.8	36.3		36.3	91.1	19.4		10.7
DesignQueue:	2	8		20	4	11		4	2	64		1	13	52		6

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #78 Railroad Avenue/ North P Street

Cycle (sec): 95 Critical Vol./Cap. (X): 0.665
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 19.9
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	0	0		0	0	0		0	0	0		0	0	0		0
Lanes:	1	0	1	0 1	1	0	2	0 1	1	0	1	1 0	1	0	1	1 0
Volume Module:																
Base Vol:	41	208		64	54	260		178	71	1320		17	40	1391		54
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:	41	208		64	54	260		178	71	1320		17	40	1391		54
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:	41	208		64	54	260		178	71	1320		17	40	1391		54
Reduct Vol:	0	0		0	0	0		0	0	0		0	0	0		0
Reduced Vol:	41	208		64	54	260		178	71	1320		17	40	1391		54
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.:	41	208		64	54	260		178	71	1320		17	40	1391		54
Saturation Flow Module:																
Sat/Lane:	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900		1900
Adjustment:	0.95	1.00		0.85	0.95	0.95		0.85	0.95	0.95		0.95	0.95	0.94		0.94
Lanes:	1.00	1.00		1.00	1.00	2.00		1.00	1.00	1.97		0.03	1.00	1.93		0.07
Final Sat.:	1805	1900		1615	1805	3610		1615	1805	3557		46	1805	3454		134
Capacity Analysis Module:																
Vol/Sat:	0.02	0.11		0.04	0.03	0.07		0.11	0.04	0.37		0.37	0.02	0.40		0.40
Crit Moves:		****			****				****					****		
Green/Cycle:	0.04	0.16		0.20	0.04	0.17		0.17	0.06	0.63		0.63	0.04	0.61		0.61
Volume/Cap:	0.63	0.67		0.20	0.67	0.41		0.63	0.67	0.59		0.59	0.59	0.67		0.67
Delay/Veh:	64.1	42.6		31.8	63.7	35.4		41.2	58.6	10.9		10.9	58.3	13.2		13.2
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:	64.1	42.6		31.8	63.7	35.4		41.2	58.6	10.9		10.9	58.3	13.2		13.2
DesignQueue:	2	9		3	3	12		8	4	29		0	2	32		1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #79 Tesla Road/Greenville Road

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.461
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 5.0
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-		R	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Permitted						Permitted						Permitted					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0			0	0		0			0	0		0			0	0		0			0
Lanes:	0	1	0	0		0	0	1	0	1		0	0	1	0	1		0	0	1	0	1		0
Volume Module:																								
Base Vol:	6		5			0	32		29			193	130		64			14	2		823			273
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:	6		5			0	32		29			193	130		64			14	2		823			273
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:	6		5			0	32		29			193	130		64			14	2		823			273
Reduct Vol:	0		0			0	0		0			0	0		0			0	0		0			0
Reduced Vol:	6		5			0	32		29			193	130		64			14	2		823			273
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.:	6		5			0	32		29			193	130		64			14	2		823			273
Saturation Flow Module:																								
Sat/Lane:	1900		1900			1900	1900		1900			1900	1900		1900			1900	1900		1900			1900
Adjustment:	0.88		0.88			1.00	0.78		0.78			0.78	0.59		0.59			0.59	0.87		0.87			0.87
Lanes:	0.55		0.45			0.00	0.52		0.48			1.00	1.00		0.82			0.18	0.01		1.50			0.49
Final Sat.:	908		757			0	779		706			1486	1117		916			200	6		2488			825
Capacity Analysis Module:																								
Vol/Sat:	0.01		0.01			0.00	0.04		0.04			0.13	0.12		0.07			0.07	0.33		0.33			0.33
Crit Moves:												****									****			
Green/Cycle:	0.28		0.28			0.00	0.28		0.28			0.28	0.72		0.72			0.72	0.72		0.72			0.72
Volume/Cap:	0.02		0.02			0.00	0.15		0.15			0.46	0.16		0.10			0.10	0.46		0.46			0.46
Delay/Veh:	13.0		13.0			0.0	13.5		13.5			15.4	2.3		2.2			2.2	3.1		3.1			3.1
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:	13.0		13.0			0.0	13.5		13.5			15.4	2.3		2.2			2.2	3.1		3.1			3.1
DesignQueue:	0		0			0	1		1			4	1		1			0	0		7			2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #80 Fourth Street/ South L Street

****

Cycle (sec): 110 Critical Vol./Cap. (X): 0.726
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 17.8
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-		R	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Permitted						Permitted						Permitted					
Rights:	Include						Include						Include						Include					
Min. Green:	0		0			0	0		0			0	0		0			0	0		0			0
Lanes:	1	0	1	0		1	1	0	1	0		1	1	0	1	1		0	1	0	1	1		0
Volume Module:																								
Base Vol:	119		393			78	51		264			54	39		1549			65	82		1416			73
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:	119		393			78	51		264			54	39		1549			65	82		1416			73
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:	119		393			78	51		264			54	39		1549			65	82		1416			73
Reduct Vol:	0		0			0	0		0			0	0		0			0	0		0			0
Reduced Vol:	119		393			78	51		264			54	39		1549			65	82		1416			73
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.:	119		393			78	51		264			54	39		1549			65	82		1416			73
Saturation Flow Module:																								
Sat/Lane:	1900		1900			1900	1900		1900			1900	1900		1900			1900	1900		1900			1900
Adjustment:	0.39		1.00			0.85	0.21		1.00			0.85	0.11		0.94			0.94	0.09		0.94			0.94
Lanes:	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.92			0.08	1.00		1.90			0.10
Final Sat.:	745		1900			1615	397		1900			1615	215		3444			145	171		3409			176
Capacity Analysis Module:																								
Vol/Sat:	0.16		0.21			0.05	0.13		0.14			0.03	0.18		0.45			0.45	0.48		0.42			0.42
Crit Moves:			****																****					
Green/Cycle:	0.28		0.28			0.28	0.28		0.28			0.28	0.66		0.66			0.66	0.66		0.66			0.66
Volume/Cap:	0.56		0.73			0.17	0.45		0.49			0.12	0.28		0.68			0.68	0.73		0.63			0.63
Delay/Veh:	36.8		40.3			29.7	35.1		33.4			29.2	8.8		12.3			12.3	33.0		11.4			11.4
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:	36.8		40.3			29.7	35.1		33.4			29.2	8.8		12.3			12.3	33.0		11.4			11.4
DesignQueue:	5		18			3	2		12			2	1		36			2	2		33			2

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #81 Second Street/ South L Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.422
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 7.4
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	1	0 0 1	0	1	0 0 1	0	1	0 0 1
Volume Module:												
Base Vol:	15	466	59	41	312	27	9	60	36	38	68	62
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:	15	466	59	41	312	27	9	60	36	38	68	62
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:	15	466	59	41	312	27	9	60	36	38	68	62
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	466	59	41	312	27	9	60	36	38	68	62
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.:	15	466	59	41	312	27	9	60	36	38	68	62
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.55	0.98	0.98	0.43	0.99	0.99	0.95	0.95	0.85	0.86	0.86	0.85
Lanes:	1.00	0.89	0.11	1.00	0.92	0.08	0.13	0.87	1.00	0.36	0.64	1.00
Final Sat.:	1051	1658	210	807	1728	150	236	1575	1615	582	1042	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.28	0.28	0.05	0.18	0.18	0.04	0.04	0.02	0.07	0.07	0.04
Crit Moves:		****									****	
Green/Cycle:	0.67	0.67	0.67	0.67	0.67	0.67	0.15	0.15	0.15	0.15	0.15	0.15
Volume/Cap:	0.02	0.42	0.42	0.08	0.27	0.27	0.25	0.25	0.14	0.42	0.42	0.25
Delay/Veh:	2.8	4.1	4.1	3.0	3.5	3.5	19.0	19.0	18.5	20.3	20.3	19.1
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:	2.8	4.1	4.1	3.0	3.5	3.5	19.0	19.0	18.5	20.3	20.3	19.1
DesignQueue:	0	5	1	0	3	0	0	1	1	1	2	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #82 Southfront Road/ I-580 Eastbound Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.622
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.6
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0 0 0	2	0	0 0 1	1	0	2 0 0	0	0	1 0 1
Volume Module:												
Base Vol:	0	0	0	368	0	95	20	162	0	0	891	55
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	0	0	368	0	95	20	162	0	0	891	55
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	0	0	368	0	95	20	162	0	0	891	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	368	0	95	20	162	0	0	891	55
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	0	0	368	0	95	20	162	0	0	891	55
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.63	1.00	0.85	0.21	0.95	1.00	1.00	1.00	0.85
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	2.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	2403	0	1615	390	3610	0	0	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.15	0.00	0.06	0.05	0.04	0.00	0.00	0.47	0.03
Crit Moves:				****							****	
Green/Cycle:	0.00	0.00	0.00	0.25	0.00	0.25	0.75	0.75	0.00	0.00	0.75	0.75
Volume/Cap:	0.00	0.00	0.00	0.62	0.00	0.24	0.07	0.06	0.00	0.00	0.62	0.05
Delay/Veh:	0.0	0.0	0.0	18.8	0.0	15.4	1.7	1.6	0.0	0.0	3.7	1.6
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	0.0	0.0	18.8	0.0	15.4	1.7	1.6	0.0	0.0	3.7	1.6
DesignQueue:	0	0	0	8	0	2	0	1	0	0	7	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #83 Vallecitos Road/ Isabel Avenue

Cycle (sec): 50 Critical Vol./Cap. (X): 1.015
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 35.7
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 2	0 0	0	0 1	0 1	1	0 0	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #84 East Vineyard Avenue/ East Vallecitos Road

Cycle (sec): 100 Critical Vol./Cap. (X): 0.508
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 3.0
Optimal Cycle: 46 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 0	1 0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	13	491	1	4	874	37	6	8	22	1	8	5
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:	13	491	1	4	874	37	6	8	22	1	8	5
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:	13	491	1	4	874	37	6	8	22	1	8	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	491	1	4	874	37	6	8	22	1	8	5
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.:	13	491	1	4	874	37	6	8	22	1	8	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	0.99	0.99	0.95	0.89	0.89	0.95	0.94	0.94
Lanes:	1.00	0.99	0.01	1.00	0.96	0.04	1.00	0.27	0.73	1.00	0.62	0.38
Final Sat.:	1805	1896	4	1805	1812	77	1805	451	1240	1805	1101	688
Capacity Analysis Module:												
Vol/Sat:	0.01	0.26	0.26	0.00	0.48	0.48	0.00	0.02	0.02	0.00	0.01	0.01
Crit Moves:	****				****			****			****	
Green/Cycle:	0.01	0.96	0.96	0.01	0.95	0.95	0.01	0.03	0.03	0.00	0.02	0.02
Volume/Cap:	0.51	0.27	0.27	0.27	0.51	0.51	0.29	0.51	0.51	0.51	0.29	0.29
Delay/Veh:	64.7	0.2	0.2	59.0	0.5	0.5	56.9	54.5	54.5	185.9	51.6	51.6
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:	64.7	0.2	0.2	59.0	0.5	0.5	56.9	54.5	54.5	185.9	51.6	51.6
DesignQueue:	1	1	0	0	3	0	0	0	1	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

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Intersection #85 Brisa Street/ South Vasco Road

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.655
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: 40 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase Ovl		
Rights:	Include			Include			Include					
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	2	0 3	0 1	2	0 1	0 1	1	1 0	0 2
Volume Module:												
Base Vol:	132	527	403	766	1965	340	61	66	41	74	52	376
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:	132	527	403	766	1965	340	61	66	41	74	52	376
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:	132	527	403	766	1965	340	61	66	41	74	52	376
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	132	527	403	766	1965	340	61	66	41	74	52	376
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.:	132	527	403	766	1965	340	61	66	41	74	52	376
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.92	0.91	0.85	0.92	1.00	0.85	0.97	0.97	0.75
Lanes:	1.00	3.00	1.00	2.00	3.00	1.00	2.00	1.00	1.00	1.17	0.83	2.00
Final Sat.:	1805	5187	1615	3502	5187	1615	3502	1900	1615	2167	1523	2842
Capacity Analysis Module:												
Vol/Sat:	0.07	0.10	0.25	0.22	0.38	0.21	0.02	0.03	0.03	0.03	0.03	0.13
Crit Moves:			****	****				****			****	
Green/Cycle:	0.12	0.38	0.38	0.33	0.60	0.60	0.05	0.05	0.05	0.05	0.05	0.39
Volume/Cap:	0.63	0.27	0.66	0.66	0.63	0.35	0.33	0.66	0.48	0.66	0.66	0.34
Delay/Veh:	27.3	10.7	15.3	15.6	6.9	5.3	23.9	37.8	27.2	31.2	31.2	11.0
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:	27.3	10.7	15.3	15.6	6.9	5.3	23.9	37.8	27.2	31.2	31.2	11.0
DesignQueue:	3	9	7	15	24	4	2	2	1	2	1	7

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #86 Dalton Avenue/ North Vasco Road

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.900
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 15.5
Optimal Cycle: OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 0	0	0 1	0 1	1	0 0	0 1	0	0 0	0 0
Volume Module:												
Base Vol:	377	409	0	0	1261	1015	1	0	44	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:	377	409	0	0	1261	1015	1	0	44	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:	377	409	0	0	1261	1015	1	0	44	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	377	409	0	0	1261	1015	1	0	44	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.:	377	409	0	0	1261	1015	1	0	44	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	3610	0	0	1900	1615	1900	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.21	0.11	0.00	0.00	0.66	0.63	0.00	0.00	0.03	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.23	0.97	0.00	0.00	0.74	0.74	0.03	0.00	0.03	0.00	0.00	0.00
Volume/Cap:	0.90	0.12	0.00	0.00	0.90	0.85	0.01	0.00	0.90	0.00	0.00	0.00
Delay/Veh:	40.5	0.0	0.0	0.0	13.3	10.7	23.5	0.0	115.7	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:	40.5	0.0	0.0	0.0	13.3	10.7	23.5	0.0	115.7	0.0	0.0	0.0
DesignQueue:	8	0	0	0	11	9	0	0	1	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #87 East Avenue/ South Vasco Road

Cycle (sec): 70 Critical Vol./Cap. (X): 0.698
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 21.1
Optimal Cycle: 54 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2	0 1	2	0 1	0 1	1 0	2	0 1	1 0	2	0 1
Volume Module:												
Base Vol:	76	358	267	370	277	345	512	601	77	23	85	33
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	358	267	370	277	345	512	601	77	23	85	33
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	358	267	370	277	345	512	601	77	23	85	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	76	358	267	370	277	345	512	601	77	23	85	33
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	358	267	370	277	345	512	601	77	23	85	33
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.92	1.00	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1805	3610	1615	3502	1900	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.10	0.17	0.11	0.15	0.21	0.28	0.17	0.05	0.01	0.02	0.02
Crit Moves:			****	****			****				****	
Green/Cycle:	0.09	0.24	0.24	0.15	0.30	0.71	0.41	0.41	0.41	0.03	0.03	0.19
Volume/Cap:	0.48	0.42	0.70	0.70	0.48	0.30	0.70	0.41	0.12	0.41	0.70	0.11
Delay/Veh:	32.8	23.0	30.0	32.3	20.6	3.9	20.2	14.9	12.9	38.0	49.8	23.9
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:	32.8	23.0	30.0	32.3	20.6	3.9	20.2	14.9	12.9	38.0	49.8	23.9
DesignQueue:	3	11	8	13	8	4	13	14	2	1	3	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #88 Garaventa Ranch Road/ North Vasco Road

Cycle (sec): 55 Critical Vol./Cap. (X): 0.739
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 10.7
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2	0 1	1	0 1	1 0	1	0	0 1	0	0	1 0
Volume Module:												
Base Vol:	0	338	116	93	1772	4	5	70	0	79	69	146
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	338	116	93	1772	4	5	70	0	79	69	146
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	338	116	93	1772	4	5	70	0	79	69	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	338	116	93	1772	4	5	70	0	79	69	146
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	338	116	93	1772	4	5	70	0	79	69	146
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.95	0.95	0.43	1.00	1.00	0.71	0.90	0.90
Lanes:	1.00	2.00	1.00	1.00	1.99	0.01	1.00	1.00	0.00	1.00	0.32	0.68
Final Sat.:	1900	3610	1615	1805	3602	8	809	1900	0	1353	548	1159
Capacity Analysis Module:												
Vol/Sat:	0.00	0.09	0.07	0.05	0.49	0.49	0.01	0.04	0.00	0.06	0.13	0.13
Crit Moves:	****				****						****	
Green/Cycle:	0.00	0.43	0.43	0.24	0.67	0.67	0.17	0.17	0.00	0.17	0.17	0.17
Volume/Cap:	0.00	0.22	0.17	0.22	0.74	0.74	0.04	0.22	0.00	0.34	0.74	0.74
Delay/Veh:	0.0	9.9	9.8	17.2	7.3	7.3	19.1	20.0	0.0	21.0	31.3	31.3
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:	0.0	9.9	9.8	17.2	7.3	7.3	19.1	20.0	0.0	21.0	31.3	31.3
DesignQueue:	0	6	2	2	21	0	0	2	0	2	2	4

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #89 Industrial Drive/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 0.893
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 12.0
Optimal Cycle: 92 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 3	0 1	1	0 3	0 1	0	1 0	0 1	0	1 0	0 1
Volume Module:												
Base Vol:	0	771	32	253	3811	70	7	11	1	91	8	40
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	771	32	253	3811	70	7	11	1	91	8	40
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	771	32	253	3811	70	7	11	1	91	8	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	771	32	253	3811	70	7	11	1	91	8	40
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	771	32	253	3811	70	7	11	1	91	8	40
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.85	0.95	0.91	0.85	0.98	0.98	0.85	0.96	0.96	0.85
Lanes:	0.00	3.00	1.00	1.00	3.00	1.00	0.39	0.61	1.00	0.92	0.08	1.00
Final Sat.:	0	5187	1615	1805	5187	1615	725	1139	1615	1670	147	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.15	0.02	0.14	0.73	0.04	0.01	0.01	0.00	0.05	0.05	0.02
Crit Moves:	****				****			****		****		
Green/Cycle:	0.00	0.42	0.42	0.40	0.82	0.82	0.01	0.01	0.01	0.06	0.06	0.46
Volume/Cap:	0.00	0.35	0.05	0.35	0.89	0.05	0.89	0.89	0.06	0.89	0.89	0.05
Delay/Veh:	0.0	16.7	14.5	18.1	7.8	1.4	192.3	192	43.0	93.1	93.1	12.7
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:	0.0	16.7	14.5	18.1	7.8	1.4	192.3	192	43.0	93.1	93.1	12.7
DesignQueue:	0	22	1	7	39	1	0	1	0	4	0	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #90 Las Positas Road/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 0.866
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 31.9
Optimal Cycle: 89 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 4	0 1	2	0 2	0 1	2	0 1	1 1
Volume Module:												
Base Vol:	249	360	313	527	2290	294	310	416	436	250	256	137
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:	249	360	313	527	2290	294	310	416	436	250	256	137
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:	249	360	313	527	2290	294	310	416	436	250	256	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	249	360	313	527	2290	294	310	416	436	250	256	137
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.:	249	360	313	527	2290	294	310	416	436	250	256	137
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	0.92	0.95	0.85	0.92	0.90	0.90
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	2.00	1.00	2.00	1.95	1.05
Final Sat.:	3502	5187	1615	3502	6916	1615	3502	3610	1615	3502	3344	1790
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.19	0.15	0.33	0.18	0.09	0.12	0.27	0.07	0.08	0.08
Crit Moves:	****				****				****	****		
Green/Cycle:	0.08	0.26	0.26	0.20	0.38	0.38	0.21	0.31	0.31	0.08	0.18	0.39
Volume/Cap:	0.87	0.27	0.74	0.74	0.87	0.48	0.42	0.37	0.87	0.87	0.42	0.20
Delay/Veh:	61.5	25.0	35.6	36.0	27.5	20.4	29.4	23.0	42.2	61.4	31.0	17.4
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:	61.5	25.0	35.6	36.0	27.5	20.4	29.4	23.0	42.2	61.4	31.0	17.4
DesignQueue:	11	13	11	21	73	9	12	14	15	11	10	4

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #91 Mesquite Way- Emily Way/ South Vasco Road

Cycle (sec):	50	Critical Vol./Cap. (X):	0.377
Loss Time (sec):	9 (Y+R = 4 sec)	Average Delay (sec/veh):	3.5
Optimal Cycle:	OPTIMIZED	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0	1	2	0	2	0	1	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	11	854	0	0	969	8	17	0	42	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:	11	854	0	0	969	8	17	0	42	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:	11	854	0	0	969	8	17	0	42	0	0	0								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
Reduced Vol:	11	854	0	0	969	8	17	0	42	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.:	11	854	0	0	969	8	17	0	42	0	0	0								
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Adjustment:	0.95	0.95	1.00	0.97	0.95	0.85	0.89	1.00	0.89	1.00	1.00	1.00								
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	0.29	0.00	0.71	0.00	1.00	0.00								
Final Sat.:	1805	3610	1900	3686	3610	1615	488	0	1206	0	1900	0								
Capacity Analysis Module:																				
Vol/Sat:	0.01	0.24	0.00	0.00	0.27	0.00	0.03	0.00	0.03	0.00	0.00	0.00								
Crit Moves:	****				****		****													
Green/Cycle:	0.02	0.73	0.00	0.00	0.71	0.71	0.09	0.00	0.09	0.00	0.00	0.00								
Volume/Cap:	0.38	0.33	0.00	0.00	0.38	0.01	0.38	0.00	0.38	0.00	0.00	0.00								
Delay/Veh:	32.3	2.5	0.0	0.0	2.9	2.1	22.9	0.0	22.9	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:	32.3	2.5	0.0	0.0	2.9	2.1	22.9	0.0	22.9	0.0	0.0	0.0								
DesignQueue:	0	7	0	0	8	0	0	0	1	0	0	0								

City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #92 Northfront Road/ North Vasco Road

Cycle (sec):	130	Critical Vol./Cap. (X):	1.092
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	77.7
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	3	0	1	1	0	3	0	1	2	0	1	0	1	2	0	0	1	0
Volume Module:																				
Base Vol:	92	600	361	39	2383	73	12	7	390	1018	281	123								
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:	92	600	361	39	2383	73	12	7	390	1018	281	123								
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:	92	600	361	39	2383	73	12	7	390	1018	281	123								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
Reduced Vol:	92	600	361	39	2383	73	12	7	390	1018	281	123								
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.:	92	600	361	39	2383	73	12	7	390	1018	281	123								
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Adjustment:	0.95	0.91	0.85	0.95	0.91	0.85	0.92	1.00	0.85	0.92	0.95	0.95								
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	2.00	1.00	1.00	2.00	0.70	0.30								
Final Sat.:	1805	5187	1615	1805	5187	1615	3502	1900	1615	3502	1261	552								
Capacity Analysis Module:																				
Vol/Sat:	0.05	0.12	0.22	0.02	0.46	0.05	0.00	0.00	0.24	0.29	0.22	0.22								
Crit Moves:	****				****				****	****										
Green/Cycle:	0.05	0.39	0.66	0.07	0.42	0.42	0.01	0.17	0.22	0.27	0.43	0.43								
Volume/Cap:	1.09	0.29	0.34	0.29	1.09	0.11	0.51	0.02	1.09	1.09	0.51	0.51								
Delay/Veh:	187.4	27.1	9.9	58.3	87.4	22.9	82.5	44.5	125.4	105.7	27.4	27.4								
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:	187.4	27.1	9.9	58.3	87.4	22.9	82.5	44.5	125.4	105.7	27.4	27.4								
DesignQueue:	6	27	9	3	112	3	1	0	23	58	12	5								

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #93 Patterson Pass Road/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 0.998
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.9
Optimal Cycle: 159 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 2	0 1	1	0 2	0 1	1	0 2	0 1
Volume Module:												
Base Vol:	45	535	186	220	1577	240	235	312	418	291	768	350
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:	45	535	186	220	1577	240	235	312	418	291	768	350
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:	45	535	186	220	1577	240	235	312	418	291	768	350
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	535	186	220	1577	240	235	312	418	291	768	350
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.:	45	535	186	220	1577	240	235	312	418	291	768	350
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	0.95	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	2.00	3.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3502	5187	1615	3502	3610	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.10	0.12	0.06	0.44	0.15	0.13	0.09	0.26	0.16	0.21	0.22
Crit Moves:	****				****				****	****		
Green/Cycle:	0.01	0.29	0.29	0.16	0.44	0.44	0.15	0.25	0.26	0.16	0.25	0.41
Volume/Cap:	1.00	0.35	0.39	0.39	1.00	0.34	0.84	0.35	1.00	1.00	0.84	0.53
Delay/Veh:	175.1	23.9	24.6	32.5	45.9	16.1	54.7	26.7	74.8	87.7	37.1	19.5
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:	175.1	23.9	24.6	32.5	45.9	16.1	54.7	26.7	74.8	87.7	37.1	19.5
DesignQueue:	2	18	6	9	47	7	10	11	16	12	29	10

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #94 Scenic Avenue/ North Vasco Road

Cycle (sec): 50 Critical Vol./Cap. (X): 1.034
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 37.7
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 1	1 0	1	0 1	0 1	2	0 0	1 0
Volume Module:												
Base Vol:	115	529	70	38	1281	113	62	209	255	576	346	67
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:	115	529	70	38	1281	113	62	209	255	576	346	67
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:	115	529	70	38	1281	113	62	209	255	576	346	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	529	70	38	1281	113	62	209	255	576	346	67
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.:	115	529	70	38	1281	113	62	209	255	576	346	67
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.94	0.94	0.35	1.00	0.85	0.39	0.98	0.98
Lanes:	1.00	2.00	1.00	1.00	1.84	0.16	1.00	1.00	1.00	2.00	0.84	0.16
Final Sat.:	1805	3610	1615	1805	3278	289	663	1900	1615	1463	1554	301
Capacity Analysis Module:												
Vol/Sat:	0.06	0.15	0.04	0.02	0.39	0.39	0.09	0.11	0.16	0.39	0.22	0.22
Crit Moves:	****				****					****		
Green/Cycle:	0.06	0.38	0.38	0.06	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Volume/Cap:	1.03	0.38	0.11	0.38	1.03	1.03	0.25	0.29	0.41	1.03	0.59	0.59
Delay/Veh:	118.3	11.3	10.0	25.2	49.4	49.4	11.1	11.0	11.8	62.8	13.6	13.6
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:	118.3	11.3	10.0	25.2	49.4	49.4	11.1	11.0	11.8	62.8	13.6	13.6
DesignQueue:	3	9	1	1	25	2	1	4	5	10	6	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #111 Isabel/Airway

****

Cycle (sec): 120 Critical Vol./Cap. (X): 0.969
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 44.7
Optimal Cycle: 180 Level Of Service: D

****

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Ovl				Ovl			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	2	0	3	0 1	2	0	3	0 1	1	0	1	0 2	1	0	1	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #112 Isabel / I580 eb Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.678
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.5
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Ignore				Ignore				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	2	1 0	0	0	2	1 0	2	0	1!	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #113 Isabel/I580 wb Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.749
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 10.9
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 2	1 0	0	0 2	1 0	0	0 0 0	0 0	2	0 0	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #114 Isabel/Portola Extension

Cycle (sec): 50 Critical Vol./Cap. (X): 0.791
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 13.7
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	0 2	0	0 0	0 0	0	0 2	0 2	2	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #117 Greenville Rd/ I-580 EB Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.968
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 24.0
Optimal Cycle:OPTIMIZED Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 0	0	0 3	1 0	1	0 0	0 2	0	0 0	0 0 0
Volume Module:												
Base Vol:	149	265	0	0	3283	162	125	0	1204	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:	149	265	0	0	3283	162	125	0	1204	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:	149	265	0	0	3283	162	125	0	1204	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	149	265	0	0	3283	162	125	0	1204	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.:	149	265	0	0	3283	162	125	0	1204	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	0.90	0.90	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	3.00	0.00	0.00	3.81	0.19	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	5187	0	0	6545	323	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.05	0.00	0.00	0.50	0.50	0.07	0.00	0.42	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.04	0.56	0.00	0.00	0.52	0.52	0.44	0.00	0.44	0.00	0.00	0.00
Volume/Cap:	0.97	0.09	0.00	0.00	0.97	0.97	0.16	0.00	0.97	0.00	0.00	0.00
Delay/Veh:	86.5	5.1	0.0	0.0	20.6	20.6	8.6	0.0	32.0	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:	86.5	5.1	0.0	0.0	20.6	20.6	8.6	0.0	32.0	0.0	0.0	0.0
DesignQueue:	4	3	0	0	50	2	2	0	21	0	0	0

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

****

Intersection #118 Greenville Rd/ I-580 WB Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.827
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 14.3
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 0	0	0 3	0 1	0	0 0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	144	246	0	0	2133	472	0	0	0	1312	0	67
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:	144	246	0	0	2133	472	0	0	0	1312	0	67
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:	144	246	0	0	2133	472	0	0	0	1312	0	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	144	246	0	0	2133	472	0	0	0	1312	0	67
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.:	144	246	0	0	2133	472	0	0	0	1312	0	67
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	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	2.00	3.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	3502	5187	0	0	5187	1615	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.05	0.00	0.00	0.41	0.29	0.00	0.00	0.00	0.37	0.00	0.04
Crit Moves:	****				****					****		
Green/Cycle:	0.05	0.55	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.45	0.00	0.45
Volume/Cap:	0.83	0.09	0.00	0.00	0.83	0.59	0.00	0.00	0.00	0.83	0.00	0.09
Delay/Veh:	50.3	5.4	0.0	0.0	13.1	10.1	0.0	0.0	0.0	15.7	0.0	7.9
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:	50.3	5.4	0.0	0.0	13.1	10.1	0.0	0.0	0.0	15.7	0.0	7.9
DesignQueue:	4	3	0	0	33	7	0	0	0	22	0	1

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #120 Vasco Rd/ Preston

Cycle (sec): 50 Critical Vol./Cap. (X): 0.960
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 20.2
Optimal Cycle: 180 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	4	1	0	2	0	4	0	1	2	0	0	1	0	1	0	1	1	1
Volume Module:																				
Base Vol:	160	1016	46	1375	4117	180	157	130	46	22	827	61								
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:	160	1016	46	1375	4117	180	157	130	46	22	827	61								
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:	160	1016	46	1375	4117	180	157	130	46	22	827	61								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
Reduced Vol:	160	1016	46	1375	4117	180	157	130	46	22	827	61								
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.:	160	1016	46	1375	4117	180	157	130	46	22	827	61								
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Adjustment:	0.95	0.90	0.90	0.92	0.91	0.85	0.92	0.96	0.96	0.95	0.94	0.94								
Lanes:	1.00	4.78	0.22	2.00	4.00	1.00	2.00	0.74	0.26	1.00	2.00	1.00								
Final Sat.:	1805	8221	372	3502	6916	1615	3502	1349	477	1805	3574	1787								
Capacity Analysis Module:																				
Vol/Sat:	0.09	0.12	0.12	0.39	0.60	0.11	0.04	0.10	0.10	0.01	0.23	0.03								
Crit Moves:	****				****		****				****									
Green/Cycle:	0.09	0.17	0.17	0.54	0.62	0.62	0.05	0.26	0.26	0.03	0.24	0.78								
Volume/Cap:	0.96	0.72	0.72	0.72	0.96	0.18	0.96	0.38	0.38	0.38	0.96	0.04								
Delay/Veh:	80.3	21.5	21.5	10.1	15.8	4.1	82.2	15.9	15.9	27.8	39.2	1.2								
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:	80.3	21.5	21.5	10.1	15.8	4.1	82.2	15.9	15.9	27.8	39.2	1.2								
DesignQueue:	4	24	1	19	51	2	4	3	1	1	18	0								

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #122 Vasco/ WB Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.952
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 18.9
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2	1	0	0	0	2	1	0	0	0	0	0	0	2	0	0	0	2
Volume Module:																				
Base Vol:	0	954	563	0	2563	1967	0	0	0	1603	0	104								
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	954	563	0	2563	1967	0	0	0	1603	0	104								
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	954	0	0	2563	0	0	0	0	1603	0	104								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
Reduced Vol:	0	954	0	0	2563	0	0	0	0	1603	0	104								
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	954	0	0	2563	0	0	0	0	1603	0	104								
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	0.75								
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00								
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	2842								
Capacity Analysis Module:																				
Vol/Sat:	0.00	0.18	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.46	0.00	0.04								
Crit Moves:	****				****					****										
Green/Cycle:	0.00	0.52	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.48	0.00	0.48								
Volume/Cap:	0.00	0.35	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.95	0.00	0.08								
Delay/Veh:	0.0	7.2	0.0	0.0	20.1	0.0	0.0	0.0	0.0	24.8	0.0	7.0								
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	7.2	0.0	0.0	20.1	0.0	0.0	0.0	0.0	24.8	0.0	7.0								
DesignQueue:	0	13	0	0	39	0	0	0	0	26	0	2								

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City of Livermore
Future Preferred Alternative (Run 3) - Mitigated
AM Peak

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

Intersection #123 Vasco/ EB Ramps

Cycle (sec): 90 Critical Vol./Cap. (X): 1.025
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 44.9
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 4	0 1		1 0 4	0 0		2 0 1!	0 2		0 0 0	0 0	
Volume Module:												
Base Vol:	0	1063	171	582	3584	0	454	0	2088	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	1063	171	582	3584	0	454	0	2088	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:	0	1063	171	582	3584	0	454	0	2088	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1063	171	582	3584	0	454	0	2088	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.:	0	1063	171	582	3584	0	454	0	2088	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	0.85	0.95	0.91	1.00	0.84	1.00	0.76	1.00	1.00	1.00
Lanes:	0.00	4.00	1.00	1.00	4.00	0.00	2.16	0.00	2.84	0.00	0.00	0.00
Final Sat.:	0	6916	1615	1805	6916	0	3467	0	4120	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.15	0.11	0.32	0.52	0.00	0.13	0.00	0.51	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.00	0.16	0.16	0.34	0.51	0.00	0.49	0.00	0.49	0.00	0.00	0.00
Volume/Cap:	0.00	0.94	0.65	0.94	1.03	0.00	0.26	0.00	1.03	0.00	0.00	0.00
Delay/Veh:	0.0	52.1	40.8	51.6	44.3	0.0	13.2	0.0	47.5	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	52.1	40.8	51.6	44.3	0.0	13.2	0.0	47.5	0.0	0.0	0.0
DesignQueue:	0	46	7	21	101	0	12	0	59	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Scenario Report

Scenario:	Future Preferred PM
Command:	Future Preferred PM
Volume:	Future Preferred PM
Geometry:	Future Scenarios Modified to Planned PM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Paths
Routes:	Default Routes
Configuration:	PM Peak

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Airway Blvd./I-580 Eastbound r	E	75.1	1.114	E	75.1	1.114	+ 0.000 D/V
# 2 Airway Blvd./ I-580 Westbound	B	12.7	0.700	B	12.7	0.700	+ 0.000 D/V
# 3 Airway Blvd./ Kitty Hawk	D	38.8	0.967	D	38.8	0.967	+ 0.000 D/V
# 4 Concannon Boulevard/ Arroyo Ro	C	31.4	0.895	C	31.4	0.895	+ 0.000 D/V
# 5 Bluebell Drive/ Springtown Bou	C	35.0	0.992	C	35.0	0.992	+ 0.000 D/V
# 6 College/ L Street	A	8.8	0.594	A	8.8	0.594	+ 0.000 D/V
# 7 Concannon Boulevard/ S. Liverm	D	51.3	1.023	D	51.3	1.023	+ 0.000 D/V
# 8 Concannon Boulevard/ Murdell L	A	3.3	0.433	A	3.3	0.433	+ 0.000 D/V
# 9 East Avenue/ Charlotte Way	B	12.4	0.597	B	12.4	0.597	+ 0.000 D/V
# 10 East Avenue/ Dolores Street	C	21.9	0.908	C	21.9	0.908	+ 0.000 D/V
# 11 East Avenue/ Hillcrest Avenue	D	35.6	1.026	D	35.6	1.026	+ 0.000 D/V
# 12 East Avenue/ Loyola Way	A	9.8	0.798	A	9.8	0.798	+ 0.000 D/V
# 13 East Avenue/ Maple Street	B	19.9	0.920	B	19.9	0.920	+ 0.000 D/V
# 14 East Avenue/ Mines Road	D	37.5	0.978	D	37.5	0.978	+ 0.000 D/V
# 15 Fourth Street/ South Livermore	F	116.3	1.178	F	116.3	1.178	+ 0.000 D/V
# 16 East Stanley Boulevard/ Fenton	A	7.3	0.683	A	7.3	0.683	+ 0.000 D/V
# 17 East Stanley Boulevard/ Isabel	B	17.1	0.860	B	17.1	0.860	+ 0.000 D/V
# 18 East Stanley Boulevard/ Murdel	A	8.0	0.776	A	8.0	0.776	+ 0.000 D/V
# 19 East Stanley Boulevard/ Murrie	D	40.9	0.916	D	40.9	0.916	+ 0.000 D/V
# 20 East Stanley Boulevard/ Wall S	B	16.9	0.892	B	16.9	0.892	+ 0.000 D/V
# 21 East Stanley Boulevard-Railroa	D	37.9	0.971	D	37.9	0.971	+ 0.000 D/V
# 22 First Street/ I-580 Eastbound	C	28.2	0.959	C	28.2	0.959	+ 0.000 D/V
# 23 First Street/ I-580 Westbound	B	13.6	0.868	B	13.6	0.868	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 24 First Street/ Inman Street	C	31.8	0.959	C	31.8	0.959	+ 0.000 D/V
# 25 First Street/ Las Positas Road	D	53.0	1.018	D	53.0	1.018	+ 0.000 D/V
# 26 First Street/ North Mines Road	E	55.7	1.043	E	55.7	1.043	+ 0.000 D/V
# 27 First Street/ Old First Street	C	33.2	0.939	C	33.2	0.939	+ 0.000 D/V
# 28 First Street/ Portola Avenue	C	26.5	0.937	C	26.5	0.937	+ 0.000 D/V
# 29 First Street/ Railroad Avenue	F	187.9	1.453	F	187.9	1.453	+ 0.000 D/V
# 30 First Street/ South L Street	E	64.6	1.070	E	64.6	1.070	+ 0.000 D/V
# 31 First Street/ South Livermore	F	87.1	1.179	F	87.1	1.179	+ 0.000 D/V
# 32 First Street/ South P Street	D	36.0	0.857	D	36.0	0.857	+ 0.000 D/V
# 33 First Street/ Southfront Road	E	66.6	1.081	E	66.6	1.081	+ 0.000 D/V
# 34 Fourth Street/ South P Street	A	6.7	0.393	A	6.7	0.393	+ 0.000 D/V
# 35 Fourth Street/ Inman Street	B	14.5	0.690	B	14.5	0.690	+ 0.000 D/V
# 36 Fourth Street/ Maple Street	B	16.8	0.818	B	16.8	0.818	+ 0.000 D/V
# 37 Las Positas Road/ Greenville R	C	28.7	0.865	C	28.7	0.865	+ 0.000 D/V
# 38 National Drive/ Greenville Roa	B	12.3	0.703	B	12.3	0.703	+ 0.000 D/V
# 39 Northfront Road/ Greenville Ro	C	32.6	1.033	C	32.6	1.033	+ 0.000 D/V
# 40 Patterson Pass Road/ Greenvill	C	26.4	0.983	C	26.4	0.983	+ 0.000 D/V
# 41 Southfront Road/ Greenville Ro	C	34.2	0.979	C	34.2	0.979	+ 0.000 D/V
# 42 Alden Lane/ Holmes Street	A	7.5	0.808	A	7.5	0.808	+ 0.000 D/V
# 43 Catalina Drive/ Holmes Street	B	10.3	0.617	B	10.3	0.617	+ 0.000 D/V
# 44 Concannon Boulevard/ Holmes St	D	38.8	0.974	D	38.8	0.974	+ 0.000 D/V
# 45 First Street/ Holmes Street	B	11.6	0.650	B	11.6	0.650	+ 0.000 D/V
# 46 Fourth Street/ Holmes Street	D	46.6	1.006	D	46.6	1.006	+ 0.000 D/V
# 47 Mocho Street/ Holmes Street	A	5.5	0.560	A	5.5	0.560	+ 0.000 D/V
# 48 Vancouver Way- El Caminito/ Ho	A	9.3	0.645	A	9.3	0.645	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 49 Concannon Boulevard/ Isabel Av	B	18.1	0.775	B	18.1	0.775	+ 0.000 D/V
# 50 Isable Avenue/Stanley Connecto	C	21.4	0.923	C	21.4	0.923	+ 0.000 D/V
# 51 East Vineyard Avenue/ Isabel A	B	15.3	0.817	B	15.3	0.817	+ 0.000 D/V
# 52 East Jack London Boulevard/ Is	D	48.8	1.072	D	48.8	1.072	+ 0.000 D/V
# 53 Las Positas Road/ North Mines	C	26.5	1.013	C	26.5	1.013	+ 0.000 D/V
# 54 North Mines Road/Charlotte Way	C	22.0	0.754	C	22.0	0.754	+ 0.000 D/V
# 55 Patterson Pass Road/ North Min	B	15.9	0.819	B	15.9	0.819	+ 0.000 D/V
# 56 Tesla Road/ Mines Road	A	2.0	0.679	A	2.0	0.679	+ 0.000 D/V
# 57 Murrieta Boulevard/ Fenton Str	A	4.9	0.633	A	4.9	0.633	+ 0.000 D/V
# 58 Jack London Boulevard/ Murriet	B	19.1	0.505	B	19.1	0.505	+ 0.000 D/V
# 59 Olivina Avenue/ Murrieta Boule	D	43.8	0.954	D	43.8	0.954	+ 0.000 D/V
# 60 North Canyons Parkway/ Airway	D	41.1	0.983	D	41.1	0.983	+ 0.000 D/V
# 61 North Canyons Parkway/ Collier	D	44.7	1.053	D	44.7	1.053	+ 0.000 D/V
# 62 Chestnut Street/ North Livermo	C	34.6	0.928	C	34.6	0.928	+ 0.000 D/V
# 63 Cromwell Way/ North Livermore	A	9.7	0.686	A	9.7	0.686	+ 0.000 D/V
# 64 North Livermore Avenue/ I-580	B	16.2	0.834	B	16.2	0.834	+ 0.000 D/V
# 65 North Livermore Avenue/ I-580	B	11.3	0.668	B	11.3	0.668	+ 0.000 D/V
# 66 Las Positas Road/ North Liverm	C	23.7	0.816	C	23.7	0.816	+ 0.000 D/V
# 67 Portola Avenue/ North Livermor	D	36.4	0.933	D	36.4	0.933	+ 0.000 D/V
# 68 Railroad Avenue/ North Livermo	F	84.4	1.148	F	84.4	1.148	+ 0.000 D/V
# 69 Junction Avenue/ North Livermo	B	12.6	0.804	B	12.6	0.804	+ 0.000 D/V
# 70 Olivina Avenue- Chestnut Stree	C	26.0	0.810	C	26.0	0.810	+ 0.000 D/V
# 71 Northfront/ I-580 Westbound Ra	A	1.8	0.523	A	1.8	0.523	+ 0.000 D/V
# 72 Pine Street/ North L Street	B	18.4	0.549	B	18.4	0.549	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 73 Pine Street/ North P Street	B	12.4	0.628	B	12.4	0.628	+ 0.000 D/V
# 74 Portola Avenue/ North L Street	C	32.4	1.013	C	32.4	1.013	+ 0.000 D/V
# 75 Portola Avenue/ Murrieta Boule	D	44.3	1.021	D	44.3	1.021	+ 0.000 D/V
# 76 North P Street - Paseo Laguna	A	5.7	0.733	A	5.7	0.733	+ 0.000 D/V
# 77 Railroad Avenue/ North L Stree	F	114.3	1.268	F	114.3	1.268	+ 0.000 D/V
# 78 Railroad Avenue/ North P Stree	D	51.8	1.045	D	51.8	1.045	+ 0.000 D/V
# 79 Tesla Road/Greenville Road	B	10.6	0.707	B	10.6	0.707	+ 0.000 D/V
# 80 Fourth Street/ South L Street	D	36.3	1.382	D	36.3	1.382	+ 0.000 D/V
# 81 Second Street/ South L Street	A	9.4	0.612	A	9.4	0.612	+ 0.000 D/V
# 82 Southfront Road/ I-580 Eastbou	A	4.4	0.515	A	4.4	0.515	+ 0.000 D/V
# 83 Vallecitos Road/ Isabel Avenue	B	14.5	0.830	B	14.5	0.830	+ 0.000 D/V
# 84 East Vineyard Avenue/ East Val	B	12.2	0.860	B	12.2	0.860	+ 0.000 D/V
# 85 Brisa Street/ South Vasco Road	D	39.6	0.965	D	39.6	0.965	+ 0.000 D/V
# 86 Dalton Avenue/ North Vasco Roa	C	23.6	0.964	C	23.6	0.964	+ 0.000 D/V
# 87 East Avenue/ South Vasco Road	C	31.6	0.936	C	31.6	0.936	+ 0.000 D/V
# 88 Garaventa Ranch Road/ North Va	C	21.5	0.907	C	21.5	0.907	+ 0.000 D/V
# 89 Industrial Drive/ South Vasco	C	30.1	1.003	C	30.1	1.003	+ 0.000 D/V
# 90 Las Positas Road/ South Vasco	D	42.8	0.996	D	42.8	0.996	+ 0.000 D/V
# 91 Mesquite Way- Emily Way/ South	A	3.3	0.431	A	3.3	0.431	+ 0.000 D/V
# 92 Northfront Road/ North Vasco R	F	82.8	1.212	F	82.8	1.212	+ 0.000 D/V
# 93 Patterson Pass Road/ South Vas	D	42.3	0.945	D	42.3	0.945	+ 0.000 D/V
# 94 Scenic Avenue/ North Vasco Roa	B	17.3	0.870	B	17.3	0.870	+ 0.000 D/V
#111 Isabel/Airway	F	125.7	1.280	F	125.7	1.280	+ 0.000 D/V
#112 Isabel / I580 eb Ramps	B	14.4	0.910	B	14.4	0.910	+ 0.000 D/V
#113 Isabel/I580 wb Ramps	A	8.5	0.602	A	8.5	0.602	+ 0.000 D/V

City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
#114 Isabel/Portola Extension	B	13.4	0.858	B	13.4	0.858	+ 0.000 D/V
#117 Greenville Rd/ I-580 EB Ramps	B	17.4	0.954	B	17.4	0.954	+ 0.000 D/V
#118 Greenville Rd/ I-580 WB Ramps	A	8.9	0.698	A	8.9	0.698	+ 0.000 D/V
#120 Vasco Rd/ Preston	E	78.8	1.206	E	78.8	1.206	+ 0.000 D/V
#122 Vasco/ WB Ramps	C	30.6	1.051	C	30.6	1.051	+ 0.000 D/V
#123 Vasco/ EB Ramps	F	149.2	1.650	F	149.2	1.650	+ 0.000 D/V

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #1 Airway Blvd./I-580 Eastbound ramp

Cycle (sec): 105 Critical Vol./Cap. (X): 1.114
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 75.1
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ignore			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	2	0 1	0 1	1	0 1	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #2 Airway Blvd./ I-580 Westbound ramp

Cycle (sec): 50 Critical Vol./Cap. (X): 0.700
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 12.7
Optimal Cycle: 44 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Permitted		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 3	0 1	0	0 3	0 1	0	0 0	0 0	1	1 0	0 2
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #3 Airway Blvd./ Kitty Hawk

Cycle (sec): 105 Critical Vol./Cap. (X): 0.967
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 38.8
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	1	1 0 1	2	0	1 1 0	0	1	0 0 1	0	1	0 0 1
Volume Module:												
Base Vol:	0	0	0	1171	0	0	1	991	0	0	870	467
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	0	0	1171	0	0	1	991	0	0	870	467
User 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
PHF 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
PHF Volume:	0	0	0	1171	0	0	1	991	0	0	870	467
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1171	0	0	1	991	0	0	870	467
PCE 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
MLF 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
Final Vol.:	0	0	0	1171	0	0	1	991	0	0	870	467
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	0.92	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.85
Lanes:	1.00	2.00	1.00	2.00	2.00	0.00	0.01	0.99	1.00	0.00	1.00	1.00
Final Sat.:	1805	3610	1900	3502	3610	0	2	1898	1900	0	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.33	0.00	0.00	0.52	0.52	0.00	0.00	0.46	0.29
Crit Moves:				****				****				
Green/Cycle:	0.00	0.00	0.00	0.35	0.00	0.00	0.54	0.54	0.00	0.00	0.54	0.54
Volume/Cap:	0.00	0.00	0.00	0.97	0.00	0.00	0.97	0.97	0.00	0.00	0.85	0.54
Delay/Veh:	0.0	0.0	0.0	52.2	0.0	0.0	43.7	43.7	0.0	0.0	27.3	16.3
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:	0.0	0.0	0.0	52.2	0.0	0.0	43.7	43.7	0.0	0.0	27.3	16.3
DesignQueue:	0	0	0	49	0	0	0	31	0	0	27	13

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #4 Concannon Boulevard/ Arroyo Road

Cycle (sec): 80 Critical Vol./Cap. (X): 0.895
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 31.4
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 0 1	1	0	1 0 1	1	0	1 0 1	1	0	1 0 1
Volume Module:												
Base Vol:	54	170	99	49	216	144	145	1068	63	99	716	36
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:	54	170	99	49	216	144	145	1068	63	99	716	36
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:	54	170	99	49	216	144	145	1068	63	99	716	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	170	99	49	216	144	145	1068	63	99	716	36
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.:	54	170	99	49	216	144	145	1068	63	99	716	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	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 Sat.:	1805	1900	1615	1805	1900	1615	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.09	0.06	0.03	0.11	0.09	0.08	0.56	0.04	0.05	0.38	0.02
Crit Moves:	****				****			****		****		
Green/Cycle:	0.03	0.12	0.12	0.04	0.13	0.13	0.12	0.63	0.63	0.06	0.57	0.57
Volume/Cap:	0.89	0.73	0.50	0.73	0.89	0.70	0.66	0.89	0.06	0.89	0.66	0.04
Delay/Veh:	117.5	44.6	34.7	70.5	66.0	43.9	41.0	21.6	5.8	91.1	13.5	7.6
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:	117.5	44.6	34.7	70.5	66.0	43.9	41.0	21.6	5.8	91.1	13.5	7.6
DesignQueue:	2	7	4	2	9	6	6	21	1	4	15	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #5 Bluebell Drive/ Springtown Boulevard

****

Cycle (sec): 105 Critical Vol./Cap. (X): 0.992
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 35.0
Optimal Cycle:OPTIMIZED Level Of Service: C

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	0	0	1	1	0		1	0	2	0	0		0	0	0	0	0		2	0	0	0	1	
Volume Module:																								
Base Vol:	0	889	1134				42	395	0				0	0	0				692	0	40			
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	889	1134				42	395	0				0	0	0				692	0	40			
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	889	1134				42	395	0				0	0	0				692	0	40			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	0	889	1134				42	395	0				0	0	0				692	0	40			
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	889	1134				42	395	0				0	0	0				692	0	40			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	1.00	0.87	0.87				0.95	0.95	1.00				1.00	1.00	1.00				0.92	1.00	0.85			
Lanes:	0.00	1.00	1.00				1.00	2.00	0.00				0.00	0.00	0.00				2.00	0.00	1.00			
Final Sat.:	0	1653	1653				1805	3610	0				0	0	0				3502	0	1615			
Capacity Analysis Module:																								
Vol/Sat:	0.00	0.54	0.69				0.02	0.11	0.00				0.00	0.00	0.00				0.20	0.00	0.02			
Crit Moves:			****				****												****					
Green/Cycle:	0.00	0.69	0.69				0.02	0.72	0.00				0.00	0.00	0.00				0.20	0.00	0.20			
Volume/Cap:	0.00	0.78	0.99				0.99	0.15	0.00				0.00	0.00	0.00				0.99	0.00	0.12			
Delay/Veh:	0.0	12.3	33.8				186.2	4.8	0.0				0.0	0.0	0.0				73.9	0.0	34.7			
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:	0.0	12.3	33.8				186.2	4.8	0.0				0.0	0.0	0.0				73.9	0.0	34.7			
DesignQueue:	0	18	24				2	7	0				0	0	0				34	0	2			

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #6 College/ L Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.594
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 8.8
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Permitted						Permitted						Permitted					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	0	1	0	0	1		0	1	0	0	1		0	1	0	0	1		0	1	0	0	1	
Volume Module:																								
Base Vol:	46	299	128				96	425	14				33	352	155				198	102	60			
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:	46	299	128				96	425	14				33	352	155				198	102	60			
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:	46	299	128				96	425	14				33	352	155				198	102	60			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	46	299	128				96	425	14				33	352	155				198	102	60			
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.:	46	299	128				96	425	14				33	352	155				198	102	60			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	0.92	0.92	0.85				0.89	0.89	0.85				0.96	0.96	0.85				0.55	0.55	0.85			
Lanes:	0.13	0.87	1.00				0.18	0.82	1.00				0.09	0.91	1.00				0.66	0.34	1.00			
Final Sat.:	233	1512	1615				312	1383	1615				157	1673	1615				690	355	1615			
Capacity Analysis Module:																								
Vol/Sat:	0.20	0.20	0.08				0.31	0.31	0.01				0.21	0.21	0.10				0.29	0.29	0.04			
Crit Moves:								****												****				
Green/Cycle:	0.52	0.52	0.52				0.52	0.52	0.52				0.48	0.48	0.48				0.48	0.48	0.48			
Volume/Cap:	0.38	0.38	0.15				0.59	0.59	0.02				0.44	0.44	0.20				0.59	0.59	0.08			
Delay/Veh:	7.5	7.5	6.4				9.5	9.5	5.9				8.8	8.8	7.5				11.3	11.3	7.0			
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:	7.5	7.5	6.4				9.5	9.5	5.9				8.8	8.8	7.5				11.3	11.3	7.0			
DesignQueue:	1	4	2				1	6	0				0	5	2				3	2	1			

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #7 Concannon Boulevard/ S. Livermore Avenue

****

Cycle (sec): 105 Critical Vol./Cap. (X): 1.023
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 51.3
Optimal Cycle: 180 Level Of Service: D

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Protected						Protected					
Rights:	Ovl						Include						Include						Include					
Min. Green:	0	0		0			0	0		0			0	0		0			0	0		0		
Lanes:	1	0	0	0	1		0	0	0	0	0		0	0	1	0	1		1	0	1	0	0	
Volume Module:																								
Base Vol:	159		0	1160			0		0	0			0	412		110	709	587		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:	159		0	1160			0		0	0			0	412		110	709	587		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:	159		0	1160			0		0	0			0	412		110	709	587		0				
Reduct Vol:	0		0	0			0		0	0			0	0		0	0	0		0				
Reduced Vol:	159		0	1160			0		0	0			0	412		110	709	587		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.:	159		0	1160			0		0	0			0	412		110	709	587		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	1.00		0.85	0.95	1.00		1.00				
Lanes:	1.00	0.00		1.00			0.00	0.00		0.00			0.00	1.00		1.00	1805	1900		0				
Final Sat.:	1805		0	1615			0		0	0			0	1900		1615								
Capacity Analysis Module:																								
Vol/Sat:	0.09	0.00		0.72			0.00	0.00		0.00			0.00	0.22		0.07	0.39	0.31		0.00				
Crit Moves:				****										****			****							
Green/Cycle:	0.32	0.00		0.70			0.00	0.00		0.00			0.00	0.21		0.21	0.38	0.60		0.00				
Volume/Cap:	0.28	0.00		1.02			0.00	0.00		0.00			0.00	1.02		0.32	1.02	0.52		0.00				
Delay/Veh:	27.0	0.0		48.3			0.0	0.0		0.0			0.0	92.1		35.5	72.4	12.8		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:	27.0	0.0		48.3			0.0	0.0		0.0			0.0	92.1		35.5	72.4	12.8		0.0				
DesignQueue:	6		0	24			0		0	0			0	20		5	28	15		0				

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #8 Concannon Boulevard/ Murdell Lane

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.433
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 3.3
Optimal Cycle: 33 Level Of Service: A

****

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Permitted						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0		0			0	0		0			0	0		0			0	0		0		
Lanes:	0	1	0	0	1		0	1	0	0	1		1	0	2	0	1		1	0	2	0	1	
Volume Module:																								
Base Vol:	45		11	31			37		11	52			54	1407		61	25	637		44				
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:	45		11	31			37		11	52			54	1407		61	25	637		44				
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:	45		11	31			37		11	52			54	1407		61	25	637		44				
Reduct Vol:	0		0	0			0		0	0			0	0		0	0	0		0				
Reduced Vol:	45		11	31			37		11	52			54	1407		61	25	637		44				
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.:	45		11	31			37		11	52			54	1407		61	25	637		44				
Saturation Flow Module:																								
Sat/Lane:	1900	1900		1900			1900	1900		1900			1900	1900		1900	1900	1900		1900				
Adjustment:	1.00	1.00		0.85			1.00	1.00		0.85			0.95	0.95		0.85	0.95	0.95		0.85				
Lanes:	0.80	0.20		1.00			0.77	0.23		1.00			1.00	2.00		1.00	1.00	2.00		1.00				
Final Sat.:	1527		373	1615			1465		435	1615			1805	3610		1615	1805	3610		1615				
Capacity Analysis Module:																								
Vol/Sat:	0.03	0.03		0.02			0.03	0.03		0.03			0.03	0.39		0.04	0.01	0.18		0.03				
Crit Moves:		****												****			****							
Green/Cycle:	0.07	0.07		0.07			0.07	0.07		0.07			0.14	0.90		0.90	0.03	0.80		0.80				
Volume/Cap:	0.43	0.43		0.28			0.37	0.37		0.47			0.22	0.43		0.04	0.43	0.22		0.03				
Delay/Veh:	24.7	24.7		23.5			24.1	24.1		25.6			19.7	0.5		0.3	28.9	1.3		1.1				
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:	24.7	24.7		23.5			24.1	24.1		25.6			19.7	0.5		0.3	28.9	1.3		1.1				
DesignQueue:	1		0	1			1		0	1			1	4		0	1	4		0				

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #9 East Avenue/ Charlotte Way

Cycle (sec): 50 Critical Vol./Cap. (X): 0.597
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 12.4
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	2	0	1	1	0	2	0	1
Volume Module:																				
Base Vol:	31	8	20	52	3	102	170	441	49	47	1001	174
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:	31	8	20	52	3	102	170	441	49	47	1001	174
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:	31	8	20	52	3	102	170	441	49	47	1001	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	8	20	52	3	102	170	441	49	47	1001	174
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.:	31	8	20	52	3	102	170	441	49	47	1001	174
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.89	0.89	0.95	0.85	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	0.29	0.71	1.00	0.03	0.97	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1805	485	1212	1805	46	1576	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:																				
Vol/Sat:	0.02	0.02	0.02	0.03	0.06	0.06	0.09	0.12	0.03	0.03	0.28	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.03	0.05	0.05	0.09	0.11	0.11	0.16	0.51	0.51	0.11	0.46	0.46
Volume/Cap:	0.60	0.33	0.33	0.33	0.60	0.60	0.60	0.24	0.06	0.24	0.60	0.23
Delay/Veh:	41.5	25.2	25.2	22.7	26.7	26.7	23.0	6.8	6.1	21.0	10.5	8.2
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:	41.5	25.2	25.2	22.7	26.7	26.7	23.0	6.8	6.1	21.0	10.5	8.2
DesignQueue:	1	0	1	1	0	3	4	6	1	1	16	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #10 East Avenue/ Dolores Street

Cycle (sec): 65 Critical Vol./Cap. (X): 0.908
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 21.9
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	0	0	0	0	0	0	1	0	2	0	1	0	2	0	0
Volume Module:																				
Base Vol:	49	0	320	0	0	0	0	1592	67	259	1235	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:	49	0	320	0	0	0	0	1592	67	259	1235	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:	49	0	320	0	0	0	0	1592	67	259	1235	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	49	0	320	0	0	0	0	1592	67	259	1235	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.:	49	0	320	0	0	0	0	1592	67	259	1235	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	0.95	0.85	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	1900	3610	1615	1805	3610	0
Capacity Analysis Module:																				
Vol/Sat:	0.03	0.00	0.20	0.00	0.00	0.00	0.00	0.44	0.04	0.14	0.34	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.49	0.49	0.16	0.64	0.00
Volume/Cap:	0.12	0.00	0.91	0.00	0.00	0.00	0.00	0.91	0.09	0.91	0.53	0.00
Delay/Veh:	20.6	0.0	51.2	0.0	0.0	0.0	0.0	22.8	9.0	57.6	6.5	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:	20.6	0.0	51.2	0.0	0.0	0.0	0.0	22.8	9.0	57.6	6.5	0.0
DesignQueue:	1	0	9	0	0	0	0	33	1	8	17	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #11 East Avenue/ Hillcrest Avenue

Cycle (sec): 150 Critical Vol./Cap. (X): 1.026
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 35.6
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	1	0	0	1	0	1	0	1	0	1	1	0
Volume Module:												
Base Vol:	29	2	25	105	5	36	60	1646	45	42	1422	35
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	2	25	105	5	36	60	1646	45	42	1422	35
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	2	25	105	5	36	60	1646	45	42	1422	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	2	25	105	5	36	60	1646	45	42	1422	35
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	2	25	105	5	36	60	1646	45	42	1422	35
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.86	0.86	0.95	0.87	0.87	0.95	1.00	0.85	0.95	0.95	0.95
Lanes:	1.00	0.07	0.93	1.00	0.12	0.88	1.00	1.00	1.00	1.00	1.95	0.05
Final Sat.:	1805	121	1515	1805	201	1448	1805	1900	1615	1805	3509	86
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.02	0.06	0.02	0.02	0.03	0.87	0.03	0.02	0.41	0.41
Crit Moves:			****	****				****		****		
Green/Cycle:	0.02	0.02	0.02	0.06	0.06	0.06	0.07	0.84	0.84	0.02	0.80	0.80
Volume/Cap:	1.00	1.03	1.03	1.03	0.44	0.44	0.51	1.03	0.03	1.03	0.51	0.51
Delay/Veh:	240.2	257	257.4	166.8	71.7	71.7	71.2	41.0	1.9	221.7	5.1	5.1
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:	240.2	257	257.4	166.8	71.7	71.7	71.2	41.0	1.9	221.7	5.1	5.1
DesignQueue:	2	0	2	8	0	3	5	28	1	3	26	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #12 East Avenue/ Loyola Way

Cycle (sec): 95 Critical Vol./Cap. (X): 0.798
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 9.8
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	1	1	0
Volume Module:												
Base Vol:	0	0	0	77	2	32	100	1891	0	0	1733	361
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	0	0	77	2	32	100	1891	0	0	1733	361
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	0	0	77	2	32	100	1891	0	0	1733	361
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	77	2	32	100	1891	0	0	1733	361
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	0	0	77	2	32	100	1891	0	0	1733	361
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.87	0.87	0.87	0.95	0.95	1.00	1.00	0.93	0.93
Lanes:	0.00	0.00	0.00	1.00	0.06	0.94	1.00	2.00	0.00	0.00	1.66	0.34
Final Sat.:	0	0	0	1653	97	1556	1805	3610	0	0	2910	606
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.02	0.02	0.06	0.52	0.00	0.00	0.60	0.60
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.06	0.06	0.06	0.07	0.82	0.00	0.00	0.75	0.75
Volume/Cap:	0.00	0.00	0.00	0.80	0.35	0.35	0.80	0.64	0.00	0.00	0.80	0.80
Delay/Veh:	0.0	0.0	0.0	71.0	43.7	43.7	72.7	3.9	0.0	0.0	9.4	9.4
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	0.0	0.0	71.0	43.7	43.7	72.7	3.9	0.0	0.0	9.4	9.4
DesignQueue:	0	0	0	4	0	2	5	21	0	0	27	6

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #13 East Avenue/ Maple Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.920
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 19.9
Optimal Cycle: 94 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	1	0	0	1	1	0	1	0	1
Volume Module:												
Base Vol:	0	0	0	881	0	11	0	701	5	0	516	743
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	0	0	881	0	11	0	701	5	0	516	743
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	0	0	881	0	11	0	701	5	0	516	743
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	881	0	11	0	701	5	0	516	743
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	0	0	881	0	11	0	701	5	0	516	743
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.95	0.95	1.00	0.87	0.87
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.99	0.01	1.00	1.00	1.00
Final Sat.:	0	0	0	1805	0	1615	0	3581	26	1900	1646	1646
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.49	0.00	0.01	0.00	0.20	0.20	0.00	0.31	0.45
Crit Moves:				****							****	
Green/Cycle:	0.00	0.00	0.00	0.53	0.00	0.53	0.00	0.34	0.34	0.00	0.34	0.87
Volume/Cap:	0.00	0.00	0.00	0.92	0.00	0.01	0.00	0.57	0.57	0.00	0.92	0.52
Delay/Veh:	0.0	0.0	0.0	28.7	0.0	7.8	0.0	19.6	19.6	0.0	32.4	1.3
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:	0.0	0.0	0.0	28.7	0.0	7.8	0.0	19.6	19.6	0.0	32.4	1.3
DesignQueue:	0	0	0	18	0	0	0	19	0	0	14	4

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #14 East Avenue/ Mines Road

Cycle (sec): 90 Critical Vol./Cap. (X): 0.978
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 37.5
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	2	0	0	0	1	2	0	2	0	0	0	2	0	1
Volume Module:												
Base Vol:	0	0	0	50	0	789	1213	873	0	0	1413	164
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	0	0	50	0	789	1213	873	0	0	1413	164
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	0	0	50	0	789	1213	873	0	0	1413	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	50	0	789	1213	873	0	0	1413	164
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	0	0	50	0	789	1213	873	0	0	1413	164
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.92	1.00	0.85	0.92	0.95	1.00	1.00	0.95	0.85
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	2.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	0	0	0	3502	0	1615	3502	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.49	0.35	0.24	0.00	0.00	0.39	0.10
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.15	0.00	0.50	0.35	0.75	0.00	0.00	0.40	0.40
Volume/Cap:	0.00	0.00	0.00	0.10	0.00	0.98	0.98	0.32	0.00	0.00	0.98	0.25
Delay/Veh:	0.0	0.0	0.0	33.4	0.0	48.2	49.0	3.6	0.0	0.0	45.1	18.2
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	0.0	0.0	33.4	0.0	48.2	49.0	3.6	0.0	0.0	45.1	18.2
DesignQueue:	0	0	0	2	0	22	43	11	0	0	47	5

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #15 Fourth Street/ South Livermore to East Avenue

Cycle (sec): 180 Critical Vol./Cap. (X): 1.178
Loss Time (sec): 28 (Y+R = 4 sec) Average Delay (sec/veh): 116.3
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 1!	0 0	0	0 2	0 1	0	0 2	0 1
Volume Module:												
Base Vol:	734	514	72	651	243	1	0	989	790	0	1001	78
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:	734	514	72	651	243	1	0	989	790	0	1001	78
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:	734	514	72	651	243	1	0	989	790	0	1001	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	734	514	72	651	243	1	0	989	790	0	1001	78
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.:	734	514	72	651	243	1	0	989	790	0	1001	78
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.98	0.98	0.97	0.97	0.97	1.00	0.95	0.85	1.00	0.95	0.85
Lanes:	1.00	0.88	0.12	1.57	0.42	0.01	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	1805	1637	229	2881	782	3	0	3610	1615	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.41	0.31	0.31	0.23	0.31	0.31	0.00	0.27	0.49	0.00	0.28	0.05
Crit Moves:	****					****					****	
Green/Cycle:	0.35	0.35	0.35	0.26	0.26	0.26	0.00	0.24	0.58	0.00	0.24	0.24
Volume/Cap:	1.18	0.91	0.91	0.86	1.18	1.18	0.00	1.16	0.84	0.00	1.18	0.21
Delay/Veh:	154.9	73.2	73.2	70.2	160	159.7	0.0	155	38.0	0.0	161	55.5
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:	154.9	73.2	73.2	70.2	160	159.7	0.0	155	38.0	0.0	161	55.5
DesignQueue:	54	37	5	51	19	0	0	81	37	0	82	6

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #16 East Stanley Boulevard/ Fenton Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.683
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 7.3
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 1	0 1	0	0 1	1	0 2	0 1	1	0 2	0 1
Volume Module:												
Base Vol:	42	20	85	10	13	38	105	1785	23	23	1244	19
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:	42	20	85	10	13	38	105	1785	23	23	1244	19
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:	42	20	85	10	13	38	105	1785	23	23	1244	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	20	85	10	13	38	105	1785	23	23	1244	19
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.:	42	20	85	10	13	38	105	1785	23	23	1244	19
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.87	0.87	0.85	0.82	0.82	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	0.68	0.32	1.00	0.43	0.57	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1122	534	1615	679	883	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.05	0.01	0.01	0.02	0.06	0.49	0.01	0.01	0.34	0.01
Crit Moves:			****					****		****		
Green/Cycle:	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.72	0.72	0.02	0.64	0.64
Volume/Cap:	0.49	0.49	0.68	0.19	0.19	0.31	0.54	0.68	0.02	0.68	0.54	0.02
Delay/Veh:	25.0	25.0	36.9	22.4	22.4	23.2	24.3	4.5	1.9	69.2	5.3	3.4
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:	25.0	25.0	36.9	22.4	22.4	23.2	24.3	4.5	1.9	69.2	5.3	3.4
DesignQueue:	1	1	2	0	0	1	3	16	0	1	14	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #17 East Stanley Boulevard/ Isabel Connector Ramp

Cycle (sec): 50 Critical Vol./Cap. (X): 0.860
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 17.1
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0	0	0	2	0	0	0	0	0	0	3	0	1	2	0	3	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #18 East Stanley Boulevard/ Murdell Lane

Cycle (sec): 51 Critical Vol./Cap. (X): 0.776
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 8.0
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0	0	0	1	0	0	0	0	0	0	1	0	3	0	1	1	0	3	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #19 East Stanley Boulevard/ Murrieta Boulevard

Cycle (sec): 90 Critical Vol./Cap. (X): 0.916
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 40.9
Optimal Cycle: 110 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 1	1 0	1	0 2	0 1	2	0 2	0 1	1	0 2	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #20 East Stanley Boulevard/ Wall Street

Cycle (sec): 65 Critical Vol./Cap. (X): 0.892
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 16.9
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	0 1	0	0 0	0 0	1	0 2	1 0	1	0 3	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #21 East Stanley Boulevard-Railroad Avenue/ South S. Street

Cycle (sec): 115 Critical Vol./Cap. (X): 0.971
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 37.9
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Split Phase						Split Phase						Protected						Protected					
Rights:	Ignore						Ignore						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	1	1	0	0	1		1	1	0	0	1		1	0	1	1	0		1	0	1	1	0	
Volume Module:																								
Base Vol:	214	11	73				27	19	4				9	1646	240				474	1160	46			
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:	214	11	73				27	19	4				9	1646	240				474	1160	46			
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:	214	11	0				27	19	0				9	1646	240				474	1160	46			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	214	11	0				27	19	0				9	1646	240				474	1160	46			
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.:	214	11	0				27	19	0				9	1646	240				474	1160	46			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	0.96	0.96	1.00				0.97	0.97	1.00				0.95	0.93	0.93				0.95	0.94	0.94			
Lanes:	1.90	0.10	1.00				1.17	0.83	1.00				1.00	1.75	0.25				1.00	1.92	0.08			
Final Sat.:	3452	177	1900				2166	1524	1900				1805	3091	451				1805	3451	137			
Capacity Analysis Module:																								
Vol/Sat:	0.06	0.06	0.00				0.01	0.01	0.00				0.00	0.53	0.53				0.26	0.34	0.34			
Crit Moves:	****						****							****					****					
Green/Cycle:	0.06	0.06	0.00				0.01	0.01	0.00				0.01	0.55	0.55				0.27	0.81	0.81			
Volume/Cap:	0.97	0.97	0.00				0.97	0.97	0.00				0.42	0.97	0.97				0.97	0.42	0.42			
Delay/Veh:	104.4	104	0.0				176.2	176	0.0				68.9	39.2	39.2				74.7	3.3	3.3			
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:	104.4	104	0.0				176.2	176	0.0				68.9	39.2	39.2				74.7	3.3	3.3			
DesignQueue:	13	1	0				2	1	0				1	55	8				24	16	1			

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #22 First Street/ I-580 Eastbound Ramps

Cycle (sec): 85 Critical Vol./Cap. (X): 0.959
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 28.2
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Protected						Protected						Split Phase						Split Phase					
Rights:	Ignore						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	0	0	2	0	1		1	0	2	1	0		0	1	0	1	1		0	0	0	0	0	
Volume Module:																								
Base Vol:	0	1914	1109				180	1022	141				358	1	290				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	1914	1109				180	1022	141				358	1	290				0	0	0			
User 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			
PHF 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			
PHF Volume:	0	1914	0				180	1022	141				358	1	290				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	0	1914	0				180	1022	141				358	1	290				0	0	0			
PCE 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			
MLF 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			
Final Vol.:	0	1914	0				180	1022	141				358	1	290				0	0	0			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	1.00	0.95	1.00				0.95	0.89	0.89				0.83	0.83	0.83				1.00	1.00	1.00			
Lanes:	0.00	2.00	1.00				1.00	2.64	0.36				1.00	0.01	1.99				0.00	0.00	0.00			
Final Sat.:	0	3610	1900				1805	4476	618				1571	11	3132				0	0	0			
Capacity Analysis Module:																								
Vol/Sat:	0.00	0.53	0.00				0.10	0.23	0.23				0.23	0.09	0.09				0.00	0.00	0.00			
Crit Moves:		****					****						****											
Green/Cycle:	0.00	0.55	0.00				0.10	0.66	0.66				0.24	0.24	0.24				0.00	0.00	0.00			
Volume/Cap:	0.00	0.96	0.00				0.96	0.35	0.35				0.96	0.39	0.39				0.00	0.00	0.00			
Delay/Veh:	0.0	30.1	0.0				91.6	6.6	6.6				56.9	27.4	27.4				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	30.1	0.0				91.6	6.6	6.6				56.9	27.4	27.4				0.0	0.0	0.0			
DesignQueue:	0	47	0				8	18	2				14	0	11				0	0	0			

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #23 First Street/ I-580 Westbound Ramps

****

Cycle (sec): 60 Critical Vol./Cap. (X): 0.868
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 13.6
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 2	0 0	0	0 2	0 1	0	0 0	0 2	0	0 0	0 1
Volume Module:												
Base Vol:	347	2073	0	0	795	276	0	0	623	0	0	70
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:	347	2073	0	0	795	276	0	0	623	0	0	70
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:	347	2073	0	0	795	276	0	0	623	0	0	70
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	347	2073	0	0	795	276	0	0	623	0	0	70
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.:	347	2073	0	0	795	276	0	0	623	0	0	70
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	0.95	0.85	1.00	1.00	0.75	1.00	1.00	0.87
Lanes:	2.00	2.00	0.00	0.00	2.00	1.00	0.00	0.00	2.00	0.00	0.00	1.00
Final Sat.:	3502	3610	0	0	3610	1615	0	0	2842	0	0	1644
Capacity Analysis Module:												
Vol/Sat:	0.10	0.57	0.00	0.00	0.22	0.17	0.00	0.00	0.22	0.00	0.00	0.04
Crit Moves:		****		****					****			
Green/Cycle:	0.21	0.66	0.00	0.00	0.46	0.46	0.00	0.00	0.34	0.00	0.00	0.14
Volume/Cap:	0.48	0.87	0.00	0.00	0.48	0.37	0.00	0.00	0.64	0.00	0.00	0.31
Delay/Veh:	21.5	11.7	0.0	0.0	11.6	11.0	0.0	0.0	18.0	0.0	0.0	24.0
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:	21.5	11.7	0.0	0.0	11.6	11.0	0.0	0.0	18.0	0.0	0.0	24.0
DesignQueue:	9	27	0	0	15	5	0	0	14	0	0	2

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #24 First Street/ Inman Street

****

Cycle (sec): 86 Critical Vol./Cap. (X): 0.959
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 31.8
Optimal Cycle: 131 Level Of Service: C

****

Approach:	North Bound			South Bound			East Bound						West Bound					
Movement:	L	T	R	L	T	R	L	T	R				L	T	R			
Control:	Split Phase			Split Phase			Protected						Protected					
Rights:	Ovl			Include			Include						Include					
Min. Green:	0	0	0	0	0	0	0	0	0				0	0	0			
Lanes:	1	0 0	0 1	1	0 0	1 0	1	0 2	0 1				1	0 2	0 0			
Volume Module:																		
Base Vol:	144	0	612	0	0	0	3	1731	269	423	869	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:	144	0	612	0	0	0	3	1731	269	423	869	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:	144	0	612	0	0	0	3	1731	269	423	869	0						
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0						
Reduced Vol:	144	0	612	0	0	0	3	1731	269	423	869	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.:	144	0	612	0	0	0	3	1731	269	423	869	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	0.95	0.85	0.95	0.95	1.00						
Lanes:	1.00	0.00	1.00	1.00	1.00	0.00	1.00	2.00	1.00	1.00	2.00	0.00						
Final Sat.:	1805	0	1615	1900	1900	0	1805	3610	1615	1805	3610	0						
Capacity Analysis Module:																		
Vol/Sat:	0.08	0.00	0.38	0.00	0.00	0.00	0.00	0.48	0.17	0.23	0.24	0.00						
Crit Moves:			****					****		****								
Green/Cycle:	0.15	0.00	0.40	0.00	0.00	0.00	0.01	0.50	0.50	0.24	0.74	0.00						
Volume/Cap:	0.53	0.00	0.96	0.00	0.00	0.00	0.33	0.96	0.33	0.96	0.33	0.00						
Delay/Veh:	35.7	0.0	51.0	0.0	0.0	0.0	62.1	33.5	13.1	64.4	3.9	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:	35.7	0.0	51.0	0.0	0.0	0.0	62.1	33.5	13.1	64.4	3.9	0.0						
DesignQueue:	6	0	19	0	0	0	0	47	7	16	12	0						

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #25 First Street/ Las Positas Road

Cycle (sec): 90 Critical Vol./Cap. (X): 1.018
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 53.0
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 3	0 1	2	0 2	0 1	2	0 2	0 1
Volume Module:												
Base Vol:	830	1681	95	463	842	185	539	721	281	436	983	602
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:	830	1681	95	463	842	185	539	721	281	436	983	602
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:	830	1681	95	463	842	185	539	721	281	436	983	602
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	830	1681	95	463	842	185	539	721	281	436	983	602
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.:	830	1681	95	463	842	185	539	721	281	436	983	602
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	0.92	0.95	0.85	0.92	0.95	0.85
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3502	5187	1615	3502	5187	1615	3502	3610	1615	3502	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.24	0.32	0.06	0.13	0.16	0.11	0.15	0.20	0.17	0.12	0.27	0.37
Crit Moves:		****		****			****				****	
Green/Cycle:	0.27	0.32	0.32	0.13	0.18	0.18	0.15	0.26	0.52	0.16	0.27	0.40
Volume/Cap:	0.89	1.02	0.18	1.02	0.89	0.63	1.02	0.77	0.33	0.77	1.02	0.94
Delay/Veh:	42.5	57.5	22.4	86.1	46.5	38.3	82.0	35.1	12.6	42.9	66.6	47.7
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:	42.5	57.5	22.4	86.1	46.5	38.3	82.0	35.1	12.6	42.9	66.6	47.7
DesignQueue:	32	62	3	21	36	8	24	28	7	19	39	20

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #26 First Street/ North Mines Road

Cycle (sec): 100 Critical Vol./Cap. (X): 1.043
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 55.7
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	2	0 3	0 1	1	0 2	0 1	2	0 1	0 1
Volume Module:												
Base Vol:	204	2275	442	473	1141	75	120	567	53	656	355	434
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:	204	2275	442	473	1141	75	120	567	53	656	355	434
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:	204	2275	442	473	1141	75	120	567	53	656	355	434
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	204	2275	442	473	1141	75	120	567	53	656	355	434
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.:	204	2275	442	473	1141	75	120	567	53	656	355	434
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.92	0.91	0.85	0.95	0.95	0.85	0.92	1.00	0.85
Lanes:	1.00	3.00	1.00	2.00	3.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1805	5187	1615	3502	5187	1615	1805	3610	1615	3502	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.44	0.27	0.14	0.22	0.05	0.07	0.16	0.03	0.19	0.19	0.27
Crit Moves:		****		****				****		****		
Green/Cycle:	0.19	0.42	0.60	0.13	0.36	0.36	0.09	0.15	0.15	0.18	0.24	0.37
Volume/Cap:	0.61	1.04	0.46	1.04	0.61	0.13	0.77	1.04	0.22	1.04	0.77	0.72
Delay/Veh:	40.4	60.7	11.4	97.5	26.6	21.4	64.9	92.8	37.8	88.7	42.8	31.1
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:	40.4	60.7	11.4	97.5	26.6	21.4	64.9	92.8	37.8	88.7	42.8	31.1
DesignQueue:	9	82	10	24	43	3	6	28	3	31	16	16

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #27 First Street/ Old First Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.939
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 33.2
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	1	0	1	1	0	1
Volume Module:												
Base Vol:	120	47	6	144	490	38	209	1507	1	35	796	141
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:	120	47	6	144	490	38	209	1507	1	35	796	141
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:	120	47	6	144	490	38	209	1507	1	35	796	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	120	47	6	144	490	38	209	1507	1	35	796	141
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.:	120	47	6	144	490	38	209	1507	1	35	796	141
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.23	0.23	0.85	0.88	0.88	0.85	0.95	0.95	0.95	0.95	0.95	0.85
Lanes:	0.72	0.28	1.00	0.23	0.77	1.00	1.00	1.99	0.01	1.00	2.00	1.00
Final Sat.:	317	124	1615	378	1286	1615	1805	3608	2	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.38	0.38	0.00	0.38	0.38	0.02	0.12	0.42	0.42	0.02	0.22	0.09
Crit Moves:					****			****		****		
Green/Cycle:	0.41	0.41	0.41	0.41	0.41	0.41	0.16	0.44	0.44	0.02	0.31	0.31
Volume/Cap:	0.93	0.93	0.01	0.94	0.94	0.06	0.72	0.94	0.94	0.94	0.72	0.29
Delay/Veh:	68.2	68.2	12.4	40.9	40.9	12.7	36.5	29.6	29.6	156.8	24.0	18.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	68.2	68.2	12.4	40.9	40.9	12.7	36.5	29.6	29.6	156.8	24.0	18.8
DesignQueue:	3	1	0	4	12	1	7	36	0	1	23	4

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #28 First Street/ Portola Avenue

Cycle (sec): 95 Critical Vol./Cap. (X): 0.937
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 26.5
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	3	0	1	1	0	0	1	0	0	1!	0	0
Volume Module:																			
Base Vol:	93	2256	5	6	1227	762	647	1	70	5	2	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:	93	2256	5	6	1227	762	647	1	70	5	2	10							
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:	93	2256	5	6	1227	0	647	1	70	5	2	10							
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0							
Reduced Vol:	93	2256	5	6	1227	0	647	1	70	5	2	10							
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.:	93	2256	5	6	1227	0	647	1	70	5	2	10							
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	0.91	1.00	0.95	0.95	0.85	0.91	0.91	0.91							
Lanes:	1.00	1.99	0.01	1.00	3.00	1.00	1.99	0.01	1.00	0.29	0.12	0.59							
Final Sat.:	1805	3602	8	1805	5187	1900	3612	6	1615	507	203	1015							
Capacity Analysis Module:																			
Vol/Sat:	0.05	0.63	0.63	0.00	0.24	0.00	0.18	0.18	0.04	0.01	0.01	0.01							
Crit Moves:		****		****			****			****									
Green/Cycle:	0.12	0.67	0.67	0.00	0.55	0.00	0.19	0.19	0.19	0.01	0.01	0.01							
Volume/Cap:	0.43	0.94	0.94	0.94	0.43	0.00	0.94	0.94	0.23	0.94	0.94	0.94							
Delay/Veh:	40.1	21.8	21.8	359.9	12.6	0.0	58.1	58.1	32.9	227.2	227	227.2							
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:	40.1	21.8	21.8	359.9	12.6	0.0	58.1	58.1	32.9	227.2	227	227.2							
DesignQueue:	4	47	0	0	31	0	29	0	3	0	0	1							

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #29 First Street/ Railroad Avenue-Maple Street

Cycle (sec): 140 Critical Vol./Cap. (X): 1.453
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 187.9
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	1	0 1!	0 0	1	0 0	1 0	1	0 1	0 2
Volume Module:												
Base Vol:	27	564	48	1044	147	212	506	1078	28	0	716	729
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:	27	564	48	1044	147	212	506	1078	28	0	716	729
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:	27	564	48	1044	147	212	506	1078	28	0	716	729
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	564	48	1044	147	212	506	1078	28	0	716	729
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.:	27	564	48	1044	147	212	506	1078	28	0	716	729
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.94	0.94	0.94	0.94	0.94	0.94	0.95	1.00	1.00	1.00	1.00	0.75
Lanes:	0.08	1.77	0.15	1.59	0.17	0.24	1.00	0.97	0.03	1.00	1.00	2.00
Final Sat.:	151	3145	268	2850	299	431	1805	1844	48	1900	1900	2842
Capacity Analysis Module:												
Vol/Sat:	0.18	0.18	0.18	0.37	0.49	0.49	0.28	0.58	0.58	0.00	0.38	0.26
Crit Moves:		****			****		****				****	
Green/Cycle:	0.12	0.12	0.12	0.34	0.34	0.34	0.19	0.45	0.45	0.00	0.26	0.26
Volume/Cap:	1.45	1.45	1.45	1.08	1.45	1.45	1.45	1.29	1.29	0.00	1.45	0.99
Delay/Veh:	277.8	278	277.8	96.4	256	256.1	275.9	179	178.7	0.0	267	82.0
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:	277.8	278	277.8	96.4	256	256.1	275.9	179	178.7	0.0	267	82.0
DesignQueue:	2	40	3	59	9	12	34	54	1	0	46	44

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #30 First Street/ South L Street

Cycle (sec): 100 Critical Vol./Cap. (X): 1.070
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 64.6
Optimal Cycle:OPTIMIZED Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 1	1	0 1	0 1	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	68	596	90	90	665	107	52	1042	62	6	636	72
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:	68	596	90	90	665	107	52	1042	62	6	636	72
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:	68	596	90	90	665	107	52	1042	62	6	636	72
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	68	596	90	90	665	107	52	1042	62	6	636	72
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.:	68	596	90	90	665	107	52	1042	62	6	636	72
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.95	1.00	0.85	0.20	0.99	0.99	0.07	0.99	0.99
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.06	1.00	0.90	0.10
Final Sat.:	1805	1900	1615	1805	1900	1615	384	1779	106	139	1681	190
Capacity Analysis Module:												
Vol/Sat:	0.04	0.31	0.06	0.05	0.35	0.07	0.14	0.59	0.59	0.04	0.38	0.38
Crit Moves:	****				****			****				
Green/Cycle:	0.04	0.31	0.31	0.05	0.33	0.33	0.55	0.55	0.55	0.55	0.55	0.55
Volume/Cap:	1.07	1.00	0.18	1.00	1.07	0.20	0.25	1.07	1.07	0.08	0.69	0.69
Delay/Veh:	181.7	72.1	25.2	143.4	89.8	24.4	12.5	71.2	71.2	11.1	18.5	18.5
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:	181.7	72.1	25.2	143.4	89.8	24.4	12.5	71.2	71.2	11.1	18.5	18.5
DesignQueue:	4	25	3	5	27	4	1	31	2	0	18	2

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #31 First Street/ South Livermore Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 1.179
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 87.1
Optimal Cycle:OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	1	0 0 1	0	1	0 0 1	0	1	0 0 1
Volume Module:												
Base Vol:	82	464	96	102	795	113	168	923	113	135	524	77
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	82	464	96	102	795	113	168	923	113	135	524	77
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	82	464	96	102	795	113	168	923	0	135	524	77
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	82	464	96	102	795	113	168	923	0	135	524	77
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	82	464	96	102	795	113	168	923	0	135	524	77
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.18	0.97	0.97	0.25	0.98	0.98	0.29	1.00	1.00	0.23	0.98	0.98
Lanes:	1.00	0.83	0.17	1.00	0.88	0.12	1.00	1.00	0.00	1.00	0.87	0.13
Final Sat.:	351	1533	317	476	1632	232	544	1900	0	444	1625	239
Capacity Analysis Module:												
Vol/Sat:	0.23	0.30	0.30	0.21	0.49	0.49	0.31	0.49	0.00	0.30	0.32	0.32
Crit Moves:	****				****			****		****		
Green/Cycle:	0.41	0.37	0.37	0.46	0.41	0.41	0.49	0.40	0.00	0.42	0.36	0.36
Volume/Cap:	0.57	0.81	0.81	0.46	1.20	1.20	0.63	1.20	0.00	0.72	0.89	0.89
Delay/Veh:	30.4	35.3	35.3	21.3	133	132.8	25.5	133	0.0	36.9	44.0	44.0
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:	30.4	35.3	35.3	21.3	133	132.8	25.5	133	0.0	36.9	44.0	44.0
DesignQueue:	4	18	4	5	30	4	9	35	0	7	20	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #32 First Street/ South P Street

Cycle (sec): 105 Critical Vol./Cap. (X): 0.857
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 36.0
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 0 1	1	0	1 0 1	1	0	0 1 0	1	0	0 1 0
Volume Module:												
Base Vol:	79	274	23	125	298	105	303	973	63	45	605	231
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:	79	274	23	125	298	105	303	973	63	45	605	231
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:	79	274	23	125	298	105	303	973	63	45	605	231
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	79	274	23	125	298	105	303	973	63	45	605	231
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.:	79	274	23	125	298	105	303	973	63	45	605	231
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.37	1.00	0.85	0.40	1.00	0.85	0.95	0.99	0.99	0.95	0.96	0.96
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.06	1.00	0.72	0.28
Final Sat.:	701	1900	1615	764	1900	1615	1805	1768	115	1805	1319	503
Capacity Analysis Module:												
Vol/Sat:	0.11	0.14	0.01	0.16	0.16	0.07	0.17	0.55	0.55	0.02	0.46	0.46
Crit Moves:					****		****				****	
Green/Cycle:	0.18	0.18	0.18	0.18	0.18	0.18	0.20	0.70	0.70	0.03	0.54	0.54
Volume/Cap:	0.62	0.79	0.08	0.89	0.86	0.36	0.86	0.79	0.79	0.79	0.86	0.86
Delay/Veh:	48.2	52.3	35.7	87.9	60.1	38.2	59.1	13.8	13.8	100.8	28.6	28.6
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:	48.2	52.3	35.7	87.9	60.1	38.2	59.1	13.8	13.8	100.8	28.6	28.6
DesignQueue:	4	14	1	6	15	5	15	20	1	3	19	7

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #45 First Street/ Holmes Street

Cycle (sec): 50 Critical Vol./Cap. (X): 0.650
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 11.6
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	1 0	0	0	2 0	1	1	0 1! 0	0	0	0 0 0
Volume Module:												
Base Vol:	0	1017	0	0	635	210	488	0	197	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	1017	0	0	635	210	488	0	197	0	0	0
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:	0	1017	0	0	635	0	488	0	197	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1017	0	0	635	0	488	0	197	0	0	0
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.:	0	1017	0	0	635	0	488	0	197	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	0.95	1.00	0.92	1.00	0.92	1.00	1.00	1.00
Lanes:	0.00	2.00	0.00	0.00	2.00	1.00	1.55	0.00	0.45	0.00	0.00	0.00
Final Sat.:	0	3610	0	0	3610	1900	2728	0	785	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.28	0.00	0.00	0.18	0.00	0.18	0.00	0.25	0.00	0.00	0.00
Crit Moves:		****							****			
Green/Cycle:	0.00	0.43	0.00	0.00	0.43	0.00	0.39	0.00	0.39	0.00	0.00	0.00
Volume/Cap:	0.00	0.65	0.00	0.00	0.41	0.00	0.46	0.00	0.65	0.00	0.00	0.00
Delay/Veh:	0.0	12.1	0.0	0.0	9.9	0.0	11.7	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	12.1	0.0	0.0	9.9	0.0	11.7	0.0	14.0	0.0	0.0	0.0
DesignQueue:	0	17	0	0	10	0	9	0	4	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #46 Fourth Street/ Holmes Street

Cycle (sec): 90 Critical Vol./Cap. (X): 1.006
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 46.6
Optimal Cycle: 177 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 1	1 0	1	0 2	0 1	2	0 1	1 0
Volume Module:												
Base Vol:	183	1039	469	62	596	51	54	1553	211	417	1042	103
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:	183	1039	469	62	596	51	54	1553	211	417	1042	103
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:	183	1039	469	62	596	51	54	1553	211	417	1042	103
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	183	1039	469	62	596	51	54	1553	211	417	1042	103
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.:	183	1039	469	62	596	51	54	1553	211	417	1042	103
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.94	0.94	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.00	2.00	1.00	1.00	1.84	0.16	1.00	2.00	1.00	2.00	1.82	0.18
Final Sat.:	1805	3610	1615	1805	3286	281	1805	3610	1615	3502	3243	321
Capacity Analysis Module:												
Vol/Sat:	0.10	0.29	0.29	0.03	0.18	0.18	0.03	0.43	0.13	0.12	0.32	0.32
Crit Moves:		****		****				****		****		
Green/Cycle:	0.11	0.29	0.40	0.03	0.21	0.21	0.05	0.43	0.43	0.12	0.50	0.50
Volume/Cap:	0.88	1.01	0.72	1.01	0.88	0.88	0.64	1.01	0.31	1.01	0.64	0.64
Delay/Veh:	72.0	61.5	26.3	159.6	46.9	46.9	58.0	50.0	17.2	85.2	17.4	17.4
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:	72.0	61.5	26.3	159.6	46.9	46.9	58.0	50.0	17.2	85.2	17.4	17.4
DesignQueue:	8	40	15	3	25	2	3	50	6	19	28	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #47 Mocho Street/ Holmes Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.560
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 5.5
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 1	0	1	0	1 1	0	0	0	1!	0 0
Volume Module:												
Base Vol:	15	1401	2	1	1140	106	90	0	14	6	2	13
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:	15	1401	2	1	1140	106	90	0	14	6	2	13
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:	15	1401	2	1	1140	106	90	0	14	6	2	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	1401	2	1	1140	106	90	0	14	6	2	13
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.:	15	1401	2	1	1140	106	90	0	14	6	2	13
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	0.94	0.94	0.94	1.00	0.94	0.90	0.90	0.90
Lanes:	1.00	1.99	0.01	1.00	1.83	0.17	0.87	0.00	0.13	0.29	0.09	0.62
Final Sat.:	1805	3605	5	1805	3260	303	1548	0	241	490	163	1062
Capacity Analysis Module:												
Vol/Sat:	0.01	0.39	0.39	0.00	0.35	0.35	0.06	0.00	0.06	0.01	0.01	0.01
Crit Moves:		****		****					****	****		
Green/Cycle:	0.02	0.69	0.69	0.00	0.68	0.68	0.10	0.00	0.10	0.02	0.02	0.02
Volume/Cap:	0.52	0.56	0.56	0.56	0.52	0.52	0.56	0.00	0.56	0.56	0.56	0.56
Delay/Veh:	39.5	4.1	4.1	226.7	4.2	4.2	25.2	0.0	25.2	42.0	42.0	42.0
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:	39.5	4.1	4.1	226.7	4.2	4.2	25.2	0.0	25.2	42.0	42.0	42.0
DesignQueue:	0	13	0	0	11	1	2	0	0	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #48 Vancouver Way- El Caminito/ Holmes Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.645
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 9.3
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 1	0	1	0	1 1	0	0	1	0	0 1 0
Volume Module:												
Base Vol:	22	1339	84	51	709	37	123	30	12	44	34	27
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:	22	1339	84	51	709	37	123	30	12	44	34	27
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:	22	1339	84	51	709	37	123	30	12	44	34	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	1339	84	51	709	37	123	30	12	44	34	27
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.:	22	1339	84	51	709	37	123	30	12	44	34	27
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.94	0.94	0.95	0.96	0.96	0.95	0.93	0.93
Lanes:	1.00	1.88	0.12	1.00	1.90	0.10	1.00	0.71	0.29	1.00	0.56	0.44
Final Sat.:	1805	3366	211	1805	3407	178	1805	1299	520	1805	989	785
Capacity Analysis Module:												
Vol/Sat:	0.01	0.40	0.40	0.03	0.21	0.21	0.07	0.02	0.02	0.02	0.03	0.03
Crit Moves:		****		****			****				****	
Green/Cycle:	0.04	0.62	0.62	0.04	0.62	0.62	0.11	0.08	0.08	0.08	0.05	0.05
Volume/Cap:	0.33	0.64	0.64	0.64	0.33	0.33	0.64	0.30	0.30	0.30	0.64	0.64
Delay/Veh:	26.5	6.8	6.8	40.4	4.5	4.5	28.8	23.0	23.0	22.7	37.5	37.5
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:	26.5	6.8	6.8	40.4	4.5	4.5	28.8	23.0	23.0	22.7	37.5	37.5
DesignQueue:	1	16	1	1	8	0	3	1	0	1	1	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #49 Concannon Boulevard/ Isabel Avenue

Cycle (sec): 95 Critical Vol./Cap. (X): 0.775
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 18.1
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2	0	1	2	0	2	0	0	0	0	0	0	2	0	0	0	1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #50 Isable Avenue/Stanley Connector Ramp

Cycle (sec): 60 Critical Vol./Cap. (X): 0.923
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 21.4
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	3	0	1	2	0	3	0	0	0	0	0	0	1	0	0	0	2
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #51 East Vineyard Avenue/ Isabel Avenue

Cycle (sec): 45 Critical Vol./Cap. (X): 0.817
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 15.3
Optimal Cycle: 54 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	0 1	1	0 1!	0 0	1	0 1	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #52 East Jack London Boulevard/ Isabel Avenue-Kitty Hawk Boulevard

Cycle (sec): 80 Critical Vol./Cap. (X): 1.072
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 48.8
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 2	2	0 3	0 1	2	0 2	0 2	2	0 2	0 2
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #53 Las Positas Road/ North Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 1.013
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 26.5
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 1	0	0 0	1 0	0	1 1	0 1	2	0 2	0 0
Volume Module:												
Base Vol:	114	36	846	0	19	63	1	1687	153	742	1115	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:	114	36	846	0	19	63	1	1687	153	742	1115	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:	114	36	846	0	19	63	1	1687	153	742	1115	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	36	846	0	19	63	1	1687	153	742	1115	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.:	114	36	846	0	19	63	1	1687	153	742	1115	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.85	1.00	0.90	0.90	0.91	0.91	0.85	0.62	0.95	1.00
Lanes:	0.76	0.24	1.00	0.00	0.23	0.77	0.01	1.99	1.00	2.00	2.00	0.00
Final Sat.:	1135	358	1615	0	394	1308	2	3446	1615	2352	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.52	0.00	0.05	0.05	0.49	0.49	0.09	0.32	0.31	0.00
Crit Moves:			****					****				
Green/Cycle:	0.52	0.52	0.52	0.00	0.52	0.52	0.48	0.48	0.48	0.48	0.48	0.00
Volume/Cap:	0.19	0.19	1.01	0.00	0.09	0.09	1.01	1.01	0.20	0.65	0.64	0.00
Delay/Veh:	6.6	6.6	46.6	0.0	6.2	6.2	38.4	38.4	7.5	11.1	10.5	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:	6.6	6.6	46.6	0.0	6.2	6.2	38.4	38.4	7.5	11.1	10.5	0.0
DesignQueue:	2	0	13	0	0	1	0	27	2	11	17	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #54 North Mines Road/Charlotte Way

Cycle (sec): 85 Critical Vol./Cap. (X): 0.754
Loss Time (sec): 24 (Y+R = 4 sec) Average Delay (sec/veh): 22.0
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2	0 1	1	0 2	0 0	1	0 0	0 1	1	0 0	0 2
Volume Module:												
Base Vol:	0	1258	75	197	872	0	75	0	11	52	0	120
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	1258	75	197	872	0	75	0	11	52	0	120
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	1258	75	197	872	0	75	0	11	52	0	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1258	75	197	872	0	75	0	11	52	0	120
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	1258	75	197	872	0	75	0	11	52	0	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.95	1.00	0.95	1.00	0.85	0.95	1.00	0.75
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	1.00	0.00	1.00	1.00	0.00	2.00
Final Sat.:	1900	3610	1615	1805	3610	0	1805	0	1615	1805	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.35	0.05	0.11	0.24	0.00	0.04	0.00	0.01	0.03	0.00	0.04
Crit Moves:		****		****			****					****
Green/Cycle:	0.00	0.46	0.46	0.14	0.61	0.00	0.06	0.00	0.02	0.09	0.00	0.06
Volume/Cap:	0.00	0.75	0.10	0.75	0.40	0.00	0.75	0.00	0.32	0.32	0.00	0.75
Delay/Veh:	0.0	20.9	13.0	46.7	8.8	0.0	67.0	0.0	46.4	37.4	0.0	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:	0.0	20.9	13.0	46.7	8.8	0.0	67.0	0.0	46.4	37.4	0.0	57.9
DesignQueue:	0	35	2	8	17	0	3	0	1	2	0	5

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #55 Patterson Pass Road/ North Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.819
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 15.9
Optimal Cycle: 57 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2 0 1	1	0	2 0 0	0	0	0 0 0	1	0	1! 0 1
Volume Module:												
Base Vol:	0	991	452	503	861	0	0	0	0	268	0	398
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	991	452	503	861	0	0	0	0	268	0	398
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	991	452	503	861	0	0	0	0	268	0	398
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	991	452	503	861	0	0	0	0	268	0	398
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	991	452	503	861	0	0	0	0	268	0	398
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.95	1.00	1.00	1.00	1.00	0.89	1.00	0.89
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.40	0.00	1.60
Final Sat.:	0	3610	1615	1805	3610	0	0	0	0	2376	0	2707
Capacity Analysis Module:												
Vol/Sat:	0.00	0.27	0.28	0.28	0.24	0.00	0.00	0.00	0.00	0.11	0.00	0.15
Crit Moves:			****	****						****		
Green/Cycle:	0.00	0.34	0.34	0.34	0.68	0.00	0.00	0.00	0.00	0.14	0.00	0.48
Volume/Cap:	0.00	0.80	0.82	0.82	0.35	0.00	0.00	0.00	0.00	0.82	0.00	0.31
Delay/Veh:	0.0	18.8	24.4	23.6	3.4	0.0	0.0	0.0	0.0	27.5	0.0	8.1
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:	0.0	18.8	24.4	23.6	3.4	0.0	0.0	0.0	0.0	27.5	0.0	8.1
DesignQueue:	0	19	9	10	8	0	0	0	0	7	0	6

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #56 Tesla Road/ Mines Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.679
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 2.0
Optimal Cycle: 45 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1! 0 0	0	0	0 0 0	0	0	0 1 0	1	0	1 0 0
Volume Module:												
Base Vol:	41	0	13	0	0	0	0	1084	68	29	1234	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:	41	0	13	0	0	0	0	1084	68	29	1234	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:	41	0	13	0	0	0	0	1084	68	29	1234	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	41	0	13	0	0	0	0	1084	68	29	1234	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.:	41	0	13	0	0	0	0	1084	68	29	1234	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.97	1.00	0.97	1.00	1.00	1.00	1.00	0.99	0.99	0.69	1.00	1.00
Lanes:	0.76	0.00	0.24	0.00	0.00	0.00	0.00	0.94	0.06	1.00	1.00	0.00
Final Sat.:	1395	0	442	0	0	0	0	1774	111	1309	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.61	0.61	0.02	0.65	0.00
Crit Moves:	****										****	
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.96	0.96	0.96	0.96	0.00
Volume/Cap:	0.68	0.00	0.68	0.00	0.00	0.00	0.00	0.64	0.64	0.02	0.68	0.00
Delay/Veh:	44.7	0.0	44.7	0.0	0.0	0.0	0.0	0.9	0.9	0.1	1.2	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:	44.7	0.0	44.7	0.0	0.0	0.0	0.0	0.9	0.9	0.1	1.2	0.0
DesignQueue:	1	0	0	0	0	0	0	2	0	0	2	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #57 Murrieta Boulevard/ Fenton Street

Cycle (sec): 55 Critical Vol./Cap. (X): 0.633
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 4.9
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	1! 0	0	1	0	2	0	0
Volume Module:												
Base Vol:	0	0	0	63	0	22	27	1693	0	0	1231	67
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	0	0	63	0	22	27	1693	0	0	1231	67
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	0	0	63	0	22	27	1693	0	0	1231	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	63	0	22	27	1693	0	0	1231	67
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	0	0	63	0	22	27	1693	0	0	1231	67
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.74	1.00	0.74	0.95	0.95	1.00	1.00	0.94	0.94
Lanes:	0.00	0.00	0.00	0.74	0.00	0.26	1.00	2.00	0.00	0.00	1.90	0.10
Final Sat.:	0	0	0	1048	0	366	1805	3610	0	0	3396	185
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.47	0.00	0.00	0.36	0.36
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.10	0.00	0.10	0.03	0.74	0.00	0.00	0.71	0.71
Volume/Cap:	0.00	0.00	0.00	0.63	0.00	0.63	0.51	0.63	0.00	0.00	0.51	0.51
Delay/Veh:	0.0	0.0	0.0	33.4	0.0	33.4	34.2	4.0	0.0	0.0	3.8	3.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	33.4	0.0	33.4	34.2	4.0	0.0	0.0	3.8	3.8
DesignQueue:	0	0	0	2	0	1	1	15	0	0	12	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #58 Jack London Boulevard/ Murrieta Boulevard

Cycle (sec): 110 Critical Vol./Cap. (X): 0.505
Loss Time (sec): 24 (Y+R = 4 sec) Average Delay (sec/veh): 19.1
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Split Phase			Split Phase		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	1	1	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0	0	1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #59 Olivina Avenue/ Murrieta Boulevard

Cycle (sec): 85 Critical Vol./Cap. (X): 0.954
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 43.8
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0
Volume Module:												
Base Vol:	172	843	317	185	922	39	163	404	569	135	72	57
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:	172	843	317	185	922	39	163	404	569	135	72	57
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:	172	843	317	185	922	39	163	404	569	135	72	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	172	843	317	185	922	39	163	404	569	135	72	57
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.:	172	843	317	185	922	39	163	404	569	135	72	57
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	0.94	0.94	0.99	0.99	0.85	0.90	0.90	0.90
Lanes:	1.00	1.45	0.55	1.00	1.92	0.08	0.29	0.71	1.00	1.00	0.56	0.44
Final Sat.:	1805	2516	946	1805	3443	146	539	1335	1615	1704	951	753
Capacity Analysis Module:												
Vol/Sat:	0.10	0.34	0.34	0.10	0.27	0.27	0.30	0.30	0.35	0.08	0.08	0.08
Crit Moves:		****		****				****		****		
Green/Cycle:	0.12	0.35	0.35	0.11	0.34	0.34	0.32	0.32	0.44	0.08	0.08	0.08
Volume/Cap:	0.79	0.95	0.95	0.95	0.79	0.79	0.95	0.95	0.81	0.95	0.91	0.91
Delay/Veh:	54.1	43.0	43.0	89.1	29.1	29.1	54.3	54.3	27.5	80.4	69.6	69.6
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:	54.1	43.0	43.0	89.1	29.1	29.1	54.3	54.3	27.5	80.4	69.6	69.6
DesignQueue:	7	28	11	8	31	1	6	14	16	6	3	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #60 North Canyons Parkway/ Airway Boulevard

Cycle (sec): 85 Critical Vol./Cap. (X): 0.983
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 41.1
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0	0	1	1	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	699	17	1104	0	0	0	0	844	1052	1782	548	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:	699	17	1104	0	0	0	0	844	1052	1782	548	0
User 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
PHF 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
PHF Volume:	699	17	0	0	0	0	0	844	1052	1782	548	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	699	17	0	0	0	0	0	844	1052	1782	548	0
PCE 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
MLF 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
Final Vol.:	699	17	0	0	0	0	0	844	1052	1782	548	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.75	0.92	0.95	1.00
Lanes:	2.00	1.00	1.00	0.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00	0.00
Final Sat.:	3686	1900	1900	0	0	0	0	5187	2842	3502	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.19	0.01	0.00	0.00	0.00	0.00	0.00	0.16	0.37	0.51	0.15	0.00
Crit Moves:	****								****	****		
Green/Cycle:	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.18	0.38	0.52	0.70	0.00
Volume/Cap:	0.98	0.05	0.00	0.00	0.00	0.00	0.00	0.89	0.98	0.98	0.22	0.00
Delay/Veh:	63.6	28.0	0.0	0.0	0.0	0.0	0.0	43.9	49.6	37.4	4.5	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:	63.6	28.0	0.0	0.0	0.0	0.0	0.0	43.9	49.6	37.4	4.5	0.0
DesignQueue:	28	1	0	0	0	0	0	34	33	46	8	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #61 North Canyons Parkway/ Collier Canyon Road

Cycle (sec): 105 Critical Vol./Cap. (X): 1.053
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 44.7
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0 1	0	2	0 1	0 2	2	0 3	0 1	1	0 3	0 1
Volume Module:													
Base Vol:	23	3	256	139	309	175	815	1686	249	0	1003	872
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:	23	3	256	139	309	175	815	1686	249	0	1003	872
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:	23	3	256	139	309	175	815	1686	249	0	1003	872
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	3	256	139	309	175	815	1686	249	0	1003	872
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.:	23	3	256	139	309	175	815	1686	249	0	1003	872
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.85	0.85	0.92	1.00	0.75	0.92	0.91	0.85	1.00	0.91	0.85
Lanes:	1.00	0.01	0.99	2.00	1.00	2.00	2.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	1805	19	1600	3502	1900	2842	3502	5187	1615	1900	5187	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.16	0.16	0.04	0.16	0.06	0.23	0.33	0.15	0.00	0.19	0.54
Crit Moves:		****		****			****					****
Green/Cycle:	0.01	0.15	0.15	0.04	0.18	0.40	0.22	0.70	0.70	0.00	0.48	0.51
Volume/Cap:	0.92	1.05	1.05	1.05	0.92	0.16	1.05	0.47	0.22	0.00	0.41	1.05
Delay/Veh:	198.5	117	116.5	143.7	73.2	20.4	88.1	7.3	5.8	0.0	18.0	71.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	198.5	117	116.5	143.7	73.2	20.4	88.1	7.3	5.8	0.0	18.0	71.8
DesignQueue:	1	0	13	8	16	6	39	32	5	0	32	28

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #62 Chestnut Street/ North Livermore Avenue

Cycle (sec): 75 Critical Vol./Cap. (X): 0.928
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 34.6
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	1 1	0	1	0 2	0 1	1	0 1	0 1	1	0 1	0 1
Volume Module:													
Base Vol:	192	1322	165	7	594	49	115	238	332	272	215	27
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:	192	1322	165	7	594	49	115	238	332	272	215	27
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:	192	1322	165	7	594	49	115	238	332	272	215	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	1322	165	7	594	49	115	238	332	272	215	27
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.:	192	1322	165	7	594	49	115	238	332	272	215	27
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.93	0.93	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.78	0.22	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	3155	394	1805	3610	1615	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.42	0.42	0.00	0.16	0.03	0.06	0.13	0.21	0.15	0.11	0.02
Crit Moves:		****		****					****	****		
Green/Cycle:	0.18	0.45	0.45	0.00	0.28	0.28	0.22	0.22	0.22	0.16	0.16	0.16
Volume/Cap:	0.59	0.93	0.93	0.93	0.59	0.11	0.29	0.57	0.93	0.93	0.70	0.10
Delay/Veh:	31.3	29.2	29.2	318.2	24.4	20.3	24.7	27.8	58.4	65.0	36.5	26.9
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:	31.3	29.2	29.2	318.2	24.4	20.3	24.7	27.8	58.4	65.0	36.5	26.9
DesignQueue:	7	34	4	0	19	1	4	8	11	10	8	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #63 Cromwell Way/ North Livermore Avenue

****

Cycle (sec): 55 Critical Vol./Cap. (X): 0.686
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 9.7
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	1 0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	38	1552	34	31	1096	76	131	7	31	21	6	22
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:	38	1552	34	31	1096	76	131	7	31	21	6	22
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:	38	1552	34	31	1096	76	131	7	31	21	6	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	1552	34	31	1096	76	131	7	31	21	6	22
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.:	38	1552	34	31	1096	76	131	7	31	21	6	22
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.90	0.90	0.95	0.88	0.88	0.95	0.88	0.88
Lanes:	1.00	2.00	1.00	1.00	2.81	0.19	1.00	0.18	0.82	1.00	0.21	0.79
Final Sat.:	1805	3610	1615	1805	4802	333	1805	307	1361	1805	359	1317
Capacity Analysis Module:												
Vol/Sat:	0.02	0.43	0.02	0.02	0.23	0.23	0.07	0.02	0.02	0.01	0.02	0.02
Crit Moves:		****		****			****				****	
Green/Cycle:	0.06	0.63	0.63	0.03	0.60	0.60	0.11	0.11	0.11	0.02	0.02	0.02
Volume/Cap:	0.38	0.69	0.03	0.69	0.38	0.38	0.69	0.22	0.22	0.48	0.69	0.69
Delay/Veh:	27.5	7.6	3.9	62.5	5.9	5.9	33.7	23.1	23.1	34.5	65.7	65.7
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:	27.5	7.6	3.9	62.5	5.9	5.9	33.7	23.1	23.1	34.5	65.7	65.7
DesignQueue:	1	20	0	1	14	1	4	0	1	1	0	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #64 North Livermore Avenue/ I-580 Eastbound Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.834
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 16.2
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Ignore			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 2	0 1	1	0 2	0 0	1	1 0	1 1	0	0 0	0 0
Volume Module:												
Base Vol:	0	951	548	81	577	0	1203	5	772	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	951	548	81	577	0	1203	5	772	0	0	0
User 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
PHF 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
PHF Volume:	0	951	0	81	577	0	1203	5	772	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	951	0	81	577	0	1203	5	772	0	0	0
PCE 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
MLF 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
Final Vol.:	0	951	0	81	577	0	1203	5	772	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	1.00	0.95	0.95	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	2.00	0.00	2.00	0.01	1.99	0.00	0.00	0.00
Final Sat.:	0	3610	1900	1805	3610	0	3203	21	3183	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.26	0.00	0.04	0.16	0.00	0.38	0.24	0.24	0.00	0.00	0.00
Crit Moves:		****		****			****					
Green/Cycle:	0.00	0.32	0.00	0.05	0.37	0.00	0.45	0.45	0.45	0.00	0.00	0.00
Volume/Cap:	0.00	0.83	0.00	0.83	0.43	0.00	0.83	0.54	0.54	0.00	0.00	0.00
Delay/Veh:	0.0	21.3	0.0	66.7	12.0	0.0	14.8	10.1	10.1	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:	0.0	21.3	0.0	66.7	12.0	0.0	14.8	10.1	10.1	0.0	0.0	0.0
DesignQueue:	0	19	0	2	11	0	20	0	12	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #65 North Livermore Avenue/ I-580 Westbound Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.668
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 11.3
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Permitted		
Rights:	Include			Ignore			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 1	0 0	0	0 2	0 1	0	0 0	0 0 0	1	1 0	0 1
Volume Module:												
Base Vol:	1333	821	0	0	174	5	0	0	0	381	4	28
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:	1333	821	0	0	174	5	0	0	0	381	4	28
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	1333	821	0	0	174	0	0	0	0	381	4	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1333	821	0	0	174	0	0	0	0	381	4	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	1333	821	0	0	174	0	0	0	0	381	4	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.85	0.85	1.00
Lanes:	2.00	1.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00	1.98	0.02	1.00
Final Sat.:	3502	1900	0	0	3610	1900	0	0	0	3196	34	1900
Capacity Analysis Module:												
Vol/Sat:	0.38	0.43	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.12	0.12	0.00
Crit Moves:	****				****						****	
Green/Cycle:	0.57	0.64	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.18	0.18	0.00
Volume/Cap:	0.67	0.67	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.67	0.67	0.00
Delay/Veh:	8.4	7.2	0.0	0.0	29.2	0.0	0.0	0.0	0.0	22.2	22.2	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:	8.4	7.2	0.0	0.0	29.2	0.0	0.0	0.0	0.0	22.2	22.2	0.0
DesignQueue:	18	9	0	0	5	0	0	0	0	9	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #66 Las Positas Road/ North Livermore Avenue

Cycle (sec): 65 Critical Vol./Cap. (X): 0.816
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 23.7
Optimal Cycle: 68 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	1 1	2	0 2	0 1	1	0 1	0 1	2	0 1	0 2
Volume Module:												
Base Vol:	108	771	826	416	688	44	123	190	136	716	96	260
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:	108	771	826	416	688	44	123	190	136	716	96	260
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:	108	771	826	416	688	44	123	190	136	716	96	260
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	108	771	826	416	688	44	123	190	136	716	96	260
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.:	108	771	826	416	688	44	123	190	136	716	96	260
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.84	0.84	0.92	0.95	0.85	0.95	1.00	0.85	0.92	1.00	0.75
Lanes:	1.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00
Final Sat.:	1805	3188	3188	3502	3610	1615	1805	1900	1615	3502	1900	2842
Capacity Analysis Module:												
Vol/Sat:	0.06	0.24	0.26	0.12	0.19	0.03	0.07	0.10	0.08	0.20	0.05	0.09
Crit Moves:		****		****				****		****		
Green/Cycle:	0.11	0.30	0.55	0.15	0.34	0.34	0.16	0.12	0.12	0.25	0.21	0.21
Volume/Cap:	0.57	0.82	0.47	0.82	0.57	0.08	0.43	0.82	0.69	0.82	0.24	0.43
Delay/Veh:	31.6	24.0	9.1	36.8	18.3	14.8	25.7	47.3	37.0	28.9	21.5	22.6
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:	31.6	24.0	9.1	36.8	18.3	14.8	25.7	47.3	37.0	28.9	21.5	22.6
DesignQueue:	4	21	14	13	17	1	4	6	4	20	3	8

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #67 Portola Avenue/ North Livermore Avenue

Cycle (sec): 66 Critical Vol./Cap. (X): 0.933
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 36.4
Optimal Cycle: 96 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	2	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	237	688	148	337	665	408	569	651	241	146	539	120
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:	237	688	148	337	665	408	569	651	241	146	539	120
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:	237	688	148	337	665	408	569	651	241	146	539	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	237	688	148	337	665	408	569	651	241	146	539	120
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.:	237	688	148	337	665	408	569	651	241	146	539	120
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	0.95	0.85	0.92	0.91	0.91	0.95	0.95	0.85
Lanes:	1.00	1.65	0.35	1.00	2.00	1.00	2.00	1.46	0.54	1.00	2.00	1.00
Final Sat.:	1805	2891	622	1805	3610	1615	3502	2529	936	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.13	0.24	0.24	0.19	0.18	0.25	0.16	0.26	0.26	0.08	0.15	0.07
Crit Moves:		****		****				****		****		
Green/Cycle:	0.19	0.26	0.26	0.20	0.27	0.45	0.19	0.28	0.28	0.09	0.17	0.17
Volume/Cap:	0.69	0.93	0.93	0.93	0.69	0.56	0.86	0.93	0.93	0.93	0.86	0.43
Delay/Veh:	31.0	40.2	40.2	56.5	24.0	14.1	36.9	38.7	38.7	82.1	38.0	25.4
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:	31.0	40.2	40.2	56.5	24.0	14.1	36.9	38.7	38.7	82.1	38.0	25.4
DesignQueue:	7	20	4	10	19	9	18	18	7	5	17	4

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #68 Railroad Avenue/ North Livermore Avenue

Cycle (sec): 115 Critical Vol./Cap. (X): 1.148
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 84.4
Optimal Cycle:OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 2	0 1	1	0 1	1 0	1	0 2	0 1
Volume Module:												
Base Vol:	135	441	24	140	700	335	710	1715	196	60	1274	537
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:	135	441	24	140	700	335	710	1715	196	60	1274	537
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:	135	441	24	140	700	335	710	1715	196	60	1274	537
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	135	441	24	140	700	335	710	1715	196	60	1274	537
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.:	135	441	24	140	700	335	710	1715	196	60	1274	537
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.95	0.85	0.95	0.94	0.94	0.95	0.95	0.85
Lanes:	1.00	1.90	0.10	1.00	2.00	1.00	1.00	1.79	0.21	1.00	2.00	1.00
Final Sat.:	1805	3396	185	1805	3610	1615	1805	3191	365	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.07	0.13	0.13	0.08	0.19	0.21	0.39	0.54	0.54	0.03	0.35	0.33
Crit Moves:	****					****	****				****	
Green/Cycle:	0.07	0.15	0.15	0.09	0.18	0.18	0.34	0.61	0.61	0.04	0.31	0.31
Volume/Cap:	1.15	0.84	0.84	0.84	1.07	1.15	1.15	0.88	0.88	0.88	1.15	1.08
Delay/Veh:	182.1	58.7	58.7	82.0	104	146.1	122.3	23.1	23.1	123.2	117	104.1
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:	182.1	58.7	58.7	82.0	104	146.1	122.3	23.1	23.1	123.2	117	104.1
DesignQueue:	8	25	1	8	39	18	33	49	6	4	62	26

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #69 Junction Avenue/ North Livermore Avenue

Cycle (sec): 50 Critical Vol./Cap. (X): 0.804
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 12.6
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1 0	1 0	0	1 0	1 0	0	0 1!	0 0	0	0 1!	0 0
Volume Module:												
Base Vol:	259	766	11	208	587	121	191	340	24	4	51	78
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:	259	766	11	208	587	121	191	340	24	4	51	78
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:	259	766	11	208	587	121	191	340	24	4	51	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	259	766	11	208	587	121	191	340	24	4	51	78
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.:	259	766	11	208	587	121	191	340	24	4	51	78
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.59	0.59	0.59	0.58	0.58	0.58	0.86	0.86	0.86	0.91	0.91	0.91
Lanes:	0.50	1.48	0.02	0.45	1.29	0.26	0.34	0.62	0.04	0.03	0.38	0.59
Final Sat.:	558	1652	24	501	1415	292	562	1001	71	52	663	1014
Capacity Analysis Module:												
Vol/Sat:	0.46	0.46	0.46	0.41	0.41	0.41	0.34	0.34	0.34	0.08	0.08	0.08
Crit Moves:		****						****				
Green/Cycle:	0.58	0.58	0.58	0.58	0.58	0.58	0.42	0.42	0.42	0.42	0.42	0.42
Volume/Cap:	0.80	0.80	0.80	0.72	0.72	0.72	0.80	0.80	0.80	0.18	0.18	0.18
Delay/Veh:	12.1	12.1	12.1	9.7	9.7	9.7	19.4	19.4	19.4	9.1	9.1	9.1
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:	12.1	12.1	12.1	9.7	9.7	9.7	19.4	19.4	19.4	9.1	9.1	9.1
DesignQueue:	3	10	0	3	7	2	3	6	0	0	1	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #70 Olivina Avenue- Chestnut Street/ North P Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.810
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 26.0
Optimal Cycle: 69 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 0	1 0	1	0 1	0 1	1	0 0	1 0
Volume Module:												
Base Vol:	167	236	172	43	204	31	28	683	239	170	149	22
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:	167	236	172	43	204	31	28	683	239	170	149	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	167	236	172	43	204	31	28	683	0	170	149	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	167	236	172	43	204	31	28	683	0	170	149	22
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	167	236	172	43	204	31	28	683	0	170	149	22
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.98	0.98	0.64	1.00	1.00	0.21	0.98	0.98
Lanes:	1.00	0.58	0.42	1.00	0.87	0.13	1.00	1.00	1.00	1.00	0.87	0.13
Final Sat.:	1805	1030	751	1805	1616	246	1220	1900	1900	407	1624	240
Capacity Analysis Module:												
Vol/Sat:	0.09	0.23	0.23	0.02	0.13	0.13	0.02	0.36	0.00	0.42	0.09	0.09
Crit Moves:		****		****						****		
Green/Cycle:	0.13	0.28	0.28	0.03	0.18	0.18	0.52	0.52	0.00	0.52	0.52	0.52
Volume/Cap:	0.70	0.81	0.81	0.81	0.70	0.70	0.04	0.70	0.00	0.81	0.18	0.18
Delay/Veh:	38.0	32.9	32.9	93.1	33.4	33.4	8.4	15.0	0.0	34.6	9.1	9.1
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:	38.0	32.9	32.9	93.1	33.4	33.4	8.4	15.0	0.0	34.6	9.1	9.1
DesignQueue:	6	7	5	2	7	1	1	14	0	3	3	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #71 Northfront/ I-580 Westbound Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.523
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 1.8
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	0	0
Volume Module:												
Base Vol:	16	0	79	0	0	0	0	818	5	391	622	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:	16	0	79	0	0	0	0	818	5	391	622	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:	16	0	79	0	0	0	0	818	5	391	622	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	0	79	0	0	0	0	818	5	391	622	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.:	16	0	79	0	0	0	0	818	5	391	622	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.86	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.56	0.56	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.77	1.23	0.00
Final Sat.:	1625	0	1615	0	0	0	0	1900	1615	825	1312	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.43	0.00	0.47	0.47	0.00
Crit Moves:			****								****	
Green/Cycle:	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.91	0.91	0.91	0.91	0.00
Volume/Cap:	0.11	0.00	0.52	0.00	0.00	0.00	0.00	0.47	0.00	0.52	0.52	0.00
Delay/Veh:	21.1	0.0	24.9	0.0	0.0	0.0	0.0	0.6	0.2	0.7	0.7	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:	21.1	0.0	24.9	0.0	0.0	0.0	0.0	0.6	0.2	0.7	0.7	0.0
DesignQueue:	0	0	2	0	0	0	0	2	0	1	2	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #72 Pine Street/ North L Street

****

Cycle (sec): 100 Critical Vol./Cap. (X): 0.549
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 18.4
Optimal Cycle: 32 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	1	0	0	1	0	1	0	0	1!	0	0	0	0	1!	0	0
Volume Module:												
Base Vol:	32	217	235	138	342	54	65	158	24	223	19	187
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:	32	217	235	138	342	54	65	158	24	223	19	187
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:	32	217	235	138	342	54	65	158	24	223	19	187
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	217	235	138	342	54	65	158	24	223	19	187
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.:	32	217	235	138	342	54	65	158	24	223	19	187
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.79	0.64	0.64	0.64	0.82	0.82	0.82	0.68	0.68	0.68
Lanes:	0.13	0.90	0.97	0.52	1.28	0.20	0.26	0.64	0.10	0.52	0.04	0.44
Final Sat.:	200	1353	1466	632	1567	247	409	994	151	674	57	565
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.16	0.22	0.22	0.22	0.16	0.16	0.16	0.33	0.33	0.33
Crit Moves:					****						****	
Green/Cycle:	0.40	0.40	0.40	0.40	0.40	0.40	0.60	0.60	0.60	0.60	0.60	0.60
Volume/Cap:	0.40	0.40	0.40	0.55	0.55	0.55	0.26	0.26	0.26	0.55	0.55	0.55
Delay/Veh:	21.8	21.8	21.8	23.9	23.9	23.9	9.5	9.5	9.5	12.6	12.6	12.6
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:	21.8	21.8	21.8	23.9	23.9	23.9	9.5	9.5	9.5	12.6	12.6	12.6
DesignQueue:	1	8	8	5	12	2	1	4	1	5	0	4

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #73 Pine Street/ North P Street

Cycle (sec): 70 Critical Vol./Cap. (X): 0.628
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 12.4
Optimal Cycle: 39 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	1 0	1 0	0	1 0	0	0	1! 0	0	0	1! 0 0
Volume Module:												
Base Vol:	86	142	30	21	638	67	11	327	121	16	155	15
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:	86	142	30	21	638	67	11	327	121	16	155	15
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:	86	142	30	21	638	67	11	327	121	16	155	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	142	30	21	638	67	11	327	121	16	155	15
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.:	86	142	30	21	638	67	11	327	121	16	155	15
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.22	0.97	0.97	0.60	0.99	0.99	0.96	0.96	0.96	0.95	0.95	0.95
Lanes:	1.00	0.83	0.17	1.00	0.90	0.10	0.02	0.72	0.26	0.09	0.83	0.08
Final Sat.:	422	1528	323	1132	1695	178	44	1297	480	155	1502	145
Capacity Analysis Module:												
Vol/Sat:	0.20	0.09	0.09	0.02	0.38	0.38	0.25	0.25	0.25	0.10	0.10	0.10
Crit Moves:					****			****				
Green/Cycle:	0.60	0.60	0.60	0.60	0.60	0.60	0.40	0.40	0.40	0.40	0.40	0.40
Volume/Cap:	0.34	0.16	0.16	0.03	0.63	0.63	0.63	0.63	0.63	0.26	0.26	0.26
Delay/Veh:	7.9	6.3	6.3	5.8	10.2	10.2	18.5	18.5	18.5	14.2	14.2	14.2
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:	7.9	6.3	6.3	5.8	10.2	10.2	18.5	18.5	18.5	14.2	14.2	14.2
DesignQueue:	1	2	0	0	11	1	0	8	3	0	4	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #74 Portola Avenue/ North L Street

Cycle (sec): 65 Critical Vol./Cap. (X): 1.013
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 32.4
Optimal Cycle: 147 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	0	0 1	0 0	1!	0 0	1 0	2	0 1	1 0	1	1 0
Volume Module:												
Base Vol:	486	0	281	9	4	6	4	2021	347	232	1371	5
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:	486	0	281	9	4	6	4	2021	347	232	1371	5
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:	486	0	281	9	4	6	4	2021	347	232	1371	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	486	0	281	9	4	6	4	2021	347	232	1371	5
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.:	486	0	281	9	4	6	4	2021	347	232	1371	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	0.93	0.93	0.93	0.95	0.95	0.85	0.95	0.95	0.95
Lanes:	2.00	0.00	1.00	0.47	0.21	0.32	1.00	2.00	1.00	1.00	1.99	0.01
Final Sat.:	3502	0	1615	841	374	561	1805	3610	1615	1805	3593	13
Capacity Analysis Module:												
Vol/Sat:	0.14	0.00	0.17	0.01	0.01	0.01	0.00	0.56	0.21	0.13	0.38	0.38
Crit Moves:			****		****			****		****		
Green/Cycle:	0.17	0.00	0.17	0.01	0.01	0.01	0.00	0.55	0.55	0.13	0.68	0.68
Volume/Cap:	0.81	0.00	1.01	1.01	1.01	1.01	0.56	1.01	0.39	1.01	0.56	0.56
Delay/Veh:	33.9	0.0	84.4	244.4	244	244.4	109.1	38.1	8.6	91.3	5.8	5.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.9	0.0	84.4	244.4	244	244.4	109.1	38.1	8.6	91.3	5.8	5.8
DesignQueue:	15	0	9	0	0	0	0	38	6	8	18	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #75 Portola Avenue/ Murrieta Boulevard

Cycle (sec): 100 Critical Vol./Cap. (X): 1.021
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 44.3
Optimal Cycle: 180 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 2	0 1	1	0 2	0 1	2	0 1	0 1	1	0 0	1 0
Volume Module:												
Base Vol:	373	1164	42	33	2256	121	293	110	336	11	78	119
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:	373	1164	42	33	2256	121	293	110	336	11	78	119
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:	373	1164	42	33	2256	121	293	110	336	11	78	119
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	373	1164	42	33	2256	121	293	110	336	11	78	119
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.:	373	1164	42	33	2256	121	293	110	336	11	78	119
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.95	0.85	0.95	0.95	0.85	0.92	1.00	0.85	0.95	0.91	0.91
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	0.40	0.60
Final Sat.:	3502	3610	1615	1805	3610	1615	3502	1900	1615	1805	684	1043
Capacity Analysis Module:												
Vol/Sat:	0.11	0.32	0.03	0.02	0.62	0.07	0.08	0.06	0.21	0.01	0.11	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.10	0.68	0.68	0.04	0.61	0.61	0.08	0.18	0.29	0.01	0.11	0.11
Volume/Cap:	1.02	0.48	0.04	0.48	1.02	0.12	1.02	0.32	0.72	0.56	1.02	1.02
Delay/Veh:	97.3	7.8	5.3	52.2	44.1	8.2	104.5	36.0	37.7	79.7	115	114.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	97.3	7.8	5.3	52.2	44.1	8.2	104.5	36.0	37.7	79.7	115	114.8
DesignQueue:	19	23	1	2	58	3	15	5	14	1	4	6

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #76 North P Street - Paseo Laguna Seco - Portola Avenue

Cycle (sec): 50 Critical Vol./Cap. (X): 0.733
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 5.7
Optimal Cycle: 85 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	0	0 1!	0 0	1	0 2	0 1	1	0 1	1 0
Volume Module:												
Base Vol:	67	8	79	24	14	45	76	2099	84	91	1747	49
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:	67	8	79	24	14	45	76	2099	84	91	1747	49
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:	67	8	79	24	14	45	76	2099	84	91	1747	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	67	8	79	24	14	45	76	2099	84	91	1747	49
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.:	67	8	79	24	14	45	76	2099	84	91	1747	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.86	0.86	0.91	0.91	0.91	0.95	0.95	0.85	0.95	0.95	0.95
Lanes:	1.00	0.09	0.91	0.29	0.17	0.54	1.00	2.00	1.00	1.00	1.95	0.05
Final Sat.:	1805	151	1491	502	293	942	1805	3610	1615	1805	3497	98
Capacity Analysis Module:												
Vol/Sat:	0.04	0.05	0.05	0.05	0.05	0.05	0.04	0.58	0.05	0.05	0.50	0.50
Crit Moves:		****			****			****		****		
Green/Cycle:	0.07	0.07	0.14	0.07	0.07	0.13	0.07	0.79	0.79	0.07	0.80	0.80
Volume/Cap:	0.51	0.73	0.38	0.73	0.73	0.36	0.63	0.73	0.07	0.73	0.63	0.63
Delay/Veh:	25.8	43.5	20.5	44.6	44.6	20.7	32.8	3.5	1.1	42.8	2.5	2.5
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:	25.8	43.5	20.5	44.6	44.6	20.7	32.8	3.5	1.1	42.8	2.5	2.5
DesignQueue:	2	0	2	1	0	1	2	14	0	2	11	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #77 Railroad Avenue/ North L Street

Cycle (sec): 125 Critical Vol./Cap. (X): 1.268
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 114.3
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:		Include				Include				Include				Include		
Min. Green:	0	0		0	0	0		0	0	0		0	0	0		0
Lanes:	1	0 1	1	0	1	0 1	1	0	1	0 1	1	0	1	0 2	0	1
Volume Module:																
Base Vol:	141	270	341		520	564	134		91	1784	97		229	1590	63	
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:	141	270	341		520	564	134		91	1784	97		229	1590	63	
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:	141	270	341		520	564	134		91	1784	97		229	1590	63	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	141	270	341		520	564	134		91	1784	97		229	1590	63	
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.:	141	270	341		520	564	134		91	1784	97		229	1590	63	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	0.87	0.87		0.95	0.92	0.92		0.95	0.94	0.94		0.95	0.95	0.85	
Lanes:	1.00	1.00	1.00		1.00	1.62	0.38		1.00	1.90	0.10		1.00	2.00	1.00	
Final Sat.:	1805	1653	1653		1805	2832	673		1805	3396	185		1805	3610	1615	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.16	0.21		0.29	0.20	0.20		0.05	0.53	0.53		0.13	0.44	0.04	
Crit Moves:			****		****					****			****			
Green/Cycle:	0.11	0.16	0.16		0.23	0.28	0.28		0.05	0.41	0.41		0.10	0.46	0.46	
Volume/Cap:	0.71	1.00	1.27		1.27	0.71	0.71		0.95	1.27	1.27		1.27	0.95	0.08	
Delay/Veh:	65.1	89.8	188.7		187.1	42.9	42.9		136.2	163	162.8		213.2	45.3	18.9	
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:	65.1	89.8	188.7		187.1	42.9	42.9		136.2	163	162.8		213.2	45.3	18.9	
DesignQueue:	9	16	21		30	30	7		6	83	5		15	67	2	

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #78 Railroad Avenue/ North P Street

Cycle (sec): 95 Critical Vol./Cap. (X): 1.045
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 51.8
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Protected				Protected				Protected				Protected			
Rights:		Ovl				Include				Include				Include		
Min. Green:	0	0		0	0	0		0	0	0		0	0	0		0
Lanes:	1	0 1	0	1	1	0 2	0	1	1	0 1	1	0	1	0 1	1	0
Volume Module:																
Base Vol:	146	287	425		176	266	184		232	1246	42		61	1510	123	
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:	146	287	425		176	266	184		232	1246	42		61	1510	123	
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:	146	287	425		176	266	184		232	1246	42		61	1510	123	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	146	287	425		176	266	184		232	1246	42		61	1510	123	
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.:	146	287	425		176	266	184		232	1246	42		61	1510	123	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	0.85		0.95	0.95	0.85		0.95	0.95	0.95		0.95	0.94	0.94	
Lanes:	1.00	1.00	1.00		1.00	2.00	1.00		1.00	1.93	0.07		1.00	1.85	0.15	
Final Sat.:	1805	1900	1615		1805	3610	1615		1805	3475	117		1805	3301	269	
Capacity Analysis Module:																
Vol/Sat:	0.08	0.15	0.26		0.10	0.07	0.11		0.13	0.36	0.36		0.03	0.46	0.46	
Crit Moves:			****		****				****					****		
Green/Cycle:	0.13	0.22	0.27		0.09	0.18	0.18		0.12	0.51	0.51		0.05	0.44	0.44	
Volume/Cap:	0.62	0.69	0.98		1.04	0.40	0.62		1.04	0.70	0.70		0.70	1.04	1.04	
Delay/Veh:	44.2	38.9	73.1		124.7	34.6	39.9		114.3	18.8	18.8		66.8	62.1	62.1	
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:	44.2	38.9	73.1		124.7	34.6	39.9		114.3	18.8	18.8		66.8	62.1	62.1	
DesignQueue:	7	12	17		9	12	8		11	35	1		3	51	4	

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #79 Tesla Road/Greenville Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.707
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 10.6
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1! 0	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1
Volume Module:												
Base Vol:	13	25	5	308	12	512	223	771	12	4	125	34
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:	13	25	5	308	12	512	223	771	12	4	125	34
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:	13	25	5	308	12	512	223	771	12	4	125	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	25	5	308	12	512	223	771	12	4	125	34
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.:	13	25	5	308	12	512	223	771	12	4	125	34
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.84	0.84	0.84	0.71	0.71	0.71	0.80	0.80	0.80	0.86	0.86	0.86
Lanes:	0.30	0.58	0.12	0.96	0.04	1.00	0.44	1.54	0.02	0.05	1.53	0.42
Final Sat.:	483	929	186	1306	51	1357	676	2339	36	81	2516	684
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.24	0.24	0.38	0.33	0.33	0.33	0.05	0.05	0.05
Crit Moves:						****		****				
Green/Cycle:	0.53	0.53	0.53	0.53	0.53	0.53	0.47	0.47	0.47	0.47	0.47	0.47
Volume/Cap:	0.05	0.05	0.05	0.44	0.44	0.71	0.71	0.71	0.71	0.11	0.11	0.11
Delay/Veh:	5.6	5.6	5.6	7.3	7.3	10.7	12.3	12.3	12.3	7.5	7.5	7.5
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:	5.6	5.6	5.6	7.3	7.3	10.7	12.3	12.3	12.3	7.5	7.5	7.5
DesignQueue:	0	0	0	4	0	7	4	12	0	0	2	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #80 Fourth Street/ South L Street

Cycle (sec): 110 Critical Vol./Cap. (X): 1.382
Loss Time (sec): 6 (Y+R = 4 sec) Average Delay (sec/veh): 36.3
Optimal Cycle:OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 1	1	0 1	0 1	1	0 1	1 0	1	0 1	1 0
Volume Module:												
Base Vol:	52	391	42	156	470	136	192	1673	58	65	1498	121
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:	52	391	42	156	470	136	192	1673	58	65	1498	121
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:	52	391	42	156	470	136	192	1673	58	65	1498	121
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	52	391	42	156	470	136	192	1673	58	65	1498	121
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.:	52	391	42	156	470	136	192	1673	58	65	1498	121
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.19	1.00	0.85	0.19	1.00	0.85	0.12	0.95	0.95	0.10	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.93	0.07	1.00	1.85	0.15
Final Sat.:	365	1900	1615	365	1900	1615	219	3472	120	184	3303	267
Capacity Analysis Module:												
Vol/Sat:	0.14	0.21	0.03	0.43	0.25	0.08	0.88	0.48	0.48	0.35	0.45	0.45
Crit Moves:				****			****					
Green/Cycle:	0.31	0.31	0.31	0.31	0.31	0.31	0.64	0.64	0.64	0.64	0.64	0.64
Volume/Cap:	0.46	0.66	0.08	1.38	0.80	0.27	1.38	0.76	0.76	0.55	0.71	0.71
Delay/Veh:	33.5	35.9	27.0	255.4	42.5	28.9	230.1	15.6	15.6	17.0	14.4	14.4
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:	33.5	35.9	27.0	255.4	42.5	28.9	230.1	15.6	15.6	17.0	14.4	14.4
DesignQueue:	2	17	2	7	21	6	4	42	1	1	38	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #81 Second Street/ South L Street

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.612
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 9.4
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Permitted				Permitted				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0	0	1 0	1	0	0	1 0	0	1	0	0 1	0	1	0	0 1
Volume Module:																
Base Vol:	37	606	125		123	595	18		38	143	52		81	53	118	
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:	37	606	125		123	595	18		38	143	52		81	53	118	
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:	37	606	125		123	595	18		38	143	52		81	53	118	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	37	606	125		123	595	18		38	143	52		81	53	118	
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.:	37	606	125		123	595	18		38	143	52		81	53	118	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.36	0.97	0.97		0.29	1.00	1.00		0.90	0.90	0.85		0.66	0.66	0.85	
Lanes:	1.00	0.83	0.17		1.00	0.97	0.03		0.21	0.79	1.00		0.60	0.40	1.00	
Final Sat.:	684	1534	316		542	1837	56		359	1352	1615		760	497	1615	
Capacity Analysis Module:																
Vol/Sat:	0.05	0.40	0.40		0.23	0.32	0.32		0.11	0.11	0.03		0.11	0.11	0.07	
Crit Moves:		****												****		
Green/Cycle:	0.65	0.65	0.65		0.65	0.65	0.65		0.17	0.17	0.17		0.17	0.17	0.17	
Volume/Cap:	0.08	0.61	0.61		0.35	0.50	0.50		0.61	0.61	0.18		0.61	0.61	0.42	
Delay/Veh:	3.4	6.1	6.1		4.7	5.0	5.0		22.6	22.6	17.9		24.1	24.1	19.4	
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:	3.4	6.1	6.1		4.7	5.0	5.0		22.6	22.6	17.9		24.1	24.1	19.4	
DesignQueue:	0	7	1		1	6	0		1	3	1		2	1	3	

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #82 Southfront Road/ I-580 Eastbound Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.515
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 4.4
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Permitted				Permitted				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	0	0 0	2	0	0	0 1	1	0	2	0 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		311	0	8		270	670	0		0	463	625	
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	0	0		311	0	8		270	670	0		0	463	625	
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	0	0		311	0	8		270	670	0		0	463	625	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		311	0	8		270	670	0		0	463	625	
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	0	0		311	0	8		270	670	0		0	463	625	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		0.64	1.00	0.85		0.42	0.95	1.00		1.00	1.00	0.85	
Lanes:	0.00	0.00	0.00		2.00	0.00	1.00		1.00	2.00	0.00		0.00	1.00	1.00	
Final Sat.:	0	0	0		2425	0	1615		804	3610	0		0	1900	1615	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.13	0.00	0.00		0.34	0.19	0.00		0.00	0.24	0.39	
Crit Moves:					****										****	
Green/Cycle:	0.00	0.00	0.00		0.25	0.00	0.25		0.75	0.75	0.00		0.00	0.75	0.75	
Volume/Cap:	0.00	0.00	0.00		0.52	0.00	0.02		0.45	0.25	0.00		0.00	0.32	0.52	
Delay/Veh:	0.0	0.0	0.0		17.0	0.0	14.2		2.9	1.9	0.0		0.0	2.2	2.9	
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	0.0	0.0		17.0	0.0	14.2		2.9	1.9	0.0		0.0	2.2	2.9	
DesignQueue:	0	0	0		7	0	0		2	5	0		0	3	5	

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #83 Vallecitos Road/ Isabel Avenue

Cycle (sec): 50 Critical Vol./Cap. (X): 0.830
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 14.5
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:		Include			Include			Ovl			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 2	0 0	0	0 1	0 1	1	0 0	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #84 East Vineyard Avenue/ East Vallecitos Road

Cycle (sec): 100 Critical Vol./Cap. (X): 0.860
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 12.2
Optimal Cycle: 163 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 0	1 0	1	0 0	1 0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	22	1479	5	2	521	33	126	0	34	0	3	11
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:	22	1479	5	2	521	33	126	0	34	0	3	11
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:	22	1479	5	2	521	33	126	0	34	0	3	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	1479	5	2	521	33	126	0	34	0	3	11
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.:	22	1479	5	2	521	33	126	0	34	0	3	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	0.99	0.99	0.95	1.00	0.85	1.00	0.88	0.88
Lanes:	1.00	0.99	0.01	1.00	0.94	0.06	1.00	0.00	1.00	1.00	0.21	0.79
Final Sat.:	1805	1894	6	1805	1771	112	1805	0	1615	1900	359	1317
Capacity Analysis Module:												
Vol/Sat:	0.01	0.78	0.78	0.00	0.29	0.29	0.07	0.00	0.02	0.00	0.01	0.01
Crit Moves:		****		****			****				****	
Green/Cycle:	0.04	0.91	0.91	0.00	0.87	0.87	0.08	0.00	0.09	0.00	0.01	0.01
Volume/Cap:	0.34	0.86	0.86	0.86	0.34	0.34	0.86	0.00	0.23	0.00	0.86	0.86
Delay/Veh:	50.1	6.6	6.6	502.0	1.3	1.3	82.4	0.0	43.0	0.0	203	203.1
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:	50.1	6.6	6.6	502.0	1.3	1.3	82.4	0.0	43.0	0.0	203	203.1
DesignQueue:	1	10	0	0	4	0	7	0	2	0	0	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #85 Brisa Street/ South Vasco Road

Cycle (sec): 75 Critical Vol./Cap. (X): 0.965
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 39.6
Optimal Cycle: 124 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	2	0 3	0 1	2	0 1	0 1	1	1 0	0 2
Volume Module:												
Base Vol:	75	1794	27	152	524	52	495	19	116	249	29	1030
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:	75	1794	27	152	524	52	495	19	116	249	29	1030
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:	75	1794	27	152	524	52	495	19	116	249	29	1030
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	75	1794	27	152	524	52	495	19	116	249	29	1030
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.:	75	1794	27	152	524	52	495	19	116	249	29	1030
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.92	0.91	0.85	0.92	1.00	0.85	0.96	0.96	0.75
Lanes:	1.00	3.00	1.00	2.00	3.00	1.00	2.00	1.00	1.00	1.79	0.21	2.00
Final Sat.:	1805	5187	1615	3502	5187	1615	3502	1900	1615	3257	379	2842
Capacity Analysis Module:												
Vol/Sat:	0.04	0.35	0.02	0.04	0.10	0.03	0.14	0.01	0.07	0.08	0.08	0.36
Crit Moves:		****		****			****					****
Green/Cycle:	0.12	0.36	0.36	0.04	0.29	0.29	0.15	0.15	0.15	0.33	0.33	0.38
Volume/Cap:	0.35	0.97	0.05	0.97	0.35	0.11	0.97	0.07	0.49	0.23	0.23	0.97
Delay/Veh:	31.5	37.2	15.7	96.9	21.4	19.9	62.8	27.7	31.0	18.3	18.3	42.6
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:	31.5	37.2	15.7	96.9	21.4	19.9	62.8	27.7	31.0	18.3	18.3	42.6
DesignQueue:	3	52	1	6	16	2	18	1	4	7	1	29

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #86 Dalton Avenue/ North Vasco Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.964
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 23.6
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 0	0	0 1	0 1	1	0 0	0 1	0	0 0	0 0
Volume Module:												
Base Vol:	50	1866	0	0	526	16	656	0	283	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:	50	1866	0	0	526	16	656	0	283	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:	50	1866	0	0	526	16	656	0	283	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	1866	0	0	526	16	656	0	283	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.:	50	1866	0	0	526	16	656	0	283	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	1.00	1.00	0.85	0.77	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	3610	0	0	1900	1615	1467	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.52	0.00	0.00	0.28	0.01	0.45	0.00	0.18	0.00	0.00	0.00
Crit Moves:		****		****			****					
Green/Cycle:	0.05	0.54	0.00	0.00	0.49	0.49	0.46	0.00	0.46	0.00	0.00	0.00
Volume/Cap:	0.57	0.96	0.00	0.00	0.57	0.02	0.96	0.00	0.38	0.00	0.00	0.00
Delay/Veh:	31.7	24.2	0.0	0.0	9.9	6.6	38.8	0.0	9.0	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:	31.7	24.2	0.0	0.0	9.9	6.6	38.8	0.0	9.0	0.0	0.0	0.0
DesignQueue:	1	28	0	0	8	0	11	0	4	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #87 East Avenue/ South Vasco Road

Cycle (sec): 70 Critical Vol./Cap. (X): 0.936
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 31.6
Optimal Cycle: 101 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	2	0 1	0 1	1	0 2	0 1	1	0 2	0 1
Volume Module:												
Base Vol:	24	345	30	33	513	637	372	167	53	301	682	477
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:	24	345	30	33	513	637	372	167	53	301	682	477
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:	24	345	30	33	513	637	372	167	53	301	682	477
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	345	30	33	513	637	372	167	53	301	682	477
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.:	24	345	30	33	513	637	372	167	53	301	682	477
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.92	1.00	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1805	3610	1615	3502	1900	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.10	0.02	0.01	0.27	0.39	0.21	0.05	0.03	0.17	0.19	0.30
Crit Moves:	****				****		****					****
Green/Cycle:	0.01	0.28	0.28	0.03	0.29	0.51	0.22	0.11	0.11	0.41	0.31	0.33
Volume/Cap:	0.94	0.35	0.07	0.35	0.94	0.78	0.94	0.41	0.29	0.41	0.62	0.89
Delay/Veh:	183.5	20.5	18.8	35.6	47.9	18.6	56.2	29.4	29.3	14.9	21.9	38.5
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:	183.5	20.5	18.8	35.6	47.9	18.6	56.2	29.4	29.3	14.9	21.9	38.5
DesignQueue:	1	10	1	1	15	13	12	6	2	7	19	13

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #88 Garaventa Ranch Road/ North Vasco Road

Cycle (sec): 55 Critical Vol./Cap. (X): 0.907
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 21.5
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 1	1 0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	107	1709	172	166	699	19	80	116	56	94	192	151
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	1709	172	166	699	19	80	116	56	94	192	151
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	1709	172	166	699	19	80	116	56	94	192	151
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	107	1709	172	166	699	19	80	116	56	94	192	151
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	1709	172	166	699	19	80	116	56	94	192	151
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.95	0.34	0.95	0.95	0.56	0.93	0.93
Lanes:	1.00	2.00	1.00	1.00	1.95	0.05	1.00	0.67	0.33	1.00	0.56	0.44
Final Sat.:	1805	3610	1615	1805	3500	95	648	1219	588	1056	993	781
Capacity Analysis Module:												
Vol/Sat:	0.06	0.47	0.11	0.09	0.20	0.20	0.12	0.10	0.10	0.09	0.19	0.19
Crit Moves:		****		****							****	
Green/Cycle:	0.14	0.52	0.52	0.10	0.48	0.48	0.21	0.21	0.21	0.21	0.21	0.21
Volume/Cap:	0.42	0.91	0.20	0.91	0.42	0.42	0.58	0.45	0.45	0.42	0.91	0.91
Delay/Veh:	22.6	18.8	7.2	65.6	9.4	9.4	25.5	19.6	19.6	19.9	45.9	45.9
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:	22.6	18.8	7.2	65.6	9.4	9.4	25.5	19.6	19.6	19.9	45.9	45.9
DesignQueue:	3	28	3	5	12	0	2	3	1	2	5	4

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #89 Industrial Drive/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 1.003
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 30.1
Optimal Cycle: 180 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 3	0 1	1	0 3	0 1	0	1 0	0 1	0	1 0	0 1
Volume Module:												
Base Vol:	0	3518	37	253	1208	25	44	8	19	82	9	240
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	3518	37	253	1208	25	44	8	19	82	9	240
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	3518	37	253	1208	25	44	8	19	82	9	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	3518	37	253	1208	25	44	8	19	82	9	240
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	3518	37	253	1208	25	44	8	19	82	9	240
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.91	0.85	0.95	0.91	0.85	0.96	0.96	0.85	0.96	0.96	0.85
Lanes:	0.00	3.00	1.00	1.00	3.00	1.00	0.85	0.15	1.00	0.90	0.10	1.00
Final Sat.:	0	5187	1615	1805	5187	1615	1542	280	1615	1638	180	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.68	0.02	0.14	0.23	0.02	0.03	0.03	0.01	0.05	0.05	0.15
Crit Moves:		****		****			****			****		
Green/Cycle:	0.00	0.68	0.68	0.14	0.82	0.82	0.03	0.03	0.03	0.05	0.05	0.19
Volume/Cap:	0.00	1.00	0.03	1.00	0.29	0.02	1.00	1.00	0.41	1.00	1.00	0.78
Delay/Veh:	0.0	29.7	4.6	94.1	1.9	1.5	167.2	167	46.5	135.8	136	45.2
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	29.7	4.6	94.1	1.9	1.5	167.2	167	46.5	135.8	136	45.2
DesignQueue:	0	64	1	11	11	0	2	0	1	4	0	10

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #90 Las Positas Road/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 0.996
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.8
Optimal Cycle: 158 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 4	0 1	2	0 2	0 1	2	0 1	1 1
Volume Module:												
Base Vol:	918	2056	284	489	475	302	419	501	121	127	399	586
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:	918	2056	284	489	475	302	419	501	121	127	399	586
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:	918	2056	284	489	475	302	419	501	121	127	399	586
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	918	2056	284	489	475	302	419	501	121	127	399	586
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.:	918	2056	284	489	475	302	419	501	121	127	399	586
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	0.92	0.95	0.85	0.92	0.87	0.87
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	2.00	1.00	2.00	1.22	1.78
Final Sat.:	3502	5187	1615	3502	6916	1615	3502	3610	1615	3502	1998	2935
Capacity Analysis Module:												
Vol/Sat:	0.26	0.40	0.18	0.14	0.07	0.19	0.12	0.14	0.07	0.04	0.20	0.20
Crit Moves:		****		****			****				****	
Green/Cycle:	0.31	0.40	0.40	0.14	0.22	0.22	0.12	0.25	0.25	0.07	0.20	0.34
Volume/Cap:	0.83	1.00	0.44	1.00	0.31	0.83	1.00	0.55	0.29	0.55	1.00	0.59
Delay/Veh:	32.7	44.3	19.2	76.0	27.6	46.8	80.1	28.1	26.0	41.1	61.5	23.6
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:	32.7	44.3	19.2	76.0	27.6	46.8	80.1	28.1	26.0	41.1	61.5	23.6
DesignQueue:	32	65	8	21	18	12	18	18	4	6	16	19

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #91 Mesquite Way- Emily Way/ South Vasco Road

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.431
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 3.3
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	2	0 2	0 1	0	0 1!	0 0	0	0 1!	0 0
Volume Module:												
Base Vol:	43	1107	0	0	1115	14	24	0	13	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:	43	1107	0	0	1115	14	24	0	13	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:	43	1107	0	0	1115	14	24	0	13	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	1107	0	0	1115	14	24	0	13	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.:	43	1107	0	0	1115	14	24	0	13	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	1.00	0.97	0.95	0.85	0.92	1.00	0.92	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	0.65	0.00	0.35	0.00	1.00	0.00
Final Sat.:	1805	3610	1900	3686	3610	1615	1138	0	616	0	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.02	0.31	0.00	0.00	0.31	0.01	0.02	0.00	0.02	0.00	0.00	0.00
Crit Moves:	****				****				****			
Green/Cycle:	0.06	0.77	0.00	0.00	0.72	0.72	0.05	0.00	0.05	0.00	0.00	0.00
Volume/Cap:	0.43	0.40	0.00	0.00	0.43	0.01	0.43	0.00	0.43	0.00	0.00	0.00
Delay/Veh:	25.8	2.0	0.0	0.0	3.0	2.0	26.6	0.0	26.6	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:	25.8	2.0	0.0	0.0	3.0	2.0	26.6	0.0	26.6	0.0	0.0	0.0
DesignQueue:	1	8	0	0	10	0	1	0	0	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #92 Northfront Road/ North Vasco Road

****

Cycle (sec): 130 Critical Vol./Cap. (X): 1.212
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 82.8
Optimal Cycle: 180 Level Of Service: F

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:		Ovl			Include			Ovl			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 3	0 1	1	0 3	0 1	2	0 1	0 1	2	0 0	1 0
Volume Module:												
Base Vol:	515	2690	1464	178	839	14	44	181	85	944	135	53
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:	515	2690	1464	178	839	14	44	181	85	944	135	53
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:	515	2690	1464	178	839	14	44	181	85	944	135	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	515	2690	1464	178	839	14	44	181	85	944	135	53
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.:	515	2690	1464	178	839	14	44	181	85	944	135	53
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.85	0.95	0.91	0.85	0.92	1.00	0.85	0.92	0.96	0.96
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	2.00	1.00	1.00	2.00	0.72	0.28
Final Sat.:	1805	5187	1615	1805	5187	1615	3502	1900	1615	3502	1307	513
Capacity Analysis Module:												
Vol/Sat:	0.29	0.52	0.91	0.10	0.16	0.01	0.01	0.10	0.05	0.27	0.10	0.10
Crit Moves:			****	****				****		****		
Green/Cycle:	0.39	0.53	0.75	0.08	0.22	0.22	0.03	0.08	0.47	0.22	0.27	0.27
Volume/Cap:	0.74	0.99	1.21	1.21	0.74	0.04	0.38	1.21	0.11	1.21	0.38	0.38
Delay/Veh:	38.3	44.7	119.8	202.2	49.8	40.0	63.8	202	19.6	157.8	39.3	39.3
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:	38.3	44.7	119.8	202.2	49.8	40.0	63.8	202	19.6	157.8	39.3	39.3
DesignQueue:	25	105	33	12	49	1	3	12	3	57	7	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #93 Patterson Pass Road/ South Vasco Road

Cycle (sec): 85 Critical Vol./Cap. (X): 0.945
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.3
Optimal Cycle: 121 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 2	0 1	1	0 2	0 1	1	0 2	0 1
Volume Module:												
Base Vol:	350	1457	375	261	397	287	119	742	35	452	158	342
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:	350	1457	375	261	397	287	119	742	35	452	158	342
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:	350	1457	375	261	397	287	119	742	35	452	158	342
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	350	1457	375	261	397	287	119	742	35	452	158	342
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.:	350	1457	375	261	397	287	119	742	35	452	158	342
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	0.95	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Lanes:	2.00	3.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3502	5187	1615	3502	3610	1615	1805	3610	1615	1805	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.10	0.28	0.23	0.07	0.11	0.18	0.07	0.21	0.02	0.25	0.04	0.21
Crit Moves:		****		****				****		****		
Green/Cycle:	0.14	0.30	0.30	0.08	0.24	0.24	0.16	0.22	0.35	0.27	0.33	0.40
Volume/Cap:	0.74	0.94	0.78	0.94	0.46	0.74	0.42	0.94	0.06	0.94	0.13	0.52
Delay/Veh:	41.3	41.4	35.4	78.3	27.9	37.1	33.4	52.6	18.2	58.4	20.2	19.9
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:	41.3	41.4	35.4	78.3	27.9	37.1	33.4	52.6	18.2	58.4	20.2	19.9
DesignQueue:	15	52	13	12	15	11	5	29	1	17	5	10

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #94 Scenic Avenue/ North Vasco Road

Cycle (sec): 50 Critical Vol./Cap. (X): 0.870
Loss Time (sec): 9 (Y+R = 4 sec) Average Delay (sec/veh): 17.3
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 1	1 0	1	0 1	0 1	2	0 0	1 0
Volume Module:												
Base Vol:	277	1781	522	83	721	19	78	331	63	120	232	34
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:	277	1781	522	83	721	19	78	331	63	120	232	34
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:	277	1781	522	83	721	19	78	331	63	120	232	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	277	1781	522	83	721	19	78	331	63	120	232	34
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.:	277	1781	522	83	721	19	78	331	63	120	232	34
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.95	0.95	0.95	0.40	1.00	0.85	0.69	0.98	0.98
Lanes:	1.00	2.00	1.00	1.00	1.95	0.05	1.00	1.00	1.00	2.00	0.87	0.13
Final Sat.:	1805	3610	1615	1805	3503	92	760	1900	1615	2613	1626	238
Capacity Analysis Module:												
Vol/Sat:	0.15	0.49	0.32	0.05	0.21	0.21	0.10	0.17	0.04	0.05	0.14	0.14
Crit Moves:		****		****				****				
Green/Cycle:	0.26	0.57	0.57	0.05	0.36	0.36	0.20	0.20	0.20	0.20	0.20	0.20
Volume/Cap:	0.58	0.87	0.57	0.87	0.58	0.58	0.51	0.87	0.19	0.23	0.71	0.71
Delay/Veh:	17.8	13.6	7.8	76.2	13.8	13.8	20.8	38.3	16.9	17.0	25.0	25.0
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:	17.8	13.6	7.8	76.2	13.8	13.8	20.8	38.3	16.9	17.0	25.0	25.0
DesignQueue:	6	24	7	2	14	0	2	8	1	3	5	1

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #111 Isabel/Airway

Cycle (sec): 120 Critical Vol./Cap. (X): 1.280
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 125.7
Optimal Cycle: 180 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Ovl			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 1	2	0 3	0 1	1	0 1	0 2	1	0 1	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #112 Isabel / I580 eb Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.910
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 14.4
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 2	1 0	0	0 2	1 0	2	0 1!	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #113 Isabel/I580 wb Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 0.602
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 8.5
Optimal Cycle:OPTIMIZED Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 2	1 0	0	0 2	1 0	0	0 0	0 0	2	0 0	0 1
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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #114 Isabel/Portola Extension

Cycle (sec): 50 Critical Vol./Cap. (X): 0.858
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 13.4
Optimal Cycle:OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Ovl			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 0	0 2	0	0 0	0 0	0	0 2	0 2	2	0 2	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
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

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

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Intersection #117 Greenville Rd/ I-580 EB Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.954
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 17.4
Optimal Cycle:OPTIMIZED Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 0	0	0 3	1 0	1	0 0	0 2	0	0 0	0 0 0
Volume Module:												
Base Vol:	1373	3420	0	0	899	91	532	0	243	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:	1373	3420	0	0	899	91	532	0	243	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:	1373	3420	0	0	899	91	532	0	243	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1373	3420	0	0	899	91	532	0	243	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.:	1373	3420	0	0	899	91	532	0	243	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	0.90	0.90	0.95	1.00	0.75	1.00	1.00	1.00
Lanes:	2.00	3.00	0.00	0.00	3.63	0.37	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	3502	5187	0	0	6192	627	1805	0	2842	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.39	0.66	0.00	0.00	0.15	0.15	0.29	0.00	0.09	0.00	0.00	0.00
Crit Moves:		****		****			****					
Green/Cycle:	0.50	0.69	0.00	0.00	0.19	0.19	0.31	0.00	0.31	0.00	0.00	0.00
Volume/Cap:	0.78	0.95	0.00	0.00	0.78	0.78	0.95	0.00	0.28	0.00	0.00	0.00
Delay/Veh:	12.4	14.2	0.0	0.0	22.4	22.4	43.9	0.0	13.2	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:	12.4	14.2	0.0	0.0	22.4	22.4	43.9	0.0	13.2	0.0	0.0	0.0
DesignQueue:	21	35	0	0	21	2	11	0	5	0	0	0

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #118 Greenville Rd/ I-580 WB Ramps

****

Cycle (sec): 50 Critical Vol./Cap. (X): 0.698
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 8.9
Optimal Cycle:OPTIMIZED Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2	0 3	0 0	0	0 3	0 1	0	0 0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	1372	2581	0	0	287	79	0	0	0	703	0	165
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:	1372	2581	0	0	287	79	0	0	0	703	0	165
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:	1372	2581	0	0	287	79	0	0	0	703	0	165
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1372	2581	0	0	287	79	0	0	0	703	0	165
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.:	1372	2581	0	0	287	79	0	0	0	703	0	165
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	1.00	1.00	1.00	0.92	1.00	0.85
Lanes:	2.00	3.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	3502	5187	0	0	5187	1615	0	0	0	3502	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.39	0.50	0.00	0.00	0.06	0.05	0.00	0.00	0.00	0.20	0.00	0.10
Crit Moves:		****								****		
Green/Cycle:	0.66	0.73	0.00	0.00	0.07	0.07	0.00	0.00	0.00	0.27	0.00	0.27
Volume/Cap:	0.59	0.68	0.00	0.00	0.75	0.67	0.00	0.00	0.00	0.75	0.00	0.38
Delay/Veh:	5.2	4.0	0.0	0.0	31.0	36.1	0.0	0.0	0.0	20.4	0.0	15.6
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:	5.2	4.0	0.0	0.0	31.0	36.1	0.0	0.0	0.0	20.4	0.0	15.6
DesignQueue:	14	22	0	0	7	2	0	0	0	15	0	3

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #120 Vasco Rd/ Preston

Cycle (sec): 50 Critical Vol./Cap. (X): 1.206
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 78.8
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	4	1	0	2	0	4	0	1	2	0	0	1	0	1	0	1	1	1
Volume Module:												
Base Vol:	471	3363	40	264	1713	235	324	946	255	80	270	1322
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:	471	3363	40	264	1713	235	324	946	255	80	270	1322
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:	471	3363	40	264	1713	235	324	946	255	80	270	1322
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	471	3363	40	264	1713	235	324	946	255	80	270	1322
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.:	471	3363	40	264	1713	235	324	946	255	80	270	1322
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.91	0.91	0.92	0.91	0.85	0.92	0.97	0.97	0.95	0.83	0.83
Lanes:	1.00	4.94	0.06	2.00	4.00	1.00	2.00	0.79	0.21	1.00	1.00	2.00
Final Sat.:	1805	8526	101	3502	6916	1615	3502	1449	391	1805	1581	3162
Capacity Analysis Module:												
Vol/Sat:	0.26	0.39	0.39	0.08	0.25	0.15	0.09	0.65	0.65	0.04	0.17	0.42
Crit Moves:	****				****			****		****		
Green/Cycle:	0.22	0.35	0.35	0.07	0.21	0.21	0.12	0.54	0.54	0.04	0.46	0.52
Volume/Cap:	1.21	1.11	1.11	1.11	1.21	0.71	0.75	1.21	1.21	1.21	0.38	0.80
Delay/Veh:	134.1	72.6	72.6	115.8	119	25.4	28.5	114	113.7	200.3	9.0	12.2
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:	134.1	72.6	72.6	115.8	119	25.4	28.5	114	113.7	200.3	9.0	12.2
DesignQueue:	11	67	1	7	40	5	8	14	4	2	4	19

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City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

Intersection #122 Vasco/ WB Ramps

Cycle (sec): 50 Critical Vol./Cap. (X): 1.051
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 30.6
Optimal Cycle:OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	2	1	0	0	0	2	1	0	0	0	0	0	0	2	0	0	0	2
Volume Module:												
Base Vol:	0	4429	1390	0	1279	1169	0	0	0	198	0	559
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	4429	1390	0	1279	1169	0	0	0	198	0	559
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	4429	0	0	1279	0	0	0	0	198	0	559
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	4429	0	0	1279	0	0	0	0	198	0	559
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	4429	0	0	1279	0	0	0	0	198	0	559
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	0.75
Lanes:	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
Final Sat.:	0	5187	0	0	5187	0	0	0	0	3502	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.85	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.06	0.00	0.20
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.81	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.19	0.00	0.19
Volume/Cap:	0.00	1.05	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.30	0.00	1.05
Delay/Veh:	0.0	34.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	17.8	0.0	73.3
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:	0.0	34.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	17.8	0.0	73.3
DesignQueue:	0	29	0	0	7	0	0	0	0	5	0	13

Future Preferred PM Wed Aug 20, 2003 17:17:16 Page 105-1

City of Livermore
Future Preferred Alternative (Run3) - Mitigated
PM Peak

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

****

Intersection #123 Vasco/ EB Ramps

****

Cycle (sec): 90 Critical Vol./Cap. (X): 1.650
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 149.2
Optimal Cycle: 180 Level Of Service: F

****

Approach:	North Bound			South Bound			East Bound				West Bound			
Movement:	L	- T	- R	L	- T	- R	L	- T	- R		L	- T	- R	
Control:	Protected			Protected			Protected				Protected			
Rights:	Include			Include			Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lanes:	0 0	4 0	1	1 0	4 0	0	2 0	1! 0	2	0	0 0	0 0	0	
Volume Module:														
Base Vol:	0	3480	1530	336	1141	0	2338	0	1071	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	3480	1530	336	1141	0	2338	0	1071	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:	0	3480	1530	336	1141	0	2338	0	1071	0	0	0		
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	0	3480	1530	336	1141	0	2338	0	1071	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.:	0	3480	1530	336	1141	0	2338	0	1071	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	0.85	0.95	0.91	1.00	0.89	1.00	0.81	1.00	1.00	1.00		
Lanes:	0.00	4.00	1.00	1.00	4.00	0.00	2.66	0.00	2.34	0.00	0.00	0.00		
Final Sat.:	0	6916	1615	1805	6916	0	4525	0	3599	0	0	0		
Capacity Analysis Module:														
Vol/Sat:	0.00	0.50	0.95	0.19	0.16	0.00	0.52	0.00	0.30	0.00	0.00	0.00		
Crit Moves:			****	****			****							
Green/Cycle:	0.00	0.57	0.57	0.11	0.69	0.00	0.31	0.00	0.31	0.00	0.00	0.00		
Volume/Cap:	0.00	0.88	1.65	1.65	0.24	0.00	1.65	0.00	0.95	0.00	0.00	0.00		
Delay/Veh:	0.0	18.9	316.6	353.4	5.3	0.0	325.7	0.0	37.0	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	18.9	316.6	353.4	5.3	0.0	325.7	0.0	37.0	0.0	0.0	0.0		
DesignQueue:	0	84	41	16	19	0	91	0	39	0	0	0		

****

APPENDIX D-8

TRAFFIC MODEL DEVELOPMENT

CITY OF LIVERMORE GENERAL PLAN TRAVEL MODEL DEVELOPMENT

prepared for

CITY OF LIVERMORE

September 9, 2003

Dowling Associates
Transportation Engineering • Planning • Research • Education
Inc.

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1. INTRODUCTION

The need for a travel demand model stems from the necessity to be able to accurately predict or forecast future traffic. In the past, growth factors were used that simply increase existing observed traffic. This method is coarse and does not take into account shifts in land use patterns and new road facilities. A better method is to use travel demand model implemented using a computer that can take into account future land use and transportation supply to estimate traffic on roadways and even intersections. The demand model can predict trip generation, trip distribution, mode split and trip assignment for a given set of land use and network data inputs.

The City of Livermore has never had its own travel demand model, and in the past, has relied on the Contra Costa Transportation Authority's (CCTA) Tri-Valley Subarea Travel Demand Model and the Alameda County Congestion Management Agency's (ACCMA) Countywide model as forecasting tools for planning studies. The Tri-Valley model was developed by CCTA as a tool to forecast traffic in the Tri-Valley (Dublin/Pleasanton and Livermore area). Originally developed in 1990, with the last update coming in 1995, this model is now outdated. The new CCTA Decennial model that is to replace the Tri-Valley model has just recently been completed, but has not been certified for local City use yet. Furthermore, the coarser level of network and zonal detail in the Tri-Valley model has always been of concern to Livermore planners and engineers. In addition, the City of Pleasanton recently updated their citywide model using new windows-based software. Based on all this, the City of Livermore decided to develop a new citywide model for the 2002-2003 General Plan update and for use in subsequent studies.

1.1 Livermore Model Objectives

The requirements for the new model were to create a tool with significantly more network and zonal detail within Livermore than exists in the Tri-Valley model, build off elements from the Pleasanton model, and yet still retain the regional system detail present in the CCTA Decennial model and the MTC model. The new model must also be able to generate traffic based on land use inputs from the City's GIS parcel layer data together with trip rates from the Institute of Transportation Engineers (ITE) trip generation rates categories.

The primary objectives of this model are to:

- create a new model for use in the General Plan update.
- provide additional network and zonal detail to support intersection analysis.
- retain regional consistency with CCTA and MTC models.
- use the City's GIS parcel level land use data.
- employ a feedback capability for consistent results.
- update to a newer Windows based software.

1. The new Livermore Model has been designed with the capability to test land use and network scenarios for the General Plan and provide link based and intersection based results.

2. The new model has sufficient detail to be able to forecast intersection turning volumes with some degree of accuracy, although an adjustment process, like an incremental Furness is necessary.

3. Since the new model is a focused version of the CCTA and MTC models, it will maintain some level of consistency in order to make use of data from the regional models for outside of Livermore. Furthermore, by ensuring a certain level of consistency, the model is capable of testing highway projects that have a regional impact, like I-580 and SR 84.

4. The new model makes use of the very detailed and geographically accurate City GIS parcel level land use to effectively test existing land use and future scenarios.

5. The new model has a feedback loop from trip distribution to trip assignment that maintains travel time equilibrium and ensures results are consistent.

6. The new model makes use of the new Windows based software TP+/VIPER that is capable of simple network editing and display of underlying GIS layers. Furthermore, the software ensures the model will not be rendered obsolete for many years.

The City of Livermore Model (the "Livermore Model" or the "Model") has been updated to a new base year of 2002 within the City and year 2000 outside the City, and has a forecast year of 2025 outside Livermore, with general plan buildout within Livermore. The land use inputs outside of Livermore are consistent with the Association of Bay Area Government's (ABAG) Projections 2000 as processed by the new CCTA Decennial Model.

Chapter 2 of this document describes the zone system development, Chapter 3 details the network development and Chapter 4 describes the land use data. Chapter 5 describes the model processes, including trip generation, trip distribution, mode choice, time-of-day procedures, diurnal adjustments, trip assignment, feedback process and validation. Chapter 6 includes a glossary of technical terms and acronyms used in this report.

1.2 Travel Model Software

The choice of software for the new model was based on a number of factors. The previous Tri-Valley model used the EMME/2 software, which is DOS based and is considered outdated. The new CCTA model uses the TRANSCAD GIS software, as does the new Pleasanton Model. This is a windows-based software with GIS capabilities. However, due to the time constraints associated with the Livermore General Plan update process, it was

decided to use the TP+/Viper windows-based software developed by Citilabs to develop the new Livermore model. This software requires less effort when building a new model than the more data intensive TRANSCAD software. For this reason, TP+/Viper was recommended in order to complete the model in the given schedule for the General Plan update. In addition, this software provides consistency with the software used by the MTC Regional Model. Other advantages of using this software include:

- Windows based software
- extensive graphic capabilities
- simple network editing process using cut and paste techniques
- consistent with the MTC model software
- allows overlay of multiple GIS layers, including TAZ layer, parcel layer, CCTA model TAZ layer, aerial photo

2. ZONE SYSTEM DEVELOPMENT

2.1 Zone Structure

The city was subdivided into 349 transportation analysis zones (TAZs) and "nest" within the original Tri-Valley model traffic analysis zones (TAZs). Some minor corrections were done to retain consistency with the City's GIS parcel layer. As a result, the new City model TAZs remain consistent with a number of TAZ structures and GIS layers, including the City parcel layer, Tri-Valley Model, new CCTA Decennial model, ABAG Census Tracts from 2000 and the MTC model (1,099 TAZ version).

The City of Livermore TAZs are numbered from 1 to 349 and were developed by splitting the Tri-Valley model TAZs to a finer level. The purpose of this is to provide the model with the ability to predict more accurate traffic on road links and intersections.

Outside of Livermore and within Tri-Valley, the TAZs were obtained directly from the new CCTA model. This zone structure was used in favor of the Alameda Countywide model primarily because it is more detailed.

Outside of Tri-Valley and within Contra Costa County, the TAZ structure follows the CCTA model. For the remainder of Alameda County and the rest of the Bay area, the TAZ structure is consistent with the MTC model.

Regional gateways were obtained from the MTC model. Gateways, including I-580 at Altamont Pass, are entry points into the nine-County Bay Area. Additional gateways were added nearby Livermore as discussed below.

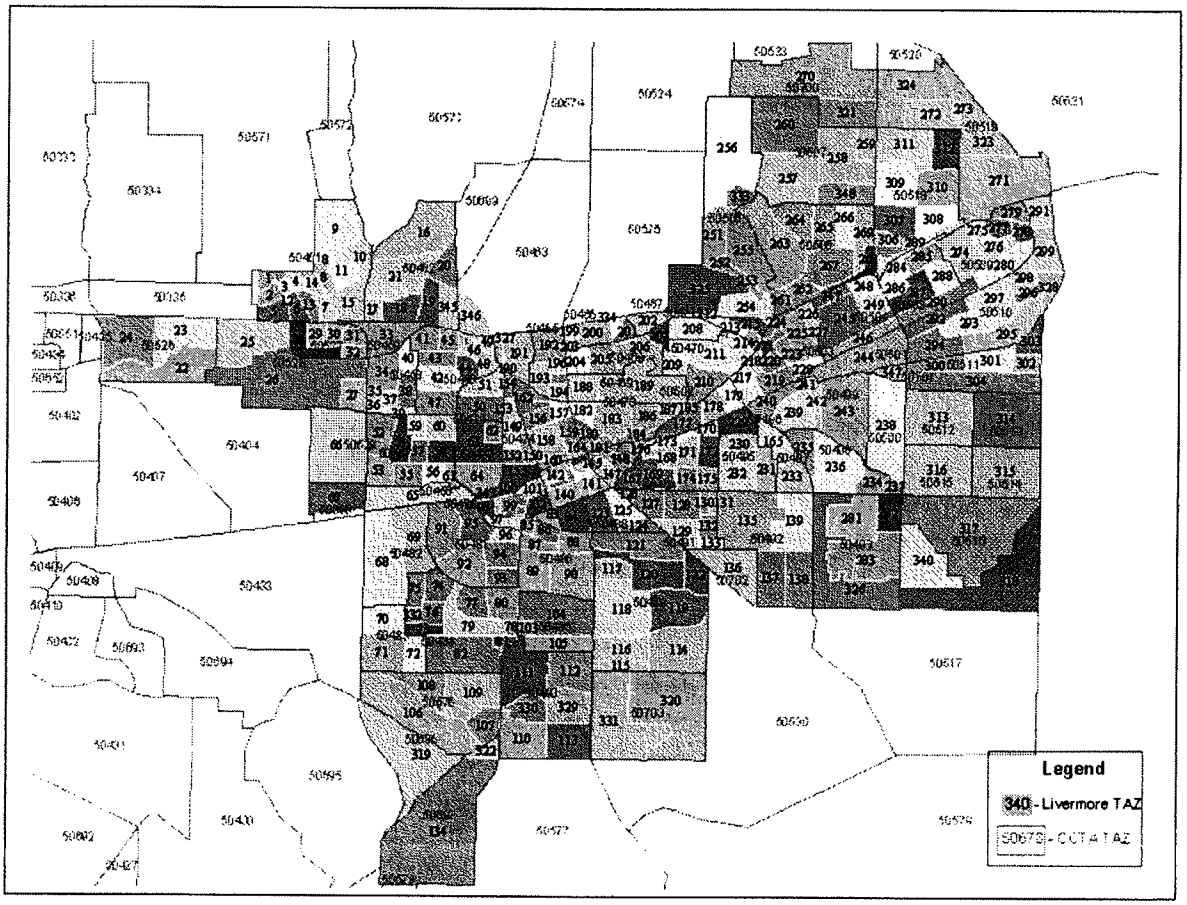
Table 2-1 summarizes the range of TAZs in the model by geographic area and Figure 2-1 graphically displays the new Livermore Model TAZ structure for the City.

Table 2-1: Livermore Model Zone System

TAZ Type	TAZ System
	Zone Range
City of Livermore	1-349
Contra Costa County	1001-2900
Alameda County and Rest of Bay Area	2901-3999
Regional Gateways	4001-4020
Added Gateways	4021-4023

Note: Regional Gateways include I-80 from Sacramento County, I-580 from San Joaquin County. Added Gateways include Altamont Pass, Patterson Pass Road, Tesla Road.

Figure 2-1: Livermore Transportation Analysis Zones (TAZ)



2.2 New Gateways

The MTC model includes the 20 major gateways into the Bay Area region with the most important gateway nearby Livermore being I-580 at the Altamont Pass. Although I-580 is represented in the MTC model, other smaller gateways nearby Livermore are missing. As a result, three additional gateways from San Joaquin County were added into the Livermore model that influence travel from/to Livermore, as follows:

- Altamont Pass/Grant Line Road –new TAZ number 4021
- Patterson Pass Road – new TAZ number 4022
- Tesla Road – new TAZ number 4023

3. NETWORK DEVELOPMENT

3.1 Roadway Network

The Livermore Model roadway network is based on the CCTA Decennial model network outside of Livermore. Within the City, the network was greatly enhanced with additional detail to support the new TAZ system. The additional network detail provides the model with the ability to forecast more accurate road link and intersection turning volumes.

The detailed network is shown in Figure 3-1 for the entire region and Figure 3-2 for the Livermore area. The network in Livermore was "conflated" (moved in geographic space to the same coordinate space until network links match a scaled map or aerial photo) using Arcview to an underlying GIS centerline file provided by the City, producing more accurate distances on roadway links and a better spatial representation of streets and driveways. The network also matches a color aerial photo supplied by the City.

The road link attributes used in the Livermore model match the data used in the MTC model network for roads outside the City. The attributes include link distance, facility type, speed, capacity, area type, etc. The facility types used in the model are generally consistent with link types used in the MTC link types, although it was necessary to add two new categories of roadways, local streets and minor arterials, in the Livermore model.

The complete list of facility types used in the Livermore model, including the new types, local streets and minor arterials) are shown in Table 3-1. This table identifies the facility type, area type, free-flow speed (usually similar to posted speed) in miles per hour, and capacity in number of vehicles per hour per lane.

Table 3-1: Livermore Model Network Link Type Definitions

Code		Description		Free-Flow	Link
AT	FT	Area Type	Facility Type	Speed (mi/hr)	Capacity (veh/hr)
0	1	Regional Core	Freeway to freeway connector	40	1,700
0	2	Regional Core	Freeway	55	1,850
0	3	Regional Core	Expressway	40	1,300
0	4	Regional Core	Collector	10	550
0	5	Regional Core	Freeway Ramp	30	1,300
0	6	Regional Core	Dummy Link	10	2,000
0	7	Regional Core	Major Arterial	20	800
0	8	Regional Core	Metered Ramp	25	700
0	9	Regional Core	Special (not used)	65	2,000
0	10	Regional Core	Special (not used)	55	1,600
0	11	Regional Core	Local Street (new)	10	500
0	12	Regional Core	Minor Arterial (new)	15	600
1	1	CBD	Freeway to freeway connector	40	1,700
1	2	CBD	Freeway	55	1,850
1	3	CBD	Expressway	40	1,300
1	4	CBD	Collector	15	550
1	5	CBD	Freeway Ramp	30	1,300
1	6	CBD	Dummy Link	10	2,000
1	7	CBD	Major Arterial	25	850
1	8	CBD	Metered Ramp	25	700
1	9	CBD	Special (not used)	50	1,840
1	10	CBD	Special (not used)	35	850
1	11	CBD	Local Street (new FT)	15	500
1	12	CBD	Minor Arterial (new FT)	20	600
2	1	Urban Business	Freeway to freeway connector	45	1,750
2	2	Urban Business	Freeway	60	1,900
2	3	Urban Business	Expressway	45	1,450
2	4	Urban Business	Collector	20	600
2	5	Urban Business	Freeway Ramp	35	1,400
2	6	Urban Business	Dummy Link	10	2,000
2	7	Urban Business	Major Arterial	30	900
2	8	Urban Business	Metered Ramp	30	800
2	9	Urban Business	Special (not used)	55	1,530
2	10	Urban Business	Special (not used)	25	860
2	11	Urban Business	Local Street (new FT)	20	550
2	12	Urban Business	Minor Arterial (new FT)	25	650
3	1	Urban	Freeway to freeway connector	45	1,750
3	2	Urban	Freeway	60	1,900
3	3	Urban	Expressway	45	1,450
3	4	Urban	Collector	25	600
3	5	Urban	Freeway Ramp	35	1,400
3	6	Urban	Dummy Link	10	2,000
3	7	Urban	Major Arterial	35	900
3	8	Urban	Metered Ramp	30	800
3	9	Urban	Special (not used)	50	1,780
3	10	Urban	Special (not used)	35	960
3	11	Urban	Local Street (new FT)	20	550
3	12	Urban	Minor Arterial (new FT)	30	650

Table 3-2: Livermore Model Network Link Type Definitions (Cont/d)

Code		Description		Free-Flow Speed (mi/hr)	Link Capacity (veh/hr)
AT	FT	Area Type	Facility Type		
4	1	Suburban	Freeway to freeway connector	50	1,800
4	2	Suburban	Freeway	65	1,950
4	3	Suburban	Expressway	50	1,500
4	4	Suburban	Collector	30	650
4	5	Suburban	Freeway Ramp	40	1,400
4	6	Suburban	Dummy Link	10	2,000
4	7	Suburban	Major Arterial	40	950
4	8	Suburban	Metered Ramp	35	900
4	9	Suburban	Special (not used)	40	990
4	10	Suburban	Special (not used)	0	0
4	11	Suburban	Local Street (new FT)	25	600
4	12	Suburban	Minor Arterial (new FT)	35	700
5	1	Rural	Freeway to freeway connector	50	1,800
5	2	Rural	Freeway	65	1,950
5	3	Rural	Expressway	50	1,500
5	4	Rural	Collector	35	650
5	5	Rural	Freeway Ramp	40	1,400
5	6	Rural	Dummy Link	10	2,000
5	7	Rural	Major Arterial	45	950
5	8	Rural	Metered Ramp	35	900
5	9	Rural	Special (not used)	55	1,530
5	10	Rural	Special (not used)	0	0
5	11	Rural	Local Street (new FT)	30	600
5	12	Rural	Minor Arterial (new FT)	40	700

Figure 3-1: 2002 Livermore Model – Regional Roadway Network

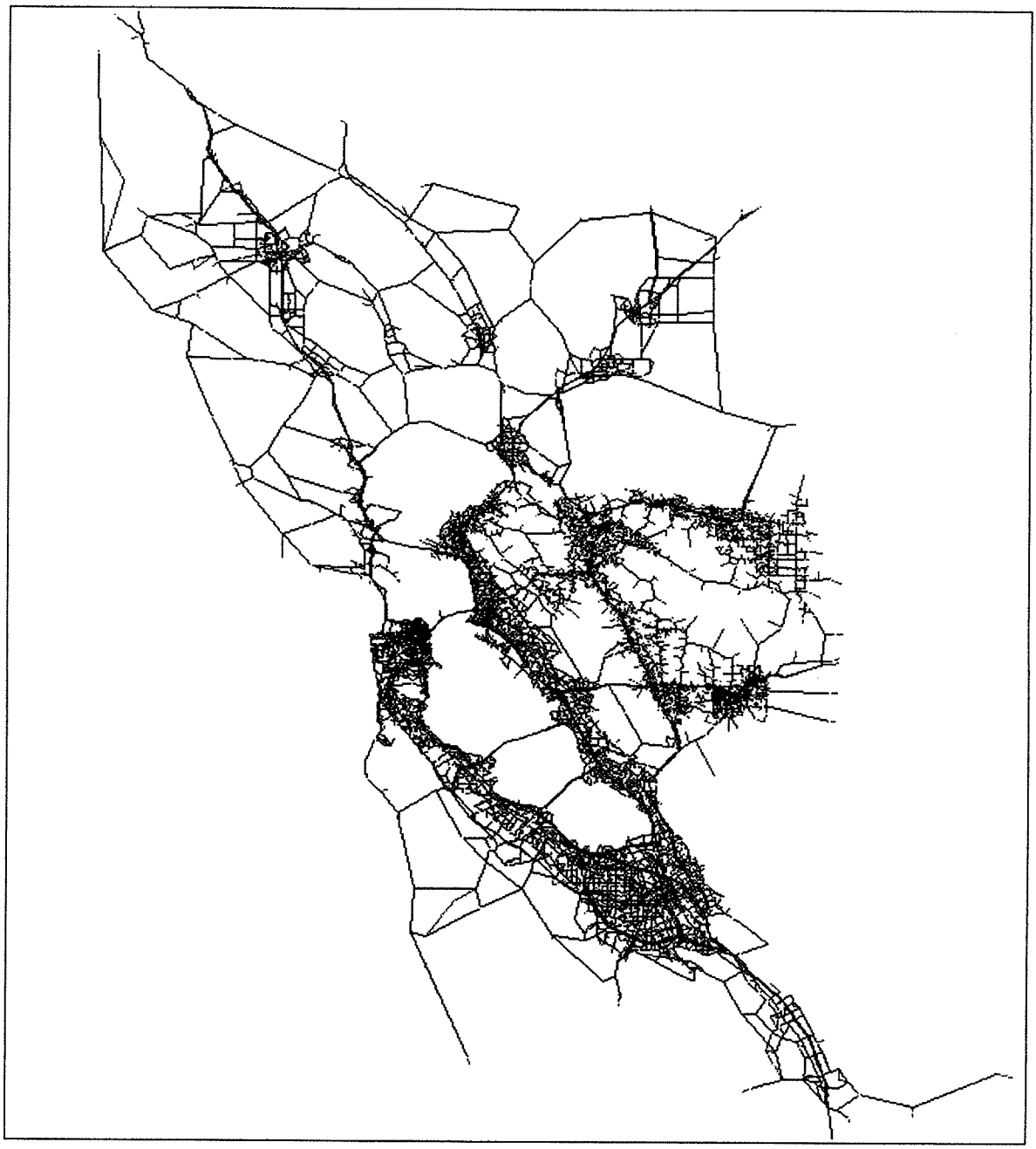
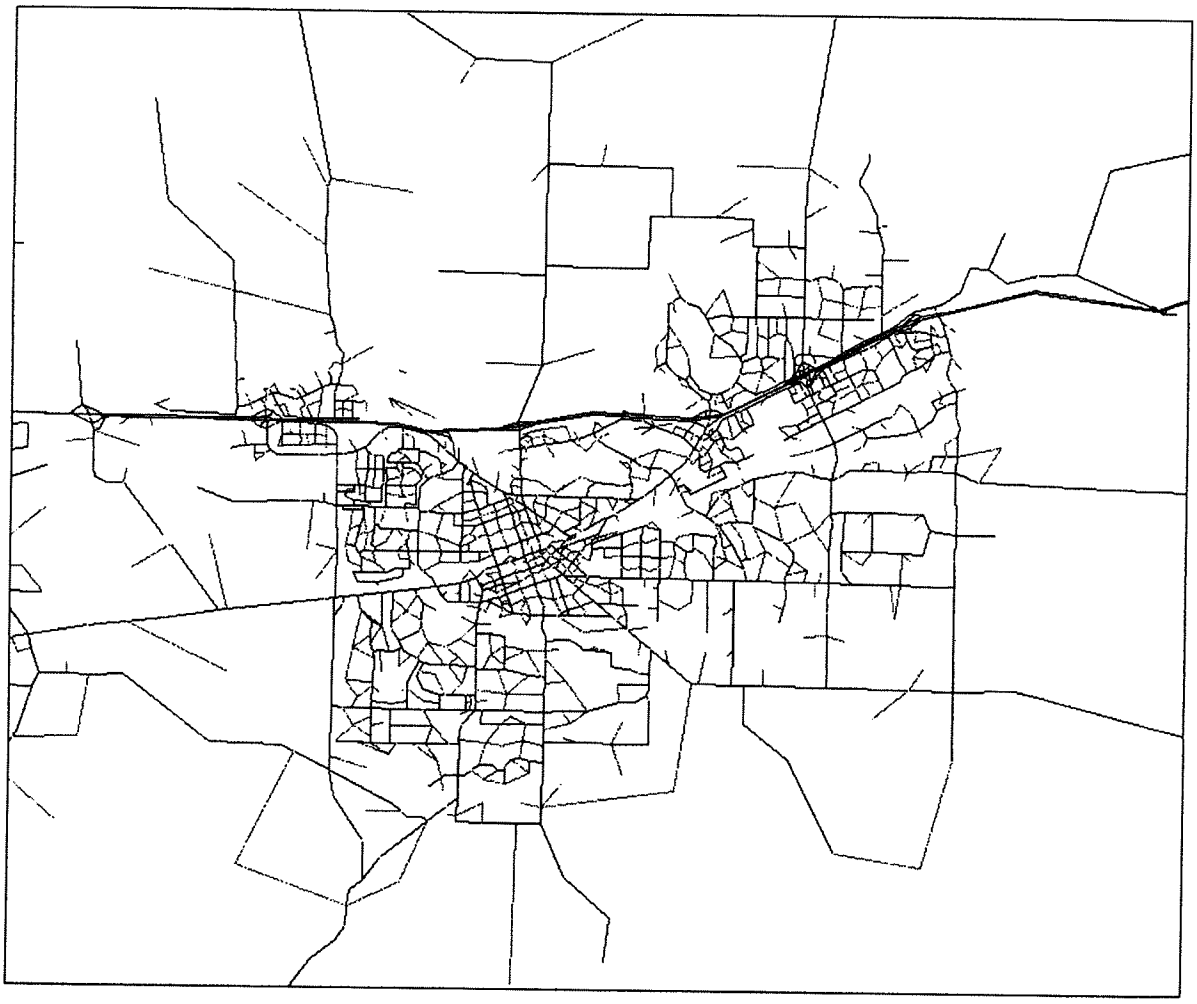


Figure 3-2: 2002 Livermore Model – Citywide Roadway Network



4. LAND USE DATA

4.1 Base Year Data

The City of Livermore maintains an inventory of land use in a Microsoft Access database file that is connected to a GIS database at the parcel level using GEOMEDIA software. The database includes information for all land use transactions at the parcel level. Dowling Associates obtained a copy of the database information, and following a detailed review of the data to reconcile duplicates and merge the data to the same scale and geographic space as the travel model network, the data was aggregated up to the new TAZs for input into the traffic model. The database includes information for Assessor Parcel Number (APN's), NAIC codes, land use codes, housing units, building size in square feet, and building vacancy rates. Dowling Associates used this database to develop trip

generation rates based on recommended ITE categories by different land use code. The land use codes are described later in the trip generation chapter.

4.2 Future Year Data

For future conditions, and for areas outside of Livermore, the Livermore model uses socio-demographic information supplied by the Association of Bay Area Governments (ABAG Projections 2000) for year 2025 conditions. This data is derived from an application of the trip generation process in the CCTA Decennial model and imported into the Livermore model in the form of production and attractions trips by trip purpose. This is discussed in more detail in the trip generation chapter.

Within Livermore, and outside of the downtown, land use estimates for buildout (in building square feet and number of housing units) were developed by Design, Community and Environment (DCE) as part of the General Plan update. Within the Downtown Specific Plan area, buildout estimates were developed by Freedman, Tung & Bottomley.

In addition to the existing data, buildout estimates were developed for five alternatives for testing in the travel model, as follows:

- 2002 Existing
- Existing plus Approved (No Development Alternative)
- Existing General Plan (No Project)
- Balanced (Alternative)
- Redistributed (Alternative)
- Preferred (Proposed Project)

Daily trip summaries of productions and attractions by trip purpose for all alternatives are shown in Table 4-1.

Table 4-1: Livermore Model Trip Generation

Trip Purpose		Work	Shop	Social Recreation	Livermore Schools	Livermore College	Non Home Based	TOTAL
Alternative								
2002 Existing	Productions	59,003	60,924	24,314	16,662	4,146	196,719	361,768
	Attractions	55,600	46,778	26,661	16,669	4,637	196,719	347,064
	Total	*114,603*	*107,701*	*50,975*	*33,331*	*8,783*	*393,438*	*708,831*
Existing Plus Approved	Productions	59,003	60,924	24,314	16,662	4,146	220,964	386,012
	Attractions	75,416	53,033	26,681	16,669	4,637	220,964	397,400
	Total	*134,419*	*113,957*	*50,995*	*33,331*	*8,783*	*441,928*	*783,412*
Preferred	Productions	79,197	81,775	32,635	22,339	5,565	339,934	561,445
	Attractions	135,344	90,163	35,594	22,409	4,637	339,934	628,080
	Total	*214,540*	*171,938*	*68,229*	*44,748*	*10,202*	*679,869*	*1,189,526*
Existing GP	Productions	66,294	68,452	27,318	18,688	4,659	338,547	523,957
	Attractions	143,575	94,151	29,866	16,670	4,637	338,547	627,445
	Total	*209,868*	*162,603*	*57,185*	*35,357*	*9,296*	*677,093*	*1,151,403*
Balanced	Productions	94,195	97,261	38,815	26,596	6,619	353,015	616,502
	Attractions	111,682	106,356	42,290	26,792	4,637	353,015	644,772
	Total	*205,877*	*203,618*	*81,105*	*53,389*	*11,256*	*706,030*	*1,261,275*
Redistributed	Productions	80,683	83,309	33,247	22,773	5,670	340,469	566,151
	Attractions	131,843	90,732	36,300	20,896	4,637	340,469	624,877
	Total	*212,525*	*174,041*	*69,547*	*43,669*	*10,307*	*680,938*	*1,191,028*

5. TRAVEL FORECASTING PROCEDURES

5.1 Introduction

The travel forecasting procedures developed in the Livermore model include trip generation, trip distribution, mode split, time-of-day peaking, trip assignment, and model validation. These procedures are discussed on more detail below.

5.2 Trip Generation

The Livermore model is an entirely new model and therefore required the development of a new trip generation process. However, to save time, it was decided to base the trip generation on elements of other models, most notably the CCTA Decennial model for areas outside of Livermore, and the Pleasanton trip generation procedure for within the City of Livermore. This combination has the advantage of using proven methodology together with customizing the process to account for the unique requirements for trip generation in Livermore. Furthermore, the trip generation is carried out in a system of linked Excel spreadsheets that provide the user with complete control of a process that allows for trip generation of multiple ITE categories, allocation of trips to various trip

purposes, treatment of external (gateway) trips, consistency with ITE trip totals for each TAZ in Livermore, and balancing of trips by individual trip purpose.

5.2.1 Livermore Trip Generation

The trip generation methodology for Livermore TAZs is based on the City of Pleasanton model trip generation methodology. This method generates traffic based on ITE trip rates for the numerous land use categories available. It also makes full use of the detailed land use database maintained by the City and gives the traffic model the capability to model and test the many land use categories identified in the ITE trip generation manual. The land use categories and trip rates used in Livermore are shown in Table 5-1.

5.2.2 Pleasanton Trip Generation

Within Pleasanton in the Livermore model, the generation of trips is based on information directly from the Pleasanton model. This is done by obtaining Pleasanton trips for year 2000 and 2025 conditions at the detailed Pleasanton TAZ level, and then aggregating the trips up to the CCTA TAZ level in the Livermore model. This method makes it unnecessary to maintain the complexity and calculation "overhead" associated with incorporating the more detailed Pleasanton model TAZs, network and trip generation process within the Livermore model.

5.2.3 Regional Trip Generation

The generation of trips outside of Livermore is based on the CCTA Decennial model trip generation, which is consistent with the MTC model. The advantage of using the CCTA procedure is one of consistency and simplicity. Trips are obtained directly from the CCTA Decennial model in production and attraction format for all TAZs outside Livermore. The trips are imported into an Excel spreadsheet and are split by trip purpose based on percents from the MTC model. The process is made simple because the TAZs outside Livermore correspond on a one-to-one basis, although a zone correspondence is required to match the two zone systems.

The regional trips are then processed in an Excel spreadsheet and combined with the City trips prior to the balancing of trips by trip purpose.

5.2.4 Regional Trip Balancing

Following trip generation, the resulting productions and attractions tend to be unbalanced, i.e.: trip productions and attractions by trip purpose do not sum to each other regionally. Traditionally, for home-based work trips, the productions are then increased regionally until the total matches the attractions, and for non-work trips, attractions are reduced until they match productions. This is the methodology that is employed in the both the CCTA model and the MTC model. However, both the Livermore and Pleasanton models use a

method that corrects trip imbalances by adjusting the trips at the regional gateways, rather than internally in the modeling area. This process ensures that there is no loss or increase of trips within the modeling area. The use of a spreadsheet to do the trip generation and balancing makes the process easier to implement and provides the user with flexibility to adjust any step in the process.

5.2.5 Trip Purpose Definition

Since the trip generation methodology in the Livermore model is based on other models (MTC model, CCTA model and City of Pleasanton model), trip purpose definition follows a similar trend. The regional trips obtained from the CCTA model are based on trip purposes consistent with the MTC model. Additional trip purposes were required to model conditions in Livermore more effectively. Also some adjustments were made to existing MTC trip purposes, as follows:

- For home-based work trips, MTC maintains four categories of work trips stratified by income category, as low, middle, middle-high and high incomes. However, in the Livermore model, the four income categories were combined into one trip purpose. This was primarily due to the inherent difficulty of forecasting income levels in Livermore using the Citywide land use database.

- An additional trip purpose was added to account for Livermore-specific school trips.

- MTC maintains a separate trip purpose for external trips (IX trips) to the Bay Area. MTC has information on 20 separate gateways into the Bay Area region. This information is in the form of daily vehicle trips in origin-destination format (i.e.: vehicle trips traveling from origin zone to destination zone). Within the MTC model, gateway trips are added to all other regional trips prior to trip assignment and are not subject to the dynamic trip distribution in the model. Since Livermore is located nearby to a major external gateway (I-580), it was decided to include all IX trips as part of the trip generation and trip distribution process in the Livermore Model. This required that MTC based daily IX trips be split into person trips by trip purpose, and then be included as part of the trip generation balancing for the entire modeling region. The IX trips then get distributed as part of the standard trip purpose distribution process within the Livermore model. This process is similar to the treatment of gateways in the Pleasanton model.

The final trip purposes used in the Livermore model include the following:

1. Home-Based Work (combination of four income categories)
2. Home-Based Shop/Other
3. Home-Based Social/Recreation
4. Non Home-Based
5. Home-Based Regional Schools (Elementary, Middle/High, Colleges).

6. Home-Based Livermore-only Schools (Elementary, Middle/High, Las Positas College)

Table 5-1: Livermore Model Trip Generation Rates

Land Use Code	Land Use Category	Description of Use	Recommended Rate Source (ITE or San Diego)	Units of Use	ADT	Peak Hour Vehicle Trip Rates					
						AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
110	Residential	SF Detached	210 Single Family Residential	Dwelling Units	9.57	0.19	0.56	0.75	0.65	0.36	1.01
112	Residential	Secondary Dwelling	220 Apartment	Dwelling Units	6.63	0.08	0.43	0.51	0.42	0.20	0.62
120	Residential	Couplet & Zero Lot	210 Single Family Residential	Dwelling Units	9.57	0.19	0.56	0.75	0.65	0.36	1.01
124	Residential	Townhouse	210 Single Family Residential	Dwelling Units	9.57	0.19	0.56	0.75	0.65	0.36	1.01
126	Residential	Condominium	230 Residential Condominium	Dwelling Units	5.86	0.07	0.37	0.44	0.36	0.18	0.54
130	Residential	Duplex-Fourplex	220 Apartment	Dwelling Units	6.63	0.08	0.43	0.51	0.42	0.20	0.62
150	Residential	Apartment	220 Apartment	Dwelling Units	6.63	0.08	0.43	0.51	0.42	0.20	0.62
160	Residential	Group Quarter	252 Congregate Care	Dwelling Units	2.15	0.04	0.02	0.06	0.10	0.07	0.17
170	Residential	Mobile Home	240 Mobile Home Park	Dwelling Units	4.81	0.08	0.32	0.4	0.35	0.21	0.56
190	Residential	Rural	210 Single Family Residential	Dwelling Units	9.57	0.19	0.56	0.75	0.65	0.36	1.01
210	Office	Office	710 General Office	1,000 square feet	11.01	1.37	0.19	1.56	0.25	1.24	1.49
220	Retail	Retail	820 Shopping Center	1,000 square feet	42.92	0.63	0.40	1.03	1.80	1.94	3.74
230	Commercial	Service	Service (San Diego)	1,000 square feet	20.00	1.12	0.48	1.6	1.32	0.88	2.20
240	Retail	Eating & Drinking	831 Quality Restaurants	1,000 square feet	89.95	0.42	0.39	0.81	5.02	2.47	7.49
250	Commercial	Lodging	310 Hotel	Rooms	8.92	0.39	0.28	0.67	0.35	0.36	0.71
310	Industrial	Manufacturing	140 Manufacturing	1,000 square feet	3.82	0.56	0.17	0.73	0.27	0.47	0.74
320	Industrial	Research & Development	760 Research and Development	1,000 square feet	8.11	1.03	0.21	1.24	0.16	0.92	1.08
330	Industrial	Warehouse	150 Warehousing	1,000 square feet	4.96	0.37	0.08	0.45	0.12	0.39	0.51
340	Office	Office	710 General Office	1,000 square feet	11.01	1.37	0.19	1.56	0.25	1.24	1.49
350	Industrial	Construction Services	110 General Light Industrial	1,000 square feet	6.97	0.81	0.11	0.92	0.12	0.86	0.98
360	Industrial	Auto Repair	Automotive (San Diego)	1,000 square feet	20.00	1.12	0.48	1.6	1.32	0.88	2.20
370	Industrial	General Wholesale/Industrial	110 General Light Industrial	1,000 square feet	6.97	0.81	0.11	0.92	0.12	0.86	0.98
405	Public	Open Space	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
410	Public	Local Park	412.1 County Park	Acres	2.28	0.01	0.00	0.01	0.02	0.04	0.06
415	Public	Trailways & Creeks	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
418	Public	Street Features	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
430	Recreation	Recreational Park & Golf	430 Golf Course	Holes	35.74	1.75	0.47	2.22	1.21	1.53	2.74
435	Recreation	Private Recreational	Theater	seats	0.81	0.00	0.00	0	0.15	0.12	0.27
440.1	Education	Pre-school/Daycare	565 Day Care	Enrollment	4.52	0.43	0.38	0.81	0.40	0.46	0.86
440.2	Education	Grade School (K8)	520 Elementary School	Enrollment	1.02	0.17	0.12	0.29	0.12	0.14	0.26
440.3	Education	High School	530 High School	Enrollment	1.79	0.32	0.14	0.46	0.06	0.09	0.15
440.4	Education	College	540 Junior/Community College * 0.5	Enrollment	1.54	0.06	0.01	0.07	0.06	0.03	0.09
450	Government	Government Office	730 Government Office	1,000 square feet	68.93	4.94	0.94	5.88	8.16	2.87	11.03
455	Public	Utility & Government Service	110 General Light Industrial	1,000 square feet	6.97	0.81	0.11	0.92	0.12	0.86	0.98
455.1	Government	Library	590 Library	1,000 square feet	54.00	0.76	0.30	1.06	3.40	3.69	7.09
455.2	Government	Fire Station	110 General Light Industrial	1,000 square feet	6.97	0.81	0.11	0.92	0.12	0.86	0.98
455.3	Government	Post Office	732 United States Post Office	1,000 square feet	108.19	4.17	3.85	8.02	5.50	5.29	10.79
460	Medical	Medical	720 Medical Office	1,000 square feet	36.13	1.94	0.49	2.43	0.99	2.67	3.66
470	Public	Religious or Private Clubs	560 Church	1,000 square feet	9.11	0.39	0.33	0.72	0.36	0.30	0.66
475	Public	Fitness and Recreational	492 Racquet Club	1,000 square feet	17.14	0.73	0.73	1.46	0.92	0.92	1.83
480	Public	Cemeteries	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
500	Undeveloped	Undeveloped	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
510	Undeveloped	Wineries	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
515	Undeveloped	Wineries with Tasting Rooms	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00
550	Undeveloped	Sand and Gravel	None	Acres	0.00	0.00	0.00	0	0.00	0.00	0.00

For 440.2 , we applied the peak hour to daily factor for highschools during the AM peak hotp estiamte the daily rate for grade schools.
For 515, no adequate trip generation reseach exists. It is suggested that most wineries do not produce high levels of traffic during either the AM or PM peak hours.
Furthermore, tasting rooms are normallyopen only between 10 AM and 4 PM. Therefore, the traffic generated by these uses is very low during the peak hours of the adjacent streets.
For these reason, no trip generate rates are suggested for uses under category 515.

5.3 Trip Distribution

Trip distribution within the model is performed using the gravity model formulation as implemented in the TP+ software. The gravity model follows the concept of Isaac Newton's Universal Law of Gravitation, which states that the attractive force between two bodies is proportional to the product of their masses and inversely proportional to the square of the distance between them. Similarly, zone-to-zone trip interchanges in the gravity model are directly proportional to the relative attraction or opportunity provided by each of the zones (productions and attractions) and inversely proportional to the spatial separation between zones.

The inputs to the gravity model include the person trip productions and attractions for each zone (as defined earlier in the trip generation step), the zone-to-zone travel times, and friction factors that define the effects of travel time. The zone-to-zone distributions are calculated separately for each trip purpose.

Trips are distributed for all trip purposes using travel impedances. For home-based work and school trip purposes, a.m. peak hour congested travel times are used as impedance in the distribution. For the non-work trips, an average of a.m. peak and off-peak (using free-flow speeds) travel times are used. This is similar to the MTC model, which also uses a combination of peak and off-peak impedances, as this represents a better estimate of travel impedance for non-work trips in the Bay Area. Table 5-2 summarizes the travel impedances used in the Livermore model trip distribution for each trip purpose.

Table 5-2: Trip Distribution Travel Impedance

Trip Purpose	Travel Time
Home-based Work	Peak
Home-based Shop/Other	Average of peak and off-peak
Home-based Social/Recreation	Average of peak and off-peak
Non Home-based	Average of peak and off-peak
Home-based Livermore Schools	Peak
Home-based Regional Elementary Schools	Peak
Home-based Regional Middle/High Schools	Peak
Home-based Regional Colleges Schools	Peak

5.3.1 Friction Factors

The distance that trips travel in the trip distribution model is controlled by calibrated friction factors, obtained directly from the MTC model. The effects of spatial separation in the gravity model are represented by "friction factors" that express the effect that travel time exerts on the propensity for making a trip to a given zone. Typically, the probability for making a particular trip declines as the travel time increases. For the Livermore model, eight sets of friction factors are used, with each set corresponding to one of the eight trip purposes. The difference among the friction factors for each trip purpose accounts for the possibility that people may be willing to drive a long distance to go to work, but only short distances for most shopping or school trips. Use of these friction factors ensures that the Livermore model will produce regional trip distributions generally similar to the MTC model.

Minor adjustments were made to the MTC model friction factors to account for longer travel times beyond 120 minutes. Furthermore, in the MTC model, the home-based work trip purpose has separate friction factors for each of the four income groups. Since these

income groups are combined in the Livermore model, the friction factor curves were averaged for use with the single category of home-based work trips.

Figure 5-1 presents the revised friction factor curves graphically for all eight trip purposes. Table 5-3 provides the relative values in tabular form for the friction factors from zero to 120 minutes of travel. The relative difference in steepness of the friction factor curves represents the fact that people are willing to drive a longer distance to work (represented as a shallower curve), but make shorter trips for school or shopping (steeper curve).

K-Factors (adjustment factors) were not applied in this model at present (this may be implemented as part of a future enhancement).

Figure 5-1: Friction Factors Curves

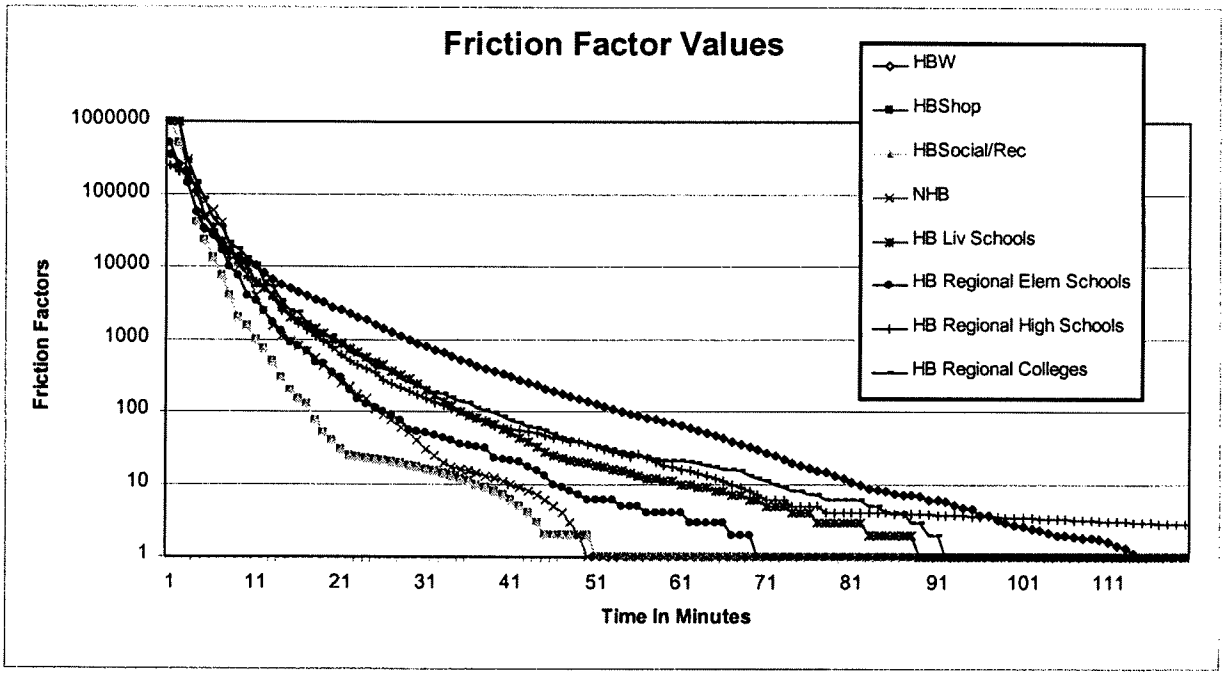


Table 5-3: Friction Factor Values

Time	HBW	HBSHOP	HBSOC/Rec	NHB	LIV Schools	HBElem Sch	HB High	HB Coll
1	355000	999999	999999	999999	999999	500000	250000	999999
2	253750	500000	500000	999999	999999	250000	200000	999998
3	145750	200000	200000	300000	175000	143000	202000	290073
4	57750	40000	40000	100000	125000	55000	108000	143547
5	33000	23000	23000	80000	50000	33000	50000	85960
6	27450	13500	13500	60000	35000	27500	32200	44936
7	20225	7500	7500	40000	22500	17000	20500	33931
8	16500	4000	4000	20000	16500	10000	13100	21498
9	14025	2000	2000	10000	12000	7500	12200	17186
10	11975	1500	1500	7500	10000	4000	7250	13092
11	10450	1000	1000	4000	6000	3360	6222	10838
12	8350	750	750	2500	5000	2500	5495	6104
13	6700	500	500	1500	4000	1700	3800	5174
14	5750	300	300	1100	3000	1300	2500	3396
15	5000	200	200	950	2000	900	2200	2453
16	4575	150	150	800	1800	800	1671	2338
17	3925	125	125	675	1600	690	1341	1642
18	3575	75	75	550	1400	475	1102	1232
19	3200	50	50	425	1200	450	955	1125
20	2825	40	40	325	1000	350	770	1101
21	2575	30	30	250	875	300	600	855
22	2288	25	25	220	750	200	500	665
23	2000	24	24	175	650	150	440	618
24	1825	23	23	150	550	125	390	518
25	1613	22	22	110	475	115	350	414
26	1425	21	21	90	440	100	270	387
27	1225	20	20	75	360	90	240	359
28	1100	19	19	60	320	75	215	287
29	1000	18	18	50	280	55	190	255
30	875	17	17	40	240	53	170	233
31	788	16	16	30	200	50	150	198
32	719	15	15	25	170	47	133	180
33	644	14	14	19	140	43	120	172
34	575	13	13	17	120	40	110	153
35	519	12	12	16	100	35	100	137
36	471	11	11	15	90	34	90	130
37	428	10	10	14	82	33	80	115
38	394	9	9	13	74	31	75	104
39	363	8	8	12	66	23	63	95
40	338	7	7	11	58	22	60	85
41	304	6	6	10	50	21	57	77
42	275	5	5	9	43	20	54	71
43	251	4	4	8	38	17	52	63
44	229	3	3	7	33	15	50	59
45	208	2	2	6	28	13	47	54
46	188	2	2	5	25	10	44	48
47	173	2	2	4	23	9	41	43
48	163	2	2	3	21	8	38	41
49	149	2	2	2	20	7	39	38
50	138	2	2	1	19	6	36	36
51	128	1	1	1	18	6	33	34
52	118	1	1	1	17	6	30	32
53	109	1	1	1	16	6	28	30
54	101	1	1	1	15	5	26	28
55	93	1	1	1	14	5	24	27
56	87	1	1	1	13	5	26	25
57	82	1	1	1	12	4	23	24
58	78	1	1	1	12	4	20	22
59	74	1	1	1	11	4	18	21
60	70	1	1	1	11	4	17	21

Table 5-3: Friction Factor Values (Cont/d)

Time	HBW	HBSHOP	HBSOC/Rec	NHB	LIV Schools	HBElem Sch	HB High	HB Coll
61	65	1	1	1	10	4	16	21
62	60	1	1	1	10	3	15	20
63	56	1	1	1	9	3	14	19
64	51	1	1	1	9	3	13	18
65	47	1	1	1	8	3	12	17
66	43	1	1	1	8	3	11	16
67	39	1	1	1	7	2	10	16
68	35	1	1	1	7	2	9	15
69	33	1	1	1	6	2	8	13
70	30	1	1	1	6	1	7	12
71	27	1	1	1	5	1	6	11
72	24	1	1	1	5	1	6	10
73	22	1	1	1	5	1	6	9
74	20	1	1	1	4	1	5	8
75	18	1	1	1	4	1	5	8
76	17	1	1	1	4	1	5	7
77	16	1	1	1	3	1	5	7
78	15	1	1	1	3	1	4	6
79	13	1	1	1	3	1	4	6
80	12	1	1	1	3	1	4	6
81	11	1	1	1	3	1	4	6
82	10	1	1	1	3	1	4	6
83	9	1	1	1	2	1	4	5
84	8	1	1	1	2	1	4	5
85	8	1	1	1	2	1	4	4
86	8	1	1	1	2	1	4	4
87	7	1	1	1	2	1	4	4
88	7	1	1	1	2	1	4	3
89	7	1	1	1	1	1	4	3
90	6	1	1	1	1	1	4	2
91	6	1	1	1	1	1	4	2
92	6	1	1	1	1	1	4	1
93	5	1	1	1	1	1	4	1
94	5	1	1	1	1	1	4	1
95	5	1	1	1	1	1	4	1
96	4	1	1	1	1	1	4	1
97	4	1	1	1	1	1	4	1
98	3	1	1	1	1	1	4	1
99	3	1	1	1	1	1	4	1
100	3	1	1	1	1	1	3	1
101	3	1	1	1	1	1	3	1
102	2	1	1	1	1	1	3	1
103	2	1	1	1	1	1	3	1
104	2	1	1	1	1	1	3	1
105	2	1	1	1	1	1	3	1
106	2	1	1	1	1	1	3	1
107	2	1	1	1	1	1	3	1
108	2	1	1	1	1	1	3	1
109	2	1	1	1	1	1	3	1
110	2	1	1	1	1	1	3	1
111	2	1	1	1	1	1	3	1
112	1	1	1	1	1	1	3	1
113	1	1	1	1	1	1	3	1
114	1	1	1	1	1	1	3	1
115	1	1	1	1	1	1	3	1
116	1	1	1	1	1	1	3	1
117	1	1	1	1	1	1	3	1
118	1	1	1	1	1	1	3	1
119	1	1	1	1	1	1	3	1
120	1	1	1	1	1	1	3	1

5.3.2 Special Trip Generators

Special trip generators were included in the Livermore Model to account for specialized trip making. These include Livermore schools, Las Positas College, and the Lawrence Livermore and Sandia Labs. For the Livermore schools, daily trip attractions were calculated based on school enrollment with trip productions obtained from households. For the labs, daily trips were estimated based on the employees and trip generation for R&D type land use category, and then factored at the peak hour level to match actual recent counts at the Lab entrances.

5.4 Mode Split

Mode split, or mode choice, is a process that determines the mode of travel for commuters. Possible modes include private vehicle, rail, bus, pedestrian or bike. A very complicated process is required in order to model and forecast mode choice. The current Livermore model does not have a dynamic mode choice process like the MTC model. Instead, it predicts mode split based on factors obtained from the MTC model at the zonal level. The factors are applied to person trips obtained from the trip distribution process that split the trips into auto and non-auto trips based on MTC factors. Auto trips are then further split in drive-alone, carpools with 2 persons (shared ride 2) and carpools with 3 or more persons (shared ride 3). Non-motorized trips, like walk or bike, are not predicted because the trip generation process in the Livermore model only generates trips for motorized modes.

Following mode split, vehicle occupancy factors obtained from the MTC model are applied to convert auto person trips into vehicle trips.

The advantage of using a "fixed" mode split process from the MTC model for Livermore is there is no need to develop and maintain an expensive and complex transit network and mode split process, that only predicts less than 8 percent of the overall trips. The disadvantages of not having a mode split process are the ability to "dynamically" test transit extensions win the City, like BART or route changes for LAVTA. However, the impacts of such changes on the highways and local streets in Livermore can still be tested by adjusting the mode split factors in the model based on similar transit system extensions in the MTC model.

5.5 Time-of-Day Procedures

The daily vehicle trips out of the mode split process are further split by time of day and by direction of travel. The time-of-day procedures used in the Livermore model were obtained from the MTC model for one hour AM and PM peak conditions. The time-of-day and directional split factors are shown in Table 5-4.

Table 5-4: Revised Time-of-Day, Direction Split Factors

Trip Purpose	Direction	AM Peak Hour	PM Peak Hour
Home-Based Work	H to W	15.65	0.92
	W to H	0.38	12.06
Home-Based Shop	H to S	3.86	3.61
	S to H	1.58	6.00
Home-Based Social/Recreation	H to S	3.86	3.61
	S to H	1.58	6.00
Non-Home Based	N to N	1.65	4.32
	N to N	1.65	4.32
Home-Based Livermore School	H to S	16.47	0.56
	S to H	1.66	1.32
Home-Based Regional Elementary School	H to S	16.47	0.56
	S to H	1.66	1.32
Home-Based Regional High School	H to S	16.47	0.56
	S to H	1.66	1.32
Home-Based Regional College	H to C	16.47	1.56
	C to H	1.66	3.32

5.6 Diurnal Adjustment Factors

Diurnal adjustment (or peak spreading) factors are implemented in the model to match the factors used in the MTC model. These factors are intended to simulate the peak hour spreading associated with delay from regional travel across major corridors or bridges in the Bay Area. This includes spread factors for the Bay Bridge for travel from Alameda and Contra Costa counties to San Francisco and San Mateo counties. The complete peak-spread factors used in the Livermore model are shown in Table 5-5.

Table 5-5: Diurnal Adjustment Factors

Origin	Destination	AM Peak Hour	PM Peak Hour
Golden Gate Bridge			
Marin/Sonoma	San Francisco/ San Mateo	0.70	0.70
Carquinez Bridge			
Napa/Solano	Alameda County	0.70	0.70
Napa/Solano	San Francisco/ San Mateo/ Santa Clara	0.70	0.70

Benicia Bridge			
Napa/Solano	Livermore/Pleasanton/Dublin/ Central Contra Costa	0.62	0.62
Caldecott Tunnel			
Contra Costa	Alameda	0.80	0.80
Alameda	Contra Costa	0.70	0.70
Bay Bridge/San Mateo Bridge			
Contra Costa	San Francisco/San Mateo	0.70	0.70
I-680 Corridor			
Central/North Contra Costa	Pleasanton/Dublin/Livermore	0.60	0.60
I-880 Corridor			
Alameda	Santa Clara	0.70	0.70
Santa Clara	Alameda	0.70	0.70
US-101 South			
Santa Clara: Saratoga/Los Gatos	San Mateo	0.30	0.30
Santa Clara: Palo Alto/Los Altos/Sunnyvale/Mountain View/San Jose	San Mateo	0.45	0.45
Santa Clara: Saratoga/Los Gatos	San Francisco	0.70	0.70
Santa Clara: Palo Alto/Los Altos/Sunnyvale/Mountain View/San Jose	San Francisco	0.70	0.70
San Francisco	San Mateo	0.60	0.60
San Mateo	San Francisco	0.65	0.65
Richmond Bridge			
Sonoma/Marin	Alameda/Contra Costa	0.75	0.75
Alameda/Contra Costa	Sonoma/Marin	0.80	0.80
I-80 WB			
Richmond/El Cerrito /Berkeley/Albany	Oakland/Alameda/Hayward/Union City/San Leandro/Fremont	0.40	0.40
US 101 North			
Sonoma/ Napa	Marin	0.40	0.40
Solano	Sonoma	0.50	0.50
Sonoma/Napa	Solano	0.40	0.40

5.7 Fratar Peak Hour Trips to ITE

Prior to trip assignment of peak hour vehicle trips, the matrix of trips is adjusted to match ITE generated trips for TAZs within Livermore. This step ensures that Livermore trips match standard ITE trip generation. A fratar method is used to perform the matrix adjustment.

5.8 Trip Assignment Procedures

The traffic assignment procedures in the Livermore model follow similar procedures as in the MTC model. The Livermore model vehicle assignments use a multiclass equilibrium assignment procedure as implemented in the TP+ software. There are 3 classes of vehicles that are assigned, including with drive-alone, shared-ride 2 and shared-ride 3+ vehicles. The MTC model also includes a 4th class for trucks that is not included as a separate class in the Livermore model. Trucks are however included in the general mix of vehicles within the Livermore model.

5.8.1 Speed-Flow Curves

The speed-flow relationship used in the Livermore model is based on the Akcelik mathematical algorithm, which is consistent with the MTC model for non-freeway facilities. This algorithm is based on delay associated with arterial traffic and is better suited to predicting diversion on roadway links that are subject to intersection delay. The Livermore model also uses the Akcelic equations for freeways, rather than the modified BPR equations used by the MTC model for freeways. This was done to better predict the diversion of traffic observed through Livermore to and from I-580 during heavily congested peak period conditions. During validation, it was noticed that average travel speeds on very short congested links tend to reduce to almost zero, creating a very unstable assignment process. As a result, the delay predicted by the Akcelic algorithm was not allowed to reduce below 10% of the free flow speed on the link.

5.9 Feedback Mechanisms

The Livermore travel model includes a feedback loop that uses congested travel times as an input to the trip distribution step. The feedback loop is intended to ensure that the congested travel impedances (times) used for final traffic assignment are consistent with the travel impedances used throughout the model process.

For any travel model, a feedback loop is considered to converge when the travel times that result from the congested travel speeds after traffic assignment compare closely with the travel times used as input to the trip distribution process. This may take several iterations through the model sequence, also known as "loops". The several alternatives available for incorporating feedback loops into travel models are described below.

No Feedback

Many travel models operate with no feedback. In these models, the trip distribution is often based on uncongested or "free-flow" travel speeds on the road network. After traffic assignment, congested speeds are calculated and used as input to evaluations of the road network and to air quality analysis. This procedure does not result in significant errors when there is little congestion on the road network. However, if there is congestion on the road network (usually with future conditions), the trip distribution will be based on optimistic uncongested travel speeds and will often over-estimate the number of long-distance trips.

There is significant congestion in the Livermore today. Therefore, the model was implemented with a feedback loop for both the 2002 base year and for future growth projections, which in turn have much higher levels of congestion and even slower road speeds. A feedback system is recommended to properly evaluate future travel patterns.

Sequential Feedback Loops

The simplest way to operate feedback loops is to take the congested speeds from one cycle of traffic assignment, and use those congested speeds as input to trip distribution and mode choice for the next cycle. The cycles are repeated until the speeds are similar from one cycle to the next.

The drawback to this approach is the number of cycles that may be required to converge. The first trip distribution will be based on uncongested speeds, so it will over-estimate long distance trips. These long-distance trips will create congestion and slow speeds, so the next cycle of the model will most likely under-estimate long-distance trips and congestion. The cycles of over-estimation and under-estimation will continue and may or may not converge to a consistent solution.

Interpolated Feedback Loops

Interpolation is one way to speed up convergence of the feedback mechanism. Rather than using the results of one cycle as input to the next cycle, the results of the latest cycle are combined with the results of the previous cycle and the combination is used as input to the next cycle. The interpolation assumes that the correct solution lies somewhere between the two cycles. This is the method used in the Livermore model.

Congested Speeds

There are several variations for the application of congested travel speeds in a feedback loop.

Single Speed for All Trip Purposes

The most simple method estimates an average daily congested speed for each link, and uses this average speed as input to the trip distribution for all trip purposes. Another variation uses congested speeds from a peak period or peak hour traffic assignment as input to the trip distribution for all trip purposes. These methods may overestimate the

impacts of congestion on non-work (off-peak) travel patterns and/or underestimate the impacts of congestion on work trip patterns.

Peak Speeds for Work Trips

Another variation uses congested speeds from a peak period or peak hour traffic assignment as input to the trip distribution of home-based work trips, and then uses an off-peak traffic assignment or the original uncongested speeds as input to the trip distribution of non-work trip purposes.

5.10 Livermore Model Feedback Loop

Most travel models apply a simplified feedback loop with one interpolation. The trip distributions based on uncongested travel speeds are averaged with the trip distributions based on the first estimate of congested speeds. The resulting trips are then "averaged" until the trips converge between two iterations. The converged trips are then saved and used in subsequent runs of the model. This method is intended to provide a consistent estimate of congested travel speeds, while limiting the amount of additional time required to run the model. For the Livermore model, a full feedback loop process was implemented that iterates until it reaches a set of convergence criteria. The Livermore model was observed to converge with 4 iterations for 2002 existing conditions and 5 iterations for future buildout conditions.

Congested Travel Times

The initial trip distributions for all trip purposes are calculated using uncongested (free-flow) travel times on the road network. After the initial trip distribution and assignment, the congested travel times calculated from the most recent A.M. peak hour traffic assignment are used as input to the home-based work and home-based schools trip distribution and the congested travel times from the off-peak traffic assignment are used for the non-work trip purposes.

The feedback loop convergence criteria are based on closure of the A.M. peak hour congested travel times. However, the off-peak travel times are also processed the same way during each iteration of the feedback loop. The off-peak travel times are just not used to determine convergence.

Interpolation Method

In order to speed up the convergence of the feedback loop, an interpolation method is used. The method of successive averages takes the latest set of congested travel times calculated from the latest traffic assignments, and calculates a weighted average with the latest set of travel times used as input to trip distribution. The weighting is based on the number of iterations. For example, after the fourth pass through the feedback loop, the weighted average would be calculated as one-quarter (0.25) times the latest set of congested travel times plus three-quarters (0.75) times the previous set of congested travel times. This process is repeated until the convergence criteria are met.

Convergence Criteria

A set of convergence criteria were developed for this model to ensure that the congested travel speeds are consistent with the travel speeds used throughout the model process.

The congested travel speeds come from the final traffic assignments. The congested travel speeds used throughout the model process are those used as input to the trip distribution step. Therefore, the convergence criteria are applied by comparing the congested travel speeds from the latest traffic assignments with the congested travel speeds and times most recently used as input to trip distribution. The inputs to trip distribution are calculated as a weighted average using the method of successive averages as described above. The Livermore model feedback loop is considered to converge when:

1. Less than 5% of the origin-destination pairs have a.m. peak hour period congested travel times that change by more than 5% between iterations; and
2. The weighted average change in a.m. peak hour period link traffic volumes is less than 5% between iterations (the average percent change is weighted by the link volume).

If the first two criteria do not result in convergence after five iterations through the feedback loop, it indicates that the network is very congested and the traffic assignments are oscillating between one set of routes and another. The following criteria are then used after five feedback iterations:

3. The weighted average change in a.m. peak hour period congested travel times between origin-destination pairs is less than 5% between iterations (average weighted by number of origin-destination trips); and
4. The weighted average change in a.m. peak hour period congested travel times between origin-destination pairs is less than 5% between iterations (average weighted by vehicle-miles of travel); and
5. The weighted average change in a.m. peak hour period link traffic volumes is less than 5% between iterations (the average percent change is weighted by the link volume).

The second set of convergence criteria were found to close during tests even with very congested future travel demands.

5.11 Model Validation

Model validation refers to the comparison of model output (traffic volumes) to observed conditions; usually traffic counts on road links or screenlines. During validation, adjustments are primarily made to model inputs, such as the road network and base year land uses, rather than calibrated parameters such as trip generation rates or peak factors. Once validated, the model can be used to predict future travel patterns with a high degree of confidence.

The Livermore model highway base year model results were validated using traffic counts on selected screenlines. Recent 2001 and 2002 traffic data was used.

5.11.1 Screenlines

Screenlines are imaginary lines, often along natural or man-made physical barriers (e.g., rivers, railroad tracks) that have a limited number of crossings. The screenlines "cut" the entire study area, intercepting all travel across them, thereby eliminating issues about individual route choice. Use of a system of screenlines allows systematic comparison of model estimated travel versus observed travel in different parts of the model area.

The Livermore model validation employed 10 screenline locations as described in Table 5-6, and graphically displayed in Figure 5-4. The resulting highway validation by screenline location is presented in Table 5-7 for a.m. peak hour conditions and Table 5-8 for p.m. peak hour conditions.

Table 5-6: Validation Screenlines

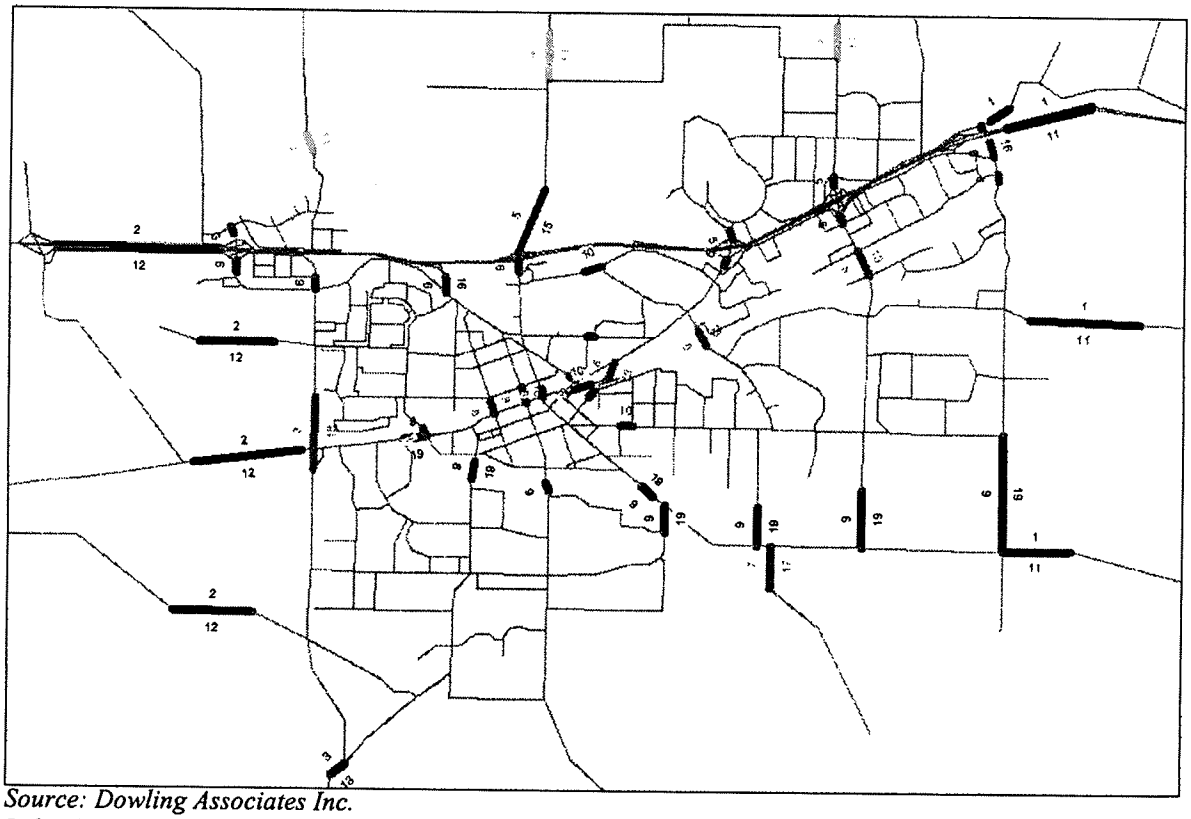
Screenline	Location
1	East Livermore - east of Greenville Road
2	West Livermore - west of Airway Blvd
3	South Livermore - south of Isabel Avenue
4	North Livermore - north of Dalton Road
5	North of I-580
6	South of I-580
7	South Livermore - south of Tesla Road
8	Mid Livermore - north of Railroad Ave
9	Mid Livermore - north of Arroyo Mocho
10	Mid Livermore - east of Downtown

The Caltrans Travel Forecasting Guidelines, used in the industry as a guide for model validation, includes a graph that shows the maximum desirable deviation on screenlines allowed between daily traffic counts and daily model volumes. This graph is shown in Figure 5-3. The graph shows the percent deviation between screenline count and model volume should be below the curve. Based on the curve, the target varies by the volume size, with larger deviations allowed for small-volume screenlines and smaller deviations allowed for higher-volume screenlines.

The Livermore model validation shows the model is estimating volumes within these targets for all 10 screenlines as shown in Table 5-7 and Table 5-8. It is generally a goal for any traffic model development to validate all the major screenlines to within 10 percent of counts. The Livermore model validation does not meet this criteria for individual screenlines, however, for combined screenlines, the model is within 4 percent of the a.m. screenlines, and within 12 percent for p.m. screenlines. Individual screenlines do vary significantly over 10 percent, especially in the p.m. peak hour. For example, Screenline 6,

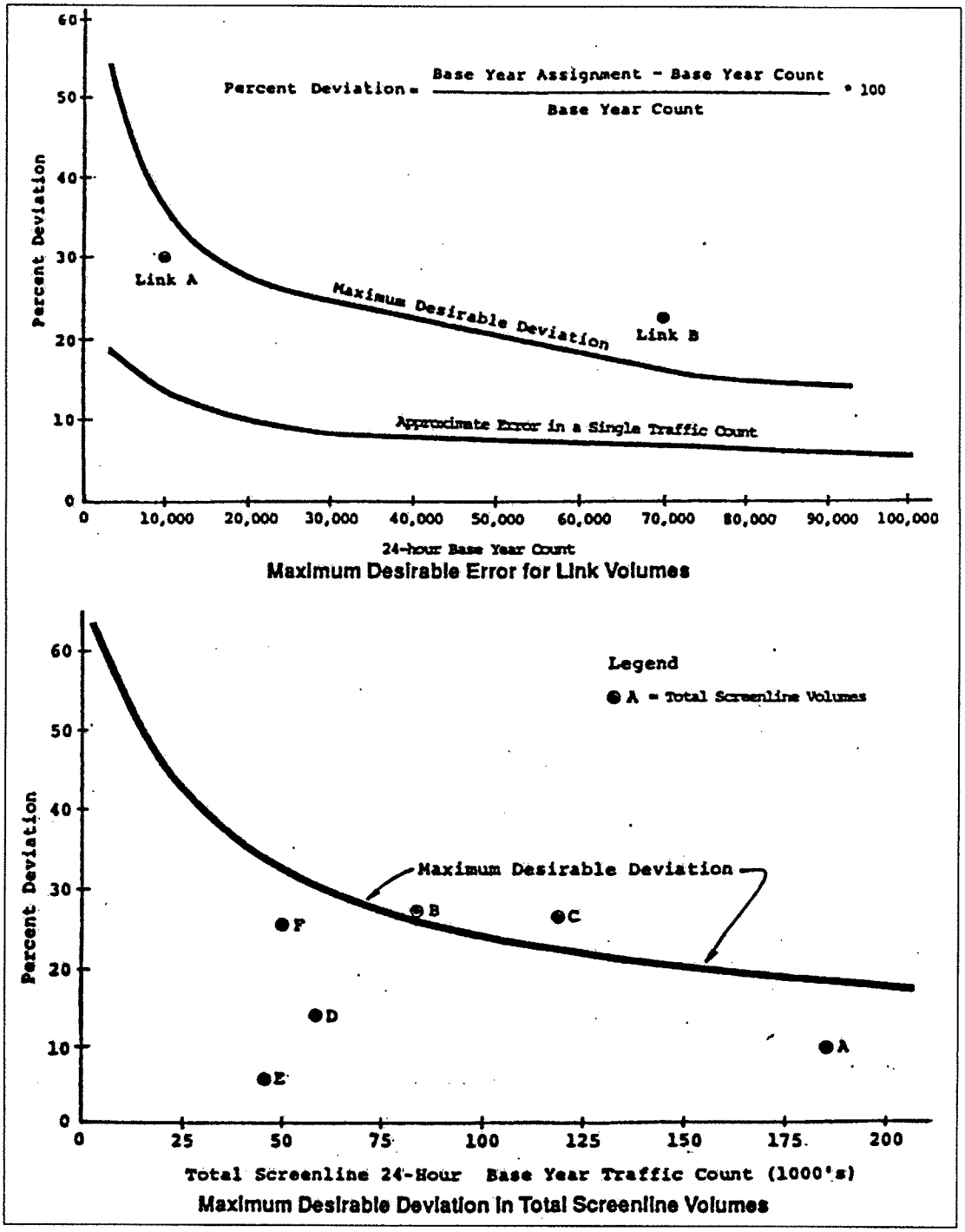
south of I-580, varies by 26%. These variations in individual screenlines could potentially be improved in subsequent validation efforts.

Figure 5-2: Location of Validation Screenlines in Livermore



Source: Dowling Associates Inc.
Individual screenlines are identified numerically and by different colored lines.

Figure 5-3: Maximum Desirable Error For Links And Screenlines



Source: Caltrans, *Travel Forecasting Guidelines*, 1992

Table 5-7: AM Peak Validation by Screenline Volume – Both Directions

Screenline	Location	Count	Model	Difference	Percent Difference
1	East Livermore - east of Greenville Road	11,860	12,837	977	8%
2	West Livermore - west of Airway Blvd	18,240	16,249	(1,991)	-11%
3	South Livermore - south of Isabel Avenue	1,973	2,314	341	17%
4	North Livermore - north of Dalton Road	2,279	2,154	(125)	-5%
5	North of I-580	10,232	9,438	(794)	-8%
6	South of I-580	16,666	15,841	(825)	-5%
7	South Livermore - south of Tesla Road	142	73	(69)	-49%
8	Mid Livermore - north of Railroad Ave	14,622	16,004	1,382	9%
9	Mid Livermore - north of Arroyo Mocho	9,705	8,369	(1,336)	-14%
10	Mid Livermore - east of Downtown	8,192	6,432	(1,760)	-21%
Sum		**93,911**	**89,711**	**(4,200)**	**-4%**

Table 5-8: PM Peak Validation by Screenline Volume – Both Directions

Screenline	Location	Count	Model	Difference	Percent Difference
1	East Livermore - east of Greenville Road	11,292	11,657	365	3%
2	West Livermore - west of Airway Blvd	17,111	18,354	1,243	7%
3	South Livermore - south of Isabel Avenue	2,265	2,487	222	10%
4	North Livermore - north of Dalton Road	2,286	2,396	110	5%
5	North of I-580	9,323	10,257	934	10%
6	South of I-580	15,214	19,128	3,914	26%
7	South Livermore - south of Tesla Road	165	143	(22)	-13%
8	Mid Livermore - north of Railroad Ave	15,763	19,704	3,941	25%
9	Mid Livermore - north of Arroyo Mocho	10,110	9,961	(149)	-1%
10	Mid Livermore - east of Downtown	7,743	8,341	598	8%
Sum		**91,272**	**102,428**	**11,156**	**12%**

Validation Issues

The Livermore model meets the important validation criteria. There are several validation issues that could be investigated further when the model is updated again. For example, a more detailed validation using individual counts on links may provide more confidence on validation of the model.

Adjustment of Results

The traffic validation indicates that the Livermore model provides a good overall estimation of travel demand patterns in Livermore. However, it is recommended that traffic forecasts on specific road segments and intersections use an adjustment process that accounts for validation errors. Where base year traffic counts are available, forecast traffic

volumes are calculated based on the increment between the base year and future year model results, as follows:

Adjusted Forecast Volume = Base Year Count + (Model Forecast Volume - Base Year Model Volume)

An incremental adjustment is generally recommended instead of an adjustment based on ratios. A ratio adjustment factor does not guarantee continuity of traffic volumes between adjacent road segments, and can result in very large adjustments on low-volume links.

5.11.2 Intersection Analysis

Intersection data was developed for up to 100 existing intersections and 20 future intersections. The model results output turning volumes for all study intersections for both existing and future conditions. Model output was then adjusted based on an incremental Furness process to correct the error between the existing model and existing counts. Finally intersection level of service was calculated using the TRAFFIX intersection analysis software.

GLOSSARY OF TERMS

5.11.3 ABAG (Association of Bay Area Governments)

The regional land use planning agency for the ninecounty Bay Area; among its other responsibilities, ABAG develops forecasts of population and employment growth in its *Projections* series.

5.11.4 Akcelic Speed-Flow Curves

Updated speed-flow equations proposed by Akcelik for predicting the travel time on any road facility. These curves were developed to better reflect operating conditions when demand approaches and exceeds capacity since research has shown that the standard Bureau of Public Roads (BPR) curve greatly overestimates speeds for v/c ranges between 1.0 and 2.0. Akcelik's equation states that the travel time (t) is equal to the free-flow travel time (t_0) plus the average overflow queue (N_0) divided by the capacity (C). The equation for the average overflow queue was fitted by Akcelik to take into account variations in queue lengths caused by random variations in arrivals.

5.11.5 AM (ante meridian)

Before noon.

5.11.6 APN

Assessor Parcel Number

5.11.7 ArcVIEW

A geographic information system (GIS) software package developed by ESRI, Inc. that provides data visualization, query, analysis, and integration capabilities along with the ability to create and edit simple geographic features.

5.11.8 BART (Bay Area Rapid Transit District)

The agency that operates the rapid rail transit system within Alameda, Contra Costa and San Francisco counties with new service to San Mateo County.

5.11.9 Baycast Model

A term used to denote the 1990 Bay Area household travel survey-based travel demand models and the application software needed to apply these models.

5.11.10 BPR

Bureau of Public Roads.

5.11.11 CCTA

Contra Costa Transportation Authority

5.11.12 Conflate

To bring together or combine. Usually used when matching a travel demand model network with another GIS related map.

5.11.13 Diurnal Factors

Peak period or peak hour factors used in travel demand modeling to convert daily trips, by trip purpose, to peak period or peak hour trips.

5.11.14 EMME/2

EMME/2 is a travel demand software package developed and distributed by INRO. It features: matrix manipulation tools for implementation of a variety of travel demand forecasting models, assignment procedures, a macro language for automating repetitive procedures, and graphic display capabilities.

5.11.15 Feedback Loop

A procedure used in travel demand modeling to ensure that the congested travel impedances (times) used for final traffic assignment and as input to the air quality analysis are consistent with the travel impedances used throughout the model process. Usually allow use of congested travel times as an input to the trip distribution step.

5.11.16 Fratar

A method to apply growth factors to the traffic originating at, and/or destined to the zones represented by an origin/destination (OD) trip table. The OD tables is sucessively corrected until it is acceptably balanced.

5.11.17 Friction Factors

Used in the gravity model as empirical representations of the effect of spatial separation and travel time on the propensity for making a trip to a given zone. Typically the probability for making a particular trip declines as the travel time increases.

5.11.18 GEOMEDIA

A software package developed by Intergraph to a complete set of analysis tools to easily perform expert, complex spatial analysis.

5.11.19 Gravity Model

Gravity models are popular trip distribution proceedures. They rely on historical Origin Destination information for calibration. This means that they forecast that future trip distribution will be related to the distibution used for calibration. Gravity models incorporate the ideas that trip patterns develop due to the activity of the origin, the relative attractiveness of the destination and the difficulty of making the trip. This idea is similar to the Newtonian Law of Gravity that has been extended by Einstein.

5.11.20 GIS

Geographic information system. Term usually used when discussing computer software that links geographic information (where things are) with descriptive information (what things are like). Unlike a flat paper map, where "what you see is what you get," a GIS can have many layers of information.

5.11.21 HOV (High-Occupancy Vehicle)

Generally used to describe carpools or vanpools but also, depending on the context, used to describe bus transit vehicles; HOV lanes are travel lanes set aside for the use of carpools, vanpools and buses.

5.11.22 MPO (Metropolitan Planning Organization)

An agency established through or empowered to carry out the regional transportation planning functions established in federal legislation. In the Bay Area, MTC is the designated MPO.

5.11.23 MTC (Metropolitan Transportation Commission)

The regional transportation planning agency established by the State of California for the nine-county Bay Area region; also serves as the Metropolitan Planning Organization (MPO) under federal legislation.

5.11.24 NAIC (North American Industry Classification System) Code

An NAIC code is a unique identifier to a specific industry. This code follows a NAFTA agreement and is utilized in Canada, Mexico and the United States.

5.11.25 OD

Origin/Destination.

5.11.26 Peaking Factors

Peak period or peak hour factors used in travel demand modeling to convert daily trips, by trip purpose, to peak period or peak hour trips.

5.11.27 Pleasanton Model

The combination of a traditional demand forecasting tool and an advanced traffic micro-simulation tool. The travel demand forecasting tool (currently implemented in the TRANSCAD software environment) is an improved version of the Tri-Valley Transportation Council Tri-Valley Model for predicting the impacts of regional, county, and local City growth on traffic demand on both City of Pleasanton streets and the I-580 and I-680 freeway system. The traffic micro-simulation tool (implemented in the Synchro/SimTraffic software package) is an entirely new level of very detailed traffic operations modeling for Pleasanton, which enables the precise assessment of inter-relationships between freeway and City street congestion.

5.11.28 PM (post meridiem)

After noon.

5.11.29 RTP (Regional Transportation Plan)

MTC's longrange (20-year) planning document that outlines goals, policies and a financially-constrained program of transportation projects for the Bay Area; the RTP identifies

5.11.30 SIC (Standard Industry Code) code:

SIC code is the current US industry code.

5.11.31 Skim Travel Costs

A matrix of origin to destination costs (e.g., time, distance). Such matrices are often referred to as "skim" values, because the values are "skimmed" from the network while "tracing" a shortest path. For example, a modeler can skim travel times and travel distances based on both free-flow and congested travel times, and then compare the differences.

5.11.32 SOV (Single-Occupant Vehicle)

A vehicle with one occupant — the driver — who is sometimes referred to as a "drive alone".

5.11.33 TP+/VIPER

TP+ (Transportation Planning Plus) is a travel demand software package and Viper is a visual planning tool developed and distributed by Citilabs. Viper is a network editor, a matrix editor, a database editor, a job script editor and a model job launcher.

5.11.34 TRAFFIX

TRAFFIX is an interactive computer program developed by Dowling Associates to enable users to forecast the traffic impacts of new developments, interactively test mitigation measures, and compare base and future traffic scenarios. It calculates level of service at intersections and on arterials using 2000 Highway Capacity Manual or one of the other 17 supported methods.

5.11.35 TRANSCAD

Developed by Caliper Corporation, TransCAD is a Geographic Information System (GIS) designed specifically for use by transportation professionals to store, display, manage, and analyze transportation data.

5.11.36 Travel Demand Model

A computerized model that uses information on current and future land use, transportation facilities, and demographics to forecast future demand on the transportation system.

5.11.37 Tri-Valley Model

The travel demand model developed and updated by CCTA to cover the Tri-Valley planning subarea that includes the local jurisdictions of Danville and San Ramon in Contra Costa County and Dublin, Pleasanton and Livermore in Alameda County, as well as the unincorporated areas of both counties.

V. MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Environmental Impact Report (EIR) prepared for the City of Livermore Draft General Plan and Downtown Specific Plan (proposed project). The MMRP lists mitigation measures recommended in the EIR for the proposed project and identifies mitigation monitoring requirements. The EIR contains impacts for which no mitigation is available. These significant unmitigable impacts are not included in the MMRP.

This MMRP has been prepared to comply with the requirements of State law (Public Resources Code Section 21081.6). State law requires the adoption of an MMRP when mitigation measures are required to avoid significant impacts. The MMRP is intended to ensure compliance during implementation of the project.

The MMRP is organized in a matrix format (Table V-1). The first column identifies the mitigation measure. The second column, entitled "Party Responsible for Implementation," refers to the person or agency responsible for implementing the mitigation measure. The third column, entitled "Agency Responsible for Monitoring," refers to the agency responsible for ensuring, through monitoring, that the mitigation measure has been implemented. The fourth column entitled "Action by Monitor" refers to how monitoring is to occur. The last column, entitled "Monitoring Timing," identifies the timing of the monitoring action.

Table V-1: Mitigation Monitoring and Reporting Program

Mitigation Measures	Party Responsible for Implementation	Agency Responsible for Monitoring	Action by Monitor	Monitoring Timing
TRAFFIC AND CIRCULATION				
TRAF-GP-1: The City shall require on-going development review of circulation system impacts, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. While those policies and actions will result in many intersections meeting the City's LOS standards, they will not reduce the impact at the above listed locations to a less-than-significant level.	City of Livermore Community Development Department	City of Livermore Community Development Department	Ensure that the City conducts an on-going development review of the policies and actions outlined in Impact TRAF-GP-1.	Ongoing
TRAF-GP-2: The City shall continue on-going development review of circulation system impacts from individual projects, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. However, the impacts at the nine intersections near I-580 cannot be reduced to a less-than-significant level.	City of Livermore Community Development Department	City of Livermore Community Development Department	Ensure that the City conducts an on-going development review of the policies and actions outlined in Impact TRAF-GP-2.	Ongoing
TRAF-GP-3: The City shall continue on-going development review of circulation system impacts from individual projects, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. However, the impacts at the four intersections cannot be reduced to a less-than-significant level.	City of Livermore Community Development Department	City of Livermore Community Development Department	Ensure that the City conducts an on-going development review of the policies and actions outlined in Impact TRAF-GP-3.	Ongoing
TRAF-GP-4: The City shall require on-going project development review of circulation system impacts, mitigation of those impacts to the greatest extent feasible, traffic signal coordination, driveway/access control, preservation of right-of-way for future improvements and construction of missing roadway links to relieve congestion at impacted locations. However, the impacts at the 15 roadway segments cannot be reduced to a less-than-significant level.	City of Livermore Community Development Department	City of Livermore Community Development Department	Ensure that the City conducts an on-going development review of the policies and actions outlined in Impact TRAF-GP-4.	Ongoing
PUBLIC SERVICES				
PUB-SP-1: The City shall work with private developers and the LARPD to develop a neighborhood park in or adjacent to the Downtown plan area that would serve the existing and future residents living Downtown.	City of Livermore Community Development Department and LARPD	City of Livermore Community Development Department	Verify that a neighborhood park has been developed in or adjacent to Downtown.	Prior to build-out of the Downtown Specific Plan

MITIGATION MONITORING AND REPORTING PROGRAM *continued*

Mitigation Measures	Party Responsible for Implementation	Agency Responsible for Monitoring	Action by Monitor	Monitoring Timing
NOISE				
NOISE-GP-2: The City of Livermore shall develop a program to identify residences subject to excessive Airport noise. The program shall ensure that the State's 45 dBA CNEL/L_{dn} interior noise standard for residential uses is achieved for these affected residences. One way of implementing this measure would be for the City to contract with a qualified acoustical engineer to conduct annual exterior noise measurements, beginning along the block nearest the eastern edge of the Airport and, over the years, moving eastward, away from the Airport. If/when the exterior noise levels are within one dBA of 60 dBA CNEL on any block, the City should purchase and install of air conditioning units for those single family residences exposed to such noise. The air conditioning units would allow these residences the option of keeping their windows closed during the summer months when it would otherwise be too hot to do so.	City of Livermore Community Development Department; qualified acoustical engineer	City of Livermore Community Development Department	Verify that a program (that may include annual exterior noise measurements) has been developed and implemented to determine whether residences subject to airport-related noise are subject to exterior noise levels in excess of 60 dBA. Ensure that air conditioners are purchased for all residences that are subject to exterior noise levels in excess of the 60 dBA standard.	Ongoing

VI. REPORT PREPARATION

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Livermore, CA 94550

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