

Draft Environmental Impact Report

East County Area Plan

June, 1993

(SCH.#92073034)

**Alameda County Planning Department
399 Elmhurst Street
Hayward, CA 94544**

EAST COUNTY AREA PLAN DRAFT EIR TABLE OF CONTENTS

PART I: Introduction

Chapter 1 - Introduction

- 1.1 The Purpose of this EIR
- 1.2 The Relationship Between the Draft East County Area Plan and This EIR
- 1.3 How this EIR Differs from a Project EIR
- 1.4 The Organization of this EIR and Analysis Approach
- 1.5 The EIR Review Process
- 1.6 Terminology Used in this EIR

Chapter 2 - Regional Context

- 2.1 Description of East County and Tri-Valley Subregion
- 2.2 Land Use Trends and Issues

PART II: Project Description and Summary

Chapter 3 - Project Description

- 3.1 Relationship between the *East County Area Plan* and the *Alameda County General Plan*
- 3.2 Project Location
- 3.3 Relationship between *East County Area Plan* and Incorporated City General Plans
- 3.4 Relationship between *East County Area Plan* and Countywide and Regional Plans
- 3.5 Intended Uses of This EIR
- 3.6 Major Objectives of the Plan
- 3.7 Major Features of the Plan
- 3.8 Relationship between *East County Area Plan* and *South Livermore Valley Area Plan*
- 3.9 Growth Projections for East County
- 3.10 *East County Area Plan* Land Use Program - Holding Capacities at 2010 and Buildout
- 3.11 *East County Area Plan* Land Use Diagram - Location of Future Development
- 3.12 Credible Worst-Case Scenario for Purposes of EIR Analysis
- 3.13 Consistency with Other General Plan Elements

Chapter 4 - Impact and Mitigation Summary

- 4.1 Summary of Impacts and Mitigation Measures
- 4.2 Summary of Alternatives to the Project

PART III: Environmental Analysis and Mitigation Measures

Chapter 5 - Environmental Setting, Impacts and Mitigation Measures

- 5.1 *Land Use and Planning*
- 5.2 *Agricultural Resources*
- 5.3 *Employment and Housing*
- 5.4 *Transportation*
- 5.5 *Air Quality*
- 5.6 *Noise*
- 5.7 *Biological Resources*
- 5.8 *Visual and Aesthetic Resources*
- 5.9 *Cultural Resources*
- 5.10 *Mineral Resources*
- 5.11 *Geologic Hazards*
- 5.12 *Water Quality and Hydrology*
- 5.13 *Water Supply*
- 5.14 *Wastewater*
- 5.15 *Flood Hazards*
- 5.16 *Park and Recreation Facilities*
- 5.17 *Schools*
- 5.18 *Child Care*
- 5.19 *Police, Fire and Emergency Medical Services*
- 5.20 *Solid and Hazardous Waste Management*
- 5.21 *Energy*
- 5.22 *Electro-Magnetic Fields*

PART IV: Alternatives and CEQA Considerations

Chapter 6 - Evaluation of Alternatives

- 6.1 Alternative 1: "No-Project" (Adopted General Plans)
- 6.2 Alternative 2: "No-Project" (Prospective General Plans)
Maximum Growth/Low Density
- 6.3 Alternative 3: Modified East Dublin

- 6.4 Alternative 4: Modified North Livermore
- 6.5 Alternative 5: Modified East Dublin and North Livermore
Minimum Growth/High Density
- 6.6 Comparison of Alternatives
- 6.7 "What If.....?" Discussions

Chapter 7 - Required CEQA Considerations

- 7.1 Cumulative Impacts
- 7.2 Growth-Inducing Impacts
- 7.3 Significant Unavoidable Impacts
- 7.4 Short-Term Uses versus Long-Term Productivity
- 7.5 Irreversible Environmental Changes
- 7.6 Effects Found Not to Be Significant

PART V: Report Preparation and Appendices

Contributors to This Report

Appendices

- Appendix A - *East County Area Plan*: Data Sources, Assumptions, and Methodology
- Appendix B - Comparison of Land Use Categories
- Appendix C - Transportation and Circulation
- Appendix D - Air Quality Methodology and Assumptions
- Appendix E - CEQA Guidelines for the Protection of Archeological Resources
- Appendix F - Water Supply Data
- Appendix G - List of Acronyms

LIST OF TABLES

Chapter 3 - Project Description and Summary

Table 3-1: Projected Growth Increases in the East County (1990 to 2010)

Table 3-2: Holding Capacities at 2010 and Buildout

Table 3-3: Increase in Housing Units and Jobs by Subarea Under
Buildout of *East County Area Plan*

Table 3-4: Population Distribution: Incorporated vs. Unincorporated
(1990 and ECAP Buildout)

Table 3-5: East County Land Use Designations, Densities, and Uses

Chapter 4 - Impact and Mitigation Summary

Table 4-1: Summary of Potential Significant Impacts and Mitigation
Measures

Table 4-2: Summary of Less-Than-Significant Impact and Proposed
Modification to Policies and Programs and Proposed New
Policy and Programs

Chapter 5 - Environmental Setting, Impacts and Mitigation Measures

Table 5.1-1: City General Plan Amendments

Table 5.1-2: Major Land Use Proposals in the East County Vicinity

Table 5.1-3: Adopted Programs/Policy Documents with Which ECAP is Consistent

Table 5.1-4: Adopted Programs/Policy Documents with Which ECAP is Consistent

Table 5.2-1: Alameda County 1991 Agricultural Production and Value

Table 5.3-1: East County Population, Employment, and Housing Conditions - 1990.

Table 5.3-2: Jobs/Housing Ratios for the Tri-Valley Subregion - 1990 and 2010

Table 5.3-3: Existing Housing Price Conditions for East County Cities

Table 5.4-1: 1990 Traffic Volumes and Capacity for Routes of Regional Significance

Table 5.4-2: Traffic Volumes and Volume-to-Capacity Ratios on Unincorporated
Roadways - 2010

Table 5.4-3: Mitigation Measures

Table 5.4-4: Discussion of Mitigation Measures: Freeways and Highways

Table 5.4-5: Discussion of Mitigation Measures: Arterials

Table 5.5-1: Federal and State Ambient Air Quality Standards

Table 5.5-2: Summary of Air Quality Data for Livermore - 1982-1991

**Table 5.5-3: Direct and Indirect Emissions Associated with East County Area Plan 2010
and Tri-Valley Development, in Pounds Per Day**

**Table 5.5-4: Worst-Case 1-Hour and 8-Hour Carbon Monoxide Concentrations at
Selected Locations - Existing and 2010**

Table 5.5-5: Trends in Tri-Valley Peak Hour Vehicle Emissions

Table 5.6-1: California Office of Noise Control Land Use Compatibility Guidelines

Table 5.6-2: Alameda County Exterior Noise Level Standards (dBA)

Table 5.6-3: Noise Contour Distances (1990)

Table 5.6-4: Noise Contour Distances (2010)

Table 5.7-1: Special Status Plant and Animal Species Known to Occur in East County.

**Table 5.7-2: Special Status Plant and Animal Species With Known Locations Inside the
Urban Growth Boundary.**

Table 5.9-1: Historical Resources in the East County

Table 5.11-1: Faults Affecting the East County

Table 5.13-1: Existing Water Supply by Source for the Zone 7 Service Area

Table 5.13-2: Zone 7 Allocation and Existing Water Use in Livermore-Amador Valley

**Table 5.13-3: Summary of Possible Potential Water Supplies to Meet Future Municipal
and Industrial Demands in the Zone 7 Service Area**

Table 5.13-4: Urban (M&I) Water Supply Deficit - Proposed East County Area Plan

Table 5.14-1: Wastewater Export Requirements

Table 5.17-1: 1992-1993 Existing Student Population by School District

Table 5.17-2: Status of Existing School Capacity

Table 5.17-3: Estimated Total Households by School District

Table 5.17-4: Existing and Projected Student Population

Table 5.17-5: Projected Student Population at Buildout by Grade

Table 5.17-6: Status of Development Fees for Each School District

Table 5.18-1: Unmet Need for Before and After School Care by East County City

Table 5.19-1: East County Police Protection - 1990

Chapter 6 - Evaluation of Alternatives

Table 6-1: Alternative 1: "No-Project" - Buildout of Adopted General Plans

**Table 6-2: Alternative 2: "No-Project" - Maximum Growth/Low Density
(Prospective General Plans)**

Table 6-3: Alternative 3: "Modified East Dublin"

Table 6-4: Alternative 4: "Modified North Livermore"

Table 6-5: Alternative 5: "Minimum Growth/High Density"

Table 6-6: Comparison of Alternatives - Jobs, Housing, and Population

Table 6-7: Comparison of Alternatives - Open Space Conversion and Housing Density

LIST OF FIGURES

- Figure 1 - Geographic Subareas (*after Chpt.1*)
 2 - Regional Setting (*after Chpt.2*)
 3 - Urban Expansion (*after Chpt.2*)
 4 - Demographic and Traffic Data Study Zones (*after Chpt.3*)
 5 - Urban Growth Boundary (*after Chpt.3*)
 6 - Open Space Diagram (*after Chpt.3*)
 7 - Transportation Diagram (*after Chpt.3*)
 8 - City Limits and Spheres of Influence (*after Chpt.5.1*)
 9 - Major Public Facilities (*after Chpt.5.1*)
 10 - Airport Protection Area (Livermore Municipal Airport) (*after Chpt.5.1*)
 11 - Non-Urban Land Use (*after Chpt.5.1*)
 12 - Major Park Facilities and Regional Trails (*after Chpt.5.1*)
 13 - Generalized Land Uses (*after Chpt.5.1*)
 14 - Prime Soils (*after Chpt. 5.2*)
 15 - 2010 Peak Hour LOS Deficiencies (Without Mitigation)(*after Chpt.5.4*)
 16 - 2010 Peak Hour LOS Deficiencies (With Mitigation) (*after Chpt.5.4*)
 17 - Noise Contours (2010): Roadways (*after Chpt.5.6*)
 18 - Noise Contours (2011): Livermore Municipal Airport (*after Chpt.5.6*)
 19 - Plant Communities (*after Chpt.5.7*)
 20 - Special Status Species and Communities (*after Chpt.5.7*)
 21 - Generalized Land Slope Pattern (*after Chpt.5.8*)
 22 - Construction Aggregate Resource Areas (*after Chpt.5.10*)
 23 - Faults in Alameda County (*after Chpt.5.11*)
 24 - Maximum Groundshaking Intensity (*after Chpt.5.11*)
 25 - Surface Water Hydrology: Existing Conditions (*after Chpt.5.12*)
 26 - Water District Boundaries (*after Chpt.5.13*)
 27 - Sewer Service Areas and Major Facilities (*after Chpt.5.14*)
 28 - Flood Hazard Areas (*after Chpt.5.15*)
 29 - Zone 7 Master Plan Elements (*after Chpt.5.15*)
 30 - School District Boundaries (*after Chpt.5.17*)
 31 - Fire District Boundaries (*after Chpt.5.19*)
 32 - Fire Hazards (*after Chpt.5.19*)

(*after Chapter 6*)

- Alternative 1 - "No-Project" (Adopted General Plans)
 Alternative 2 - "No-Project" (Prospective General Plans)
 Alternative 3 - Modified East Dublin
 Alternative 4 - Modified North Livermore
 Alternative 5 - Minimum Growth/High Density

Chapter 1 - Introduction

1.1. The Purpose of This EIR

The Draft Environmental Impact Report (EIR) on the *East County Area Plan* is being prepared pursuant to the California Environmental Quality Act (CEQA) of 1970, as amended. CEQA requires that a draft environmental impact report (DEIR) be prepared if any aspect of a proposed general plan, element or amendment may lead to a significant adverse effect on the environment.

This document is intended to serve as the DEIR for the proposed revision of the General Plan for the East County Planning Area (formerly the Livermore-Amador Valley Planning Unit) of Alameda County, for the amendment of the *Alameda County Open Space Element*, and any other changes required in the functional elements of the existing *Alameda County General Plan* to maintain consistency with the *East County Area Plan*.

The DEIR is a public information document used to analyze the significant environmental effects of a proposed project, to identify alternatives and to disclose ways to reduce or avoid the possible environmental effects. The main purposes of this document are:

- to assess existing environmental conditions in the East County Planning Area;
- to identify significant environmental impacts which may result from the implementation of the proposed draft plan;
- to propose mitigation measures to reduce or eliminate potential environmental impacts resulting from the proposed draft plan;
- to identify potential significant impacts of the plan that cannot be mitigated;
- to evaluate alternatives to the proposed plan; and
- to provide information to decision-makers and the public to assist in the evaluation of the proposed plan and alternatives to the proposed plan.

1.2 The Relationship Between the *Draft East County Area Plan* and This EIR

The Draft East County Area Plan. The *Draft East County Area Plan* consists of two volumes: Volume 1: Goals, Policies and Programs, and Volume 2: Background Reports - Setting, Trends and Issues. Appendices at the end of the Background Reports contain detailed technical data.

- **Background Reports (Volume 2 of the *Draft East County Area Plan*).** The Background Reports provide a basis for both the DEIR and the policies and programs in the *Draft East County Area Plan*. The Background Reports describe existing conditions in the planning area and the region, trends based on changes occurring over the past few years and on growth projections. Based on such conditions, trends and growth projections, the Background Reports identify planning issues and policy implications to be addressed in the planning process.

The Background Reports are a master environmental assessment as contemplated by CEQA Guidelines Section 15169, which provides that such assessments may be prepared as a way to identify and organize environmental information for a region or area. The Background Reports contain an extensive analysis of the physical and biological characteristics of the area, including, among other things, a discussion of air quality, traffic, jobs/housing, water supply, and the capacities and levels of use of existing services and facilities. The Background Reports also provide the environmental and regulatory setting for the DEIR.

- **Goals, Policies and Programs (Volume 1).** The goals, policies, programs, Land Use Diagram and other features of the *Draft East County Area Plan* set forth in Volume 1 were developed to address planning issues and associated policy implications identified in the Background Reports (Volume 2 of the *Draft East County Area Plan*). The policies and programs contained in the *Draft East County Area Plan* were formulated specifically to address planning and environmental effects that would otherwise result from projected growth in the planning area and the region. This approach enabled development of a plan that is largely "self-mitigating," with substantial mitigating features already incorporated into the plan analyzed in the DEIR.

Draft Environmental Impact Report. The environmental analysis contained in the DEIR examines the potential effects of the *Draft East County Area Plan*. Thus, the DEIR's analysis focuses on whether significant environmental effects will result from implementation of the plan, including all of the policies and programs set forth in Volume 1 of the plan and the Land Use Diagram. Where the EIR's analysis concludes that a significant effect may result from implementation of the plan, the EIR recommends mitigation measures to address such impacts, if feasible, in the form of proposed additions or revisions to policies, programs, the Land Use Diagram or other features of the *Draft East County Area Plan*.

Data and analysis contained in the Background Reports provides supporting documentation for the information and analysis contained in the DEIR. In addition, the Background Reports provide the environmental setting and the regulatory setting for the DEIR.

As a program EIR, the DEIR (supported by the Background Reports) may be used as basis for the environmental review of subsequent projects. However, proposals for specific areas or development projects may require further, more site-specific, environmental review. (See CEQA Guidelines Section 15168).

In accordance with the requirements of state planning law, the *Draft East County Area Plan* is a comprehensive, long-term plan for the physical development of the planning area. Thus, the policies and programs developed for the plan are broad enough and flexible enough to accomplish plan purposes in the face of changes that might reasonably be expected to occur. Several years have been devoted to the process of developing the *Draft East County Area Plan*, and to the extent that changing conditions in the planning area and the region were relevant to the planning process, such changes were considered and addressed. Any changes that could be expected materially to affect the decisions made in the planning process were incorporated into the plan. Similarly, the DEIR is based upon the most current information reasonably available and, in accordance with CEQA Guidelines Section 15151, contains the most complete analysis reasonably feasible.

1.3 How This EIR Differs from a Project EIR

The EIR being prepared for the proposed project is a "Program" EIR. Pursuant to CEQA Guidelines Section 15168, a Program EIR is prepared for a series of related actions that can be characterized as one large project, such as a general plan, area plan, master development plan, or regulatory program. In contrast, a Project EIR, the most common type of EIR, examines the impacts that would result from a specific development proposal or other project. Program EIRs are generally prepared for projects that contain general parameters or conditions that will be applied to future activities and that will require subsequent agency discretionary approvals for future implementation. This Program EIR serves as an "umbrella" document for future environmental review.

In accordance with CEQA Guidelines Section 15146, the degree of specificity of this EIR corresponds with the degree of specificity involved in the underlying activity - i.e., adoption of a general plan amendment. Thus, the EIR is necessarily less detailed than would be an EIR for a specific construction project.

1.4 The Organization of This EIR and Analysis Approach

The Draft EIR is organized into the following sections:

Part I - Introduction: Provides an introduction and overview describing the purpose of the DEIR, the relationship between the *East County Area Plan* and this DEIR, the differences between this DEIR and a project EIR, and the review and certification process. An explanation of the terminology used in this document is also provided. A description of the regional context of the East County includes a discussion of major issues and trends facing the planning area and the region as a whole.

Part II - Project Description and Summary: Sets forth the project description including a description of the proposed plan, the geographical boundaries of the planning area, background information, and key policy-level characteristics. The project description

describes the relationship between the *East County Area Plan* and the *Alameda County General Plan*, the *South Livermore Valley Area Plan*, incorporated city general plans, and countywide and regional plans. It outlines the major objectives of the plan, describes growth projections for the East County, and includes a land use program. It includes a general description of the technical, economic and environmental characteristics of the project. It includes a credible worst-case scenario analysis and a discussion of plan consistency with other county plan elements. In addition, it includes a brief statement discussing the intended uses of the EIR.

The Impact and Mitigation Summary outlines environmental impacts that could result from implementation of the proposed plan, describes proposed mitigation measures where potential impacts are determined to be significant, and indicates the level of significance of impacts after mitigation.

Part III - Environmental Analysis and Mitigation Measures:

Discussion of each issue area is divided into the following sections:

- A. ***Existing Setting.*** Summarizes and, in some instances, updates more detailed information about the existing environmental setting of the project set forth in Volume 2 of the *Draft East County Area Plan* (Background Reports);
- B. ***Plan Policies and Programs Developed to Address Planning Issues.*** Summarizes the key plan policies and programs designed to address planning issues and policy implications identified in Volume 2 of the *Draft East County Area Plan* (Background Reports);
- C. ***Impact Analysis.*** Sets forth: (1) "criteria of significance" for each issue; (2) identification and analysis of potentially significant environmental effects of the plan; and (3) recommendation of mitigation measures, where feasible, to substantially lessen or avoid potentially significant environmental effects of the plan. Mitigation measures are recommended in the form of new policies or programs to be added to those set forth in Volume 1 of the *Draft East County Area Plan* or in the form of modifications to such policies or the *Draft East County Plan* Land Use Diagram.

Part IV - Alternatives and CEQA Considerations: Describes alternatives to the project and their associated environmental effects. Also compares the alternatives with the plan and identifies the environmentally superior alternative. Provides discussions required by CEQA regarding impacts that would result from the proposed project including: potential growth inducing impacts; cumulative impacts; significant irreversible effects; effects found not to be significant; and the relationship between short-term uses of the environment and maintenance and enhancement of long-term productivity.

Part V - Report Preparation and Appendices: Lists authors and contributors of the DEIR. Includes information on data sources, assumptions and methodology used in formulation of the proposed plan as well as technical information relating to various topic areas.

The East County planning area has been divided into 11 geographic subareas to facilitate discussion in situations where specific issues pertain to specific geographical areas. These subareas are: West Dublin, East Dublin/Doolan Canyon, North Livermore Valley, Altamont Hills, Mountain House, South Livermore Valley, South Ridgeland, South Pleasanton, Quarry, Pleasanton Ridgeland, and Sunol Valley. They are shown on Figure 1. Other than for purposes of orientation and discussion, the subareas have no planning significance.

1.5 The EIR Review Process

This Draft EIR will be published and circulated for review and comment by the public and other interested parties, agencies and organizations for a 45-day review period. All written comments about the DEIR should be addressed to:

Deborah Stein, Acting Assistant Planning Director
Alameda County Planning Department
399 Elmhurst Street
Hayward, CA 94544

Following the public review period, a Final EIR (FEIR) will be prepared which will include the DEIR, written and verbal comments received on the DEIR, a list of those who commented on the DEIR, and the county's responses to the comments. A Mitigation Monitoring Program will also be prepared for all impacts identified as significant in the FEIR.

The FEIR and Mitigation Monitoring Program will be submitted to the Planning Commission for recommendation as to approval, and then to the Board of Supervisors for a final decision. Approval of the project would be accompanied by written findings for each significant adverse environmental effect identified in the EIR, as required by CEQA Section 21081.

The EIR is an informational document used in the local planning and decision-making process. It is not the purpose of the EIR to recommend approval or denial of the project.

The purposes of review of this document by the public and by other agencies include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, identifying public concerns, and soliciting alternative proposals. In reviewing the document, the focus should be placed on the sufficiency of the document in identifying and analyzing possible impacts on the environment and determining ways in which the significant effects of the project might be avoided or mitigated. Comments that are most helpful are those that

identify additional impacts, alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects.

1.6 Terminology Used in This EIR

The EIR uses the following terms to denote the significance of impacts:

- a "less-than-significant" impact would cause no substantial adverse change in the environment;
- a "significant" impact is one that would cause (or potentially cause) a substantial adverse change in the environment;
- a "significant and unavoidable" impact is a significant impact for which no feasible mitigation is available to reduce the impact to a less-than-significant level (although mitigation may be available to substantially lessen the impact).

Section 15370 of the CEQA Guidelines defines mitigation as:

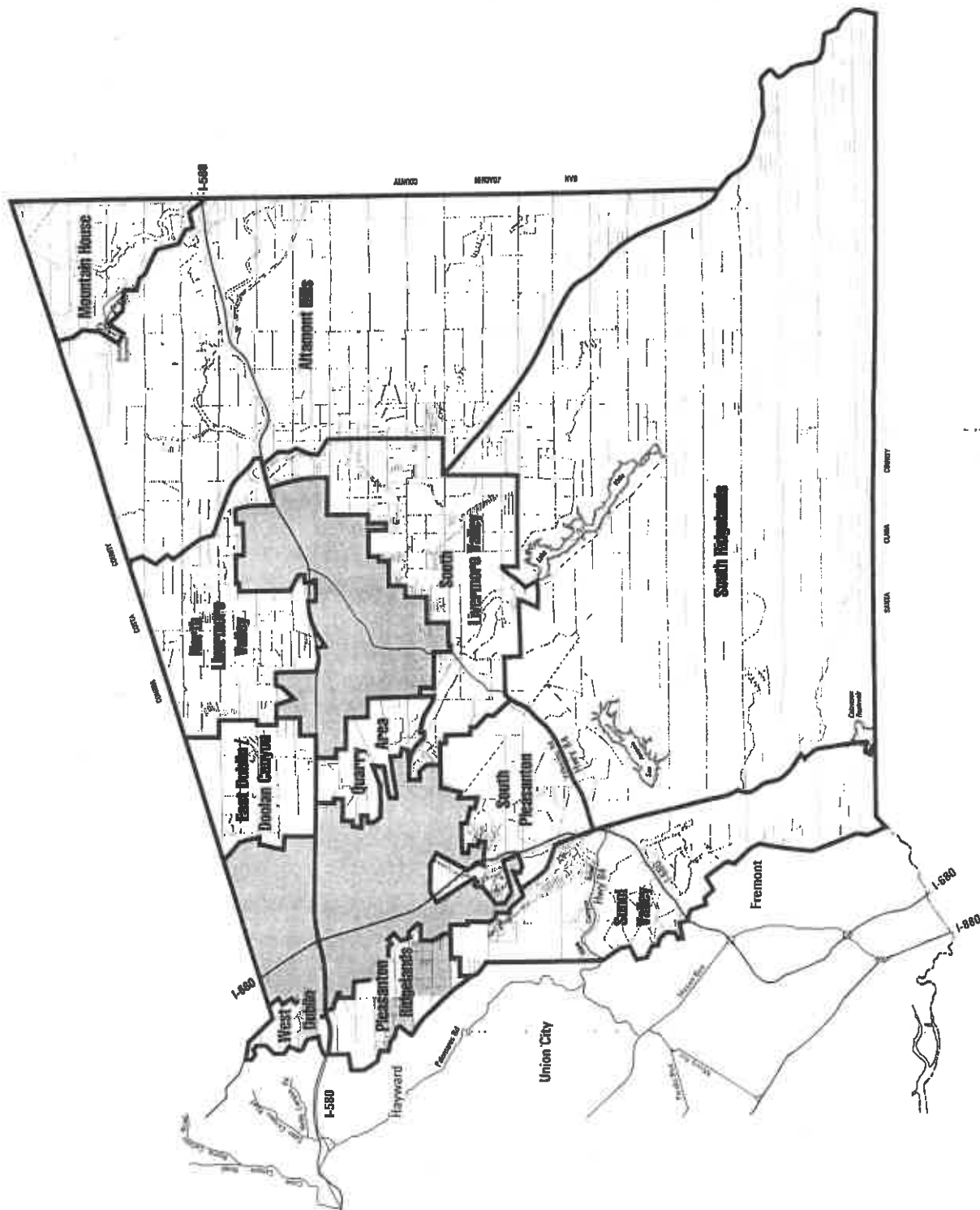
- avoiding the impact altogether by not taking certain action or parts of an action;
- minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- compensating for the impact by replacing or providing substitute resources or environments.

Geographic Subareas

LEGEND

 Incorporated Cities

NOTE: Subareas are based primarily on physical characteristics and correspond with existing descriptions in the background reports. Subareas may differ from CIP's study areas.



SOURCE: Alameda County Planning Department



FIG. 1



Chapter 2 - Regional Context

2.1 Description of East County and Tri-Valley Subregion

Description of Planning Area

The East County (formerly called the Livermore-Amador Valley Planning Unit) encompasses 418 square miles of eastern Alameda County and includes the cities of Dublin, Livermore, Pleasanton, and a portion of Hayward as well as surrounding unincorporated areas. The East County is part of the Tri-Valley subregion which includes incorporated and unincorporated areas of Contra Costa County including Danville, San Ramon, Blackhawk/Alamo and Dougherty and Tassajara Valleys. Figure 2 shows the boundaries of the East County planning area and Tri-Valley subregion and their location in the region.

History of Development in the East County

Settled in the mid-1800s, East County's first communities were based on an agricultural economy that was effectively isolated from the urban centers of the Bay Area until the 1920's. Livermore and Pleasanton, located on railroad lines that were extended through the valley during the 1860's and 1870's, were primarily farm centers, initially serving livestock ranching and grain farming, and later, more intensive agriculture including viticulture and fruit and nut orchards.

After 1920, the automobile and an improved road system helped to integrate the East County with the Bay region, stimulating population growth and an expanded, more diversified local economy. During World War II, the location of two major military bases in the Livermore-Amador Valley resulted in substantial population growth.

In the 1950's, nuclear research dominated the East County's economy with development of the (now called) Lawrence Livermore National Laboratory, Sandia Laboratories, and General Electric Vallecitos Nuclear Center. By the mid 1960s these three facilities accounted for more than half of all jobs in the planning area. The 1950s and 1960s also saw the beginnings of substantial suburban residential development as road access to Bay Area employment centers was enhanced. Interstate Route 580 was improved to expressway standards in 1955. Interstate Highway 680 was completed from Walnut Creek to Dublin in the late 1960s and from Dublin to San Jose in the early 1970s.

Residential growth was rapid through the 1960s and early 1970s, but declined during the latter half of the 1970s due to tightened financing, high interest rates, inflation, shortfalls in public services, and public resistance to rapid growth. Many of these constraints eased in the early 1980s, bringing renewed residential growth.

During the 1960s and 1970s, local employment growth was concentrated in retail and service sectors and local government serving the resident population. The Tri-Valley area was transformed from a bedroom community in the 1970s to a regional employment center during the rapid employment growth of the 1980s. The East County's economic base expanded beyond research and resident services as significant job opportunities in such areas as financial services and technology-related industries were provided. Most of these jobs are located in the many business parks that were constructed in the area. Between 1980 and 1990, the Tri-Valley gained more than 19,000 jobs from the construction of the Bishop Ranch and Hacienda Business Parks alone.

2.2 Land Use Trends and Issues

Rapid Growth

In the past 10 years, there has been a rapid decentralization of employment away from traditional job centers in cities next to the San Francisco Bay to outlying locations such as the Tri-Valley area. This shift in the location of employment and population growth conforms to an emerging new urban form whereby suburban "edge cities" have replaced the suburban bedroom communities which formerly surrounded the traditional central urban core.

The population of the East County has grown rapidly during the last thirty years, increasing over 360 percent since 1960. Over the next 15 or 20 years, ABAG projects a continued shift in the distribution of employment from Alameda County's Bay cities to Tri-Valley cities. Although the rate of employment growth for the Tri-Valley subregion is expected to be lower in the next twenty-year period (5.9 percent) than it was in the 1980s (10.3 percent), it will still be higher than that projected for the Bay region as a whole (1.6 percent). ABAG projections also show an increase in the rate of household and population formation in the East County from 4.3 percent annually in the 1980s to 5.2 percent between 1990 and 2010. The demand for housing has been intensified by the combined effects of the decreasing household size and the rapidly increasing population. As a result, the number of households has increased at a faster rate than the population. ABAG projections indicate that this trend will level off, with the number of households in the planning unit increasing by an estimated 104 percent between 1990 and 2010.

A 1991 survey of 48 businesses in the Tri-Valley area found that the cost and availability of raw land, the availability of existing leasable building space and the presence of a labor market (followed by political climate and proximity to the consumer) were the most important reasons for businesses choosing their business locations in the Tri-Valley rather than in one of the Bay cities. Regardless of this trend, the Bay cities are still projected to have over two-thirds of the total employment in Alameda County.

Growth has also shifted into adjacent counties. Urbanization has expanded beyond the nine-county San Francisco Bay region represented by ABAG into San Joaquin, Santa Cruz, and San Benito Counties, particularly because of more affordable housing opportunities in these

outlying areas. Unlike Alameda County and the rest of the Bay region, population growth in San Joaquin County is projected to increase to an average annual growth rate of 2.8 percent from 1990 to 2010. Employment growth is projected to increase to an average annual growth rate of 2.7 percent over the same period. Although not included in ABAG's projections, growth in San Joaquin County is tied to that in Alameda County and the Bay Area because of the large amount of commuting over the Altamont Pass.

Conversion of Open Space

Since 1980, the extent of urban development in the East County (as measured by land within existing city limits) has increased by 300 percent, from 10,100 acres in 1980 to the current 31,000 acres. Figure 6 shows urban expansion in the valley during the past decade (including potential expansion under the cities' existing spheres of influence) in terms of the total amount of developable, or relatively flat, land remaining. The East County planning area will continue to see rapid expansion of urban development across the floor of the Livermore-Amador Valley and into the surrounding hills as communities expand in response to growth and economic pressures. Virtually the entire valley floor and a good portion of the adjacent hill area has been or is being considered for development and eventual annexation. (See Alternative 2 which shows the planning areas for current city general plan amendment proposals.) The as-yet-undeveloped extended planning areas of the three cities (totalling about 52,000 acres) approach twice the amount of land within the cities' existing aggregated incorporated area (about 31,000 acres).

Buildout of Existing and Prospective Plans Would Create a Jobs/Housing Imbalance in the Tri-Valley

Existing and prospective general plan development scenarios for the Tri-Valley subregion were first analyzed by Economic Planning Systems, Inc. (Growth-Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, April 1990) for use in the Draft Subsequent Environmental Impact Report for the Tri-Valley Wastewater Authority's (TWA) Long-Range Wastewater Management Plan for the Livermore-Amador Valley (EIP Associates, January 1992). These scenarios were developed as a consequence of a court decision which had ruled that further analysis of growth-inducing impacts from TWA's proposed wastewater export capacity expansion was necessary to fulfill CEQA requirements.

To ascertain potential impacts on the subregion with no change to the Alameda County General Plan for the East County planning area, the general plan scenarios developed for the TWA document were adapted by Economic Planning Systems, Inc. (EPS) and the Alameda County Planning Department. (See also the "no-project" alternative discussions in *Chapter 6 - Evaluation of Alternatives*.)

The following is a summary of conclusions derived from the EPS analyses:

- Existing general plans in the East County do not provide sufficient housing to meet ABAG's projections of demand, but call for more employment than can be realistically absorbed by the year 2010.
- Development of prospective general plans (existing general plans and proposed amendments) in the East County, while improving the jobs/housing ratio over existing general plans, would still result in employment exceeding local housing supply by significant amounts.
- Development of prospective general plans in the East County would result in an oversupply of housing affordable to households earning over \$94,000 and undersupply of housing affordable to households earning less than \$28,400 (representing a deficit of 32,000 units) and to households earning between \$28,400 and \$66,200 (representing a deficit of 18,000 units).
- If a deficit of housing occurs, it will result in long commutes that will greatly increase traffic congestion and air pollution. A housing deficit will continue to drive up home prices by widening the gap between supply and demand. Effects would also be felt beyond the East County's borders: increased demand for housing in the Central Valley to house East County workers may raise housing costs out of reach of current Central Valley residents, and would strain the ability of these communities to provide necessary infrastructure and services without benefit of the bay cities' tax base.
- Continued economic development requires an adequate supply of housing for the workers filling newly-created jobs. (Employment growth of approximately 71,000 additional jobs in the East County is projected by 2010.) Without an adequate supply of housing, employment and commercial opportunities may be lost to more distant jurisdictions.
- Economic growth in the East County has already begun to increase development pressure in the Central Valley, resulting in a loss of productive agricultural land, a loss of Alameda County jobs to San Joaquin County, and the attendant environmental effects of long commute distances for the East County workers who are forced to seek affordable housing east of the Altamont Pass.

Uncertainty Regarding East County Growth

Among the greatest uncertainties surrounding urban land use in the East County in the 1990s is the magnitude and timing of development—due mainly to political considerations, transportation limitations, potential wastewater disposal constraints, and the limited existing water supply. A number of ways are being examined to overcome the existing wastewater disposal and water supply constraints (refer to the *Wastewater and Water Supply Background*

Reports in the *Draft East County Area Plan - Volume 2* and Chapters 5.13 and 5.14 in this DEIR)

Uncertainty Regarding Transportation Improvements and Technology

Another uncertainty which affects the realization of the *East County Area Plan* is the improvement of the regional transportation system. Planning to accommodate future levels of growth for twenty years or more is difficult, given current technological and funding limitations. It should be noted that technology and funding sources are likely to change over the 17+ year period of the *East County Area Plan*. These funding sources also are difficult to predict considering the seven year funding cycle currently used by Metropolitan Transportation Council and the Alameda County Congestion Management Agency. Other sources of local funds may become available, e.g., the recently adopted Livermore Traffic Impact Fee of approximately \$2,100 per unit.

The effect on the East County's transportation system from major land use proposals in San Joaquin County will be limited by capacity constraints on Interstate-580 going over the Altamont Pass. Once the capacity threshold is reached, given all feasible improvements, additional growth in San Joaquin County will not further affect traffic conditions in the planning area. This traffic constraint is reflected in the Tri-Valley Transportation Model used in this EIR traffic analysis by limiting traffic volumes on the Altamont Pass to those which can be accommodated by planned capacity improvements.

Accommodation of Growth in a Nonattainment Area

The amount and rate of population and traffic growth will affect whether and how much ozone air quality improves in the future. Housing prices and local resistance to new development in metropolitan areas of the East Bay have accelerated growth in fringes of the Bay Area, and the past decade has seen pressure to develop new housing in the western San Joaquin Valley for Bay Area employees. The transformation of the Livermore-Amador Valley over the past twenty years from a suburban area to employment center, with western San Joaquin County now providing inexpensive housing, has resulted in an upsurge in travel on the I-580 corridor and increasing congestion. From an air quality standpoint, the trend toward long-distance automobile commuting from the San Joaquin Valley to the Livermore-Amador Valley is a trend in the wrong direction. Dispersed, low-density development away from employment centers maximizes the use of the single-occupant automobile at a time when the goal is reduced auto travel.

Greatly restricting growth in the Livermore-Amador Valley could result in additional pressure to develop in the San Joaquin Valley and other outlying areas, resulting in forced longer commutes with proportional worsening of air quality as a result of additional emissions.

Increased Concern for the Efficient and Cost-Effective Provision of Infrastructure and Services

The provision of adequate infrastructure (e.g., roads, sewers, sewage treatment capacity) and public facilities (e.g., schools, libraries, police and fire stations, parks) is placing an increased burden on local government budgets. While capital costs of expanding capacity to serve new development can often be covered by fees levied on new construction, the cost of maintenance and reconstruction must be funded from other revenue sources.

Introduction of BART into the East County

Construction has begun on the BART extension in the median of I-580 to the Dublin/Pleasanton area and service is expected to begin in 1995. Phase II of the project is expected to extend BART along I-580 to Livermore sometime after the year 2010. The introduction of BART into the East County provides an important link between the burgeoning East County communities and the metropolitan area to the west, as well as the region. While responding to existing transportation problems by reducing reliance on the automobile, the improved access to the Livermore-Amador Valley also presents both challenge and opportunity for the future of the area. The challenge is to address the potential growth-inducing impacts resulting from the introduction of BART in a way that will be beneficial to the area. The potential for development around proposed BART stations presents the opportunity for compact, transit-oriented development that will take full advantage of proximity to the stations.

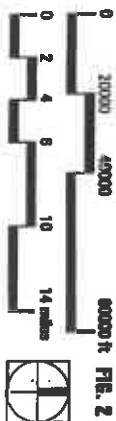
Intensification of Urban Land Uses

A review of recent large-scale development proposals in the planning area indicates a trend toward higher intensity urban forms. The City of Pleasanton has recently rezoned some excess commercial and industrial land for high density residential use. The recently adopted East Dublin proposal is an example of a major new development project which promotes a compact development pattern.

A consequence of intensifying urban land uses is likely to be increased attention to the necessities and amenities needed to maintain and enhance quality of life within higher density urban areas. This is likely to include a wide variety of issues, such as:

- provision of a variety of housing types including affordable housing and housing for special needs groups (e.g., seniors and disabled);
- increased attention to urban design to provide a safe and attractive urban environment for pedestrians, and improvements in public transit to and from urban centers;
- development or redevelopment of urban parks and recreation areas to make them more attractive, usable, and safe, particularly for senior citizens and families with children;
- provision of cultural and entertainment facilities convenient to higher density residential areas.




These urban design and level of service standards have found increasing support from citizens, local governments, and developers as environmental and economic resources have become more limited.



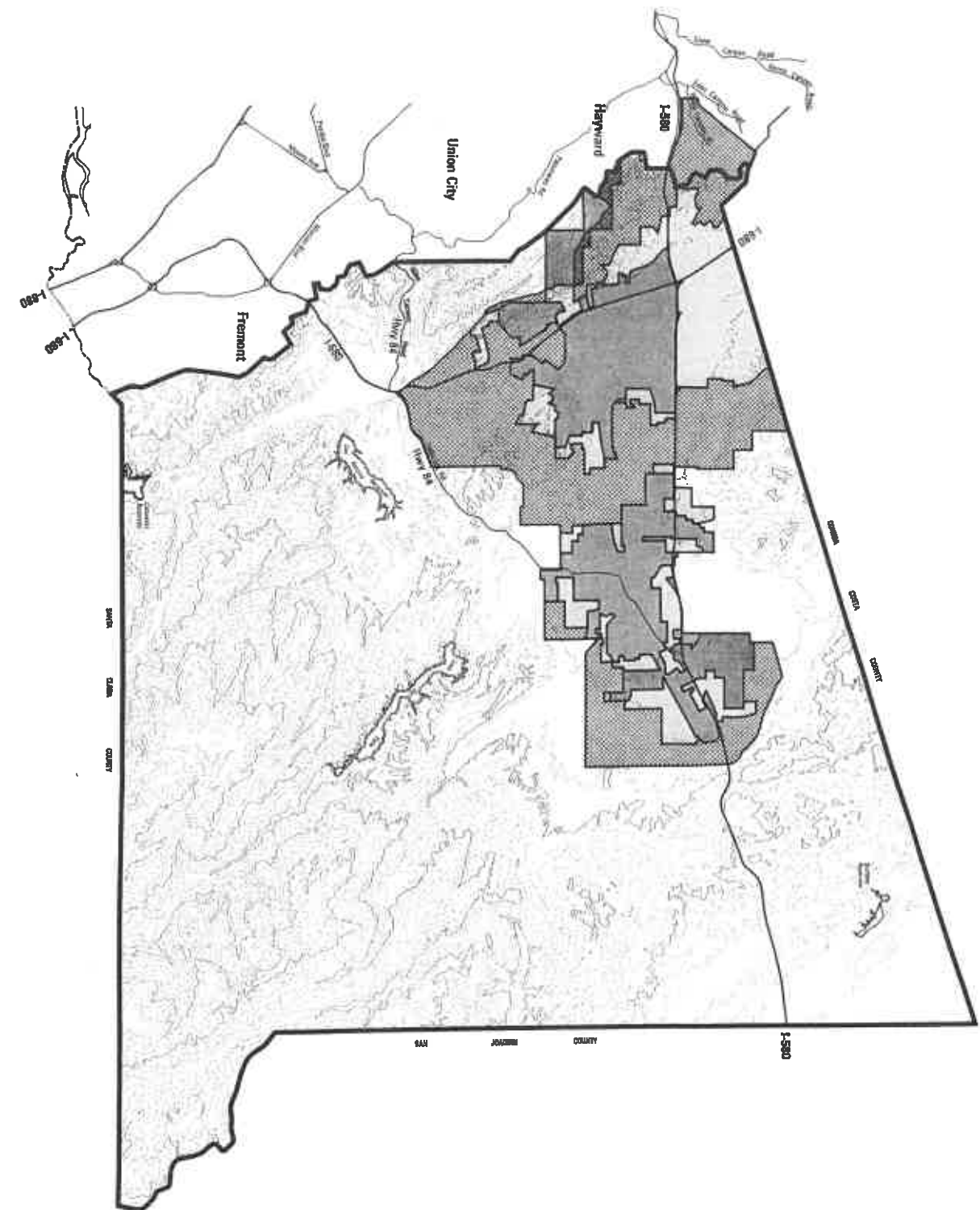
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Urban Expansion

LEGEND

-  1980 City Limits
-  1992 City Limits
-  City Spheres of Influence, 1992

NOTE: No alterations are made on this map between the City Limits and Spheres of Influence of Dublin, Hayward, Livermore and Fremont.



SOURCE: Alameda County Planning Department

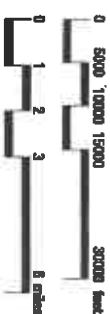


FIG. 3

Chapter 3.- Project Description

3.1 Relationship between the *East County Area Plan* and the *Alameda County General Plan*

The *East County Area Plan* is a portion of the *Alameda County General Plan*. This area plan supersedes the *Livermore-Amador Valley Planning Unit General Plan*, adopted by the Alameda County Board of Supervisors on November 3, 1977.

The *East County Area Plan* is one of three area plans which will be prepared and adopted to cover the unincorporated county. Subsequent phases in the Alameda County General Plan review and update process will include preparation of two other area plans, the *Castro Valley Area Plan* and the *Eden Area Plan*, as well as consolidation and updating of five countywide functional elements: 1) Regional Element; 2) Housing Element; 3) Energy Element; 4) Natural Resources, Recreation and Open Space Element; and 5) Safety and Noise Element. Area plans address area specific issues (i.e., land use, open space, circulation, noise, seismic hazards, public facilities and services) that affect both unincorporated and incorporated areas, but have legal regulatory effect only within currently unincorporated areas. Functional elements address broader issues on a countywide basis and provide a comprehensive and consistent policy framework for the more specific area plans.

Amendments to the Countywide functional elements are proposed to accompany adoption of the *East County Area Plan* in order to achieve consistency within the *Alameda County General Plan*. These associated amendments are outlined at the end of this Project Description.

3.2 Project Location

The East County (formerly called the Livermore-Amador Valley Planning Unit) encompasses 418 square miles of eastern Alameda County and includes the cities of Dublin, Livermore, Pleasanton, and a portion of Hayward as well as surrounding unincorporated areas. The planning area extends from the Pleasanton/Dublin ridgeline on the west to the San Joaquin county line on the east and from the Contra Costa County line on the north to the Santa Clara County line on the south. The East County is part of the Tri-Valley subregion which includes incorporated and unincorporated areas of Contra Costa County including Danville, San Ramon, Blackhawk/Alamo and Dougherty and Tassajara Valleys. Figure 2 shows the boundaries of the East County planning area and Tri-Valley subregion and their location in the region.

3.3 Relationship between *East County Area Plan* and Incorporated City General Plans

The *East County Area Plan* contains policies and programs addressing land use issues within unincorporated and incorporated areas in East County. Alameda County has jurisdictional control over all unincorporated areas until such time as they may be annexed to a city. Unincorporated areas in East County include some areas under current or recent consideration by the cities of Dublin, Livermore and Pleasanton for general plan amendments (Western Dublin and Eastern Dublin, North Livermore, and West Pleasanton, respectively). The *East County Area Plan* designates land uses and prescribes policies for these and all other unincorporated areas. In some instances, the plan also recommends that cities take certain actions within their city limits. These recommendations are voluntary and are made in the interests of subregional planning and cooperation.

In formulating the Land Use Diagram for the *East County Area Plan*, the County recognized all land uses planned in the existing city general plans located within existing city limits. However, in formulating the plan's holding capacity (defined as the maximum amount of development that can be accommodated within an area if all land uses shown on the Land Use Diagram were to be built at assumed mid-point densities, expressed in terms of maximum population, housing units, and employment), the County assumed fewer jobs than planned for under the existing city general plans due to commute constraints and the resulting lack of a labor supply. (Assumptions and methodology underlying the plan's holding capacity is explained in detail in Appendix A; comparison of the plan's land use designations with city general plans and general plan amendments is outlined in Appendix B.)

3.4 Relationship between *East County Area Plan* and Countywide and Regional Plans

The *East County Area Plan* is discussed within the context of the following countywide, subregional or regional plans as appropriate in the related topic area in this DEIR document:

- Alameda Countywide Transportation Plan
- Alameda County Congestion Management Program
- Alameda County Waste Management Plan and Hazardous Waste Management Plan
- Alameda County Flood Control and Water Conservation District, Zone 7, Arroyo Management Plan
- Alameda County Fire Protection Master Plan
- Alameda County Storm Water Management Plan, Urban Runoff Clean Water Program
- Alameda County Specific Plan for Livermore-Amador Valley Quarry Area Reclamation
- Alameda County Airport Land Use Policy Plan
- Bay Area Air Quality Management District, San Francisco Bay Air Basin Plan
- California Department of Conservation, Division of Mines and Geology, Designation of Regionally Significant Construction Aggregate Resources

Contra Costa County General Plan
East Bay Regional Park District Master Plan
Livermore Area Recreation and Park District Master Plan and Trail Master Plan
Metropolitan Transportation Commission, Regional Transportation Plan
Santa Clara County General Plan
San Francisco Regional Water Quality Control Board Basin Plan
San Joaquin County General Plan
Tri-Valley Transportation Plan
Tri-Valley Wastewater Authority's Long-Range Wastewater Management Plan for the
Livermore-Amador Valley

3.5 Intended Uses of This EIR

This EIR will be used by the Alameda County Planning Commission and Board of Supervisors in making an informed decision about the project. As a "program" EIR, the Planning Commission and Board of Supervisors may also rely on this EIR in connection with later, more specific land use plans and development proposals. The EIR will also be used by the following "responsible agencies" (as defined by CEQA) in making discretionary decisions for subsequent projects within the project area:

- Local Agency Formation Commission (LAFCO)
- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- Regional Water Quality Control Board
- California Department of Transportation, District 4
- San Francisco Regional Water Quality Control Board

3.6 Major Objectives of the Plan

The proposed *East County Area Plan* is intended to serve as a guide for action in managing the subregion's development and meeting the challenges of the next twenty years and beyond. The major objective of the plan is to accommodate projected growth in such a way that pays for the acquisition and management of valuable resource areas, protects limited resources, provides economic incentives to place or retain agricultural lands in production, achieves a match between local jobs and the local workforce, provides fiscal benefits to the cities and the County, and preserves a high quality of life for existing and future County residents.

3.7 Major Features of the Plan

In summary, the major features of the *East County Area Plan* are as follows:

- The *East County Area Plan* includes a Land Use Diagram showing future development for the entire East County planning area, inclusive of incorporated and unincorporated areas; as such, the document presents a cumulative development scenario for the subregion. New residential, commercial and industrial development is proposed in concentrated areas in two locations: the North Livermore Valley and East Dublin subareas. The Land Use Diagram is described in more detail in Section 3.11 later in this chapter.
- Plan policies promote subregional coordination and cooperation by facilitating land use planning among East County jurisdictions. The intent of the plan is to synthesize city general plans, proposed general plan amendments, County proposals for unincorporated areas, and regional policies which affect land use and transportation planning by local jurisdictions. The plan promotes a cooperative approach between jurisdictions which recognizes those environmental, social, and economic characteristics of the subregion that extend beyond jurisdictional boundaries. Implementation of the plan will include information sharing and consultation between jurisdictions at early stages of project review. It is hoped that the cities and other governmental agencies will concur with the plan's recommendations and will voluntarily take those actions within their powers to implement the plan.
- The *East County Area Plan* draws an Urban Growth Boundary to differentiate between lands in the East County suitable for urban development (based on physical characteristics such as terrain and soils, proximity to transportation corridors, and ability to provide urban-level services) and lands suitable for agriculture, biological habitat, open space and recreation, production of windpower or mining, and open space buffers to separate communities. This boundary encloses sufficient lands to accommodate the planned ultimate holding capacity, described below. The boundary -- in concert with policies about phasing, design, and density -- will contain growth in the East County, prevent sprawl, and help control speculation in remote areas by eliminating guesswork about future land use decisions. The line is also intended to provide certainty regarding development potential to assist in long-range planning for infrastructure financing, agricultural investment, and environmental protection. Policies and programs requiring open space dedication, fee purchase, easements, and other mechanisms will contribute to the durability of the boundary over time.
- The plan establishes holding capacities for 2010 and buildout for the entire East County -- inclusive of incorporated and unincorporated areas. The 2010

holding capacity accommodates ABAG's projected growth for the East County over the next two decades while achieving a **balanced jobs/housing ratio**. The buildout holding capacity provides for additional growth within the urban boundary if foreseeable traffic and other infrastructure constraints can be overcome.

- **Plan policies direct the County to facilitate attainment of ABAG regional housing share objectives** for all income categories within the East County, and encourage East County cities to meet their respective city regional housing share objectives as well. By itself, a numerical balance between planned jobs and housing units does nothing to solve a community's traffic congestion and air quality problems. To be meaningful, a jobs/housing balance must take affordability into account: housing units must be priced to match the incomes of the projected workforce and located within a reasonable commute distance to achieve measurable improvements to the environment. Such a match is critical in the East County to reverse the trend of commute traffic on I-580 through the Altamont Pass. Plan policies require provision of a mix of housing types and price levels -- including moderate and low-income housing-- within the project boundaries of major new urban developments.
- The plan recognizes that **compact development** results in more efficient use of land and infrastructure, and less conversion of open space, than low-density sprawl. The plan supports major new urban development only if it is designed to be transit- and pedestrian-oriented, will not impose a fiscal burden on either the County or cities, and if it includes a mix of residential and commercial uses, a range of housing prices, dedicated open space, and a full range of public facilities and amenities. Level of service and general design guidelines for major new urban development are included in the *East County Area Plan*; major new urban developments can be approved by the County only if consistent with these guidelines.
- **Mitigation for cumulative habitat loss** can best be accomplished through comprehensive and permanent open space preservation and maintenance, rather than project-by-project, single species mitigation undertaken on isolated sites. To preserve the biodiversity of the subregion, the plan identifies open space areas outside of the Urban Growth Boundary that include a variety of plant communities and wildlife habitats -- not just "special status" communities -- and that are interconnected with other adjacent open space areas. "Resource Management" lands outside the Urban Growth Boundary, to be acquired through fee purchase, dedication, easements and/or density transfer, will serve as mitigation for cumulative loss of biological resources. The plan requires that funding be set aside for long-term land management to ensure the success of the mitigation over time.

- The plan proposes that a countywide **Open Space Land Trust** be established to acquire fee title or easements on strategic parcels which would complete a contiguous public open space system surrounding Eastern Dublin, North Livermore, South Livermore, and West Pleasanton in order to permanently secure the Urban Growth Boundary. The plan also directs the County to work with this land trust to ensure that adequate funds are available to carry out on-going management of open space.
- To maximize long-term productivity of the planning area's agricultural resources, the plan provides incentives to landowners to stimulate agricultural investment. The County will establish a non-profit **South Livermore Valley Agricultural Land Trust** and will encourage cities in East County to adopt policies and programs to provide additional funds for this land trust.
- The plan recognizes the regional value of **special resource areas** in East County: the Altamont Pass Wind Resource Area and the state-designated Regionally Significant Construction Aggregate Resource Sectors. Policies in this plan encourage continued productive use of the resources, and ensure compatibility of quarry and windpower operations with surrounding land uses. Quarrying activity and windpower operations will be governed by policies and programs to ensure protection of biological and other environmental resources. Future uses planned for reclaimed quarry sites include water storage and management, urban development, and open space with restored biological value.
- The plan proposes a comprehensive and jointly prepared water plan to assure effective management and long-term allocation of water resources in the Valley, to develop a contingency plan for potential short-term water shortages, and consistent water conservation and reclamation programs to maximize the available supply.

3.8 Relationship between *East County Area Plan* and *South Livermore Valley Area Plan*

The *Draft East County Area Plan* incorporates the *Draft South Livermore Valley Area Plan* (as adopted by the Planning Commission on January 4, 1993) in its entirety. The *Draft South Livermore Valley Area Plan* contains goals, policies, and programs that pertain to the South Livermore Valley subarea, as delineated in the *Draft East County Area Plan*. The Board of Supervisors adopted the final *South Livermore Valley Area Plan*, which consists of the draft plan with only minor modifications, on February 23, 1993, subsequent to the completion and distribution of the *Draft East County Area Plan*. It is the intention of Planning Department staff that the final *South Livermore Valley Area Plan* be incorporated

into the final *East County Area Plan* in place of the *Draft South Livermore Valley Area Plan*.

The major objectives of the *South Livermore Valley Area Plan* are as follows:

- **Expansion of cultivated agricultural, particularly viticultural, use in the South Livermore Valley from the current 2,100 acres to the maximum acreage possible, with a minimum acceptable level of 5,000 acres.**
- **Development of additional wineries with a range of sizes, and other wine-country uses that promote the area as a premier wine-producing area.**
- **Formation of a land trust to permanently protect productive and potentially productive cultivated agricultural lands in the South Livermore Valley.**
- **Prohibition of additional development unless it will directly further the plan purpose of expanding and enhancing cultivated agriculture.**
- **Limitation on further urbanization within the plan area to areas under City jurisdiction and to development that substantially enhances cultivated agriculture.**
- **Creation of a permanent boundary and open space buffer between the cities of Pleasanton and Livermore in the South Livermore Valley.**
- **Establishment of a framework, consistent with other plan goals and objectives, for the consideration of development entitlements that will result in the planting of the maximum number of acres of new vineyards, with a minimum acceptable level of 5,000 acres, and fees necessary to achieve the overall goals and objectives of the plan in a timely and reasonable manner.**

An environmental impact report which addresses potential environmental impacts of the *South Livermore Valley Area Plan* was certified by the Board of Supervisors on February 11, 1993. The *East County Area Plan Draft Environmental Impact Report* incorporates the *South Livermore Valley Area Plan Final Environmental Impact Report* (as certified by the Board of Supervisors) in its entirety; therefore, the environmental effects of the *South Livermore Valley Area Plan* are not specifically analyzed in this DEIR document except where the effects are relevant in a cumulative context (that is, in combination with related effects of the *East County Area Plan*).

The *South Livermore Valley Area Plan Final Environmental Impact Report* (State Clearinghouse Number 92033037) is available for public review at the Alameda County Planning Department offices.

3.9 Growth Projections for East County

A major component of the Alameda County general plan update for East County has been ABAG's Projections 92 (July 1992) population and employment growth estimates to the year 2010. These estimates, which represent combined growth in both cities and county, provide the basis for the draft plan's 2010 holding capacity. Table 3.1 below shows projected increases in population, housing and jobs in the East County by 2010.

TABLE 3-1 Projected Growth Increases in East County (1990 to 2010)			
Growth Category	Existing (1990)	Projected (2010)	Increase
Jobs	69,180	151,560	82,380
Housing Units	49,950	94,310	44,360
Population	135,820	250,700	114,880
Source: 1990 population and housing data from U.S. Census of Population and Housing Summary Tape File-1A, 1992; 1990 employment data and 2010 projections from ABAG <u>Projections 92</u> , July 1992			

ABAG estimates that the East County's annual rate of household and population growth over the next two decades will be 5.2 percent, up from 4.3 percent annually in the 1980s. During the same period of time, ABAG projects employment in East County will grow at an annual rate of 5.9 percent, down from 10.3 percent in the 1980s. Although California's recession will probably slow projected employment growth below the 5.9 percent annual increase for the next couple of years, growth projections for 2010 remain unchanged (ABAG Projections 92 Recession Update, December 1992).

3.10 East County Area Plan Land Use Program - Holding Capacities at 2010 and Buildout

Table 3.2 below summarizes the development potential allowed under the *East County Area Plan*.

TABLE 3-2

East County Area Plan Holding Capacities at 2010 and Buildout

Time Frame	Population	Housing Units	Jobs
Year 2010	250,700	94,550	151,560
Buildout	287,000	108,000	160,000

Note: Assumes a 5 percent vacancy rate and 2.8 persons per household.

Source: Year 2010: ABAG Projections 92, July 1992; buildout: Alameda County Planning Department

The 2010 holding capacity for the proposed plan reflects ABAG's growth projections for East County (based on ABAG Projections 92). All cities in the planning area and Tri-Valley subregion have agreed upon the projections as the common holding capacity for the Tri-Valley and the basis of the traffic model being developed by the Tri-Valley Transportation Council.

The buildout holding capacity for the proposed plan has just about the same population and housing as prospective general plans for the East County planning area (at the time the plan was being formulated) but scales back employment potential in response to two objectives: (1) to realistically address the in-commute constraint on the transportation gateways leading into East County which suggests there should be a reduction of employment generating land uses, and (2) the desire to achieve a jobs/housing balance (which requires a further reduction of new commercial and industrial uses). Refer to Appendix A for additional explanation.

The buildout holding capacity represents full buildout of the Land Use Diagram at residential densities and floor-area-ratios that are somewhat lower than the maximum intensities legally possible under the *East County Area Plan*. This approach is intended to create a credible worst-case full buildout scenario (see discussion under 3.12 below). Refer to Appendix A for specific assumptions underlying the buildout calculations.

Table 3.3 below quantifies by subarea the increase in development allowed under the *East County Area Plan* from 1990 to buildout in terms of housing units and employment. As shown in the table, these subareas include Dublin, Eastern Dublin, West Dublin, Livermore, North Livermore, South Livermore, Pleasanton, Pleasanton Ridge, and Remainder Unincorporated. Because subareas are defined by Tri-Valley Traffic Zones developed for the Tri-Valley Transportation model (see Figure 4) and may not conform to city general plan and general plan amendment areas, subarea data for 1990 and buildout was aggregated to reflect likely incorporated/unincorporated status. These data, useful in analyzing potential service impacts, is shown in Table 3.4. (Housing totals for 1990 differ slightly between the two tables due to different data sources.)

3.11 East County Area Plan Land Use Diagram - Location of Future Development

The *East County Area Plan* defines an Urban Growth Boundary which encloses sufficient lands to accommodate the planned ultimate holding capacity (see Figure 5). Land within the boundary is intended for urban development while outlying land is generally reserved for open space, agriculture, and parks (see Figure 6 for the plan's Open Space Diagram). Most new urban development occurs in the unincorporated portions of the Eastern Dublin and North Livermore subareas. General criteria for locating the Urban Growth Boundary are listed on Table 2 in the plan document; criteria generally reflect the suitability of the land in terms of environmental sensitivity (e.g., topography and soil stability), resource protection areas (e.g., agricultural lands, biological habitat, and prominent ridgelines), and availability of infrastructure, in addition to provision of community buffers. The *East County Area Plan* Land Use Diagram (inserted separately in the plan document) illustrates the proposed East County land uses. Land use designations, allowable densities and typical uses are described below in Table 3.5.

In addition to general environmental criteria, the geographic distribution of land uses are generally based on the following plan documents:

- (1) Land uses in the Dublin area are generally based on the Dublin General Plan (adopted February 11, 1985) and Eastern Dublin General Plan Amendment, except for Doolan Canyon. Land uses in Doolan Canyon and West Dublin are based on existing agricultural designations in the Livermore-Amador Valley Planning Unit General Plan (adopted 1977) and Alameda County Open Space Element (adopted 1973).
- (2) Land uses in the Livermore area are generally based on the Livermore General Plan (as amended to November 14, 1988) and South Livermore Valley General Plan Amendment (Adopted February 23, 1993), except for North Livermore. Land uses in the unincorporated North Livermore area are based on the Major New Urban Development Criteria shown in Table 6 of the draft plan document and a holding capacity of 23,310 housing units and 8,100 jobs as calculated by the Alameda County Planning Department.
- (3) Land uses in the Pleasanton area are generally based on the Pleasanton General Plan (as amended to 1992), except for the Pleasanton Ridgeland. Land uses in the Pleasanton Ridgeland are based on existing agricultural designations in the Livermore-Amador Valley Planning Unit General Plan (as adopted in 1977) and Alameda County Open Space Element (as adopted 1973).
- (4) In the remaining unincorporated areas, although some of the land use designations are new, allowable land uses remain more-or-less the same as those allowed under the Livermore-Amador Valley Planning Unit General Plan (as adopted 1977) and Alameda County Open Space Element (as adopted 1973) with the exception of South Livermore.

Land uses in South Livermore are based on the *South Livermore Valley Area Plan* (February 23, 1993).

Residential land use designations shown on the *East County Area Plan* Land Use Diagram are aggregations of land use categories established in the Dublin, Livermore, and Pleasanton General Plans. Correspondence tables showing the relationships between city and East County land use designations are contained in Appendix B. Because of the scale of the *East County Area Plan* area, smaller neighborhood uses such as neighborhood parks and elementary and middle schools are not shown on the Land Use Diagram. The location of these facilities in unincorporated areas is shown on Figure 5 in the plan document and their location in incorporated areas is shown in respective city general plans.

TABLE 3-3

**Increase in Housing Units and Jobs by Subarea
Under Buildout of East County Area Plan**

Subarea	Existing Conditions (1990)		East County Area Plan (Buildout)		Increase Under the Plan	
	Housing Units	Jobs	Housing Units	Jobs	Housing Units	Jobs
Dublin	6,518	12,634	6,692	12,758	174	307
Eastern Dublin	53	455	16,473	20,572	16,420	20,117
West Dublin	894	291	925	291	31	0
Livermore	21,719	31,930	27,243	55,849	5,524	25,345
North Livermore	138	336	23,310	8,167	23,172	7,831
South Livermore	172	3,833	2,820	4,055	2,648	222
Pleasanton	20,762	31,930	30,054	58,111	9,292	29,748
Pleasanton Ridge	18	0	60	0	42	0
Remainder Unincorporated	300	100	470	100	170	0
Total East County	50,574	69,180	108,047	159,903	57,473	83,570

Notes: Subareas are defined by Tri-Valley Traffic Zones developed for the Tri-Valley Transportation model (see Figure 4) and may not conform to city general plan and general plan amendment areas.

Assumes 2.83 persons per household in 1990 and 2.8 in 2010 and buildout for Tri-Valley, per ABAG Preliminary Projections 92, March 1992; assumes a 5% vacancy rate; variations in household size and vacancy rates among subareas may affect population estimates; totals do not match ABAG 1990 estimates or U.S. Census of Housing and Population Summary Tape File - 1A, 1992 (See Table 3.4) due to differing data collection procedures.

Source: 1990 housing data from ABAG Projections 90 as disaggregated into subareas by Economic Planning Systems, Inc.; 1990 employment data from ABAG Projections 92, July 1992 (employment data for each city includes that city's sphere-of-influence); buildout population and housing unit totals from Alameda County Planning Department as disaggregated into subareas by Economic Planning Systems, Inc. Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992

TABLE 3-4

Population Distribution: Incorporated vs Unincorporated (1990 and ECAP Buildout)

	1990			ECAP Buildout		
	Population	Housing Units	Employment	Population	Housing Units	Employment
Incorporated	130,753	48,037	68,370	223,511	84,027	150,815
Dublin	23,229	6,992	13,380	64,079	24,090	33,621
Pleasanton	50,783	19,556	31,930	82,976	31,194	58,111
Livermore	56,741	21,489	23,060	76,456	28,743	59,083
North Livermore	N/A	N/A	N/A	62,005	23,310	8,167
Unincorporated	5,066	1,913	810	1,889	710	921
Totals	135,819	49,950	69,180	227,405	108,047	159,903

Notes: 'ECAP Buildout data was developed by subarea (see Table 3.3 and Figure 4), then aggregated to reflect incorporated or unincorporated status. The aggregation of subareas and employment potential was based on the following assumptions:

Dublin: includes West Dublin; assumes East Dublin is annexed to Dublin; assumes 20% of Dublin's industrial/commercial/office acreage is not absorbed due to lack of labor supply;

Pleasanton: includes a portion of South Livermore recently annexed to Pleasanton; assumes 10% of Pleasanton's industrial/commercial/office acreage is not absorbed due to lack of labor supply;

Livermore: assumes urban development under the South Livermore Valley Area Plan will be annexed to Livermore; Sandia and Livermore Labs are included in the job totals; assumes 45% of Livermore's industrial/commercial/office acreage is not absorbed due to lack of labor supply;

North Livermore: assumes development in North Livermore may be either annexed to Livermore or remain unincorporated; and

Unincorporated: includes Remainder Unincorporated, Pleasanton Ridge, and rural development under the South Livermore Valley Area Plan; most jobs in the unincorporated area come from the U.S. Veterans Hospital and agriculture; the 1990 population is higher than the buildout population because it is assumed that the cities will annex most of their currently unincorporated adopted general plan areas

Sources: 1990 population and housing data from U.S. Census of Population and Housing, Summary Tape File 1A, 1992; 1990 employment data from ABAG Projections 92, July 1992 (employment data for each city includes that city's spheres-of-influence); buildout population, employment and housing unit totals from Alameda County Planning Department

TABLE 3-5 East County Land Use Designations, Densities, and Uses		
Land Use Category	Allowable Gross Density	Typical Uses
Residential		
Rural Density	Less than 1 unit/acre	40,000 + square foot single family lots
Low Density	1.0-4.0 units/acre	6,000 - 40,000 square foot single family lots; may include multiple family units
Medium Density	4.1-8.0 units/acre	3,000 - 6,000 square foot single family lots; may include multiple family units
Medium/High Density	8.1-12.0 units/acre	Townhouses, Attached single family homes
High Density	12.1-25.0 units/acre	Townhouses, Condominiums, and Apartment Buildings
Very High Density	25.1-75.0 units/acre	Condominiums and Apartment Buildings
Industrial/Commercial		
Major Commercial	Maximum .6 FAR	Retail, Service, and Office Uses
Industrial	Maximum .4 FAR	General and Light Industrial Uses
Mixed Use/ Business Park	Maximum .5 FAR	Office, Industrial, General Commercial, and Residential Uses
Other		
Urban Reserve	No Density Assumed Until Specific Plans are Prepared; Otherwise Maximum .01 FAR; 100 acre minimum parcel size	Reclaimed Quarry Lands; Low Intensity Industrial or Agriculture
Major Public Facilities	Maximum .6 FAR	Airports, Hospitals, Jails, Utilities

(Table 3.5 is continued on the next page)

TABLE 3.5 (cont.)		
East County Land Use Designation, Densities, and Uses		
Land Use Category	Allowable Gross Density	Typical Uses
Open Space/Agriculture		
Major Parks	Maximum .02 FAR	Regional Parks and Open Space
Large Parcel Agriculture	Maximum .01 FAR; 100 acre minimum parcel size	Low Intensity Agriculture and Grazing; Related Uses. <i>Special uses apply in South Livermore.</i>
Resource Management	Density Usually Transferred Off-Site or Parcel Purchased; Otherwise Maximum .01 FAR; 100 acre minimum parcel size	Agriculture, Grazing, Open Space Uses, Arroyos, Steep Slopes, Habitat, Environmentally Sensitive Areas
Quarries	No Density Assumed; Otherwise Maximum .01 FAR; 100 acre minimum parcel size	Reclaimed Quarry Lands, Quarry Lakes, or Agriculture
Water Management Lands	Usually No Density On Public Land or Private Water Areas; Otherwise Maximum .01 FAR; 100 acre minimum parcel size	Quarry Lakes, Watershed Lands, Arroyos
Source: Draft East County Area Plan - Volume 1		

3.12 Credible Worst-Case Scenario for Purposes of EIR Analysis

In order to evaluate the credible worst-case scenario, the EIR analysis focuses on potential impacts arising from: (1) population growth as reflected in the buildout holding capacity (calculated at lower than maximum intensities as explained in Appendix A); and, (2) the geographical distribution of new development as reflected in the Land Use Diagram.

This is a conservative approach. Although buildout does not correspond to an exact date, an extension of future trends indicates that buildout of all residential and non-residential land could theoretically occur between the years 2015 and 2020. Achieving the full holding capacity associated with buildout of the Land Use Diagram, however, may not ultimately occur. First, it is uncertain how the constraints on the transportation network and infrastructure limitations (e.g., water supply and wastewater disposal) in the Tri-Valley subregion can be overcome in order to allow growth to continue beyond 2010. Second, buildout holding capacities often are not fully realized due to the propensity of the marketplace to skip over certain parcels (although the plan contains policies designed to limit

this effect). Accordingly, full development under the proposed plan might reach, or somewhat exceed, the year 2010 holding capacities (representing 13 percent less population growth and 5 percent less employment than the calculated buildout holding capacity) but never fully reach ultimate buildout. (Refer to *Chapter 5.4 - Transportation*, and Appendix A for information regarding future transportation network constraints; refer to Figure 7 for the plan's transportation diagram; refer to *Chapters 5.13 and 5.14* for information about water supply and sewer constraints.)

Although the DEIR impact analysis concentrates on buildout in order to present a credible worst-case scenario evaluation of the plan, impact analyses for traffic, air quality and noise focus on the year 2010. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region, as projected by ABAG, and for the San Joaquin Valley, as projected by San Joaquin County. The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan) and for which rules have been promulgated for air quality emissions by the Bay Area Air Quality Management District.

Without any agreed-upon assumptions regarding regional land use distribution, transportation network and air quality emissions, it is impossible to conduct a meaningful analysis of impacts for traffic and air quality (and noise, since it is directly tied to traffic) beyond the 2010 horizon. For this reason, these three topic areas are analyzed at the 2010 horizon, while all other potential impacts are analyzed at buildout.

3.13 Consistency with Other General Plan Elements

State law requires that a jurisdiction's general plan must be internally consistent (*Government Code 65300.5*); therefore, appropriate changes must be made to maintain consistency when a part of the general plan is revised or amended. The following summarizes amendments to each of the functional elements of the existing Alameda County General Plan that will accompany adoption of the *East County Area Plan*:

***Conservation Element* (adopted November 23, 1976)**

- (1) References to the *Livermore-Amador Planning Unit* will be updated to refer to the *East County Area Plan* and East County planning area.

***Open Space Element* (adopted May 30, 1973)**

- (2) The *Open Space Plan Map* will be amended to be consistent with the *East County Area Plan Land Use Diagram*.

- (3) The following policy:

Natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left open permanently to eliminate mass grading. (p.9 Open Space Element)

will be amended to read:

The County shall minimize development within any area exceeding 25 percent slopes to minimize hazards associated with slope instability. (Draft East County Area Plan, Policy 284)

Scenic Route Element (adopted May 5, 1966)

- (4) The *Scenic Route Element* Map and text will be revised to identify a portion of Interstate-580 as a scenic route.

The Recreation Plan: A Plan for Beaches, Parks and Recreation Areas, Being Part of the Master Plan (adopted November 22, 1968)

- (5) Language will be added to the *Recreation Plan* indicating that special park standards may be established for Major New Urban Developments.

Seismic Safety and Safety Elements (adopted August 5, 1982)

(No changes are required.)

Noise Element (adopted January 8, 1976)

- (6) The noise contours for the areas within the *East County Area Plan* boundary will be eliminated from the *Noise Element* and replaced with references to the contours in the *East County Area Plan*.

Housing Element (adopted August 2, 1991)

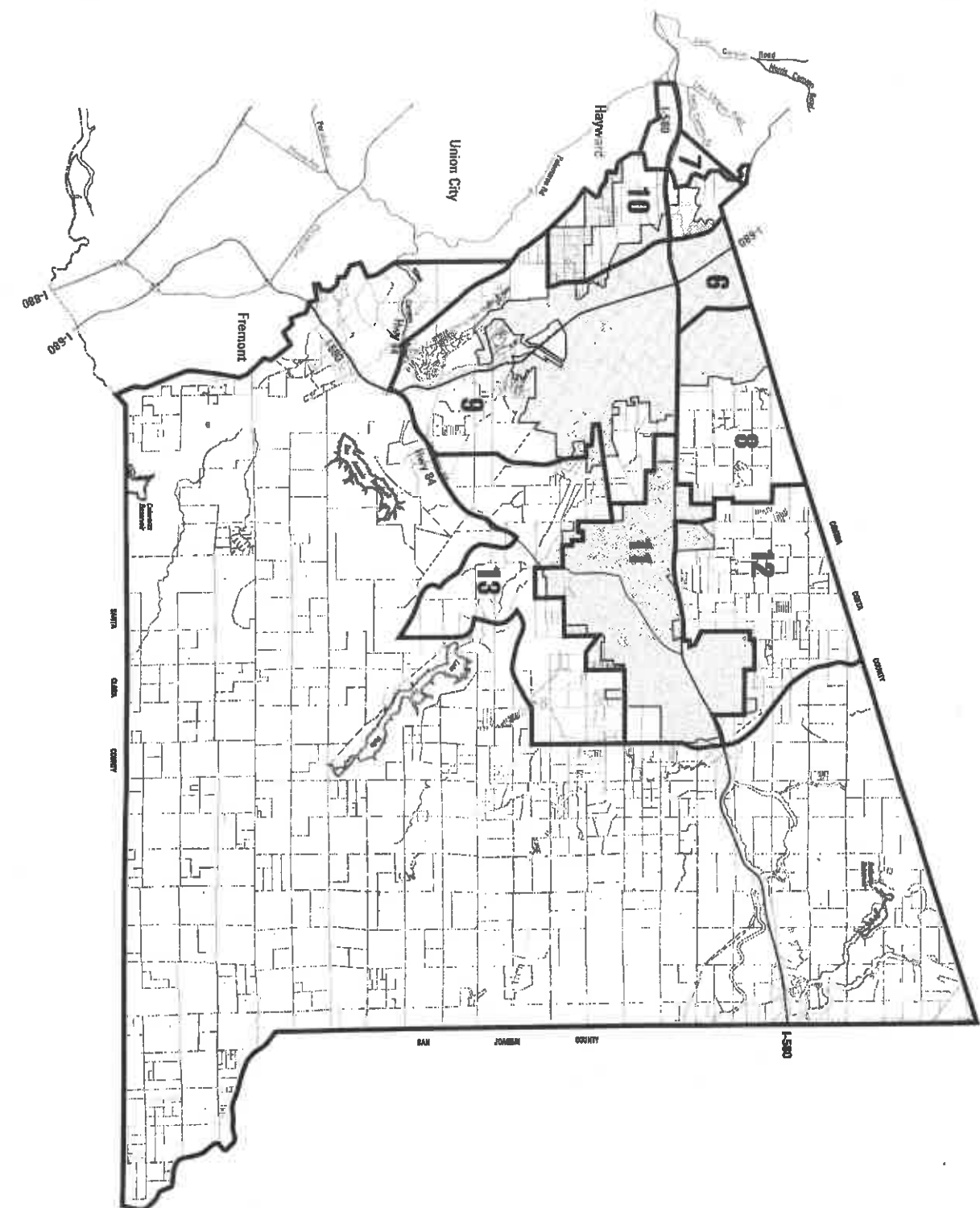
(No changes are required.)

Zones

LEGEND

6. Dublin
7. West Dublin
8. East Dublin
9. Pleasanton
10. Pleasanton Ridge
11. Livermore
12. North Livermore
13. South Livermore

NOTE: Zones were developed by Tidal Transportation Consultants for the Tid-Wing Transportation Model and have been used by Econometric and Planning Systems, Inc. and Alameda County for East County damage projections. Zones may differ from city parcel plans and general plan entertainment boundaries.



SOURCE: Alameda County Planning Department






0 5000 10000 15000 30000 feet

Fig. 4



Urban Growth Boundary

LEGEND

-  Unincorporated Lands Within the Urban Growth Boundary
-  Incorporated Lands Within the Urban Growth Boundary
-  Lands Outside the Urban Growth Boundary
-  City Limits Outside the Urban Growth Boundary
-  Area in which special policies govern; location of Urban Growth Boundary will be established as detailed development or open space plans are approved.

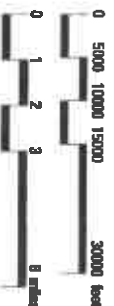
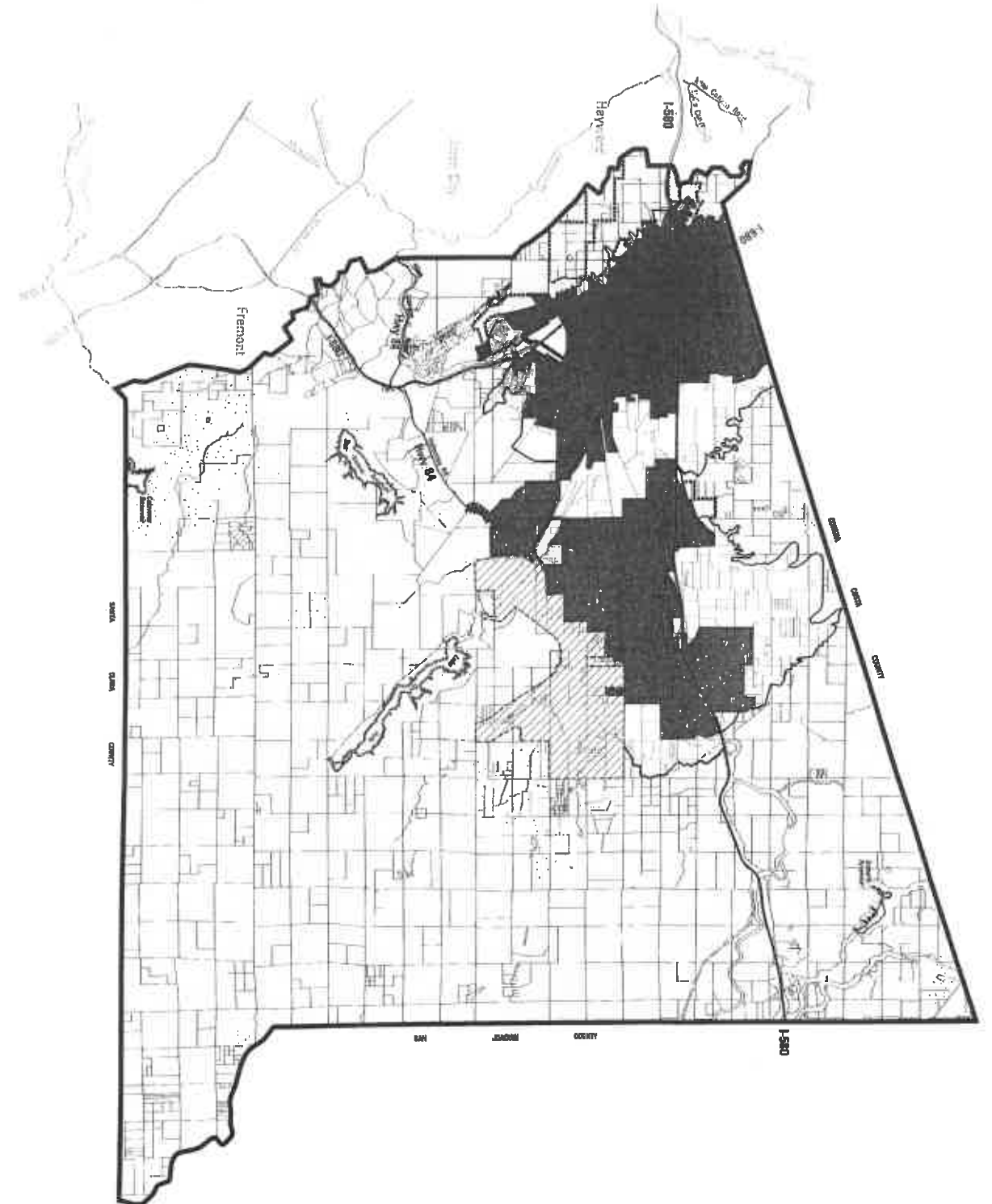










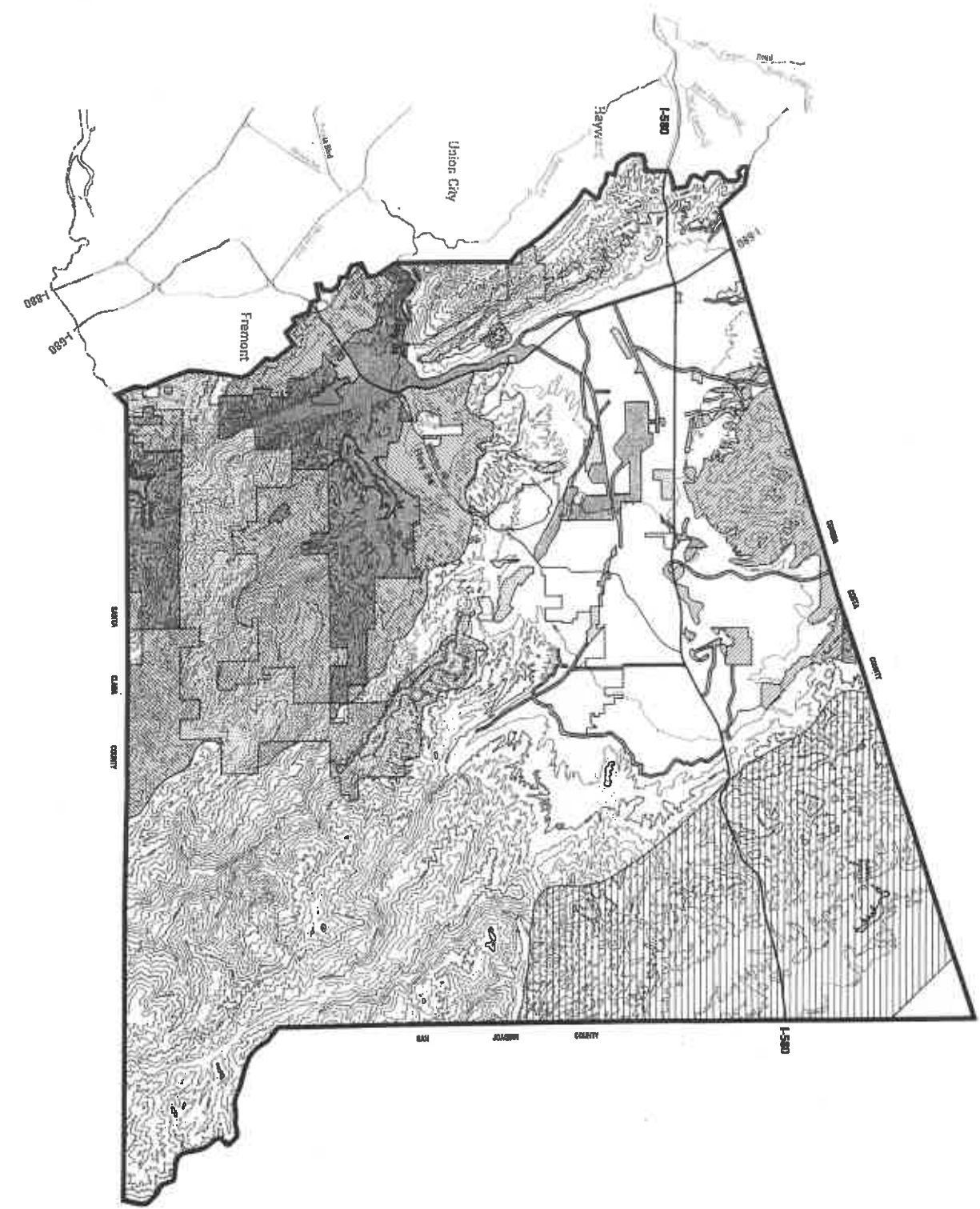
FIG. 5

Open Space Diagram

LEGEND

-  Large Parcel Agriculture
-  Major Parks
-  Resource Management: Biological Protection
-  Resource Management: Wetland Protection
-  Quarries
-  Water Management
-  Wind Resource Area
-  Designations other than Open Space

NOTE: Wind Resource Area overlaps with Large Parcel Agriculture designations.



SOURCE: California Energy Commission (Wind Resource Area);
San Francisco Water Department (Resource Management:
Wetland Protection)







FIG. 8

COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Transportation Diagram

LEGEND

-  Freeway / Expressway
-  Arterial
-  Collector
-  Future Number of Lanes

NOTE:

A BART line is planned to follow the I-880 corridor from the Bayfair BART station to San Leandro to East Livermore with stations proposed at Stoneridge Mall, Hercules Business Park, West Livermore and East Livermore.

Traffic corridors are planned to follow the Southern Pacific Railroad tracks from Contra Costa County to Stanley Boulevard, and along the Union Pacific tracks from Fremont to San Joaquin County.

The roadway system shown on this diagram represents the year 2010 network, as developed by the Tri-Valley Transportation Model, with minor modifications.

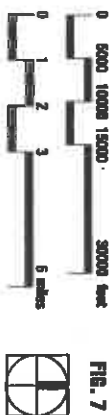
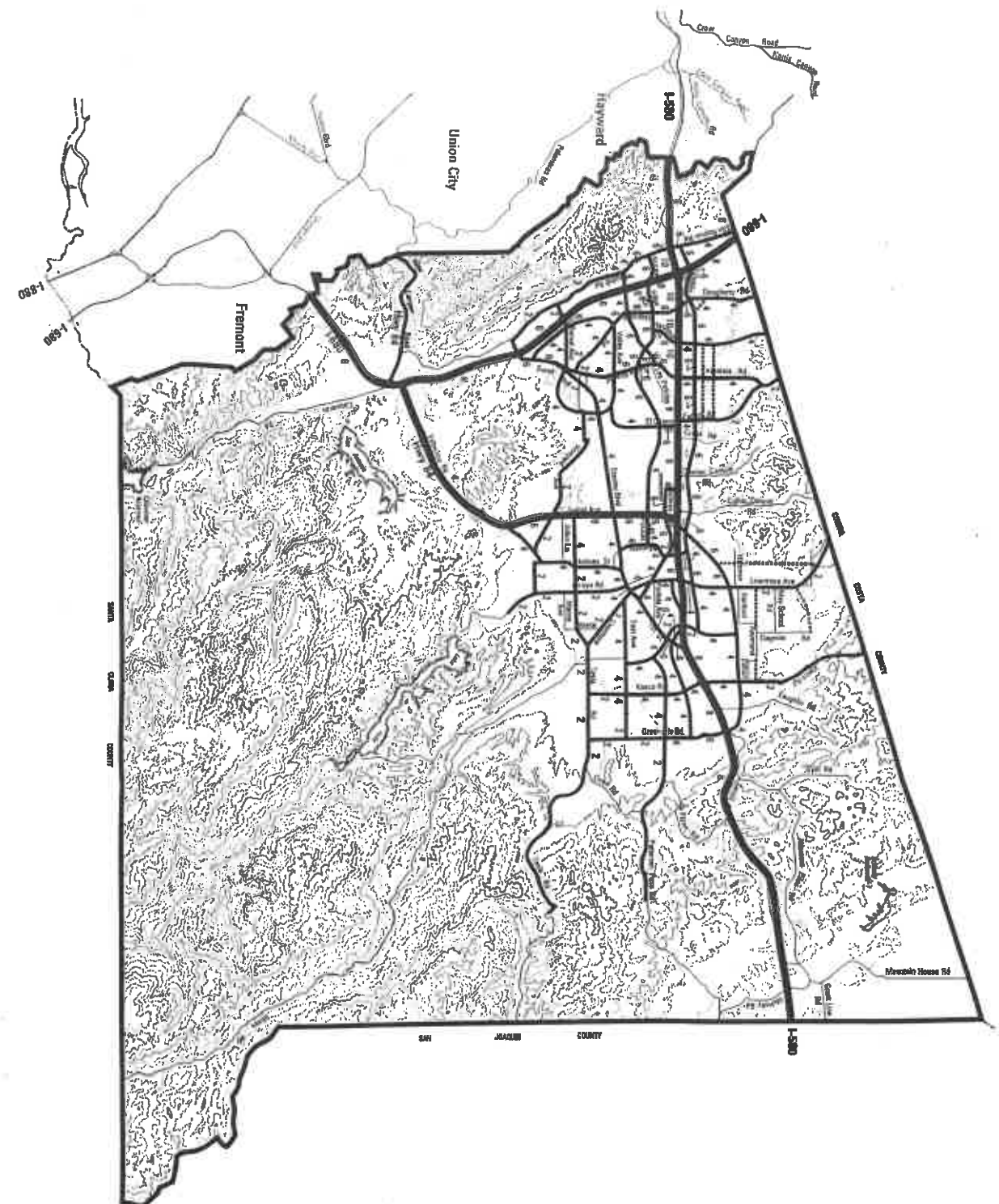


FIG. 7

Chapter 4 - Impact and Mitigation Summary

Chapter 3 defines the proposed plan.

Table 4.1 summarizes the potential significant impacts of the proposed plan, lists recommended mitigation measures, and identifies the level of significance of the impact after mitigation.

Table 4.2 summarizes the less-than-significant impacts of the proposed plan and lists recommended modifications to the plan for purposes of clarification.

Chapter 6 evaluates the alternatives. Three types of alternatives have been analyzed in this chapter: (1) two "no-project" alternatives were evaluated, one which considers the effects of buildout of the existing adopted city general plans (Alternative 1), and one which looks at buildout of prospective city general plans (Alternative 2), both assuming no change to the existing county general plan for the planning area; (2) two alternatives that analyze the effects of recently approved or proposed city general plan amendments for East Dublin (Alternative 3) and North Livermore (Alternative 4) in the larger cumulative context of the East County planning area; and (3) a "minimum growth/high density" alternative that confines the geographical extent of new urban development to the Santa Rita and Camp Parks properties (Alternative 5).

The following is a list of the five different development scenarios considered as alternatives:

- Alternative 1: "No-Project" (Adopted General Plans)
- Alternative 2: "No-Project" (Prospective General Plans)- Max.Growth/Low Density
- Alternative 3: Modified East Dublin
- Alternative 4: Modified North Livermore
- Alternative 5: Minimum Growth/High Density

TABLE 4-1
Summary of Potential Significant Impacts and Mitigation Measures

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.1 Land Use			
5.1-1: Accommodation of the plan's holding capacity could result in urban sprawl.	No	<p>(a) <u>Proposed Modification to Program 1:</u> <i>Program 1 should be amended to read: The County shall review the Urban Growth Boundary and the land use designations within it every five years. At the time of the five year review, the County may make adjustments to the Urban Growth Boundary, only if such adjustments are minor and consistent with the policies of the East County Area Plan. Prior to adjusting the Urban Growth Boundary, the County shall require findings that the adjustment: 1) is consistent with the policies of the plan, 2) would not promote sprawl or induce further adjustment of the boundary, and 3) would not unacceptably affect visual and open space resources.</i></p> <p>(b) <u>Proposed New Policy:</u> <i>The County shall require a detailed development phasing plan and community facilities plan for Major New Urban Developments prior to approval of the specific development plan for the first phase of development. The plan shall include comprehensive community design standards, a comprehensive circulation and infrastructure plan, the identification of utility systems, and improvement standards and cost estimates for all infrastructure, public services, and facilities, and shall also include a public financing plan.</i></p> <p>(c) <u>Proposed New Policy:</u> <i>The County shall require that all development proposals within a Major New Urban Development area be consistent with the Development Phasing and Community Facilities Plan and the specific development plans for each major development phase required for Major New Urban Developments.</i></p>	L-T-S
5.1-2: Implementation of the plan could conflict with adjacent land uses designated in adopted general plans of neighboring jurisdictions.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.1-3: Implementation of the plan could conflict with adopted countywide, subregional and/or regional policies.	Yes	None Needed	L-T-S
5.1-4: Intensive urban development in the vicinity of the Federal Communications Commission (FCC) monitoring station in the North Livermore Valley could interfere with station operations.	Yes	None Needed	L-T-S
5.1-5: Future land uses sited in the "Urban Reserve" area east of Lawrence Livermore National Laboratory may be incompatible with the Laboratory's operations.	Yes	None Needed	L-T-S
5.1-6: Uses allowable within the "Wind Resource Area" may be incompatible with new or continued windfarm development and, conversely, wind development could be incompatible with other allowable uses.	Yes	None Needed	L-T-S
5.2 Agricultural Resources			
5.2-1: New urban development could result in the conversion of prime agricultural land to non-agricultural uses.	No	While policies and programs would substantially lessen the impact of urban development on prime soils within the Urban Growth Boundary, no mitigation is feasible to reduce the impact to a less-than-significant level.	S/U
5.2-2: Development in accord with the Land Use Diagram could lead to premature loss of agricultural land.	Yes	None Needed	L-T-S
5.3 Population, Employment and Housing			
5.3-1: Housing and employment growth could cause an imbalance between jobs and housing.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is struck-out.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.3-2: Lack of an adequate affordable housing supply to house projected employment in East County could result in additional in-commuting from San Joaquin County and resultant traffic congestion, air pollution, noise impacts, and displacement of agricultural land, and could contribute to urban sprawl in areas east of the Allamont Pass.	Yes	None Needed	L-T-S
5.3-3: Development of employment generating uses in East County without accompanying programs to promote industrial diversity and to attract and train a skilled labor force could impede economic development in the planning area.	Yes	None Needed	L-T-S
5.4 Transportation			
5.4-1: Projected funding of roadway and transit projects from state, federal and other known sources could be inadequate to finance required improvements.	No	While policies and programs would substantially lessen this impact, no mitigation is feasible to reduce the impact to a less-than-significant level.	S/U
5.4-2: It may not be possible to sufficiently expand roadway capacity to accommodate increased traffic volumes attributable to housing and employment growth, due to a variety of constraints.	Yes	None Needed	L-T-S
5.4-3: Freeway and highway capacities would be inadequate to meet increased traffic demand.	No	While proposed plan policies and programs would substantially lessen the impact on Level of Service for each affected roadway segment, several would still exceed the LOS threshold. The following new policy would reduce this impact to a less-than-significant level (in terms of LOS) on most roadway segments. However, even with the proposed mitigation, segments of I-580 and I-680 would remain at unacceptable levels of service. <u>Proposed New Policy: All new development in areas that are unincorporated as of the adoption of the East County Area Plan shall contribute their fair share towards the costs of transportation mitigation measures shown in Table 5.4-3 for each affected roadway segment, subject to confirmation in subsequent traffic studies, as a condition of project approval.</u>	S/U

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.4.4: Arterial roadway capacities would be inadequate to meet increased traffic demand.	No	<p>While proposed plan policies and programs would substantially lessen the impact on Level of Service for each affected arterial, several roadways would still exceed the LOS threshold. The following new policy would reduce this impact to a less-than-significant level on most, but not all, arterials.</p> <p><i>Proposed New Policy (as cited under Mitigation Measure 5.4-3): All new development in areas that are unincorporated as of the adoption of the East County Area Plan shall contribute their fair share towards the costs of transportation mitigation measures shown in Table 5.4-3 for each affected roadway segment, subject to confirmation in subsequent traffic studies, as a condition of project approval.</i></p> <p>No feasible mitigation measure is available to reduce the impact on these roadway segments to a less-than-significant level.</p>	S/U
5.4.5: Public transit may not be available to adequately serve the Livermore area until after 2010.	No	<p>While proposed plan policies and programs would substantially lessen the impact on transit service, the eastern portion of the planning area would still remain unserved by BART. The following proposed policy would reduce, but not eliminate, this impact. In addition, extension of BART service to Livermore relies on proposed improvements that are not completely funded. Because complete funding mechanisms are not currently in place, no feasible mitigation measure is available to adequately provide transit service to this portion of the planning area.</p> <p><i>Proposed new policy: The County shall encourage BART to extend service to the Livermore area by the year 2010. This could be facilitated by including a portion of the costs of the rail extension to the planned Livermore stations using funds to be collected from the proposed subregional transportation fee being developed by the Tri-Valley Council.</i></p>	S/U

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.5 Air Quality			
5.5-1: Pollutant emissions from sources associated with new urban development, including indirect (mobile) sources, direct (stationary or point, such as commercial or industrial) sources, and area (home, such as heaters and small gas equipment) sources would exceed thresholds established by the BAAQMD for carbon monoxide, ozone precursors and PM-10.	No	While policies and programs would, to the extent possible, lessen the exceedance of BAAQMD thresholds created by urban growth, no additional mitigation is feasible to reduce the impact to a less-than-significant level.	S/U
5.5-2: Urban development under the plan would contribute to the existing exceedance of state air quality standards for PM-10, but not necessarily for other criteria pollutants.	No	While policies and programs would, to the extent possible, minimize the contribution of PM-10 to existing exceedance of state standards, no additional mitigation is feasible to reduce the PM-10 impact to a less-than-significant level.	S/U
5.5-3: The East County Area Plan is not fully consistent with the 1991 Clean Air Plan.	No	(a) <u>Proposed New Policy:</u> <i>The County shall require major projects of commercial or industrial nature to include bicycle storage facilities for employees and customers, and shower/locker areas for employees that commute using bicycles.</i> (b) <u>Proposed New Policy:</u> <i>The County shall develop and adopt an employer-based trip reduction rule or program, to encourage employers to provide incentives or subsidies to employees agreeing to alternative and multiple-person modes of transportation.</i>	L-T-S
5.5-4: Placement of sensitive land uses, such as residential or public health facilities, near commercial or industrial uses could result in conflicts with regard to nuisance or health risk from pollutant emissions.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.6 Noise			
5.6-1: Increased traffic resulting from growth under the plan could expose some existing residential land uses to a significant increase in noise levels.	No	<p>While the mitigations below would reduce potential impacts, no mitigation measures are feasible to lessen the impact to a less-than-significant level.</p> <p>(a) <u>Proposed Modification to Policy 267</u>: The County shall require noise studies as part of development review for projects located in areas exposed to high noise levels and in areas adjacent to existing residential or other sensitive land uses. Where noise studies show that noise levels in areas of existing housing will exceed "normally acceptable" standards (as defined by the California Office of Noise Control Land Use Compatibility Guidelines), major development projects shall contribute their prorated share to the cost of noise mitigation measures such as those described in Program 100.</p> <p>(b) <u>Proposed Modification to Program 100</u>: The County shall investigate require the use of noise buffer-zones, reduction techniques (such as buffers, building design modifications, lot orientation, soundwalls, earthberms, landscaping, building setbacks, and real estate disclosure notices) to mitigate noise impacts generated by transportation-related and stationary sources as specified in the California Office of Noise Control Land Use Compatibility Guidelines-Noise-Element-of-the-Alameda-County-General-Plan.</p>	S/U
5.6-2: The plan's siting of sensitive land uses in areas to be exposed to noise levels exceeding 60 dB would result in a significant noise impact.	No	<u>Proposed Modification to Policy 266</u> : The County shall limit or appropriately mitigate new noise-sensitive development land-use in areas exposed to high projected noise levels exceeding 60 dB based on the guidelines-contained-in-the-Noise-Element-of-the-County-General-Plan California Office of Noise Control Land Use Compatibility Guidelines.	L-T-S
5.6-3: The plan's siting of sensitive land uses within projected 60 dB noise contours generated by the Livermore Municipal Airport could result in a significant noise impact.	Yes	None Needed	L-T-S
5.7 Biological Resources			
5.7-1: Development within the Urban Growth Boundary could result in the loss of grasslands, cultivated lands and woodlands.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.7-2: Development within the Urban Growth Boundary could result in the loss of riparian and seasonal wetlands.	No	<p>Implementation of the plan could result in a potentially significant impact on riparian and seasonal wetlands. While the following additional policies would lessen the potential impact, no mitigation is feasible to reduce the impact to a less-than-significant level.</p> <p>(a) <u>Proposed New Policy:</u> <i>The County shall encourage no net loss of riparian and seasonal wetlands.</i></p> <p>(b) <u>Proposed New Policy:</u> <i>The County shall encourage that wetland mitigation be consolidated in areas that are relatively large and adjacent to or otherwise connected to open space. To the extent possible, these areas should be included in, adjacent to, or linked through open space corridors with lands designated as "Resource Management" that are managed specifically for the preservation and enhancement of biological resources.</i></p>	S/U
5.7-3: Development within the Urban Growth Boundary could result in the loss of individual special status species and portions of Significant Natural Communities.	No	<p>While Plan policies and programs would lessen the overall impact on special status species, loss of individual species due to the expansion of growth may still occur. No mitigation measures are feasible beyond those already established through plan policies and programs.</p>	S/U
5.7-4: Implementation of the <i>East County Area Plan</i> will increase the area of urban/wildland interface north of the I-580 corridor.	No	<p>With implementation of the plan policies and programs, the potential impact on biological resources resulting from an increase in the urban/wildland interface north of I-580 would not be significant. However, to address potential indirect impacts on the Springtown valley sink habitat and the population of the bird's beak plant that inhabits the sink, the following policy is proposed. Implementation of this policy, in combination with the policy proposed in Mitigation Measure 5.12-6, will reduce this to a less-than-significant impact.</p> <p><u>Proposed New Policy:</u> <i>The County shall designate an approximate 200 yard zone around the perimeter of the defined Bird's Beak Preserve in North Livermore as a Special Management Area. Within this zone, all proposed land uses and project designs shall be evaluated regarding their potential to effect the viability of the Springtown valley sink scrub habitat, and mitigation shall be incorporated into the approval of detailed development plans within this 200 yard zone to avoid the impact. Mitigation may take the form of clustering development to avoid sensitive areas, management practices, land swap with the FCC Monitoring Station, or other appropriate measures.</i></p>	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.7-5: Allowable uses in lands designated Large Parcel Agriculture could affect biological resources in those areas.	No	<p>While no feasible mitigation is available to reduce this impact to a less-than-significant level, the following new policy is proposed to encourage that mitigation efforts recommended through project-specific environmental review are consistent with the policies and programs of the <i>East County Area Plan</i>:</p> <p>Proposed New Policy: Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as Resource Management or on lands adjacent to or otherwise contiguous with these lands in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.</p>	S/U
5.8 Visual and Aesthetic Resources			
5.8-1: Increased development in the Livermore-Amador Valley would substantially alter the Valley's visual character.	No	While policies and programs would substantially lessen the impact of the plan on the visual character of the planning area, no mitigation is feasible to reduce the impact to a less-than-significant level.	S/U
5.8-2: Clustering of homesites on land designated "Large Parcel Agriculture" and "Resource Management" could substantially alter the visual quality of rural areas.	Yes	None Needed	L-T-S
5.8-3: Replacing the existing Open Space Element policy with Policy 284 could allow mass grading in areas exceeding 25 percent slope, resulting in degradation of background views.	Yes	None Needed	L-T-S
5.8-4: Proposed development adjacent to Interstate 580 would obstruct public views of open space serving as a community separator between East Dublin and North Livermore.	No	<u>Proposed Modification to the Land Use Diagram:</u> The Land Use Diagram should be amended to preclude urban development adjacent to I-580 between future development in East Dublin and North Livermore for a distance sufficient to create an effective community separator that would extend open space from the freeway to the hills to the north.	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.9 Cultural Resources			
5.9-1: Development under the plan could adversely affect important known or undiscovered archaeological and historic sites.	No	<p>(a) <u>Proposed Modification to Policy 128:</u> The County shall require development to be designed to avoid identified cultural resources or, <i>if avoidance is determined by the County to be infeasible, to include implement appropriate mitigation measures that offset the impacts.</i></p> <p>(b) <u>Proposed Modification to Program 57:</u> <i>If a project is located within an extreme or high archaeological sensitivity zone as determined by the County, a background and records check of the site shall be required. If there is evidence of an archaeological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process. If any archaeological sites are found during construction, all work in the immediate vicinity shall be suspended pending site investigation by a qualified archaeology professional. Proposed structures or roads on property that contains archaeological sites should be sited in consultation with a professional archaeologist to avoid damaging the archaeological sites. The County shall follow Appendix K of the California Environmental Quality Act (CEQA) Guidelines for cultural resource preservation procedures in reviewing development projects located near identified cultural resources. Appropriate measures for preserving an historic structure include renovation or moving it to another location. Proposals to remove historic structures shall be reviewed by qualified professionals.</i></p>	L-T-S
5.10 Mineral Resources			
5.10-1: Encroachment of urban development on or adjacent to areas underlain by state-designated Regionally Significant Construction Aggregate deposits could interfere with mining of the resource.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.10-2: Mining and processing of construction aggregate near existing residential communities, as well as ancillary uses associated with quarry operations, could result in various impacts on residents, including noise and dust from extraction, processing and transportation; light and glare from night operations; truck traffic and potential truck spillage; and alteration of short- and/or long-distance views caused by processing and conveyance structures.	Yes	None Needed	L-T-S
5.10-3: Mining could result in loss of plant communities or wildlife habitat by clearing land for roads, structures and extraction/processing activities; by introducing truck traffic into previously inaccessible areas; and by creating noise and dust.	No	<p>(a) <u>Proposed New Policy:</u> <i>Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as Resource Management or on lands adjacent to or otherwise contiguous with these lands, in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.</i></p> <p>(b) <u>Proposed Modification to Policy 122:</u> The County shall protect existing riparian woodland habitat present along the Arroyo Mochó, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks. Exceptions to these requirements shall apply for those portions of the Arroyo del Valle to be excavated for water transfer Lakes A and B under the <u>Specific Plan for the Livermore-Amador Valley Quarry Area Reclamation</u>, which shall instead be subject to riparian habitat restoration as specified by Policies 121 and 153; and for any approved quarry operations in Regionally Significant Construction Aggregate Resource Sector C (Arroyo Mochó) or any other streambeds, which shall also be subject to habitat restoration under Policies 121 and 153, and according to applicable State Public Resources Code requirements, to the extent that proposed reclamation specifies riparian habitat as the end use.</p>	

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.10-4: Mining and processing of aggregate resources on public watershed lands, or private lands draining into public watershed, could adversely affect quality of the drinking water resource, both on the surface and in the ground.	No	<p>(a) <u>Proposed Modification to Policy 104:</u> The County shall designate an area outside of the San Francisco Water Department lands that extends to the limit of the watershed boundary as "Resource Management". Within this area, the County shall encourage land use activities to adhere to management guidelines developed for the protection of watershed lands and shall ensure that subdivisions of lands <i>or quarry operations and reclamation plans</i> within this designation are approved only where such subdivisions <i>or quarry operations</i> would not adversely affect the watershed protection objectives of the San Francisco Water Department.</p> <p>(b) <u>Proposed Modification to Policy 149:</u> The County shall ensure that where quarry operations are located in areas designated as "Water Management," extraction of the aggregate resource shall be allowed in the short-term and reclamation of the land for water management and other compatible uses shall occur subject to conditions of Surface Mining Permits and Reclamation Plans and consistent with the <u>Specific Plan for Livermore-Anadior Valley Quarry Area Reclamation or the comparable plan prepared for the Sunol Valley/San Francisco Water Department watershed lands pursuant to Policy 150 and Program 66, whichever is applicable.</u></p>	L-T-S
5.10-5: Extraction of sand and gravel could affect groundwater quality, percolation capabilities, and groundwater flows.	Yes	None Needed	L-T-S
5.10-6: Stripping of overburden for sand and gravel mining could result in loss of valuable agricultural soils.	No	No feasible mitigation is available.	S/U
5.10-7: Petroleum extraction could result in adverse environmental impacts to land use, the land itself and to nearby water resources.	No	<u>Proposed New Policy:</u> The County shall impose conditions on approval of new Petroleum Resource Exploration and Extraction Conditional Use Permits to protect future onsite and nearby uses from potential impacts resulting from petroleum exploration or extraction; potential impacts include but are not limited to traffic, noise, dust, health and safety, and visual impacts, as well as land contamination, surface and groundwater contamination, improper disposal of petroleum wastes, and improper site reclamation. The conditions should at least include, but not be limited to, those developed through the California Environmental Quality Act review process, and shall be monitored accordingly.	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.11 Geologic Hazards			
5.11-1: Residential, commercial and industrial development could augment the number of people and structures exposed to seismic hazards, increasing the risk to life and property from ground shaking and associated secondary effects such as landsliding, liquefaction, and differential settlement.	Yes	None Needed	L-T-S
5.11-2: Development under the plan could occur within existing Special Studies Zones.	No	Proposed Modification to Policy 290: The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of a certified earthquake fault as defined by the Calaveras, Greenville, or Verona Alquist-Priolo Special Study Zones.	L-T-S
5.11-3: Development could occur in hilly areas, resulting in erosion and slope stability problems (stemming from grading, vegetation removal, irrigation, etc.).	Yes	None Needed	L-T-S
5.11-4: Development in areas of high shrink-swell potential could result in structural problems.	Yes	None Needed	L-T-S
5.11-5: Withdrawal of groundwater for urban and agricultural use could result in land subsidence.	Yes	None Needed	L-T-S
5.11-6: In the event of a major earthquake, damage to utilities, communications and emergency service facilities (e.g., hospitals, fire stations), or disruption of access routes to and from these facilities, could render them unusable.	Yes	While policies and programs would substantially lessen the impact of earthquake damage, no mitigation is feasible to reduce the impact to a less-than-significant level.	S/U

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is struck-out.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.12 Water Quality and Hydrology			
5.12-1: Construction of new urban development could cause an increase in surface runoff resulting in increased erosion and siltation.	Yes	None Needed	L-T-S
5.12-2: New urban development would decrease the amount of area available for infiltration into the groundwater basin.	Yes	None Needed	L-T-S
5.12-3: New urban development could result in additional releases of nonpoint source pollutants into the storm drain system or waterways.	Yes	None Needed	L-T-S
5.12-4: Proposed land use activities could result in contamination of surface waters and the infiltration of contaminants into the groundwater basin.	Yes	None Needed	L-T-S
5.12-5: Land use activities within the watershed boundaries for the Calaveras and San Antonio Reservoirs could have a negative effect on the water quality in these reservoirs.	Yes	None Needed	L-T-S
5.12-6: Expansion of urban development in North Livermore could adversely affect the hydrologic characteristics of the Springtown valley sink scrub habitat.	No	Without mitigation, the impact on the valley sink scrub habitat resulting from adjacent land uses is potentially significant. The following additional policy would reduce this impact to a less-than-significant level. <u>Proposed New Policy: The County shall require Major New Urban Development in North Livermore to include designs for managing surface water and groundwater resources to ensure to the extent feasible that there is no net change in the existing hydrologic conditions of the Springtown valley sink scrub habitat resulting from development in the watershed, unless that change is determined to be beneficial for the habitat in question.</u>	L-T-S
5.13 Water Supply			
5.13-1: Water demand from new urban development would exceed existing water supply.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.13-2: Pumping of groundwater could result in the long-term depletion of the groundwater basin.	Yes	None Needed	L-T-S
5.13-3: Premature extension of water distribution infrastructure could result in urban sprawl.	Yes	None Needed	L-T-S
5.14 Wastewater			
5.14-1: Wastewater generation from new urban development could exceed export capacity.	Yes	None Needed	L-T-S
5.14-2: Distribution of capacity among East County jurisdictions may not match the ECAP development pattern.	Yes	None Needed	L-T-S
5.14-3: Export of additional wastewater effluent may preclude large-scale use of reclaimed water, reducing a potential future water supply source.	No	(a) Proposed New Policy: <i>The County shall consider the potential impacts of the proposed TWA export project on the future ability to provide large-scale use of recycled water, prior to approval of the export project.</i> (b) Proposed New Policy: <i>The County shall consider the cost of the proposed TWA export project, in comparison to the estimated cost of a recycled water program, prior to committing to the export project.</i>	L-T-S
5.14-4: Additional rural development could increase septic tank use, with an increased likelihood of groundwater contamination.	Yes	None Needed	L-T-S
5.14-5: New discrete ("package") treatment plants that meet water quality requirements could contribute to urban sprawl.	Yes	None Needed	L-T-S
5.15 Flood Hazards			
5.15-1: Implementation of the plan could conflict with County emergency response plans for dam inundation areas.	No	Proposed New Policy: <i>The County shall ensure that development proposals within designated dam inundation areas are referred to the Office of Emergency Services and to appropriate local police departments for evaluation and updating of emergency response and evacuation plans.</i>	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than- Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.15-2: Plan implementation could increase the level of development in designated flood-prone areas.	Yes	None Needed	L-T-S
5.15-3: Plan implementation could contribute to an increase in storm water runoff, increasing the likelihood of downstream flooding.	Yes	None Needed	L-T-S
5.15-4: Plan implementation could affect the County's flood hazard ratings under the Community Rating System.	Yes	None Needed	L-T-S
5.16 Park and Recreation Facilities			
5.16-1: Growth under the plan would result in increased demand for parks and recreation facilities, exceeding available supply.	Yes	None Needed	L-T-S
5.16-2: Implementation of the plan could interfere with the acquisition, expansion or development of existing plans for trails.	Yes	None Needed	L-T-S
5.17 Schools			
5.17-1: Implementation of the plan would cause demand for school facilities to exceed available capacity.	No	<u>Proposed Modification to Policy 212:</u> The County shall work with school districts and developers to ensure that adequate school capacity exists or is planned prior to approving new residential development. <i>The County shall condition the approval of residential development plans on the availability of adequate school facilities if allowed under current legislation. Availability of school facilities would be indicated by a "will-serve" letter from the applicable school district describing the school facilities that would be needed and how capacity would be provided.</i>	L-T-S
5.18 Child Care			
5.18-1: The existing supply of child care services would not be adequate to meet child care needs resulting from development under the plan.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is struck-out.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.19 Police and Fire Protection			
5.19-1: Implementation of the plan would result in increased demand for police services, exceeding the ability of existing police and sheriff departments' personnel to provide service in accordance with established service ratios and/or within established response times.	Yes	None Needed	L-T-S
5.19-2: Implementation of the plan would result in increased demand for fire services, exceeding the ability of existing fire protection agencies' personnel to provide service in accordance with established service ratios and/or within established response times.	Yes	None Needed	L-T-S
5.19-3: The risk of wildland fires could increase as a result of new development and increased population.	Yes	None Needed	L-T-S
5.19-4: Implementation of the proposed plan would result in increased demand on emergency medical services, which could exceed the ability of existing personnel to provide the service within established response times.	Yes	None Needed	L-T-S
5.20 Solid and Hazardous Waste Management			
5.20-1: Existing landfill capacity in Alameda County is inadequate to accommodate projected population increases countywide, including the East County planning area.	Yes	None Needed	L-T-S
5.20-2: Increased generation of hazardous wastes from the East County could place an additional burden on hazardous waste collection facilities serving this area.	Yes	None Needed	L-T-S

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

Potential Significant Impact	Mitigated to Less-than-Significant Level by ECAP Policies ¹	Additional Mitigation Proposed in this DEIR ²	Level of Significance with Mitigation ³
5.21 Energy			
5.21-1: Residential, commercial and industrial growth under the plan would significantly increase energy consumption in the East County.	No	While policies and programs would substantially lessen the impact on energy consumption, no feasible mitigation is available to reduce the impact to a less-than-significant level.	S/U
5.22 Electro-Magnetic Fields			
5.22-1: Development near sources of electromagnetic fields such as high voltage electrical transmission lines may result in exposure of the public to potential health hazards associated with electromagnetic fields.	No	(a) <u>Proposed Modification to Policy 301:</u> The County shall not approve sensitive uses (e.g., residential uses, hospitals, schools, and retirement homes) near within setbacks recommended by the California Department of Education (in accordance with Program 114) from sources of electromagnetic fields such as major electrical transmission lines and substations. (b) <u>Proposed Modification to Policy 114:</u> The County shall monitor emerging research concerning electromagnetic fields and develop guidelines to reduce potential impacts. <i>Until more definitive information is available, the guidelines should incorporate the setbacks recommended by the California Department of Education for the siting of new schools near high voltage electrical transmission lines for all sensitive land uses. The County shall periodically revise these guidelines as new information becomes available.</i>	L-T-S
5.22-2: Development near the Federal Communications Commission (FCC) station may result in exposure of the public to potential health hazards associated with high-frequency radio frequency (RF) radiation.	No	<u>Proposed Modification to Policy 133:</u> The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations <i>and that development in the vicinity of the FCC station does not expose the public to potential health hazards associated with high-frequency radio frequency (RF) radiation.</i>	L-T-S
Cumulative			
Water demand from cumulative urban development in the state could exceed the state's limited water resources.	No	Plan policies, programs and mitigations listed in Chapter 5.13 (Water Supply) would help reduce the effect of this impact.	S/U

NOTES:

¹Mitigating policies and programs in the plan are discussed in Chapter 5 of this DEIR

²New language in proposed modifications to policies and programs is shown in *italics*; deleted language is ~~struck-out~~.

³L-T-S = Less than Significant Impact; S/U = Significant and Unavoidable Impact

TABLE 4-2

Summary of Less-Than-Significant Impacts with Proposed Modification to Policies and Programs and Proposed New Policy and Programs

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
5.1 Land Use	
5.1-2: Implementation of the plan could conflict with adjacent land uses designated in adopted general plans of neighboring jurisdictions.	<p>(a) <u>Proposed Modification to Policy 68</u>: The County shall designate the Vargas Plateau and the Sheridan Road areas for agricultural and other open space uses. The County shall participate with the Cities of Fremont and Union City in their planning studies for these open space areas to the east of the cities' boundaries, and shall encourage the City of Fremont and Union City to designate these areas as community separators between Fremont the cities and East County.</p> <p>(b) <u>Proposed Modification to Policy 69</u>: The County shall work cooperatively with the cities of Pleasanton and Hayward, the Castro Valley community, the East Bay Regional Park District (EBRPD), and landowners to retain Pleasanton Ridglands as permanent open space and reserve a regional trail corridor connecting Sunol with the West Dublin hills. Accordingly, the County shall oppose city sphere of influence expansions and annexations outside the Urban Growth Boundary in this area for purposes of urban development.</p>
5.1-4: Intensive urban development in the vicinity of the Federal Communications Commission (FCC) monitoring station in the North Livermore Valley could interfere with station operations.	<p><u>Proposed Modification to Policy 133</u>: The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations. <i>Measures to ensure compatibility may include clustering of new development to minimize interference, re-siting of land uses, providing a buffer between new urban uses and the facility, and/or relocation or reconfiguration of FCC facilities.</i></p>

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is struck-out).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
<p>5.2 Agricultural Resources</p> <p>5.2-2: Development in accord with the Land Use Diagram could lead to premature loss of agricultural land.</p>	<p>(a) <u>Proposed Modification to Policy 15:</u> The County shall phase development to minimize premature loss of agricultural land. <i>Agricultural land may be urbanized where conversion is a part of phased growth planned to avoid discontinuous (leap-frog) development.</i></p> <p>(b) <u>Proposed Modification to Policy 77:</u> The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. <i>The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan.</i> The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable land feasible.</p> <p>(c) <u>Proposed Modification to Policy 89:</u> The County shall not approve cancellation of Williamson Act contracts within or outside the Urban Growth Boundary except where findings can be made in accordance with Government Code Section 51282. <i>In making any such findings with respect to land inside the Urban Growth Boundary, the County shall consider the following:</i></p> <ul style="list-style-type: none"> <i>The Urban Growth Boundary is designed to encourage orderly, planned development and to satisfy state-mandated housing requirements (policies 1 and 11). Cancellation of contracts inside the Urban Growth Boundary may be necessary to advance these and other important goals of the East County Area Plan.</i> <i>Cancellation of contracts inside the Urban Growth Boundary will not result in the removal of lands outside the Urban Growth Boundary from agricultural use (policy 17).</i> <i>The Urban Growth Boundary defines areas suitable for agriculture and will be used to provide certainty regarding agricultural investment (policy 1). In establishing the location of the Urban Growth Boundary (and Major New Development areas), the County considered the availability and suitability for urban use of contracted and noncontracted land on a subregional basis.</i>

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
	<p><i>Where growth is properly phased (see policies 13, 15, 98, and 99), contract cancellation will not result in discontinuous patterns of urban development. In such cases, the development of contracted land will provide more contiguous patterns of urban development than development of proximate noncontracted land. Proper phasing of development may justify some contract cancellation in order to protect the County's permanent agricultural land inventory as defined by the Urban Growth Boundary.</i></p> <p><i>Lands outside the Urban Growth Boundary generally are not suitable or available for urban growth. Inside the Urban Growth Boundary, the need for urban growth on contracted land would only temporarily be delayed by shifting early growth to noncontracted land.</i></p> <p>(d) Modification to Policies 92 through 97: To clarify that Policies 92 through 97 apply to lands located outside the Urban Growth Boundary, add the phrase "Outside the Urban Growth Boundary" to the caption immediately preceding policy 92.</p>
5.3 Population, Employment and Housing	
5.3-1: Housing and employment growth could cause an imbalance between jobs and housing.	<u>Proposed New Program:</u> <i>All major projects shall be evaluated for their effect on the East County jobs/housing ratio and the provision of housing affordable to East County workers, and measures to mitigate any impacts shall be included as conditions of project approval.</i>
5.3-2: Lack of an adequate affordable housing supply to house projected employment in East County could result in additional in-commuting from San Joaquin County and resultant traffic congestion, air pollution, noise impacts, and displacement of agricultural land, and could contribute to urban sprawl in areas east of the Altamont Pass.	While no mitigation is needed, the new program proposed to clarify and improve implementation of policy 16 would also improve the implementation of policies 42 and 43.
5.3-3: Development of employment generating uses in East County without accompanying programs to promote industrial diversity and to attract and train a skilled labor force could impede economic development in the planning area.	<u>Proposed Modification to Policy 50:</u> Policy 50: The County shall encourage a diversity of job producing industries that reflect the skills of the local labor force to locate in the East County area.

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
5.5 Air Quality	
<p>5.5-4: Placement of sensitive land uses, such as residential or public health facilities, near commercial or industrial uses could result in conflicts with regard to nuisance or health risk from pollutant emissions.</p>	<p>Proposed modification to Policy 147: The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual and other impacts generated by sand and gravel quarries. <i>Conversely, the County shall not approve land uses adjacent to any existing quarry if the development of the new uses would result in exposure of residential or other sensitive uses to possible adverse impacts of the quarry, unless the new uses can effectively mitigate the significant adverse impacts and notify potential homeowners of the risk, as required by policy 146.</i></p>
5.7 Biological Resources	
<p>Potential Impact 5.7-1: Development within the Urban Growth Boundary could result in the loss of grasslands, cultivated lands and woodlands.</p>	<p>Proposed modification to Table 2 of the <i>East County Area Plan - Volume I: Open Space areas</i> include large, contiguous tracts of land that will provide continued habitat for wildlife and plant species and protect the overall value of natural communities.</p>
5.8 Visual and Aesthetic Resources	
<p>5.8-3: Replacing the existing Open Space Element policy with Policy 284 could allow mass grading in areas exceeding 25 percent slope, resulting in degradation of background views.</p>	<p>Proposed Modification: Policy 284 should be amended to read: The County shall minimize development within any area exceeding 25 percent slopes to minimize mass grading and hazards associated with slope instability.</p>
5.10 Mineral Resources	
<p>5.10-2: Mining and processing of construction aggregate near existing residential communities, as well as ancillary uses associated with quarry operations, could result in various impacts on residents, including noise and dust from extraction, processing and transportation; light and glare from night operations; truck traffic and potential truck spillage; and alteration of short- and/or long-distance views caused by processing and conveyance structures.</p>	<p>(a) <u>Proposed Modification to Policy 147:</u> The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual, and other impacts generated by sand and gravel quarries. <i>The conditions should at least include, but not be limited to, those developed through the California Environmental Quality Act review process.</i></p> <p>(b) <u>Proposed Modification to Policy 155:</u> The County shall require landscaping to reduce visibility of mining activity and ancillary uses during all phases of quarry operations, in addition to landscaping for final site reclamation. <i>Landscaping should as closely as possible approximate the preexisting natural conditions prior to surface mining.</i></p>

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
5.11 Geologic Hazards	
<p>5.11-1: Residential, commercial and industrial development could augment the number of people and structures exposed to seismic hazards, increasing the risk to life and property from ground shaking and associated secondary effects such as landsliding, liquefaction, and differential settlement.</p>	<p><u>Proposed Modification to Policy 285:</u> The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk of surface rupture, ground failure, and subsidence caused by seismic and geologic activity.</p>
<p>5.11-3: Development could occur in hilly areas, resulting in erosion and slope stability problems (stemming from grading, vegetation removal, irrigation, etc.).</p>	<p><u>Proposed Modification:</u> Policy 284 should be amended to read: The County shall minimize development within any area exceeding 25 percent slopes to minimize <i>mass grading and hazards</i> associated with slope instability. (See also Chapter 5.8, Visual and Aesthetic Resources.)</p>
<p>5.11-6: In the event of a major earthquake, damage to utilities, communications and emergency service facilities (e.g., hospitals, fire stations), or disruption of access routes to and from these facilities, could render them unusable.</p>	<p>(a) <u>Proposed Modification to Policy 287:</u> The County shall ensure that new major public facilities, particularly including health-care emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment and communications facilities, are sited in areas of low geologic risk.</p> <p>(b) <u>Proposed Modification to Policy 287:</u> The County shall ensure that major transportation facilities and pipelines are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.</p>
5.13 Water Supply	
<p>5.13-1: Water demand from new urban development would exceed existing water supply.</p>	<p><u>Proposed Modification to Policy 238:</u> The County shall encourage Zone 7 to maximize use of the Chain-of-Lakes for water supply development and groundwater management. <i>Zone 7 is encouraged to stage implementation of the system so that each component may be utilized as it becomes available.</i></p>
<p>5.13-2: Pumping of groundwater could result in the long-term depletion of the groundwater basin.</p>	<p><u>Proposed Modification to Policy 245:</u> The County shall encourage Zone 7 and the water retailers to require separate service connections and meters where large quantities of water are used for special purposes such as golf courses and landscape irrigation so that consumption of water for these uses can be managed in times of drought. To this end, the County shall, <i>if feasible</i>, require the use of recycled water for golf courses and shall encourage use of recycled water for non-residential landscaping, irrigated agriculture, and groundwater recharge.</p>

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
5.14 Wastewater	
5.14-1: Wastewater generation from new urban development could exceed export capacity.	Proposed New Policy: The County shall condition the approval of new development on verification that that adequate wastewater treatment and export and/or reclamation capacity exists to serve the development.
5.14-2: Distribution of capacity among East County jurisdictions may not match the ECAP development pattern.	(a) <u>Proposed New Policy:</u> The County shall work with TWA and other East County jurisdictions to ensure that additional export capacity and/or reclaimed water capacity is allocated so that the ECAP development pattern can occur. (b) <u>Proposed New Policy:</u> The County shall continue to seek alternative methods for economic reuse of wastewater those already considered.
5.16 Park and Recreation Facilities	
5.16-1: Growth under the plan would result in increased demand for parks and recreation facilities, exceeding available supply.	<u>Proposed new policy:</u> <i>The County shall support the development of recreation facilities in close proximity to major employment centers.</i>
5.18 Child Care	
5.18-1: The existing supply of child care services would not be adequate to meet child care needs resulting from development under the plan.	<u>Proposed Modification to Policy 218:</u> The County shall work with the Economic Development Advisory Board and local resource and referral agencies to promote training for child care providers and employer use of child care benefit and information programs.
5.19 Police and Fire Protection	
5.19-3: The risk of wildland fires could increase as a result of new development and increased population.	(a) <u>Proposed Modification to Policy 297:</u> The County shall require all new homes in rural residential areas that are located in high-fire-hazard-areas " <i>high</i> " and " <i>extreme</i> " fire hazard areas to be sited and designed to minimize risks to life and property. (b) <u>Proposed Modification to Policy 300:</u> The County shall require the use of fire resistant building materials, fire-resistant landscaping, and adequate clearance around structures in high-fire-hazard zones " <i>high</i> " and " <i>extreme</i> " fire hazard areas.

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Less-Than-Significant Impact	Clarification of Policies and Programs ¹
5.20 Solid and Hazardous Waste Management	
<p>5.20-1: Existing landfill capacity in Alameda County is inadequate to accommodate projected population increases countywide, including the East County planning area.</p>	<p>(a) <u>Proposed Modification to Policy 142:</u> The County shall locate future solid waste facilities and/or expand existing solid waste facilities in appropriate locations <i>within the study area addressed in the Altamont Hills Landfill Program EIR (1989)</i> outside the Urban Growth Boundary that allow for compliance with all of the state minimum standards for solid waste management, and where the separation of the facility from residences and other sensitive uses is sufficient to permit adequate control of possible impacts of the solid waste facility including, but not limited to, noise levels, odor and litter nuisances, traffic congestion, and disease carrying vectors.</p> <p>(b) <u>Proposed Modification to Program 61:</u> The County shall amend the General Plan as necessary to identify <i>all sites the general locations of sites</i> required for the maintenance and expansion of existing and/or the establishment of new, solid waste facilities <i>when the Siting Element of the County's Integrated Waste Management Plan is adopted.</i></p>
<p>5.20-2: Increased generation of hazardous wastes from the East County could place an additional burden on hazardous waste collection facilities serving this area.</p>	<p>(a) <u>Proposed New Program:</u> <i>The County shall evaluate new development proposals for their ability to provide hazardous waste collection points or other collection measures, such as curbside pick-up service, where the number of households (as identified in the County Household Hazardous Waste Element) warrants this service. The County shall coordinate collection points with the Waste Management Authority.</i></p> <p>(b) <u>Proposed New Program:</u> <i>The County should develop an ordinance requiring new industrial users to provide a hazardous waste plan, as part of the Development Title, prior to starting operations.</i></p>

NOTE: ¹ While no mitigation is needed, the above new plan policies and programs or modifications would clarify the above plan policies and programs (new language is shown in *italics*; deleted language is ~~struck-out~~).

Chapter 5.1 - Land Use and Planning

A. EXISTING SETTING

[For more detailed information on the land use and planning topics discussed in this section, refer to the *Urban Land Use and Non-Urban Land Use and Open Space* Background Reports in the *Draft East County Area Plan - Volume 2.*]

Urban Land Use in Incorporated Areas

Most urban development in the East County is located in the Livermore-Amador Valley in the planning area's three incorporated cities: Pleasanton, Dublin, and Livermore. Together, the three cities represent about 97 percent of the East County's 1990 population of nearly 136,000 (US Census of Population and Housing, Summary Tape File-1A, 1992). Refer to Figure 8 for city incorporated limits and sphere of influence. As required by state law, each city must prepare a comprehensive general plan for its planning area. (The most recent general plan updates for Pleasanton, Dublin, and Livermore, not including amendments, were adopted in 1986, 1985, and 1976 respectively.) Buildout of the cities' adopted general plans is discussed under Alternative 1 in *Chapter 6* and summarized in Table 6-1. A number of General Plan Amendments (GPAs) are currently being considered by the cities of Dublin and Livermore for land in their respective extended planning areas. Proposed land uses are summarized in Table 5.1-1 below.

Characteristics of Incorporated Development. Urban development within the cities of Dublin, Pleasanton and Livermore is characterized by relatively low residential densities. In 1980, the average residential density in incorporated areas was about 4.6 units per gross acre. Under existing general plans and general plan amendments, average residential density will not change significantly. The amount of currently vacant and underutilized land within incorporated areas varies considerably by city. Under the cities' existing general plans, Dublin has virtually no infill land for residential development, while Pleasanton and Livermore together can accommodate about 14,000 additional housing units. Much of the currently underutilized land is zoned for commercial and industrial uses, of which only somewhat more than 30 percent is needed to accommodate projected future demand (see ABAG Projections '92).

Urban Land Use in Unincorporated Areas

Although grazing and other agricultural uses predominate in the unincorporated areas surrounding the developed portions of Livermore-Amador Valley, there are a number of residential enclaves, commercial enterprises, and public and private facilities scattered throughout this portion of the planning area. (If residential enclaves do not receive water and sewer service, they are considered rural residential and are discussed below in *Non-Urban Land Use and Open Space*.)

Residential and Commercial. There are two areas of suburban density residential land use in the unincorporated area: the Castlewood Country Club and Foothill Road areas south and west of Pleasanton. Residential densities here are greater than one unit per acre. The

TABLE 5.1-1 City General Plan Amendments				
Project	Housing Units	Jobs	Land Area ¹ (Acres)	Status
Eastern Dublin	13,930	26,380	3,050	Adopted by City Council (5-10-93)
North Livermore	12,940	13,870	3,615	Proposed (EIR in progress)
Totals:	26,870	40,250	7,790	N.A.
Note: ¹ Approximate planning area, including open space within the planning area, but not including rural residential (1 du per 100 acres).				
Source: Alameda County Planning Department; City of Dublin; City of Livermore				

Castlewood Country Club area is a residential development on the east side of Pleasanton Ridge surrounding the country club golf courses. Low suburban density residential development extends south along Foothill Road. These areas receive water, sewer, and fire protection from the City of Pleasanton through a County Service Area.

There is virtually no commercial development in the unincorporated area. There is a small locally-oriented commercial district in Sunol and limited highway-oriented commercial development at several of the interchanges along I-580 and I-680. There are some wholesale nurseries, particularly south of Sunol and a recreational vehicle storage facility on Tesla Road. There are a limited number of construction companies and wrecking yards on the eastern outskirts of the City of Livermore. There is a large area planned and zoned for commercial and industrial use between Livermore and Pleasanton, but which is as yet undeveloped.

There are several producing wineries in the unincorporated area south of the City of Livermore in the South Livermore Valley. These range from fairly small to large, and process grapes grown in the valley and imported from other areas. In conjunction with wine production, they also variously involve wine tasting and sales and sale of associated products. One winery also includes a restaurant and meeting facility.

Major Public Facilities and Utilities. Major public facilities in the East County are the U.S. Army's Parks Reserve Training Center (Camp Parks); Santa Rita County Jail; the Federal Correctional Facility, Pleasanton; Livermore Municipal Airport; Federal Communications Commission Monitoring Station; Lawrence Livermore National Laboratories; Sandia National Laboratories; General Electric Vallecitos Nuclear Center; and the U.S. Veterans Hospital. Figure 9 shows the locations of these facilities. Major utilities include electrical powerlines and substations, and oil and natural gas pipelines. Figure 26 in the Background Reports (*Draft East County Area Plan - Volume 2*) shows the approximate locations of the major electrical facilities and Figure 27 (also in the Background Reports) shows the approximate locations of the major pipelines.

Camp Parks. The U.S. Army's Parks Reserve Forces Training Center is located on a 2,884 acre site on the eastern side of the City of Dublin, within the city boundary. Most of the development on the site (consisting of barracks, training areas, classrooms, and administration buildings) is located northerly of the newly completed Dublin Boulevard extension, on the southern portion of the area. To the north, the area is largely vacant, with portions used for leased grazing and a light artillery range. The vacant area is also used for troop maneuvers, small arms firing, helicopters and other heavy equipment. A communications satellite tracking station operated by Lockheed is located on a 11.6 acre site on the eastern side of Camp Parks.

Prison Facilities. There are two major prison facilities in the planning area: the Santa Rita County Jail and the Federal Correctional Facility, Pleasanton.

Livermore Municipal Airport. Livermore Municipal Airport, owned and operated by the City of Livermore, is one of three general aviation airports in Alameda County and is the only airport in the East County. The airport serves the Tri-Valley area which includes the Alameda County cities of Dublin, Livermore, and Pleasanton and the Contra Costa County cities of San Ramon and Danville. Livermore Airport is located south of I-580 near the Airport Boulevard interchange on a 531-acre site. There were about 232,900 total operations at the airport in 1991, and 607 based aircraft in that year.

Projected population growth and commercial and industrial development in the subregion are likely to contribute to a substantial increase in activity at the Livermore Municipal Airport. Forecasts indicate that the annual number of aircraft operations at the airport will increase from the 1990-91 level of about 232,900 total operations to approximately 420,700 total operations by the year 2011, representing an annual growth rate of about 3 percent.

In general, urban development near existing airports poses a dilemma for airports. As population and the economy grow, there is a potential for increased demand for airport-related services. However, due to land pressure, new residents often live in residential areas adjacent to or near the flight paths of airports, thus leading to complaints from residents regarding airport noise and safety issues. In many cases, complaints lead to

restrictions on the operations of airports and aircraft, and sometimes to closure of the airport.

An airport protection area (APA) around the Livermore Municipal Airport was adopted by the Alameda County Airport Land Use Commission (ALUC) on January 13, 1993 to address this situation. The APA, codified in the *Alameda County Airport Land Use Policy Plan*, is defined as "a zone around the airport where new residential developments are prohibited in order to protect the airport" (see Figure 10). The airport protection area would also prohibit the intensification of existing residential development within the APA. The ALUC action on the APA is currently subject to litigation.

In addition to the APA, the *Alameda County Airport Land Use Policy Plan* designates a General Referral Area (which subsumes the APA), a Height Referral Area and Safety Zones around the Livermore Municipal Airport. In conformance with state law, the ALUC reviews referrals from local public agencies of projects proposed within these specified areas to determine consistency of proposed projects with the *Airport Land Use Policy Plan*. A "project" is any proposed action under consideration by a local agency subject to ALUC review. Such actions include amendment or adoption of a general or specific plan, adoption or amendment of a zoning ordinance or building regulation by a local public agency which affects land use within an ALUC planning boundary.

Federal Communications Commission Monitoring Station. The Federal Communications Commission (FCC) Monitoring Station is located in the North Livermore subarea on a 117-acre site between May School Road and Hartford Avenue, north of I-580 and just west of the Livermore city limits in unincorporated Alameda County. The FCC station was established in 1947 and is one of fourteen monitoring stations located throughout the United States and Puerto Rico. The three main functions of the station are: 1) HF long-range direction finding, aiding vessels and aircraft in distress or with navigational equipment problems; 2) spectrum management (HF, VHF, UHF) tasks using monitoring and radio law enforcement facilities; and 3) solution of international radio interference problems, cross-border disputes and negotiations, and the maintenance of international treaty obligations. To accomplish these tasks, the station employs a wide variety of antennas and a long-range direction finder.

Major Research Facilities. Lawrence Livermore National Laboratory and Sandia National Laboratories, Livermore are major federal research facilities located in unincorporated Alameda County, east of Livermore, between Vasco and Greenville Roads. While both facilities are owned by the U.S. Department of Energy, they are separate facilities operated by different contractors. General Electric Vallecitos Nuclear Center, a third research facility, is located on Vallecitos Road, south of Pleasanton and is owned and operated by the General Electric Company.

Veterans Administration Hospital. The Veteran's Medical Center, operated by the U.S. Veterans' Administration for the exclusive use of U.S. veterans, is located on a 169 acre site on Arroyo Road, south of Livermore. Currently, the facility has approximately 460

employees. Under normal conditions the Medical Center consists of a 120-bed nursing home care facility and a 105-bed hospital.

Non-Urban Land Use and Open Space

The vast majority of land in the East County is unincorporated and consists of extensive hills which frame the rapidly urbanizing Livermore-Amador Valley. Non-urbanized land uses within this area are rural residential, agriculture (mostly grazing with some irrigated cultivation in South Livermore Valley and Mountain House), publicly-owned regional parks and watershed lands, and special natural resource land uses such as sand and gravel quarries and windfarms (see Figure 11). These non-urbanized lands, when added to environmentally sensitive lands (i.e., critical habitat and sensitive viewsheds) and lands constrained by potentially hazardous conditions (i.e., steep topography, landslide, flood and fault zones), comprise the East County's significant open space.

Rural Residential. There are several areas of very low density residential development (generally on parcels of between one and five acres) scattered throughout the unincorporated East County (see Figure 11). For the most part, residents rely on individual septic systems and wells. An exception is Sunol, a small rural residential community of 500 people at the eastern end of Niles Canyon, which receives water service from the San Francisco Water Department or the City of Pleasanton. Limited agriculture or agriculture-related activities may occur on some of these parcels.

Agriculture. Development on agricultural parcels typically consists of one single-family dwelling and uses accessory to the agricultural operation on the parcel. These accessory uses include farm buildings, such as barns, stables, corrals, and coops; buildings for packing products raised on the premises; and stands for the sale of products raised on the premises. Existing zoning regulations allow, as a conditional use, additional dwellings for persons employed in the agricultural use of the subject property and their families, and/or living quarters for farm laborers. Non-agricultural uses that are generally compatible with agriculture, such as recreational facilities, public utilities, sanitary landfills and wind turbines for generating electricity, can also be found in the agricultural area as conditional uses.

There are relatively few very small parcels in agricultural areas. However, there are clusters of parcels under 40 acres, subdivided prior to current zoning (see Figure 11). Large-parcel agriculture is the predominant land use in the unincorporated portion of the East County. According to the 1987 Census of Agriculture, the size of the average farm in Alameda County is 349 acres. A wide variety of agricultural activities take place in this area, including grazing, viticulture, dryland farming, and irrigated agriculture. A detailed discussion of agricultural uses can be found in *Chapter 5.2 - Agricultural Resources*.

Public Lands. Public lands in the unincorporated area include regional parks and watershed lands.

Regional Parks. The East Bay Regional Park District owns or manages nearly 20,000 acres of regional park land in the East County and several additions to the park system are under consideration. Refer to *Chapter 5.16 - Parks and Recreation* for additional information.

Watershed Lands. The San Francisco Water Department (SFWD) owns approximately 67,900 acres of watershed land in the East County and adjacent Santa Clara County (about half of this acreage overlaps with the Sunol and Ohlone Regional Parks). The 40,000 acres of watershed located in the East County comprises much of Sunol Valley and surrounds the San Antonio Reservoir south of Vallecitos Road and Calaveras Reservoir on the Santa Clara County line (see Figure 12). These lands were acquired between 1870 and 1900 and since 1930 have been fenced to prevent trespass. Although some of the land is grazed under permit, the watershed lands have generally retained high biological resource quality.

To comply with federal regulations, SFWD is considering construction of a new water treatment plant in Sunol Valley. SFWD has also recently initiated two planning efforts for its watershed land in the East County, the Alameda Creek Water Resources Study (discussed below under "Quarries") and the Alameda Watershed Management Plan. The Watershed Management Plan will focus on the following issues: resolving land use incompatibilities arising from development of adjacent lands; maintaining water quality; and, examining multiple-use opportunities, especially passive recreation, on watershed land. SFWD will continue to pursue conjunctive uses with the East Bay Regional Park District.

Small areas of water management land under State ownership in the East County include the Bethany Reservoir and the South Bay Aqueduct corridor.

Special Natural Resource Land Uses.

Quarries. Major sand and gravel resources are located along the arroyos of the Livermore-Amador and Sunol Valleys (see Figure 11). Hard rock is found in the Apperson Ridge area. Refer to *Chapter 5.10 - Mineral Resources* for further information.

Windfarms. There are extensive wind turbine fields in the area north and south of the Altamont Pass near the boundary with San Joaquin County (see Figure 11). The Altamont Pass area, designated by the California Energy Commission as the Altamont Pass Wind Resource Area, straddles both Alameda and Contra Costa Counties. It is the most developed wind resource area in the world with approximately 7,000 wind turbines (of which over 5,800 are within Alameda County) producing 1,100 million kilowatt hours of electricity annually for distribution by Pacific Gas and Electric (PG&E). This

annual energy output is enough to supply the electrical need of all residences in a city the size of Oakland (350,000 people). Of the 103 conditional use permits for wind farming approved by the County, 75 are currently active. The County's windfarms are spread over approximately 78 square miles, but the turbines and ancillary electric power lines, access roadways, and maintenance facilities occupy a relatively small proportion of the total land area (ten percent or less, typically, for each permit). The remainder of the land continues to be used for agricultural production (dry grain farming and cattle grazing), or as open space.

If the full development potential of the Altamont Pass area was utilized, another 3,000 turbines could go into operation. Actual development would depend on detailed wind measurement, land lease negotiation, environmental constraints, and the financial feasibility of development, including powerline capacity and payment contracts.

Landfills. The 2,170-acre Altamont Sanitary landfill site (which includes the 225-acre fill area and a 1,020-acre site proposed for expansion) and the 644-acre Vasco Road landfill (which includes the 226-acre fill area and 86-acre site proposed for expansion), located in the northeastern quadrant of the East County, accommodates most of the County's solid waste. The Waste Management Authority has acquired a site in the Altamont Hills of East County for a publicly-owned Integrated Waste Management Facility. See *Chapter 5.20 - Solid and Hazardous Waste Management* for additional information.

Surrounding Land Use

Western Alameda County. Immediately west of East County is the Castro Valley planning area. The *Castro Valley Plan* was updated and adopted by the Alameda County Board of Supervisors most recently in 1985. Under the *Castro Valley Plan*, all urban development is designated to occur within the Urban Area near the City of Hayward. Land outside the Urban Area, including that adjacent to East County, is designated for agricultural and open space uses. North of I-580, the West Dublin GPA project, largely located in the Castro Valley planning area, was defeated by the Dublin voters in a special election on January 5, 1993. Following defeat of the 3,300 home project, the project proponent may consider resubmitting a scaled back project.

South of I-580, a proposal to build 2,640 homes in the Pleasanton Ridgeland was defeated by the Pleasanton voters in November of 1992. Since then, the East Bay Regional Park District has purchased about 1,100 acres of the former residential project as part of the planned Ridgeland Regional Park. The cities of Hayward and Pleasanton together with Alameda County are considering general plan amendments to preserve the entire Pleasanton Ridgeland in open space and agricultural uses. The Pleasanton GPA is expected to be submitted for voter approval on the November 1993 ballot, according to the requirements of Measure M.

Also in western Alameda County, the City of Fremont's General Plan (adopted 1991) contains policies regarding Fremont's potential expansion into unincorporated land located in the Sunol subarea. The city has included the Vargas Plateau and Sheridan Road (on and/or east of the ridgeline and northwest and southeast of I-680 respectively) within its planning area. Fremont General Plan policies call for a planning study to be undertaken that will evaluate the advisability of incorporating this land into the city and permitting development. (The areas would first have to be added to the city's sphere of influence). If the study finds the extension of services and development in portions of these areas to be appropriate, the General Plan calls for a second planning effort to develop a specific plan for the area identified for development. A similar study will be prepared by both Fremont and Union City to assess the development potential of the Niles Hills area. Union City has prepared the draft *Hillside Area Plan* and *Draft Environmental Impact Report*. The draft plan would establish policies and regulations to guide future development in the 6,100-acre hill area within Union City's boundary and approximately 1,000 acres in an adjacent area in Fremont. In order to implement the plan as proposed, Union City would need to annex the 1,000 acres that are now within Fremont's boundary.

Adjacent Counties. Contra Costa and San Joaquin counties, adjacent to the planning area to the north and east respectively, form part of the regional context of the East County planning area by virtue of shared wildlife habitats, a common transportation network, and intertwined socio-economic dynamics associated with the larger Bay Area. Both counties have recently updated their general plans; Contra Costa County has established an Urban Limit Line which would preclude development along the common boundary with the East County except for the San Ramon Valley and the Dougherty and Tassajara Valleys, where general plan amendments for residential development are being pursued. The proposal for a new community in San Joaquin County immediately adjacent to the East County on the east side of Altamont Pass north of I-580 (Mountain House GPA) was recently approved by that county's Board of Supervisors. A number of other projects are also under consideration in this area of San Joaquin County. The locations of these projects are shown in Figure 5 in the Background Reports (*Draft East County Area Plan - Volume 2*); Table 5.1-2 summarizes the land use programs. In Santa Clara County, south of the planning area, regional parks and watershed lands cross the boundary separating the two jurisdictions.

TABLE 5.1-2 Major Land Use Proposals in the East County Vicinity				
Project	Housing Units	Commercial/Industrial/Office	Planning Area (Acres)	Status
Dougherty Valley	Up to 11,000	Up to 800,000 sq.ft.	6,000	Approved General Plan Amendment
Tassajara Valley	5,340	52 acres	6,000	Proposed General Plan Amendment
Tracy Urban Management Plan	57,107	8,759 acres	26,641	Proposed General Plan
Mountain House	15,994	702 acres	4,667	Approved General Plan Amendment
Source: Alameda County Planning Department; Contra Costa County Planning Department; Final SEIR, Mountain House, New Town GPA, January 1993; Tracy Draft General Plan (March 15, 1993).				

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of *Urban Land Use, Non-Urban Land Use and Open Space, and Agriculture* in the Background Report (see *Volume 2* of the *Draft East County Area Plan*) identified historical and emerging trends and discusses growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- lack of coordination with adjacent jurisdictions could lead to inefficient planning and investment
- accommodation of projected growth could result in urban sprawl, conversion of significant open space, and loss of resource areas

- encroachment of urban development could interfere with continued operation of public facilities (e.g., FCC monitoring station, Livermore Municipal Airport)
- land uses under the plan could conflict with adopted plans of other jurisdictions or agencies
- introduction of new land uses could interfere with continued operation of windfarms, quarries, agriculture and other non-urban uses

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban/Open Space Delineation

Policy 1: The County shall identify and maintain an **Urban Growth Boundary** that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety. The Urban Growth Boundary circumscribes an area inside of which urban development will be encouraged and outside of which urban development will be prohibited. The Urban Growth Boundary is intended to be permanent and shall include sufficient developable land to accommodate an ultimate holding capacity for both incorporated and unincorporated development in East County. The County shall use the Urban Growth Boundary to provide certainty regarding development potential for long-term infrastructure financing, agricultural investment, and environmental protection.

Program 1: The County shall review the Urban Growth Boundary and the land use designations within it every five years. At the time of the five year review, the County may make adjustments to the Urban Growth Boundary, only if such adjustments are minor and consistent with the policies of the *East County Area Plan*.

Interjurisdictional Coordination

Policy 2: The County shall work with cities and other agencies in planning land use and infrastructure to achieve the goals of the *East County Area Plan* using a **cooperative approach** that recognizes those environmental, social, and economic characteristics of the subregion that extend beyond jurisdictional boundaries.

Policy 3: The County shall actively consult with East County cities during formulation of County land use plans and projects that have potential subregional impacts, and shall encourage cities to reciprocate.

Policy 4: The County shall continue to participate in the **Tri-Valley Council** in an effort to share information and coordinate land use and transportation planning.

Policy 5: The County shall work with cities to present a unified position representing East County interests in whatever form of regional government that may be created by the California Legislature.

Policy 6: The County shall work with cities toward reducing the fiscal motives that currently drive land use and planning decisions throughout the subregion. To this end, the County shall work with cities in an effort to equalize the costs and benefits of development to encourage a regionally beneficial land use pattern and minimize competition among local jurisdictions.

Policy 7: The County shall work with cities toward the equitable distribution of property tax revenues and development fees based on the cost and location of services provided.

Policy 8: The County shall actively seek new revenue sources to achieve the goals of the *East County Area Plan*.

Program 2: The County shall work with cities and special districts to achieve consistency of local general plans and service plans with the *East County Area Plan*, especially in terms of holding capacity limits, infrastructure requirements, and open space acquisition programs.

Program 3: The County shall prepare and adopt a countywide regional element of the County General Plan to promote consistency among local general plans. The element shall be developed in cooperation with cities and shall include a common land use and environmental database, transportation model, and performance standards for new development.

Program 4: The County shall prepare a monitoring report every two years that monitors implementation of the *East County Area Plan*. The biennial monitoring report shall include information on holding capacity, infrastructure capacity, service levels, and performance standards for new development.

Program 5: The County shall work with cities to jointly fund a regional planner to assist County and city staffs in reviewing and coordinating subregional plans and projects. The regional planner should be responsible for coordinating affected city and County input into the formulation of subregional projects prior to issuance of draft plans and Environmental Impact Reports (EIRs) as well as during the formal public review process.

Program 6: The County shall review and revise its tax sharing policies in order to encourage cooperative planning which achieves the goals of the *East County Area Plan*. When a city applies to the Alameda County Local Agency Formation Commission (LAFCO) to annex unincorporated land, the County will evaluate the conformance of the city-proposed land uses and infrastructure plans with the *East County Area Plan* and may adjust the city/county tax share accordingly.

Program 7: The County shall work with cities to develop fee programs to fund subregional facilities (such as public hospitals, jails, and government offices), affordable housing (for low- and very low-income households), and open space to serve East County residents.

Urban and Rural Development

Policy 11: The County shall ensure that adequate land remains within the Urban Growth Boundary to accommodate planned buildout and to achieve state mandated housing targets. To accomplish this, the County shall monitor the densities and intensities of development approved by the County and cities. If development is being approved at densities lower than what is needed to achieve buildout, the County shall increase the densities for unincorporated lands designated for urban development, rather than modify the Urban Growth Boundary, and shall work with cities to do the same within incorporated areas.

Policy 12: If average densities of approved new development do not meet or exceed the mid-point of the density range within a land use category (except Very High Density Residential), the County shall redesignate parcels in unincorporated areas within the Urban Growth Boundary to compensate for reductions in holding capacity, and shall work with cities to do the same within incorporated areas.

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Policy 15: The County shall phase development to minimize premature loss of agricultural land.

Policy 17: The County shall approve urban development only if it is located within the Urban Growth Boundary.

Policy 19: The County shall encourage cities to promote infill development in areas where higher density housing already exists, in areas adjacent to commercial or industrial land uses, and in areas served by public transit.

Policy 22: The County shall not approve the further subdivision of rural areas outside the Urban Growth Boundary, except in infill locations within the existing pattern of parcelization.

Policy 26: The County shall work with the City of Dublin to exclude development from steep hillsides (shown as Rural Residential in the Eastern Dublin Specific Plan) and from Doolan Canyon and establish programs to acquire these areas as part of a contiguous open space system.

Policy 27: The County shall require detailed development plans (e.g., specific plans) for each major development phase of Major New Urban Developments. Within each major development phase, the County shall support development at densities that, on average, meet or exceed the mid-point of the density range for each residential land use category, except Very High Density Residential. The County shall provide incentives to build to the high end of the density range of each residential land use category in areas adjacent to community centers and transit facilities to promote transit use and compact development.

Policy 30: The County shall seek to ensure the compatibility of Major New Urban Development with adjacent land uses.

Policy 31: The County shall recognize that compact development results in more efficient use of land and infrastructure, and less conversion of open space, than low-density sprawl. To encourage compact development, the County shall provide economic incentives to developers who provide higher densities and affordable housing.

Policy 37: The County shall require a phasing plan for major residential projects *and Major New Urban Developments* that determines when multiple family units (including very-low, low-, and moderate-income units) will be built in each major residential project. The intent of the phasing plan is to ensure that the majority of multiple family and affordable housing units are not postponed until the final phases of development. The County shall work with cities to require the same within incorporated areas.

General Open Space

Policy 56: The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, windpower, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.

Policy 57: The County shall preserve a continuous band of open space consisting of a variety of plant communities and wildlife habitats to provide comprehensive, rather than piecemeal, habitat conservation for all of East County. This open space should, as much as possible, be outside of the Urban Growth Boundary and contiguous to large open space areas of Contra Costa, Santa Clara, and San Joaquin Counties.

Policy 58: The County shall only approve open space, park, recreational, agricultural, low-intensity institutional, limited infrastructure, and other similar and compatible low intensity uses outside the Urban Growth Boundary.

Policy 59: The County shall use mechanisms such as zoning, dedication, fee purchase, density transfer, and easements to preserve open space outside the Urban Growth Boundary.

Policy 60: The County shall require new developments to dedicate land and/or pay equivalent in-lieu fees for the provision of open space in East County for resource protection. Open space lands may be acquired through the use of density transfer or purchase using in-lieu fees. Detailed development plans (e.g., specific plans) required for each phase of Major New Urban Developments shall include a detailed open space program ensuring the acquisition of land for public use, sufficient funds to manage open space land, and the fair compensation of property owners. The County shall require the dedication of approximately 4,200 acres of land designated "Resource Management" as a condition of developing Major New Urban Development in North Livermore.

Policy 61: The County shall encourage the Alameda County Open Space Land Trust to acquire fee title or easements on strategic parcels that would complete the continuous public open space system surrounding Eastern Dublin, North Livermore, South Livermore, and Pleasanton Ridgeland in order to permanently secure the Urban Growth Boundary.

Policy 62: The County shall encourage the Alameda County Open Space Land Trust to acquire open space easements accompanied by agreements to carry out appropriate management practices,

whenever feasible, in lieu of fee acquisition in order to maintain open space land on property tax roles.

Policy 63: The County shall encourage the Alameda County Open Space Land Trust to acquire open space land in fee title, through purchase or dedication, when it is necessary to provide public access or to ensure suitable land management practices.

Policy 64: The County shall encourage active public use of open space lands close to existing and planned communities in locations where such use does not conflict with the protection of biological resources.

Policy 65: The County shall ensure that management objectives, funding and maintenance responsibilities are clearly identified for all open space lands to be acquired in fee or through easements by the Alameda County Open Space Land Trust. The County shall work with the Land Trust to further ensure that adequate funds are available to carry out on-going open space management activities.

Policy 66: The County shall require that open space provided as part of a development project be designed to achieve open space objectives (e.g., recreation, viewshed, community separation, riparian protection, public safety).

Policy 67: The County shall require that open space within developed areas be designed and maintained to minimize fire hazards and ensure compatibility between development and any significant biological resources.

Policy 68: The County shall designate the Vargas Plateau and the Sheridan Road areas for agricultural and other open space uses. The County shall participate with the City of Fremont in their planning studies for these areas, and shall encourage the City of Fremont to designate the areas as community separators between Fremont and East County.

Policy 69: The County shall work cooperatively with the cities of Pleasanton and Hayward, the Castro Valley community, the East Bay Regional Park District (EBRPD), and landowners to retain Pleasanton Ridge as permanent open space and reserve a regional trail corridor connecting Sunol with the West Dublin hills. Accordingly, the County shall oppose city sphere of influence expansions and annexations outside the Urban Growth Boundary in this area for purposes of urban development.

Policy 70: The County shall encourage the City of Dublin to designate West Dublin for agricultural or open space uses to serve as a community separator and to reserve a regional trail corridor connecting the San Ramon westside hills with Pleasanton Ridge, consistent with the *East County Area Plan*.

Policy 71: The County shall recognize West Dublin as a valuable open space buffer separating the community of Castro Valley from the East County Planning Area. The County shall encourage the City of Dublin to retain this area as open space to be consistent with the County's designation of this area as "Large Parcel Agriculture."

Policy 72: The County shall designate approximately 3,200 acres in Eastern Dublin and approximately 4,200 acres in North Livermore as "Resource Management" towards the establishment of a continuous open space system in East County. To this end, the County shall:

1. Encourage the City of Dublin to redesignate in the Eastern Dublin Specific Plan and General Plan Amendment all Rural Residential (RR) land east of Fallon Road, as well as Doolan Canyon as "Resource Management," consistent with the *East County Area Plan*. Allowable uses may include agriculture, grazing, recreational, and open space uses.
2. Encourage the City of Dublin to work with the Alameda County Open Space Land Trust to acquire parcels designated "Rural Residential" in Eastern Dublin, through purchase of fee title or easements with open space fees, by means of dedication and/or through density transfer or other funding mechanisms.
3. Require that land use activities conducted within this area adhere to management guidelines developed for the protection of biological resources.

Policy 73: The County shall work with San Joaquin, Contra Costa, and Santa Clara Counties to ensure that land uses adjacent to Alameda County open space lands are compatible with open space uses. The County shall ensure that land uses within Alameda County adjacent to San Joaquin, Contra Costa, and Santa Clara Counties are compatible with adjacent open space lands in these other counties.

Policy 74: The County shall work with the East Bay Regional Park District (EBRPD) and the Livermore-Amador Recreation and Park District (LARPDP) to ensure that open space trails adjacent to San Joaquin, Contra Costa, and Santa Clara Counties connect with trail systems in these other counties.

Program 22: The County shall adopt an open space dedication and/or in-lieu fee requirement applicable to all residential and industrial, commercial, and office developments within unincorporated areas to fund the purchase of land within the continuous open space system and provide an endowment for on-going management of open space lands. The County shall work with cities to develop and adopt an open space dedication and in-lieu fee requirement consistent with the County requirement.

Program 23: The County shall work with cities to establish a non-profit Alameda County Open Space Land Trust to acquire and convey lands within the public open space system to other public agencies. The Land Trust can use developer dedication, fee purchase, open space or access easements, and other mechanisms to acquire and permanently preserve a continuous open space system outside the Urban Growth Boundary. The County shall encourage the Alameda County Open Space Land Trust to purchase strategic parcels which would complete the continuous open space system surrounding Eastern Dublin, North Livermore, and East Livermore. The County also shall encourage the Alameda County Open Space Land Trust to acquire parcels in other portions of East County and convey them to the appropriate public agency to expand water management or regional park lands, when necessary to achieve the open space and resource management objectives of the *East County Area Plan*. In the event that a County Open Space Land Trust and a South Livermore Valley Agricultural Land Trust are both formed, administrative and other functions may be shared by the two trusts in order to reduce costs.

Program 24: The County shall develop management guidelines to implement specific resource management objectives for watershed and biological resource protection to apply to those lands designated as "Resource Management".

Program 25: The County shall work with the Livermore Area Recreation and Park District (LARPD), the East Bay Regional Park District (EBRPD), and the San Francisco Water Department to incorporate continuous open space areas outside the Urban Growth Boundary into the Bay Area Greenbelt system.

Program 26: The County shall work with the EBRPD, LARPD, California Department of Fish and Game, and cities to identify public and private uses that should appropriately be allowed within various portions of the open space system, including active and passive recreation, and grazing.

Program 27: The County shall work with East County cities and Hayward to complete the continuous open space system in South Pleasanton, Pleasanton Ridge, and West Dublin using zoning, dedication, fee purchase, density transfer, and conservation easements.

Program 28: The County shall undertake a study of potential open space, recreational, and related uses in the Pleasanton Ridge area.

Program 29: The County shall develop workable mechanisms to finance and acquire lands for public use in the Pleasanton Ridge area.

Major Public Facilities

Policy 130: The County shall ensure that new major public facilities are properly sited to avoid land use conflicts and potential health and safety risks.

Policy 132: The County shall ensure that all new uses approved near the Veterans Administration (VA) Hospital in South Livermore are compatible with hospital operations.

Policy 133: The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations.

Policy 134: The County shall ensure that all new uses approved near the Santa Rita Jail in Eastern Dublin are compatible with jail operations.

Policy 135: The County shall ensure that all new uses approved near the Lawrence Livermore National Laboratories (LLNL) in East Livermore are compatible with Laboratory operations.

Policy 137: The County shall actively consult with other agencies to monitor expansion and renovation plans for major public facilities and provide comments related to land use compatibility and safety issues where appropriate.

Program 58: The County shall consider existing and future operations and potential land use impacts in reviewing projects in the vicinity of the Veterans Administration Hospital, the FCC Station, Santa Rita Jail, and the Lawrence Livermore National Laboratories. The County shall consider the use of real estate disclosure notices as a means to inform adjacent home buyers of the

potential impacts generated by these facilities and reduce the number of complaints received by these facilities.

Airport Policies and Programs:

Policy 138: The County shall recognize the **Livermore Municipal Airport** as a regional resource and provide for its limited expansion.

Policy 139: The County shall work with cities to ensure that all new uses approved within the **Livermore Airport Land Use Commission (ALUC) referral area** are consistent with the ALUC Policy Plan.

Policy 140: The County shall protect noise sensitive land uses adjacent to the Livermore Airport through zoning, height restrictions, noise insulation, aviation easements, and other techniques.

Policy 199: The County shall require that, where conflicts between a new use and the airport that could interfere with the airport's operations are anticipated, the burden of mitigating the conflicts will be the responsibility of the new use.

Program 60: The County shall work with cities to define a mutually agreeable **Airport Protection Area** that balances protection of airport operations with the land use plans of adjacent communities.

Windfarms Policies and Programs:

Policy 156: The County shall recognize the importance of windpower as a clean, renewable source of energy.

Policy 157: The County shall allow for continued operation, new development, redevelopment, and expansion of existing and planned windfarm facilities within the limits of environmental constraints.

Policy 158: The County shall protect nearby uses from potential traffic, noise, dust, visual, and other impacts generated by the construction and operation of windfarm facilities.

Policy 159: The County shall work with the wind energy industry, public utilities, other agencies, and energy experts to monitor trends in wind energy developments, technology, and environmental safeguards.

Policy 160: The County shall establish a mitigation program to minimize the impacts of wind turbine operations on bird populations.

Policy 161: The County shall discourage the development of uses and structures that are not compatible with wind energy operations within the Wind Resource Area.

Policy 162: The County shall require that, where conflicts between a new use and an existing windfarm use are anticipated, the burden of mitigating the conflicts be the responsibility of the new use.

Policy 163: The County shall allow the dual operation of windfarms and landfills.

Program 69: The County shall work with other agencies (federal, state, and local) to establish feasible mitigation for avian collisions with wind turbines. The County will take a lead role with windfarm operators and other agencies in developing and managing a Mitigation Monitoring Program in the Wind Resource Area.

Program 70: The County shall amend the Zoning Ordinance to incorporate siting and design standards for wind turbines to mitigate biological, visual, noise, and other impacts generated by windfarm operations.

Program 71: The County shall revise, as necessary, the approved conditions of existing conditional use permits at the time a permit is due for its five year review to mitigate the effects of wind turbines.

Program 72: The County shall require that a real estate disclosure notice be included in property deeds whenever property with an active or expired conditional use permit for a windfarm development, or properties within 300 feet of such properties are transferred to a new owner, to inform new owners of potential nuisances.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

The analysis in this chapter on *Land Use and Planning* focuses on the effect of changes in land use pattern as they relate to growth inducement and urban sprawl, and land use compatibility; this chapter also examines potential conflict with adopted city general plans, general plans of adjacent counties (Contra Costa, San Joaquin and Santa Clara), and other adopted policy documents applicable to the planning area.

Various other chapters in Part III of this DEIR contain analyses of additional environmental impacts which could also result from changes in land use pattern brought about by implementation of the *East County Area Plan*; they are included as follows:

- **Agricultural Resources:** loss of prime agricultural soil as a result of conversion of open space to urban uses is discussed in *Chapter 5.2* and is considered a significant and unavoidable impact of the proposed plan; premature loss of agricultural is also discussed in *Chapter 5.2*;
- **Visual Open Space:** the change in visual character as a result of conversion of open space to urban uses is discussed in *Chapter 5.8* and is considered a significant and unavoidable impact of the proposed plan;

- **Biological Resources:** the loss of plant communities and wildlife habitat as a result of conversion of open space to urban uses is discussed in *Chapter 5.7* and is considered a significant and unavoidable impact of the proposed plan;
- **Growth Inducement:** growth inducement caused by conversion of open space to urban use is discussed in this chapter (see *Potential Impact 5.1-1* below) and in *Chapter 7*;
- **Land Use Compatibility:** some potential land use compatibility issues are discussed in this chapter (windfarms, Livermore Municipal Airport, and the FCC station) while gravel quarry issues are found in *Chapter 5.10* and landfill issues are found in *Chapter 5.20*; potential encroachment of incompatible land uses into agricultural areas is discussed in *Chapter 5.2*; and potential siting of pollutant emitting land uses adjacent to sensitive land uses is addressed in *Chapter 5.5*.
- **Water and Wastewater Infrastructure:** potential urban sprawl resulting from the premature extension of water distribution infrastructure or new "package" treatment plants is discussed in *Chapters 5.13 and 5.14*, respectively.

Each chapter specifies the standards of significance related to the particular topic area which are used to analyze the impacts of the project, identifies potential impacts, and suggests mitigations for reducing impacts where impacts are determined to be significant.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect if it will "conflict with adopted land use policies of the community where it is located; or, conflict with established recreational, educational, religious, or scientific uses of an area." According to CEQA Guideline Section 15358, "indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems."

For purposes of this EIR, implementation of the plan would also create a significant environmental impact if it would result in incompatibility between land uses, safety or nuisance impacts, or urban sprawl.

Potential Impacts and Mitigation Measures

Potential Impact 5.1-1: Accommodation of the plan's holding capacity could result in urban sprawl.

The proposed *East County Area Plan's* Land Use Diagram accommodates a population of 287,000 and employment for 160,000, more than double the existing population and jobs in the

planning area. This holding capacity represents projected growth to the year 2010 plus additional capacity for 36,000 people and 8,500 jobs, an addition of 14 percent and 6 percent, respectively, over the 2010 projections. In order to accommodate the buildout population and commercial/industrial/office development, the plan assumes buildout of the adopted city general plans (minus some employment--see Appendix A) and converts about 10,000 acres of unincorporated open space to urban uses. Most of the converted open space is located in East Dublin (3,125 acres) and North Livermore (6,100 acres), with some urban development potentially occurring in South Livermore (800 acres). These acreage figures are in addition to proposed urban conversion of 500± acres of unincorporated lands (the San Francisco Water Department property) already accounted for in Pleasanton's adopted General Plan. Refer to Table 6.7 in *Chapter 6*.

While the plan will result in the conversion of 10,000 acres of open space to urban uses, the concept of "urban sprawl" suggests the inefficient use of the land and its resources, i.e., using more than you need to achieve your goal, in this case the accommodation of projected growth. The determination of whether or not urban sprawl (inefficient use of land) will occur depends on a number of factors of the plan: whether urban development is effectively confined to appropriate areas and is adjacent to existing services; whether remaining open space is provided with permanent protection; and whether new development is properly phased and compact. These issues are discussed below under policies and programs.

An additional factor is whether or not the plan designates substantially more land than that required to accommodate growth projected to the year 2010. Under the plan, about 8,600 acres is needed to accommodate this projected growth; designation of an additional 1,400 acres to urban uses provides capacity for a 14 percent increase in population and a 6 percent increase in commercial development over the twenty year projections. This amount is sufficient to provide some flexibility for future growth within the Urban Growth Boundary past the year 2010. In addition to this 1,400 acres, about 3,600 acres of land designated "Urban Reserve" and located within the Urban Growth Boundary provides room to expand beyond that needed to accommodate the buildout holding capacity. Minimum parcel size under the "Urban Reserve" designation is 100 acres and the designation requires a general plan amendment before any urban development project can be approved. The flexibility offered by the designation of land in excess of that needed to accommodate twenty-year projected growth is necessary given that the Urban Growth Boundary is intended to be a permanent boundary that includes the planning area's land most suited for development. However, strong phasing policies and policies promoting compact density are needed to make sure that urban sprawl does not occur within the Urban Growth Boundary.

Plan Policies and Programs: The plan's major policy strategy to prevent urban sprawl is implementation of a permanent Urban Growth Boundary which "circumscribes an area inside of which urban development will be encouraged and outside of which urban development will be prohibited (policy 1)." The area within the Urban Growth Boundary is the generally flat land of the Livermore-Amador Valley consisting of the planning area's existing cities and adjacent undeveloped land. The long-term durability of the Urban Growth Boundary will be achieved in a number of ways: prohibiting major changes to the boundary (program 1), and permanently

protecting the open space which surrounds the boundary (see open space policies below). Program 1 stipulates review of the line at five year intervals, allowing adjustments only if they are minor and consistent with other policies of the plan. While this program would be effective in limiting the number of changes to the boundary, it lacks criteria to assist future decision-makers in determining whether or not adjustments are "minor" and consistent with the plan.

Mechanisms to preserve and protect open space include zoning, dedication, fee purchase, density transfer, and easements (policy 59). Program 23 creates an Alameda County Open Space Land Trust which could use these mechanisms to acquire and permanently preserve a continuous open space system outside the Urban Growth Boundary. Funds for easements or the acquisition of open space will come from dedications and/or in-lieu fees from all development within unincorporated areas (policy 60, program 23), particularly in the Doolan Canyon, Collier Canyon and adjacent hillside areas between East Dublin and North Livermore where 7,400 acres would be set aside for open space under the Resource Management designation (policy 72). Acquisition of strategic parcels is encouraged in order to complete the continuous open space system surrounding East Dublin, North Livermore, and East Livermore (program 23).

One of the goals of the plan is to provide compact development. Recognizing that "compact development results in more efficient use of land and infrastructure, and less conversion of open space, than low-density sprawl", policy 31 and policy 27 provide economic incentives to developers who provide higher densities. Policy 17 encourages high-density infill development in cities; policy 24 states that North Livermore should be designed to be a compact community. Mechanisms to ensure that the average densities do not fall below the mid-point of the density range include monitoring the densities and intensities of development approved by the County and cities (policy 11) and redesignating parcels in unincorporated areas within the Urban Growth Boundary to compensate for reductions in holding capacity (policy 12). Maintaining the mid-point of the density ranges (on which the holding capacity was formulated--see Appendix A) should preclude the need to modify the Urban Growth Boundary.

Despite the above policies, the average gross density of new residential development in unincorporated areas under the proposed plan is about 4.6 units per gross acre (see Table 6.7), or about the same as the overall average gross density in existing incorporated areas. While average gross density is not high, land use patterns in major new urban developments show high density residential land use in areas where they are needed to support transit and commercial centers (policy 23). Land use patterns under the plan also reflect a needed range of densities to provide economic viability to these new urban areas (see *Chapter 5.3 - Employment and Housing*). The provision of large numbers of low density single family units is also necessary for funding infrastructure and generating the in-lieu fees to be used in the acquisition of open space surrounding the Urban Growth Boundary. This suggests that relinquishing some compactness within the Urban Growth Boundary may provide an effective trade-off for preservation of open space outside the boundary.

Preventing urban sprawl within the Urban Growth Boundary requires strong phasing policies and programs. By not adopting an annual growth management limit for development within unincorporated areas (policy 13), market forces will determine the amount and location of new

development within the Urban Growth Boundary subject to plan policies. The plan's policies which pertain to phasing do not completely address the potential for urban sprawl within the Urban Growth Boundary: policy 13 states that phasing of development will be contingent on the availability of infrastructure and public services; policy 15 states that development will be phased to minimize premature loss of agricultural land; policy 27 requires detailed development plans for each major development phase of Major New Urban Development and requires that each phase meet the mid-point of the density range for residential development; and, policy 37 requires a phasing plan for major residential projects (over 500 units) and Major New Urban Developments so that multiple family and affordable housing units will not be postponed until the last phase of development.

None of these policies would prevent inefficient expansion of infrastructure or scattered development which could occur if major development projects were approved within Major New Urban Development areas without being part of a more detailed development phasing and facility plan that would apply to the entire Major New Urban Development area. Development phasing and facility plans would serve to coordinate development, provide for the orderly progression of development and infrastructure in relation to existing development, and guarantee that each phase of development contain a sufficient mix of uses so as to meet the objectives of the plan for Major New Urban Development in the event that further phases were delayed. (Major New Urban Development is defined in Table 1 of the plan as "separate master planned communities or extension of existing cities located on at least 3,000 acres that can provide transit-oriented development features, a mix of residential and commercial uses, a range of housing prices, dedicated open space, and a full range of public facilities and amenities.")

Level-of-Significance: Without mitigation, this potential impact would be significant. The following measures would mitigate this potential impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struck-out~~):

Mitigation Measure 5.1-1 (a): Program 1 should be amended to read: The County shall review the Urban Growth Boundary and the land use designations within it every five years. At the time of the five year review, the County may make adjustments to the Urban Growth Boundary, only if such adjustments are minor and consistent with the policies of the *East County Area Plan*. *Prior to adjusting the Urban Growth Boundary, the County shall require findings that the adjustment: 1) is consistent with the policies of the plan, 2) would not promote sprawl or induce further adjustment of the boundary, and 3) would not unacceptably affect visual and open space resources.*

Mitigation 5.1-1 (b): Proposed New Policy: *The County shall require a detailed development phasing plan and community facilities plan for Major New Urban Developments prior to approval of the specific development plan for the first phase of development. The plan shall include comprehensive community design standards, a comprehensive circulation and infrastructure plan, the identification of utility systems, and improvement standards and cost estimates for all infrastructure, public services, and facilities, and shall also include a public financing plan.*

Mitigation 5.1-1 (c): Proposed New Policy: *The County shall require that all development proposals within a Major New Urban Development area be consistent with the Development Phasing and Community Facilities Plan and the specific development plans for each major development phase required for Major New Urban Developments.*

Potential Impact 5.1-2: Implementation of the plan could conflict with adjacent land uses designated in adopted general plans of neighboring jurisdictions.

East County Cities. As noted in *Chapter 3 - Project Description*, the proposed plan contains policies and programs addressing land use issues within unincorporated and incorporated areas in East County. Alameda County has jurisdictional control over all unincorporated areas until such time as they may be annexed to a city. Unincorporated areas in East County include areas under current or recent consideration by the cities of Dublin, Livermore and Pleasanton for general plan amendments (Western Dublin and Eastern Dublin, North Livermore, and West Pleasanton, respectively). The proposed *East County Area Plan* designates land uses and prescribes policies for these and all other unincorporated areas. In some instances, the plan also recommends that cities take certain actions within their city limits. These recommendations are voluntary and are made in the interests of subregional planning and cooperation.

In formulating the Land Use Diagram for the *East County Area Plan*, the County recognized the cities' adopted general plan designations for lands within existing city limits. However, in formulating the plan's holding capacity, the County assumed fewer jobs than planned for under the existing city general plans due to commute constraints and the resulting lack of a labor supply. (Assumptions and methodology underlying the plan's holding capacity is explained in detail in Appendix A; comparison of the plan's land use designations with city general plans and general plan amendments is outlined in Appendix B.)

Neighboring Cities and Unincorporated Communities. Immediately to the west of the East County are the cities of Hayward, Fremont and Union City and the unincorporated community of Castro Valley (Figure 13 shows generalized land uses in and adjacent to the East County planning area). The adopted general plans of each of these cities and the *Castro Valley Plan* show agricultural, open space and very low residential density designations on lands abutting the East County planning area. Since the *East County Area Plan* does not introduce any new urban uses along the western edge of the planning area, the proposed land uses of the *East County Area Plan* along this boundary are compatible with all adjacent land use designations.

Neighboring Counties. Figure 13 shows generalized land uses of East County in relation to the adjacent counties of Contra Costa, San Joaquin and Santa Clara.

Contra Costa County. Land uses along the northern boundary of the East County planning area are compatible with designated land uses in Contra Costa County. The Urban Growth Boundary of the *East County Area Plan* encloses lands with development potential. The East Dublin area (one of two areas designated for major new urban development) is adjacent to the Contra Costa County line. In this location, the area enclosed by Alameda

County's Urban Growth Boundary is generally contiguous with the area enclosed by Contra Costa County's Urban Limit Line, and urban land uses on either side of the county line would be compatible with each other.

The second area in which the *East County Area Plan* proposes major new urban development -- North Livermore -- also abuts the Contra Costa County line. However, a Resource Management buffer outside the Urban Growth Boundary separates the proposed new urban development area in North Livermore from the agricultural open space on the other side of the county line. This buffer is designed to contain the urban area of North Livermore and prevent sprawl and growth inducement into the adjacent open space areas of Contra Costa County. Further, this buffer is intended to link the open space of Alameda County with that of adjacent counties to provide comprehensive, rather than piecemeal, habitat conservation.

Agriculture and rangeland are adjacent in both counties in other areas. The Altamont Hills Wind Resource Area (which overlays agricultural lands) covers acreage in both counties. No incompatibility on these lands would be introduced with implementation of the plan.

San Joaquin County General Plan. The portion of the East County planning area abutting the San Joaquin County line would retain its existing agricultural land use designation (Large Parcel Agriculture), and implementation of the *East County Area Plan* would not introduce uses which would be incompatible with existing agricultural uses on the other side of the County line. In the recently adopted Mountain House general plan amendment, San Joaquin County imposed conditions requiring measures to reduce potential incompatibilities between agricultural uses in Alameda County and urban uses in San Joaquin County.

Santa Clara County General Plan. Existing and proposed agriculture, rangeland, watershed and regional park lands are common on both sides of the line separating the East County and Santa Clara County, and no incompatibility between the two counties would result from implementation of this plan.

Plan Policies and Programs: Policies 2 through 8 and programs 2 through 7 listed in Section B. above enumerate ways in which the County will actively promote interjurisdictional coordination and planning consistency among the County, East County cities and subregional and regional agencies; policies 68 through 71 and programs 25 through 27 foster coordination with all East County agencies and jurisdictions in order to develop compatible and continuous open space systems outside the Urban Growth Boundary; and policy 73 states that the County will work with adjacent counties to ensure that adjacent land uses are compatible.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant conflict between the plan and adjacent land uses designated in adopted general plans of neighboring jurisdictions would result.

Mitigation Measure 5.1-2: None needed.

While no mitigation is needed, the following modifications would clarify the plan policy (new language is shown in *italics*; deleted language is ~~struckout~~):

Proposed Modification to Policy 68: The County shall designate the Vargas Plateau and the Sheridan Road areas for agricultural and other open space uses. The County shall participate with the *Cityies of Fremont and Union City* in their planning studies for these *open space areas to the east of the cities' boundaries*, and shall encourage the ~~City of Fremont and Union City~~ to designate these areas as community separators between ~~Fremont the cities~~ and East County.

Proposed Modification to Policy 69: The County shall work cooperatively with the cities of Pleasanton and Hayward, the Castro Valley community, the East Bay Regional Park District (EBRPD), and landowners to retain Pleasanton *Ridglands* as permanent open space and reserve a regional trail corridor connecting Sunol with the West Dublin hills. Accordingly, the County shall oppose city sphere of influence expansions and annexations outside the Urban Growth Boundary in this area for purposes of urban development.

Potential Impact 5.1-3: Implementation of the plan could conflict with adopted countywide, subregional and/or regional policies.

The proposed plan's Land Use Diagram and policies are generally consistent with adopted countywide, subregional and regional policy plans listed in Table 5.1-3. Adopted plans with which ECAP is not consistent are listed in Table 5.1-4. The tables indicate the DEIR chapter in which each plan is discussed.

**Table 5.1-3
Adopted Programs/Policy Documents with Which ECAP is Consistent**

Adopted Plan	Chapter Discussed
<u>East County</u>	
Zone 7, Alameda County Flood Control and Water Conservation District, Arroyo Management Plan	5.16
Alameda County Specific Plan for Livermore-Amador Valley Quarry Area	5.10
Livermore Area Recreation and Park District Master Plan and Trail Master Plan	5.16
<u>Countywide</u>	
Alameda Countywide Transportation Plan	5.4
Alameda County Congestion Management Program	5.4
Alameda County Waste Management Plan/ Hazardous Waste Management Plan	5.20
Alameda County Fire Protection Master Plan	5.19
Alameda County Storm Water Management Plan, Urban Runoff Clean Water Program	5.12
<u>Regional and Subregional</u>	
East Bay Regional Park District Master Plan	5.16
Metropolitan Transportation Commission, Regional Transportation Plan	5.4
Tri-Valley Transportation Plan	5.4
San Francisco Regional Water Quality Control Board Basin Plan	5.12, 5.14
Tri-Valley Wastewater Authority's Long-Range Wastewater Management Plan for the Livermore-Amador Valley	5.14
Source: Alameda County Planning Department	

**Table 5.1-4
Adopted Programs/Policy Documents with Which ECAP Is Inconsistent**

Adopted Plan	Additional Mitigation Proposed in This DEIR	Level of Significance with Mitigation
<p><u>Countywide</u> Alameda County Airport Land Use Policy Plan (<i>Potential Impact 5.1-2</i> - see discussion below in this chapter)</p> <p><u>Regional and Subregional</u> Bay Area '91 Clean Air Plan (<i>Potential Impact 5.5-3</i> - see Chapter 5.5)</p>	<p><u>Mitigation Measure 5.1-2:</u> The Land Use Diagram should be amended to remove the residential land use designations from within the adopted Airport Protection Area.</p> <p><u>Mitigation Measure 5.5-3 (a):</u> The following Policy should be added: <i>The County shall require major projects of commercial or industrial nature to include bicycle storage facilities for employees and customers, and shower/locker areas for employees that commute using bicycles.</i></p> <p><u>Mitigation Measure 5.5.3-3(b):</u> The following Program should be added: <i>The County shall develop and adopt an employer-based trip-reduction rule or program, to encourage employers to provide incentives or subsidies to employees agreeing to alternative and multiple-person modes of transportation.</i></p>	<p>Less-than-Significant</p> <p>Less-than-Significant</p>
Source: Alameda County Planning Department		

Plan Policies and Programs: Policies 2 through 8 and programs 2 through 7 listed in Section B. above enumerate ways in which the County will actively promote interjurisdictional coordination and planning consistency among the County, East County cities and subregional and regional agencies. Policy 74 calls for the County to work with the Park Districts to ensure that

East County trails connect with trail systems in adjacent counties; programs 25 through 27 foster coordination with all East County agencies and jurisdictions in order to develop compatible and continuous open space systems outside the Urban Growth Boundary; and policy 73 states that the County will work with adjacent counties to ensure that adjacent land uses are compatible.

However, policies and programs listed in Section B. above do not fully address the potential effects of the proposed plan on the Airport Protection Area for the Livermore Airport.

Alameda County Airport Land Use Policy Plan. (See Existing Setting section for background information.) The plan's Land Use Diagram shows Low Density Residential and Medium High Density Residential in a portion of the East Dublin/Doolan Canyon subarea that falls within the Airport Protection Area (APA). These residential uses are not compatible with the *Alameda County Airport Land Use Policy Plan*. Land uses shown on the Land Use Diagram in the unincorporated area within the adopted APA which are consistent include Industrial, Water Management, Urban Reserve, Mixed Use/Business Park, and Commercial. Under the proposed plan, the County would work with cities to ensure that new uses approved within the ALUC referral area are consistent with the *Airport Land Use Policy Plan* (policy 139). Policy 140 calls for noise sensitive land uses adjacent to the airport to be protected using a variety of techniques (refer to *Chapter 5.6 - Noise* for a discussion about potential noise impacts from the airport). The plan would require the implementation of measures to mitigate conflicts between a new use and the airport and places the burden of implementing these measures on the new use (policy 199). The plan also supports the concept of an Airport Protection Area that balances protection of airport operations with the land use plans of adjacent communities (program 60); however, the Land Use Diagram is not consistent with the Airport Protection Area that was adopted by the Airport Land Use Commission subsequent to the preparation of the plan (refer to Figure 10).

Level-of-Significance: Without mitigation, the proposed plan's inconsistency with the *Airport Land Use Policy Plan* would result in a significant impact.

Mitigation Measures 5.1-3: The Land Use Diagram should be amended to remove the residential land use designations from within the adopted Airport Protection Area.

Potential Impact 5.1-4: Intensive urban development in the vicinity of the Federal Communications Commission (FCC) monitoring station in the North Livermore Valley could interfere with station operations.

The land uses proposed on the plan's Land Use Diagram create the potential for incompatibility between the FCC monitoring station and future urban land uses in the vicinity of the station. Certain types of land uses may interfere with the operations of the station if they are located in close proximity to the station. Interference with the long-range direction finder is of primary concern. Site distance requirements are established by the FCC and the International Radio

Consultative Committee (CCIR). The types of land uses affected by the site distance requirements include metal fences, rail lines, large metal structures, such as water towers; vertical metal structures, such as light standards; buried metal pipes or electrical cables; and large bodies of water, including irrigation and drainage ditches, ponds, small creeks, and intermittent streams. Distance requirements vary depending on the type of land use or structure.

High density residential and industrial development may be incompatible with the operations of the monitoring station within a one mile radius of the station due to potential electromagnetic interference with the monitoring station's equipment. Major public roadways (four-lanes or more) through or near the monitoring station could result in interference problems. Another concern is the potential for development to change the ground conductivity in the area surrounding the station. The plan's Land Use Diagram shows low, medium, and high density residential, as well as commercial land uses within one mile of the monitoring station.

Potential interference with television and radio reception from the station's transmitting activity would be minimal. The station's antennas are primarily receiving antennas; the few transmitting antennas at the station are currently used for no more than a few minutes each week to ensure their availability in case of a national emergency.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan on the FCC monitoring station. Under the proposed plan, the County would ensure that all new uses approved near the station in North Livermore are compatible with FCC operations (policy 133).

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on the FCC monitoring station would result.

Mitigation Measures 5.1-4: None needed.

While no mitigation is needed, the following modification to policy 133 would clarify the intent of the policy (new language is shown in *italics*; deleted language is ~~struck-out~~).

Proposed Modification to Policy 133: The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations. *Measures to ensure compatibility may include clustering of new development to minimize interference, re-siting of land uses, providing a buffer between new urban uses and the facility, and/or relocation or reconfiguration of FCC facilities.*

Potential Impact 5.1-5: Future land uses sited in the "Urban Reserve" area east of Lawrence Livermore National Laboratory may be incompatible with the laboratory's operations.

The industrial nature of some of the activities conducted at LLNL and SNLL and substances used in these activities raise the issue of potential incompatibility with land uses that may be sited near these facilities.

In August, 1992, the Department of Energy completed the *Final EIS/EIR for the Continued Operation of Lawrence Livermore National Laboratory and Sandia National Laboratories, Livermore*. This document analyzed the potential environmental impacts of the continued operation of LLNL and SNLL and near-term (within 5 to 10 years) proposed projects. According to this document, the maximum individual carcinogenic risk attributable to toxic air contaminant emissions from both LLNL and SNLL at current operating levels (and with proposed expansions) is well below the level that the Bay Area Air Quality Management District has designated as the level of concern. Under current conditions, the maximum individual dose of radiation that might occur offsite (at the property line) from normal operations is estimated to be below background level. Proposed changes in operations would actually lower radiation emissions from the Laboratories.

The LLNL Livermore site is on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) national Priorities List (Superfund) due to contamination of soil and ground water by a variety of hazardous materials, primarily gasoline and volatile organic compounds. Cleanup of the contaminated areas is underway.

On the Land Use Diagram, the area to the east of Greenville Road adjacent to LLNL is designated Urban Reserve, which recognizes that the area may be appropriate for urban development in the future with the specific type of land use to be determined later. The County's current zoning designation for this area is industrial.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan on potential future land uses adjacent to the Lawrence Livermore National Laboratory. Under the proposed plan, the County would ensure that all new uses approved near the Lawrence Livermore National Laboratories (LLNL) in East Livermore are compatible with Laboratory operations (policy 135). Because the policies in the plan encourage cities to annex future urban development, it is expected that the City of Livermore will eventually annex the area designated Urban Reserve and will ultimately determine the appropriate urban use for the area. It is assumed that this use will be compatible with LLNL operations.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on future land uses adjacent to LLNL would result.

Mitigation Measures 5.1-5: None needed.

Potential Impact 5.1-6: Uses allowable within the "Wind Resource Area" may be incompatible with new or continued windfarm development and, conversely, wind development could be incompatible with other allowable uses.

Under the plan, existing windfarm operations would be permitted to continue and additional wind turbines would be allowed in the Wind Resource Area, designated as "Large Parcel Agriculture" on the Land Use Diagram. Windfarms are generally considered compatible with agriculture and other non-urban uses (e.g., landfills) allowed under this designation. Residences allowed in this designation would be scattered enough that wind energy developments can typically be sited to avoid situations where setbacks for noise attenuation would be necessary. Agricultural uses are able to continue around windfarm structures. In fact, wind development can be a beneficial addition to agricultural operations: wind development can provide landowners with revenue needed to continue ranching, and graded all-weather roads built by windpower operators for turbine maintenance also serve as fire breaks and provide emergency access for fire-fighting.

The types of public uses that now exist or could be developed in the Wind Resource Area, including roadways, landfills, power facilities, and watershed areas, are not sensitive to windfarm installations except as they may need to expand and occupy some lands now used for wind production. Park land and regional trails could be directly affected by windfarm development. Specifically, planning for Brushy Peak Regional Park and related trails by the Livermore Area Recreation and Park District and East Bay Regional Park District will involve consideration of public access and setbacks for safety, visual quality, and noise as windfarms expand in the area.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan with regard to incompatibilities between windfarms and other land uses. The plan recognizes the importance of windpower as an energy resource and supports the continued operation and expansion of windfarm facilities (policies 156 and 157). Plan policies and programs address potential adverse effects caused by the windfarms through siting and design standards, real estate disclosure requirements, conditional use permit requirements, and measures to reduce avian collisions (policies 158 and 160, programs 69, 70, 71, and 72). Other policies discourage the development of uses and structures that are not compatible with wind energy operations in the Wind Resource Area and require new uses near existing windfarms to mitigate any impacts they may have on the windfarms (policies 161 and 162).

Level-of-Significance: Implementation of proposed plan policies and programs would mitigate this impact to a less-than-significant level.

Mitigation Measures 5.1-6: None needed.

SOURCES

Association of Bay Area Governments, Letter to Alameda County from Gary Binger, Planning Director, October 16, 1992.

Airport Land Use Commission of Alameda County, "Notice of Intent to Adopt Negative Declaration for an application from the City of Livermore to amend the Alameda County Airport Land Use Commission *Airport Land Use Policy Plan*," November 10, 1992.

Alameda County, Airport Land Use Policy Plan, July 1986.

Alameda County, Draft South Livermore Valley Area Plan (February 1992) and DEIR (June 1992).

Alameda County, Energy Facility Siting Report of the Energy Element (Draft Final Report), prepared by Ebasco Environmental, June 1992.

Alameda County, Environmental Setting of the Energy Element, prepared by Ebasco Environmental, June 1992.

Alameda County, Specific Plan for Livermore-Amador Valley Quarry Area Reclamation, 1981.

Alameda County, Surface Mining Ordinance No. 83-13, 1977.

Alameda County Planning Department, "Staff Analysis - Airport Land Use Commission, Airport Protection Area - Livermore Municipal Airport," January 13, 1993.

Bay Vision 2020 Committee, Review Draft Report, January 1991.

Center for California Studies, Summary of Findings—Growth Management Consensus Project, January 5, 1992.

City of Dublin, East Dublin Draft General Plan Amendment, May 1992.

City of Dublin General Plan, 1985 (as amended to January 1992).

City of Dublin, West Dublin General Plan Amendment/Specific Plan DEIR, December 1991.

City of Dublin, Draft Environmental Impact Report, Eastern Dublin General Plan Amendment and Specific Plan, Part I, August 28, 1992.

City of Livermore, Draft Report, Supporting Documentation and Background Information for Airport Protection Area, Livermore Municipal Airport, June 22, 1992.

City of Livermore, General Plan, 1976 (as amended to November 1988).

City of Livermore, North Livermore Draft General Plan Amendment (July 1991) and Draft Environmental Impact Report (January 1992).

City of Pleasanton, General Plan, 1986 (as amended to January 1992).

Ebasco Environmental, Draft Final Report. Energy Facility Siting Report of the Energy Element for Alameda County, September 1992.

Economic and Planning Systems, Growth Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, April 1990.

Federal Communications Commission, Office of Engineering and Technology, Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Radiation, OET Bulletin No. 56, Third Edition, January 1989.

Federal Communications Commission, Letter to Alameda County from R.I. Vaughan, Regional Director, May 13, 1983.

Federal Communications Commission, personal communication from Thomas Van Stavern, Engineer-In-Charge of Livermore FCC Monitoring Station, January 1992.

Heximer, Herb, General Electric Nuclear Division, Public Relations Department, San Jose, CA, personal communication, December 8, 1992.

Mr. Hunter, U.S. Veterans Administration Hospital, Livermore, personal communication, December 4, 1992.

San Francisco Water Department, personal communication with Ed Stewart, Water Resources Manager, August 1992.

San Joaquin Countywide General Plan (adopted July 1992)

San Joaquin County, Mountain House New Town General Plan Amendment DEIR prepared by Baseline Environmental Consulting, December 1991.

San Joaquin County, Mountain House New Town General Plan Amendment DSEIR prepared by Baseline Environmental Consulting, November 1992.

Systems Implementation Services, FCC Monitoring Station - Livermore Impact to North Valley Development, November, 1992.

Tri-Valley Transportation Council, Managing Growth in the Bay Area, February 25, 1992.





U.S. Department of Energy and University of California, DEIR/EIS. Continued Operation of Lawrence Livermore National Laboratory and Sandia National Laboratories. Livermore, Volume II of II, February 1992.

U.S. Department of Energy and University of California, DEIR/EIS. Continued Operation of Lawrence Livermore National Laboratory and Sandia National Laboratories. Livermore, Volume I & II of V, August 1992.

COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

City Limits & Spheres of Influence

LEGEND

-  City of Dublin Sphere of Influence (SOI)
-  City of Pleasanton (SOI)
-  City of Livermore (SOI)
-  Incorporated Cities

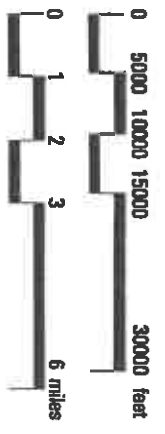
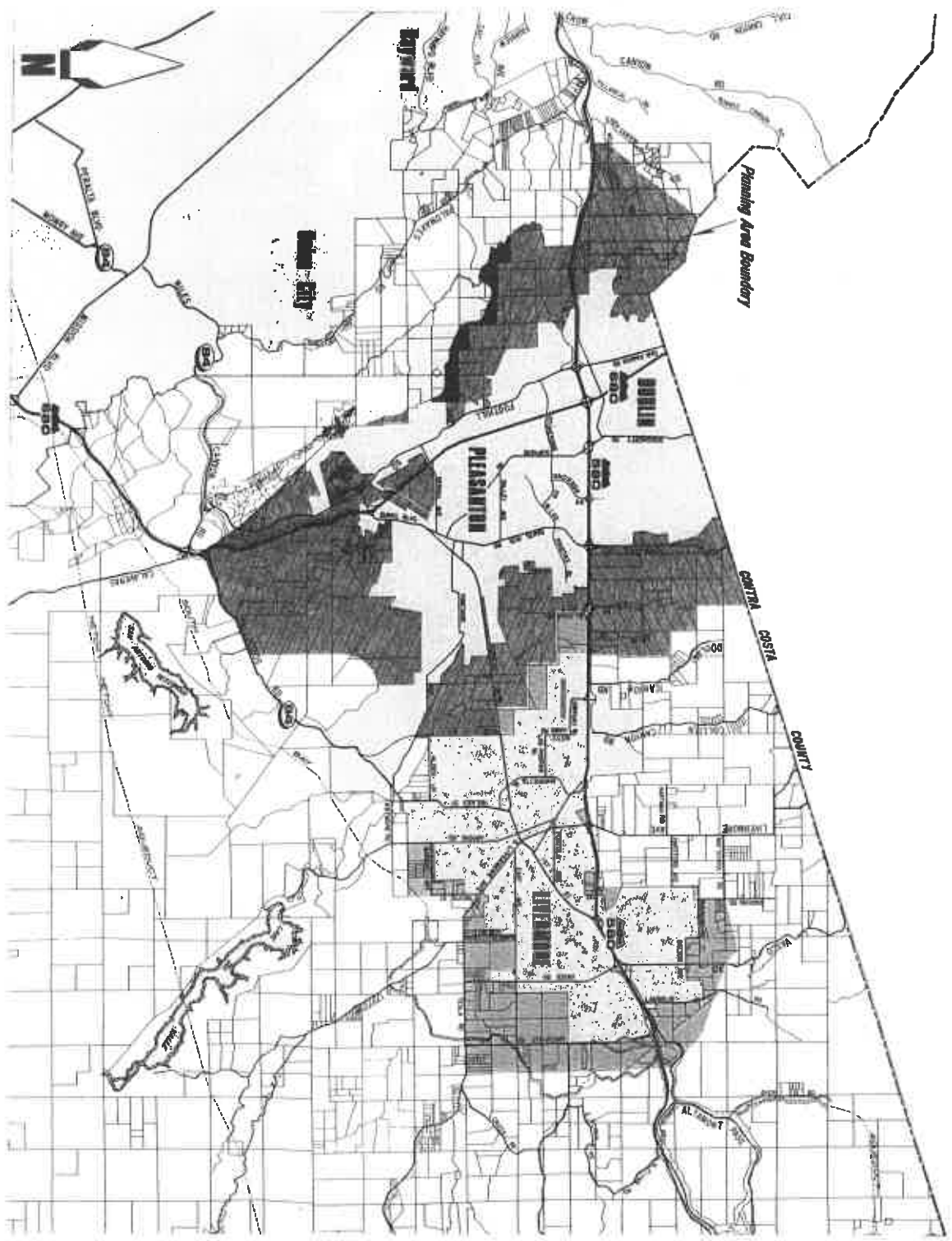
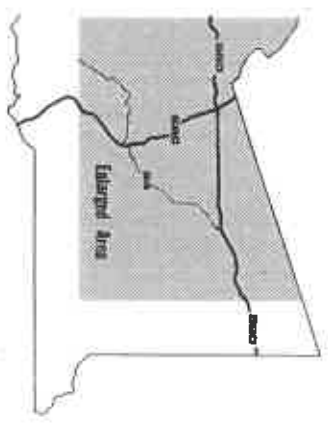


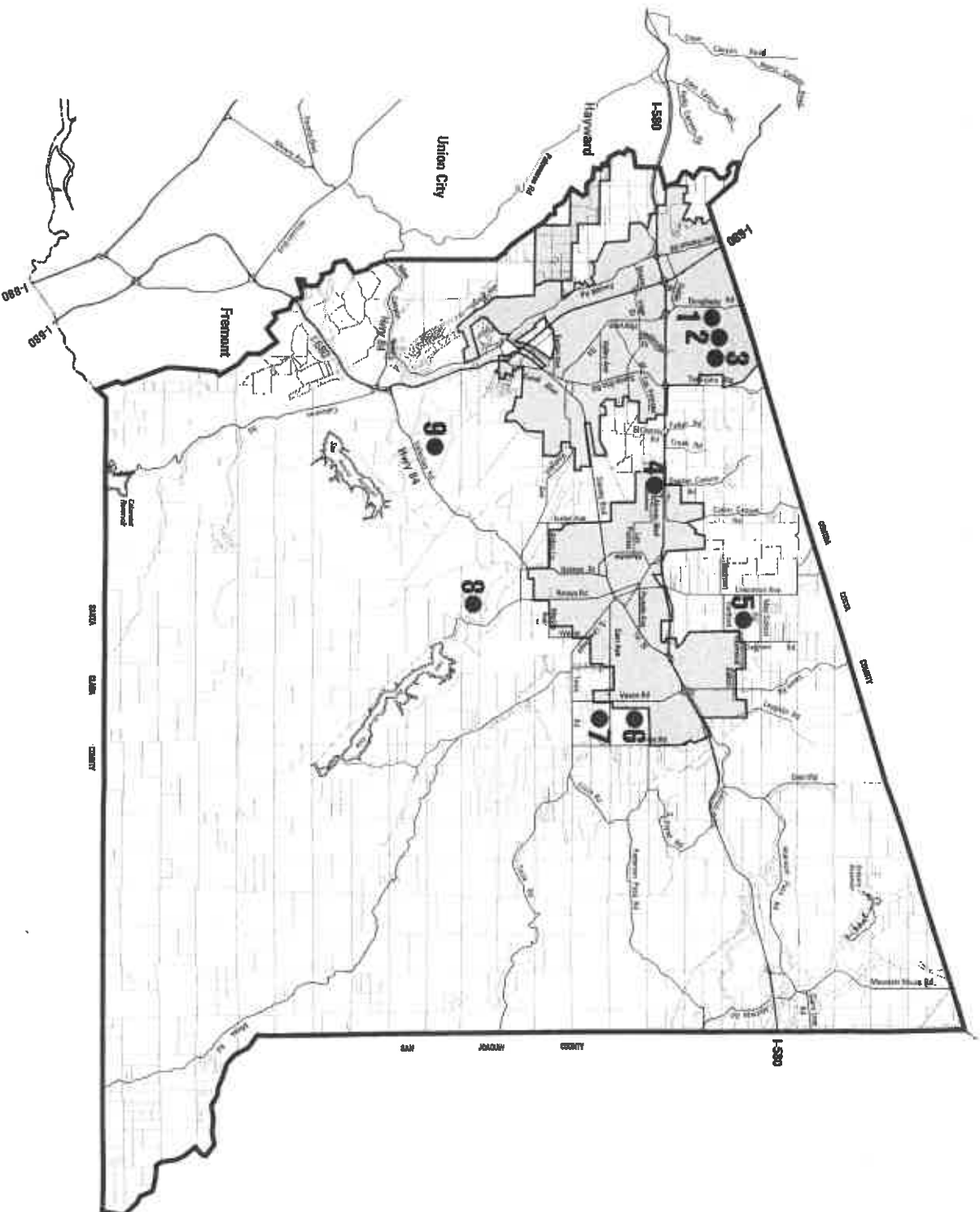
FIG. 8

COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Major Public Facilities

LEGEND

- 1. Camp Parks, U.S. Army
- 2. Federal Correctional Facility, Pleasanton
- 3. Santa Rita Jail
- 4. Livermore Municipal Airport
- 5. FCC Monitoring Station
- 6. Lawrence Livermore National Laboratories
- 7. Santa National Laboratories
- 8. U.S. Veterans Hospital
- 9. General Electric Vallecitos



SOURCE: Alameda County Planning Department

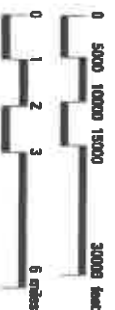


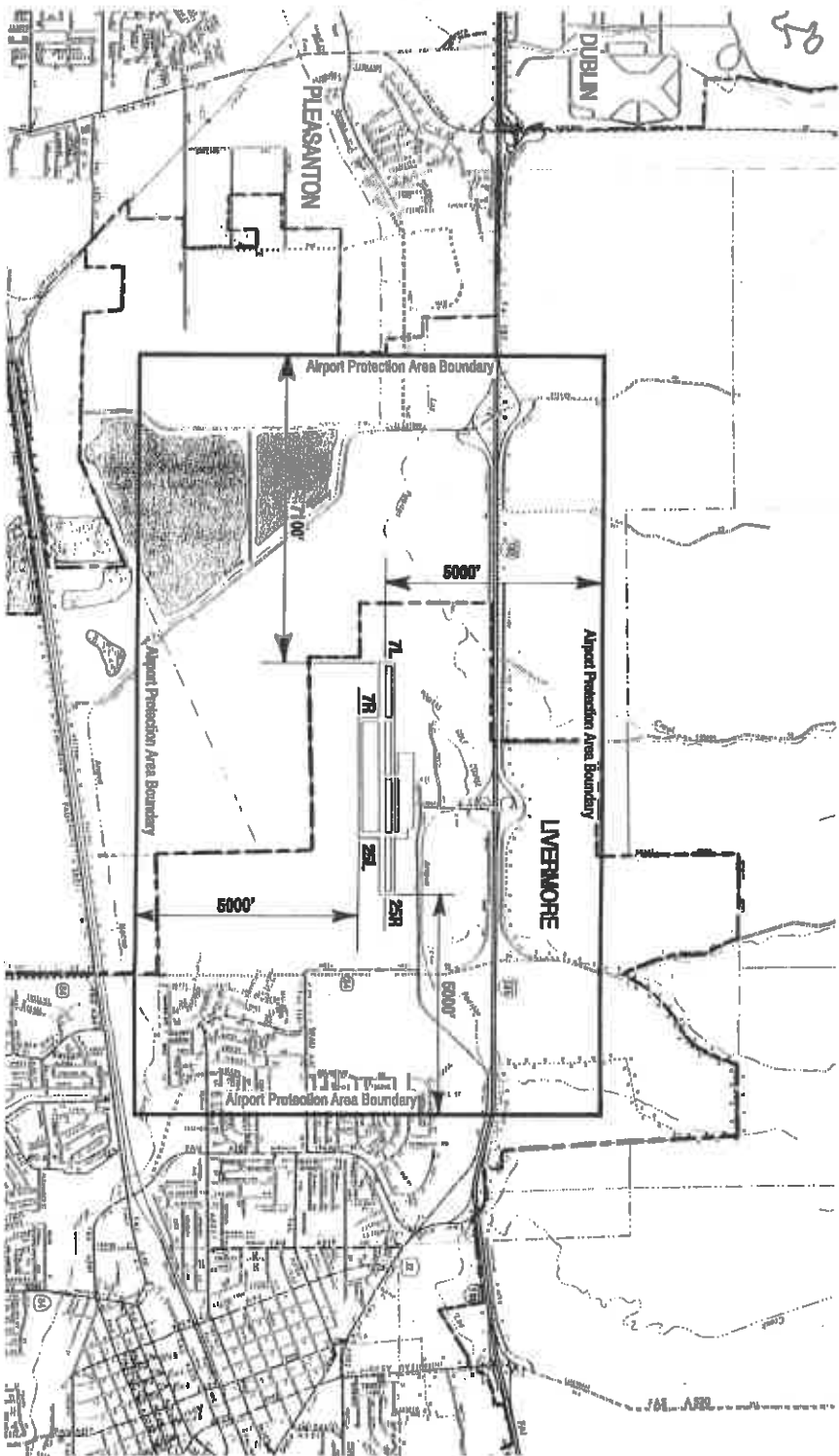
FIG. 8



Airport Protection Area (Livermore Municipal Airport)

Adopted January 13, 1993

Alameda County Airport Land Use Commission
Alameda County Planning Department



COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Non-Urban Land Use

LEGEND

- Rural Residential Clusters (without urban services)
- Construction Aggregate Quarries
- Sanitary Landfills
- Wind Farms

NOTE: Watershed lands and regional poles are shown on Major Peak Profiles and Regional Traffic. Locations on this diagram are approximate and sites are not shown to scale.

SOURCE: Alameda County Planning Department

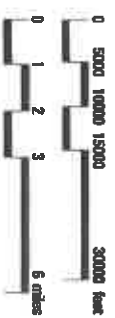
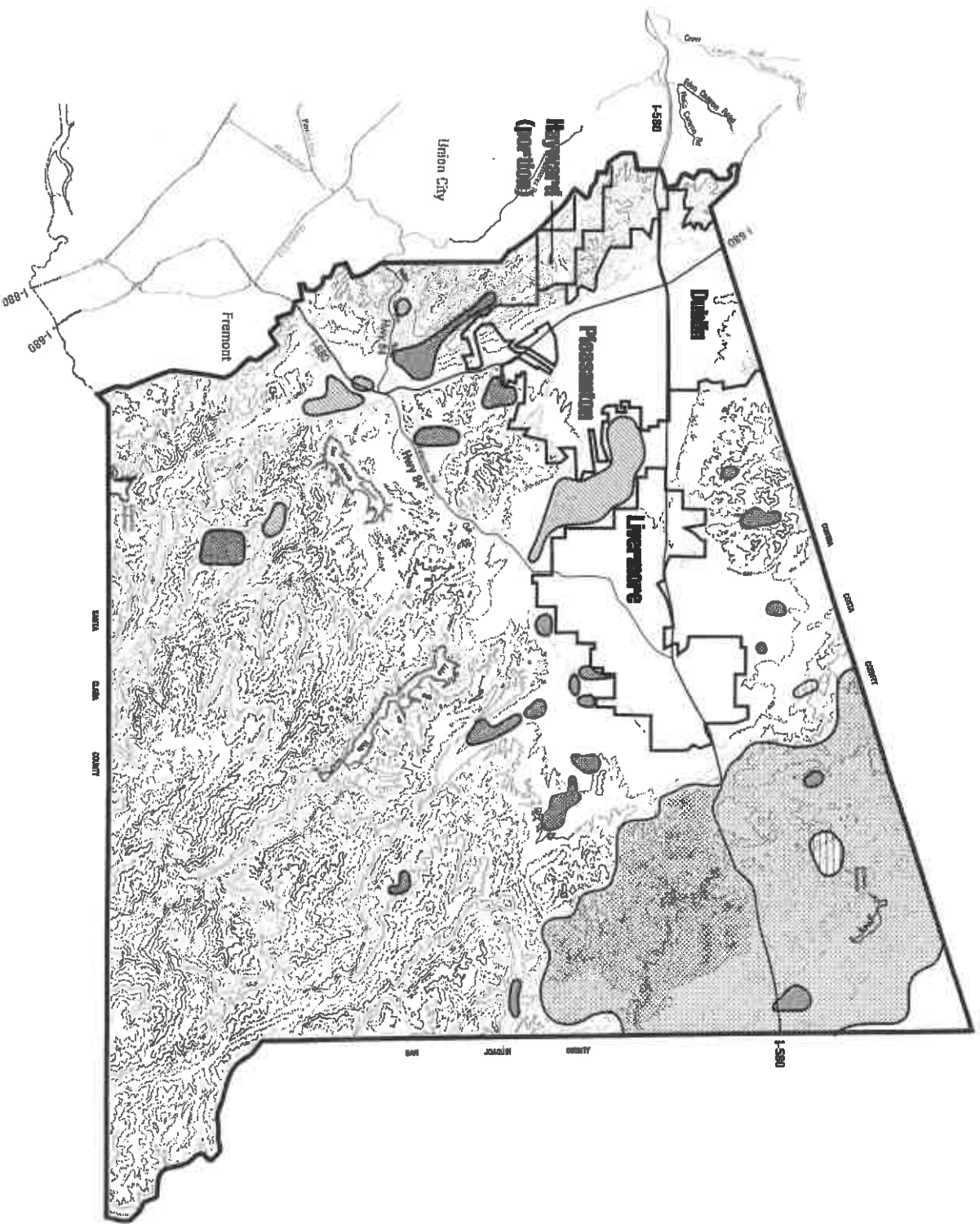








FIG. 11



Major Park Facilities and Regional Trails

LEGEND

-  Existing Major Parks
-  Existing State Parks
-  Potential Park Sites
-  Existing Regional Trails
-  Proposed Regional Trails
-  Watershed Lands

NOTE: Some Watershed Watershed Lands are not currently accessible to the public, but may be in the future.

SOURCE: Regional Parkland & Trail Map, EIR/PEIS 1987
Regional Trail Plan, LARPD 1991

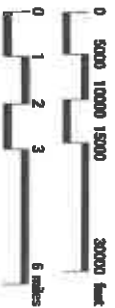
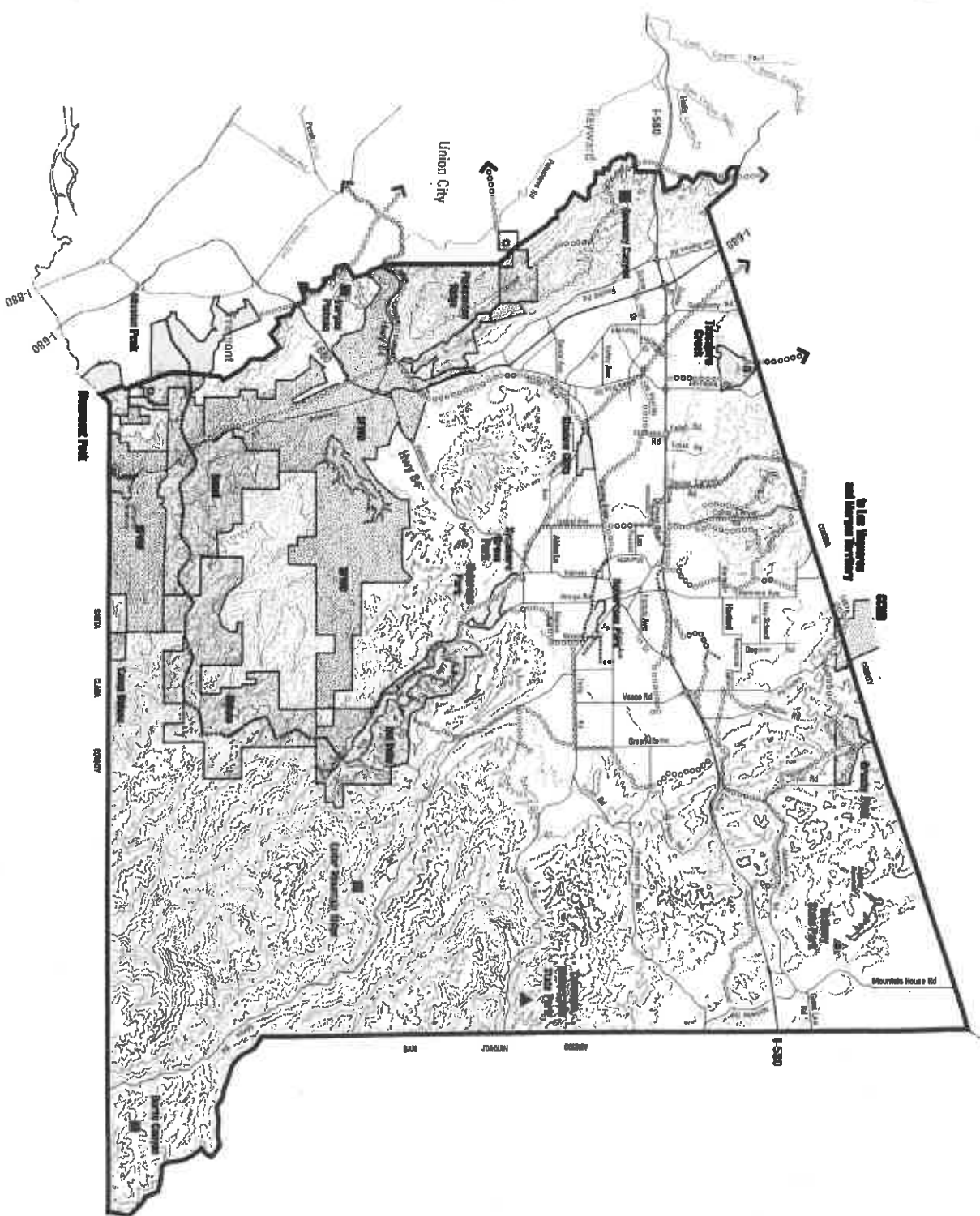






FIG. 12



COUNTY OF ALAMEDA

Generalized Land Uses

LEGEND

- | | |
|---|---|
|  | Agriculture/Rangeland |
|  | Protected Open Space
(in public ownership) |
|  | Other (as specified; overlay
on Agriculture/Rangeland) |
|  | Land(s) Designated for
Urban Development |

NOTE

Area in which special policies govern; location of Urban Growth Boundary will be established as detailed development or open space plans are approved.

SOLUTION

Alameda County Planning Department, California Energy Commission (Wild Resource Act); Contra Costa General Plan, 1981; San Joaquin County Planning Department, 1982; Santa Clara County General Plan, 1980; City of Tracy.

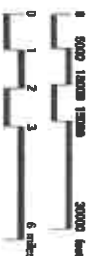
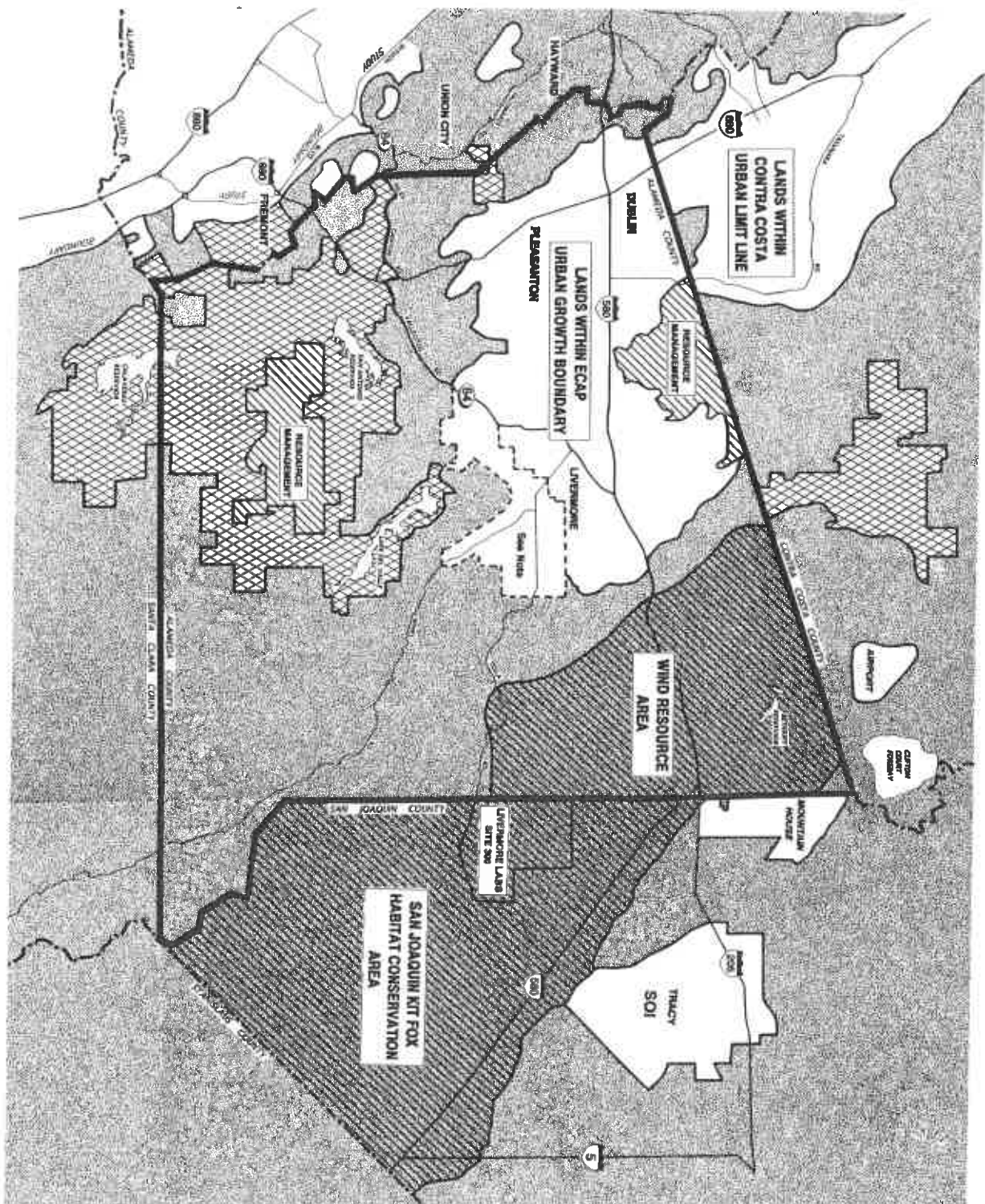


FIG. 13

Chapter 5.2 - Agricultural Resources

A. EXISTING SETTING

The mild climate and variety of soil types found in the East County provide excellent conditions for several agricultural commodities. While acreage and dollar value figures are not available for agricultural crops in the East County, Table 5.2-1 below contains countywide acreage and dollar value figures for 1991. The value of Alameda County's agricultural production in 1991 was \$50,702,400. Most of the County's agricultural resources are located in the East County.

TABLE 5.2-1 Alameda County 1991 Agricultural Production and Value		
Type of Product	Acreage	Value (in dollars)
Field Crops	219,312 (harvested)	\$4,658,000
Vegetable Crops	260 (harvested)	958,000
Fruit and Nut Crops	1,408 (bearing)	4,348,000
Nursery Products	N/A	20,060,000
Nursery Cut Flowers	N/A	13,590,000
Livestock & Poultry	N/A	7,031,000
Apiary Products	N/A	57,400
Total	N/A	\$50,702,400
Source: Alameda County Agricultural Commissioner		

Subarea Characteristics

Many subareas in the East County have unique characteristics that determine suitable agricultural uses (geographic subareas are shown on Figure 1):

West Dublin. The West Dublin subarea is bounded by the Contra Costa County line to the north, the City of Dublin to the east, I-580 to the south, and Castro Valley to the west. Many steep ridges and canyons dominate the area's terrain. Grazing is the primary agricultural activity on the grassy slopes. There is also some hay production in the area.

East Dublin/Doolan Canyon. The East Dublin/Doolan Canyon area is located east of the City of Dublin and north of I-580, between Dublin and the North Livermore Valley. The

terrain in the area ranges from relatively flat land to the south, adjacent to I-580; to gently rolling grassy hills; to progressively steeper hills to the north. The major agricultural use in this area is cattle grazing, which occurs mainly on the hilly portions of the area. Hay and barley are cultivated on the flatter lands, near I-580.

North Livermore Valley. The North Livermore Valley lies between the City of Livermore and the Contra Costa County border. This subarea encompasses the Las Positas Valley which is a wide, relatively flat valley with steep hills to the north, east and west. Grazing and dry land crop cultivation are the dominant agricultural uses in the area. Barley and grain hay are the primary crops.

South Livermore Valley. The South Livermore Valley includes approximately 15,500 acres of relatively flat land located south and southeast of the City of Livermore. This area, known as the "Fertile Crescent," contains a significant amount of the County's remaining arable lands. The climate and soils of the Valley are particularly well suited for the production of wine grapes, which have been grown here for nearly 150 years.

Urbanization, combined with increased development speculation and changing market conditions, has resulted in a steady decline over the years in both the acreage of productive vineyards and the number of active wineries in the Valley. Alameda County recently adopted the *South Livermore Valley Area Plan* which is intended to preserve remaining vineyards and wineries in the area, enhance the recognition and image of the area as an important premium wine-producing region in California, create incentives for investment and expansion of vineyards and other cultivated agriculture in the area, and coordinate the policies of Alameda County, Pleasanton, and Livermore so that these goals can be achieved.

Altamont Hills. The Altamont Hills are rolling, grass-covered hills located in the eastern portion of the East County. The subarea runs diagonally across the northeast corner of the County, from the Contra Costa County border to the north, east of the City of Livermore and southwest of Mountain House, to the San Joaquin County border to the east. The primary agricultural use in the subarea is grazing. Much of the rangeland in this area is classified as "prime rangeland" by the U.S.D.A. Soil Conservation Service. Windfarms, for the purpose of generating electricity, are located on ridgelines throughout the rangeland. The windfarms are considered compatible with grazing operations, since cattle are allowed to graze on the land surrounding the turbines. There is some dry land farming south of I-580, in the area surrounding Patterson Pass and Tesla Roads.

Along Tesla Road, there are several clusters of parcels under 100 acres (with some as small as two acres) which were created before the County's current 100-acre minimum parcel size was enacted. The raising of animals is the most common land use on these parcels. There is also some cultivation of crops that are not land intensive.

Mountain House. The Mountain House subarea consists of a relatively flat area located in the County's extreme northeast corner. Geographically and economically, the subarea is part

of the San Joaquin Valley. The subarea borders San Joaquin County on the east and Contra Costa County on the north.

The area is comprised almost entirely of soils that are rated prime, unique or of statewide importance, according to the U.S.D.A. Soil Conservation Service and the California Department of Conservation. Agricultural production includes irrigated field crops, mainly sugar beets and corn; and irrigated pastures, mainly alfalfa. Truck crops are also raised.

Irrigation water is provided by the Byron-Bethany Irrigation District (BBID) (see the *Water Supply Background Report* in the *East County Area Plan - Volume 2*).

South Ridgelands. The South Ridgeland subarea comprises much of the southern half of the East County and consists primarily of rangeland and steep hills. Predominant land uses in the area are grazing and recreation on large parcels. Relatively remote from existing cities, the area is not well-provided with roads, utilities or other urban facilities and services.

South Pleasanton. The South Pleasanton subarea consists primarily of rolling grassy hills used for grazing. It also contains an approximately 500 acre parcel of prime farmland owned by the San Francisco Water Department (SFWD) and nearly surrounded by the City of Pleasanton. The relatively flat property is irrigated with water from SFWD and is used for growing alfalfa.

Sunol Valley. The Sunol Valley subarea consists of a long, narrow strip of land along the western boundary of the East County area, running from the southwest corner of the City of Pleasanton to the Santa Clara County border. Intensive agricultural operations are clustered near the intersection of Niles Canyon Road, Calaveras Road and I-680. Nursery operations are the predominant agricultural use in this area. Some prime agricultural soils are present in the Alameda Creek area toward the eastern end of Niles Canyon, in the vicinity of active sand and gravel quarries. Many of the same factors that create favorable conditions for sand and gravel mining also contribute to the quality of the soil for agriculture. Most of the remainder of the subarea is covered with steep ridges and narrow canyons running, generally, northwest to southeast. There is some grazing activity in the upland areas. The majority of the land to the south of Niles Canyon Road is owned by either the San Francisco Water Department or the East Bay Regional Park District.

The Vargas Plateau lies along the western boundary of the subarea, on either side of I-680. The western side of the plateau is within the boundaries of the City of Fremont; the remainder to the east is unincorporated and is therefore in the County's jurisdiction. The plateau is a combination of rolling, grass-covered hills and relatively flat areas. The primary agricultural use in this area is grazing.

Pleasanton Ridgelands. The Pleasanton Ridgeland subarea is bounded by I-580 to the north, the City of Pleasanton to the east, the Sunol Valley subarea to the south, and the planning area boundary to the west. The topography of the area consists of steep ridges and narrow canyons running, generally, northwest to southeast. Grazing is the predominant agricultural

use. A producing vineyard is located adjacent to Palomares Road in the southern portion of the subarea.

Soils

The designation of "prime agricultural soil" varies depending on the rating system used. Two commonly-used systems for rating the agricultural value of lands are the USDA Land Capability Classification System and the California Department of Conservation Farmland Mapping and Monitoring Program. The first system is based on soil quality, while the second takes soil quality into account along with other factors (including current use of the land).

USDA Land Capability Classification System. According to the USDA Soil Conservation Service, prime agricultural soils are defined as the best land for producing food, feed, fiber, forage and oil-seed crops, and may be subclassed as Prime Agricultural or Prime Range. The delineation of these soils are based on factors such as adequate moisture, acidity, chemistry, depth, drainage, erosion, permeability, and texture. Prime range land includes additional requirements for sustenance of livestock and maximum slopes of 45 degrees. Out of eight classes of soil (I-VIII) recognized by the USDA Soil Conservation Service, Classes I and II are designated as Prime; the remainder are soils of decreasing quality with increasing number.

Class I and II soils in the East County are shown in Figure 14. It is important to note that much of the Class I and II soils in the East County have already been lost to development. The most substantial area of prime soils that has not been developed is located in Mountain House in the far northeastern corner of the County. Significant areas of prime soil can also be found in the South Livermore Valley.

Farmland Mapping and Monitoring Program. The California Department of Conservation Farmland Mapping and Monitoring Program monitors the conversion of farmland to and from agricultural use. The Department inventories agricultural land every two years. The results of the inventory are shown on "Important Farmland Series Maps" prepared by the United States Department of Agriculture Soil Conservation Service and modified by the Department of Conservation to show the farmland and urban areas of each county. The classification of a particular property can change over time as conditions on the property (such as the level of development, availability of irrigation, or whether or not the land is under cultivation) change. In this respect, these classifications serve more as an indication of changes in land use than of soil quality.

The Important Farmland Series Maps show land classified into eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Grazing Land, Urban and Built-Up Land, Other Land, and Land Committed to Non-Agricultural Uses. The definitions of the three most important categories; Prime Farmland, Farmland of Statewide Importance, and Unique Farmland; are summarized below from the Department of Conservation's *Advisory Guidelines*.

Prime Farmland is land which has the best combination of factors suitable for crop production. These factors include soil quality, growing season and water supply.

Farmland of Statewide Importance is land which has a good combination of factors suitable for crop production, but does not include land classified as Prime Farmland. Much of the vineyard area in the South Livermore Valley is placed in this classification.

Unique Farmland is land treated and managed for the production of specific high economic value crops, but does not include land classified above. Examples of these crops include: avocados, grapes, oranges, olives, rice and cut flowers.

Water

The planning area is served by several aqueducts and canals providing irrigation water. While not "plentiful," rainfall in Livermore is typically about 50 percent greater than in the Central Valley at Tracy. Major threats to the water supply are (1) concern that the State Water Project will not meet its long-term contracts, given that planned water projects have not been built, (2) degradation of groundwater quality, (3) increasing demands from urban users (urban users traditionally demand first priority for water), and (4) recent drought. The availability of water for agriculture is discussed in greater detail in *Chapter 5.13 - Water Supply*.

Existing Parcel Sizes

Adequate farm size is important to maintaining the productivity of agricultural land. The average farm in Alameda County is moderate in size, 349 acres—close to the statewide figure of 368 acres. Statewide, 79 percent of harvested cropland is on farms over 260 acres; only 6 percent is on farms under 50 acres. In Alameda County, 67 percent is harvested on farms over 260 acres; 7 percent on farms under 50 acres.

Due to the County's 100-acre minimum zoning, adopted in 1972, there are relatively few very small parcels in agricultural areas. However, there are clusters of parcels under 40 acres, subdivided prior to current zoning. The largest concentration is along Tesla Road. However, smaller groupings can be found north and south of I-580 near the San Joaquin County border, along Mines Road, east of Calaveras Road near the Santa Clara County border, northeast of the intersection of Vallecitos Road and I-680, and scattered throughout the area north of the City of Livermore.

Status of Williamson Act Contracts

The Williamson Act, California Government Code Section 51200 et seq., is a state law that established a program to allow an owner of agricultural land to enter into a contract with the county in which the owner agrees not to develop the land under contract and to continue agricultural activities, or uses deemed by the county to be compatible with agriculture, on it. In exchange, the property tax assessment for the land is based on its agricultural value,

without consideration of its development potential. The contract is in effect for a ten year period and is automatically extended annually for one year. A property owner or the county may file for non-renewal at any time, in which case the contract would expire in ten years. A contract may be canceled under very limited circumstances. County Williamson Act guidelines restrict the use of the land and include minimum parcel sizes.

The California Land Conservation Act (Government Code Section 51282 et seq.) dictates that the Board of Supervisors may grant tentative approval for cancellation of a contract only if it makes one of the following findings:

- (1) That the cancellation is consistent with the purposes of this chapter; or
- (2) That cancellation is in the public interest.

In order to make Finding (1), the board must make all of the following findings:

- . That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.
- . That cancellation is not likely to result in the removal of adjacent lands from agricultural use.
- . That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.
- . That cancellation will not result in discontinuous patterns of urban development.
- . That there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

In order to make Finding (2), the Board must make both of the following findings:

- . That other public concerns substantially outweigh the objectives of the Williamson Act (Government Code Section 51200 et seq.); and
- . That there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

The vast majority of the agricultural land in Alameda County is under Williamson Act contract. According to the State Department of Conservation's *1990-91 Williamson Act Status Report*, a total of 161,657 acres were under contract as of 1991. As of February

1991, land owners had filed to non-renew Williamson Act contracts on nearly 23,000 acres in the County. Non-renewal of contracts in the East County has been most prevalent at the fringe of the urban area, although many property owners in the Mountain House area have also filed for non-renewal.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- development of land for urban or non-urban uses could result in the loss of pockets of prime soil
- development of land for urban or non-urban uses could result in the premature loss of agricultural land
- encroachment of incompatible land uses could adversely affect the viability of agriculture

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban/Open Space Delineation

Policy 1: The County shall identify and maintain an Urban Growth Boundary that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety. The Urban Growth Boundary circumscribes an area inside of which urban development will be encouraged and outside of which urban development will be prohibited. The Urban Growth Boundary is intended to be permanent and shall include sufficient developable land to accommodate an ultimate holding capacity for both incorporated and unincorporated development in East County. The County shall use the Urban Growth Boundary to provide certainty regarding development potential for long-term infrastructure financing, agricultural investment, and environmental protection.

Policy 15: The County shall phase development to minimize premature loss of agricultural land.

Policy 17: The County shall approve urban development only if it is located within the Urban Growth Boundary.

Major New Urban Developments

Policy 27: The County shall require detailed development plans (e.g., specific plans) for each major development phase of Major New Urban Developments...

Agricultural Policies and Programs:

Policy 75: The County shall discourage the conversion of prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary.

Policy 76: The County shall preserve the Mountain House area for intensive agricultural use.

Policy 77: The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. Buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses. The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable land feasible.

Policy 78: The County shall require that, where conflicts between a new use and existing use are anticipated, the burden of mitigating the conflicts be the responsibility of the new use.

Policy 79: The County shall enforce the provisions of the Alameda County **Right-to-Farm Ordinance** on all lands within and adjacent to agricultural areas.

Policy 80: The County shall work with San Joaquin, Contra Costa, and Santa Clara Counties to ensure that any development adjacent to Alameda County agricultural land mitigates impacts on agricultural land including air quality, water quality and incompatibilities with agricultural uses. In particular, measures to mitigate growth-inducing impacts of development on agricultural land in Alameda County shall be addressed through cooperative efforts among the counties. The County shall ensure that land uses within Alameda County adjacent to San Joaquin, Contra Costa, and Santa Clara Counties are compatible with adjacent agricultural uses in these other counties.

Program 30: The County shall amend the Zoning Ordinance to eliminate uses incompatible with agriculture in the "A" (Agriculture) District.

Program 31: The County shall develop guidelines for establishing buffers between existing agricultural uses and potentially incompatible uses. Buffers may take the form of precluding incompatible uses within a certain distance of agricultural operations, erecting physical barriers to nuisances such as berms or foliage, or mitigation of impacts to non-agricultural uses (e.g., noise insulation). Buffers may consist of a topographic feature, a substantial tree stand, watercourse, or similar feature.

Program 32: The County shall adopt an ordinance requiring that a real estate disclosure notice be attached to deeds informing owners of potential nuisances generated by adjacent

agricultural uses. Such notices will be required for all parcels designated as "Large Parcel Agriculture" and "Resource Management" and for parcels abutting any parcel in one of these designations, whenever the property is transferred to a new owner.

Policy 82: The County shall require any proposal for **agricultural support service uses** within areas designated "Large Parcel Agriculture" or "Resource Management" to meet at a minimum the following criteria:

- The project will not require the extension of public sewer or water.
- The project will not substantially detract from agricultural production on-site or in the area.
- The project will not create a concentration of commercial uses in the immediate area.
- The project is compatible with and will not adversely affect surrounding uses.

Program 33: The County shall amend the Zoning Ordinance to establish development standards and procedures for **agricultural support services** in the "A" (Agriculture) District.

Policy 84: The County shall give the highest priority in areas designated "Large Parcel Agriculture" to agricultural operations. Visitor-serving commercial facilities (such as wineries, inns, and food and beverage stores) shall be limited to facilities that promote agriculture and are incidental to the area's agricultural production.

Policy 85: The County shall permit agriculture-enhancing **commercial uses** as conditional uses in areas designated "Large Parcel Agriculture," and in the South Livermore Valley.

Policy 86: The County shall require any proposal for a **visitor-serving commercial use** in an agricultural area to meet all of the following criteria:

- the project will primarily promote agricultural products grown or processed in Alameda County;
- the project is compatible with existing agricultural production activities in the area;
- the project mitigates, to the satisfaction of the County, all potential conflicts with surrounding agricultural uses and other environmental impacts; and
- the project can demonstrate an adequate water source that does not diminish the availability of water to serve existing or potential agricultural use.

Program 34: The County shall amend the Zoning Ordinance to establish development standards and procedures for **visitor serving commercial uses** in the "A" (Agriculture) District.

Program 35: The County shall develop design guidelines for visitor-serving commercial uses in the "A" (Agriculture) District to maintain the rural character of the agricultural areas in which they would be located.

Program 36: The County shall amend the Zoning Ordinance to allow for clustering of single family homes on parcels of 400 acres and greater in the "A" (Agriculture) District. Each home site would be limited to a maximum parcel size of 5 acres, at an overall density of one home per 100 acres, in exchange for dedication of an agricultural easement on the remaining 95 percent of the original parcel. A development envelope of no more than two acres shall be identified within which all residential development and residential accessory uses shall be located on each 5 acre parcel. The clustering should be configured to maximize the amount of contiguous agricultural acreage and minimize the impacts of residential sites on agricultural operations.

Policy 88: The County shall utilize provisions of the Williamson Act and other appropriate economic incentives to support agricultural uses.

Policy 89: The County shall not approve cancellation of Williamson Act contracts within or outside the Urban Growth Boundary except where findings can be made in accordance with Government Code Section 51282.

Program 37: The County shall review its Williamson Act guidelines and revise them as necessary to assure consistency with State law and with the General Plan.

Policy 90: The County shall encourage the establishment and permanent protection of existing and new cultivated agriculture through the use of homesite clustering, agricultural easements, density bonuses, or other means.

Policy 92: The County shall retain rangeland in large, contiguous blocks of sufficient size to enable economically viable grazing through subdivision policies, leasing arrangements, minimum parcel size requirements, and other mechanisms.

Policy 93: The County shall approve divisions of agricultural parcels only where it can be found that the land division or introduction of homesites would not interfere with the ability to initiate or continue agricultural uses both on-site or on adjacent parcels. Where residential uses are proposed, the County will support clustering of homesites to maximize the amount of contiguous agricultural acreage. Clustering shall be designed so as not to adversely affect adjacent resources such as agriculture, windfarms, or quarries.

Policy 94: The County shall determine the minimum parcel size of agricultural parcels through an evaluation of individual circumstances of the property and surrounding land, but, except as follows, the minimum parcel size shall not be smaller than 100 acres in areas designated "Large Parcel Agriculture" or "Resource Management." Where conditions warrant, the County may require a larger parcel size through the land division process. Exceptions may apply within the South Livermore Valley, as defined in Section E, "North and South Livermore Policies," and where clustering of homesites is allowed.

Policy 96: The County shall encourage the retention of existing large parcels of greater than 100 acres in remote areas designated "Large Parcel Agriculture" or "Resource Management," where the parcels are not well served by roads, infrastructure, and services.

Policy 98: The County shall require the geographic phasing of urban development within the Urban Growth Boundary to minimize the impacts of incompatible uses on continuing agricultural operations.

Policy 99: The County shall approve urban development proposals on agricultural land within the Urban Growth Boundary only when they meet the following minimum criteria:

- ◆ the project site is contiguous to existing urban development or provides a high density, transit-oriented, community center as part of a Major New Urban Development.
- ◆ all necessary access roads, public utilities and services are available;

For parcels within South Livermore, the County shall approve urban development proposals on agricultural land according to the objectives contained in *Section E. "North Livermore and South Livermore Policies"* of the *Draft East County Area Plan*.

Program 40: The County shall amend the Zoning Ordinance and Subdivision Ordinance to specify that the 100 acre minimum parcel size permitted for the "A" (Agriculture) District is a *minimum* but that the actual size of agricultural parcels shall be determined through an evaluation of individual circumstances of the property and surrounding land and may be larger than 100 acres. Exceptions may apply within the South Livermore Valley, as defined in Section E, "North and South Livermore Policies," and where clustering of homesites is allowed.

Program 41: The County shall develop criteria to be used in evaluating land use proposals (e.g., parcel maps and conditional use permits) in the "A" (Agriculture) District. These criteria shall address, at a minimum, the following factors: environmental considerations, natural features, access, fire protection, interference with agricultural uses, water availability, provision of services, and visual impacts. In evaluating a subdivision application, the analysis should assume that each parcel includes a building site which *could* be developed with a residence (even if residences are not proposed as part of the application).

Program 42: The County shall develop new application submittal requirements for proposed uses and divisions of land in the "A" (Agriculture) District to enable detailed assessment of applications based on criteria developed in program 41.

Program 43: The County shall amend the Zoning Ordinance and Subdivision Ordinance to include a set of required findings, in addition to those required under the Subdivision Map Act, to be made before approving a subdivision or conditional use permit in the "A" (Agriculture) District. The findings shall address, at a minimum, parcel configuration, building envelope, interference with agricultural uses on parcels in the vicinity, access, water availability, compatibility with the character of the surrounding area, interference with adopted plans for recreational open space, and environmental concerns.

Program 45: The County shall develop criteria to be used in the **Site Development Review** process for residential development in the "A" (Agriculture) District. These criteria shall address, at a minimum, the following factors: environmental considerations, natural features, access, interference with agricultural uses, water availability, provision of services, health and safety, and visual impacts including light and glare. These criteria shall be used in determining the suitability of residential siting on agricultural parcels.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project would have a significant effect on the environment if the project would "convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land."

For purposes of this EIR, implementation of the plan would create a significant environmental impact if development in accord with the plan resulted in the conversion of Class I and Class II soils, as defined by the USDA Soil Conservation Service, to non-agricultural use. The premature conversion of agricultural land to non-agricultural use would also constitute a significant impact; as would impairment of the productivity of agricultural land, such as the encroachment of incompatible uses into agricultural areas.

Potential Impacts and Mitigation Measures

Potential Impact 5.2-1: New urban development could result in the conversion of prime agricultural land to non-agricultural uses.

The proposed plan establishes an Urban Growth Boundary which would recognize that, in general, the area inside the boundary is suitable for urban development and the area outside the boundary is appropriate for open space uses. (The location of the Urban Growth Boundary in the South Livermore Valley subarea will be determined through the implementation of the policies in the *South Livermore Valley Area Plan*.) A large portion of the County's Class I and Class II soils, as identified by the USDA Soil Conservation Service, is within the Urban Growth Boundary; however, almost all of the areas of prime soil are within the existing boundaries of the cities (shown on Figure 14). Much of the prime soil in the unincorporated area within the Urban Growth Boundary has already been developed with non-agricultural uses, such as Lawrence Livermore National Laboratory, to the east of Livermore, and the quarries between Pleasanton and Livermore.

Two significant areas of prime soil remain undeveloped in the unincorporated area within the Urban Growth Boundary. One of these areas is approximately 500 acres nearly surrounded by the City of Pleasanton. The property is owned by the San Francisco Water Department, which has proposed that the area be developed. Under the *East County Area Plan*, the land use designations in this area would be "Low Density Residential," "Medium High Density Residential," and "Commercial." In spite of this area's prime soil designation, its value for agriculture may be limited by its proximity to the non-agricultural uses that surround it.

The second area consists of approximately 200 acres located within the City of Dublin's sphere of influence in the East Dublin/Doolan Canyon subarea. The plan's Land Use Diagram shows various urban land uses in this area. This area of prime soils is a small portion of a much larger area designated for urban development and excluding this 200-acre area from the proposed urban development would interfere with the orderly development of the larger area.

The largest area of undeveloped prime soil in the East County, located in the Mountain House subarea, would be designated Large Parcel Agriculture and would remain outside the Urban Growth Boundary.

Plan Policies and Programs: Implementation of the plan would result in the conversion of prime soils within the Urban Growth Boundary to non-agricultural uses; however, the size of the individual areas, the nature of their distribution within the area and their proximity to existing urban development limits their value for agriculture and makes the preservation of these areas for agricultural use impractical without substantial interference with the orderly development of the urban area. Plan policies discourage the conversion of prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary (policy 75). The importance of preserving the prime soils in the Mountain House area for intensive agricultural use is also recognized (policy 76). Nevertheless, small pockets of prime soils would be converted to urban uses under the plan.

Level-of-Significance: While policies and programs would substantially lessen the impact of urban development on prime soils within the Urban Growth Boundary, no mitigation is available to reduce the impact to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.2-1: None available.

Potential Impact 5.2-2: Development in accord with the Land Use Diagram could lead to premature loss of agricultural land.

Because the Urban Growth Boundary encompasses a considerable amount of land that is currently used for agriculture and the Land Use Diagram shows urban land use designations

for this agricultural land, development in accord with the Land Use Diagram will result in the eventual loss of agricultural land. The determination of whether or not conversion will be premature depends on whether new urban development is logically phased and reflects a contiguous and efficient pattern of urbanization. The result of premature development of agricultural land would be the unnecessary loss of agricultural productivity. The premature loss of agricultural land can also adversely affect remaining agricultural operations in the vicinity of the new development. A detailed discussion of potential impacts on agricultural land resulting from incompatibilities between urban and agricultural land uses can be found below under *Potential Impact 5.2-3*.

There are a number of parcels under Williamson Act contract within the Urban Growth Boundary. While most of these contracts have been non-renewed with only two to four years of the contract term remaining, some contracts are still active or have been non-renewed but have six to seven years remaining under the contract terms. Cancellation of some contracts with several years remaining would likely be requested as part of any development plan for the North Livermore area.

Plan Policies and Programs: Policies and programs listed above address the potential effects of the plan on agricultural parcels within the Urban Growth Boundary that may be lost to urban development prematurely. The Urban Growth Boundary defines areas suitable for agriculture and will be used to provide certainty regarding agricultural investment (policy 1). In establishing the location of the Urban Growth Boundary (and Major New Development areas), the County considered the availability and suitability for urban use of contracted and noncontracted land on a subregional basis.

Cancellation of contracts inside the Urban Growth Boundary will not result in the removal of lands outside the Urban Growth Boundary from agricultural use, since policy 17 states that urban development is only permitted within the Urban Growth Boundary; lands outside the Urban Growth Boundary generally are not suitable or available for urban growth.

Inside the Urban Growth Boundary, the need for urban growth on contracted land would only temporarily be delayed by shifting early growth to noncontracted land. Policies in the plan require the phasing of urban development to ensure that development will occur in a logical manner and will minimize impacts on productive agricultural lands (policies 15, 98 and 99).

Implementation of the plan would not change existing zoning designations. All properties currently zoned in the A (Agricultural) District would retain this zoning designation until the zoning were changed by the Board of Supervisors through approval of a specific plan or other discretionary approval, following project-specific environmental analysis; policy 27 requires detailed development plans (e.g., specific plans) for each major development phase of Major New Urban Developments. Review of proposed specific plans or other detailed development plans would include analysis of the timeliness of conversion from agriculture to urban uses, based on project-specific conditions.

Under the proposed plan, the County would not approve the cancellation of a Williamson Act contract except where the specific findings listed on page 6 could be made (policy 88 and 89, and program 37). These required findings would ensure that a contract would be canceled only to allow for the orderly development of urban uses and when agricultural viability on adjoining parcels would not be affected.

While some agricultural lands may be lost within the Urban Growth Boundary in order to accommodate projected growth, policies 75-97, and programs 30-44 of the plan support agriculture outside of the Urban Growth Boundary.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on agricultural land within the Urban Growth Boundary would result.

Mitigation Measure 5.2-2: None needed.

While no mitigation is needed, the following modification would clarify the following plan policies (new language is shown in *italics*; deleted language is ~~struck out~~):

Proposed Modification to Policy 15: The County shall phase development to minimize premature loss of agricultural land. *Agricultural land may be urbanized where conversion is a part of phased growth planned to avoid discontinuous (leap-frog) development.*

Proposed Modification to Policy 77: The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. *The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan.* The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable land feasible.

Proposed Modification to Policy 89: The County shall not approve cancellation of Williamson Act contracts within or outside the Urban Growth Boundary except where findings can be made in accordance with Government Code Section 51282. *In making any such findings with respect to land inside the Urban Growth Boundary, the County shall consider the following:*

- The Urban Growth Boundary is designed to encourage orderly, planned development and to satisfy state-mandated housing requirements (policies 1 and 11). Cancellation of contracts inside the Urban Growth Boundary may be necessary to advance these and other important goals of the East County Area Plan.*

- . *Cancellation of contracts inside the Urban Growth Boundary will not result in the removal of lands outside the Urban Growth Boundary from agricultural use (policy 17).*
- . *The Urban Growth Boundary defines areas suitable for agriculture and will be used to provide certainty regarding agricultural investment (policy 1). In establishing the location of the Urban Growth Boundary (and Major New Development areas), the County considered the availability and suitability for urban use of contracted and noncontracted land on a subregional basis.*
- . *Where growth is properly phased (see policies 13, 15, 98, and 99), contract cancellation will not result in discontinuous patterns of urban development. In such cases, the development of contracted land will provide more contiguous patterns of urban development than development of proximate noncontracted land. Proper phasing of development may justify some contract cancellation in order to protect the County's permanent agricultural land inventory as defined by the Urban Growth Boundary.*
- . *Lands outside the Urban Growth Boundary generally are not suitable or available for urban growth. Inside the Urban Growth Boundary, the need for urban growth on contracted land would only temporarily be delayed by shifting early growth to noncontracted land.*

Modification to Policies 92 through 97: To clarify that Policies 92 through 97 apply to lands located outside the Urban Growth Boundary, add the phrase "*Outside the Urban Growth Boundary*" to the caption immediately preceding policy 92.

Potential Impact 5.2-3: Encroachment of incompatible uses into agricultural areas could be detrimental to the continued viability of agricultural operations.

Under the plan, there are two ways in which agricultural land may be exposed to incompatible land uses. First, urban land uses may interfere with agricultural operations as the edge of the urban area encroaches into agricultural areas. Secondly, certain non-agricultural uses permitted in areas designated "Large Parcel Agriculture" and "Resource Management" may be incompatible with agriculture.

Because the plan allows for expansion of the existing urban area into areas that are currently used for agriculture (most notably in the North Livermore Valley, Eastern Dublin, and to a limited extent, South Livermore Valley), the plan creates the potential for conflicts between urban and agricultural uses. Encroachment of urban development into agricultural areas has led to conflicts between farmers and the new residents in other areas. Among the nuisances cited by residents are:

- . pesticide use, especially aerial spraying

- . noise from aerial crop dusters, bird frightening devices, pumps, sprinklers, wind machines, heavy equipment and tractors (night use of wind machines, irrigation equipment and harvesting equipment are especially annoying)
- . lights associated with night harvesting
- . dust
- . flies
- . odors due to fertilizers, manure and crop processing
- . accidental poisoning of pets due to rodent control

At the same time, urban development may interfere with agricultural operations. Farmers object to:

- . increased trespass and vandalism
- . theft; crop pilferage
- . harassment of livestock by neighbor dogs
- . introduction of exotic species from urban gardens
- . erosion, flooding and siltation due to residential developments
- . time, energy and expense required to respond to neighbor conflicts and complaints to government agencies
- . increased liability
- . restricted operations

Nuisances, such as those stated above, may threaten the future viability of agriculture by making continued operations too difficult and costly. Alameda County has a "Right-to-Farm" ordinance to facilitate the resolution of conflicts between agricultural land uses and adjacent urban land uses in order to maintain the viability of agricultural operations.

There are some non-agricultural uses permitted under the plan in areas designated "Large Parcel Agriculture" and "Resource Management" that, although not urban in nature, may be incompatible with agricultural uses if measures are not taken to prevent potential conflicts. These uses include landfills, quarries, windfarms, and visitor-serving commercial facilities. Potential land use conflicts between agricultural uses and landfills are discussed in detail in *Chapter 5.20 - Solid and Hazardous Waste Management*. Potential conflicts created by quarries are discussed in *Chapter 5.10 - Mineral Resources*. A discussion of windfarms can be found below.

Allowing visitor-serving commercial uses into agricultural areas is intended to enhance agricultural viability by drawing visitors to the County's agricultural areas, creating greater demand for the County's agricultural products. If these commercial uses are not properly located, sized, and designed, they may interfere with on-going agricultural activities by breaking up large, commercially viable properties; by creating nuisances such as those listed above regarding the encroachment of urban uses; or by creating other problems related to intensive uses, such as traffic hazards.

The plan maintains the existing 100 acre minimum parcel size in areas designated "Large Parcel Agriculture" and "Resource Management;" however, under the plan, clustering of homesites on 5 acre parcels would be permitted on parcels of 400 acres or more in exchange for the dedication of agricultural easements on the remainder of the property. The clustering program (program 36) is designed to maximize the long-term productivity of the East County's agricultural resources while allowing landowners the ability to realize a return on their asset base.

Despite the potential benefits of this program to the area's agricultural productivity, the introduction of small parcels into agricultural areas could have adverse impacts on the surrounding area and on the agricultural viability of the subject parcels if the clustering provisions are followed without appropriate safeguards. The interspersal of parcels too small for agricultural use can disrupt agricultural operations by breaking up the large, contiguous areas needed for large-scale commercial agriculture, and by creating the potential for conflicts between the on-going agricultural operations and the residents of the new housing. The introduction of a cluster of houses could change the appearance of the landscape significantly, and the septic systems serving the houses may cumulatively reduce groundwater quality.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan resulting from the encroachment of incompatible uses into agricultural areas. The plan would establish an Urban Growth Boundary to define areas suitable for urban development and open space areas, including agriculture (policy 1). The plan would place the burden of mitigating any conflicts between a new use and an existing use on the new use (policy 78), would protect existing agricultural uses by requiring buffers between areas designated for agricultural use and new non-agricultural uses (policy 77 and program 31) and would enforce the provisions of the Alameda County Right-to-Farm Ordinance (policy 79). Other policies and programs in the plan encourage cooperation with surrounding counties to ensure mitigation of impacts caused by development in adjoining counties (policy 80), and establish criteria for agricultural support services and visitor-serving commercial uses to protect agricultural uses in the vicinity (policies 82 & 86).

Plan policies contain provisions to ensure that agricultural land would not be subdivided to 100 acres without assurances that the agricultural viability of the property to be subdivided and that of the surrounding area would not be adversely affected (policies 92, 93, 94, and 96; programs 40, 41, 42, and 43). The clustering of residential parcels would not increase the overall density of one housing unit per 100 acres (policy 94). Policies and programs require that the clustered parcels be configured to maximize the amount of contiguous agricultural acreage and minimize the impacts of residential sites on agricultural operations (policies 90 and 93; program 36). In addition, a real estate disclosure notice would be attached to the deeds of the newly created parcels to inform owners of potential nuisances generated by adjacent agricultural uses (program 32).

Under plan policies and programs, subdivisions creating clustered parcels and development on these parcels would be subject to the same criteria as other types of land use proposals in

the "A" (Agriculture) District. The criteria used to evaluate a proposal would address, at a minimum, environmental considerations, natural features, access, interference with agricultural uses, water availability, provision of services, health and safety, and visual impacts including light and glare (program 41 and 45). Approvals of subdivisions creating cluster parcels would also be subject to specific findings, beyond those contained in the Subdivision Map Act, to ensure that the proposed parcel configuration will not interfere with the agricultural viability of the surrounding area (program 43).

Level-of-Significance: Implementation of proposed plan policies and programs would mitigate this impact to a less-than-significant level.

Mitigation Measures 5.2-3: None needed.

SOURCES



- Alameda County Agricultural Commissioner, County of Alameda Agricultural Crop Report 1947-1991.
- Alameda County Planning Department, South Livermore Valley Area Plan (Revised Draft). February 6, 1992.
- American Farmland Trust, Saving the Farm: A Handbook for Conserving Agricultural Land. January 1990.
- Assembly Committee on Local Government, Guide to Cortese/Knox Local Government Reorganization Act of 1985, October 1985 (Revised 1990).
- Bureau of the Census (U.S. Department of Commerce) 1987 Census of Agriculture, Volume 1 Geographic Area Series, Part 5 California State and County Data, 1987.
- California Department of Conservation, Division of Land Resource Protection, Advisory Guidelines for the Farmland Mapping and Monitoring Program April 1984.
- Laderman, Elizabeth S., Ronald H. Schmidt, and Gary C. Zimmerman, "Location, Branching, and Bank Portfolio Diversification: The Case of Agricultural Lending," Economic Review, Winter 1991.
- Livingston and Associates, South Livermore Valley Study, Technical Memorandum No. 1, June 1988.
- Reganold, John P. and Michael J. Singer, Defining Prime Agricultural Land in California. October 1978.
- Soil Conservation Service (USDA), Alameda County Soil Survey, 1961.

\\home\plan\air\chpt5-2.ejm

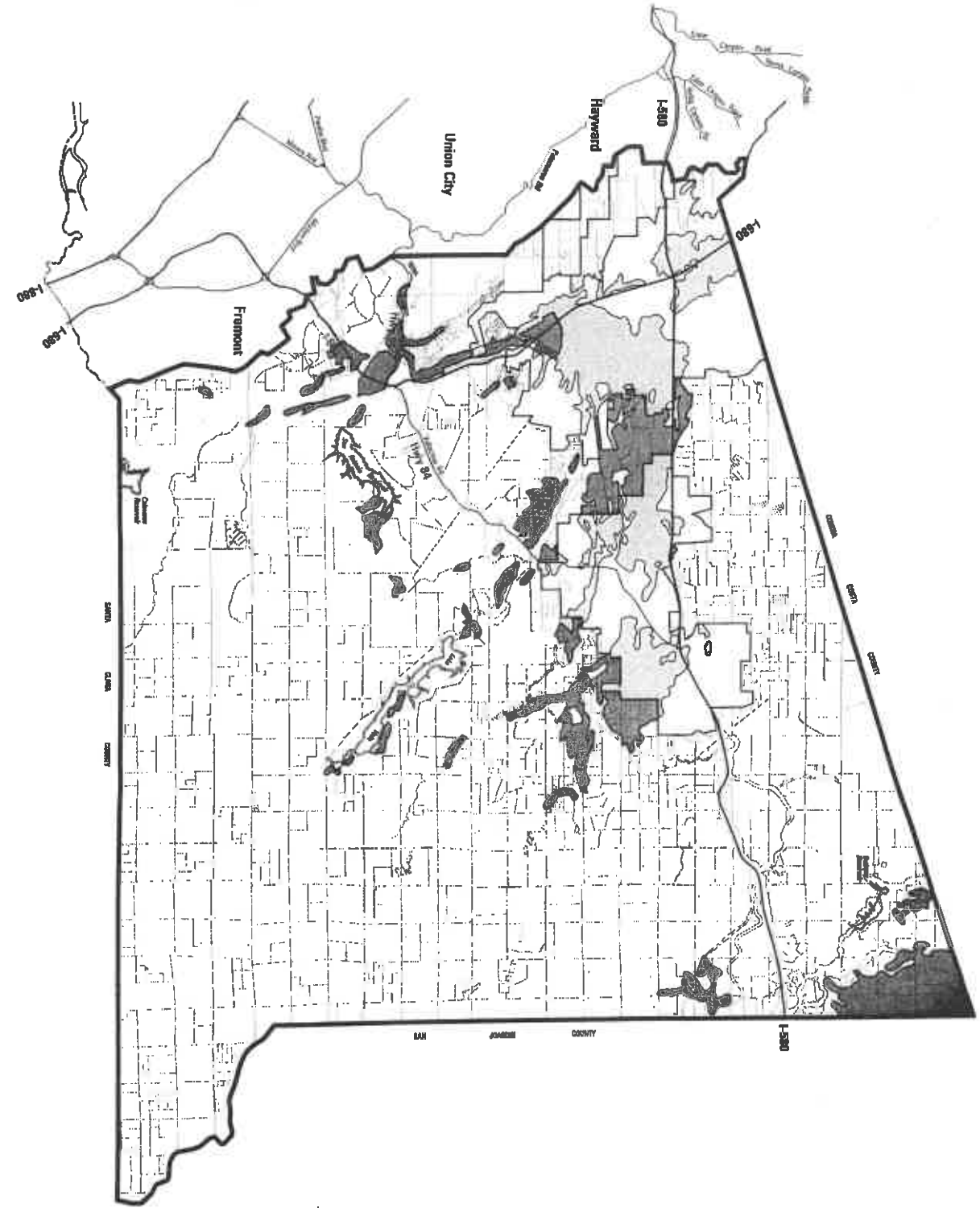
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Prime Soils

LEGEND

-  Class I & II Soils within 1982 City Boundaries
-  Class I & II Soils in Unincorporated Areas

NOTE: Map does not reflect current land use.




SOURCE: Soil Survey, U.S. Department of Agriculture, Soil Conservation Service, 1961

0 5000 10000 15000 20000 feet

0 1 2 3 4 miles

FIG. 14



Chapter 5.3 - Employment and Housing

A. EXISTING SETTING

Population and Housing

The East County's three incorporated cities comprise 96 percent of the planning area's population of 135,589 (see Table 5.3-1). Livermore has the largest population (56,741), followed by Pleasanton (50,553) and Dublin (23,229) with only minimal population in unincorporated areas (5,066). This represents a 34 percent increase in population since 1980 when the population was 101,113.

The distribution of housing units and households reflects that of the population. Livermore has the largest number of housing units (21,489), followed by Pleasanton (19,356) and Dublin (6,992), with only a minimal number of units in unincorporated areas (1,913) (see Table B-1). Housing units total 49,750 of which 47,765 are occupied representing an average 4 percent vacancy rate. Household size varies only slightly among the jurisdictions with an average of 2.75 persons per household.

Employment

The three cities and their spheres of influence constitute virtually 100 percent of the 69,180 total East County jobs. Pleasanton has the largest employment (31,930), followed by Livermore (23,770) and Dublin (13,380), with only minimal, farm-related employment in unincorporated areas outside of sphere of influence boundaries (100). Of this total East County employment, ABAG estimates that about 1 percent is associated with agriculture, 19 percent with manufacturing and wholesale, 23 percent with retail, 30 percent with service, and 27 percent with other types of employment.

The Population and Employment Growth and Jobs/Housing Background Reports of the Draft *East County Area Plan - Volume 2* contains detailed existing and future conditions regarding employment and housing in various subareas of East County.

Jobs/Housing Balance

The balance between population and employment is typically measured in two ways. The simplest measure is a ratio of jobs to employed residents, with 1.0 indicating a perfect balance between the two variables. However, this simple measure ignores housing affordability. A community can have a theoretical balance between jobs and housing, yet also have none of its housing stock affordable to its locally-employed work force.

The degree of numerical balance between jobs and housing can be measured by a ratio which quantifies the relationship between the number of housing units required as a result of local jobs and the number of housing units available in that locality. Jobs per employed resident is the accepted measure of the jobs/housing balance ratio. This is calculated as:

$$\frac{\text{\# of jobs}}{\text{employed residents}} \\ (\text{\# of households} \times \text{\# of workers per household})$$

A value of 1.0 indicates a situation in which there is housing available for each member of the workforce within a given area. A value greater than 1.0 indicates an in-commute situation in which there is a deficit of housing units, whereas a value smaller than 1.0 indicates an out-commute situation in which there is surplus of housing. For example, ABAG projects that there will be 1.58 workers per household in the Tri-Valley in the year 2010. Using this ratio, the Tri-Valley could support 1.58 times as many jobs as households or, conversely, the area would require .63 (the inverse of 1.58) household for each job. For every 100 jobs projected, 63 households (or 66 housing units assuming a 5 percent vacancy rate) would be needed to attain a jobs/housing ratio of 1.0. This equation does not take into account housing affordability but simply measures a numerical relationship between supply and demand for housing. Table 5.3-2 shows the jobs/housing data for the Tri-Valley.

In the Bay Area, the jobs/housing ratio is 0.98 indicating that the region has, at least numerically, a sufficient amount of housing needed by the workforce. Despite this situation, workers are currently forced to commute into the Bay Area from outside the region, mostly from San Joaquin, Santa Cruz, and San Benito Counties where more affordable housing is available. In the Tri-Valley subregion, the existing jobs/housing ratio is 0.91, which is better, from a housing standpoint, than the region as whole. In the East County, however, the jobs/housing ratio is balanced at 1.02, while the Contra Costa portion of the Tri-Valley subregion is 0.74, indicating a significant numerical surplus of housing.

Housing Affordability

The Tri-Valley is seen by people who work in other parts of the Bay Area as one of the few remaining areas of affordable housing since prices are generally less than they are elsewhere in the Bay Area. As a result, many buy homes in the Tri-Valley and commute, generally by car, to employment centers to the west. These commuters contribute to the increasing demand for housing in the East County which, in turn, increases the cost of housing. In addition, escalating land values brought on by job development have increased Tri-Valley home prices to the point where an increasing number of workers in the Tri-Valley must commute-in from areas of more affordable housing, specifically western San Joaquin County and northern Contra Costa County.

Existing housing data for the East County are shown in Table 5.3-3. The distribution of housing units between owners and renters and between detached and attached units is

relatively uniform among the three cities. Rental units and attached units each represent an average of 32 percent of the housing units in the East County. While this distribution of rental and attached units is lower than in larger cities such as San Francisco and Oakland, it is higher than in many suburban areas. In the East County, the median value of ownership housing is \$252,950 and the median contract rent averages \$732 per month. Although home values and rents are lower than in some locations closer to the employment centers of San Francisco and Oakland, East County prices have escalated recently to the point of being above the average for the nine county Bay region. Therefore, existing homeownership and rental costs in the East County are beyond the means of many workers. This "affordability gap" is resulting in substantial numbers of workers commuting in from less expensive areas.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- housing and employment growth could have a potential impact on East County jobs/housing balance
- lack of an adequate affordable housing supply to house projected employment in East County could result in additional in-commuting from San Joaquin County and resultant traffic congestion, air pollution, noise impacts, displacement of agricultural land, and urban sprawl in areas east of the Altamont Pass
- future economic development in East County could be jeopardized without a skilled labor force, affordable housing for workers, an adequate supply of telecommunications and other technical infrastructure, and job training programs to enhance the technical skills of the workforce

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Interjurisdictional Coordination

Policy 2: The County shall work with cities and other agencies in planning land use and infrastructure to achieve the goals of the *East County Area Plan* using a **cooperative approach** that recognizes those environmental, social, and economic characteristics of the subregion that extend beyond jurisdictional boundaries.

Urban and Rural Development

Policy 9: The County shall plan for an ultimate holding capacity of approximately 108,000 housing units (287,000 population) and approximately 160,000 jobs at buildout of the East County planning area, inclusive of incorporated and unincorporated areas.

Policy 10: The County shall plan for a 2010 holding capacity of approximately 94,550 housing units (250,700 population) and approximately 151,560 jobs within the East County planning area, inclusive of incorporated and unincorporated areas and consistent with the Association of Bay Area Government's (ABAG) *Projections 92*.

Policy 16: The County shall promote an approximate balance between jobs and housing within East County and shall further promote a range of housing types reflecting the income distribution of the local employment base.

Policy 41: The County shall attempt to meet unincorporated East County regional housing share objectives for all income categories within East County to minimize the need for low- and moderate-income households to seek housing in San Joaquin and Northern Contra Costa Counties. The County shall encourage cities to meet their respective incorporated city regional housing share objectives within East County.

Policy 42: The County shall work with cities to attain the ABAG regional housing share goal (established in the County Housing Element for East County) of 21 percent moderate-income, 15 percent low-income, and 21 percent very low-income housing units throughout East County.

Policy 43: The County shall require each residential and non-residential project to contribute to meeting the housing needs of very low-, low- and moderate-income households.

Program 14: The County shall adopt an ordinance establishing a low- and very low-income housing trust fund to accrue housing fee revenues and to disperse them for low- and very low-income housing development.

Policy 50: The County shall encourage job producing industries that reflect the skills of the local labor force to locate in the East County area.

Policy 51: The County shall provide incentives, such as fee reductions, streamlined permit processing, and infrastructure placement, to existing industries to remain in the East County planning area.

Policy 52: The County shall seek development of back office space to accommodate service industry employment opportunities for low-skill workers.

Program 19: The County shall work with the Alameda County Economic Development Advisory Board to promote investment in telecommunications and other technical infrastructure that will be required to attract service businesses to East County.

Program 20: The County shall work with the Alameda County Economic Development Advisory Board to develop job training programs (e.g., computers, electronic technology), to

improve the skills of the local labor force, and social programs (e.g., child care and job placement).

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For purposes of this EIR, two standards of significance are used to evaluate the potential impacts of the plan on employment and housing:

- . If the plan results in a jobs/housing imbalance, both in terms of a numerical balance and in terms of providing housing affordable to the labor force,
- . If the plan fails to provide the elements required to continue healthy economic development in East County.

Potential Impacts and Mitigation Measures

Potential Impact 5.3-1: Housing and employment growth could cause an imbalance between jobs and housing.

Buildout of the *East County Area Plan* would increase the number of housing units in the planning area from 50,574 to 108,047 (a 114% increase), with an interim (2010) projection of 94,550 (see *East County Area Plan - Volume 1*, Tables 4 and 5). Buildout of the plan would also increase the number of jobs in the planning area from 76,333 to 159,903 (a 110% increase), with an interim (2010) projection of 151,560. Using these projections, the planning area would attain a jobs/housing ratio (see *Jobs/Housing Background Report of the Draft East County Area Plan - Volume 2*) of .99 - a balance between the number of jobs and the number of employed residents. In the year 2010, the planning area would attain a ratio of 1.07 - slightly more jobs than employed residents, but virtually balanced. Therefore, the *East County Area Plan* incorporates a balance, in strictly numerical terms, for both projection horizons.

Plan Policies and Programs: This potential impact is adequately addressed by policy 16 which promotes an approximate balance between jobs and housing within East County and a range of housing types reflecting the income distribution of the local employment base.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact on jobs/housing balance would result.

Mitigation Measure 5.3-1: None needed.

While no mitigation is needed, the following new program would clarify and improve the implementation of policy 16 (new language is shown in *italics*; deleted language is ~~struck-out~~):

Proposed New Program: *All major projects shall be evaluated for their effect on the East County jobs/housing ratio and the provision of housing affordable to East County workers, and measures to mitigate any impacts shall be included as conditions of project approval.*

Potential Impact 5.3-2: Lack of an adequate affordable housing supply to house projected employment in the East County could result in additional in-commuting from San Joaquin County and resultant traffic congestion, air pollution, noise impacts, and displacement of agricultural land, and could contribute to urban sprawl in areas east of the Altamont Pass.

In addition to a numerical supply of housing, an effective jobs/housing balance depends on the match between income levels of employed residents and the price of housing available to them within a reasonable commute distance. Although no commuting subarea ever attains a perfect match between incomes and home prices, those areas which incorporate regional share housing needs for all income groups in their plans are the most effective in approaching the income/price component of the jobs/housing equation and reducing long distance commuting, traffic congestion, air pollution, noise, and agricultural displacement.

This income/price relationship was analyzed in a report by Economic and Planning Systems (EPS) titled "Alameda County General Plans: Land Use and Jobs/Housing Analysis" (July 1992). The analysis concluded that the existing affordability gap in the planning area would be exacerbated without specific set-asides for low- and moderate-income housing groups. The report concluded that "the Alameda County portion of the Tri-valley has the potential to be adequately supplied in all price categories, except those affordable to households earning less than \$28,400 annually."

Plan Policies and Programs: This potential impact is adequately addressed by policies 41 and 42, which call for meeting regional housing share objectives for all income categories equivalent to 21 percent moderate-income units and 15 percent low-income units; policy 43 requires each residential and non-residential project to contribute to meeting the housing needs of very low-, low- and moderate-income households, and program 14 calls for the County to adopt an ordinance establishing a low- and very low-income housing trust fund to accrue housing fee revenues and to disperse them for low- and very low-income housing development.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact on the supply of affordable housing would result.

Mitigation Measure 5.3-2: None needed.

While no mitigation is needed, the new program proposed to clarify and improve implementation of policy 16 would also improve the implementation of policies 42 and 43.

Potential Impact 5.3-3: Development of employment generating uses in East County without accompanying programs to promote industrial diversity and to attract and train a skilled labor force could impede economic development in the planning area.

Economic development in the 1970s and 1980s was virtually a foregone conclusion in East County as demand for industrial/commercial/office space fueled job production at exponential rates of growth. In the future, however, job production will be increasingly dependent on a skilled labor force, affordable housing for workers, an adequate supply of telecommunications and other technical infrastructure, and job training programs to enhance the technical skills of the workforce. In addition, industry restructuring, foreign competition, and recessionary trends in the economy will favor areas which provide a diversity of industry types, for example, to avoid the massive layoffs which occurred in Seattle during the 1970s because of the downturn in the aviation industry. Although few communities consistently provide all these ingredients, those areas which are the most successful at economic development are those that incorporate provisions in their land use plans and policies to provide a diversity of industries and incentives for these job producing requirements.

Plan Policies and Programs: This potential impact is adequately addressed by policy 50 which encourages job producing industries that reflect the skills of the local labor force to locate in the East County area, policy 51 which provides incentives, such as fee reductions, streamlined permit processing, and infrastructure placement, to existing industries to remain in the East County planning area, policy 52 which seeks development of back office space to accommodate service industry employment opportunities for low-skill workers, program 19 which promotes investment in telecommunications and other technical infrastructure that will be required to attract service businesses to East County, and program 20 which develops job training programs (e.g., computers, electronic technology), to improve the skills of the local labor force, and social programs (e.g., child care and job placement).

Level of Significance: With implementation of proposed plan policies and programs, no significant impact on future economic development would result.

Mitigation Measure 5.3-3: None needed.

While no mitigation is needed, the following modifications to policy 50 would clarify policy 50 (new language is shown in *italics*; deleted language is ~~struck-out~~):

Proposed Modification to Policy 50: Policy 50: The County shall encourage *a diversity of* job producing industries that reflect the skills of the local labor force to locate in the East County area.

TABLE 5.3-1

**East County Population, Employment,
and Housing Conditions - 1990**

Area (Acres)	Population/ Employment	Housing Units	Households	% Vacant	Persons per Household
Dublin (5,481)	23,229 13,380	6,992	6,802	2.7%	2.86
Livermore (12,565)	56,741 23,770	21,489	20,643	3.9%	2.74
Pleasanton (10,375)	50,553 31,930	19,356	18,484	4.5%	2.73
Remainder East Co. (239,079)	5,066 100	1,913	1,836	4.0%	2.76
Total East County (267,500)	135,589 69,180	49,750	47,765	4.0%	2.75
<p>Note: The 1990 Census is the most reliable indication of existing population and housing conditions in the East County. Because 1990 Census Journey-To-Work information is not yet published, employment data is derived from ABAG's most recent estimates. Both sources aggregate data at the city level and publish information for Dublin, Livermore, and Pleasanton. Population, housing, and acreage data includes incorporated areas only as derived from the U.S. Census of Population and Housing; employment data includes city spheres of influence as derived from ABAG.</p> <p>Sources: U.S. Census of Population and Housing, <u>Summary Tape File 1</u>, 1992; ABAG, <u>Projections 92</u>, July 1992 for "area in acres" data.</p>					

TABLE 5.3-2

Jobs/Housing Ratios for the Tri-Valley Subregion - 1990 and 2010

Area	EPS - 1990			EPS Projections - 2010		
	Households/ Employed Residents	Jobs (#)	J/H Ratio	Households/ Employed Residents	Jobs (#)	J/H Ratio
East County Portion of Tri-Valley	47,696/ 74,406	76,231	1.02	92,068/ 145,467	147,962	1.02
Contra Costa County Portion of Tri-Valley	30,857/ 48,137	35,418	0.74	47,584/ 75,183	54,924	0.73
Total Tri-Valley	78,553/ 122,543	111,649	0.91	139,652/ 220,650	202,886	0.92
<p>Note: Assumes 1.56 employed residents per household for 1990; assumes 1.58 employed residents per household for 2010.</p> <p>Source: Alameda County Planning Department (household and job data derived from EPS, CCTA Projections based on ABAG <u>Revised Projections 90</u> (June 5, 1992).</p>						

TABLE 5.3-3

Existing Housing Price Conditions for East County Cities

Area	Median Housing Unit Value	Median Contract Rent	Housing Units	House- holds	Percent Renter Occupied	Percent Attached Units
Dublin	\$240,900	\$811	6,992	6,802	35%	29%
Livermore	\$217,300	\$680	21,489	20,643	33%	30%
Pleasanton	\$297,200	\$760	19,356	18,484	30%	35%
Remainder East Co.	n/a	n/a	1,913	1,836	n/a	n/a
Total East County	\$252,950	\$732	49,750	47,765	32%	32%

Note: Data derived from the US Census, ABAG, and EPS differ slightly due to varying collection techniques.

Sources: US Census of Population and Housing, Summary Tape File 1, 1992; ABAG, Projections 92, July, 1992.

SOURCES

- Alameda County Planning Department, Alameda County General Plan, Land Use, and Jobs/Housing Analysis, prepared by Economic and Planning Systems, July 1992.
- Alameda County, General Plan Issue Paper #4: Toward Balanced Urban Communities in the Livermore-Amador Valley, May 14, 1991.
- Association of Bay Area Governments, Projections '92, July 1992.
- Association of Bay Area Governments, Housing Needs Determination, 1989.
- Association of Bay Area Governments, Preliminary Projections 92, March 1992.
- Association of Bay Area Governments, San Francisco Bay Area Rental Housing Market: Near Term Forecasts of Rents, Availability, and Affordability, October 1989.
- Bay Area Council, Housing and Development Report, September 1990.
- California Department of Housing and Community Development, 101 Steps to Better Housing, September 1982.
- Contra Costa County, General Plan 1990-2005, January 1991
- Economic and Planning Systems, Alameda County General Plan, Land Use, and Jobs/Housing Analysis, July 1992
- Economic and Planning Systems, Regional Economic Growth and Intra-Regional Economic Linkages, July 1992
- San Joaquin County, Comprehensive Planning Program Issue Papers, November 1991
- Santa Clara County, Looking Forward. Looking Back - Changing Conditions in Santa Clara County: 1980-2000, November 1990
- Sedway, Simmons and Associates, Rental Housing Affordability Study, October 1988.
- Southern Alameda County Association of Realtors, Home Sales Data, 1990.
- Tri-Valley Wastewater Authority, Growth Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, prepared by Economic and Planning Systems, April 1990.
- U.S. Census of Population and Housing, Summary Tape File 1, 1992.

Chapter 5.4 - Transportation

A. EXISTING SETTING

This section describes transportation issues related to the *East County Area Plan* (ECAP). The Transportation Background Report (*ECAP - Volume 2*) describes existing and planned conditions in the East County area. The Background Report was prepared using data generated by the Alameda Countywide Transportation Demand Model, currently under the jurisdiction of the Alameda County Congestion Management Agency (CMA). The countywide model provided the best information at the time the Background Report was prepared. Since then, a Tri-Valley Transportation Model has been developed to provide a more locally sensitive evaluation of traffic impacts in the East County/Tri-Valley area. The Tri-Valley Traffic Model has been used to supplement the information in the Background Report. The following information supplements that found in the earlier report.

General Transportation

Tri-Valley Transportation Plan. The Tri-Valley Transportation Council, consisting of representatives of the five cities and two counties in the Tri-Valley, is preparing a Tri-Valley Transportation Plan (TVTP). The TVTP will recommend a transportation network, as well as financing and implementation strategies. The first step in the process was to prepare a Tri-Valley Traffic Model (TVTM), which has now been developed. It is a computerized traffic forecasting model which includes land use and transportation network assumptions agreed upon by all seven agencies. It is expected that the Alameda County Congestion Management Agency (CMA) will certify this as a subregional model for purposes of meeting Congestion Management Plan (CMP) land use analysis requirements and that all future major traffic analyses will be required to use this model. The *East County Area Plan* utilized the model with only two changes from the base model: Hacienda Drive was added as an arterial extension from I-580 to connect with Contra Costa County roadways within the Dougherty Valley, and a refined roadway network was included in the North Livermore area to serve proposed intensified land uses in this area.

To date, the Tri-Valley Transportation Council has issued two reports addressing existing and future traffic conditions in the Tri-Valley. These reports, written by Barton-Aschman Associates, are titled respectively, *Tri-Valley Transportation Plan - Existing Conditions* and *Tri-Valley Transportation Plan - Year 2000 and 2010 Baseline Forecasts*. For purposes of this EIR, the existing conditions report reflects traffic conditions within East County as they existed in 1990 while the forecasts report reflects traffic conditions under this DEIR's Alternative 2, the "Maximum Growth" scenario (existing adopted city general plans plus prospective general plans). These reports summarize existing and future traffic volumes (ADT) and Levels of Service (V/C) on significant roadway segments in the Tri-Valley and are hereby incorporated by reference. The Existing Conditions Report describes traffic volumes and capacities for routes of regional significance. Although a specific level of service is not assigned to individual roadway segments, the volumes on each segment are

compared with a typical capacity range, implying an equivalent level of service. Using this method, there are no roadways in either incorporated or unincorporated areas that currently operate above the upper limit of the capacity range.

Mid-State Toll Road. Assembly Bill (AB) 680, passed in 1989, allows four toll road demonstration projects in the state. In 1990, the State announced that one of the projects will be the Mid-State Toll Road. Originally planned to extend from Sunol to Vacaville, the northern terminus of the road is now expected to be in Antioch (personal communication, Dennis Parker, California Toll Road Company, June 1, 1993). The Toll Road--which would generally run parallel to, and east of, I-680--has been controversial; several hearings have been held by a committee of the Metropolitan Transportation Commission (MTC). Environmental studies for the Toll Road have not commenced at this time. The Toll Road was not included in either the TVTM or the *East County Area Plan*. However, four- and six-lane arterials generally following the proposed path of the Toll Road (as originally proposed) have been included in the transportation system analyzed in this document. These roadways are local-serving (not limited access like the Toll Road) and are consistent with the Circulation Element of the City of Livermore adopted in 1989.

Key Modeling Assumptions. A map showing the traffic zones for the TVTM and utilized in the *East County Area Plan* is contained a report by Barton-Aschman titled "Draft Report: Tri-Valley Transportation Model" (April 1993). The specific land uses utilized in the traffic model were assigned by subarea and traffic zone for the *East County Area Plan* model run. All land uses are identical to those of the TVTM except in North Livermore, where intensified land uses are included. These intensified land uses occur in Tri-Valley traffic zones 461, 462, 463, 520, 522, 523, 524, 525, 572, 573, 574, and 575. The assumptions used in the Tri-Valley Transportation Model are documented in Barton-Aschman's report.

The TVTM makes estimates of future traffic volumes at all entrances, or gateways, to the Tri-Valley area. The I-580, or Altamont Pass, gateway is included in the model and is a key assumption in this analysis. Since land use proposals of the Association of Bay Area Governments (ABAG) and the local agencies included more employment than could be supported by proposed housing in the region, employment was reduced. The *East County Area Plan* (Appendix 4 of Volume 2) describes how this employment reduction was accomplished:

The freeways running through the Tri-Valley (I-680 running north-south and I-580 running east-west) form four principal "gateways" into the Tri-Valley. These major routes are supplemented by smaller routes such as Vasco Road, Crow Canyon Road and Niles Canyon Road/Highway 84, which provide additional capacity to the gateways.

The future trip capacity estimates reflect all feasible roadway improvements (i.e., improvements which are shown in cities' General Plans but which may or may not have committed funding, programmed improvements shown in regional and state improvement plans, and all other improvements which can feasibly be made to the

roadway network to maximize the capacity); therefore, the estimates represent the maximum capacity of the transportation system once all roadway improvements are in place. This capacity has been expressed in terms of vehicles and workers during a three hour commute peak.

The percentage of A.M. peak trips which pass through the Tri-Valley to other destinations (i.e., trips for which neither the origin nor the destination is in the Tri-Valley) has also been estimated. For this analysis, it was assumed that the percentage of trips passing through the Tri-Valley in the future remains the same as it is now, i.e., per Metropolitan Transportation Commission (MTC) pass-through factors estimated in 1989. A relatively high proportion (55 percent) of commute trips coming from the east via I-580 in the A.M. peak period pass through to other destinations. This pattern has been verified by residential market studies in Modesto and other Central Valley communities.

Estimates were made of the number of workers that will commute into the Tri-Valley given employment and housing capacities under the "Prospective General Plans" scenario, and the proportion of employed residents likely to work in the Tri-Valley. In 1980, about 50 percent of employed Tri-Valley residents worked in the Tri-Valley. It is assumed that in the future, as local employment opportunities become more abundant, the percentage of employed residents will increase to 60 percent.

The demand under the "Prospective General Plans" scenario for workers coming into the East County who live outside the planning area was compared with the capability of the transportation system to accommodate in-commuting to the Tri-Valley. In-commute demand has been distributed to the respective gateways based on a consideration of the affordability gap between incomes and housing prices.

Because of the deficit of housing affordable to households on the lower end of the income distribution of the employment base, it was assumed that a disproportionate share of in-commuters will reside in the more affordable communities to the east and northeast of the Tri-Valley; that is, in the Central Valley, accessible to I-580, and in Antioch/Pittsburg, accessible via Vasco Road. The capacity of I-580 east and Vasco Road (28,500 vehicles) represents about 34 percent of the capacity of all four gateways combined (84,000 vehicles). In recognition of the affordability gap, 40 percent of in-commute demand was allocated to this east/northeast gateway.

Under the "Prospective General Plans" scenario, in-commute capacity presents a major constraint to the realization of employment potentials, equivalent to nearly 40,000 jobs. This projected unrealized potential is equivalent to a resident workforce of approximately 26,500 households.

As a result of this adjustment, the Altamont (I-580) gateway is assumed to accommodate 50,000 daily in-commuters in 2010. This results in approximately 11,000 A.M. peak hour vehicles on the westbound Altamont lanes in 2010 and approximately the same number of vehicles in the eastbound lanes in the P.M. peak hour. The average daily traffic through the Altamont in 2010 is assumed to be 131,500 vehicles per day. This gateway analysis was developed for the TVTM and used in the *East County Area Plan* for consistency.

Transportation Demand Management

All 14 jurisdictions within Alameda County have adopted Trip Reduction Ordinances (TROs). These TRO's require cities and the unincorporated areas in East County to take positive steps toward reducing solo commuting; measures that are encourage as alternatives include carpooling, vanpooling, reduced work weeks, and other TDM programs. Guidelines for implementing TROs in conformance with Bay Area Air Quality Management District (BAAQMD) regulations are contained in the Draft 1993 Congestion Management Program, scheduled for adoption in September of 1993.

Freeways and Highways

The Tri-Valley Transportation Model evaluated existing conditions in 1990 on I-580, I-680, and State Highway 84 in East County. Average Daily Traffic Volumes (ADTs) on I-580 ranged from 92,400 (west of Greenville Road) to 142,200 (east of El Charro Road), on I-680 from 88,400 (north of Highway 84) to 107,600 (north of I-580), and on Highway 84 from 11,000 (at Vallecitos Road) to 27,000 (on First Street near Portola Avenue). Existing traffic volumes and typical capacities for routes of regional significance in the Tri-Valley are summarized in Table 5.4-1.

TABLE 5.4-1			
1990 TRAFFIC VOLUMES AND CAPACITY FOR ROUTES OF REGIONAL SIGNIFICANCE			
Route	Lanes	ADT	Typical Capacity Range ¹ (in thousands)
Livermore			
Vasco Road	2	13,500	12-17
Stanley Boulevard	4	24,300	27-36
Pleasanton			
First Street (at Neal)	2	18,500	15-20
Sunol Boulevard (at Bernal)	4	17,700	27-36
Santa Rita Rd. (at Las Positas)	6	27,900	40-56
Main Street (at Ross)	2	9,800	12-17
Hopyard Road (at Owens)	6	25,500	40-56
Division Street	2	6,900	12-17
Stoneridge Drive			
west of I-680	6	29,000	40-56
east of Santa Rita Road	4	6,400	27-36

TABLE 5.4-1

1990 TRAFFIC VOLUMES AND CAPACITY FOR ROUTES OF REGIONAL SIGNIFICANCE

Route	Lanes	ADT	Typical Capacity Range ¹ (in thousands)
Dublin			
San Ramon Road			
north of Amador Valley	4	26,900	27-36
south of Dublin Boulevard	6	48,600	40-56
Dougherty Road			
north of Dublin Boulevard	4	21,400	27-36
south of Dublin Boulevard	6	44,200	40-56
Dublin Boulevard			
east of I-680	4	24,000	27-36
west of I-680	4	25,800	27-36
San Ramon			
San Ramon Valley Boulevard			
north of Alcosta Boulevard	2	12,100	12-17
north of Crow Canyon Road	4	21,300	27-36
Alcosta Boulevard	4	24,600	27-36
Bollinger Canyon Road	6	36,400	40-56
Crow Canyon Road			
west of I-680	6	44,300	40-56
east of I-680	6	48,200	40-56
west of Dougherty Road	4	13,000	27-36
Danville			
Camino Tassajara	4	18,000	27-36
Sycamore Valley Road	4	18,900	27-36
Hartz Avenue	2	10,400	12-17
Danville Boulevard	4	18,700	27-36
State Route 84			
First Street			
north of Portola Avenue	4	27,200	27-36
north of Holmes Street	4	12,700	27-36
Holmes Street	4	23,000	27-36
Vallecitos Road	2	11,000	12-17

Note:

¹ Source: Barton-Aschman Associates, Tri-Valley Transportation Plan - Existing Conditions, March 1993

Arterials

There are 50 arterial and collector roads in the planning area (see Table C-1 in Background Report), 20 of which are located in unincorporated Alameda County, totalling of 114 linear

miles. Significant among these routes are Vasco Road, which provides access from Livermore to and from eastern Contra Costa County; Tassajara Road/Santa Rita Road and Dougherty Road, which provide access to the I-680 corridor in Contra Costa County; Stanley Boulevard, which connects Livermore and Pleasanton; Livermore Avenue, connecting Livermore and the North Livermore area; and San Ramon/Foothill Road, connecting Dublin and State Route 84.

The Tri-Valley Transportation Model evaluated existing conditions in 1990 on the major arterials in unincorporated areas of East County. Average Daily Traffic volumes (ADTs) ranged from 24,300 ADT on Stanley Boulevard in Livermore to 48,600 ADT on San Ramon Road in Dublin, to 29,000 ADT on Stoneridge Drive in Pleasanton. Existing traffic volumes and typical capacities for routes of regional significance in the Tri-Valley are summarized in Table 5.4-1.

Rural Roads

Many existing roadways in the rural areas of East County are two-lane facilities in agricultural areas. As the lands served by these roadways convert from agricultural to residential uses, there will be periods in which the two-lane roadways experience additional traffic but within the capacity of a two lane roadway. As development progresses, the roadways will be widened in accordance with the requirements of the *East County Area Plan*. An example of such a rural roadway is North Livermore Avenue. On such a street, adherence to the recommended policies described in the next section will preclude level of service standards from being exceeded (e.g., policies 13 and 179 - phasing of infrastructure and roadway improvements).

Public Transit

Bus service in the East County is provided by three entities; the Livermore-Amador Valley Transit Authority (LAVTA), BART Express which provides feeder bus service to BART stations, and private shuttle services.

The Livermore-Amador Valley Transportation Authority (LAVTA) provides the WHEELS system bus transit service within the cities of Dublin, Pleasanton, Livermore and some unincorporated sections of the East County. LAVTA basic service offers 10 fixed bus routes in a 42 square mile service area providing service to approximately 2,300 daily riders. LAVTA offers paratransit service to the elderly and handicapped.

BART Express bus service serves areas within the BART District not served by the rail system. The three cities in East County are served by six bus lines. The "UL" line connects Lawrence Livermore Laboratory, Livermore, and Dublin with the Bayfair BART station in San Leandro. The "U" line connects Pleasanton and Dublin with the Hayward BART station. The "UP" line connects Pleasanton and Dublin with the Bayfair BART station. The "UX" line connects the Hacienda Business Park in Pleasanton directly to Bayfair BART. The "DX" line connects the Hacienda Business Park to the Walnut Creek BART. The "D"

route provides service between Dublin and the Walnut Creek BART station. Patronage, about 500 to 600 per day per line except for 50 on the UX line, has increased annually from two to five percent on average since 1987.

The other commuter bus service runs to Lawrence Livermore Laboratory for its employees from Stockton. Similar service to and from Modesto is under consideration.

Although presently no passenger rail system exists within the East County, there is a growing potential regarding the viability of a commuter rail system by the conversion of the existing Southern Pacific Railroad freight route over the Altamont Pass. A study by the San Joaquin Council of Governments is under way to determine the potential for rail commuter service using the existing SPRR line from Stockton to Union City. Jurisdictions in Alameda County have identified the potential for light rail transit (LRT) along the SPRR and Union Pacific Railroad corridors and recommend protecting SPRR rights-of-way as possible future transportation corridors. In an effort to provide future commuter rail service, the County has acquired large segments of railroad right-of-ways along the existing SPRR and UPRR lines (see Figure 11 in the Transportation Background Report, *ECAP - Volume 2*). These would provide three corridors for future rail transit and include the segment from San Joaquin County west to Greenville Road, from Contra Costa County south to Stanley Boulevard (paralleling the I-680 corridor), and from Mission Boulevard in Fremont to Greenville Road in Livermore. The County is in the process of acquiring the segment from First Street to Murrieta Boulevard in Livermore. As noted below, BART plans to begin rail service to the Dublin and Pleasanton area by 1995.

Bicycles and Pedestrian Pathways

Bikeways generally include all facilities that explicitly provide for bicycle travel from fully grade-separated facilities (Class I), to striped lane for one-way bike travel on a street (Class II), to simple signed streets (Class III). Within East County, there is an extensive network of existing bicycle routes interconnecting the cities with Castro Valley and San Ramon. These bikeways include both on-road and off-road facilities which are operated and maintained by the County, cities, and park districts (see Figures 13 and 14 in the Transportation Background Report, *ECAP - Volume 2*).

Pedestrian pathways are located throughout the area along sidewalks and along separated trails, often paralleling the bikeways described above.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth

projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- roadway and transit capacities could be inadequate to meet increased traffic and transit demand
- existing and proposed land use densities are too low to encourage significant transit use
- city general plans do not provide a cohesive network of interconnecting roadway and transit improvements
- the jobs/housing mismatch could result in unacceptable levels of in-commuting, especially from lower priced residential areas in San Joaquin County to employment centers in East County
- projected increases in traffic volumes could outpace improvements in average vehicle ridership (AVR) and average auto emissions at the expense of air quality
- projected funding of roadway and transit projects from state and federal sources could be inadequate to finance required improvements

In addition, it is difficult to predict the effect of technological innovations on the transportation issues in the year 2010 and beyond. As was true with improvements to combustion engine gasoline efficiency in the 1980s, improvements in automobile, TDM, transit, and roadway technology may have a significant effect on transportation in the future.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

General Transportation Policies and Programs

Policy 167: The County shall require new developments to pay their fair share of the costs of planned roadway improvements.

Policy 168: The County shall work with the Tri-Valley Transportation Council in developing a subregional transportation fee to help finance unfunded transportation improvements in the Tri-Valley area.

Transportation Demand Management Policies and Programs

Policy 169: The County shall seek to minimize traffic congestion levels throughout the East County street and highway system.

Policy 170: The County shall seek to minimize the total number of Average Daily Traffic (ADT) trips throughout East County.

Policy 171: The County shall seek to minimize the percentage of Average Daily Traffic trips during peak hours.

Policy 172: The County shall develop **Deficiency Plans** in accordance with Congestion Management Program (CMP) guidelines as a means to proactively address potential problems before they occur. Where projected congestion affects more than one jurisdiction, or where the origin of congestion is in one jurisdiction but is anticipated in another, the County shall seek cooperation in developing joint Deficiency Plans with the other jurisdictions.

Policy 176: The County shall require new non-residential developments in unincorporated areas to incorporate **Transportation Demand Management (TDM)** measures and shall require new residential developments to include site plan features that reduce traffic trips such as mixed use development and transit-oriented development projects.

Roadway Policies and Programs

Policy 179: The County shall ensure that new development is phased to coincide with roadway improvements to ensure that traffic volumes on intercity arterials do not exceed **Level of Service D** on major arterial segments within unincorporated areas, and Congestion Management Program (CMP) designated roadways (e.g., Interstate Highways 580 and 680 and State Highway 84) do not exceed **Level of Service E** within unincorporated areas. If LOS E is exceeded, Deficiency Plans for affected roadways shall be prepared in conjunction with the Congestion Management Agency.

Policy 180: The County shall require **traffic impact studies** for all detailed development plans (e.g., specific plans) and major projects to determine compliance with Level of Service standards.

Program 77: The County shall work with the Federal Highway Administration, Caltrans, Metropolitan Transportation Commission (MTC), the County Congestion Management Agency (CMA), the Tri-Valley Transportation Council, and local agencies to fund and construct needed street, highway, and interchange improvements.

Public Transit Policies and Programs

Policy 184: The County shall support investment in transit as an alternative to automobile-intensive transportation improvements.

Policy 185: The County shall work with transit providers to complete transit improvements to meet the demand for existing and future development.

Policy 186: The County shall encourage high-intensity development in locations convenient to public transit facilities and along transit routes.

Policy 187: The County shall support construction of a light rail or other transit system along the I-680 corridor from Pleasanton to Walnut Creek, if feasible, along the Southern Pacific corridor from Tracy to Fremont, and rail extension of the BART system along the I-580 corridor.

Policy 188: The County shall work with transit providers to maintain and expand bus service to meet projected demand.

Policy 189: The County shall encourage BART to locate new BART stations in areas that can be developed at high densities and intensities to maximize transit patronage.

Policy 190: The County shall require all new development to pay its fair share of the costs of meeting East County transit needs.

Policy 191: The County shall promote development of transit connections (e.g., shuttle buses) between BART stations and East County communities.

Policy 192: The County shall work with transit providers to address the special travel needs of the elderly, young, handicapped, and economically disadvantaged in public transit systems.

Program 78: The County shall work with East County cities to designate high density and high-intensity uses along major arterials and within walking distance of transit stops. The County shall work with cities to designate land near proposed BART stations for high density residential uses and personal services (e.g., child care).

Bicycle and Pedestrian Paths

Policy 193: The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.

Policy 194: The County shall create and maintain a safe and convenient pedestrian system that links residential, commercial, and recreational uses and encourages walking as an alternative to driving.

Policy 195: The County shall support construction of multiple use trails (e.g., pedestrian and bicycle uses) along the "Iron Horse" and the Altamont Pass Southern Pacific rights-of-way only with assurances that public transit use will also be provided within the corridor.

Policy 196: The County shall require that circulation and site plans for individual developments minimize barriers to access by pedestrians, the disabled, and bicycles (e.g., collectors or arterials separating schools or parks from residential neighborhoods).

Land Use Policies and Programs

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Policy 14: The County shall work with cities and service districts to plan adequate infrastructure capacity to accommodate development consistent with the *East County Area Plan*. The level of development in the *East County Area Plan* shall depend on the adequacy of transportation and infrastructure improvements and the extent to which these improvements can be funded.

Policy 16: The County shall promote an approximate balance between jobs and housing within East County and shall further promote a range of housing types reflecting the income distribution of the local employment base.

Policy 36: The County shall encourage high density multiple family housing near transit and in community centers but shall also ensure that some multiple family housing is dispersed throughout new residential areas.

Air Quality Policies and Programs

Policy 271: The County shall require new development projects to include traffic and air pollutant reduction measures to help attain air quality standards. For non-residential projects, these measures could include Transportation Demand Management programs such as ridesharing and transit promotion; for residential projects, these measures could include site plan features to reduce traffic trip generation such as mixed use development and transit-oriented development.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. Following a discussion of the ECAP transportation network and traffic projections for 2010, this section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

The East County Transportation Network

The East County Transportation Network for the year 2010 is depicted in the Transportation Diagram (see Figure 7). The network is nearly identical to the network established by the Tri-Valley Transportation Council. The only exceptions are the inclusion of the Hacienda Drive extension into Contra Costa County (the Tri-Valley network stops at Dublin Boulevard) and the refinement of the roadway network in North Livermore (specifically, North Canyons Parkway was extended to Las Colinas Road in the ECAP instead of stopping at Isabel Avenue, as assumed in the TVTM).

The traffic impact analysis, as well as the air quality and noise analyses, was developed for the plan's 2010 holding capacity based on traffic model runs using the Tri-Valley Transportation Model (TVTM) and *East County Area Plan* land uses for the year 2010. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region, as projected by ABAG, and for the San Joaquin Valley, as projected by San Joaquin County. The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan) and for which rules have been promulgated for air quality emissions by the Bay Area Air Quality Management District.

Cumulative development of all projects within the nine-county Bay Area (based on ABAG projections), as well as development in San Joaquin County, was included in the 2010 land use projections used in the Tri-Valley Transportation Model (TVTM), and is included in this traffic analysis. A complete description of the land use, trip distribution, and network assumptions used in the TVTM are described in a report by Barton-Aschman Associates titled "Draft Report: Tri-Valley Transportation Model" (April 1993).

Model runs using the Tri-Valley Transportation Model have not been conducted to evaluate the impacts of full buildout (beyond 2010) of the Tri-Valley on I-580, I-680, and Highway 84. This is due to the lack of an identified roadway and transit network to serve buildout given current limitations on funding and technology. As a result, definitive levels of service cannot be calculated.

Buildout of *East County Area Plan* land uses represents about a 14 percent increase in housing units and a 6 percent increase in jobs over projections for the year 2010 land uses assumed in the Tri-Valley Transportation Model. At buildout, it can be assumed that a proportional amount of additional traffic would be generated above that shown for the year 2010.

In previous model analyses, the addition of housing units between 2010 and buildout have demonstrated a reduced proportion of outcommuting by Tri-Valley residents, assuming an adequate supply of housing affordable to workers. However, it is expected that these freeways and highways will continue to have segments which exceed LOS E. This indicates the need to consider additional or expanded roadway facilities within the Tri-Valley after the year 2010.

In the East County, the areas most affected by additional development after the year 2010 would be primarily located in East Dublin and North Livermore. Arterials in these areas include Hacienda Drive, Dublin Boulevard, Tassajara Road, North Canyons Parkway, Cayetano Parkway, North Livermore Avenue, and Vasco Road. On some of these facilities, it will be necessary to expand intersection or roadway capacities to meet level of service standards. However, it is expected that some of these arterials may experience traffic volumes producing levels of service exceeding LOS D.

Results of Year 2010 East County Forecasts

The TVTM was utilized to develop traffic forecasts for the *East County Area Plan*. Traffic forecasts for the A.M. peak hour, the P.M. peak hour, and for average daily traffic were developed.

Table 5.4-2 lists the freeways and key arterials in the unincorporated sections of the Tri-Valley. The table also includes daily traffic volumes, traffic forecasts, the traffic model's assumptions for number of lanes, and resulting levels of service during both the A.M. and P.M. peak hours. In this table, level of service analyses are made for roadway links, rather than for overall intersection operations. The link analysis is most appropriate for a general

plan update, with the intersection analysis appropriate for more detailed follow-up studies. Link capacities take into account generalized capacity values, but cannot anticipate specific intersection geometries. In urban areas, arterial intersections are usually the point of limited capacity. Consequently, some of the mitigation measures described in this document can be further refined at the intersection level at the time of detailed, development plan traffic studies, as required in *East County Area Plan* policy 180.

Relationship with Alameda County Congestion Management Program

Alameda County is a member of the Congestion Management Agency (CMA). The County Board adopted Resolution R-92-0602 on September 1, 1992 establishing guidelines for reviewing the impacts of local land use decisions consistent with the Alameda County Congestion Management Program (CMP). This resolution establishes a threshold for submitting general plan amendment (GPAs) projects to the CMA and analyzing their impact on the CMP roadway network. This threshold is 100 additional P.M. peak hour trips above that assumed in the year 2000 baseline for each jurisdiction. The *East County Area Plan* is projected to generate at least 100 additional P.M. peak hour trips above the baseline. Therefore, review of the project for its impact on the CMP network is required by the CMA.

The CMP allows for development and use of subregional traffic models to analyze the traffic impacts of projects on the CMP network at the subregional level. The Tri-Valley Transportation Model is being developed to serve as this subregional traffic model, subject to CMA determination of consistency with the CMA's Countywide Transportation Demand Model.

The CMP requires that all project EIRs subject to the general plan amendment reporting requirement should address all potential impacts of a project on the CMP designated roadway system and other aspects of the CMP (e.g., transit service standards). The CMP designated roadways within the planning area are I-580, I-680, and Highway 84. Particular attention should be paid to the following:

- . Project mitigation measures must be adequate to sustain CMP service standards for roadways and transit;
- . Project mitigation measures must be fully funded in order 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.

The process used to fund roadway and transit improvements called for in the CIP is described in Chapter 7 of the Draft 1993 CMP. These funding considerations are discussed under each impact section below.

TABLE 5.4-2

**East County Area Plan Traffic Volumes and
Volume-to-Capacity Ratios on Unincorporated Roadways - 2010**

Roadway	Location	ADT	Number of Lanes	Directions	Peak Hour Capacity	A.M. Peak Hour		P.M. Peak Hour	
						Volumes	LOS	Volumes	LOS
Cayetano Parkway	E/O N. Canyon Parkway E/O N. Livermore Avenue	32,400 13,400	6	EB/WB	3,000	2272/322	A/C	2,943/514	E/A
			4	EB/WB	2,000	184/1,113	A/A	1,554/316	C/A
Collier Canyon	N/O N. Canyon Parkway	4,000	2	NB/SB	800	125/259	A/A	262/116	A/A
Dublin Boulevard	E/O Tassajara Road W/O Doolan Canyon Road	33,300 24,900	6	EB/WB	3,000	380/3,776	A/F	2,720/790	E/A
			6	EB/WB	3,000	329/2,201	A/C	2,630/147	D/A
N. Canyon Parkway	W/O Portola Avenue W/O N. Livermore Avenue	33,200 9,300	6	EB/WB	3,000	462/2,185	A/C	2,565/994	D/A
			4	EB/WB	2,000	99/738	A/A	1,053/104	A/A
El Charro Road	N/O Stoneridge Drive N/O Busch Road	8,600 2,400	6	NB/SB	3,000	712/139	A/A	657/582	A/A
			4	NB/SB	2,000	67/96	A/A	395/38	A/A
Fallon Road	N/O Dublin Boulevard	15,100	4	NB/SB	2,000	483/474	A/A	983/530	A/A
Greenville Road	S/O I-580 S/O Patterson Pass Road	41,600 9,800	6	NB/SB	3,000	1,201/2,488	A/D	2,949/897	E/A
			2	NB/SB	1,000	62/765	A/C	908/120	E/A
Isabel Avenue	S/O Stanley Boulevard S/O Airway Boulevard	54,200 80,100	6	NB/SB	3,000	1,899/1,576	B/A	2,190/2,062	C/B
			6	NB/SB	3,000	2,263/2,794	C/E	3,542/2,668	F/D
Las Colinas Road	S/O N. Canyon Parkway	13,700	2	NB/SB	1,000	240/740	A/C	1,032/467	F/A
Manning Road	W/O North Livermore Avenue	11,000	2	EB/WB	1,000	145/804	A/D	926/182	E/A
N. Livermore Avenue	N/O I-580 N/O Cayetano Parkway	39,300 34,300	2	NB/SB	1,000	842/1,283	D/F	1,338/1,129	F/F
			2	NB/SB	1,000	882/1,114	D/F	1,194/1,024	F/F
Patterson Pass Road	E/O Greenville Road	6,900	2	EB/WB	1,000	196/424	A/A	431/199	A/A
Stanley Boulevard	E/O Valley Avenue	35,300	4	EB/WB	2,000	773/2,142	A/F	2,361/1,303	F/B

TABLE 5.4-2 (continued)

**East County Area Plan Traffic Volumes and
Volume-to-Capacity Ratios on Unincorporated Roadways - 2010**

Roadway	Location	ADT	Number of Lanes	Directio ns	Peak Hour Capacity	A.M. Peak Hour		P.M. Peak Hour	
						Volumes	LOS	Volumes	LOS
Tasajera Road	N/O Dublin Boulevard N/O Fallon Road	58,600 15,500	4 4	NB/SB	2,000 2,000	1,057/2,462	A/F A/A	2,821/1,443 874/317	F/B A/A
						476/843			
Tesla Road	W/O Vasco Road	8,100	2	EB/WB	1,000	475/146	A/A	230/675	A/B
Vallecitos Road	W/O Isabel Avenue	58,300	4	EB/WB	2,000	1,177/2,721	A/F	3,217/1,509	F/B
Vasco Road	N/O I-580 S/O Contra Costa County	43,000 29,500	2 2	NB/SB NB/SB	1,000 1,000	818/2,571 578/1,941	D/F A/F	1,969/932 2,115/328	F/E F/A
Hacienda Drive	N/O Dublin Boulevard S/O Contra Costa County	52,800 10,300	4 4	NB/SB NB/SB	2,000 2,000	1,221/2,642 300/640	B/F A/A	3,020/1,836 730/160	F/E A/A
I-580	E/O Greenville Road W/O N. Livermore Avenue W/O Tasajera Road W/O Foothill Road	131,500 168,300 182,000 198,700	8 8 10 9	EB/WB EB/WB EB/WB EB/WB	8,800 8,800 11,000 8,800/11,000	2,392/10,883	A/F	11,309/2,434	F/A
						3,856/9,892	A/F	10,711/4,732	F/A
						4,625/9,852	A/D	10,006/5,763	E/A
						5,565/9,928	B/E	9,947/6,870	F/B
I-680	S/O Sunol Boulevard S/O I-580 S/O Alcosta Boulevard	127,700 133,300 148,600	6 8 8	NB/SB NB/SB NB/SB	6,600 8,800 8,800	2,582/8,339	A/F	7,840/3,220	F/A
						4,305/5,665	A/B	6,087/4,336	B/A
						5,742/5,574	B/B	6,115/4,877	B/A

Barton-Aechman Associates, Tri-Valley Transportation Model Run - East County Area Plan Land Uses Year 2010, November 1992

Note: LOS A = V/C = 0.0-0.59; LOS B = V/C = 0.60-0.69; LOS C = V/C = 0.70-0.79;
LOS D = V/C = 0.80-0.89; LOS E = V/C = 0.90-0.99; LOS F = V/C = 1.00+

The CMP requires EIRs to include a section detailing the impacts of the proposed project on the CMA designated roadway and transit system (see adopted CMP dated October 24, 1991) with a table comparing the projected LOS on affected roadways segments to the LOS standards established in the CMP (see page 15 of the 1991 CMP). The CMP standard of LOS E is used as a standard of significance in this EIR and Table 5.4-2 indicates the resultant LOS on each unincorporated roadway segment within East County.

In addition, the forthcoming 1993 CMP, expected to be adopted by the CMA Board in September of 1993, includes a recommendation to pursue subregional corridor studies as part of the CMA Land Use Analysis Program (see page 62 of the Draft 1993 CMP dated April 26, 1993). The CMP recommends the use of inter-agency agreements to implement comprehensive approaches to congestion management which can aid in the development of deficiency plans where LOS standards are projected to be exceeded.

Finally, the 1993 CMP establishes guidelines for implementing Transportation Demand Management (TDM) programs and local Trip Reduction Ordinances (TROs) in conformance with Bay Area Air Quality Management District's (BAAQMD) Regulation 13 which promulgates rules for improving air quality through traffic trip reduction.

Criteria of Significance

This EIR uses the Level of Service (LOS) standard included in the Alameda County Congestion Management Plan which is LOS E. LOS E represents a volume to capacity (V/C) ratio of .90 to .99. This represents 90 to 99 percent of peak hour roadway capacity. Therefore, the standard of significance for purposes of this EIR is any Level of Service exceeding LOS D (.90 V/C). LOS E meets the CEQA definition, established in Appendix G of the CEQA Guidelines, of a significant impact. Although the CMP standard only applies to the three roadways contained in the adopted CMP network (I-580, I-680, and Route 84), the LOS E standard is assumed to apply to all major arterials in East County, for purposes of this EIR. These major arterials are listed in Table 5.4-2. It should also be noted that, whereas the CMP LOS standard exempts the traffic generated by affordable housing and regional through-traffic, this analysis does not exempt these trips from the LOS calculation. Therefore, the standard of significance used in this EIR is at least as stringent as that used in the CMP.

In addition to an LOS standard, the County CMA defines a significant impact in its review of environmental documents as one in which roadway and transit improvements that are recommended as mitigation measures are not completely funded. The standard of significance for purposes of this EIR is any proposed roadway or transit improvement that is not completely funded.

Potential Impact 5.4-1: Projected funding of roadway and transit projects from state, federal and other known sources could be inadequate to finance required improvements.

The *East County Area Plan* transportation system includes several improvements which are not completely funded and therefore could affect LOS standards, if they are not implemented. These improvements include the following:

- . The extension of Hacienda Drive from Dublin Boulevard to the Contra Costa County line;
- . Interchange or overcrossing improvements in North Livermore at I-580/Airway, I-580/Collier, I-580/Cayetano, I-580/First, I-580/Las Colinas, I-580/Springtown, and I-580/Vasco;
- . Local roadway improvements in North Livermore;
- . I-580/I-680 Interchange improvements;
- . I-680 hook ramps to Dublin;
- . Highway 84 improvements;
- . BART extension to East Dublin/Pleasanton;
- . I-680/Alcosta interchange; and
- . I-680 auxilliary lanes.

Table 5.4-3 indicates potential sources of funding for these improvements. Local roadway improvements in North Livermore can be funded by adjacent development but the remaining improvements will require additional funding above and beyond that currently committed by local, state, or federal funds. Some new funding will likely be available through the extension of current state and federal programs. The cost of the remaining improvements are logical candidates for funding through a subregional transportation fee. Such a fee is currently being developed by the Tri-Valley Transportation Council. The *East County Area Plan* incorporates policy language to participate in this subregional fee to fund remaining improvements, as discussed below.

Plan Policies and Programs: This potential impact is partially addressed by policies 13 and 14 contained in the *East County Area Plan* which require phasing of development according to the availability of infrastructure and adequate funding, policy 167 which requires new developments to pay their fair share of the costs of planned roadway improvements, and policy 168 which develops a subregional transportation fee to help finance unfunded transportation improvements in the Tri-Valley area. This impact could be lessened by

TABLE 5.4-3

East County Area Plan Mitigation Measures

Roadway and Limits	Mitigation Requirements*	Level of Service After Mitigation	Potential Funding Sources	Program is Developed
Cayetano Parkway, I-580 to North Livermore Avenue	Construct 6 lane roadway*	D/E	Developer	Specific Plan
Cayetano Parkway, N. Livermore Avenue to Vasco Road	Construct 4 lane roadway*	D or better	Developer	Specific Plan
Dublin Boulevard, Tassajara Road to Doolan Road	Construct 6 lane roadway*	D/E	Developer	Specific Plan
N. Canyons Parkway, Doolan Road to Portola Avenue	Construct 6 lane roadway*	D or better	Developer	Specific Plan
N. Canyons Parkway, Portola Avenue to Las Colinas	Construct 4 lane roadway*	D or better	Developer	Specific Plan
Greenville Road, south of I-580	Add turning lanes at key intersections	D or better	Developer	PD Stage
Isabel Avenue, I-580 to Vallecitos Road	Construct 6 lane expwy in future	D or better	Possible Regional Fee **	**
Las Colinas near North Canyon Parkway	Construct 3 - 4 lane road instead of 2	D or better	Developer	PD Stage
North Livermore Avenue	Construct 6 lane road from I-580 to Cayetano Parkway and 4 lane road north of Cayetano	D or better	Developer	Specific Plan
Stanley Boulevard, Pleasanton City Limits to Livermore City Limits	Upgrade intersection capacity at Valley Blvd. and at Isabel Ave.	D or better	Unknown or Developer	Project Proposal
Tassajara Road, I-580 to Fallon Road	Widen roadway to 6 lanes	D/E	Regional Developers	East Dublin GPA/SP
Vallecitos Road, Isabel Avenue to I-680	Construct 6 lane freeway/expressway	D or better	Possible Regional Fee **	**
Vasco Road, I-580 to County Line	Widen roadway to 6 lanes	D or better	Possible Regional Fee **	**
Hacienda Drive, Dublin Boulevard to County Line	Construct future 4 lane roadway*	D or better	C. C. Co. Developers	C. C. Co. GPA/SP Stage
I-580, Vasco Road to Foothill Road	Widen freeway to 10 lanes + auxiliary lanes	E or better	Possible Regional Fee **	**
I-680, Stoneridge Drive to Fremont	Widen freeway to 8 lanes + auxiliary lanes	E or better	Possible Regional Fee **	**

* These roadway improvement mitigation were assumed in the *East County Area Plan* network for the year 2010 but do not have full funding. All other improvements were not included in the 2010 network and are recommended as additional mitigation.

** This section of roadway has been identified by the Tri-Valley Transportation Council (TVTC) as a roadway which should be improved with regional, as opposed to local, funding sources. This fee could be applied to this roadway. In addition, other sources not currently identified could be used to fund these regional improvements. These sources could include: a future renewal of Alameda County Measure B, federal ISTEA funds, future regional or state gas tax increases, tolls, etc.

strengthening language to commit subsequent development to identify and provide complete funding sources and provide assurance for all identified transportation improvements necessary at the stage contemplated. However, since a general plan cannot anticipate nor specify every required transportation improvement and funding mechanism anticipated over the next twenty years, no mitigation is available to reduce the impact to a less-than-significant level.

Level of Significance: While policies and programs would substantially lessen the impact, no mitigation is feasible to reduce the impact to a less-than-significant level. Therefore, this is considered a **significant unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.4-1: None feasible.

Potential Impact 5.4-2: It may not be possible to sufficiently expand roadway capacity to accommodate increased traffic volumes attributable to housing and employment growth, due to a variety of constraints.

Implementation of the *East County Area Plan* would increase the number of housing units in the planning area from 50,574 to 94,550 in the Year 2010 (an 87% increase) (see *East County Area Plan* Tables 3 and 4). Implementation of the plan would also increase the number of jobs in the planning area from 76,333 to 151,560 (a 99 percent increase). Using these projections, traffic volumes would increase substantially on unincorporated segments of East County freeways and highways. Resulting Average Daily Traffic (ADT) volumes and Levels of Service (LOS) for 2010 are shown in Table 5.4-2. Because of funding, environmental, political and physical limitations on increasing roadway capacity, the resulting traffic volumes and levels of service will necessitate increased reliance on TDM strategies to help reduce the number of peak hour traffic trips and relieve traffic congestion on East County roadways.

The Trip Reduction Ordinances (TROs) adopted by local jurisdictions within East County establish guidelines for reducing peak hour traffic trips including carpooling, vanpooling, reduced work weeks, and other TDM programs. These TROs establish an effective mechanism to implement the TDM policies contained in the *East County Area Plan*, the requirements contained in the Bay Area Air Quality Management District's (BAAQMD) Regulation 13, and the TRO guidelines established in the Congestion Management Program.

Plan Policies and Programs: This potential impact is adequately addressed by policy 169 contained in the *East County Area Plan* which calls for minimizing traffic congestion levels, policy 170 which calls for minimizing the number of Average Daily Traffic trips, policy 171 which calls for minimizing the percentage of Average Daily Traffic trips during peak hours, policy 172 which calls for the development of proactive Deficiency Plans, and policy 176 which requires new developments in unincorporated areas to incorporate Transportation Demand Management (TDM) measures and site plan features that reduce traffic trips.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.4-2: None needed.

Potential Impact 5.4-3: Freeway and highway capacities would be inadequate to meet increased traffic demand.

Implementation of the *East County Area Plan* would increase by 87 percent the number of housing units in the planning area from 50,574 to 94,550 in the Year 2010 (see Tables 3 and 4 of the *East County Area Plan*, Volume 1). Implementation of the Plan would also increase the number of jobs in the planning area from 76,333 to 151,560 (a 99 percent increase). Using these projections, traffic volumes would increase substantially on unincorporated segments of East County freeways and highways. Resulting Average Daily Traffic (ADT) volumes and Levels of Service (LOS) for 2010 are shown in Table 5.4-2. The standard of significance (LOS E or F) is projected to be exceeded on several major freeway and highway segments, as follows (see Figure 15):

- . I-580 - throughout the planning area
- . I-680 - south of Sunol Blvd.
- . Isabel Avenue/Highway 84 - from 580 to Stanley
- . Vallecitos/Highway 84 - from Isabel to 680

Plan Policies and Programs: This potential impact is partially addressed by policy 13 which requires that development be phased according to the availability of infrastructure and public services, policy 179 which ensures that new development is phased to coincide with roadway improvements and that traffic volumes do not exceed Level of Service D on Congestion Management Program (CMP) designated roadways (e.g., Interstate Highways 580 and 680 and State Highway 84), policy 180 which requires traffic impact studies for all detailed development plans to determine compliance with Level of Service standards, and Program 77 which calls for coordination with the Federal Highway Administration, Caltrans, Metropolitan Transportation Commission (MTC), the County Congestion Management Agency (CMA), the Tri-Valley Transportation Council, and local agencies to fund and construct needed street, highway, and interchange improvements.

Building new freeways and arterials or the addition of lanes and other major improvements could cause significant indirect effects. Because they are too speculative to analyze in this DEIR, they will be subject to environmental analysis at the project-specific level.

Level-of-Significance: While proposed plan policies and programs would substantially lessen the impact on Level of Service for each affected roadway segment, several roadway segments would still exceed the LOS threshold. The following new policy would reduce this impact to a less-than-significant level, in terms of LOS, on most roadway segments (the policy refers to the summary of mitigation measures in Table 5.4-3, but a more detailed discussion of the mitigations relating to freeways and highways can be found in Table 5.4-4). However, even with the proposed mitigations, segments of I-580 and I-680 would remain at unacceptable levels of service (see Figure 16). Therefore, this would be a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.4-3: Proposed New Policy: *All new development in areas that are unincorporated as of the adoption of the East County Area Plan shall contribute their fair share towards the costs of transportation mitigation measures shown in Table 5.4-3 for each affected roadway segment, subject to confirmation in subsequent traffic studies, as a condition of project approval.*

Potential Impact 5.4-4: Arterial roadway capacities would be inadequate to meet increased traffic demand.

Implementation of the *East County Area Plan* would increase the number of housing units in the planning area from 50,574 to 94,550 in the Year 2010 (an 87 percent increase) (see *East County Area Plan* Tables 3 and 4). Implementation of the Plan would also increase the number of jobs in the planning area from 76,333 to 151,560 (a 99% increase). Using these projections, traffic volumes would increase substantially on unincorporated segments of East County arterials. Resulting Average Daily Traffic (ADT) volumes and Levels of Service (LOS) for 2010 are shown in Table 5.4-2. The standard of significance (LOS E or F) is projected to be exceeded on several major roadway segments, as follows (see Figure 15):

- Dublin Blvd. - from Dougherty to Fallon
- Hacienda Drive - from 580 to north of Dublin Blvd.
- Tassajara Road - North of 580, half way to Fallon
- North Canyons Parkway - from Doolan to east of Collier
- North Livermore Avenue - North of 580 to the County line
- Stanley Blvd. - from Valley Avenue to Livermore city limits
- Foothill Road - south of Sunol Blvd.

- Vasco Road - from 580 to the County line
- Small portions of other roadways including Greenville, Dublin Canyon, Las Colinas

Plan Policies and Programs: This potential impact is partially addressed by policy 13 which requires that development be phased according to the availability of infrastructure and public services, policy 179 which ensures that new development is phased to coincide with roadway improvements and that traffic volumes on intercity arterials do not exceed Level of Service D, policy 180 which requires traffic impact studies for all detailed development plans to determine compliance with Level of Service standards, and Program 77 which calls for coordination with the Federal Highway Administration, Caltrans, Metropolitan Transportation Commission (MTC), the County Congestion Management Agency (CMA), the Tri-Valley Transportation Council, and local agencies to fund and construct needed street, highway, and interchange improvements.

Level-of-Significance: While proposed plan policies and programs would substantially lessen the impact on Level of Service for each affected roadway segment, several roadway segments would still exceed the LOS threshold. The proposed policy recommended above (Mitigation Measure 5.4-3) would reduce this impact to a less-than-significant level, in terms of LOS, on most roadway segments. (While the policy refers to the summary of mitigation measures in Table 5.4-3, a more detailed discussion of the mitigations relating to arterials can be found in Table 5.4-5).

However, even with the proposed mitigation, portions of three roadways are anticipated to exceed the LOS E standard (see Figure 16). These include segments of Vasco Road, Hacienda Drive, and Greenville Road. No mitigation measure is available to reduce the impact on these roadway segments to a less-than-significant level. In addition, portions of all the roadways listed in Table 5.4-3 rely on proposed improvements that are not completely funded. Because complete funding mechanisms are not currently in place, no mitigation measure is available to reduce the impact on these roadway segments to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.4-4: Proposed New Policy (as cited under Mitigation Measure 5.4-3): *All new development in areas that are unincorporated as of the adoption of the East County Area Plan shall contribute their fair share towards the costs of transportation mitigation measures shown in Table 5.4-3 for each affected roadway segment, subject to confirmation in subsequent traffic studies, as a condition of project approval.*

TABLE 5.4-4

Discussion of Mitigation Measures: Freeways and Highways

Facility	Number of Lanes in ECAP	LOS in 2010	Mitigation	LOS with Mitigation	Mitigation Features Funded?	Comments
I-580	Eight (except for planned or existing auxiliary lanes west of Tassajara Rd.)	F in several sections	Widen to 10 lanes (plus auxiliary lanes between Vasco Road and I-680)	E or better	No	Traffic forecasts contemplated no increase in lanes for capacity along I-580 by 2010. However, the results show a need for ten lanes throughout the Tri-Valley, plus auxiliary lanes in some sections; otherwise, freeway sections with LOS E or F are expected for the length of I-580 in the planning area.
I-680	Eight north of Stoneridge Drive, six south of Stoneridge	D or better north of Stoneridge Drive, F south of Sunol Blvd.	Widen I-680 to eight lanes from Stoneridge Drive to Fremont	E or better	No	I-680 will have adequate capacity in Alameda County with the existing or planned eight-lane sections north of Stoneridge Drive. However, the section south of Sunol Blvd. also needs eight lanes to operate better than LOS F; this is also consistent with Caltrans' Route Concept plans. It is possible the two additional lanes will function satisfactorily as High Occupancy Vehicle (HOV) lanes.
Isabel Ave./ Hwy. 84	Six	F in poorest sections	Convert Isabel Ave. to an expressway where required	D or better	No	In this analysis, Isabel Ave. constitutes the realignment of Highway 84, bypassing downtown Livermore. As such, it is assumed to operate as an arterial having intersections with other arterials. If it were assumed to operate as an expressway or a freeway, it would have acceptable level of service ratings. This validates the City of Livermore's 1989 Circulation Element, which includes Isabel Ave. as a six-lane expressway with the possibility of converting it to a freeway in the future. A recent proposal to limit the Isabel Ave. corridor to two lanes would result in a roadway which falls far short of the demand to use this facility and would exacerbate the use of downtown Livermore by through traffic.
Vallecitos Road/ Hwy. 84	Four	F	Eventual construction of a six-lane expressway	D or better	No	Like Isabel Ave., Vallecitos Road is a key part of the Route 84 facility serving both regional and inter-regional traffic. This analysis shows that a four-lane arterial will be inadequate from a capacity standpoint. Either an expressway or a freeway with six lanes will eventually be required to serve demands along this corridor; otherwise, it will continue to operate at its current LOS (F).

TABLE 5.4-5

Discussion of Mitigation Measures: Arterials

Facility	Number of Lanes in ECAP	LOS in 2010	Mitigation	LOS with Mitigation Measures	Mitigation Measures Currently Funded?	Comments
Cayetano Parkway	Six between I-580 and Dublin Blvd.; four elsewhere	E in six lane section, D or better elsewhere	Provide proper number of turning lanes at critical intersections	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This is one of the main arterials serving the North Livermore area. It is the extension north of I-580 of the Isabel Avenue/Kitty Hawk artery. It is proposed for six lanes between I-580 and North Livermore Avenue and four lanes east of North Livermore Avenue. A portion of the roadway just north of North Canyon Parkway is forecast to be at Level of Service E. It is likely that this can be improved to a better level of service by constructing additional capacity near the key intersection of Cayetano Parkway/North Canyon Parkway. This additional capacity would be in the form of additional turning lanes at the intersection as determined by more detailed studies at the time of construction.
Dublin Blvd./North Canyons Pkwy.	Six	Varies from C to F, with F in eastern Dublin near Tassajara Road	Provide proper turning lanes at key intersections	D	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This roadway is projected to have six lanes between Dougherty Road and North Livermore Avenue. Level of Service F is projected for one section in the East Dublin area. In this area there are more streets available than represented by the model, resulting in an overstatement of volumes. This, coupled with the need for multiple turning lanes near major intersections, should result in acceptable service levels. If not, some adjustment of development proposals may be necessary. This area is the subject of a current, and more detailed, environmental assessment.
Greenville Road	Six	E near I-580	Provide proper turning lanes at key intersections	D/E	No (but City of Livermore may be able to require developers to make improvements)	A portion of this six-lane roadway immediately south of I-580 is expected to operate at LOS E. In this area it should be possible to improve the service level by the application of multiple turning lanes near key intersections.

TABLE 5.4-5

Discussion of Mitigation Measures: Arterials

Facility	Number of Lanes in ECAP	LOS in 2010	Mitigation	LOS with Mitigation Measures	Mitigation Measures Currently Funded?	Comments
Las Colinas Road	Two	F, north of I-580	Construct initially as three or four lane roadway	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This will be a new north-south roadway in North Livermore which is projected to have volumes just over the capacity of a two-lane facility. Depending on the parallel local streets and the exact layout of other new streets in the area, it may be necessary to have sections of this roadway constructed to three-lane (including a center turn lane) or four-lane standards.
Manning Road	Two	E, near North Livermore Avenue	None, short to mid-term. Could consider expansion to four lanes in future to serve inter-county traffic	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	Manning Road is an important two-lane connector roadway linking North Livermore Avenue in Alameda County with Camino Tassajara in Contra Costa County. The 11,000 vehicle per day assignment in the TVTM contemplates the use of this roadway by through traffic, possibly some of which is bypassing the use of the I-580/I-680 interchange. The volumes proposed for this roadway are at the upper end of a two-lane roadway capacity. By policy decisions, the agencies responsible for this roadway can either provide for this future "through traffic" demand with four lanes or can limit it by maintaining two-lanes.
North Livermore Avenue	Two lanes, as indicated in the model network	F	Six lanes south of Cayetano Parkway and four lanes north of Cayetano Parkway	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This is the main north-south roadway in the North Livermore area. The <i>East County Area Plan</i> shows this as a two-lane roadway. It needs to be developed with six lanes near I-580 and four lanes north of Cayetano Parkway. Such improvements can be phased over time and will result in acceptable levels of service on the corridor.

TABLE 5.4-5

Discussion of Mitigation Measures: Arterials

Facility	Number of Lanes in ECAP	LOS in 2010	Mitigation	LOS with Mitigation Measures	Mitigation Measures Currently Funded?	Comments
Stanley Blvd.	Four	F near Valley Ave. in Pleasanton	Spot widening near key intersections	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This is a very important inter-city link connecting Livermore and Pleasanton. Under the forecasts of this analysis, the existing four-lane high speed arterial will be over capacity in some sections by 2010. It may be necessary to provide some six-lane sections near the major intersections along the facility, especially near Valley Avenue in Pleasanton and Isabel Avenue in Livermore.
Tassajara Road	Four	F	Construct initially a six lane roadway in busiest sections, with proper turning lanes at key intersections	D or better	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	In the recently adopted Eastern Dublin General Plan Amendment and Specific Plan, Tassajara Road, the main north-south roadway, is planned for four lanes. The <i>East County Area Plan</i> also shows four lanes. Traffic demands on the roadway dictate the need for six lanes, especially south of Fallon Road. In addition, there will need to multiple turning lanes on the approaches to key intersections, particularly Dublin Boulevard.
Vasco Road	Two	F	Widen to at least four lanes, preferably six	E/F with four lanes, D or better with six lanes	No (but could be funded by extension of existing state, federal or local funding programs, by a regional transportation impact fee, or by developers as conditions of approval)	This roadway is listed as an ultimate two-lane roadway on plans of the City of Livermore. It needs to have at least four lanes to accommodate the forecasted traffic and six lanes to have acceptable service levels. This roadway serves major inter-county traffic demands and will continue to operate with safety problems until it is widened.

TABLE 5.4-5

Discussion of Mitigation Measures: Arterials

Facility	Number of Lanes in ECAP	LOS in 2010	Mitigation	LOS with Mitigation Measures	Mitigation Measures Currently Funded	Comments
Hacienda Drive	Six near Dublin Blvd., four near County line	E/F near Dublin Blvd., D or better elsewhere	Construct a four lane roadway into Contra Costa County; north of I-580, develop proper turning lanes near key intersections	E or better near I-580, D or better elsewhere	No (improvements near I-580 should be constructed initially by developers; expansion to four lanes near the County line should be the responsibility of Contra Costa developers	This analysis includes the extension of Hacienda Drive to Contra Costa County to serve the Dougherty Valley and other sections of eastern San Ramon. It is designed to relieve traffic on Dougherty Road and Tassajara Road and to fully utilize the I-580/Hacienda Drive interchange. The extension to Contra Costa County can initially serve as a two-lane facility but would eventually need to have four lanes. The model indicates the need to have six lanes in the section south of the Alameda County facilities north of the Dublin Boulevard extension.

Potential Impact 5.4-5: Public transit may not be available to adequately serve the Livermore area until after 2010.

Implementation of the *East County Area Plan* would increase the number of housing units in the planning area from 50,574 to 94,550 in the Year 2010 (an 87% increase) (see *East County Area Plan* Tables 3 and 4). Implementation of the Plan would also increase the number of jobs in the planning area from 76,333 to 151,560 (a 99% increase). Using these projections, transit demand would increase within East County. The *East County Area Plan* transportation network assumes the extension of BART service to East Dublin/Pleasanton, but not to Livermore. As a result, new development in Livermore and the eastern portions of the planning area will not be served by BART by the year 2010. Levels of Service on I-580 and major arterials in these areas reflect this lack of BART service.

The CMP includes transit standards for BART regarding frequency of service (3.75-15 minutes between services during the peak hour), routing (a load factor of 1.15 during the peak hour), and coordination (fares, schedules, service, information, marketing, and administrative). The CMP also states that local governments should include transit mitigation (including transit impact fees, transit-oriented development, etc.) as part of local EIRs. Existing and proposed policies in the *East County Area Plan* include improvement of transit service, subregional fees for transit, as well as transit-oriented and compact-development.

Plan Policies and Programs: This potential impact is partially addressed by policy 13 which requires that development be phased according to the availability of infrastructure and public services, policy 184 which supports investment in transit as an alternative to automobile-intensive transportation improvements, policy 185 which encourages transit providers to complete transit improvements, policy 186 which encourages high-intensity development in locations convenient to public transit facilities and along transit routes, policy 187 which supports construction of a light rail or other transit system along the I-680 corridor, along the Southern Pacific corridor, and rail extension of the BART system along the I-580 corridor, policy 188 which expands bus service to meet projected demand, policy 189 which encourages BART to locate new BART stations in areas that can be developed at high densities and intensities to maximize transit patronage, policy 190 which requires all new development to pay its fair share of the costs of meeting East County transit needs, and policy 191 which promotes development of transit connections (e.g., shuttle buses) between BART stations and East County communities.

Level-of-Significance: While proposed plan policies and programs would substantially lessen the impact on transit service, the eastern portion of the planning area would still remain unserved by BART. The following proposed policy would reduce, but not eliminate, this impact. In addition, extension of BART service to Livermore relies on proposed improvements that are not completely funded. Because complete funding mechanisms are not currently in place, no feasible mitigation measure is available to adequately provide transit service to this portion of the planning area. Therefore, this is considered a significant and unavoidable adverse impact of the proposed plan.

Mitigation Measure 5.4-5: Proposed new policy: *The County shall encourage BART to extend service to the Livermore area by the year 2010. This could be facilitated by including a portion of the costs of the rail extension to the planned Livermore stations using funds to be collected from the proposed subregional transportation fee being developed by the Tri-Valley Council.*

SOURCES

Alameda County Congestion Management Agency, 1991 Congestion Management Program, October 24, 1991.

Alameda County Congestion Management Agency, Draft 1993 Congestion Management Plan, April 26, 1993.

Barton-Aschman Associates, Tri-Valley Transportation Plan - Existing Conditions, March 1993.

Barton-Aschman Associates, Tri-Valley Transportation Plan - Year 2000 and 2010 Initial Forecasts, October 28, 1992.

Barton-Aschman Associates, Draft Report: Tri-Valley Transportation Model, April 1993.

Barton-Aschman Associates, Draft Report: Tri-Valley Transportation Plan, Year 2000 and 2010 Baseline Forecast, May 1993.

Barton-Aschman Associates, Memorandum: Tri-Valley Transportation Plan, Input to Financially Constrained Network, May 19, 1993.

Barton-Aschman Associates, Tri-Valley Transportation Model Plots - East County Area Plan, November 1992.

Bay Area Air Quality Management District (BAAQMD), Regulation 13, Rule 1 - Transportation Control Measures, December 16, 1992

California Toll Road Company, personal communication with Dennis Parker, June 1, 1993.

Economic and Planning Systems, Alameda County General Plan, Land Use, and Jobs/Housing Analysis, July 1992

Metropolitan Transportation Commission, Regional Transportation Plan, 1991

h:\ms\plan\air\chapt5-4.cwd

2010 Peak Hour LOS Deficiencies (Without Mitigation)

LEGEND

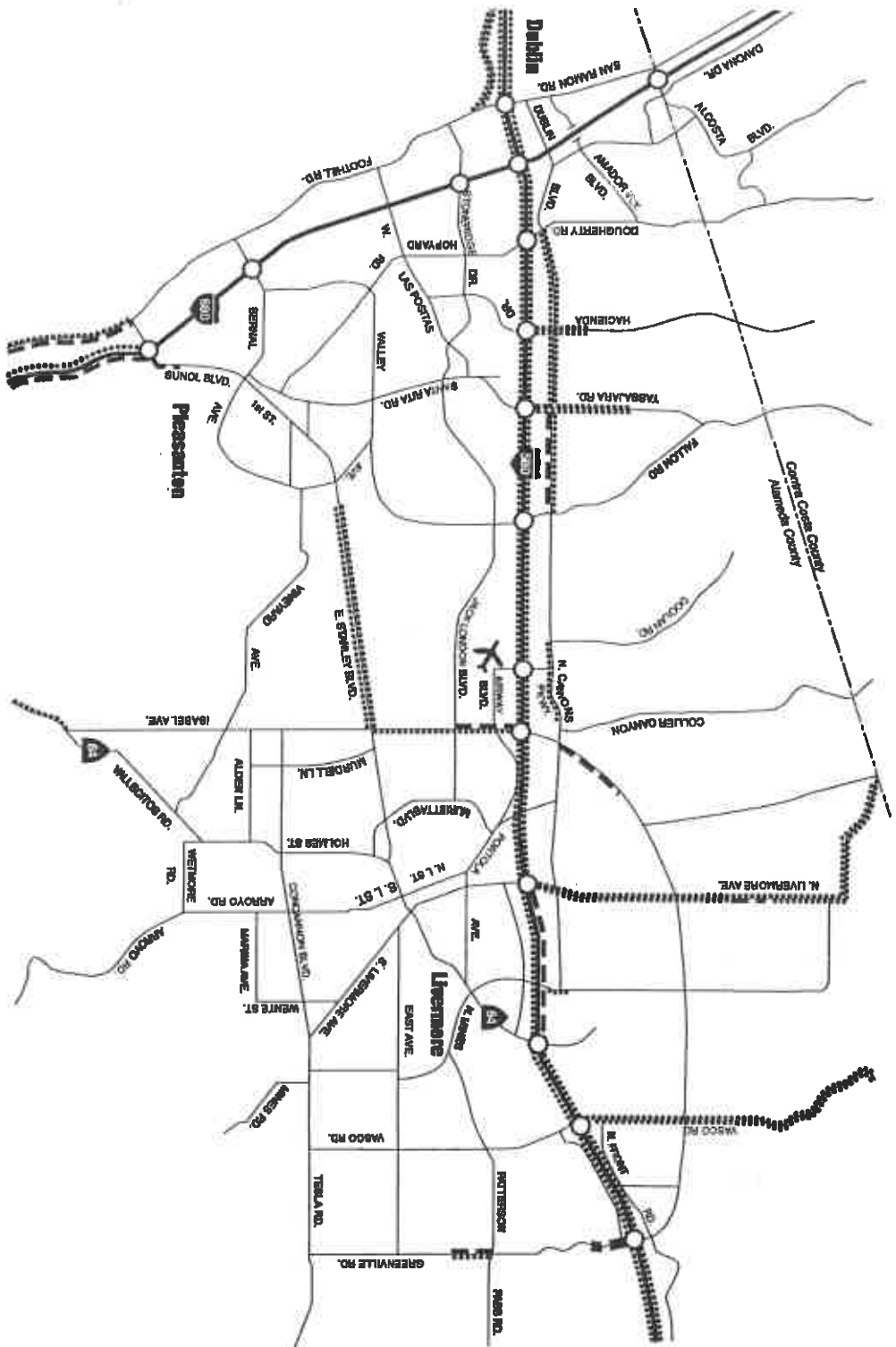
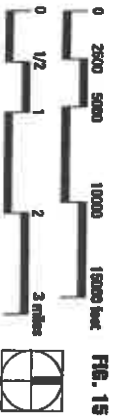
AM or PM Roadway Sections with
Unacceptable Levels of Service

LOS E

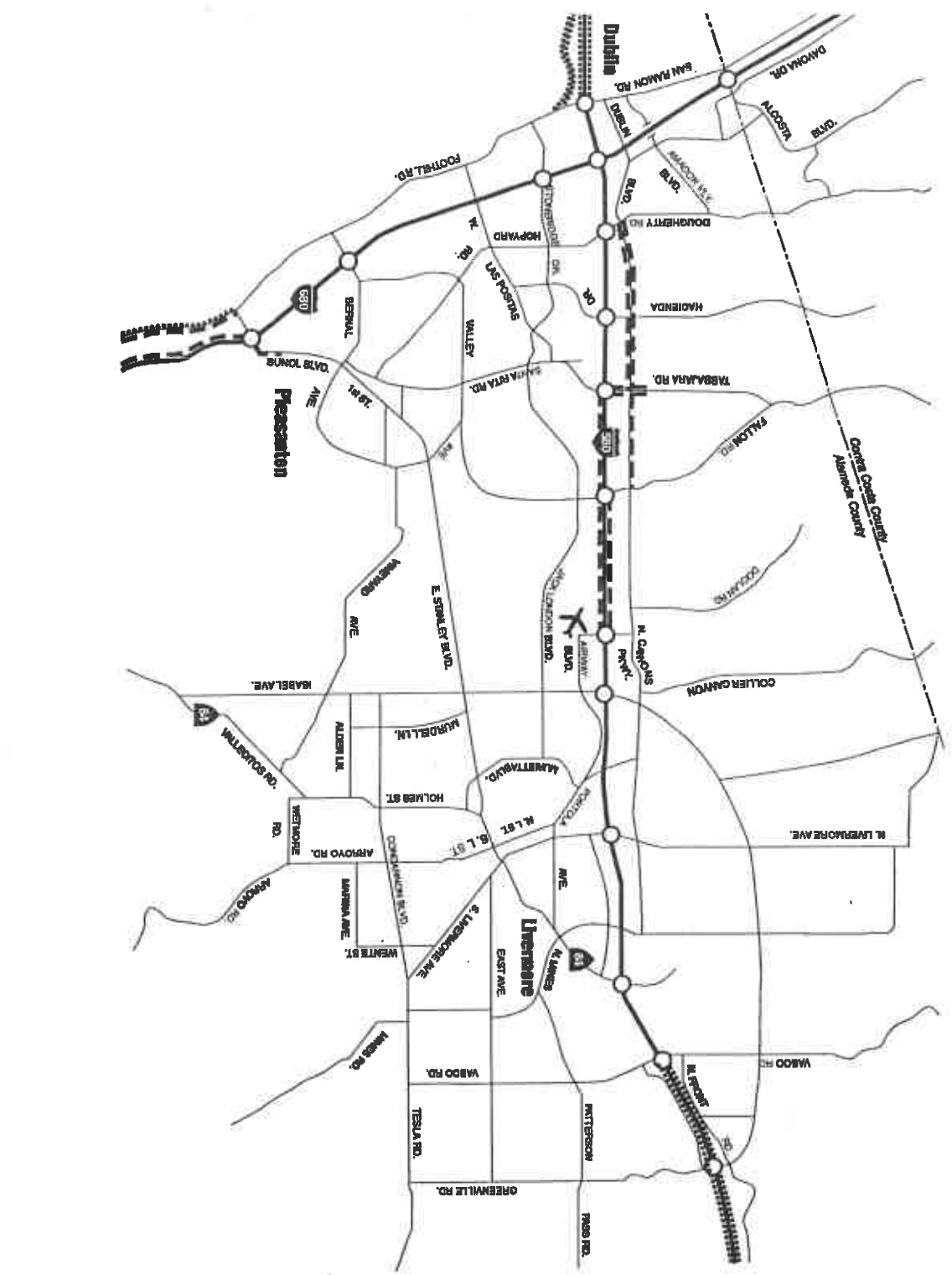
LOS F

NOTE:
The levels of service shown on this figure are derived from the Tri-Valley Transportation Model, assuming East County Area Plan land use inputs and roadway network (see text). Table 5.4-2 summarizes LOS for unimproved roadway segments resulting from this model run, without further mitigation. The roadway segments shown as LOS E and LOS F result from traffic volumes generated by East County Area Plan land uses at the year 2010 and do not include the benefits derived from the mitigation measures shown in Table 5.4-3. Refer to Figure 2 for the resulting LOS after mitigations are implemented as described in Table 5.4-3.

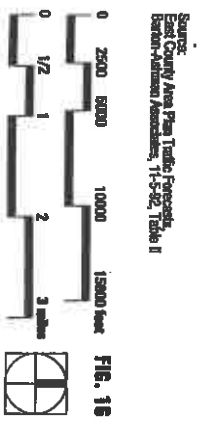
SOURCE:
East County Area Plan Traffic Forecasts,
Bentley Systems Associates, 11-9-92



2010 Peak Hour LOS Deficiencies (With Mitigation)



NOTE:
The length of service shown on the figure are derived from the Tri-Valley Transportation Model, assuming East County Area Plan land use inputs and roadway network (post build) for unimproved roadway segments at the year 2010 and include the benefits derived from the mitigation measures shown in Table 5.4-3.



Chapter 5.5 - Air Quality

A. EXISTING SETTING

Air Basin Characteristics

The San Francisco Bay Air Basin consists of nine contiguous counties or portions of counties (see figure in Appendix D). The air basin is a geographical unit that closely follows the hydrologic watershed. Pollutants are dispersed and transported within an air basin such that their control requires common action on an areawide basis. The air basin has some common characteristics. The prevailing pattern of wind is from off the Pacific Ocean, carrying pollutants from west to east. The air basin does not, however, have homogenous or uniform meteorological conditions. Weather differences throughout the San Francisco Bay Air Basin are large, particularly in summer when afternoon temperature differences between the coastal areas of the air basin may have temperatures 40 or 50 degrees lower than inland areas such as the Livermore-Amador Valley.

The Livermore-Amador Valley (including Sunol Valley) forms a small subregional air basin distinct from the larger Bay Area Air Basin. The air basin is surrounded on all sides by high hills or mountains. Significant breaks in the hills surrounding the air basin are the San Ramon Valley, which extends northward from the study area into Contra Costa County, and Niles Canyon.

The combined effects of light winds, surrounding higher terrain and frequent temperature inversions that restrict vertical movement give the Livermore-Amador Valley a high potential for pollution. During the summer months the light winds, warm temperatures and downwind location of the Livermore-Amador Valley relative to the Bay Area are conducive to the creation of ozone (O₃). During the winter months, high atmospheric stability, calm winds and cold temperatures combine to create ideal conditions for the buildup of pollutants such as carbon monoxide (CO) (especially in locations of high traffic volumes or congestion) and inhalable particulates less than or equal to 10 microns in diameter (PM-10).

Air Quality Standards

The Mulford-Carrell Act of 1969 and the Clean Air Act of 1970 established state and federal air quality standards for several pollutants, divided into primary standards, designed to protect the public health, and secondary standards, intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance and other forms of damage. The pollutants covered under the legislation are known as "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. State and federal ambient air quality standards are shown in Table 5.5-1. Another group of substances known as Toxic Air Contaminants (TACs) are injurious in small quantities and are regulated despite

the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants.

Pollutant Characteristics

Of the pollutants shown in Table 5.5-1, ozone and PM-10 levels present the most serious problems in the Livermore-Amador subregional air basin. Carbon monoxide is also a potential problem on a more localized basis. The following is a description of the characteristics and sources of these problem pollutants.

TABLE 5.5-1 Federal and State Ambient Air Quality Standards			
Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual	0.03 PPM	--
	24-Hour	0.14 PPM	0.05 PPM
	1-Hour	--	0.50 PPM
PM-10	Annual	50 ug/m3	30 ug/m3
	24-Hour	150 ug/m3	50 ug/m3
Lead	30-Day Average	--	1.5 ug/m3
	3-Month Average	1.5 ug/m3	--
<p>Notes: PPM = Parts Per Million ug/m3 = Micrograms per Cubic Meter</p> <p>The federal standards are defined as "the levels of air quality necessary, with an adequate margin of safety to protect the public health". The California standards are defined as specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of air pollution to undesirable effects (as established by the California Air Resources Board).</p>			

Ozone. Ozone is a photochemical oxidant formed in the urban atmosphere as a result of complex chemical reactions between hydrocarbons and oxides of nitrogen in the presence of sunlight. Ozone is not released directly into the atmosphere in substantial quantities from any sources. The evaporation of solvents and fuels and combustion from factories and automobiles are major sources of oxides of nitrogen and hydrocarbons, known as ozone

precursors. The health effects of ozone are eye irritation and damage to lung tissues. Ozone also damages some materials such as rubber, and may damage plants and crops.

PM-10. PM-10 consists of solid and liquid particles of dust, aerosols and other matter which are small enough to remain suspended in the air for a long period of time. A portion of the suspended particulate matter in the air is due to natural sources such as windblown dust (exacerbated by agricultural tilling, construction and dust from roadways) and pollen. Man-made sources include combustion, automobiles, field burning, factories and unpaved roads. The effects of PM-10 on humans include aggravation of chronic disease and heart/lung disease symptoms. Non-health effects include reduced visibility and soiling of surfaces.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless, toxic gas. It is formed by incomplete combustion of fuels, and its main source in the Bay Area is automobiles. As a result, high concentrations of carbon monoxide are typically found very close to major roadways and intersections.

CO from automobiles is dependent on the operating conditions. Congested traffic, with long idling times and slow speeds creates far more carbon monoxide than free-flowing traffic. The term "hot spot" is often used to describe an area of high concentration near a surface intersection or freeway interchange. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide replaces oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Air Pollutant Sources

The East County contains many air pollution sources. Fuel combustion for space and water heating, industrial processes and commercial uses are some pollutant sources. Evaporation of fuels and solvents, incineration, fires, and pesticide use are other examples of typical pollutant sources. The largest source of pollutants is on-road vehicles, which in Alameda County overall are responsible for 83 percent of CO emissions, 69 percent of the emitted oxides of nitrogen, 47 percent of sulfur dioxide emissions, 46 percent of hydrocarbon emissions, and 7 percent of PM-10 emissions (California Air Resources Board, 1991).

Large industrial "smokestack" stationary sources are not located in the East County. Large industrial sources are limited to sand and gravel operations and related concrete and asphalt products manufacturers. Numerous small industrial sources of criteria and TAC emissions are located in the cities of Dublin, Pleasanton and Livermore. The Livermore-Amador-Sunol Valley also receives air pollutants emitted in the greater Bay Area and transported to the valley by prevailing winds.

Attainment Status and Regional Air Quality Plans

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state

where the federal or state ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

Federal Air Quality Program. For the purposes of the federal Clean Air Act all of Alameda County had been designated as nonattainment for ozone until 1992, when the federal standards for ozone had been achieved for a period of three years (1990 through 1992). The urbanized area of the county (which includes the Livermore-Amador Valley) is considered to be nonattainment for carbon monoxide, while the remainder of the county (which includes the rest of the planning area) is considered attainment for carbon monoxide. The county is an attainment area or is unclassified for all other national ambient air quality standards (California Air Resources Board, November 1989).

The states were required to prepare a State Implementation Plan (SIP) to show how the federal standards were to be attained by 1987. The Bay Area portion of the SIP was the *1982 Bay Area Air Quality Plan* (ABAG et al., December 1982). Despite improvement in air quality, the Bay Area did not meet the 1987 deadline for attainment of the federal standards. The federal Clean Air Act Amendments of 1990 require that non-attainment areas develop plans and strategies to reduce pollutants by 15 percent during the first 6 years, then 3 percent annually thereafter until the standards are met. A revised federal air plan is required by 1994.

State Air Quality Program. Under the California Clean Air Act of 1988, Alameda County is a nonattainment area for ozone and PM-10. The county is either in attainment or unclassified for other pollutants (California Air Resources Board, November 1989). The California Clean Air Act requires local air pollution control districts to prepare air quality nonattainment plans. These plans must provide for district-wide emission reductions of 5 percent per year averaged over consecutive three-year periods, or provide for adoption of "all feasible measures on an expeditious schedule" to reduce emissions. The Act also grants air districts authority to adopt indirect source regulations and transportation control measures, including measures to encourage or require the use of ridesharing, flexible work hours or other measures which reduce vehicle miles traveled.

The area-wide plan required by the California Clean Air Act, the *Bay Area '91 Clean Air Plan* (CAP) was adopted in October 1991 (Bay Area Air Quality Management District, 1991). The CAP proposes the imposition of controls on stationary sources (factories, power plants, industrial sources, etc.) and Transportation Control Measures (TCM) designed to reduce emissions from automobiles. Since the CAP does not provide for a 5 percent annual reduction in emissions, it proposes the adoption of "all feasible measures on an expeditious schedule".

Air Quality in the Livermore-Amador-Sunol Valley

The only air monitoring site within the East County is located in Livermore. Table 5.5-2 shows slow improvement in ozone air quality at this site during the 10-year period 1982-

Interrelationship of Transportation and Air Quality Planning

Air quality issues are being recognized as interrelated with transportation and land use issues, and are addressed both in the California and federal Clean Air Act requirements. Recent state transportation legislation (Katz, AB 471 and AB 1791) and federal transportation legislation (Intermodal Surface Transportation Efficiency Act, or ISTEA) have air quality components that require consideration of the relationships between land use, transportation and air quality, and may result in constraints for capacity-increasing roadway and freeway improvements in future years.

Alameda County's Trip Reduction Ordinance

The Alameda County Board of Supervisors adopted a trip reduction ordinance, entitled the *Commute Alternatives Program Ordinance*, for the unincorporated portions of the county in conformance with requirements of the 1991 Alameda County Congestion Management Program (CMP). The ordinance, adopted September 15, 1992, requires employers of fifty or more employees to provide information to employees on alternatives to solo commuting. The ordinance was adopted as an interim measure until the BAAQMD adopted Regulation 13, Rule 1, *Trip Reduction Requirements for Large Employers* (Trip Reduction Rule) on December 16, 1992. The County's ordinance will be updated by October, 1993, to be consistent with the BAAQMD Trip Reduction Rule and the CMP.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- growth could contribute to the current nonattainment status for ozone and other pollutants in the Livermore-Amador subregional air basin
- an increase in growth could result in the exceedence of state and federal standards for air pollutants
- insufficient housing in the planning area may result in increased air pollution from traffic traveling from San Joaquin County to the Bay Area
- planning for the future of the East County could result in inconsistencies with the *Bay Area '91 Clean Air Plan*

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Land Use Policies and Programs:

Policy 16: The County shall promote an approximate balance between jobs and housing within East County and shall further promote a range of housing types reflecting the income distribution of the local employment base.

Policy 35: The County shall facilitate the development of high density housing near proposed BART stations.

Policy 41: The County shall attempt to meet unincorporated East County regional housing share objectives for all income categories within East County to minimize the need for low- and moderate-income households to seek housing in San Joaquin and Northern Contra Costa Counties. The County shall encourage cities to meet their respective incorporated city regional housing share objectives within East County.

Policy 147: The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual and other impacts generated by sand and gravel quarries.

Transportation Policies and Programs

Policy 169: The County shall seek to minimize traffic congestion levels throughout the East County street and highway system.

Policy 170: The County shall seek to minimize the total number of Average Daily Traffic (ADT) trips throughout the East County.

Policy 171: The County shall seek to minimize the percentage of Average Daily Traffic trips during peak hours.

Policy 174: The County shall promote the use of transit, ridesharing, bicycling, and walking, through land use planning as well as transportation funding decisions.

Policy 175: The County shall require major projects to include features that promote the use of transit, bicycle, and pedestrian systems. These features could include bus turnouts, interconnected bicycle and pedestrian paths and sidewalks, and pedestrian-accessible features such as convenient local-serving retail and service uses (e.g., child care, neighborhood grocery stores, laundromats).

Policy 176: The County shall require new non-residential developments in unincorporated areas to incorporate Transportation Demand Management (TDM) measures and shall require new residential developments to include site plan features that reduce traffic trips such as mixed use development and transit-oriented development projects.

Policy 179: The County shall ensure that new development is phased to coincide with roadway improvements to ensure that traffic volumes on intercity arterials do not exceed Level of Service

D on major arterial segments within unincorporated areas, and Congestion Management Program designated roadways do not exceed Level of Service E within unincorporated areas. If LOS E is exceeded, Deficiency Plans for affected roadways shall be prepared in conjunction with the Congestion Management Agency.

Policy 184: The County shall support investment in transit as an alternative to automobile-intensive transportation improvements.

Policy 186: The County shall encourage high-density development in locations convenient to public transit facilities and along transit routes.

Policy 187: The County shall support construction of a light rail or other transit system along the I-680 corridor from Pleasanton to Walnut Creek, if feasible, along the Southern Pacific corridor from Tracy to Fremont, and rail extension of the BART system along the I-580 corridor.

Policy 188: The County shall work with transit providers to maintain and expand bus service to meet projected demand.

Policy 189: The County shall encourage BART to locate new BART stations in areas that can be developed at high densities and intensities to maximize transit patronage.

Policy 191: The County shall promote development of transit connections (e.g. shuttle buses) between BART stations and East County communities.

Policy 193: The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.

Policy 194: The County shall create and maintain a safe and convenient pedestrian system that links residential, commercial and recreational uses and encourages walking as an alternative to driving.

Program 78: The County shall work with East County cities to designate high density and high-intensity uses along major arterials and within walking distance of transit stops. the County shall work with cities to designate land near proposed BART stations for high density residential uses and personal services (e.g. child care).

Program 80: The County shall work with the East County cities to complete the East County bicycle system.

Environmental Health and Safety Policies and Programs

Policy 268: The County shall strive to meet federal and state air quality standards for local air pollutants of concern. In the event that standards are exceeded, the County shall require appropriate mitigation measures on new development.

Policy 269: The County shall coordinate subregional air quality planning and mitigation among East County cities using the results of the biennial monitoring report.

Policy 270: The County shall support the Bay Area Air Quality Management District (BAAQMD) in monitoring air pollutants of concern on a continuous basis.

Policy 271: The County shall require new development projects to include traffic and air pollutant reduction measures to help attain air quality standards. For non-residential projects, these measures could include Transportation Demand Management programs such as ridesharing and transit promotion; for residential projects, these measures could include site plan features to reduce traffic trip generation such as mixed use development and transit-oriented development.

Policy 272: The County shall review the cumulative impact of proposed projects for their potential effect on air quality conditions.

Policy 273: The County shall coordinate air quality planning efforts with other local, regional and state agencies.

Policy 274: The County shall address air quality as a factor in its Regional Element to assist cities in their environmental review procedures.

Policy 275: The County shall require projects that generate high levels of air pollutants, such as manufacturing facilities, hazardous waste handling operations, and drive-through restaurants and banks, to incorporate air quality mitigations in their design.

Policy 276: The County shall review proposed projects for their potential to generate hazardous air pollutants.

Policy 277: The County shall only approve new air pollution point sources such as manufacturing and extracting facilities when they are located away from residential areas and sensitive receptors.

Policy 278: The County shall include buffer zones within new residential and sensitive receptor site plans to separate those uses from freeways, arterials, point sources and hazardous material locations.

Policy 279: The County shall incorporate the provisions of the Association of Bay Area Government's (ABAG) Bay Area Air Quality Plan and the Bay Area Air Quality Management District's (BAAQMD) Air Quality and Urban Development Guidelines into project review procedures.

Policy 280: The County shall notify cities and the Bay Area Air Quality Management District (BAAQMD) of proposed projects which may significantly affect air quality.

Policy 281: The County shall cooperate with the BAAQMD and California Air Resources Board in their enforcement of the provisions of the Clean Air Act, state and regional policies, and established standards for air quality.

Program 101: The County shall include an evaluation of air quality projections according to adopted standards in its biennial monitoring report and revise *East County Area Plan* policies accordingly.

Program 102: The County shall work with the BAAQMD and cities to evaluate the results of continuous monitoring at the **Livermore BAAQMD station** for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulates, to determine compliance with adopted standards.

Program 103: The County shall include evaluation of hazardous air pollutant emissions in development review procedures of proposed land uses which may handle, store or transport lead, mercury, vinyl chloride, benzene, asbestos, beryllium, and other hazardous materials.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

The air quality impact analysis was developed for the plan's 2010 holding capacity based on traffic model runs using the Tri-Valley Transportation Model (TVTM) and *East County Area Plan* land uses for the year 2010. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region, as projected by ABAG, and for the San Joaquin Valley, as projected by San Joaquin County. The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan) and for which rules have been promulgated for air quality emissions by the Bay Area Air Quality Management District. Cumulative development of all projects within the nine-county Bay Area, based on ABAG projections, in addition to development in San Joaquin County was included in the year 2010 land use projections used in the Tri-Valley Transportation Model run conducted for the project and is included in this air quality analysis. The traffic volumes on which the air quality analysis is based is described in more detail in the Transportation section of this EIR. A complete description of the land use, trip distribution, and network assumptions used in the TVTM are described in a report by Barton-Aschman Associates titled "Draft Report: Tri-Valley Transportation Model" (April 1993).

An air quality analysis using the Tri-Valley Transportation Model has not been conducted to evaluate the impacts of full buildout (beyond 2010) of the Tri-Valley on air quality conditions. This is due to the lack of an identified roadway and transit network to serve buildout given current limitations on funding and technology. Buildout of *East County Area Plan* land uses represents about a 14 percent increase in housing units and a 6 percent increase in jobs over projections for the year 2010 land uses assumed in the Tri-Valley Transportation Model. At buildout, it can be assumed that a proportional amount of additional traffic and, in turn, proportional amounts of carbon monoxide, ozone precursors and PM-10, would be generated above that shown for the year 2010.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project would have a significant effect on the environment if the project would "violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations" or "conflict with adopted environmental plans and goals of the community where it is located."

For the purpose of this EIR, emissions that would cause or contribute to the exceedance of either the Federal or State ambient air quality standards, or exceed the BAAQMD thresholds of significance are considered significant adverse impacts. (The BAAQMD has developed thresholds of significance for regional emissions increases. The District considers increases in emissions of criteria pollutants of 150 pounds per day for ozone precursors or PM-10. If CO exceeds 550 pounds per day, local concentration modelling using a computer model such as CALINE-4 is required to determine if CO would exceed ambient air quality standards at selected intersections. Noncompliance with the Bay Area '91 Clean Air Plan (CAP) would also constitute a significant adverse impact as would siting of sensitive land uses next to air pollution generating land uses.

Potential Impacts and Mitigation Measures

Potential Impact 5.5-1: Pollutant emissions from sources associated with new urban development, including indirect (mobile) sources, direct (stationary or point, such as commercial or industrial) sources, and area (home, such as heaters and small gas equipment) sources would exceed thresholds established by the BAAQMD for carbon monoxide, ozone precursors and PM-10.

With the potential development planned for the East County planning area, including the addition of 44,600 new dwelling units and 82,000 new jobs in various industries and services, the cumulative sums of all emissions for individual pollutants (CO, ozone precursors, and particulates) would exceed the thresholds set by the BAAQMD for those pollutants.

Carbon Monoxide (CO). Locally, the pollutant of greatest interest is carbon monoxide (CO). Concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Population and employment growth within the project area would affect CO concentrations, particularly for sensitive receptors along freeways and at major intersections. As shown in Table 5.5-3, levels of CO in the plan area would exceed 550 pounds per day, triggering the need for CALINE-4 local concentration analysis (see Impact 5.5-2 below).

Ozone Precursors and PM-10. Sources of ozone precursors and particulates are primarily from vehicle emissions and secondarily from industrial and residential sources. Automobile emissions associated with the ECAP and cumulative development within the Tri-Valley area in 2010 have been estimated using the URBEMIS-3 computer model of the California Air

Program 101 requires periodic evaluation of actual air quality progress against air quality standards, and adjustment of ECAP policies accordingly. Program 102 requires the County to work with the BAAQMD and cities to evaluate the results of continuous monitoring at the Livermore BAAQMD station for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulates, to determine compliance with adopted standards.

Although measures such as TDM (including promotion of transit, bicycle, and other alternate transportation under Policies 174 through 176, 187 through 189 and others) are positive steps in reducing vehicle trips, their implementation has rarely diminished vehicle emissions by more than about five to ten percent. While juxtaposition of land uses that shorten commute and shopping distances may have some success, they would not bring down vehicle use by the 90 to 99 percent required to fully mitigate the impact. Therefore, these sources, taken in combination, would not be significantly reducible.

Level-of-Significance: While policies and programs would, to the extent possible, lessen the exceedance of BAAQMD thresholds created by urban growth, no additional mitigation is available to reduce the impact to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.5-1: None available.

Potential Impact 5.5-2: Urban development under the plan would contribute to the existing exceedance of state air quality standards for PM-10, but not for other criteria pollutants.

As explained in the Existing Setting, the Livermore-Amador Valley is an existing non-attainment area for carbon monoxide under federal standards and an existing non-attainment area for ozone precursors and PM-10 under state standards.

Although urban development in the East County under the proposed plan would increase the net emissions output for all sources in the year 2010, the *East County Area Plan* would not contribute to a continuation of nonattainment of the state standards for ozone and federal standards for carbon monoxide because of continuing reductions in per mile emission rates resulting from state-mandated emission controls for autos and other vehicles, clean fuel programs and related state programs. Slight increases in PM-10, however, would contribute to continued exceedance of state air quality standards.

The achievement of the ECAP's holding capacity for the year 2010 would increase the population of the planning area from about 136,000 to about 251,000 persons, an increase of 85 percent. Emissions of pollutants such as carbon monoxide, particulates and ozone precursors could be expected to increase by an approximately proportional amount due to increased use of automobiles, small internal combustion equipment such as lawnmowers, gas heaters, household solvents, and the establishment of new commercial enterprise. The degree of proportionality of the increase would be affected by various factors that indirectly

affect emissions output. Factors that would result in greater-than-proportional emissions include increased congestion and greater time spent traveling to destinations. Factors that would help to counteract these increases would be the effect of improved auto emissions, mandatory use of no-emission automobiles, displacement of automobile use by alternative transportation of many kinds such as transit, bicycles and pedestrianism, and certain stationary source requirements to be placed on home emissions (lawnmowers, paints, heaters, etc.) and commercial emissions by the BAAQMD. How these factors affect each air pollutant is discussed below.

Carbon Monoxide (CO). The CALINE-4 computer simulation model was applied to ten selected locations to estimate worst-case future carbon monoxide levels within the study area. Two freeway locations and eight at-grade intersections were selected for analysis. The locations were selected as having the highest traffic volumes and/or congestion levels to estimate the highest concentrations that could be expected in the project area. Traffic volumes used reflect existing 1990 and 2010 conditions under the ECAP. The analysis was conducted for the p.m. peak traffic hour. Receptors (locations where concentrations are calculated) were located 25 feet from the roadway edge to achieve a conservative estimate. The CALINE-4 program and the assumptions made in its use are described in Appendix D.

Carbon monoxide concentrations were predicted for both 1-hour and 8-hour average bases, corresponding to the state/federal standards. The resulting concentrations of the CALINE-4 modelling shown in Table 5.5-4 are to be compared to the state 1-hour ambient air quality standard of 20 PPM and the federal standard of 35 PPM, and the state/federal 8-hour standard of 9 PPM. Predicted 1990 concentrations are less than or equal to state and federal standards at all surface intersection locations considered, but violations of the 8-hour standard are indicated near I-580 and I-680. Future predicted concentrations in 2010 are below current levels, despite growth in traffic, because of the effect of emission control standards for automobiles and other vehicles. Since the intersections analyzed are likely to be the location of highest concentration within the study area, concentrations at other intersections and at sensitive receptors would be lower. No violations of the state or federal standards for carbon monoxide are indicated in 2010 under ECAP.

Ozone and PM-10. Concentrations of regional air pollutants (ozone and PM-10) in the Tri-Valley sub-airbasin are determined partly by the amount of each pollutant emitted within the sub-air basin and partly by transport of pollutants into the sub-airbasin from upwind urban areas. Which of these two processes is most important has not been determined, and the importance of these two processes may vary with the meteorological conditions.

Prediction of concentrations of these regional pollutants is accomplished by the use of complex regional air quality models that can predict regional pollutant concentrations by using a large area with detailed gridded emissions inputs and extensive meteorological data. Due to cost, it is impractical to use the models to determine the incremental impact of an individual project or plan. However, air quality trends in an airbasin can be evaluated by examining emissions trends and by recognizing that local emissions, while important, are not the only determinant of air quality in the sub-airbasin. Output from the Tri-Valley

Transportation Model was used to find trends in vehicle emissions within the Tri-valley sub-airbasin. Vehicle emissions are the largest source of emissions, particularly for precursors of ozone. The methodology used to convert the model output to air pollutant emissions is described in Appendix D. Table 5.5-5 shows projected Vehicle Miles Travelled (VMT) and resulting emissions in the a.m and p.m. peak hours for 1990 and 2010 conditions. A similar trend would be expected for other hours of the day. Despite higher VMT, substantial reductions in ozone precursor emissions are projected due to continuing reductions in per-mile emission rates resulting from state-mandated emission controls for autos and other vehicles, clean-fuel programs and related state programs.

TABLE 5.5-4
Worst-Case 1-Hour and 8-Hour
Carbon Monoxide Concentrations at Selected Locations,
in Parts Per Million - Existing and 2010

Location ¹	Existing (1990)		With ECAP (2010)	
	1-Hour	8-Hour	1-Hour	8-Hour
I-680 North of I-580	15.7	10.2	9.6	6.1
I-580 East of I-680	19.2	12.6	10.5	6.8
Stoneridge and Hopyard	11.8	7.4	8.3	5.2
Hopyard and Los Positas	11.8	8.0	9.5	6.1
Dublin and Dougherty	11.9	7.5	10.0	6.4
Stanley and Isabel (SR-84)	9.1	5.6	11.8	7.7
N. Canyons and Tassajara	--	--	12.1	8.1
Stanley and Bernal/Valley	10.1	6.3	9.6	6.1
Bollinger Canyon and Alcosta	12.7	8.1	11.0	7.1
N. Livermore and Portola	11.6	7.3	8.4	5.3
Most Stringent Standard (State)	20.0	9.0	20.0	9.0
Notes: ¹ Receptors were located a distance of 25 feet from the roadway edge.				
Source: Donald Ballanti, Certified Consulting Meteorologist, 1993				

TABLE 5.5-5

Trends in Tri-Valley Peak Hour Vehicle Emissions

	1990	2010
Vehicle Miles Travelled	1,391,169	2,130,192
Ozone Precursors		
Reactive Hydrocarbons (lb.)	5,352	1,666
Oxides of Nitrogen (lb.)	10,238	6,323
PM-10 (lb.)	1,238	1,397
Source: Donald Ballanti, Certified Consulting Meteorologist, 1993		

Emissions of ozone precursors within the overall Bay Area air basin are also predicted to decline. Table E-7 indicates that the gradual decline in ozone concentrations observed over the past 20 years can be expected to continue into the future. This forecast is consistent with the regional photochemical modeling conducted as part of the CAP. As described in the impact analysis under *Potential Impact 5.5-3*, the CAP forecasts of emissions and air quality included the population and employment increases accommodated by the ECAP. A 1.5 percent annual reduction in maximum ozone levels was projected for baseline conditions, and a 2 percent annual reduction in maximum ozone levels was projected with implementation of the CAP.¹ Attainment of the federal ozone standard has occurred in December 1992, but attainment of the more stringent state standard is not expected before the year 2000.

Table 5.5-5 shows that small increases in PM-10 auto-related emissions are expected in the Tri-Valley region between 1990 and 2010. Vehicular emission controls for PM-10 are less effective than those for ozone precursors since a major portion of the PM-10 created by auto use is due to tire wear, rather than from exhaust emissions. Considering that auto traffic also emits PM-10 through re-entrainment of road dust, the increasing levels of VMT in the Tri-Valley area indicate increasing levels of PM-10 in the sub-airbasin.

PM-10 concentrations in the Tri-Valley area currently meet the federal ambient air quality standards by a wide margin, however, the state standard has not been attained (it is currently attained in only one county in California, Lake County). Recognizing the relative intractability of the PM-10 problem in California, the California Clean Air Act of 1988 does not establish a planning process for PM-10 as it does for ozone and carbon monoxide, however, some control programs are in place for PM-10. Secondary reductions in PM-10 emissions can also be expected from efforts to reduce ozone precursor emissions. For example, efforts to reduce VMT would directly affect PM-10 generation, while reductions in

¹ Bay Area Air Quality Management District, Bay Area '91 Clean Air Plan, Volume 1, October 1991.

ozone precursor emissions would reduce photochemically-produced PM-10 (a fraction of the PM-10 in an urban atmosphere is created by photochemical processes).

Policies and Programs. The continuation of mandated improvements in vehicle exhaust systems, improvements in BACT for stationary sources, and new regulations for household sources and small internal combustion engines, would contribute to a cumulative decrease in the overall emission burden for ozone precursors in the East County, as well as much of the rest of the State of California. Certain policies in the ECAP, primarily those relating to reduction of trip generation and VMT and to establishment of TDM, would bring the concentrations projected in Table 5.5-5 down further, although the additional decrease would be small. These policies and programs would be generally the same as those discussed above under *Potential Impact 5.5-1*.

A few policies in addition to those discussed above would help to limit concentrations more locally, from point sources as well as congested roadways. Policy 147 would impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential impacts including dust impacts generated by sand and gravel quarries. Policy 169, 170 and 171 would seek to minimize traffic congestion levels throughout the East County street and highway system by reducing trip volumes, both daylong and during the peak hour. Policy 179 would help ensure that new development is phased to coincide with roadway improvements, such that traffic volumes on intercity arterials do not exceed Level of Service D on major arterial segments and Congestion Management Program designated roadways do not exceed Level of Service E; along with the policies discussed earlier, these would help to limit localized concentrations of PM-10 and CO.

Policies 268 and 275 both require incorporation of air quality mitigation in various types of projects to help ensure rapid progress toward achievement of air quality standards. Policy 276 and Program 103 directly require County review of any projects that may transport, store or handle hazardous air pollutants, such as lead, mercury, vinyl chloride, benzene, asbestos, beryllium, and others. Policy 277 would allow approval of new air pollution point sources such as manufacturing and extracting facilities only when they are located away from residential areas and sensitive receptors, and Policy 278 requires the County to include buffer zones within new residential and sensitive receptor site plans to separate those uses from freeways, arterials, point sources and hazardous material locations.

The resulting lower emission burden is expected to lead to a decrease in the number of instances during which ozone levels, and the levels of other contaminants, are in excess of State and/or federal standards. In addition, policies that address separation of conflicting land uses and the improvement of traffic levels would help to remove sensitive receptors from areas of possible exposure to elevated air contaminant levels. As a result, the degree of nonattainment is expected to decrease during the planning period, mostly as a result of the emissions improvements but also partly as a result of the policies of the ECAP. CO levels, already sufficiently low, would continue to decrease.

In summary, emissions of CO and ozone would continue to decline under the plan but PM-10 concentrations would continue to exceed state standards.

Level-of-Significance: While policies and programs would, to the extent possible, minimize the contribution of PM-10 to existing exceedence of state standards, no additional mitigation is available to reduce the PM-10 impact to a less-than-significant level. This is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.5-2: None available.

Potential Impact 5.5-3: The East County Area Plan is not fully consistent with the 1991 Clean Air Plan.

One means of assessing consistency between the proposed plan and the Clean Air Plan (CAP) is to compare population and employment projections assumed under each plan. Since the CAP programs are based on specific forecasts of population and employment for all cities and counties within the nine-county BAAQMD, plans accommodating growth in excess of the CAP forecasts have the potential to interfere with attainment of air quality standards. The ECAP uses ABAG population and employment projections, the same numbers used by the CAP; therefore, from this perspective the two plans are consistent with each other.

The CAP proposes a program of implementation of "all feasible control measures" for the Bay Area. Thus, another measure of consistency is whether the ECAP promotes appropriate "feasible measures" for a planning-level document, such as the policies listed in Section B. above, toward accomplishing air quality goals. Some programs that the CAP proposes for implementation by local jurisdictions include assistance to regional and local ridesharing organizations; adoption of employer-based trip reduction rules; establishment of comprehensive bicycle programs in public and private sectors; improvement of traffic signal timing; encouraging employers to provide incentives and subsidies for ridesharing/vanpooling; developing rules to reduce vehicle trips to public activity centers; zoning for higher densities and mixed use near transit nodes; and including air quality elements in general plans.

Policies and Programs. The ECAP includes most of these in one form or another. Many policies, including 174, 175, 176, and 271 include requirements to emphasize alternative transportation such as transit, ridesharing or bicycling and deemphasize the use of single-driver automobiles; facilitation of transit use is emphasized in Policies 35, 174, 176, 184, 186, 187, 188, 189 and 191, including allocation of funding, cooperative planning with transit agencies (bus and BART/light rail), and land use planning to maximize the advantages of transit by clustering of high density or service volume uses near transit nodes. Policies 16 and 41 require the County to attempt to match jobs to housing, both in terms of numbers, proximity, and wage/salary levels. While the plan does not technically contain an Air Quality Element, Policies 268 through 281 specifically address air quality, and along with

transportation policies addressing congestion and trip reduction, these policies in effect constitute a *de facto* Air Quality Element.

Although the degree of consistency between the CAP and the ECAP is generally high, additional specificity would substantially improve consistency between the ECAP and the CAP. For example, the ECAP is somewhat vague in some areas such as specifying the requirements for bicycle facilities and requirements for employer-based trip reduction measures.

Level-of-Significance: Without mitigation, this potential impact would be **significant**. The following additional policy and programs would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struck-out~~):

Mitigation Measure 5.5-3(a): Proposed New Policy: *The County shall require major projects of commercial or industrial nature to include bicycle storage facilities for employees and customers, shower/locker areas, and other facilities identified in the East County Bicycle Plan (described in Program 80) for employees that commute using bicycles.*

Mitigation Measure 5.5-3(b): Proposed Modification to Program 80: The County shall work with East County cities, *bicycle advocacy groups, and local employers to complete the develop an East County Bicycle system Plan. This plan shall include components such as road/street improvements (e.g., bike lanes, traffic signal detector loops for bicycles, etc.), facilities for bicycle commuters (e.g., showers, bicycle lockers, etc.) and shall encourage employers to provide programs (e.g., employer-based bicycle clubs, effective cycling and safety training seminars, etc.) that promote bicycling as a viable commute alternative. The Plan shall also include a capital improvement program component.*

Potential Impact 5.5-4: Placement of sensitive land uses, such as residential or public health facilities, near commercial or industrial uses could result in conflicts with regard to nuisance or health risk from pollutant emissions.

Urban development occasionally results in adjacent land uses that may negatively affect each other. An industry or business locating next to a residential area may result in conflicts between the two uses on a number of issues, including air quality. Although no "smokestack" type industries are expected to locate in the Livermore-Amador-Sunol Valleys, land uses such as quarries, truck shipping depots and various types of small business or industry could generate emissions that could be considered nuisances, or worse, toxic air contaminants (TACs). As an example, proposed quarry activity in the Urban Reserve portion of the planning area has generated concern among nearby residents that air quality impacts, among others, could affect health, decrease quality of life in general, and affect property values.

Mixed use development, while helping to consolidate the necessities of living in an urban area, can also result in adjacent land use conflicts. The ECAP calls for some development of this type in the North Livermore and East Dublin areas, where residential and commercial uses would be closely located. The potential for some conflict in these areas exists.

Policies and Programs. The ECAP policies include substantial provisions for most types of industries. Policies 80, 136, 143, and 147 require that when residential or other developments locate near agricultural zones, solid waste facilities or quarries, general assessment of environmental impacts (including air quality) must be performed to enable mitigation to occur and informed decisions about the land use juxtaposition to be made. Policies 275, 277, and 278 are more specific, requiring mitigation programs for high-level commercial or industrial emission sources, placement of point sources at substantial distances from sensitive receptors, and the establishment of buffer zones to help potentially conflicting land uses maintain safe distances from each other. This combination of policies, and resulting programs, should minimize air quality conflicts.

Level-of-Significance: With the proposed policies requiring separation of residential uses from commercial and industrial uses capable of nuisance or toxic emissions, no significant impact would result.

While no mitigation is needed, the following modification would clarify the plan policy (new language is shown in *italics*):

Proposed modification to Policy 147: The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual and other impacts generated by sand and gravel quarries. *Conversely, the County shall not approve land uses adjacent to any existing quarry if the development of the new uses would result in exposure of residential or other sensitive uses to possible adverse impacts of the quarry, unless the new uses can effectively mitigate the significant adverse impacts and notify potential homeowners of the risk, as required by policy 146.*

SOURCES

Association of Bay Area Governments, Bay Area Air Quality Management District and Metropolitan Transportation Commission, 1982 Bay Area Air Quality Plan, December 1982.

Barton-Aschman Associates, Draft Report: Tri-Valley Transportation Model, April 1993.

Bay Area Air Quality Management District, Bay Area '91 Clean Air Plan (CAP), 1991.

Bay Area Air Quality Management District, Base Year 1983 Emissions Inventory Summary Report, August 1987.

California Air Resources Board, Area Designations for State and National Ambient Air Quality Standards, November 1989.

Chapter 5.6 - Noise

A. EXISTING SETTING

This report describes existing noise sources and noise-sensitive land uses in the East County. A brief introduction to noise terminology is included below to provide clarification regarding the terms and concepts used in this report.

Noise, defined as unwanted sound, is customarily measured in decibels (dB), units related to the apparent loudness of sound. A-weighted decibels (dBA) represent sound frequencies normally heard by the human ear. The normal range of human hearing extends from about 3 to 140 dBA; speech normally occurs between 60 and 65 dBA.

A logarithmic decibel scale is used to measure sound because hearing sensation increases with the logarithm of the stimulus intensity. Each 10 dBA increase in the level of a continuous noise is a ten-fold increase in sound energy, but is judged by a listener as only a doubling of loudness. For example, 60 dBA is judged to be about twice as loud as 50 dBA and four times as loud as 40 dBA. Each 3 dBA increase in sound is a doubling of sound energy, but is only judged as about a 20 percent increase in loudness, and is barely noticeable to most people. An increase in average noise of about 5 dBA is noticeable to most people, and is the level required before any noticeable change in community response would be expected (International Organization for Standardization, 1971).

Because environmental noise levels fluctuate over time, a time-averaged noise level in dBA is often used to characterize the acoustic environment at a given location. The average noise intensity over a given time is the energy equivalent noise level (Leq). To account for human sensitivity to nighttime noise levels, two relevant descriptors--day-night equivalent sound level (Ldn) and Community Noise Equivalent Level (CNEL)--were developed.

Under noise and land use guidelines set by the California Department of Health Services, the 24-hour Ldn is divided into a daytime period of 7 A.M. to 10 P.M. and a nighttime period of 10 P.M. to 7 A.M. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Ldn is thus the A-weighted average sound level in decibels during a 24-hour period with 10 dBA added to the hourly Leqs during the nighttime. The CNEL is also the average noise level, in dBA, for a 24-hour period, with a weighting of 5 dBA for noise occurring between 7 P.M. and 10 P.M., and a 10 dBA weighting assigned to a noise occurrence between 10 P.M. and 7 A.M.

Some land uses are more sensitive to ambient noise levels than others. Noise-sensitive land uses include residential (single- and multi-family residences), mobile home parks, motels and hotels, schools, libraries, churches, hospitals, nursing and convalescent homes, and some parks and cultural facilities. Commercial and industrial land uses, by contrast, tend to be less sensitive to noise.

State and Federal Noise Standards/Guidelines

Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans). FHWA and Caltrans have similar policies for new roadway construction and expansion. These policies contain maximum acceptable noise levels in areas adjacent to vehicular traffic; they also contain guidelines for determining when noise barriers should be constructed.

State of California. Title 21 of the California Code of Regulations limits airport noise near residential communities to minimize existing and future land use conflicts. Title 24 (Part 2) is concerned with transportation and industrial noise sources, and specifically regulates the maximum allowable interior noise level for hotels, motels, and multi-family housing. Title 24 (Part 2) also establishes standards for noise insulation and sound transmission control. In addition, the California Office of Noise Control has established Land Use Compatibility Guidelines (Table 5.6-1), which recommend noise exposure thresholds for different land use categories.

U.S. Department of Housing and Urban Development (HUD). HUD has developed a set of noise policies for federal housing projects; these policies address various outdoor noise environments and recommend acceptable interior and exterior noise level goals.

U.S. Department of Transportation. The Department of Transportation's Guidelines for Preparation of Environmental Assessment are commonly used to evaluate the relative effect of increased noise from line sources. The standards are as follows:

<i>Increase in Noise Level</i>	<i>Significance</i>
0 to 3 dB	No effect
4 to 5 dB	Effect on noise sensitive uses if there is a change in land compatibility category. A change in land use compatibility category occurs when the exposure of the site changes from "normally acceptable" to "conditionally acceptable", "conditionally acceptable" to "normally unacceptable," or "normally unacceptable" to "clearly unacceptable."
6 dB >	Effect on noise sensitive uses regardless of land use compatibility category or effect on compatible uses if there is a change in land use compatibility category.

County Noise Standards

Alameda County General Plan Noise Element. The County's General Plan Noise Element (adopted in September 1975) provides general goals and policies designed to alleviate existing noise exposures and minimize future noise impacts. The element sets out the

TABLE 5.6-1

California Office of Noise Control Land Use Compatibility Guidelines

Land Use Category	Noise Exposure (dB)			
	Clearly Unacceptable ¹	Normally Unacceptable ²	Conditionally Acceptable ³	Normally Acceptable ⁴
Residential (Low Density)	75	70-75	55-70	50-60
Residential (Multi-family)	75	70-75	60-70	50-65
Transient Lodging	80	70-80	60-70	50-65
Schools, Libraries Churches, Hospitals	80	70-80	60-70	50-70
Playgrounds, Neighborhood Parks	72.5	67.5-75	-	50-70
Golf Courses, Water Rec., Cemeteries	80	70-80	-	50-75
Industrial, Utilities, Agriculture	75-85	70-80	50-75	-
Notes: ¹ Clearly Unacceptable--new construction should not be undertaken. ² Normally Unacceptable--new construction should be discouraged. If construction does proceed, acoustic analysis to determine the insulation needed is required. ³ Conditionally Acceptable--new construction should be undertaken only after acoustic analysis and installation of noise insulation. Conventional construction with closed windows and fresh air supply systems or air conditioning will normally suffice. ⁴ Normally Acceptable--land use satisfactory, buildings need no special noise insulation.				
Source: California Office of Noise Control, 1976.				

County's noise level requirements (which are also codified in the County Building Code), and states that construction noise should occur during times that are not noise-sensitive (generally between 8 A.M. and 6 P.M., Monday-Friday).

Alameda County Building Code. Section 3502 of the County Building Code ("Noise Insulation From Exterior Sources") includes noise level specifications for residential structures. The ordinance adopts a CNEL standard of 45 dB inside all new residential construction. Further, any proposed residential construction within a CNEL contour of 60

dB requires an acoustical analysis showing that the structure has been designed to limit intruding noise to the prescribed level of 45 dB.

Alameda County Noise Ordinance. The County Noise Ordinance, adopted in 1982, establishes exterior noise level standards for two categories of "receiving" land uses. These standards are summarized below in Table 5.6-2.

Alameda County Zoning Ordinance. The County Zoning Ordinance sets performance standards with respect to exterior noise levels on industrial properties. No discernable noise from industrial districts is allowed to impact on adjacent residential districts. The ordinance also places restrictions on noise levels at quarries, and on home occupation noise within residential districts.

Alameda County Airport Land Use Policy Plan. This document, adopted by the Airport Land Use Commission of Alameda County in July 1986, establishes Noise Impact Zones for all of the County's airports. Within these zones, a number of policies are applicable. These include: adherence to California airport noise standards and the state's General Plan noise element requirements; sound insulation to ensure that interior noise levels do not exceed 45 dB CNEL for new residential, educational, and health-related uses; and utilization of land use compatibility standards in evaluating proposed projects. The Airport Land Use Commission adopted an Airport Protection Area (APA) around the Livermore Municipal Airport in 1993 as an amendment to the Land Use Policy Plan; the APA is a zone around the airport in which new residences may not be built.

Incorporated Cities. The cities in the planning area have adopted the standards recommended by the State of California which require that new residential development not exceed 60 dBA Ldn for exterior noise levels and 45 dBA Ldn for interior noise levels. In addition to this basic limit, the City of Pleasanton applies noise criteria in siting and conditioning new land uses.

Existing Noise Sources

With the exception of the three incorporated cities and the freeways passing through the planning area, the East County is predominantly agricultural and open space with few noise sources of its own. Overall noise levels in protected valleys are generally quite low, ranging from 30 to 45 dBA Ldn. The levels are generally dependent on wind direction, wind speeds and atmospheric temperature profiles, as well as how close and how visible a significant noise source is.

The sources of community noise can be classified into two groups: *line sources* and *fixed point sources*. Line sources include freeways, highways, transit vehicles, railroads, aircraft, and transmission lines. Fixed point sources include industries, commercial establishments, individual residences, some recreational facilities, public transportation terminals, railroad yards, and airport ground facilities. The two types of noise affect people to varying degrees,

depending on the characteristics of the source and the proximity and sensitivity of the receptors.

TABLE 5.6-2		
Alameda County Exterior Noise Level Standards (dBA)		
Receiving Land Use: Single or Multiple Family Residential, School, Hospital, Church, Public Library Properties		
Cumulative Number of Minutes in any 1-Hour Time Period	Daytime 7 A.M. - 10 P.M.	Nighttime 10 P.M. - 7 A.M.
30	50	45
15	55	50
5	60	55
1	65	60
0	70	65
Receiving Land Use: Commercial Properties		
30	65	60
15	70	65
5	75	70
1	80	75
0	85	80
Source: Alameda County Noise Ordinance, 1982		

Line Noise Sources. Freeways and arterial streets with heavy traffic are the most pervasively intense sources of noise in the area. The level of vehicular noise generally varies according to the volume of traffic, the percent of trucks, the speed of the traffic, and the distance from the source. The major noise-generating routes in the planning area are I-580, I-680, the Vallecitos Road segment of State Route 84, Dublin Boulevard, and Stoneridge Drive; other notable noise-generating arterials include Foothill Road/San Ramon Boulevard, Stanley Boulevard, Hopyard/Dougherty Road, and Santa Rita/Tassajara Road. Railway operations and transmission lines in the planning area serve as additional sources of line noise.

Lawrence Livermore National Laboratories (LLNL) and Sandia National Laboratories Livermore (SNLL). Modeling of noise contours for streets in the vicinity of LLNL and SNLL was conducted in 1992 by the U.S. Department of Energy and the University of California. These streets included First Street, Vasco Road, Greenville Road, and East Avenue. The portions of these streets with the highest noise levels were Vasco Road between I-580 and Patterson Pass Road, and West Avenue west of Buena Vista Avenue. These two roadways had noise levels of 70 dBA within 65 feet of the roadway centerline. All of the modeled roadways had noise levels over 60 dBA at 50 feet from the centerline of the near travel lane.

Transmission Lines. High-powered transmission lines in the area generate a high frequency, cracking noise from discharges in the air ("corona") and the tower hardware ("microgap sparking"). These could be of concern for residential development along transmission line right-of-ways. Transmission lines may be audible for distances of 500 to 1,000 feet during humid periods (WPM Planning Team, 1989).

BART. Above-ground BART operations contribute substantially to ambient noise levels at land uses adjacent to BART tracks. Noise levels in areas affected by BART operations are as follows: the 70 dBA Ldn contour lies approximately 100 feet from the tracks, and the 60 dBA Ldn contour approximately 400 feet from the tracks (Environmental Science Associates, 1991). Although there are currently no rapid transit operations in the East County, BART plans to extend its services to Dublin by 1995 and to Livermore sometime after 2010.

Fixed Point Noise Sources. Many industrial processes are sources of fixed point noise. Commercial business establishments also have some potential for noise impacts when integrated into residential areas. Most noise associated with commercial businesses is caused by traffic generation and auxiliary equipment such as refrigeration plants and air conditioning equipment. Most of these industrial and commercial land uses are concentrated in Dublin, Pleasanton, and Livermore and are generally located along the I-580 corridor. Windfarms in the Altamont Hills also generate noise when wind turbines are operating.

Fixed point noise sources can also include individual residences (through use of vehicles, power equipment, etc.), airport ground facilities, public transportation terminals, railroad yards, and some recreational facilities; concerts, special events and other activities generating amplified outdoor sound can also pose noise problems. Major fixed point noise sources in the planning area are discussed below.

Lawrence Livermore National Laboratories (LLNL) and Sandia National Laboratories Livermore (SNLL). Major sources of noise at LLNL and SNLL include vehicle traffic and stationary noise sources such as heating, ventilating and air conditioning equipment. The High Explosives Application Facility (an indoor high explosives research facility at LLNL that tests explosives), construction activities, and a pistol and firing range at SNLL are all considered to be occasional noise sources. The explosives facility creates impulse noise that can be felt/heard along Vasco Road (the western border of LLNL),

and the firing range creates noticeable impulse noise at the southern end of the site. Noise monitoring surveys conducted in 1991 around the exterior of LLNL and SNLL show that vehicular traffic was the dominant noise source.

LLNL Site 300. Major noise sources within this site at the County's eastern border include high explosives testing, vehicular traffic, and stationary noise sources such as heating, ventilating and air conditioning equipment (cooling towers, pumps and fans, etc.). Construction activities and a pistol/firing range are considered to be occasional noise sources. Explosives testing can be heard at least a mile from the facility (U.S. Department of Energy and University of California, 1992).

Livermore Municipal Airport. Although this airport lies within the city limits of Livermore, much of the land to the north, south and west of the facility is undeveloped and unincorporated. However, substantial portions of this unincorporated area are contained within the spheres of influence of Livermore, Dublin, and Pleasanton, and could eventually be annexed by these cities.

In general, urban development near existing airports poses a dilemma for airports. As population and the economy grow, there is a potential for increased demand for airport-related services. However, due to land pressure, new residents often live in residential areas adjacent to or near the flight paths of airports, thus leading to complaints from residents regarding airport noise and safety issues. In many cases, complaints lead to restrictions on the operations of airports and aircraft, and sometimes to closure of the airport.

Noise complaints received by the airport generally fall into one of the following categories: heavy, low-flying transport aircraft; business jet aircraft turning over the cities of Livermore or Pleasanton; and repetitive exposure from flight training activity (particularly on weekends). All noise complaints received by the airport have been from residents of either Pleasanton or Livermore. Since the vast majority of flights depart in a westerly direction, most of the complaints received from Pleasanton are due to takeoff noise. Livermore complaints, by contrast, stem from a combination of straight-in arrivals and pattern traffic.

An airport protection area (APA) around the Livermore Municipal Airport was adopted by the Alameda County Airport Land Use Commission (ALUC) on January 13, 1993 to address this situation. The APA, codified in the *Alameda County Airport Land Use Policy Plan*, is defined as "a zone around the airport where new residential developments are prohibited in order to protect the airport" (see Figure 10). The airport protection area would also prohibit the intensification of existing residential development within the APA. (It should be noted, however, that there are areas outside of the APA which could still be subject to noise impacts from aircraft).

A study for the APA found that single-event noise levels for aircraft flying into and out of the airport were of sufficient magnitude to interfere with outdoor speech

communications at close-in residential areas and in those undeveloped areas north of I-580 where development has been proposed. On occasion, these noise levels were deemed sufficient to interfere with indoor speech communication as well. Noise abatement procedures aimed at mitigating these impacts have been established by the Livermore Airport Commission. The APA is also discussed in *Chapter 5.1*.

Landfills. Solid waste disposal and transfer facilities produce heavy equipment and truck noise. The access roads for landfills may be significant sources of community noise due to the large volume of vehicles. Landfills in the planning area include the Vasco Road and Altamont Sanitary Landfills. Analyses of these two sites indicate that the noise impact of existing operations are not significant, due primarily to the relative isolation of the landfill operation areas, the small number of sensitive receptors, and the small contribution of landfill-related traffic to the overall traffic on I-580.

It has been calculated that the 60 dBA CNEL standard would be met approximately 600 feet from a landfill if noise generation was limited to 8 hours in the daytime, or at least 1400 feet from the landfill if operations occurred 24 hours per day. It is estimated that a buffer zone of 2640 feet would be sufficient to allow standards to be met at the limits of such a zone (Brady & Associates, 1988).

Construction Noise. Construction activity in the planning area may result in temporarily elevated noise levels which could affect nearby residences. Noise from construction stems from activities such as ground clearing, earth-moving, and pile driving--activities which may generate noise levels of up to 90 dBA at a distance of 50 feet.

Mining Noise. Noise-generating activities associated with the mining of construction aggregates include both the mining itself and related functions such as processing and transportation. Noise generated by mining activity stems primarily from large machinery such as scrapers, bulldozers and earthmovers; processing noise centers around the processing plant itself; and transportation noise produced by the trucks and railroads used in shipping the aggregate to other areas. Noise levels resulting from these operations can vary considerably, depending on the type and amount of activity, and the depth of the quarrying.

The East County quarry areas which have received complaints from nearby residents all fall within the bounds of the Quarry Subarea, located between Pleasanton and Livermore. Quarries are also located in the Sunol Valley. Mining of construction aggregates in these areas is likely to continue for the foreseeable future. The potential for noise impacts on adjacent residential areas will thus continue to exist, and the possibility of further residential encroachment means that noise impacts may eventually increase.

Agricultural Noise. Cultivated and uncultivated agricultural uses are primarily located in the northeastern (Mountain House) and central (South Livermore Valley) portions of the planning area. Agricultural activity such as early morning irrigation or night harvesting

can produce unwanted noise that may lead to complaints from adjacent residences. Exterior noise generated at wineries occurs during the crush season and is usually less than 60 dBA at distances greater than 300 feet. There have been few complaints from residences near the vineyards in the South Livermore Valley area.

Windfarm Noise. Since the windfarms in Alameda County are generally located in remote, sparsely-populated areas near the Altamont Pass, complaints regarding noise have been minimal. Noise problems have been further minimized by strict noise setbacks which have been established for wind turbines. Standard Conditions of Approval for windfarms require a setback of at least 1000 feet upwind from any existing dwelling, and 300 feet in any other direction from any existing dwelling or building site. In the event a reasonable noise complaint is received by the County--or that noise levels from a wind turbine exceed 55 dBA at the exterior of any dwelling unit within a minimum distance of 1000 feet--the complaint will be addressed via the steps outlined in the Standard Conditions of Approval of Windfarms.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2 of the Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- an overall increase in noise levels, owing to new development and population growth.
- a potential incompatibility of sensitive land uses with nearby noise sources.
- exposure of existing and proposed uses to a significant increase in roadway noise.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Airports

Policy 140: The County shall protect noise sensitive land uses adjacent to the Livermore Airport through zoning, height restrictions, noise insulation, aviation easements, and other techniques.

Aviation

Policy 199: The County shall require that, where conflicts between a new use and the airport that could interfere with the airport's operations are anticipated, the burden of mitigating the conflicts will be the responsibility of the new use.

Noise

Policy 265: The County shall endeavor to maintain acceptable noise levels throughout East County.

Policy 266: The County shall limit noise sensitive land uses in areas exposed to high noise levels according to the compatibility guidelines contained in the Noise Element of the Alameda County General Plan.

Policy 267: The County shall require noise studies as part of development review for projects located in areas exposed to high noise levels.

Program 100: The County shall investigate the use of noise buffer zones, building design modifications, lot orientation, soundwalls, earthberms, landscaping, building setbacks, and real estate disclosure notices to mitigate noise impacts generated by transportation-related and stationary sources, as specified in the Noise Element of the Alameda County General Plan.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

The noise impact analysis was developed for the plan's 2010 holding capacity based on traffic model runs using the Tri-Valley Transportation Model (TVTM) and *East County Area Plan* land uses for the year 2010. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region (as projected by ABAG), and for the San Joaquin Valley (as projected by San Joaquin County). The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan).

Cumulative development of all projects within the nine-county Bay Area (based on ABAG projections)--as well as development in San Joaquin County--was included in the year 2010 land use projections used in the Tri-Valley Transportation Model run conducted for the project, and is included in this noise analysis. The traffic volumes on which the noise analysis is based is described in more detail in the Transportation section of this EIR. A complete description of the land use, trip distribution, and network assumptions used in the TVTM are described in a report by Barton-Aschman Associates entitled "Draft Report: Tri-Valley Transportation Model" (April 1993).

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect "if it will increase substantially the ambient noise levels for adjoining areas." Two parameters are typically used in environmental acoustics to identify noise impacts. One is the absolute level of the noise; the other is the relative change in noise levels resulting from the project. For purposes of this EIR, absolute noise levels will be considered significant if they exceed 60 dB Ldn (exterior) or 45 dB Ldn (interior) in existing or future residential areas. Relative noise levels in existing residential areas will be considered significant if there is a 6 dB level of increase; or if, at the 4-5 dB level of increase, a change in land use compatibility category occurs (see Table 5.6-1).

Potential Impacts and Mitigation Measures

Potential Impact 5.6-1: Increased traffic resulting from growth under the plan could expose some existing residential land uses to a significant increase in noise levels.

Increases in noise related to the growth under the plan will be most evident along major transportation corridors. Existing land uses along noisy corridors such as Interstate 580 and 680 are currently exposed to levels in excess of those considered "normally acceptable" for residential development if they do not have noise barriers or appropriate setbacks (refer to Figure 40 in the Background Reports, *East County Area Plan - Volume 2* for 1990 noise contours along the two interstates).

Noise contours for this plan were generated using a noise prediction model which is based upon the Federal Highway Administration's Traffic Noise Prediction Model (FHWA RD-77-108) and incorporates the California Vehicle Noise Emission Level Curves. The FHWA method predicts the average hourly noise level along a roadway based on the number of vehicles, the speed of the vehicles, and the percentage of medium and heavy trucks. The noise contours referenced are based on an extremely conservative model which does not account for topographic features, vegetation, soundwalls, buildings, and other structural barriers which may attenuate sound levels. Contours in many areas will actually be narrower, given the acoustical shielding which is provided in many places by the built and natural environments.

Figure 17 shows projected 60 dB contours for East County traffic noise under the proposed plan in the year 2010 (the year for which the Tri-Valley Transportation model was developed). Table 5.6-4 lists the 2010 contour distances by roadway and roadway link. A comparison with 1990 contour distances (see Table 5.6-3) shows that in 2010, the 60 dB contour corridor would be wider along many of the major roadways. As a result, some existing residences may be exposed to CNEL noise levels that exceed 60 dB.

Although projected traffic noise for the year 2010 is not expected to increase dramatically on roadways within the planning area--all increases would be under the 6 dB level--certain areas

could exceed acceptable standards. This could adversely affect existing noise-sensitive land uses that are already located in noisy areas. Increases in relative noise levels for the 2010 projection are shown in Table 5.6-5. Most of the roadways in the study area would experience an increase of 3 dB, which is considered barely noticeable; no areas would see an increase of 6 dB, which would automatically constitute a significant impact. A 4 to 5 dB increase would occur along portions of Stoneridge Drive and Vallecitos Road where existing CNELs are all above 60 dB. Absent mitigation measures, such an increase would change the land use compatibility category for certain residential properties in these areas from "normally acceptable" to "conditionally acceptable".

Plan Policies and Programs: Policy 265 states the County's intent to maintain acceptable noise levels throughout the East County; policy 267 requires noise studies for projects proposed in areas exposed to high noise levels. Program 100 delineates noise reduction techniques which can be used in implementing the above policies, and calls for the County to promote and require such techniques, as appropriate.

These policies only partially address the potential impact to existing residential and other sensitive land uses adjacent to future major development projects; and, they are inadequate to address noise impacts on existing residences from traffic sources along interstates or major traffic routes. (This DEIR considers the retrofitting of existing residences to be infeasible due to the difficulty in equitably spreading the cost among highway users.) Although soundwalls are constructed by Caltrans where noise levels exceed acceptable standards on state routes, some existing residences could still be significantly affected by noise increases along major traffic routes where soundwalls are not feasible or effective.

Level of Significance: While the mitigation measures listed below would reduce potential impacts, no mitigation measures are available to lessen the impact to a less-than-significant level; therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.6-1(a): Proposed Modification to Policy 267: (new language is shown in *italics*; deleted language is ~~struck-out~~) The County shall require noise studies as part of development review for projects located in areas exposed to high noise levels *and in areas adjacent to existing residential or other noise-sensitive land uses. Where noise studies show that noise levels in areas of existing housing will exceed "normally acceptable" standards (as defined by the California Office of Noise Control Land Use Compatibility Guidelines), major development projects shall contribute their prorated share to the cost of noise mitigation measures such as those described in Program 100.*

Mitigation Measure 5.6-1(b): Proposed Modification to Program 100: (new language is shown in *italics*; deleted language is ~~struck-out~~) The County shall ~~investigate~~ *require* the use of noise ~~buffer zones~~, *reduction techniques (such as buffers*, building design modifications, lot orientation, soundwalls, earthberms, landscaping, building setbacks, and real estate disclosure notices) to mitigate noise impacts generated by transportation-

related and stationary sources as specified in the *California Office of Noise Control Land Use Compatibility Guidelines* ~~Noise Element of the Alameda County General Plan.~~

Potential Impact 5.6-2: The plan's siting of sensitive land uses in areas to be exposed to noise levels exceeding 60 dB could result in a significant noise impact.

Future proposed residential land uses within the projected 60 dB contour along the I-580 and I-680 corridors, as well as other roadways identified in Table 5.6-4, could be exposed to noise levels in excess of 60 dB, absent mitigation. Exposure to noise levels in excess of 60 dB ("normally acceptable") would constitute a significant impact under the criteria of significance outlined above.

Plan Policies and Programs: The policies and programs listed in Section B. above lack the specificity to mitigate this impact. As noted above, both policy 265 and program 100 address the maintenance of acceptable noise levels in the planning area. Policy 266 acts to limit new noise-sensitive uses exposed to high noise levels. Policy 267 requires noise studies for projects located in areas exposed to high noise levels.

Policy 266 should be reworded to specify that the phrase "noise-sensitive land uses" relates to new development, and the reference to "high" noise levels should specify that it includes all such development within the 60 dB contour. The possibility of addressing high noise levels through mitigation (in addition to the option of limiting noise-sensitive uses) should also be mentioned.

Level of Significance: With implementation of policy 267 (as modified in Mitigation Measure 5.6-1) and program 100 (as modified in Mitigation Measure 5.6-1), and adoption of Mitigation Measure 5.6-2 delineated below, no significant impact would result.

Mitigation Measure 5.6-2: Proposed Modification to Policy 266: The County shall limit *or appropriately mitigate new noise-sensitive development* ~~land use~~ in areas exposed to *high projected* noise levels *exceeding 60 dB* based on the ~~guidelines contained in the Noise Element of the County General Plan~~ *California Office of Noise Control Land Use Compatibility Guidelines.*

Potential Impact 5.6-3: The plan's siting of sensitive land uses within projected 60 dB noise contours generated by the Livermore Municipal Airport could result in a significant noise impact.

Figure 18 shows 2011 projected noise contours for the Livermore Municipal Airport. As shown on the Land Use Diagram, some high density land uses would be located within the 60 dB noise contour resulting in a potential noise impact.

Policies and Programs: Policy 140 calls for the protection of noise sensitive land uses adjacent to the airport through various techniques. As discussed above, Policy 265 states the County's intent to maintain acceptable noise levels throughout the East County; policy 267 requires noise studies for projects proposed in areas exposed to high noise levels; program 100 delineates noise reduction techniques which can be used in implementing the above policies, and calls for the County to promote and require such techniques, as appropriate; policy 266 acts to limit new noise-sensitive uses exposed to high noise levels. These policies lack the specificity to properly mitigate the impact. However, modifications proposed under the two previous impact discussions, in conjunction with Mitigation Measure 5.1-3, provide appropriate mitigation for this impact.

Level of Significance: With implementation of policy 267 (as modified in Mitigation Measure 5.6-1(a)), program 100 (as modified in Mitigation Measure 5.6-1(b)), policy 266 (as modified in Mitigation Measure 5.6-2), and Mitigation Measure 5.1-3, no significant impact would result.

Mitigation Measure 5.6-3: No additional mitigations needed.

TABLE 5.6-3
Noise Contour Distances (1990)

Roadways		Distance to LDN Contour in Feet				
Street	Link	80 db.	75 db.	70 db.	65 db.	60 db.
Dublin Boulevard	San Ramon Road to Village Parkway	-	-	-	93	200
	Village Parkway to (Midpoint)*	-	-	-	81	175
	(Midpoint) to Dougherty Road	-	-	-	71	154
	Dougherty Road to (Road A)	-	-	-	-	61
Stoneridge Drive	Foothill Road to I-680	-	-	-	-	-
	I-680 to Johnson Drive	-	-	-	90	194
	Johnson Drive to Denker Drive	-	-	-	89	192
	Denker Drive to Hopyard Road	-	-	-	73	158
	Hopyard Road to Willow Road	-	-	-	55	119
	Willow Road to Hacienda Drive	-	-	-	54	117
	Hacienda Drive to W. Las Positas	-	-	-	-	103
	W. Las Positas to Santa Rita Road	-	-	-	-	84
Vallecitos Road	Santa Rita Road to (Point A)	-	-	-	-	71
	I-680 to Isabel Avenue	-	-	-	91	197
	Isabel Avenue to E. Vineyard Avenue	-	-	-	91	197
I-680	E. Vineyard Avenue to Holms Street	-	-	-	91	197
	Bollinger Canyon Road to Alcosta Boulevard to I-580	-	105	227	489	1053
	I-580 to Stoneridge Drive	53	115	247	532	1147
	Stoneridge Drive to Bernal Avenue	-	104	225	485	1044
	Bernal Avenue to Sunol Boulevard	-	105	225	486	1046
	Sunol Boulevard to Vallecitos Road	-	107	231	499	1074
	Vallecitos Road to Plan Boundary	57	123	266	573	1234
I-580	Vallecitos Road to Plan Boundary	87	187	402	867	1867
	W. San Ramon Road to (Foothill)	86	185	399	859	1852
	(Foothill Road) to I-680	72	154	332	716	1543
	I-680 to Dougherty Road	87	187	402	867	1867
	Dougherty Road to Tassajara Road	93	199	429	925	1993
	Tassajara Road to Isabel Avenue	90	194	417	899	1938
	Isabel Avenue to N. Livermore	72	155	335	722	1555
	N. Livermore to First Street	75	161	348	749	1615
Union Pacific Railroad	First Street to Vasco Road	82	176	379	816	1759
	Vasco Road to East of Vasco	67	145	311	671	1445
		-	-	100	240	517

*Midpoint, Road A and Point A, etc. typically represent a location midway between two consecutive roadways.

Source: Charles Salter Associates, 1993

TABLE 5.6-4
Noise Contour Distances (2010)

Roadways		Distance to LDN Contour in Feet				
Street	Link	80 db.	75 db.	70 db.	65 db.	60 db.
Dublin Boulevard	San Ramon Road to Village Parkway	-	-	62	133	287
	Village Parkway to (Midpoint) ¹	-	-	51	109	235
	(Midpoint) to Dougherty Road	-	-	-	95	206
	Dougherty Road to (Road A)	-	59	128	276	595
	(Road A) to Hacienda Drive	-	52	113	243	523
	Hacienda Drive to Tassajara Road	-	58	124	268	577
	Tassajara Road to Fallon Road	-	-	107	231	497
	Fallon Road to Airway Boulevard	-	-	91	195	420
	Airway Boulevard to Collier Canyon	-	-	-	97	210
	Collier Canyon to East of Collier Canyon	-	-	55	118	255
Stoneridge Drive	I-680 to Johnson Drive	-	-	54	116	250
	Johnson Drive to Denker Drive	-	-	54	116	251
	Denker Drive to Hopyard Road	-	-	-	102	220
	Hopyard Road to Willow Road	-	-	-	88	190
	Willow Road to Hacienda Drive	-	-	-	72	155
	Hacienda Drive to W. Las Positas	-	-	-	93	201
	W. Las Positas to Santa Rita Road	-	-	-	83	179
	Santa Rita Road to (Point A)	-	-	-	68	146
	(Point A) to El Charro Road	-	-	-	-	89
	El Charro Road to (Point B)	-	-	-	62	134
	(Point B) to Isabel Avenue	-	-	-	98	211
Las Positas	Isabel Avenue to Arlington Road	-	-	-	94	203
	Arlington Road to Murrieta Boulevard	-	-	-	76	164
Isabel Avenue	I-580 to Las Positas Boulevard	-	-	99	213	459
	Las Positas Boulevard to Stanley Boulevard	-	-	95	205	441
	Stanley Boulevard to Concannon Road	-	-	77	165	355
	Concannon Road to E. Vineyard Avenue	-	-	67	143	309
	E. Vineyard Avenue to E. Vallecitos Road	-	-	58	126	271
Cayetano Parkway	I-580 to (Midpoint A)	-	-	-	102	220
	(Midpoint A) to (Road B)	-	-	50	108	233
	(Road B) to (Midpoint B)	-	-	-	97	210
	(Midpoint B) to Livermore Avenue	-	-	-	84	182
	Livermore Avenue to (Midpoint C)	-	-	-	67	144
	(Midpoint C) to (Road C)	-	-	-	54	116
	(Road C) to Vasco Road	-	-	-	65	140
	Vasco Road to East of Vasco Road	-	-	-	88	189

TABLE 5.6-4 (Continued)

Noise Contour Distances (2010)

Vallecitos Road	I-680 to Isabel Avenue	-	-	83	179	387
	Isabel Avenue to E. Vineyard Avenue	-	-	-	102	221
	E. Vineyard Avenue to Holms Street	-	-	51	111	238
I-680	Bollinger Canyon Road to Alcosta Boulevard to I-580	59	127	273	587	1265
	I-580 to Stoneridge Drive	63	137	294	634	1366
	I-580 to Stoneridge Drive	60	129	277	597	1286
	Stoneridge Drive to Bernal Avenue	62	133	286	617	1329
	Bernal Avenue to Sunol Boulevard	61	131	283	609	1312
	Sunol Boulevard to Vallecitos Road	70	151	326	703	1515
	Vallecitos Road to Plan Boundary	106	228	490	1056	2275
I-580	Plan Boundary to Foothill	106	228	490	1056	2275
	Foothill Road to I-680	93	201	434	934	2013
	I-680 to Dougherty Road	102	219	471	1015	2188
	Dougherty Road to Tassajara Road	111	239	515	1109	2390
	Tassajara Road to Isabel Avenue	118	255	549	1183	2550
	Isabel Avenue to N. Livermore	105	225	485	1045	2252
	N. Livermore to First Street (SR-84)	96	207	447	963	2075
	First Street to Vasco Road	99	213	458	987	2127
Union Pacific Railroad	Vasco Road to East of Vasco Road	83	179	387	833	1794
		-	-	100	240	517 ²
<p>Notes:</p> <p>¹Midpoint, Road A and Point A, etc. typically represent a location midway between two consecutive roadways.</p> <p>²Same as existing data</p> <p>Roadway noise levels were calculated using the Federal Highway Administration's Traffic Noise Prediction Model (FHWA-RD-77-108). In order to accurately reflect noise levels on California roads, California Vehicle Noise Emission Level curves were also incorporated into the model. Peak hour traffic volumes and average travel speeds were used to calculate the peak hour traffic volumes and average travel speeds were used to calculate the Peak Hour Leq, which was assumed to be equivalent to the day/night average sound level (DNL). Contour intervals were based on the calculated reference DNL at 50 feet from the roadway centerline. By applying a 4.5 dB reduction for each doubling of distance from the roadway centerline, the 60, 65, 70, 75 and 80 dB intervals were calculated.</p> <p>Source: Charles Salter Associates, 1993</p>						

SOURCES

- Airport Land Use Commission of Alameda County, Airport Land Use Policy Plan, adopted July 18, 1986.
- Alameda County, Noise Element of the County General Plan, 1975.
- Alameda County, County Noise Ordinance, adopted January 19, 1982.
- Alameda County Planning Department, Draft EIR for the South Livermore Valley Area Plan, June 1992.
- Brady & Associates, Draft EIR for the Altamont Hills Landfill Program, October 1988.
- Baseline Environmental Consulting, Draft EIR for the Kaiser Sand and Gravel Company Surface Mining Permit and Reclamation Plan (SMP-31), August 1991.
- California Department of Health Services, Office of Noise Control, California Noise Insulation Standards. State Building Code (Part 2, Title 24, CCR), December 1988.
- California Office of Noise Control, Land Use Compatibility Guidelines, 1976.
- City of Dublin, Study Report 1, West Dublin General Plan Amendment Specific Plan Study, prepared by WPM Planning Team, November 1989.
- City of Dublin, Draft EIR for Western Dublin Specific Plan/General Plan amendment, prepared by WPM Planning Team, December 1991.
- City of Livermore, Supporting Documentation and Background Information for Airport Protection Area at Livermore Municipal Airport (draft report), prepared by McClintock, Becker & Associates, June 1992.
- City of Pleasanton, Draft EIR for the West Pleasanton Sphere of Influence Study, October 1990.
- Consultants in Engineering Acoustics, Estimated Noise Levels in Residential Areas from Quarry Operations in Arroyo del Valle, September 1992.
- Contra Costa Water District, Draft EIR for Vasco Road and Utility Relocation Project, prepared by Jones & Stokes Associates, February 1990.
- Environmental Science Associates, Draft EIR for Alameda County Congestion Management Plan, 1991.
- Environmental Protection Agency (Office of Noise Abatement and Control), Noise Effects Handbook, 1981.
- McClintock, Becker & Associates, Supporting Documentation and Background Information for Airport Protection Areas, 1992.

Metropolitan Transportation Commission, Draft EIR for the Regional Transportation Plan, prepared by jhk Associates, April 1991.

State Route 4 Bypass Authority, East County Corridor-Delta Expressway EIR (Administrative Draft), prepared by Environmental Science Associates, February 1991.

U.S. Department of Energy and the University of California, Draft EIS and EIR for Continued Operation of LLNL and SNLL, 1992.

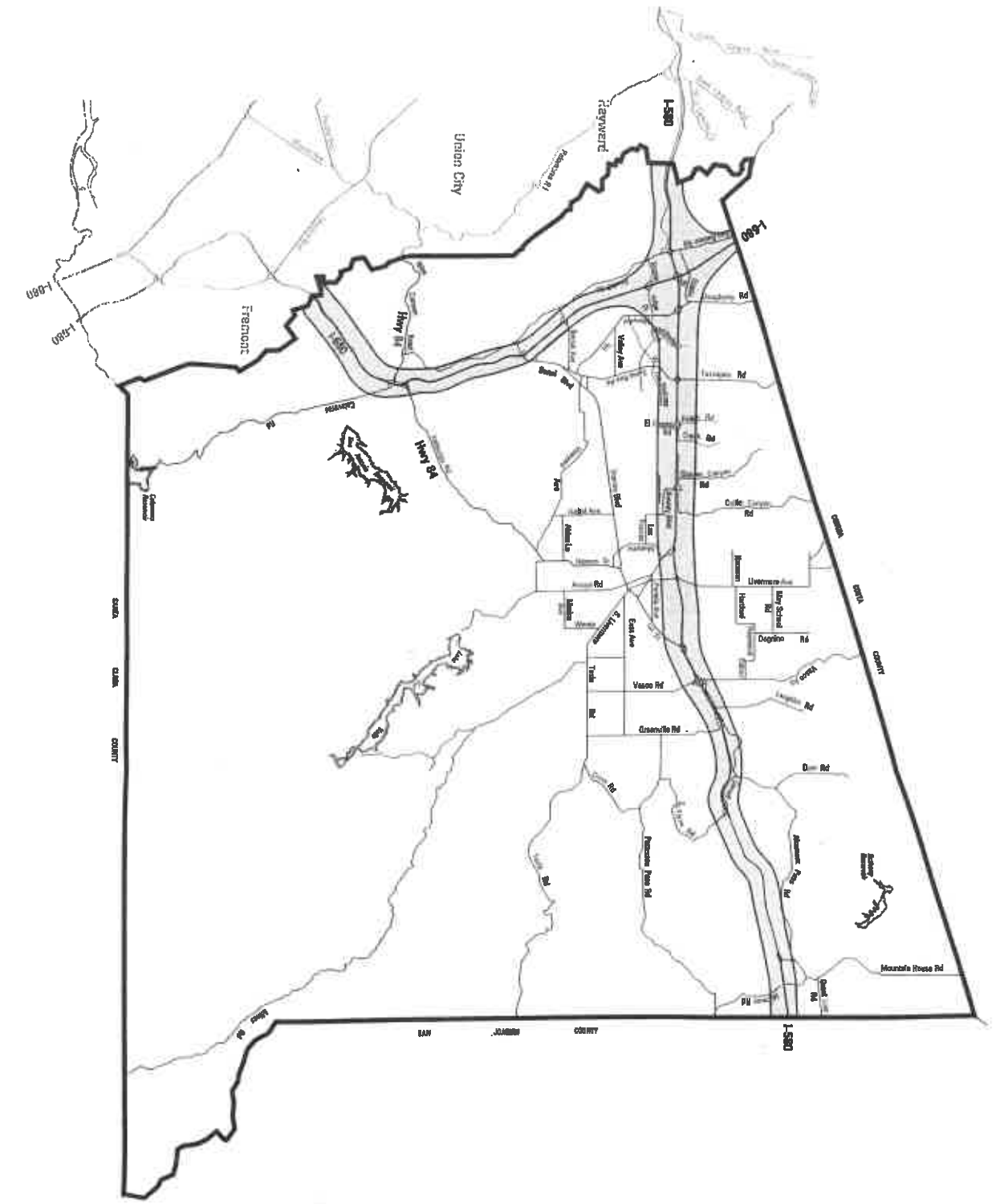
WPM Planning Team, West Dublin GPA SP Study, 1989.

Noise Contours (2010): Roadways

LEGEND

Areas Exposed to a DNL of 60dB or greater

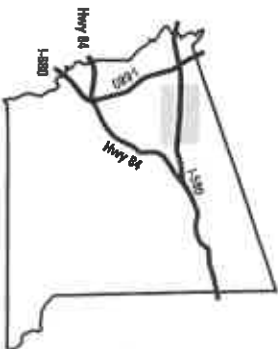
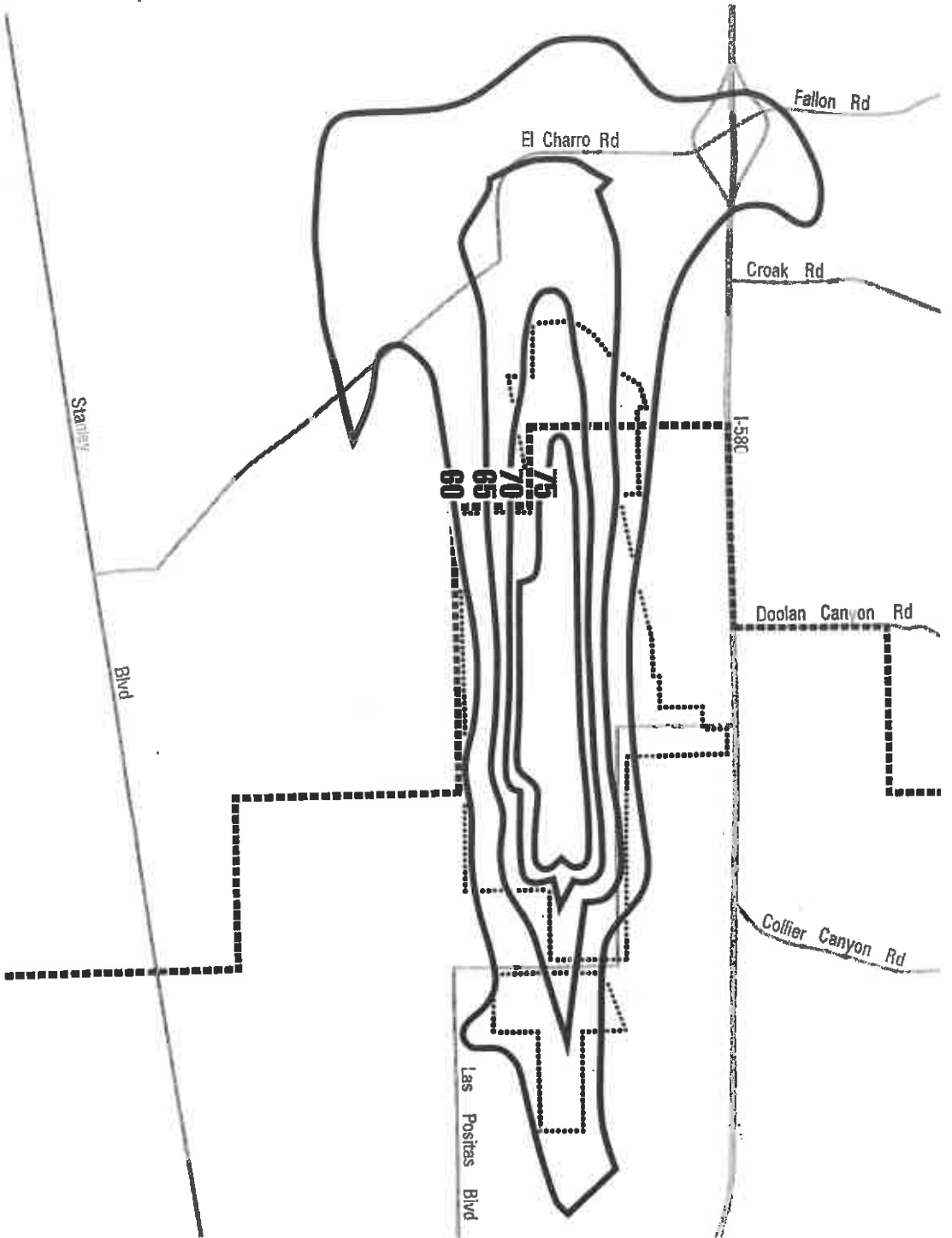
NOTE: Roadway noise levels were calculated using the Federal Highway Administration's Traffic Noise Prediction Model (FTRIP-2007-10). In order to determine the noise level, the California Department of Transportation (Caltrans) Traffic Noise Prediction Model was used. The model's output is a noise level (DNL) which is a measure of the noise level. The model's output is a noise level (DNL) which is a measure of the noise level. The model's output is a noise level (DNL) which is a measure of the noise level.



Noise Contours (2011): Livermore Municipal Airport

LEGEND

-  CNE Noise Contour
-  Runways
-  Livermore City Limit
-  Airport Property Line



SOURCE: Macdonald, Becker & Associates, March 1992



FIG. 18

Chapter 5.7 - Biological Resources

A. EXISTING SETTING

The East County comprises approximately 418 square miles and contains some of the largest contiguous open space lands remaining in Alameda County. These open space lands contain a variety of plant communities and associated wildlife habitats that support a diversity of plant and animal species. The diversity in habitat is attributed to the various microclimatic conditions created by the dramatic topographical changes found in the East County. The East County is situated in the Diablo Range which consists of fairly rugged mountains with V-shaped valleys separated by flat intermountain valleys comprised of coalescing alluvial fans, low terraces and flood plains. The rugged mountains and steep valleys create moist microclimatic conditions which support the establishment of woodlands. The flat intermountain valleys overlain with alluvial soils provide favorable conditions for cultivation of a variety of crops. The intermountain valleys also retain portions of the Arroyos that helped form the valley and remnants of the associated bottomland riparian habitat.

A complete description of the existing biological resources identified in East County is provided in the Biological Resources Background Report in *Volume 2* of the *Draft East County Area Plan*. Following is a summary of the information provided in that report at a level sufficient for understanding the impact analysis provided in the following section.

To facilitate mapping efforts for vegetation types over such an expansive area as the East County, plant communities were grouped into six different vegetation associations; grassland, woodland, scrub, cultivated land, alkali sink scrub, and mixed conifers. Several specific plant communities have been identified within each major vegetation association. The extent of each of the vegetation associations in East County and a listing of the specific plant communities included in each association is provided on Figure 19.

Grassland

Grasslands occur throughout the planning area but the largest contiguous portions of this habitat are found on the valley floor and the well-drained slopes of the surrounding hills. Two types of grassland communities have been identified in the plan area; non-native grassland and valley needlegrass grassland. Non-native grassland is likely the most prevalent community with smaller areas of valley needlegrass grassland occurring occasionally. The major vegetative components of the non-native annual grassland include grasses such as soft chess (*Bromus mollis*), red brome (*Bromus rubens*), wild oats (*Avena spp.*), ripgut brome (*Bromus diandrus*) and fescue (*Vulpia myuros*). In the spring, many of the annual grasslands are interspersed with a variety of native wildflowers typical of the inner coastal ranges. The most commonly found species of wildflowers in these grasslands include lupine (*Lupinus spp.*), fiddleneck (*Amsinkia spp.*), popcorn flower (*Plagiobothrys*

nothofulvus), California poppy (*Eschscholzia californica*), owl's clover (*Orthocarpus purpurascens*) and clarkia (*Clarkia spp.*).

The valley needlegrass grasslands are found in small, discontinuous stands in the East County. These grasslands consists almost entirely of purple needlegrass (*Stipa pulchra*); a native perennial bunchgrass which was thought to dominate the valley grasslands once common throughout California. The decline of the valley needlegrass grasslands has been attributed to a combination of factors including invasion by alien plant species, changes in the kinds of animals and their grazing patterns, cultivation, and a reduction in the frequency of rangeland fire (Barbour, 1977). Because only remnant stands of this plant community exist in California, Valley needlegrass grassland is considered a significant natural community and, as a result, its status and distribution is monitored by the California Natural Diversity Data Base (CNDDB). Currently, the CNDDB has records of 44 stands of Valley needlegrass throughout the state, none of these are within the planning area. However, several occurrences of this community have been reported in Contra Costa County and San Joaquin County adjacent to the planning area near Bethany Reservoir by Jones & Stokes Associates (1987) and at LLNL Site 300 by Taylor and Davilla (1986), respectively.

Many wildlife species use grasslands for foraging and nesting. Reptiles such as the western fence lizard, common garter snake, and western rattlesnake breed in the annual grassland habitat (Basey and Sinclear 1980). Mammals inhabiting grasslands include black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger and coyote. The federally endangered San Joaquin kit fox is also found in and adjacent to the annual grasslands (U.S. Fish and Wildlife Service 1983). Common birds known to breed in annual grasslands include burrowing owl, short-eared owl, and western meadowlark. It also provides important foraging habitat for turkey vulture, northern harrier, American kestrel, black-shouldered kite and prairie falcon. (Mayer and Laudenslayer 1988).

Woodland

Woodland vegetation in the East County is found primarily in the hills and mountainous terrain of the western and southern portions of the planning area. In these areas, the moist microclimate created by the steepness and aspect of the slopes encourages the establishment of a woodland habitat dominated by oaks and intermixed with other broadleaved evergreen vegetation.

Three types of woodland plant communities are identified in the planning area; coast live oak forest, mixed evergreen forest, and riparian forest. While the coast live oak forest and mixed evergreen forest communities occur primarily in the hills, riparian forest is mostly associated with the Arroyos that flow through the valley floor. A brief description of the vegetation within each of these communities and the wildlife habitat they provide follows.

Coast live oak forest. The coast live oak forest community overlaps with the mixed evergreen forest in the canyons and steep hills of the East County, but the coast live oak

community is typically found higher up on the slopes, away from the canyon bottoms. The vegetation components of this community tolerate the drier microclimate existing nearer the ridgetops. This plant community is dominated by coast live oak (*Quercus agrifolia*) with some California buckeye (*Aesculus californica*) and California bay (*Umbellularia californica*). The canopy closure tends to be moderately dense in this forest and the understory vegetation is mostly grassland with scattered shrubs of poison oak (*Toxicodendron diversiloba*).

Oak trees provide food, shade, shelter and nesting habitat for a variety of wildlife species. The oak mast (acorns) provides an important autumn food source for wildlife such as the acorn woodpecker (*Melanerpes formicivorus*), dusky-footed woodrat (*Neotoma fuscipes*), and black-tailed deer (*Odocoileus hemionus columbianus*) (Zeiner et.al., 1990). Golden eagles and red-tailed hawks use the crowns of the oaks as nesting sites while other birds such as the western bluebird and American kestrel make their nests in trunk cavities. Many amphibian and reptile species live in the cool shady understory of the oaks and insects feed on the leaf litter and dead wood in this habitat.

Mixed evergreen forest. The mixed evergreen forest community occurs in canyon bottoms and cool east and north-facing slopes of the hills in the East County. This community differs from the coast live oak forest in that the canopy closure tends to be more dense and there is a greater diversity and density of understory vegetation. The canopy consists of coast live oak, California bay, big leaf maple (*Acer macrophyllum*) and madrone (*Arbutus menziesii*). Understory vegetation includes a diversity of shrubs such as poison oak, hazelnut (*Corylus cornuta*), creambush (*Holodiscus discolor*), and coffeeberry (*Rhamnus californica*).

The moist understory in this community provides critical summer retreat areas for amphibian species like the California newt (*Taricha torosa*). Other species such as the California slender salamander (*Batrachoseps attenuatus*) and the yellow-eyed salamander (*Ensatina eschscholtzi xanthopotica*) carry out their entire life cycle in the leaf litter of the woodland floor. The diversity of insect and reptile species inhabiting the understory of this community is likely greater than in the coast live oak forest due to the diverse vegetation composition. The types of mammals and birds using this habitat are similar to those found in the coast live oak forest.

Riparian woodland. Riparian woodlands occur throughout the East County along intermittent and perennial watercourses. The morphology of the channel has an effect on the assemblage of plant species that occur along these watercourses. Along creeks in hilly or mountainous terrain, the floodplain of the channel is restricted to a narrow zone along the creek edge. As a result, the canopy vegetation along these creeks consists of species less dependent on moisture provided in the riparian zone such as coast live oak, California bay and California buckeye. Along creeks in the bottomlands, the floodplain is more broad and, provided enough water flows in these drainages, can support a variety of more moisture-dependent canopy vegetation California sycamore (*Platanus racemosa*), alder (*Alnus rhombefolia*), Fremont cottonwood (*Populus fremontii*), and willow (*Salix spp.*). These bottomland riparian communities have undergone a significant decline in California in recent years due to a

variety of factors and therefore preservation of remnants of this community is a priority for several local and state agencies.

Remnants of bottomland riparian woodlands occur in the East County along reaches of several of the Arroyos. The upper reaches of the Arroyo Mocho are relatively undisturbed and retain a flat meandering floodplain with large sycamore trees and alder, Fremont cottonwood and willows where water is retained for longer periods. The Arroyo del Valle, below where it is dammed creating Lake del Valle also retains a flat meandering floodplain with sycamore and valley oak along the channel. In a reach of Arroyo del Valle just south of the Livermore city limits, the sycamore riparian habitat is the focus of a regional park and has also been designated as a significant natural community by CDFG. Much of the Arroyo Las Positas has been improved for flood control purposes resulting in a wide and deep channel. Though riparian woodland vegetation is sparse along the Arroyo Las Positas, emergent aquatic vegetation like cattail (*Typha latifolia*) and bulrush (*Scirpus robus*) has established in the channel. The upper reaches of the Arroyo Seco have steep-sided slopes that are vegetated with species from the adjacent grassland habitat. As the Arroyo flows northwesterly, the channel broadens and woodland tree species such as sycamore, valley oak and red willow occur. The Arroyo de la Laguna retains a dense and diverse riparian habitat along its course through the plan area. Several riparian trees, shrubs and herbs as well as emergent aquatic vegetation have established in the channel of Arroyo de la Laguna.

The riparian woodland community is used by a variety of wildlife which feed on the vegetation, drink from the stream, nest in the trees and find refuge in the shade from the exposure of adjacent grasslands. Since this community often occurs along a linear stream course, wildlife also use the riparian woodlands as travel corridors. Riparian woodlands provide valuable habitat for aquatic and terrestrial wildlife species.

Scrub

Scrub communities generally occur on arid south-facing slopes and above woodlands on the ridges within the East County. Three types of scrub communities have been identified in the planning area; diablan sage scrub, coastal sage scrub and baccharis brushland. The vegetation composition in each of these communities is similar but typically chamise dominates the diablan sage scrub, California sage dominates the coastal sage scrub and coyote brush dominates the baccharis brushland.

The scrub communities in the East County provide habitat for the Alameda whipsnake, a state-listed threatened species. Due to the relatively warm temperatures and exposure in the scrub habitats, several snakes and lizards are found in these areas. Western rattlesnake (*Crotalis viridis*), common kingsnake (*Lampropeltis getulus*), western fence lizard (*Sceloporus occidentalis*), and alligator lizard (*Gerrhonotus multicarinatus*) are common inhabitants of this community. The cover and foliage provided by the shrubs in this habitat support a number of birds including the wrentit (*Chamaea fasciata*), rufous-sided towhee (*Pipilo erythrophthalmus*) and California quail (*Callipepla californica*). No mammals are

restricted to this habitat but deer and grey fox use the vegetation year-round for cover and foraging.

Cultivated Land

Cultivated lands in the East County are used for dry land agriculture, row crops, and vineyards. A detailed discussion of agricultural uses in the planning area is provided in the *Agriculture Background Report*, Section A.

Croplands and orchards provide habitat for rodents, a variety of birds, deer and rabbits. Evergreen orchards can be especially beneficial to wildlife during inclement weather in winter or hot summer periods. Irrigated orchards can also provide water and shade for wildlife in the vicinity. Some species of birds and mammals have adapted particularly well to the orchard and vineyard habitats and consequently have become agricultural pests. The efforts to control these pests has resulted in intensive management efforts such as fencing, the use of sound guns, trapping and poisoning and other techniques (Mayer, et al., 1990).

Alkali Sink Scrub

Alkali sink scrub vegetation was once common throughout the central portion and western edge of the San Joaquin Valley and in valley bottoms of the inner Coast Ranges but it now only occurs in remnant stands in these areas. The alkali sink scrub vegetation in the East County is not extensive, occurring primarily around the Springtown area of the City of Livermore and east of the Altamont Hills near Mountain House Road. The CDFG considers alkali sink scrub a significant natural community because it supports plant and animal species not found in any other community and is declining in extent in California. Consequently, the CNDDB is tracking occurrences of this community and currently lists 44 locations, five of which are located in the East County.

The alkali sink scrub vegetation in the East County has established in areas of highly alkaline soils with low permeability where the groundwater table is high. The soils in these areas are seasonally saturated and slow to drain thereby generally supporting vegetation distinct from surrounding grasslands or woodland. Characteristic plant species found in the alkali sink scrub community include, iodine bush (*Allenrolfea occidentalis*), alkali weed (*Cressa truxillensis*), salt grass (*Distichlis spicata*), seepweed (*Suaeda fruticosa*), pickleweed (*Salicornia subterminalis*), alkali heath (*Frankenia grandifolia*) as well as the federally endangered palmate-bracted bird's beak (*Cordylanthus palmatus*) and federal candidates for listing - hispid bird's beak (*Cordylanthus mollis* ssp. *hispidus*) and San Joaquin saltbush (*Atriplex patula* ssp. *spicata*). In the spring, the alkali sink areas are laden with a variety of annual wildflowers dominated by alkali goldfields (*Lasthenia platycarpa*) which cast a bright yellow hue on the landscape.

Ponding occurs in the winter and early spring in microtopographic depressions of the alkali sink. This seasonal ponding supports a specialized fauna which have adapted to the cyclic water regime. Wildlife adapted to this regime include the California tiger salamander

(*Ambystoma californiense*), a California "Species of Special Concern", and three invertebrates proposed for federal listing; vernal pool fairy shrimp (*Branchinecta lynchi*), longhorn fairy shrimp (*Branchinecta longiantenna*) and California linderiella (*Linderiella occidentalis*). The alkali sink also provides habitat for the California ground squirrel, northern harrier (*Circus cyaneus*), burrowing owl (*Athene cunicularia*) and killdeer (*Charadrius vociferus*).

Mixed Conifers

Coniferous vegetation in the East County is limited in extent to areas of higher elevation (up to 4,000 feet) in the southern portion of the planning area (Figure 19). This coniferous vegetation includes modest stands of digger pine (*Pinus sabiniana*), Monterey pine (*Pinus radiata*) and Bishop pine (*Pinus muricata*). The vegetation composition and wildlife use in these stands is not well described due to their relative inaccessibility. It is expected that wildlife which use these stands are likely the same species found in adjacent woodland, grassland and scrub habitats.

Riparian and Seasonal Wetlands

Riparian and seasonal wetland habitats occur throughout the East County and can be associated with any of the communities described previously. These habitats form where there are natural drainages, seeps, seasonally inundated areas or other circumstances where water is available in sufficient amounts for portions of the year allowing establishment of moisture tolerant plant species. Riparian and wetland communities that have been identified in East County include; riparian woodlands associates with the arroyos, intermittent streams such as those shown on Figure 19, alkali wetlands, and northern claypan vernal pool.

The general distribution and importance of riparian woodland communities was described previously. While many of the arroyos which support riparian woodland vegetation flow intermittently, the alluvial nature of the parent material in the arroyos allows for the establishment and maintenance of the woodland species. Other intermittent drainages in East County do not occur on the same substrate and are often devoid of woody vegetation but can support a variety of instream flora when water is available. Intermittent drainages often occur at the base of the steep valleys throughout the plan area.

Alkali wetlands have developed on the highly alkali Rincon Solano, Clear Lake and Pescadero series soils (U.S. Soil Conservation Service 1977). In East County, they are typically found in the flat valley bottoms. Historical aerial photographs indicate that the alkali wetland communities in the Livermore, particularly in the vicinity of the Springtown area of Livermore were once more widely distributed. Over the years, land use activities have resulted in the loss and or conversion of this habitat.

Northern claypan vernal pool is listed as a Significant Natural Community by CDFG. Vernal pools develop in microtopographic depressions in level or gently undulating terrain. An impervious layer of silicate-based claypan underlies these pools and facilitates the

retention of water in the depressions. The pools are flooded intermittently or continuously throughout winter and spring and typically dry by late spring or summer. Northern claypan vernal pools are found distributed throughout the northeastern portion of the plan area.

Wetlands are important to a variety of wildlife who depend on the habitat for food, water and for some, to complete their life cycle. Several invertebrate and amphibian species have adapted to the ephemeral nature of the seasonal wetlands in East County. Aquatic invertebrates such as the fairy shrimp and crawling water beetles inhabit standing water while amphibian species such as western toad, California tiger salamander and Pacific tree-frogs may use the water for egg-laying and for rearing of young.

Special Status Species and Significant Natural Communities

Special status species and significant natural communities considered in this report include:

- species listed or proposed for listing as rare, threatened, or endangered, or listed as candidates by the U.S. Fish and Wildlife Service (USFWS)
- species listed as rare or endangered by the California Department of Fish and Game (CDFG)
- animals designated as "Species of Special Concern" (CSC) by CDFG
- plants occurring on lists 1A, 1B, and 2 of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Smith 1988)
- high priority habitats that are described by Holland (1986) and are tracked by CDFG in its Natural Diversity Data Base

Although a significant portion of the East County has been surveyed by biologists for various reasons, there are still large expanses of open space that have never been subject to that level of examination. In discussing the special status species and significant natural communities occurring in the East County, information was gathered from all the sources listed in Table 5.7-1 and from interviews with biologists who have surveyed portions of the plan area. A list of the special status species and significant natural communities known to occur in the East County gleaned from all of these sources is provided in Table 5.7-2. Since a large area of the East County has not been surveyed in detail, there are likely to be species found in the plan area that are not included in this list. However, the lands in the East County that are currently under the most pressure for urban development have been subjected to a level of examination adequate for providing recommendations in determining an Urban Growth Boundary.

TABLE 5.7-1

Data Sources for Biological Resources in East County

- ◆ **Draft EIS/EIR for Continued Operation of Lawrence Livermore National Laboratory and Sandia National Laboratories, U.S. Department of Energy and University of California, February 1992.**
- ◆ ***Vasco Road and Utility Relocation Project Draft EIR*, Contra Costa Water District, February, 1990.**
- ◆ ***South Livermore Valley Area Plan Draft EIR*, Alameda County, June, 1992.**
- ◆ ***North Livermore General Plan Amendment Draft EIR*, City of Livermore, January 30, 1992.**
- ◆ ***East Dublin General Amendment Plan and Specific Area Plan, Draft Biological Assessment*, Wallace, Roberts & Todd, July, 1989.**
- ◆ ***Altamont Hills Landfill Program Draft EIR*, Alameda County Waste Management Authority, October, 1988.**
- ◆ ***West Pleasanton Sphere of Influence Study Draft EIR*, April, 1990.**
- ◆ ***Western Dublin Specific Plan/General Plan Amendment Draft EIR*, December, 1991.**
- ◆ ***Ruby Hill Development GPA and 1837 Zoning Unit Draft EIR and Addendum*, November, 1989; *Addendum*, May, 1990; *Response to comments*, September, 1990.**
- ◆ ***Kaiser Sand and Gravel Company Surface Mining Permit and Reclamation Plan (SMP-31) Draft EIR*, August, 1991.**
- ◆ ***Altamont Sanitary Landfill Expansion Biological Resource Study and Preliminary Impact Assessment*, Bryan A. Stirrat and Associates, September 24, 1991.**
- ◆ ***San Joaquin Kit Fox Survey Near Altamont Raceway*, prepared for the Sierra Club by Gary Beeman, February 7, 1989.**
- ◆ ***East Bay Regional Park District Data for Sunol Wilderness and Ohlone Wilderness*, data provided by Joseph DiDonato, EBRPD.**
- ◆ ***Wind Turbine Effects on Avian Activity, Habitat Use, and Mortality in Altamont Pass and Solano County Wind Resource Areas Final Report*, California Energy Commission, March, 1992.**
- ◆ ***Tri-County Wind Energy Mitigation Compliance Monitoring Program Draft Working Paper #1*, Alameda, Contra Costa and Solano Counties and the California Energy Commission, July 27, 1992.**
- ◆ ***Unusual and Significant Plants of Alameda and Contra Costa Counties*, California Native Plant Society, East Bay Chapter. March 1, 1992.**

TABLE 5.7-1 (Continued)

Data Sources for Biological Resources in East County

- ◆ *Status of Rare, Threatened and Endangered Vascular Plants in Alameda and Contra Costa Counties, Second Edition, California Native Plant Society, East Bay Chapter Rare Plant Committee, October 8, 1991.*
- ◆ *Raptor Populations of Southern Alameda County, Predatory Bird Research Group, September, 1987.*
- ◆ *1:62,500 scale "Natural Cover Types, Basic Data for the Land Use Portion of the Master Plan, Alameda County, California," Alameda County Planning Department, Natural Cover Data from Vegetation Type Survey made by California Forest and Range Experiment Station, U.S. Forest Service.*
- ◆ *1:62,500 scale "Element Occurrences in Alameda County", California Department of Fish and Game, Natural Heritage Division, July 1992.*
- ◆ *California Natural Diversity Data Base RAREFIND program administered by California Department of Fish and Game, Data provided by Harding Lawson Associates, July 1992.*
- ◆ *Soil Survey - Alameda Area, California, Series 1961, No. 41., U.S. Department of Agriculture, Soil Conservation Service, 1966*
- ◆ *Studies of Cordylanthus palmatus at the Springtown Alkali Sink, Livermore, California, Center for Conservation Biology, Stanford University, 1992.*
- ◆ *A Management Plan for the Springtown Alkali Sink Wetlands and the Endangered Plant Cordylanthus Palmatus, Philip Williams & Associates, 1988.*
- ◆ *Berlogar Geotechnical Consultants, Hydrologic Investigation Springtown Watershed Livermore, California. February, 1993.*
- ◆ *San Joaquin Kit Fox Surveys 1990 and 1991, Stonechase Project, Livermore, California, Harding Lawson Associates, June, 1992.*

TABLE 5.7-2

Special Status Plant and Animal Species Known to Occur in the East County

Common Name	Scientific Name	Status
Plant Species		
Large-Flowered Fiddleneck	<i>Amsinckia grandiflora</i>	FE, SE, 1B
San Joaquin Saltbush	<i>Atriplex patula ssp. spicata</i>	C2, 3
Palmate-Bracted Bird's-Beak	<i>Cordylanthus palmatus</i>	FE, SE, 1B
Mt. Hamilton Thistle	<i>Cirsium campylon</i>	C2, 1B
Hispid Bird's Beak	<i>Cordylanthus mollis ssp. hispidus</i>	C2, 1B
Mt. Diablo Buckwheat	<i>Eriogonum truncatum</i>	C2, 1A
Diamond-Petaled California Poppy	<i>Eschscholzia rhombipetala</i>	C2, 1B
Stinkbells	<i>Fritillaria agrestis</i>	3C, 4
Talus Fritillary	<i>Fritillaria falcata</i>	C2, 1B
Diablo Helianthella	<i>Helianthella castanea</i>	C2, 1B
Mason's Lilaeopsis	<i>Lilaeopsis masonii</i>	C2, SR, 1B
Showy Indian Clover	<i>Trifolium amoenum</i>	C2, 1A
Caper-Fruited Tripidocarpum	<i>Tropidocarpum capparideum</i>	C2, 1A
Animal Species		
Invertebrates		
Longhorn Fairy Shrimp	<i>Branchinecta longiantenna</i>	FPE
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FPE
California Linderiella	<i>Linderiella occidentalis</i>	FPE
Insects		
Curved-Foot Hygrotus Diving Beetle	<i>Hygrotus curvipes</i>	FPE
Amphibians		
California Tiger Salamander	<i>Ambystoma californiense</i>	C2, CSC
California Red-Legged Frog	<i>Rana aurora draytonii</i>	C2, CSC
Foothill Yellow-Legged Frog	<i>Rana boylei</i>	CSC
Reptiles		
Northwestern Pond Turtle	<i>Clemmys marmorata marmorata</i>	FT
Southwestern Pond Turtle	<i>Clemmys marmorata pallida</i>	C2, CSC
Alameda Whipsnake	<i>Masticophis lateralis euryanthus</i>	C2, ST
California Horned Lizard	<i>Phrynosoma coronatum frontale</i>	CSC

TABLE 5.7-2 (Continued)

Special Status Plant and Animal Species Known to Occur in the East County

Common Name	Scientific Name	Status
Birds		
Cooper's Hawk	<i>Accipiter cooperi</i>	CSC
Sharp-Shinned Hawk	<i>Accipiter striatus</i>	CSC
Tircolored Blackbird	<i>Agelaius tricolor</i>	C2, SCE
Golden Eagle	<i>Aquila chrysaetos</i>	CSC
Burrowing Owl	<i>Athene cunicularia</i>	CSC
Northern Harrier	<i>Circus cyaneus</i>	CSC
Black Shouldered Kite	<i>Elanus caeruleus</i>	CSC
Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE, SE
Prarie Falcon	<i>Falco mexicanus</i>	CSC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FE, SE
Mammals		
San Joaquin Pocket Mouse	<i>Perognathus inornatus</i>	C2
American Badger	<i>inornatus</i>	CSC
San Joaquin Kit Fox	<i>Taxidea taxus</i>	FE, ST
	<i>Vulpes macrotis mutica</i>	
<p>Notes: FE = Listed as Endangered by the Federal Government FT = Listed as Threatened by the Federal Government FPE = Proposed as Endangered by the Federal Government C2 = Category 2 Candidate for Federal listing (Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking) 3C = Taxa Proven to be more widespread than previously believed and are not subject to any indentifiable threat SE = Listed as Endangered by the State of California ST = Listed as Threatened by the State of California CSC = California Department of Fish and Game "Species of Special Concern" 1A = Designation by <u>Plants presumed extinct in California</u>, the California Native Plant Society 1B = Designation by the California Native Plant Society. Plants rare, threatened or endangered in California and elsewhere 3 = Designation by the California Native Plant Society. Plants about which we need more information - a review list 4 = Designation by the California Native Plant Society. Plants of limited distribution - a watch list</p>		

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- conversion of land for new urban development or non-urban uses (e.g. landfill, windfarm or quarry operation) could result in the direct loss of plant communities and wildlife habitats, some of which are known to support sensitive species
- allowable uses in designated open space could be incompatible with biological resource management objectives
- focusing on protection of special status species and habitats could result in the decline of more common habitats or species and affect the existing biological diversity of the area
- addressing mitigation for impacts to biological resources on a project level rather than in a regional context could result in the creation of small, disjunct islands of open space that are isolated and difficult to manage

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 1: The County shall identify and maintain an Urban Growth Boundary that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety. The Urban Growth Boundary circumscribes an area inside of which urban development will be encouraged and outside of which urban development will be prohibited. The Urban Growth Boundary is intended to be permanent and shall include sufficient developable land to accommodate an ultimate holding capacity for both incorporated and unincorporated development in East County. The County shall use the Urban Growth Boundary to provide certainty regarding development potential for long-term infrastructure financing, agricultural investment, and environmental protection.

Policy 56: The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, windpower, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.

Policy 57: The County shall preserve a continuous band of open space consisting of a variety of plant communities and wildlife habitats to provide comprehensive, rather than piecemeal, habitat conservation for all of East County. This open space should, as much as possible, be outside of the Urban Growth

Boundary and contiguous to large open space areas of Contra Costa, Santa Clara, and San Joaquin Counties.

Policy 59: The County shall use mechanisms such as zoning, dedication, fee purchase, density transfer, and easements to preserve open space outside the Urban Growth Boundary.

Policy 60: The County shall require new developments to **dedicate land** and/or pay equivalent in-lieu fees for the provision of open space in East County for resource protection. Open space lands may be acquired through the use of density transfer or purchase using in-lieu fees. Detailed development plans (e.g., specific plans) required for each phase of Major New Urban Developments shall include a detailed open space program ensuring the acquisition of land for public use, sufficient funds to manage open space land, and the fair compensation of property owners. The County shall require the dedication of approximately 4,200 acres of land designated "Resource Management" as a condition of developing Major New Urban Development in North Livermore.

Policy 61: The County shall encourage the Alameda County Open Space Land Trust to acquire fee title or easements on **strategic parcels** that would complete the continuous public open space system surrounding Eastern Dublin, North Livermore, South Livermore, and Pleasanton Ridgeland in order to permanently secure the Urban Growth Boundary.

Policy 62: The County shall encourage the Alameda County Open Space Land Trust to acquire **open space easements** accompanied by agreements to carry out appropriate management practices, whenever feasible, in lieu of fee acquisition in order to maintain open space land on property tax roles.

Policy 63: The County shall encourage the Alameda County Open Space Land Trust to acquire open space land in fee title, through purchase or dedication, when it is necessary to provide public access or to ensure suitable land management practices.

Policy 64: The County shall encourage **active public use** of open space lands close to existing and planned communities in locations where such use does not conflict with the protection of biological resources.

Policy 65: The County shall ensure that **management objectives**, funding and maintenance responsibilities are clearly identified for all open space lands to be acquired in fee or through easements by the Alameda County Open Space Land Trust. The County shall work with the Land Trust to further ensure that adequate funds are available to carry out on-going open space management activities.

Policy 66: The County shall require that open space provided as part of a development project be designed to achieve **open space objectives** (e.g., recreation, viewshed, community separation, riparian protection, public safety).

Policy 67: The County shall require that open space within developed areas be designed and maintained to minimize fire hazards and ensure compatibility between development and any significant biological resources.

Policy 72: The County shall designate approximately 3,200 acres in Eastern Dublin and approximately 4,200 acres in North Livermore as "Resource Management" towards the establishment of a continuous open space system in East County. To this end, the County shall:

1. Encourage the City of Dublin to redesignate in the Eastern Dublin Specific Plan and General Plan Amendment all Rural Residential (RR) land east of Fallon Road, as well as Doolan Canyon as "Resource Management," consistent with the *East County Area Plan*. Allowable uses may include agriculture, grazing, recreational, and open space uses.
2. Encourage the City of Dublin to work with the Alameda County Open Space Land Trust to acquire parcels designated "Rural Residential" in Eastern Dublin, through purchase of fee title or easements with open space fees, by means of dedication and/or through density transfer or other funding mechanisms.
3. Require that land use activities conducted within this area adhere to management guidelines developed for the protection of biological resources.

Program 22: The County shall adopt an open space dedication and/or in-lieu fee requirement applicable to all residential and industrial, commercial, and office developments within unincorporated areas to fund the purchase of land within the continuous open space system and provide an endowment for on-going management of open space lands. The County shall work with cities to develop and adopt an open space dedication and in-lieu fee requirement consistent with the County requirement.

Program 23: The County shall work with cities to establish a non-profit Alameda County Open Space Land Trust to acquire and convey lands within the public open space system to other public agencies. The Land Trust can use developer dedication, fee purchase, open space or access easements, and other mechanisms to acquire and permanently preserve a continuous open space system outside the Urban Growth Boundary. The County shall encourage the Alameda County Open Space Land Trust to purchase strategic parcels which would complete the continuous open space system surrounding Eastern Dublin, North Livermore, and East Livermore. The County also shall encourage the Alameda County Open Space Land Trust to acquire parcels in other portions of East County and convey them to the appropriate public agency to expand water management or regional park lands, when necessary to achieve the open space and resource management objectives of the *East County Area Plan*. In the event that a County Open Space Land Trust and a South Livermore Valley Agricultural Land Trust are both formed, administrative and other functions may be shared by the two trusts in order to reduce costs.

Program 24: The County shall develop management guidelines to implement specific resource management objectives for watershed and biological resource protection to apply to those lands designated as "Resource Management".

Program 26: The County shall work with the EBRPD, LARPD, California Department of Fish and Game, and cities to identify public and private uses that should appropriately be allowed within various portions of the open space system, including active and passive recreation, and grazing.

Policy 109: The County shall require that developments are sited to avoid or, if avoidance is infeasible, to minimize disturbance of large stands of mature, healthy trees and individual healthy trees of notable

size and age. Where healthy trees will be removed, the County shall require a tree replacement program which includes a range of tree sizes, including specimen-sized trees, to achieve immediate visual effect while optimizing the long-term success of the replanting effort.

Policy 118: The County shall secure open space lands, through acquisition of easements or fee title, specifically for the preservation and protection of indigenous vegetation and wildlife.

Policy 119: The County shall encourage the maintenance of biological diversity in East County by including a variety of plant communities and animal habitats in areas designated for open space.

Policy 120: The County shall encourage preservation of areas known to support special status species.

Policy 121: The County shall ensure that, where quarries will be reclaimed as open space, reclamation plans are designed to restore biological value to sites through appropriate revegetation, contouring of lakes to simulate natural bodies of water, and protection or in-kind replacement of significant trees.

Policy 122: The County shall protect existing riparian woodland habitat present along the Arroyo Mocho, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks.

Policy 123: The County shall preserve an open space corridor connecting the Bird's Beak Preserve with lands designated "Resource Management." This open space corridor shall vary in width between 50 and 150 feet.

Policy 124: The County shall require that the impacts of wind turbine operations on bird populations are minimized.

Program 53: The County shall develop management guidelines for lands designated "Resource Management" for the purpose of maintaining and/or enhancing existing plant communities and wildlife habitats. The County shall identify organizations that may be suitable to manage the open space.

Program 54: The County shall develop specific biological survey protocols for special status plants and animals to be used in evaluating proposed activities within the Urban Growth Boundary, in consultation with federal and state resource agencies.

Program 55: The County shall establish mitigation measures for biological resources affected by activities and development within the Urban Growth Boundary. To this end, the County shall consult with federal and state resource agencies to establish mitigation measures for specific special status taxa identified within the Urban Growth Boundary (e.g., mitigation fees, relocation, recreation of habitat within open space).

Program 56: The County shall work with federal, state, and local agencies to establish feasible mitigation for avian collisions with wind turbines. The County shall take a lead role in coordinating wind farm operators and other agencies to develop feasible mitigations.

Policy 153: The County shall ensure that where quarry operations will be reclaimed as open space, reclamation plans are designed to restore biological value to sites through appropriate revegetation, contouring of lakes to simulate natural bodies of water, and protection or in-kind replacement of significant trees.

Program 66: The County shall work with the San Francisco Water Department to develop a land use and reclamation master plan for San Francisco Water Department-owned land in the Sunol Valley. The plan shall ensure the compatibility of the quarries with the Sunol Community during active mining and following reclamation. Opportunities for habitat preservation and enhancement and recreational uses should be explored in conjunction with reclaimed uses.

Policy 160: The County shall establish a mitigation program to minimize the impacts of wind turbine operations on bird populations.

Program 69: The County shall work with other agencies (federal, state, and local) to establish feasible mitigation for avian collisions with wind turbines. The County will take a lead role with windfarm operators and other agencies in developing and managing a Mitigation Monitoring Program in the Wind Resource Area.

Policy 256: The County shall promote flood control measures that advance the goals of recreation, resource conservation (including water quality and soil conservation), groundwater recharge, preservation of natural riparian vegetation and habitat, and the preservation of scenic values of the county's arroyos and creeks.

Policy 259: The County shall support and encourage the design of future flood control projects in a manner that preserves and/or restores and enhances riparian vegetation.

Program 92: The County shall initiate a cooperative effort among interested agencies (e.g., County Planning Department, County Public Works, Zone 7, California Department of Fish and Game, East Bay Regional Park District, Livermore Area Recreation and Park District) that will integrate multi-use objectives for storm drainage and flood control features.

Policy 94: The County shall determine the minimum parcel size of agricultural parcels through an evaluation of individual circumstances of the property and surrounding land, but, except as follows, the minimum parcel size shall not be smaller than 100 acres in areas designated "Large Parcel Agriculture" or "Resource Management." Where conditions warrant, the County may require a larger parcel size through the land division process. Exceptions may apply within the South Livermore Valley, as defined in Section E, "North and South Livermore Policies," and where clustering of homesites is allowed.

Program 96: The County shall work with Zone 7, cities, and developers to increase the storm drainage capacity of the Arroyo de la Laguna while preserving as much as possible of the existing riparian habitat south of Bernal Avenue as well as the riparian habitat along Alameda Creek.

Policy 302: The County shall encourage the expansion of cultivated agriculture, particularly viticulture, in the South Livermore Valley from the current 2,100 acres to a minimum of 5,000 acres.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project would have a significant effect on biological resources if the project would: substantially affect a rare or endangered species of animal or plant or the habitat of the species; interfere substantially with the movement of any resident or migratory fish or wildlife species; or, substantially diminish habitat for fish, wildlife or plants.

For purposes of this EIR, impacts on biological resources resulting from implementation of the proposed *East County Area Plan* were considered significant if they would result in:

- reductions in populations of special status species or in the extent of Significant Natural Communities. Special status species and Significant Natural Communities are defined in the Existing Setting of this Chapter
- reduction or degradation of habitats or resource that are of high value to wildlife in the area
- reduction or degradation of riparian or other wetlands
- substantial interference with the movement of any resident or migratory fish or wildlife species

The determination of substantial and adverse effects was based on a review of existing data, discussions with resource agency personnel and local experts, professional judgment and experience with biological resource issues in East County.

Potential Impacts and Mitigation Measures

Potential Impact 5.7-1: Development within the Urban Growth Boundary could result in the loss of grasslands, cultivated lands and woodlands.

The ECAP proposes to accommodate growth for the next two decades and more by directing urban development outward from the adopted general plan planning areas of Dublin, Pleasanton and Livermore. Expansion of development into these areas will result in the conversion of lands which are currently not developed and increase the area of urban/wildland interface, particularly north of the I-580 corridor. This conversion of lands will result in the loss of plant communities and wildlife habitats primarily in the vicinity of

North Livermore and Eastern Dublin, where major new urban development would be concentrated.

Most of the existing undeveloped area included inside the Urban Growth Boundary contains grassland, cultivated or woodland plant communities. Grasslands, dry land agriculture and vineyards comprise approximately 90 percent of the currently undeveloped land within the Urban Growth Boundary, and woodlands comprise the remaining 10 percent of this undeveloped land. A direct loss of these plant communities could occur with the eventual expansion of development inside the Urban Growth Boundary. As described in the Existing Setting, perennial, seasonal and riparian wetlands may occur within these broader vegetation associations. These wetlands could also be affected by the eventual expansion of development in the area. A discussion of the potential effects on wetlands resulting from the plan is provided in *Potential Impact 5.7-2*.

Loss of existing plant communities would reduce the range and habitat available for plant and animal species that are either residents or migratory users of the area inside the Urban Growth Boundary. Grasslands provide a food source for granivorous species and foraging and nesting habitat for raptors and small mammals. These species will be displaced into adjacent grasslands which may already be occupied and which may or may not be able to support the displaced species. However, as discussed previously, large portions of the grasslands outside the Urban Growth Boundary in East County will be designated for Large Parcel Agriculture and Resource Management and will continue to provide habitat for typical wildlife inhabiting these areas.

The cultivated lands identified inside the Urban Growth Boundary are used primarily for dry land agriculture in East Dublin and the North Livermore area and vineyards in the South Livermore area. Dry land agriculture provides similar habitat for wildlife as grassland, but vineyards and orchards generally receive only limited, seasonal use by wildlife. The loss of cultivated lands in North Livermore would result in similar impacts to wildlife as described for the grasslands. Plan policies and programs encourage the protection of existing cultivated lands in South Livermore and also encourage the expansion of cultivated agriculture in this vicinity inside the Urban Growth Boundary. The expansion of cultivation into lands which are currently grasslands or woodlands could result in displacement of indigenous wildlife and a conversion of the existing plant communities. Although plant species compositions would change as a result of this conversion, wildlife which typically use the area may still use the cultivated lands, particularly if management practices allow for re-establishment of grasslands between row crops and minimal field maintenance.

Woodlands occur within the portion of the South Pleasanton subarea inside the Urban Growth Boundary. A variety of wildlife use woodlands for foraging and nesting as well as for refuge from the surrounding exposed grasslands and developed areas. Loss of the woodlands in this area could result in removal of large oak trees, loss of wildlife habitat or the displacement of wildlife species.

The grasslands in East County are known to support a variety of special status plant and animal species including large-flowered fiddleneck, caper-fruited tropidocarpum, burrowing owl, northern harrier, and San Joaquin kit fox. The CNDDDB and studies completed for EIR's in East County have identified some of these special status species from grasslands that are within the Urban Growth Boundary, such as; burrowing owl, northern harrier and California tiger salamander. A discussion of the potential impacts on special status species resulting from the loss of grasslands, cultivated lands or woodlands is provided under *Potential Impact 5.7-3*.

Plans Policies and Programs: The ECAP draws a permanent boundary to differentiate between lands suitable for urban development and lands suitable for other uses. The intent of the Urban Growth Boundary is to contain growth, prevent sprawl, and provide certainty regarding development potential and planning for environmental protection. The plan establishes the Urban Growth Boundary (policy 1) within which new urban development is allowed and identifies areas outside this boundary as open space (policies 56 through 59). Policy 57 calls for the preservation of "... a continuous band of open space consisting of a variety of plant communities and wildlife habitats to provide comprehensive, rather than piecemeal, habitat conservation for all of East County..." To provide for the long term protection of biological resources, policy 72 designates particular Resource Management Areas specifically for that purpose and policies 60 and 61 and programs 22 and 23 establish acquisition and funding mechanisms for this particular Resource Management Area, and for the potential to expand this area.

Cultivated lands in the South Livermore area are encouraged in the plan (policy 302). Although no woodland habitat has been identified on lands designated for long term protection by the plan, policy 109 requires avoidance or minimal disturbance of large stands of mature healthy trees which could be applied to the woodland in the South Pleasanton subarea.

Although implementation of the plan may result in the loss of portions of plant communities and wildlife habitats in East County, policies and programs built into the plan will mitigate this loss through establishment of a comprehensive mitigation area, protected through acquisition, easements, density transfer, and other appropriate mechanisms and provide for the long term protection and management of biological resources.. The mitigation area (land designated as Resource Management) is designed to be contiguous with other protected and designated open space in and outside of Alameda County. Policy 65 also ensures that management objectives for the open space lands are clearly defined and that funds are available to carry out these objectives.

Level of Significance: Grasslands, cultivated lands and woodlands are common throughout California and the East County. The proportion of these habitats lost within the Urban Growth Boundary relative to the extent of these habitats throughout the East County is small. Additionally, proposed policies and programs would

protect woodlands within the Urban Growth Boundary, and the plan designates approximately 7,400 acres of grasslands and cultivated lands in East Dublin and North Livermore for protection of biological resources. Therefore, with implementation of the proposed plan policies and programs, the general loss of grasslands, cultivated lands and woodlands would be less than significant, assuming these lands are not occupied by special status species. (An impact analysis for lands occupied by special status species is provided under *Potential Impact 5.7-3.*)

Mitigation Measure 5.7-1: None needed.

While no mitigation is needed, the following addition to Table 2 of the *East County Area Plan - Volume 1 - "General Criteria for Locating the Urban Growth Boundary"* - is proposed for clarification:

Modification to Table 2 of the *East County Area Plan - Volume 2:* *Open Space areas include large, contiguous tracts of land that will provide continued habitat for wildlife and plant species and protect the overall value of natural communities.*

Potential Impact 5.7-2: Development within the Urban Growth Boundary could result in the loss of riparian and seasonal wetlands.

Riparian and seasonal wetlands as described in the Existing Setting occur throughout the East County and may be found within any of the vegetation associations delineated on Figure 19. Riparian wetlands occur along the creeks and arroyos of the hills and valley floor and seasonal wetlands are found associated with seeps and springs and in microtopographic depressions that occur throughout the alkali sink areas of the Livermore - Amador Valley. Riparian and seasonal wetlands may be filled for development activities, or may otherwise be altered to accommodate increased flood control capacities resulting from increased urban runoff, or affected by a change in the existing hydrology.

Expansion of urban growth may alter the hydrology of the drainages and seasonal wetlands in the plan area. Surface flows could be intercepted and diverted away from the drainage or seasonal wetland, or runoff could increase depending on the location and nature of improvements associated with urban development. Wetlands which now receive overland flows or agricultural runoff could instead receive urban runoff or no runoff if flows are diverted. Further discussion of the impacts on hydrology resulting from the plan is provided in *Chapter 5.12.*

Activities in streamzones, drainage channels, ponds and lakes are regulated by the California Department of Fish and Game under Section 1601 - 1603 of the Fish and Game Code. "Waters of the United States" including wetlands are regulated by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. Drainages which have a scour

line or ordinary high water mark may be subject to Corps jurisdiction as waters of the United States. Sites potentially subject to Corps jurisdiction as wetlands must support positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation. Determination of the extent of lands subject to CDFG and Corps jurisdiction is made on a site-specific basis applying specific criteria and methods. As a result, wetlands may be identified on any of the lands proposed for development in East County.

Agreements must be reached with the CDFG and discretionary permits must be obtained from the Corps in order to initiate certain activities within streamzones and other wetlands. Avoidance of wetlands is recommended by CDFG and the Corps. Where avoidance is infeasible, mitigation to compensate for wetland loss is usually required.

Plan Policies and Programs: The plan policies and programs do not specifically address mitigation for impacts to wetlands but they do establish a framework for consolidating wetland mitigation efforts to allow for development within the Urban Growth Boundary and avoid the creation of small, isolated pockets of wetland habitat that would be of limited habitat value and difficult to manage. Policies 1, 60, 66, 72, 118, 119, and programs 22, 23, and 24 provide this framework by establishing large areas of open space that are provided long term protection and are managed specifically for the protection of biological resources, and by encouraging the maintenance of biological diversity in East County.

Protection of riparian areas is provided both inside and outside of the Urban Growth Boundary by the plan. Policies 122, 153, 256, 259, and programs 94 and 96 encourage protection of the arroyos, bottomland riparian habitat and flood control designs that encourage use of the natural drainage and vegetation.

Level of Significance: Implementation of the plan could result in a potentially significant impact on riparian and seasonal wetlands. While the following additional policies would lessen the potential impact, a net loss of riparian or seasonal wetland habitat would constitute a **significant and unavoidable adverse impact** of the plan.

Mitigation Measure 5.7-2(a): Proposed New Policy: *The County shall encourage no net loss of riparian and seasonal wetlands.*

Mitigation Measure 5.7-2(b): Proposed New Policy: *The County shall encourage that wetland mitigation be consolidated in areas that are relatively large and adjacent to or otherwise connected to open space. To the extent possible, these areas should be included in, adjacent to, or linked through open space corridors with lands designated as "Resource Management" that are managed specifically for the preservation and enhancement of biological resources.*

Potential Impact 5.7-3: Development within the Urban Growth Boundary could result in the loss of individual special status species and portions of Significant Natural Communities.

Several special status species have been identified in East County (Table 5.7-2 and Figure 20) and the recorded locations of some of these species are within the Urban Growth Boundary (Table 5.7-3). Three significant Natural Communities have been identified in East County; northern claypan vernal pool, sycamore alluvial woodland and valley sink scrub. The northern claypan vernal pool habitat is outside of the Urban Growth Boundary in the Mountain House subarea. The sycamore alluvial woodland is also outside the Urban Growth Boundary along the Arroyo del Valle in the South Livermore Valley subarea. The valley sink scrub is known from the Springtown area of Livermore (North Livermore) as well as along the base of the west slopes of the Altamont Hills. A discussion of how these species and communities may be impacted by development within the Urban Growth Boundary follows.

Special Status Species

The most likely and the most generalized impact to special status species will occur with the loss of grassland habitat. The grasslands within the Urban Growth Boundary are known to provide habitat for special status animal species, including burrowing owl, northern harrier and golden eagle. These raptors, all "Species of Special Concern", use the grasslands primarily for foraging but the burrowing owl also nests in the grasslands. Seasonal ponds and streams within these grasslands also contain the California red-legged frog, and California tiger salamander; both California Species of Special Concern and Category 2 Candidates for federal listing. While the red-legged frog is relatively restricted to the pond or drainage it inhabits, the tiger salamander migrates from the pond where it breeds into surrounding grasslands where it burrows and remains much of the year. Development within the Urban Growth Boundary may result in the loss of grasslands that are occupied by special status species. The specific habitat locations for some of the species within the Urban Growth Boundary may be avoided by proposed developments or may be protected through plan policies and programs such as those which address riparian zones and wetlands. However, it is likely that some of these habitats will be removed and some individual special status species will be lost due to new urban development within the Urban Growth Boundary.

It is the position of the U.S. Fish and Wildlife Service that most of the grasslands in East County are potential habitat for the federally endangered San Joaquin kit fox. Sightings of kit fox have been recorded in East County from the Altamont Hills, and in Collier Canyon. Several surveys have been conducted for the kit fox on lands within the Urban Growth Boundary (*Biological Resources Background Report, East County Area Plan - Volume 2*), but kit fox have not been observed using areas that are within the Urban Growth Boundary. Recently, on two projects in Contra Costa County, the USFWS required compensation for the San Joaquin kit fox on the basis that the projects were in close proximity to known kit

fox occurrences and the project sites contained suitable kit fox habitat, even though kit fox were not observed on the project site.

TABLE 5.7-3		
Special Status Plant and Animal Species with Known Locations Inside the Urban Growth Boundary		
Common Name	Scientific Name	Habitat
Plant Species		
San Joaquin saltbush	<i>Atriplex patula ssp. spicata</i>	alkali sink scrub
Palmate-bracted bird's beak	<i>Cordylanthus palmatus</i>	alkali sink scrub
Hispid bird's beak	<i>Cordylanthus mollis ssp. hispidus</i>	alkali sink scrub
Animal Species		
Burrowing owl	<i>Athene cunicularia</i>	grassland
California tiger salamander	<i>Ambystoma californiense</i>	seasonal pond/grassland
California linderiella	<i>Linderiella occidentalis</i>	seasonal pond
California red-legged frog	<i>Rana aurora draytoni</i>	pond and streams
Northern harrier	<i>Circus cyaneus</i>	grassland/alkali sink
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	seasonal pond

Significant Natural Communities

The only Significant Natural Community identified within the Urban Growth Boundary is the valley sink scrub located in the Springtown area of North Livermore. This valley sink scrub habitat has been intensively surveyed over the past few years and is known to support a variety of special status species including the federally endangered palmate bracted bird's beak plant, the California linderiella and vernal pool fairy shrimp; both proposed as endangered by the federal government, and the California tiger salamander. Most of the valley sink scrub habitat identified within the Urban Growth Boundary is within the City of Livermore. The CDFG is currently working with the City and a private interest to preserve the Springtown valley sink scrub and manage it as a "Bird's Beak Preserve", named for the federally endangered plant inhabiting the area.

No valley sink scrub is currently mapped on lands within the Urban Growth Boundary and outside of the proposed Bird's Beak Preserve. However, as evidenced by historical aerial photographs, and referenced in other documents (Williams, 1988, Berlogar, 1993) the valley sink scrub habitat in the vicinity of North Livermore was once more extensive than it is now. Several theories as to why it has declined are proposed (Williams 1988, Berlogar, 1993).

Primarily, the theories cite changes in the hydrologic characteristic of the sink, as well as direct loss through land use conversion as the reasons for the decline in the extent of the scrub habitat. Because the valley sink scrub habitat has historically extended beyond the limits of the currently proposed Bird's Beak Preserve, there is a potential that special status species associated with this habitat may also occur outside of the preserve boundaries and therefore could be directly affected by proposed development within the Urban Growth Boundary.

Two studies have been conducted to try to determine the existing hydrologic condition of the Springtown valley sink scrub habitat. The first study was completed by Philip Williams and Associates in 1988 and the second by Berlogar Geotechnical Consultants in 1993. The Williams report concludes that both surface water and groundwater contributions to the sink are critical but acknowledges that the relative importance of each is unknown. The Berlogar report also concludes that both surface water and groundwater are contributing to the sink but that groundwater plays a bigger role in creating and maintaining the sink habitat. The results and conclusions of these studies are discussed further in *Chapter 5.12 - Hydrology and Water Quality*. Over the past two years, the Center for Conservation Biology at Stanford has been studying the distribution and ecology of the bird's beak plant in the Springtown sink. One of the goals of these studies is to determine how changes in the hydrologic characteristics of the sink would affect the bird's beak plant, however, no definite conclusions have been reached. The ECAP proposes new urban development within the watershed boundaries of the Springtown sink. If this development results in a change in the existing hydrologic conditions of the sink, it could affect the viability of the bird's beak population and the other special status species which are known to occur there. However, if the development can provide facilities as part of the project design which will release surface flows into the sink at rates and volumes emulating existing conditions and assure that local groundwater resources are recharged, existing hydrologic conditions of the sink can be maintained.

Plan Policies and Programs: The ECAP seeks to maintain the biological diversity of East County by permanently protecting large contiguous areas that contain elements of habitats lost through the expansion of new urban development and managing these areas for a variety of species. This approach is a departure from the more traditional focus on species-specific protection and mitigation, an approach which can result in the creation of isolated pockets of habitat or a loss in species or habitat diversity. The intent in defining an Urban Growth Boundary in East County is to accommodate growth and development while permanently maintaining contiguous open space areas that are large enough to be able to support self-sustaining populations of plants and animals. The intent in designating Resource Management lands as in policy 72 is to provide long term protection for biological resources and develop guidelines for management of those lands that will preserve and enhance the biological diversity of East County.

In pursuing this approach, the County encourages avoidance of impacts to special status species and Significant Natural Communities where feasible, anticipates that some individual

special status species within the Urban Growth Boundary may still be lost, and also anticipates that this loss can be mitigated for within the Resource Management Areas designated for biological resources. Policies 1, 60, 66, 72, 118, 119, 120 and programs 22, 23, and 24 establish the framework for this approach. Programs 53 and 55 recommend management guidelines for the Resource Management areas and require the development of specific mitigation measures for special status species affected within the Urban Growth Boundary in consultation with federal and state resource agencies.

Although no San Joaquin kit fox have been observed on lands within the Urban Growth Boundary, the County has anticipated the position held by the USFWS for the two projects in Contra Costa County discussed previously, and has designated lands north of the I-580 corridor as Resource Management. These lands will remain as open space and will serve to provide a wildlife corridor to the large areas of grasslands in Southern Contra Costa County, in the Altamont Hills, and to the San Joaquin County Habitat Conservation Area where kit fox have been observed. been observed in the past. Program 55 of the plan also requires the establishment of survey protocols and mitigation guidelines to be applied to lands within the Urban Growth Boundary if any special status species are found occupying these lands.

Level of Significance: While Plan policies and programs would lessen the overall impact on special status species in East County by establishing an Urban Growth Boundary that avoids most of the currently known locations of these taxa, loss of individual special status species due to the expansion of growth may still occur. This loss is considered a **significant unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.7-3: No mitigation measures are feasible beyond those already established through the plan policies and programs.

Potential Impact 5.7-4: Implementation of the *East County Area Plan* will increase the area of urban/wildland interface north of the I-580 corridor.

Much of the lands north of I-580 in East County, primarily from Eastern Dublin east towards the Altamont Hills do not currently have large areas of urban development. The ECAP proposes land uses north of I-580 that would increase the amount of urban development in this area and therefore increase the area of urban/wildland interface. Several indirect impacts on plants and animals which inhabit open space areas can occur with the introduction of urban development. An increase in human activities with urban development brings an increase in the potential for disturbance to adjacent open space through off road vehicle use, poaching, introduction of non-native invasive plants and domestic animals, introduction of lighting, trash dumping, and wildfires. All these activities could affect the native vegetation and indigenous wildlife in the surrounding open space areas.

Indirect impacts on the Springtown valley sink scrub habitat in North Livermore which is included in the designated "Bird's Beak Preserve" may also occur with an increase in urban development in the vicinity of North Livermore. The new urban development proposed by the ECAP in this vicinity could affect the existing hydrologic conditions of the sink and thereby affect the viability of the habitat. Development could surround the Bird's Beak Preserve and isolate it from other open space areas prohibiting wildlife movement to and from the area. Similar affects as discussed with the increase in human activities may also affect the sink habitat. The use of non-native invasive plant species by developments in close proximity to the sink may cause these species to escape into the sink and interfere with the natural habitat. Dogs, off-road vehicle use, trash dumping bicycles and vandalism could all potentially impact the sink habitat and would all increase with the increase of humans in the area.

Plan policies and programs: Policy 72 designates 7,400 acres in Eastern Dublin and Northern Livermore as Resource Management specifically for the protection of biological resources and program 24 requires development of management guidelines to protect these resources for the long-term. This policy and program will specifically address the potential impacts of the urban/wildland interface north of I-580. Policy 123 requires preservation of an open space corridor to connect the "Bird's Beak Preserve" with the Resource Management Lands.

The plan policies and programs do not address the potential indirect effects of development surrounding the Springtown valley sink scrub habitat. New policies are proposed in *Chapter 5.12 - Hydrology and Water Quality* of this document to address the potential change in hydrologic conditions of the sink but no buffer or use restrictions are applied to lands immediately adjacent to the sink.

Level of Significance: With implementation of the plan policies and programs, the potential impact on biological resources resulting from an increase in the urban/wildland interface north of I-580 is not significant. However, potential indirect impacts on the valley sink scrub from adjacent urban development are potentially significant if they result in a reduction in the extent of the habitat.

To address potential indirect impacts on the Springtown valley sink habitat and the population of the federally endangered bird's beak plant that inhabits the sink, the following policy is proposed. Implementation of this policy, in combination with the policy proposed in *Chapter 5.12 - Hydrology and Water Quality* of this document to mitigate potential hydrologic impacts on the sink, will reduce this to a less than significant impact.

Mitigation Measure 5.7-4: Proposed New Policy: *The County shall designate an approximate 200 yard zone around the perimeter of the defined Bird's Beak Preserve in North Livermore as a Special Management Area. Within this zone, all proposed*

land uses and project designs shall be evaluated regarding their potential to effect the viability of the Springtown valley sink scrub habitat, and mitigation shall be incorporated into the approval of detailed development plans within this 200 yard zone to avoid the impact. Mitigation may take the form of clustering development to avoid sensitive areas, management practices, land swap with the FCC Monitoring Station, or other appropriate measures.

Potential Impact 5.7-5: Allowable uses in lands designated Large Parcel Agriculture could affect biological resources in those areas.

The Large Parcel Agriculture land use designation is applied to a majority of those lands outside of the Urban Growth Boundary. While allowable uses for these lands are likely to maintain large contiguous open space areas in East County that would be beneficial to indigenous biological resources, some uses may negatively impact those resources. Some of the uses which could result in the direct loss of plant communities, wildlife habitats and special status species are discussed under Potential Impact 5.7-1 and include, construction of new solid waste disposal facilities, quarry operations, expansion of windfarms and other activities that would disturb the land.

Due to the relative accessibility, the location and topography of the Altamont Hills, solid waste facilities and windfarm expansions could occur in this vicinity. The Altamont hills serve as a link for the San Joaquin kit fox from the San Joaquin Valley to the Livermore Valley. These hills provide valuable grassland habitat for the species. Although construction of new facilities for windfarms could potentially impact individual San Joaquin kit fox, once operating, windfarms would not adversely affect the species. An expansion of windfarms increase the potential for avian collisions with the facilities. Avian collisions have been documented to be a major concern of the windfarms in the Altamont Hills area. Quarries would be located where there are mineral resources such as in the hills south of the Livermore Valley. Quarry operations could result in a loss of habitat, although this loss may be temporary--depending upon phasing and duration of the activity and site reclamation; quarry activity could also provide access into areas that are currently remote, which could disturb resident wildlife unaccustomed to the activity.

Plan Policies and Programs: Policy 153 ensures that reclamation plans for quarries are designed to restore biological values. Policies 123 and 163 and programs 56 and 69 provide for the development of mitigation measures to reduce avian collisions with wind turbines. The County cannot predict other site-specific impacts resulting from allowable land uses in Large Parcel Agriculture at this level of analysis. However the County can encourage that where mitigation is required for site-specific impacts on biological resources, mitigation efforts be consolidated to maintain a continuous open space system in East County and to provide long-term protection of biological resources by setting aside large contiguous areas and applying specific management guidelines for those areas.

Level of Significance: At a general plan level of analysis, plan policies and programs address the potential impact on plant communities and wildlife on lands outside the Urban Growth Boundary. However, site-specific impacts on special status species could result from particular activities allowed outside the Urban Growth Boundary, and this is therefore considered a **significant and unavoidable impact** of the plan.

While no feasible mitigation is available to reduce this impact to a less-than-significant level, the following new policy is proposed to encourage that mitigation efforts recommended through project-specific environmental review are consistent with the policies and programs of the *East County Area Plan*:

Mitigation Measure 5.7-5: Proposed New Policy: *Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as Resource Management or on lands adjacent to or otherwise contiguous with these lands in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.*

SOURCES

- Basey , H.E. and D.A. Sinclear. 1980. Amphibians and reptiles. Pages 13-74 in J. Verner and A.S. Boss, tech. coords. *California wildlife and their habitats: western Sierra Nevada*. U.S. Dep. Agric., For. Ser. (Berkeley, CA), Gen. Tech. Rep. PSW-37.
- Berlogar Geotechnical Consultants, Hydrologic Investigation Springtown Watershed Livermore, California. February, 1993.
- Heady, Harold F. 1977. Valley grassland. Pages 491-533 in M.G. Barbour and J. Major, eds., *Terrestrial vegetation of California*. John Wiley and Sons, New York.
- Holland, Robert F., Preliminary descriptions of the terrestrial natural communities of California. 1986.
- Hopkins, Richard. Wildlife biologist with H.T. Harvey and Associates. Personal communication, October 6, 1992.
- Launer, Alan. 1992. Ecologist with Center For Conservation Biology, Stanford. Telephone conversation with Leslie Zander, Harding Lawson Associates, October 6, 1992.
- Mayer, K.E., and W.F. Laudenslayer, Jr., eds., A guide to wildlife habitats of California. California Department of Forestry and Fire Protection, 1988.pp.
- Philip Williams and Associates, A Management Plan for the Springtown Alkali Sink Wetlands and Endangered *Cordylanthus palmatus*. October 1988.
- U.S. Fish and Wildlife Service, 1983. Zeiner, D.C., W.F. Laudenslayer, Jr., and K.E. Mayer. California's Wildlife, Vol. 1-3, California Department of Fish and Game, 1990.

Plant Communities

LEGEND

- Grassland
- Non-Native Grassland
- Valley Needlegrass Grassland
- Woodland
- Coast Live Oak Forest
- Mixed Evergreen Forest
- Riparian Forest
- Scrub
- Ditch Sage Scrub
- Coastal Scrub
- Cultivated
- Dryland Agriculture
- Row Crops
- Vineyards
- Alkal Sift
- Valley Sink Scrub
- Alkal Grassland
- Alkal Meadow
- Mixed Conifers
- Dyer Pine Woodland
- Monterey Pine Forest
- Developed Areas/Ressources
- Streams

SOURCE: Natural Cover Types, Basic Data for the Land Use

Portion of the Alameda Plan, Alameda County,

California, Alameda County Planning Department

Estimate Occurrences in Alameda County, California

Department of Fish & Game, Natural Division,

July, 1982

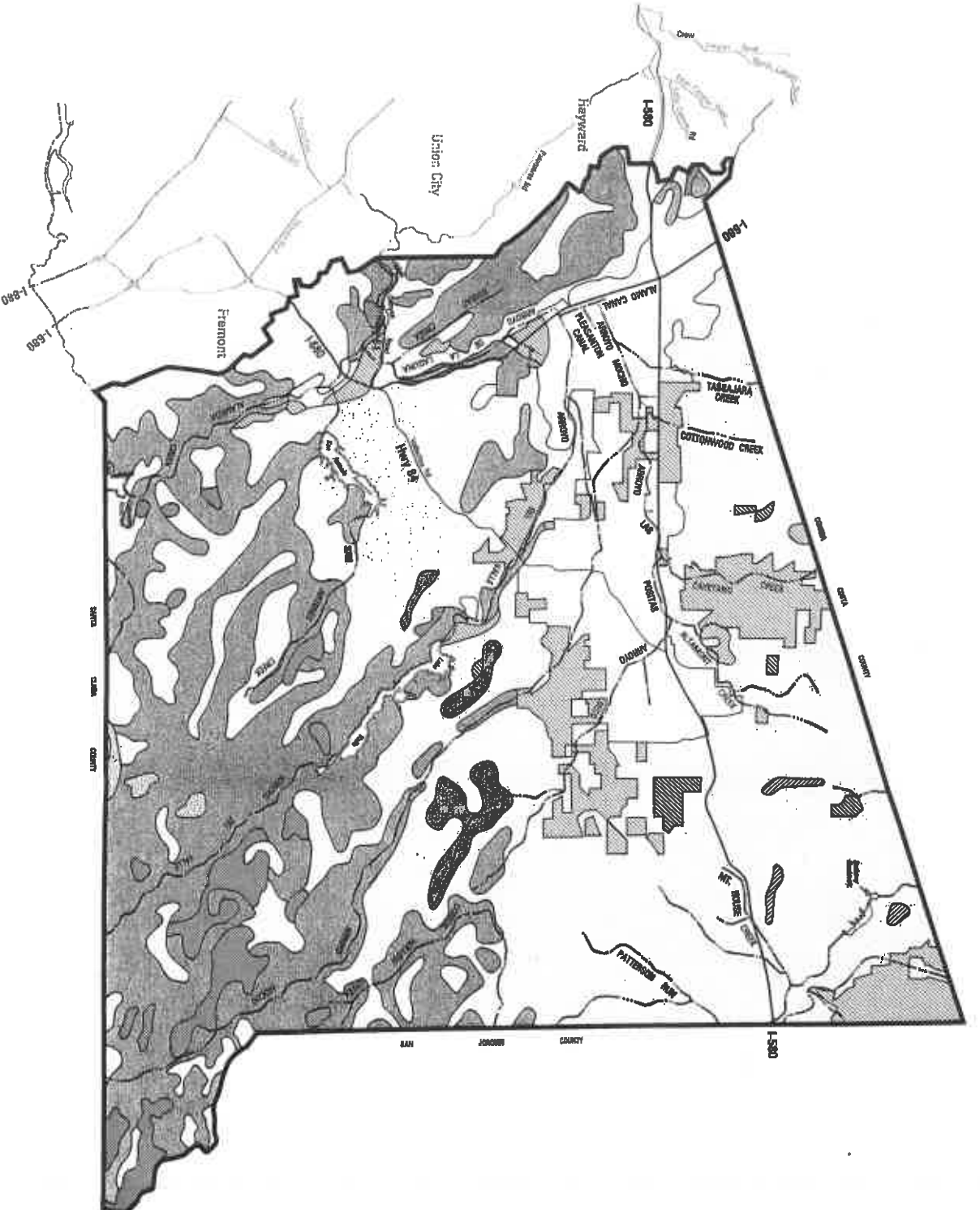
Assumed Environmental Documents prepared for

the planning area from 1988 to 1992. See text

for details.



FIG. 18



Special Status Species & Communities

LEGEND

Special Animals

1. Alameda Whitingake
2. Burrowing Owl
3. California Horned Lizard
4. California Red-Legged Frog
5. California Tiger Salamander
6. Golden Eagle
7. Hydrus Diving Beetle
8. Longhorn Fairy Slitup
9. San Joaquin Kit Fox
10. San Joaquin Pocket Mouse
11. Tule Wren
12. Western Pond Turtle

Special Plants

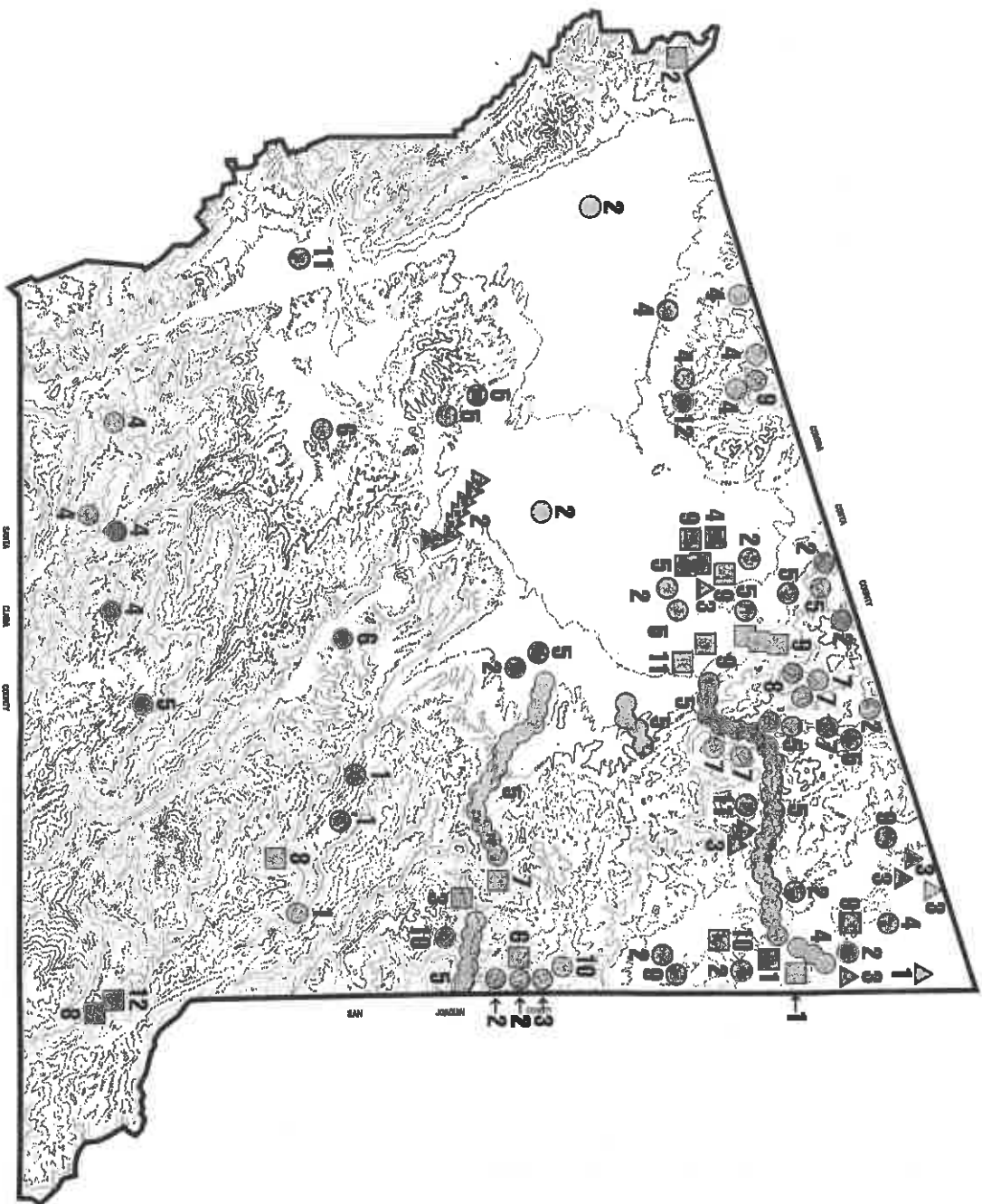
1. Cane-Fluted Tropicocarpum
2. Diablo Helianthus
3. Diamond-Petioled California Poppy
4. Farris Bird's Beak
5. Haplo Bird's Beak
6. Large-Flowered Fuchsia
7. Mt. Diablo Buckwheat
8. Mt. Hamilton Thistle
9. San Joaquin Sulphur
10. Snowy Indian Clover
11. Strabo
12. Tans Fritillary

A

Natural Communities

1. Northern Clayey Vernal Pool
2. Sycamore Altimel Woodland
3. Valley Silk Scrub

SOURCE: California Department of Fish and Game, July, 1992.
Assisted Environmental Documents prepared for
the planning area from 1983 to 1992. See text for details.



Chapter 5.8 - Visual and Aesthetic Resources

A. EXISTING SETTING

Introduction

The landscape of the East County is an assemblage of topographical, botanical, hydrological and man-made features. The planning area's visual character is defined by a mosaic of land uses (agriculture, wildlife, urban, etc.) and vegetative patterns (open range, stands of trees, row crops, etc.). Visual appearance varies seasonally and depends upon an ever-changing combination of seasonal color and texture, as well as upon the viewer's vantage point.

The visual impression of the East County is that of an expansive flat, urbanized valley floor contained by rolling hills rising to ridgelines. The urbanized valley is edged with moderately steep rolling hills covered with annual grasslands, oak woodlands and mixed chaparral. To the north, Mount Diablo in Contra Costa County stands out as a dominant but distant background feature on clear days. Pleasanton Ridge and Main Ridge are dominant landforms defining the western edge of the Livermore-Amador Valley. Heavily wooded, these ridges are relatively steep and predominantly undeveloped. Along the southern edge of the planning area, steep, east-facing slopes of north-south trending ridges are heavily wooded. To the east, the hills of the Altamont Range are moderately sloped, covered with annual grasses and studded with oaks along drainages.

Development in the unincorporated East County consists predominantly of low-intensity uses such as scattered residences, and structures associated with farming. Exceptions include two residential enclaves at urban densities in Sunol/Kilkare and Castlewood; small-scale, locally-oriented retail commercial clusters in Sunol and Mountain House; highway-oriented uses in various locations; and wineries, restaurants, and sales facilities associated with viticulture.

Several prominent structural and industrial features punctuate the natural landscape of the East County. The sand and gravel quarries and associated aggregate plants in the Sunol, Quarry and South Livermore subareas are visually imposing. Wind turbines stand out against the hills and skyline along the Altamont Range. Electric transmission lines traverse the landscape in various locations.

Two major interstate highways pass through the East County. I-580 runs east-west through the northern portion of East County, providing panoramic views of much of the planning area. I-680 runs generally north-south from the Contra Costa County border, through the Cities of Dublin and Pleasanton, and curves to the west, passing through the Vargas Plateau and into the City of Fremont. I-580 was determined to be eligible for official scenic highway designation and was included in *The Master Plan of State Highways Eligible for Official Scenic Highway Designation* by legislative act. I-680 is already designated State

Scenic Highway. The County has adopted policies regarding the regulation of land use and density, detailed land and site planning, control of outdoor advertising, control of earthmoving and landscaping, and the design and appearance of structures and equipment within the scenic corridors of both I-580 and I-680 to protect the scenic quality of these routes (Alameda County Planning Commission, Resolution #77-85; Alameda County Board of Supervisors, Ordinance #77-27 and Resolution #174812).

Visual Characteristics of the Subareas

West Dublin. The visual appearance of the West Dublin subarea is dominated by rugged, grass-covered ridgelines rising high above wooded canyons. Man-made features consist of a few widely scattered ranch-related structures. Several unique rock outcroppings add visual interest from vantage points within the subarea. High vantage points within the subarea provide views of the Tri-Valley to the north, east and south, and of Eden Canyon and the Palomares Hills residential development in Castro Valley to the west.

Much of the interior of the subarea is hidden from view from the rest of the planning area by tall ridgelines, which serve as a backdrop for views from many locations throughout the Tri-Valley. Donlan Point, adjacent to I-580, is a prominent visual feature which can be seen from a substantial distance in all directions. Eastern-facing slopes are visible from the City of Dublin and I-680.

East Dublin/Doolan Canyon. The visual character of the East Dublin/Doolan Canyon subarea is predominantly rolling hills of open rangeland. Two north-south trending ridgelines form Doolan Canyon itself, with a difference in relief from approximately 450 to 1,000 feet. Smaller finger ridges extend down from the larger ridgelines, creating the undulating topography present in the East County. To the south, a series of small ridges rise from the flat valley plain to visually screen the interior of the subarea from the I-580 corridor.

The dominant vegetation is annual grassland and some cultivated dryland crops. A relatively barren riparian area along Cottonwood Creek parallels Doolan Canyon Road. Ranches and rural residences are located along this road and are often surrounded by windrows of eucalyptus, cyprus or locust trees. Foreground views from Doolan Canyon Road take in the rural features: ranches, fence lines, farm equipment and cattle loading facilities. Long-range views to the north are limited to 0.5 - 0.75 mile due to the proximity of the adjacent 60 percent slopes. Vistas to the south from the southern edge of the subarea look across I-580 to the Livermore-Amador Valley and beyond.

Quarries. The large industrial equipment and structures associated with mining in the Quarries subarea are visible from any vantage point that affords a view of the Amador Valley floor, detracting from the aesthetic quality of the landscape. With implementation of the Chain-of-Lakes as described under the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation* and site specific reclamation plans, the visual resource of the subarea will greatly improve.

North Livermore Valley. The North Livermore Valley subarea encompasses the Las Positas Valley, which is approximately 3 miles wide and bounded by two ridgelines. To the west, two small north-south trending ridges form Collier Canyon and the western visual extent of the subarea. The northern end of the Altamont Hills forms the eastern skyline, and features views of Brushy Peak and rows of windmills along the hilltops. To the north, undulating grassy foothills intrude into the subarea from Contra Costa County, and Mount Diablo can be seen in the distance. A few small hilltops located within the I-580 Scenic Corridor obstruct views to the subarea from the highway.

North Livermore Avenue bisects the subarea. Virtually the entire subarea can be viewed from its straight north-south course, taking in all the natural and man-made features that contribute to this subarea's wide-open rural character. Similar views are obtained travelling along any of the rural roads on the subarea's interior. Leaving the subarea via North Livermore Avenue provides views of the Livermore-Amador Valley up to the ridgelines.

The flat valley floor supports dryland farming, grazing and scattered rural residences. The Livermore Monitoring Station of the Federal Communications Commission is located in the southeastern portion of the subarea. Three-story wooden poles, necessary for the station's operation, are dispersed throughout the approximately 115-acre site. Power lines cross the valley, and are visible against the backdrop of the Altamont Hills.

South Livermore Valley. The South Livermore Valley subarea is characterized by a mix of agriculture, rural residential development, and undisturbed areas. From the rural two-lane roads that thread along the subarea's shared boundary with the City of Livermore, scattered residences and lined drives, agricultural buildings and vineyards are visible in the foreground.

Vineyards are an important visual feature that is unique to this subarea. The rows of vines accentuate the curves of the hills. Their deep colors contrast throughout most of the year with the golden-brown grasses in the background, and they can be seen from many points within and outside of the subarea.

Environmental review of the recently adopted *South Livermore Area Plan* (SLVAP) has identified and mitigated visual-related impacts specific to the South Livermore Valley arising from implementation of SLVAP policies.

Altamont Hills. This subarea is characterized by the complex of ridges and drainages that form the Altamont Range. Visually, the Altamont Range merges with the Mount Hamilton Range to the south and the Mount Diablo Range to the north to form the eastern "rim" of the Livermore-Amador Valley bowl, and the backdrop to many views from the valley floor. The overall topography features typical undulating grass-covered slopes rising to rounded peaks and ridgelines silhouetted against the sky. Brushy Peak, named for its evergreen shrub-covered summit, is the single natural feature that distinguishes itself from the rest of the Altamont Range, as the scrub vegetation persists in contrast to the surrounding grassland throughout the year.

Equally as significant in defining the character of this subarea are the wind turbines placed along the ridgetops of the Altamont Range. Located to take advantage of the high winds in this area, hundreds of turbines can be seen from nearly all approaches to the subarea.

I-580 traverses this subarea passing through the valley and over Altamont Range through the Altamont Pass. As the principal east-west thoroughfare into and out of the valley, I-580 over the Altamont Pass serves as a gateway to the East County, providing a sweeping view of the entire valley. For travellers heading east, the hills provide a definite boundary between the San Joaquin and Livermore Valleys.

This subarea contains few residences. Located in sheltered areas for the most part, residences are not easily seen from the road. Two sanitary landfills are located off of Altamont Pass and Vasco Roads; fill areas are not generally visible from these roads, however the Vasco Road landfill can be faintly seen in the distance from vantage points in the south portion of the planning area. The railroad parallels Altamont Pass Road for a short distance. In general, these man-made features do not significantly contribute to the visual character of the subarea.

Mountain House. As the largest area of irrigated agriculture in the East County, the Mountain House subarea is visually very different from the rest of the planning area. Physically separated from the rest of the East County by the Altamont Range, Mountain House is more closely related geographically to the San Joaquin Valley. The foothills at the north end of the Altamont Range form the western boundary of the subarea and reach out into flat, lush green fields.

Houses, barns, and livestock are visible from the two main roads, Grant Line and Mountain House Roads, that provide access to this area. Irrigation ditches parallel the roadways. The small town of Mountain House at the junction of these two roads consists of a couple of commercial buildings, including a general store. The Tracy Pumping Station and the concrete aqueduct are in the foreground along Mountain House Road.

Because there is little topographic relief in the subarea, nearly all of the subarea can be viewed from the roads. The Altamont Range, usually covered with gold and brown annual grasses, serves as a backdrop for views to the west, which often feature Brushy Peak and Mount Diablo. To the east, the flat terrain affords long-range views across green fields well into San Joaquin County. With the development of the recently approved Mountain House new community adjacent to the county line, views east will be significantly altered.

South Ridgeland. By far the largest of the subareas, the South Ridgeland comprises most of the southern portion of the planning area. The subarea's defining feature--repeating ridges covered with a mix of oak savannah, oak woodland, non-native grasses, bacharris brushland, and some pine forests--provides the backdrop for all southern views. This complex of northeast-southwest trending canyons and hills (which include Cedar Ridge, Rocky Ridge and Valpe Ridge) reach maximum heights of over 3,000 feet. Mount Rose located on Valpe Ridge rises to 3,817 feet, the highest elevation in Alameda County.

Land ownership in this subarea is approximately one-third public and two-thirds private. Included in the public lands are the holdings of the San Francisco Water Department (SFWD) which controls approximately one-third of the watershed lands, including San Antonio Reservoir. East Bay Regional Parks District (EBRPD) controls 3 parks: Sunol Regional Wilderness, Lake Del Valle State Recreation Area, and Ohlone Regional Wilderness.

Access into the subarea is limited and, because of topography, views are generally limited to the foreground. An exception is Del Valle Road heading north which, as it crests the ridge, affords vistas across the planning area to Mount Diablo.

La Costa Valley, the location of the San Antonio Reservoir, is the flattest portion of the subarea and is visible from Vallecitos Road (Highway 84). A series of power lines are also prominent middle ground features.

South Pleasanton. The South Pleasanton subarea consists primarily of the rolling grass-covered hills typical of much of the East County. The subarea is largely undeveloped, with the exception of low-density residential development adjacent to the City of Pleasanton. Nearly surrounded by Pleasanton is an approximately 500-acre triangular parcel of prime farmland owned by the San Francisco Water Department (SFWD). The relatively flat property is irrigated with water from SFWD and is used for growing alfalfa. The General Electric Vallecitos Nuclear Center, located just north of Vallecitos Road, is the predominant man-made feature within the subarea.

Sunol Valley. Similar to other subareas, the Sunol Valley subarea is defined and developed according to the limitations imposed by topography. To the north, the tree-covered Pleasanton and Sunol Ridges define the western horizon of many views within the planning area. Precipitously steep for the most part, some residential development has occurred along the eastern flanks of the ridges. The community of Sunol, which includes a small commercial hub, is located at the junction of Foothill and Niles Canyon Roads. Rustic residential development lines Kilcare Road running northward from Sunol through the heavily-wooded Kilcare Canyon.

Niles Canyon Road winds along the bottom of Niles Canyon, curving along Alameda Creek at the base of the canyon walls, which rise almost 1,000 feet above the creek. Due to the curving of the road, views are mostly enclosed, although the face of the hills on both sides of the roadway is clearly visible. Hillsides with northern exposure are often densely vegetated, while south-facing hillsides are more often covered in annual grasses and dotted with California Live Oak trees.

Vegetation along much of the road is very thick. Riparian vegetation associated with Alameda Creek is visible from the roadway. Significant trees include mature California sycamores; a row of eucalyptus adjacent to Rancho Aguirre and an allee of trees between Sunol corner and I-680. Open fields and nursery crops at the eastern end of the road, near I-680, give an agricultural appearance to the view.

The Pacific Locomotive Association runs steam train rides along the Southern Pacific track that also winds along the canyon floor. A hillside quarry operation near the east end of the canyon is somewhat visible from Niles Canyon Road. In Sunol, the view from the road of the Water Temple (part of the City of San Francisco's Hetch Hetchy system) provides a unique visual landmark.

Alameda County, the City of Fremont and the City of Union City have been working to implement Assembly Bill 815 authored by Assemblywoman Delaine Eastin and approved by Governor Deukmejian in 1989 which designated Niles Canyon Road, between Mission Boulevard and Highway 680, as eligible for official designation as a State Scenic Highway. Caltrans has several procedures that must be followed in order to have the road formally designated as a scenic route.

South of I-680 are more ridges and canyons which lie primarily within San Francisco Water District (SFWD) or East Bay Regional Park District (EBRPD) lands. Calaveras Road runs north-south through the Sunol Valley and into the tree-covered hills overlooking the Calaveras Reservoir. There are several active sand and gravel quarries in the Sunol Valley area. Although the mining itself is not highly visible since it occurs below grade, processing plants and conveyors are visible from I-680 and Calaveras Road. Views of quarry activity from I-680 are partially screened by berms and boxed specimen trees housed at adjacent nurseries. Future expansion of these quarries could increase their visibility, particularly if new processing equipment or large conveyors are planned.

Adjacent to the City of Fremont, the Vargas Plateau and Sheridan Road areas stretch to either side of I-680. The combination of rolling hills and flat areas provides views of existing residential, commercial, agricultural and recreational development. To the south, Mission Peak, Monument Peak and Mount Allison (ranging in height from 2,517 feet to 2,658 feet) lie along the boundary between the East County and the City of Fremont.

West Pleasanton. The West Pleasanton subarea is predominantly natural in character, a distinction created by the relative absence of development, the complex of vegetation (mostly grassland and oak-bay woodland) and topography. Views from ridgetops within the subarea often include Mount Diablo, Mission Peak, the Livermore-Amador Valley, Mount Rose, and San Francisco Bay; sometimes Mount Tamalpais in Marin County can be seen across the Bay.

Sunol, Main and Pleasanton Ridges can be seen from many vantage points both within and outside of the East County. Main and Pleasanton Ridges form the western horizon for views from the east across the valley floor. The horizon is a relatively clean line, since most development has occurred along the lower slopes. However, a few man-made features such as Santos Ranch Road and some communication facilities stand out against the deep green vegetation and natural ridgeline. Rolling topography confines views from I-580.

Views of the West Pleasanton subarea from the west and the south are not experienced by as many viewers as are the views from the east and north. Sunol and Walpert Ridges, both

largely undeveloped, separate the urban area along the Bay from the East County and block views from the west into the subarea. From the south, views into the subarea are generally not accessible from roads or residential areas, but users of Pleasanton Ridge Regional Park may view Sinbad Creek Valley, Pleasanton Ridge, and Sunol Ridge.

General Visual Considerations

The East County has many visual features--prominent peaks and ridgelines, rolling hills, agricultural lands, picturesque canyons, arroyos, and reservoirs--that are integral to the visual character of the area. New development must be sensitive to these features in order to preserve this visual character.

Ridgelines provide a dramatic backdrop for many views from the valley floor and across the planning area (see Figure 21.) Alteration of a prominent ridge or development on it can dramatically affect views throughout a substantial portion of the planning area. Structures along the top of a ridgeline disrupt the smooth skyline created by the ridge. Heavily-wooded ridgelines may provide some vegetative screening as long as the development is below the ridgeline and the height of the structure or structures does not exceed the height of the tree canopy.

Grassy hills constitute the middle-ground views for much of the planning area. Because of their high visibility and relative lack of vegetation, any development on the hills or alteration of their shape significantly alters the visual quality of the area surrounding them.

Foreground views are key to establishing the visual character of an area. Any development visible from a public road will influence this visual character. Some development can affect both foreground and distant views. Development adjacent to public roads can detract from or entirely block distant views. Height, placement on the parcel, and general appearance (including design, type of surface, and color) are important considerations for development in visually sensitive areas. Another consideration is the appropriateness of the proposed use in the context of the surrounding land uses.

Views into and from parkland and public trails are an important component in the enjoyment of these facilities. The same factors considered to minimize negative impacts on views from public roads should be applied to development in the vicinity of parks or other recreational open space uses to minimize visual impacts on these facilities.

Visual Considerations in Agricultural Areas

On July 11, 1991, the Alameda County Board of Supervisors adopted site development review requirements for residences in agricultural areas. Agricultural buildings are exempt to avoid County interference with agricultural activities. The primary purpose of the site review requirements is to minimize the visual and environmental impacts of the non-agricultural structures. The site review process involves consideration of many different factors such as ridgeline protection; design, color, and placement of the structure; visibility

of the access road; grading; light and glare; and vegetation. To date, the County lacks established criteria for the site review process.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- a significant increase in the amount of development in the East County would substantially alter the visual character of the planning area
- further urbanization could result in the loss of open space separating communities from each other within the planning area and separating East County communities from communities outside the planning area

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban/Open Space Delineation

Policy 1: The County shall identify and maintain an Urban Growth Boundary that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety.....

Table 2 sets forth visual criteria (among others) for establishing the Urban Growth Boundary.

Urban and Rural Development

Policy 29: The County shall approve Major New Urban Developments only if they are consistent with the performance guidelines contained in Table 6, the level of service guidelines contained in Table 7, and the urban design guidelines contained in Table 8, and only if they will not impose a fiscal burden on the County or cities.

Policy 46: The County shall require all new residential development to meet County standards for adequate road access, sewer and water facilities, fire protection, building envelope location, visual compatibility, and public services.

Open Space

Policy 56: The County shall preserve open space areas for the protection of public health and safety, provision of recreational opportunities, production of natural resources (e.g., agriculture, windpower, and mineral extraction), protection of sensitive viewsheds, preservation of biological resources, and the physical separation between neighboring communities.

Policy 60: The County shall require new developments to dedicate land and/or pay equivalent in-lieu fees for the provision of open space in East County for resource protection....

Policy 66: The County shall require that open space provided as part of a development project be designed to achieve open space objectives (e.g., recreation, viewshed, community separation, riparian protection, public safety).

Program 22: The County shall adopt an open space dedication and/or in-lieu fee requirement applicable to all residential and industrial, commercial, and office developments within unincorporated areas to fund the purchase of land within the continuous open space system and provide an endowment for on-going management of open space lands. The County shall work with cities to develop and adopt an open space dedication and in-lieu fee requirement consistent with the County requirement.

Program 23: The County shall work with cities to establish a non-profit Alameda County Open Space Land Trust to acquire and convey lands within the public open space system to other public agencies....

Program 25: The County shall work with the Livermore Area Recreation and Park District (LARPD), the East Bay Regional Park District (EBRPD), and the San Francisco Water Department to incorporate continuous open space areas outside the Urban Growth Boundary into the Bay Area Greenbelt system.

Program 36: The County shall amend the Zoning Ordinance to allow for clustering of single family homes on parcels of 400 acres and greater in the "A" (Agriculture) District. Each home site would be limited to a maximum parcel size of 5 acres, at an overall density of one home per 100 acres, in exchange for dedication of an agricultural easement on the remaining 95 percent of the original parcel. A development envelope of no more than two acres shall be identified within which all residential development and residential accessory uses shall be located on each 5 acre parcel. The clustering should be configured to maximize the amount of contiguous agricultural acreage and minimize the impacts of residential sites on agricultural operations.

Program 41: The County shall develop criteria to be used in evaluating land use proposals (e.g., parcel maps and conditional use permits) in the "A" (Agriculture) District. These criteria shall address, at a minimum, the following factors: environmental considerations, natural features, access, fire protection, interference with agricultural uses, water availability, provision of services, and visual impacts. In evaluating a subdivision application, the analysis should assume that each parcel includes a building site which *could* be developed with a residence (even if residences are not proposed as part of the application)

Program 45: The County shall develop criteria to be used in the **Site Development Review** process for residential development in the "A" (Agriculture) District. These criteria shall address, at a minimum, the following factors: environmental considerations, natural features, access, interference with agricultural uses, water availability, provision of services, health and safety, and visual impacts including light and glare. These criteria shall be used in determining the suitability of residential siting on agricultural parcels.

Community Separator

Policy 68: The County shall designate the Vargas Plateau and the Sheridan Road areas for agricultural and other open space uses. The County shall participate with the City of Fremont in their planning studies for these areas, and shall encourage the City of Fremont to designate the areas as community separators between Fremont and East County.

Policy 69: The County shall work cooperatively with the cities of Pleasanton and Hayward, the Castro Valley community, the East Bay Regional Park District (EBRPD), and landowners to retain Pleasanton Ridge as permanent open space and reserve a regional trail corridor connecting Sunol with the West Dublin hills. Accordingly, the County shall oppose city sphere of influence expansions and annexations outside the Urban Growth Boundary in this area for purposes of urban development.

Policy 70: The County shall encourage the City of Dublin to designate West Dublin for agricultural or open space uses to serve as a community separator and to reserve a regional trail corridor connecting the San Ramon westside hills with Pleasanton Ridge, consistent with the *East County Area Plan*.

Policy 71: The County shall recognize West Dublin as a valuable open space buffer separating the community of Castro Valley from the East County Planning Area. The County shall encourage the City of Dublin to retain this area as open space to be consistent with the County's designation of this area as "Large Parcel Agriculture."

Policy 72: The County shall designate approximately 3,200 acres in Eastern Dublin and approximately 4,200 acres in North Livermore as "Resource Management" towards the establishment of a continuous open space system in East County....

Sensitive Viewsheds

Policy 106: The County shall preserve the following major visually-sensitive ridgelines largely in open space use:

1. The ridgelines of Pleasanton, Main, and Sunol Ridges west of Pleasanton;
2. The ridgelines of Schafer, Shell, Skyline, Oak and Divide Ridges west of Dublin and the ridgelines above Doolan Canyon east of Dublin;
3. The ridgelines above Collier Canyon and Vasco Road and the ridgelines surrounding Brushy Peak north of Livermore;

4. The ridgelines above the vineyards south of Livermore;
5. The ridgelines above Happy Valley south of Pleasanton.

Policy 107: The County shall permit no structure (e.g., housing unit, barn, or other building with four walls) that projects above a visually-sensitive major ridgeline.

Policy 108: The County shall preserve community separators largely in open space in the following locations:

1. Approximately 3,200 acres in East Dublin and approximately 4,200 acres in North Livermore which separate the cities of Dublin and Livermore;
2. The Chain of Lakes area which separates the cities of Pleasanton and Livermore;
3. The area on Pleasanton and Main Ridges above 670 feet which separates the communities of Pleasanton, Castro Valley, and Hayward;
4. The area west of Dublin which separates the communities of Dublin and Castro Valley; and
5. The Vargas Plateau and Sheridan Road areas which separate the communities of Fremont and Sunol.

Policy 109: The County shall require that developments are sited to avoid or, if avoidance is infeasible, to minimize disturbance of large stands of mature, healthy trees and individual healthy trees of notable size and age. Where healthy trees will be removed, the County shall require a tree replacement program which includes a range of tree sizes, including specimen-sized trees, to achieve immediate visual effect while optimizing the long-term success of the replanting effort.

Policy 110: The County shall not allow any structure (e.g., housing unit, barn, or other building with four walls) to exceed the height of the tree canopy in woodland areas.

Program 48: The County shall use zoning, site development review, dedication, purchase, density transfer, and easements to preserve the ridgelines and community separators listed in policies 106 and 108.

Program 50: The County shall develop guidelines for tree replacement programs for new developments. The guidelines shall address, at a minimum, the conditions under which replacement will be required and the number, size, and type of trees to be used as replacement trees. Replacement trees shall be selected for appearance, drought-tolerance, habitat value, fire retardance, and suitability to site conditions.

Policy 111: The County shall require development to maximize views of the following prominent visual features:

1. The major ridgelines listed in policy 106;
2. Brushy Peak, Donlan Peak, and Mount Diablo; and
3. Cresta Blanca, near Arroyo Road South of Livermore.

Policy 112: The County shall review development proposed adjacent to or near public parklands to ensure that views from parks and trails are maintained.

Policy 113: The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.

Program 51: The County shall establish landscape guidelines for both urban and rural development.

Policy 114: The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.

Policy 115: The County shall require that grading avoid areas containing large stands of mature, healthy vegetation, scenic natural formations, or natural watercourses.

Policy 116: The County shall require that access roads be sited and designed to minimize grading.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project will normally have a significant environmental effect if it will "have a substantial, demonstrable negative aesthetic effect".

For purposes of this EIR, implementation of the plan would result in a significant environmental impact if it substantially degrades the existing visual quality, substantially alters the character of the region, eliminates visual resources, conflicts with applicable scenic resource protection requirements, or allows for future obstruction of existing public viewsheds including open space that functions as a community separator.

Potential Impacts and Mitigation Measures

Potential Impact 5.8-1: Increased development in the Livermore-Amador Valley would substantially alter the Valley's visual character.

Although the East County would remain predominantly rural in character, implementation of the proposed plan would result in irreversible and substantial changes in the visual character of the Livermore-Amador Valley due to proposed urban development in existing rural areas of the Valley. Under the plan, about 10,000 acres of existing open space in the Valley would be converted to urban development (see Table 6.7). Changes in the character of subareas of the East County would be greatest in North Livermore, Eastern Dublin, and the San Francisco Water Department land south of Pleasanton where the majority of additional development would be located. The plan identifies these areas as well-suited for substantial additional development because these areas are relatively flat and are adjacent to existing development. Some development would also occur in South Livermore Valley as was reviewed under the EIR for the South Livermore Valley Area Plan, although mostly along the existing city limits of Livermore.

Plan Policies and Programs: While the visual character of the Livermore-Amador Valley would change dramatically if developed in accord with the Land Use Diagram, the implementation of an Urban Growth Boundary (policy 1) would have a beneficial impact on the protection of visual resources in the larger East County because it would concentrate development in designated areas while protecting large amounts of open space outside the boundary. The Urban Growth Boundary was drawn in accordance with the criteria set forth in Table 2 of the plan. Table 2 includes as one criterion the consideration of visual resources by including prominent ridgelines, hill slopes, elevations over 800 feet, and other visually significant areas in open space. Thus, visually sensitive areas such as the hillsides and major ridges framing the valley floor (as well as other sensitive and valuable resources and hazard areas) are located outside the Urban Growth Boundary. These ridges frame the Valley and are the most visually dominant natural features in the region. The ridges also form natural community separators between Fremont and the southern portion of East County, between Dublin and Castro Valley, and between Pleasanton and Hayward to provide visual separation of these communities (policies 68, 69, 70, 71, 106, 108). By containing sprawl, the Urban Growth Boundary brings visual coherence to the larger landscape. The protection of open space, an integral part of the proposed plan (policies 56, 58, 61, 66), is critical to maintaining the visual character of the planning area; program 22 establishes a land dedication and/or in-lieu fee for purchase of strategic open space parcels and program 23 creates a County Open Space Land Trust. Dedication of approximately 3,300 acres in Eastern Dublin and approximately 4,200 acres in North Livermore as "Resource Management" contribute substantially toward the establishment of a continuous open space system in East County (policies 60 and 72).

The plan's emphasis on regional coordination would allow for opportunities such as developing connections with other open space systems, including those of the Livermore Area Recreation and Park District (LARPD) and the East Bay Regional Park District

(EBRPD) and the San Francisco Water Department to incorporate continuous open space areas outside the Urban Growth Boundaries into the Bay Area Greenbelt (program 25).

Other policies are intended to maintain visual quality in areas where development occurs. Landscaping would be required as part of each development to enhance its scenic quality and screen undesirable views (policy 113 and program 51). Policy 29 would require that new urban development meet high design standards that would help to maintain visual quality in urban areas (refer to *East County Area Plan - Volume 1*, Table 8). Policy 46 would ensure visual compatibility between urban development and the surrounding area. Further, open space within developed areas would be required to meet visual objectives such as protection of viewsheds and riparian corridors (policy 66).

While these policies would serve as critical components in a plan that aims to maintain the character and visual quality of the larger region, the loss of about 10,000 acres of open space to urbanization would result in a substantial visual alteration of the still predominantly rural character of the Livermore-Amador Valley, resulting in significant and irreversible impact.

Level-of-Significance: While policies and programs would substantially lessen the impact of the plan on the visual character of the planning area, no mitigation is feasible to reduce the impact to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.8-1: None available.

Potential Impact 5.8-2: Clustering of homesites on land designated "Large Parcel Agriculture" and "Resource Management" could substantially alter the visual character of rural areas.

The plan maintains the existing 100-acre minimum parcel size in areas designated "Large Parcel Agriculture" and "Resource Management;" however, under Program 36 of the plan, clustering of homesites on 5-acre parcels would be permitted on parcels of 400 acres or more in exchange for the dedication of agricultural easements on the remainder of the property. The introduction of housing clusters could change the appearance of the landscape by generating glare from lights at night and concentrating building masses in such a way as to appear more dense (i.e., more "suburban"-looking) than the surrounding rural area, be unresponsive to the natural topography, and/or be visually obtrusive to public view from trails, parks, and country roads.

Plan Policies and Programs: Under plan program 41, subdivisions creating clustered parcels and development on these parcels would be subject to the same criteria as other types of land use proposals in the "A" (Agriculture) District. The criteria used to evaluate a proposal would address, in addition to other considerations, visual impacts including light and glare (programs 45). Policy 107 would prohibit structures from projecting above major ridgelines. The plan would require that all development be designed to minimize impacts on scenic

features, such as trees and prominent viewsheds (policies 109, 110, 111, and program 50), and to preserve views from parks and trails (policy 112).

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact from clustering would occur.

Mitigation Measure 5.8-2: None needed.

Potential Impact 5.8-3: Replacing the existing Open Space Element policy with policy 284 could allow mass grading in areas exceeding 25 percent slope, resulting in degradation of background views.

Under the existing Open Space Element, it is stated that "natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left open permanently to eliminate mass grading (p.9)." To provide consistency between the Open Space Element and the *East County Area Plan*, this policy would be replaced with policy 284 of the Draft Plan: "The County shall minimize development within any area exceeding 25 percent slopes to minimize hazards associated with slope instability." (see Figure 21.)

Although policy 284 of the plan would *minimize* development in steep areas, grading could still occur in areas greater than 25 percent in slope (if mitigations relating to geologic hazards were appropriately implemented - see policy 285 and program 107). It is possible that mass grading in such locations could significantly alter the topography so as to degrade distant views.

Policies and Programs: While development could theoretically occur on slopes steeper than 25 percent, the plan's Urban Growth Boundary (policy 1) effectively excludes most urban development in hilly areas. Rural development would be subject to site design review if clustering occurred (program 41). Adverse visual effects from mass grading would also be addressed through policies 109 and 115 which call for development to avoid or minimize disturbance to vegetation and other natural features; policy 114 which calls for grading to simulate natural contours and to minimize off-site visibility; and policy 116 which requires that access roads be sited and designed to minimize grading.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant visual impact would result because little or no development in areas exceeding 25 percent in slope would occur.

Mitigation Measure 5.8-3: None needed.

While no mitigation is needed, the following modification to policy 284 would clarify this policy (new language is shown in *italics*; deleted language is ~~struck out~~):

Proposed Modification to Policy 284: The County shall minimize development within any area exceeding 25 percent slopes to minimize *mass grading and* hazards associated with slope instability.

Potential Impact 5.8-4: Proposed development adjacent to Interstate-580 would obstruct public views of open space serving as a community separator between East Dublin and North Livermore.

Open space between cities in the Livermore-Amador Valley is rapidly disappearing. Providing an open space buffer between cities helps preserve the individual identities of each community. Open space separating the cities also provides visual relief for both the residents of the cities and for those viewing the planning area as they travel through it. Without some form of open space community separator along the I-580 freeway, visual separation of the communities can not be effectively achieved. I-580 is the most significant transportation link between the cities and therefore the primary route from which most East County residents will view the open space serving as a community separator between the major new urban developments of East Dublin and North Livermore. This community separator will also be visually experienced by travelers along the future Dublin Boulevard extension.

Under the plan, further urbanization along the freeway corridor between Livermore and the cities of Pleasanton and Dublin would occur, increasing the general appearance from I-580 of the individual cities as being one metropolitan area. Existing and planned development has already filled in most areas between existing cities as cities expand into their spheres of influence. I-580 and existing development already preclude formation of a separator between Pleasanton and Dublin. Achieving a completely effective visual buffer between Pleasanton and Livermore faces similar constraints. Although the future Chain-of-Lakes in the quarry area separates Pleasanton from Livermore south of I-580, already planned urban uses on either side of El Charro Road immediately south of the freeway reduces the value of the quarry area as a community separator. Nevertheless, the Livermore Golf Course, located in the vicinity of El Charro Road and stretching for nearly a mile along I-580, helps to create a visual sense of separation between the two cities.

North of I-580 in the vicinity of Doolan and Collier Canyon Roads, more than 7,000 acres of open space, protected as resource management land, would separate the two major urban developments proposed in the East Dublin and North Livermore subareas. This large tract of open space, however, would not extend as far as the freeway. The Land Use Diagram shows continuous development adjacent to the freeway (mixed use business park and high density residential) stretching from Vasco Road in the east to past the I-680 interchange in the west. Allowing a continuous strip of development along the freeway would reduce the visual perception of separation.

Plan Policies and Programs: The separation of East County cities from cities outside the planning area is fully addressed by the plan; the separation of East County cities from each other is only partially addressed by the plan, where the Urban Growth Boundary extending around the cities (policy 1) would reinforce perception of the three cities as one unit.

Implementation of the plan would be effective in establishing community separators between Fremont/Union City and the East County, between Hayward and Pleasanton, between Dublin and Castro Valley. The plan also provides substantial open space between East Dublin and North Livermore and between Pleasanton and Livermore. Policy 56 calls for "the physical separation between neighboring communities." Policies 68, 69, 71, 72, and 108 identify the Vargas Plateau, Pleasanton Ridge, the Chain-of-Lakes area between Pleasanton and Livermore, the area west of Dublin, and 7,400 acres between East Dublin and North Livermore as community separators. Sensitive ridgelines, which in many cases serve as community separators, are also identified for preservation (policy 106); techniques to preserve community separators and sensitive ridgelines in open space are listed in program 48.

Despite the large amount of open space between East Dublin and North Livermore, its effectiveness as a community separator is lessened because the Land Use Diagram shows no open space separation between the two subareas immediately adjacent to I-580. Completion of a community separator between East Dublin and North Livermore would require preservation of open space extending from the freeway corridor to the hills.

Level-of-Significance: Without mitigation, this potential impact would be significant. The following modification to the Land Use Diagram would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struck out~~):

Mitigation Measure 5.8-4: The Land Use Diagram should be amended to preclude urban development adjacent to I-580 between future development in East Dublin and North Livermore for a distance sufficient to create an effective community separator that would extend open space from the freeway to the hills to the north.

SOURCES

Alameda County Planning Department, Draft Environmental Impact Report, South Livermore Valley Area Plan, June 1992.

City of Dublin, West Dublin General Plan Amendment Specific Plan Study, Study Report 1: Environmental Setting/Planning Considerations, November 27, 1989.

City of Livermore, Draft Environmental Impact Report, North Livermore General Plan Amendment, January 30, 1992.

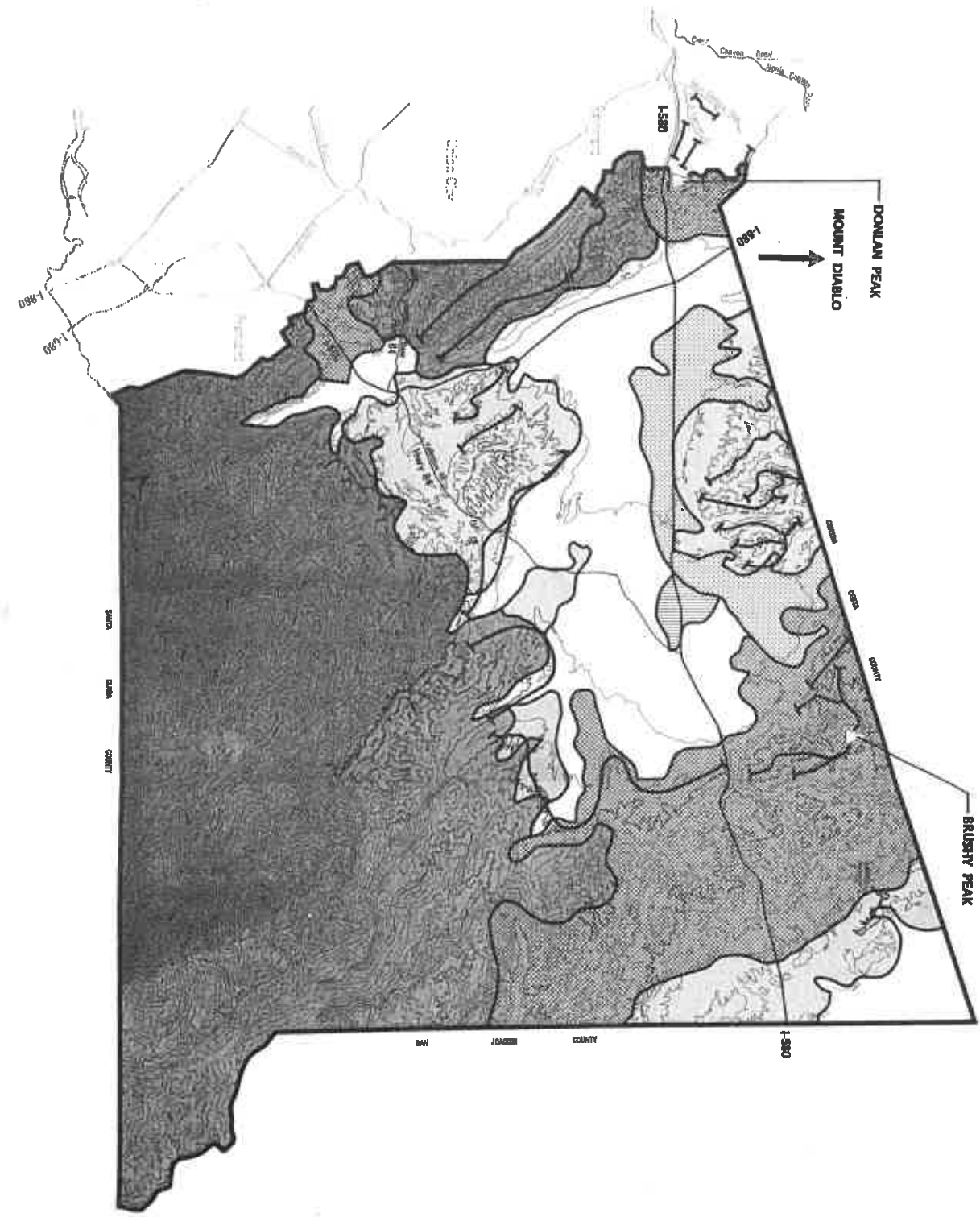
City of Pleasanton, West Pleasanton Expanded Planning Area Study: Opportunities and Constraints Analysis and Basis for Planning, June 1989.

State of California, Department of Transportation, Scenic Highway Report - Route 680 in Alameda County between the Santa Clara and the Contra Costa County Lines, October 1974.

State of California, Department of Transportation, Guidelines for the Official Designation of Scenic Highways, November 1990.

\\home\plan\air\chpt5-8.nhd

Generalized Land Slope Pattern



LEGEND

- 0 - 2%
- 2 - 8%
- 8 - 15%
- 15 - 30%
- 30 - 50%
- 50% and over
- Prominent Ridges

NOTE: This map has been prepared to aid in general land use planning. It is not intended for use in any other way, including but not limited to, for evaluation of individual sites. The map is based on judgments that are interpretive and apply generally to large areas, which each area conditions may vary considerably.

SOURCE: U.S. Department of Agriculture

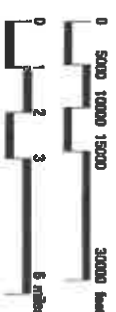


FIG. 21

Chapter 5.9 - Cultural Resources

A. EXISTING SETTING

Cultural resources represent the social, economic, physical and political history of the East County. They play an important role in defining the unique character of the East County and building an understanding of its past. A cultural resource may take many forms including: a structure, such as a building or bridge; a group of buildings, such as a historic commercial district or a farm; a transportation corridor; a natural feature, such as a grove of trees or a rock outcropping; a site on which an important structure once stood or an important event occurred; or a site containing important archaeological artifacts. A structure or site may be a cultural resource because of its physical attributes or because of its connection with a person or event that is important to the history of the area. Some cultural resources reveal past ways of life that might otherwise be forgotten. Others serve as a reminder that some activities, such as wine-making and horse-racing, which occur in the East County today, have a long and distinguished history in the area.

Cultural History of the East County

The original inhabitants of the area now known as Alameda County belonged to the Chochenyo-speaking tribes which are related to the "Costanoan" language family. The Costanoan Indians occupied an area stretching from below Monterey, through the coast ranges to the Delta, and east to the San Joaquin River.

By the late 1700's, a large portion of the East County was used for grazing cattle from Mission San Jose, located in what is now Fremont. After the Mexican Revolution and the closing of the missions, the East County was divided into five ranchos granted through petitions to the Mexican government: Rancho San Ramon, Rancho Santa Rita, Rancho El Valle de San Jose, Rancho Las Positas, and Rancho Canada de los Vaqueros (which was mostly in what is now Contra Costa County).

The urban communities that exist today were first settled in the mid-1800's and were based on a local agricultural economy effectively isolated from the urban centers of the Bay Area until the 1920's. Livermore and Pleasanton, located on railroad lines that were extended through the valley during the 1860's and 1870's, were primarily farm centers, serving livestock ranching and grain farming initially, and later, more intensive agriculture including viticulture and fruit and nut orchards. After 1920, the automobile and improved road systems helped to integrate the East County with the Bay region, stimulating population growth and an expanded, more diversified local economy.

Historical Resources

Several sites and buildings in the East County have received one or more of three historical designations: the National Register of Historic Places, State Historical Landmarks, and local Points of Historical Interest that are of local significance but do not qualify for State Historical Landmarks registration.

In the East County, four sites are listed on the National Register of Historical Places, four are State Historical Landmarks, and seven are Points of Historical Interest. These sites are shown in Figure 46 in the Background Reports (see *Draft East County Area Plan - Volume 2*). Three of these sites are within the unincorporated portion of the planning area while the remainder are within the Cities of Livermore and Dublin. As indicated on Table 5.9-1 below, the three sites in unincorporated East County are Concannon Vineyard and Cresta Blanca Wineries (State Historical Landmarks) and Wentle Brothers Wineries (State Point of Historical Interest).

Table 5.9-1 Historical Resources in the East County		
California Historical Landmarks		
Site	Location	
Concannon Vineyard	2 Miles Southeast of Pleasanton Valley on Livermore Avenue	
Cresta Blanca Winery	Arroyo Road Across From Veterans Hospital, South of Livermore	
Points of Historical Interest		
Date of Designation	Name of Point	Location of Point
5/18/83	Wente Brothers Winery	5565 Tesla Road, Livermore
Source: Alameda County Planning Department		

Archaeological Resources

Archaeology in Alameda County: A Handbook for Planners, a document prepared by Quaternary Research Group for Alameda County in 1976, identifies areas in the County that are of extreme, high, moderate, or minimal archaeological sensitivity. (Areas considered "sensitive" are those that are likely to exhibit archaeological or historical cultural resources.) Areas of extreme and high sensitivity are usually found in the proximity of water courses,

springs and ponds. Nevertheless, because channels of natural water courses and the location of springs change over time, cultural sites may be found in areas distant from existing water sources. In East County, areas of extreme sensitivity are scattered throughout the planning area although concentrated along the I-680 corridor in the Pleasanton and Sunol areas. Areas of high or moderate sensitivity cover much of the remaining portions of the planning area. Very few areas are identified as being of minimal sensitivity. Figure 47 in the Background Reports (*Draft East County Area Plan - Volume 2*) illustrates these areas.

Approximately 550 sites have been identified in Alameda County. The specific locations of sites are not publicized in order to protect the site. Locations are made known to qualified researchers or in instances where development may threaten the integrity of the site. When sites are identified, they must be recorded with the California Archaeological Inventory, Northwest Information Center at Sonoma State University. Opinions by Native Californians, archaeologists, and developers vary widely as to what actions should be taken at a discovery site. Some Native Californians do not want any sites excavated; others endorse respectful excavation and retrieval of their cultural history. Many archaeologists favor recordation, mapping, and investigation at a level of intensity sufficient to obtain essential information. Such recordkeeping is especially favored if a site could be directly or indirectly affected by a specific action.

Information on archaeological sites in the East County comes mainly from excavations that were conducted at several sites in the mid- and late-1970's. These sites indicate the presence of a previously unknown culture group. This group inhabited the edges of a seasonal marsh known historically to have covered a large portion of northern and western Pleasanton during a period sometime between 300 B.C. and 300 A.D. Analysis of burial artifacts indicate a rich culture linked to a major trade network, extending as far away as the eastern slope of the Sierras.

One of the most notable archaeological sites in the East County is the site of the Walker Caves, located in the Altamont Hills. These caves contain rare prehistoric polychrome pictographs. Also in the area are rock shelters, lithic (rock) scatters, and middens (prehistoric landfill sites) consisting of a variety of artifacts. Near Brushy Peak, this area has recently been acquired by the Livermore Area Recreation and Park District.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- development and additional cultivation in areas of high archaeological sensitivity could cause potential loss or damage of these resources

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Land Use Policies and Programs:

Policy 127: The County shall identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of East County.

Policy 128: The County shall require development to be designed to avoid identified cultural resources or to include appropriate mitigation measures.

Program 57: The County shall follow Appendix K of the California Environmental Quality Act (CEQA) Guidelines for cultural resource preservation procedures in reviewing development projects located near identified cultural resources.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

In accordance with CEQA Guidelines (Appendix G), cultural and historical impacts would normally be considered significant if the implementation of the *East County Area Plan* would disrupt or adversely affect a prehistoric or historic archaeological site or property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study. CEQA Guidelines (Appendix K) provides that if an archaeological resource is not an "important" resource, both the resource and the effect shall be noted in the EIR but need not be considered further in the CEQA process. An "important" archaeological resource is defined as one which:

- is associated with an event or person of:
 - recognized significance in California or American history, or
 - recognized scientific importance in prehistory;
- can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;

- has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
- is at least 100 years old and possesses substantial stratigraphic integrity; or
- involves important research questions that historical research has shown can be answered only with archaeological methods.

Potential Impacts and Mitigation Measures

Potential Impact 5.9-1: Development under the plan could adversely affect important known or undiscovered archaeological and historic sites.

Most of the East County planning area is located within moderate, high, or extreme archaeologically sensitive areas (see Figure 47 in the Background Reports). Implementation of the plan would result in land uses of varying types and intensities in areas designated with moderate to extreme archaeological sensitivity. Construction of buildings or infrastructure associated with development as well as intensive agricultural uses allowed in the plan could disturb known or undiscovered archaeological and historic sites.

Plan Policies and Programs: Policies and programs listed in Section B. above address the potential effects of the plan on cultural resources. Policy 127 provides that the County identify and preserve significant archaeological and historical resources. Although program 57 requires that development projects follow California Environmental Quality Act Guidelines for cultural resource preservation procedures (contained in Appendix ____ of this EIR document), the program lacks a procedure by which potential archaeological sites may be identified prior to site development. Policy 128 requires that development design avoid identified sites or implement mitigation measures.

Level-of-Significance: Without mitigation, this potential impact would be significant.

Mitigation Measure 5.9-1: The following modifications would mitigate this impact to a less-than-significant level by ensuring that an adequate procedure is available to identify potential archaeological sites prior to site development (new language is shown in *italics*; deleted language is ~~struck out~~):

Proposed Modification to Policy 128: The County shall require development to be designed to avoid ~~identified~~ cultural resources or, *if avoidance is determined by the County to be infeasible*, to ~~include implement~~ appropriate mitigation measures *that offset the impacts*.

Proposed Modification to Program 57: *If a project is located within an extreme or high archaeological sensitivity zone as determined by the County, a background and records check of the site shall be required. If there is evidence of an archaeological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process. If any archaeological sites*

are found during construction, all work in the immediate vicinity shall be suspended pending site investigation by a qualified archaeology professional. Proposed structures or roads on property that contains archaeological sites should be sited in consultation with a professional archaeologist to avoid damaging the archaeological sites. The County shall follow Appendix K of the California Environmental Quality Act (CEQA) Guidelines for cultural resource preservation procedures in reviewing development projects located near identified cultural resources. Appropriate measures for preserving an historic structure include renovation or moving it to another location. Proposals to remove historic structures shall be reviewed by qualified professionals.

SOURCES

Alameda County Board of Supervisors, General Plan for the Livermore-Amador Valley Planning Unit, December 12, 1989.

Alameda County Planning Department, "Public Facilities and Services Background Report, " Alameda County General Plan Review for the Livermore-Amador Valley Planning Unit", February 7, 1986.

Contra Costa County Water District, Los Vaqueros Draft Environmental Impact Report Vasco Road and Utility Relocation Project, February 1990.

Quaternary Research Group, Archaeology in Alameda County: A Handbook for Planners, October 1976.

\\home\plan\oir\chpt5-9.dwp

Chapter 5.10 - Mineral Resources

A. EXISTING SETTING

Mineral Deposits and Extraction Operations in the East County

Construction Aggregate. Alameda County contains one of three major production districts for Portland Concrete cement-grade sand and gravel in the San Francisco-Monterey Bay Area. The production district in Alameda County is the Livermore-Sunol Valley-Niles Cone area, and is the primary source of aggregate--sand, gravel and crushed stone materials used for construction purposes--for the South San Francisco Bay Production-Consumption Region. The production-consumption region consists of Alameda, Contra Costa, San Mateo, San Francisco and Santa Clara Counties, an area which totals 2,360 square miles. Aggregate is also imported from the Monterey region.

The State Mining and Geology Board has designated portions of the East County as Regionally Significant Construction Aggregate Resource Areas. These areas are mineral resource zones which are known or suspected to contain construction-grade sand and gravel deposits. There are five areas within the planning area which are designated as construction aggregate deposits of regional significance; all are described below. Figure 22 shows the location of the resource sectors within the East County.

Sector A. Aggregate deposits located in the Livermore and Amador Valleys in the Cities of Pleasanton and Livermore. Active Surface Mining Permits and Reclamation Plans in this area include SMP-16, SMP-23 and SMP-31 (and Quarry Permits Q-1, Q-2, and Q-76, which were approved prior to adoption of the County's Surface Mining Ordinance but remain in effect). Data concerning total resources in this area are not available because the operators consider it proprietary information.

Sector B. Alluvial deposit consisting of six parcels along Arroyo del Valle on the southwestern edge of the City of Livermore. These six parcels are under various ownerships; Sycamore Grove Park, a portion of Ruby Hill, and other privately owned lands are located in this sector. This deposit contains approximately 88 million tons of resource.

Sector C. Alluvial deposit consisting of six parcels located along Arroyo Mocho on the eastern edge of Livermore. None of the parcels has active surface mining permits; one is an active vineyard. The deposit contains approximately 99 million tons of resource.

Sector D. Greenstone deposit on Apperson Ridge east of Sunol Valley. Part of the area is covered by Surface Mining Permit and Reclamation Plan SMP-17; activity under

this permit has not yet commenced. Total resource available is approximately 1,040 million tons.

Sector E. Alluvial deposit consisting of five parcels in Sunol Valley. Active Surface Mining Permits and Reclamation Plans in this sector include SMP-8, SMP-24, SMP-29 and SMP-30. There is a single large parcel not currently under permit in this sector. Approximately 142 million tons of resource are available.

East County Quarry Operations. Numerous active or idle quarries are permitted for operation in Eastern Alameda County, ranging from small dirt quarries that are operated on an intermittent basis to large permanent gravel or rock extraction operations operating year round and occasionally up to 24 hours daily. The large quarries located in some of the Regionally Significant Construction Aggregate Resource Areas fall into the latter category. In Alameda County, each operating quarry has been assigned a Surface Mining Permit (SMP) number, with each permit carrying conditions of operation and reclamation for which the operator is responsible.

Livermore-Amador Valley Aggregate Operations. The operations of the Livermore-Amador Valley Quarry Area are based on the deposits of Regionally Significant Resource Sectors A and B, lying between Pleasanton and Livermore, and along portions of the Arroyo del Valle. Each of these operations comprise several hundred acres, with several large extraction pits. Many of these pits are to be reclaimed to water storage and groundwater recharge lakes under the ultimate jurisdiction of Alameda County Flood Control and Water Conservation District, Zone 7, according to the 1983 *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation* (described below under Regulatory Setting). Other pits are to be reclaimed to usable agricultural or urban reserve land. In addition to the general requirements of the Quarry Area Specific Plan, each quarry has its own specific detailed reclamation plan as required by the State Surface Mining and Reclamation Act (SMARA). Each of the operations has a processing plant with large daily capacities, and either conveyor or truck transport systems for movement of raw and processed aggregate.

The quarries have existed in the region for decades, back to the late 1800's. Until the 1960's, few other substantial developments had been built near the quarries, and few land use conflicts had occurred, although some environmental degradation probably ensued. Little environmental review had been performed, although basic operation and reclamation requirements had been placed on each quarry at the time of the first quarry permits in the late 1950's, despite the fact that the County Surface Mining Ordinance and SMARA were still nearly twenty years from adoption. In the 1970's and since that time, development has moved closer to the quarries, setting the stage for localized conflicts over noise, air quality, aesthetic quality, transportation, water quality and other issues. In the 1990's, some developments within the cities of Pleasanton and Livermore are located within a few hundred feet of the quarry boundaries; proposals for future projects in the proximity of quarry operations could increase the potential for incompatibility. Land use compatibility issues are discussed further below.

Sunol Valley Aggregate Operations. The operations of the Sunol Valley Quarry Area are based on the deposits of Regionally Significant Resource Sector E in the southwest portion of the planning area, in the Sunol Valley near the streambed of Alameda Creek. As in the Livermore-Amador Valley, these quarries are comprised of numerous large pits, some of which are to be reclaimed for water storage (in this case for the San Francisco Water Department), and some are to be restored to agricultural use. Each quarry has its own reclamation plan as required by SMARA, and each operation has a processing plant with large daily capacities, and either conveyor or truck transport systems for movement of raw and processed aggregate. Unlike the Livermore-Amador Valley, there is no master reclamation plan for this area. Two large parcels have not yet been excavated in this area. The first is covered by a permit, SMP-29, and will probably see preliminary excavation of overburden by the year 2000; the other is located along Alameda Creek, upstream from the existing quarries, and no permit application has been filed for this parcel.

Development in the Sunol Valley has traditionally been very limited, and there is much less potential for land use conflict with these quarries; in fact, several types of agricultural uses (nursery, vineyard, grazing and row crop) coexist successfully adjacent to the quarry operations. However, due to the quarry locations near the largest and most biologically important waterway in Alameda County, which also serves as a source of drinking water for many people, there is continuing potential for environmental impacts due to quarry activity.

Under a recent Surface Mining Ordinance amendment (Section 8-111.5, adopted by Board of Supervisors Resolution 92-13), uses that are not specifically quarry operations can be included under the SMP for a quarry, provided that the uses are accessory to the quarry operations and would be reclaimed as any other part of the quarry when operations terminate. The first use established under this ordinance is a glass recycling facility authorized under SMP-8, whose production will include glass cullet (processed glass pebbles) that may be mixed with raw aggregate and used for concrete and asphalt by the holder of SMP-8 and SMP-24. The location of this facility is just west of Alameda Creekbed, on the SMP-8 site. Other accessory uses may be proposed under this ordinance in the future.

Other Quarry Operations. Outside of the two major quarry areas discussed above, there are five permitted quarry operations, and two which have expired as of the date of this writing but which are expected to apply for renewal. Of these, the largest operation by far is the not yet begun Apperson Ridge Quarry (SMP-17), in a rural area southeast of San Antonio Reservoir and Sunol. This operation will remove more than one billion tons of rock from Apperson Ridge. The project EIR identified several impacts, including visual, biological, water quality and transportation impacts; the major land use impact identified was the effect on views from Sunol Regional Wilderness. Another hard rock quarry, much smaller in scale, is permitted in Niles Canyon (SMP-4) approximately two miles west of Sunol. Ongoing discussions between the County and the operator regarding water quality in the Alameda Creek drainage affect this quarry.

The remainder of the quarries in Alameda County are dirt fill quarries, with products suitable for basic fill or similar uses. Those that are under active permit (SMP-12, 21 and 28) are small, used intermittently and are located in rural areas. Of those that have expired permits (SMP-10 and 15), SMP-15 comprises a relatively large area east of Livermore on Greenville Road, and has some potential for land use conflicts with future development. The quarry covered by SMP-10 is smaller and has not been generally operated or reclaimed according to the permit. Each of the seven quarries discussed above is covered by a reclamation plan and would be reclaimed to agricultural use, with the exception of SMP-15, which is located in the Urban Reserve area east of Livermore, and which could be developed for industrial or other urban use in the future.

There are numerous small quarry pits located in generally rural areas throughout the hills of East County. These have typically been abandoned decades ago, and are not covered by reclamation plans.

Other Specific Mineral Deposits. Several other types of mineral resources have been discovered, and to some extent exploited, in areas near Livermore, the Altamont Hills, and Tesla Road. None are located in Regionally Significant Mineral Resource Areas.

Clays found in the areas mentioned were mined decades ago for use in brick, sewer pipe and roofing tile; however, no such mining has occurred since 1912. Extensive deposits remain, but exploitation of these areas has been prevented by the economic limitations of subsurface mining.

Lignite coal was mined extensively from the Tesla formation between 1897 and 1902. Silica was mined from Tesla Sandstone deposits northwest of Corral Hollow, but the extent of this operation, and its precise location, are no longer known. Other potentially valuable mineral deposits in the area include manganese, chromium, gemstones, pyrite, dimension stone, and natural gas.

Petroleum Extraction Operations.

There are several individual oil wells scattered throughout the eastern portion of the County (mostly around Livermore) and two major petroleum and gas fields: Hospital Nose Gas Field, several miles south of Livermore, which is now abandoned; and Livermore Oil Field, located east of Greenville Road and on either side of Patterson Pass Road.

Livermore Oil Field. In 1967, oil reserves estimated at approximately 1,000,000 barrels were discovered under several parcels of land east of Greenville Road near Livermore, on Sections 6, 7, and 8 of Township 3 South, Range 3 East (Diablo Meridian and Baseline). Between 1967 and the mid-1980's, dozens of exploratory wells were drilled, most of which did not reveal oil deposits; however, at least ten wells were put into oil production, along with associated facilities (derricks and storage). These wells and facilities were permitted by the County of Alameda under various Conditional Use Permits (CUPs). The original operator of the facilities was McCullough Oil Company,

however, in 1972, major interest in all facilities was transferred to Hershey Oil Company, which remains the primary operator. In 1987, three more CUPs were processed (CUPs C-5336, 5337 and 5338) allowing continued oil extraction through September 1997 from up to eight remaining wells. Currently, the total number of producing wells has been reduced to five, each of which produces approximately seven barrels of oil daily. Estimated reserves in 1986 amounted to 132,000 barrels; production is declining, and no further exploration is currently being conducted or proposed for the area. If production is still possible in 1997, additional CUPs may be requested by the applicants for continued operation.

Policies affecting the exploration for, and extraction of, petroleum products were adopted by the Alameda County Board of Supervisors in 1967. These policies are discussed below under Part 2, Regulatory Setting.

Regulatory Setting

Surface Mining and Reclamation Act. In 1975, the Surface Mining and Reclamation Act (SMARA) was adopted in response to the growing loss of significant mineral resources due to factors such as urban expansion. SMARA mandates two processes--classification and designation--in order to identify land containing mineral resources that are of statewide or regional importance, and ensure their availability. Mapping of Regionally Significant Construction Aggregate Resource Areas (discussed earlier) is the result of the state's classification and designation process.

SMARA requires that prior to any proposed development in areas that could threaten extraction of a resource, a city or county must prepare a statement specifying reasons for allowing the development. The statement should demonstrate that the reasons are in accordance with the affected jurisdiction's mineral resource management policies, and show that the value of the resource to the region and state have been adequately considered. The need for an environmentally-sound approach to mining has been given additional impetus by more recent amendments to SMARA in 1990 through 1993. These amendments placed particular focus on reclamation issues, which have been, and will continue to be, of significance to the planning area. Each existing quarry must have a reclamation plan with specific reclamation goals, fully covered by adequate financial assurances to complete reclamation in case of premature abandonment. Each new quarry permit must carry strict guidelines for reclamation procedures and standards according to the proposed end use, as prescribed by recent adopted regulations.

California Environmental Quality Act (CEQA). In Alameda County, each permit application receives an environmental review following the requirements of CEQA. Environmental documents for quarries in the Livermore-Amador Valley may be tiered from the program-level EIR prepared for the Quarry Area Specific Plan. There is no comparable master document covering mining and reclamation in the Sunol Valley. The CEQA process is now coordinated with requirements under SMARA that the State Department of Conservation be involved with review and approval of reclamation plans and financial assurances.

Alameda County Surface Mining Ordinance. In 1977, the County adopted the Alameda County Surface Mining Ordinance (ACSMO) to govern all quarry and reclamation activities in unincorporated Alameda County (including construction aggregate as well as dirt fill quarries). With adoption of the ACSMO came a new emphasis on environmentally sound reclamation, with requirements for progressive reclamation of mined areas.

The ACSMO requires all Surface Mining Permits and Reclamation Plans (SMPs) to undergo periodic review by the Planning Commission, in writing and at a public hearing, to consider new or changed circumstances within the general area of the mining operations that should be accommodated by the mining permit or reclamation plan. At the conclusion of the public hearing, the Planning Commission may modify a permit or reclamation plan to accommodate the changed circumstances. The schedule for periodic review is specified in each SMP (intervals between reviews may not exceed five years). The review for an existing reclamation plan is not subject to CEQA; that is, it does not reopen the environmental review process for the quarry unless the applicant has also proposed a substantive change to the reclamation plan.

Board of Supervisors Resolution 92-13 amended the ACSMO to allow uses that are not specifically quarry operations to be included under the SMP for a quarry. The first use established under this ordinance is the Allwaste glass recycling facility authorized under SMP-8. Other accessory uses may be proposed under this ordinance in the future. Such uses have potential for land use conflict and environmental impacts that may not occur with surface mining-only operations: noise and dust of different kinds, unusual materials, and structures of unusual appearance are some of these.

Specific Plan for Livermore-Amador Valley Quarry Area Reclamation. In 1983, the County adopted the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation* (Quarry Area Specific Plan) for a 3,820 acre area between Pleasanton and Livermore. This Specific Plan contains a coordinated reclamation plan for all of the quarry area with final reclamation for the entire area anticipated to occur by 2030. Over the 40-year period that sand and gravel reserves are expected to last in the quarry area, the pit areas are to be shaped into a "Chain-of-Lakes" which will provide a surface water conveyance and groundwater recharge system that will be dedicated to and operated by the Alameda County Flood Control and Water Conservation District, Zone 7. Recent amendments and refinements to reclamation plans for specific quarries in the area have added some details to the provisions in the Specific Plan, including the types of vegetation and improvements to be installed, but the basic premise of the Specific Plan has remained unaltered.

Petroleum Exploration and Extraction Policies: In 1967, around the time oil reserves were discovered in the East County, the Board of Supervisors adopted a policy regarding the development of these resources. An addendum was adopted by the Planning Commission in 1968. The policy is a "General Policy", without identifying code number.

The policy is designed primarily to preserve the land use and environmental integrity of the developed sites, currently zoned A (Agriculture), although a small portion of the area has

since been zoned as M-2 (Heavy Industrial). Issues such as spatial well density (one well per ten acres), prevention of surface and groundwater pollution, fire prevention, site reclamation and financial assurances, and access are all addressed by the primary policy. Specifics of the policy required applicants to comply with State Department of Conservation Codes and Directives for oil production, as well as other State Agency requirements for correct environmental protection procedures including waste oil disposal (at the time, such disposal could include injection into non-waterbearing strata below ground; such would probably not be acceptable today). The policy limits the amounts of oil, both new and waste, that could be retained onsite. The 1968 addendum policy provides for greater density of well spacing if the applicant can prove that the lesser density is impractical.

The policy has served the County reasonably well in the past for the limited oil production that has taken place, however, the age of the policy and the relatively new requirements for environmental review has tended to make the policy slightly inadequate if new proposals for continuation or expansion of the petroleum facilities should occur.

The petroleum facilities are currently permitted by the Zoning Administrator as Conditional Use Permits.

Sunol Valley, San Francisco Water District: At the time of this writing, a moratorium exists on new mining applications on lands owned by the SFWD in the Sunol Valley at the direction of the SFWD, pending the completion of two studies: the Water Resources / Hydrology Study for the Sunol Valley watershed, expected in late 1993; and the Water Resources Management Study, tentatively expected in 1995. The moratorium could be lifted with the publication of the Hydrology Study if the results indicate that the SFWD is inclined to accommodate additional surface storage reservoirs in the Sunol Valley.

Land Use Compatibility

Agricultural Uses. Portions of the East County with valuable sand and gravel resources, including those in Regionally Significant Resource Areas, are also overlain with prime agricultural soils (both of which are the result of stream deposits). Attention to phasing in a mining and reclamation plan can allow for agricultural activity to occur concurrently with mining on adjacent areas, and in fact such conditions currently exist with some quarries in the County; ultimately, however, a decision must be made between competing resources: it may not be possible to retain the prime agricultural soils *and* harvest the sand and gravel beneath the surface.

It is possible to reclaim mined land for agricultural use, by stockpiling the prime soil to use for eventual reclamation, so the loss of the soil resource and agricultural productivity of the land may not necessarily be total or permanent. SMARA has required, and the Department of Conservation has prepared, regulations guiding the reestablishment of prime agricultural use on reclaimed quarry lands when that is the stated end use. The regulations require that qualities such as productivity be addressed and maintained for reclaimed agricultural lands.

Therefore, unless the end use is to be different, agricultural lands affected by quarrying would typically not be lost but would be restored by law.

Water Resources. To date, it has been generally considered by most parties that the creation of quarry pits and subsequent reclamation to water management and conveyance lakes has been a beneficial impact of quarry operations in the Livermore-Amador-Sunol Valley, and that quarry use does not conflict with water management but rather may enhance it. Indeed, the Quarry Area Specific Plan was developed in part to provide Zone 7 with a water resources management system for the future.

It has also been recognized, however, that the dynamics of surface and groundwater management, and the role of quarry activity, could be better understood. The San Francisco Water Department (SFWD) owns, as part of its watershed lands, a large portion of the aggregate resource land in the Sunol Valley. SFWD is in the process of conducting a water resources study on the portion of Alameda Creek that runs from the Calaveras Reservoir through Sunol Valley. The study will look at the quarries on land leased from SFWD and as yet undeveloped aggregate resource lands in Sunol Valley in order to make recommendations for new permits, continued leasing, and the viability of reservoir water storage versus underground water storage. Until the water resources study is complete and the impacts of existing and potential quarries can be determined, SFWD has initiated a moratorium on new leases and has requested that the County withhold consideration of new Surface Mining Permit applications. The study is expected during mid-1993.

Residential Development. Although there are five state designated sectors of Regionally Significant Construction Aggregate Resources in Alameda County, most of them are in rural areas, or within a larger resource management area, specifically the SFWD watershed in the Sunol Valley. Only two regionally significant sectors -- those of the Livermore-Amador Valley from the Arroyo del Valle northward to near Interstate 580, between the cities of Livermore and Pleasanton -- are currently in close juxtaposition with urban residential areas or existing or proposed sensitive land uses. The two Sunol Valley sectors are not likely to experience significant urban development during the plan period; the Arroyo Mocho Sector C, while lying immediately to the south of the east Livermore area, is not proposed for production. Most of the two affected sectors in the Livermore-Amador Valley are currently in aggregate production, or have been mined out and are under reclamation. Only the Arroyo del Valle areas and a few small portions of the sectors to the north have not yet been quarried substantially.

Land use incompatibility problems between mining operations and nearby residential areas and other sensitive land uses in these areas have been increasing in recent years as development (particularly in the cities) encroaches on quarry areas. Impacts to residents may include noise, dust and bright lights, traffic and aesthetic impacts, while impacts to quarry operators may include the time and money required to address complaints, or in especially severe cases, reduction of operations or available resource. In the case of the Livermore-Amador Valley Area, such reductions could restrict the extraction of Regionally Significant Aggregate Resources, except that operators in the area hold vested rights to the resources.

As a result, further encroachment would only serve to increase the land use conflicts. Reviews and modifications of reclamation plans can help to decrease but not resolve these conflicts.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- encroachment of urban development could preclude or interfere with extraction of mineral resources
- quarry activity could affect stream courses, groundwater flows and groundwater quality, and biological resources
- quarry activity could adversely affect neighboring residents
- mining could involve stripping of agriculturally valuable soils

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 104: The County shall designate an area outside of the San Francisco Water Department lands that extends to the limit of the watershed boundary as "Resource Management". Within this area, the County shall encourage land use activities to adhere to management guidelines developed for the protection of watershed lands and shall ensure that subdivisions of lands within this designation are approved only where such subdivisions would not adversely affect the watershed protection objectives of the San Francisco Water Department.

Policy 120: The County shall encourage preservation of areas known to support special status species.

Policy 121: The County shall ensure that, where quarries will be reclaimed as open space, reclamation plans are designed to restore biological value to sites through appropriate revegetation, contouring of lakes to simulate natural bodies of water, and protection or in-kind replacement of significant trees. (same as policy 153)

Policy 122: The County shall protect existing riparian woodland habitat present along the Arroyo Mocho, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks.

Policy 144: The County shall allow the mining and reuse of quarries in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the *East County Area Plan*.

Policy 145: The County shall review proposals for development within or adjacent to state-designated **Regionally Significant Construction Aggregate Resource Sectors**. If the development is proposed on unincorporated land, the County shall consider the effects of such development on the future or continued extraction of the resource and shall approve such development only if conditions are applied to minimize the potential of the new use to preclude continued or future access to the resource. If the development is proposed within a city, the County shall encourage the city to do the same.

Policy 146: The County shall require that, where conflicts between a new use and existing quarry are anticipated, notifying future residents and mitigating the conflict shall be the responsibility of the new use.

Policy 147: The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual, and other impacts generated by sand and gravel quarries.

Policy 148: The County shall ensure that where quarry operations are located in areas designated as "Urban Reserve," extraction of the aggregate resource shall be allowed in the short-term subject to conditions of Surface Mining Permits and Reclamation Plans and consistent with the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation*. Conversion of reclaimed land to urban uses may not occur until detailed land use plans are approved.

Policy 149: The County shall ensure that where quarry operations are located in areas designated as "Water Management," extraction of the aggregate resource shall be allowed in the short-term and reclamation of the land for water management and other compatible uses shall occur subject to conditions of Surface Mining Permits and Reclamation Plans and consistent with the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation*.

Policy 150: The County shall participate with the San Francisco Water Department (SFWD) in its planning efforts for SFWD-owned watershed lands within the Sunol Valley to ensure that future quarry activity is compatible with Sunol community interests and water management objectives.

Policy 75: The County shall discourage the conversion of prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary.

Policy 152: The County shall encourage concurrent mining and agricultural uses on sites where aggregate deposits are overlain by agriculturally valuable soils to minimize the premature disturbance of such soils. To this end, the County shall consider phasing of quarry operations in the approval of Surface Mining Permits and Reclamation Plans.

Policy 155: The County shall require **landscaping** to reduce visibility of mining activity during all phases of quarry operations, in addition to landscaping for final site reclamation.

Program 64: The County shall amend the Surface Mining Ordinance to require appropriate **buffering** of adjacent land uses from quarry operations, including setbacks, landscaping, and use restrictions in the approval of any Surface Mining Permit and Reclamation Plan.

Program 65: The County shall amend the Surface Mining Ordinance to include **reclamation guidelines** consistent with the Surface Mining and Reclamation Act (SMARA).

Program 66: The County shall work with the San Francisco Water Department to develop a land use and reclamation master plan for San Francisco Water Department-owned land in the Sunol Valley. The plan shall ensure the compatibility of the quarries with the Sunol Community during active mining and following reclamation. Opportunities for habitat preservation and enhancement and recreational uses should be explored in conjunction with reclaimed uses.

Program 67: The County shall require that if a development is approved within 1,000 feet of a state-designated **Regionally Significant Construction Aggregate Resource Sector**, a real estate disclosure notice shall be included in deeds to notify purchasers and lenders of the proximity of the resource sector and that, if the resource were mined in the future, there could be attendant nuisances associated with mining such as dust, noise, and unattractive physical appearance.

Policy 282: The County shall protect surface and groundwater resources by... preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas; ... minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil... .

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

Appendix G of the CEQA Guidelines cites several standards of likely significance that may apply to mineral resources and extraction. According to Appendix G, extraction of mineral resources would normally have a significant effect on the environment if such extraction and/or related reclamation would:

- (a) conflict with adopted environmental plans and goals of the community, including County and State ordinances and plans; this item is specifically important because of the

designation of Regionally Significant Mineral Resource Areas, such as the aggregate resource areas described above;

- (b) have a substantial negative aesthetic effect;
- (c) substantially affect a rare or endangered species of animal or plant or the habitat of the species, or substantially diminish wildlife habitat;
- (d) substantially degrade water quality, contaminate a public water supply, or contaminate or deplete ground water resources;
- (e) disrupt or adversely affect an archaeological site, a property of historic or cultural interest, or a paleontological site;
- (f) cause a substantial increase in traffic, increase substantially the ambient noise levels for adjoining areas, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations;
- (g) cause substantial erosion or siltation or expose people or structures to major geologic hazards;
- (h) create a potential public health hazard; and/or
- (i) convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land.

For the purposes of this EIR, conflicts between mineral resource extraction (and ancillary uses) and sensitive development in the planning area could result in various environmental impacts. The resultant limitations that may be placed on mineral resource extraction in Regionally Significant Resource Areas would also constitute a significant impact.

Potential Impacts and Mitigation Measures

Potential Impact 5.10-1: Encroachment of urban development on or adjacent to areas underlain by state-designated Regionally Significant Construction Aggregate deposits could interfere with mining of the resource.

As mentioned above, development has been slowly encroaching upon existing quarries in the Livermore-Amador Valley, and by 1993, some conflicts have already occurred. Residential developments in eastern Pleasanton have notified the County and Kaiser Sand and Gravel that they are being affected by quarry operations, despite the presence of a 100-foot wide vegetated buffer area dedicated by the quarry operator across the street from the homes. Similarly, the southwest Livermore neighborhood adjacent to Alden Lane have been affected by limited operations in the Arroyo del Valle by RMC Lonestar in the past, even at a distance of 0.25 mile or more; larger proposed operations in the future could have greater

effects. On each of the parcels, the operators have vested rights to mine the resource that cannot be revoked except in the event of a significant infraction of their operating permits; despite this, the operators have made some concessions to homeowners regarding operation and especially reclamation.

Pleasanton, Livermore and the County currently have proposed or approved residential projects near or adjacent to the quarry areas or significant resource areas. Although it is unlikely during the Plan period that quarry operators with vested mining rights could be *prevented* from mining significant resources, it is possible that nearby sensitive development would require placement of additional restrictions on operations to ensure reasonable well-being and health of the residents. Such restrictions could make mining of the resource more difficult, as well as impede ultimate establishment of the Quarry Area Specific Plan for water transfer and recharge. These restrictions could be especially strict for the Arroyo Mocho Sector C area, where no mining or mining rights currently exists. It must be stated here that many of these impacts would probably be as likely without implementation of the plan, since the Sector A and B quarries already exist, and most new development would be in the cities of Pleasanton and Livermore, outside of County control.

Plan Policies and Programs. While there is little that can be done to moderate the effects of the Sector A and B quarries and nearby residential areas upon one another once the two conflicting uses are established, the ECAP proposes several preventive measures to help minimize the potential for conflict for future developments and quarry proposals. Policy 145 requires that County development review shall consider the effect of development in unincorporated areas on the ability to mine significant aggregate resources, and require new development to minimize its impact on the extraction of mineral resources; for land developed in cities, the County would use the CEQA response process to encourage consideration of the potential land use conflicts by the cities' CEQA analysts. Policy 146 requires that, where conflicts between a new use and existing quarry uses are anticipated, the new use shall be responsible for notifying future residents of the potential for conflicts, as well as mitigating those conflicts as far as possible. Program 67 would require that if a development is approved within 1,000 feet of a state-designated Regionally Significant Construction Aggregate Resource Sector, a real estate disclosure notice shall be included in individual deeds to notify purchasers and lenders of the proximity of the resource sector and that, if the resource is being mined or were to be mined in the future, there could be attendant nuisances associated with mining such as dust, noise, and unattractive physical appearance. This includes dwellings built near as yet unmined resources such as those in the Arroyo Mocho. These policies would at their best prevent the two uses from affecting each other, and at least help to ensure that all potential homebuyers are aware of the potential conflict before any decisions are made.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on Regionally Significant Construction Aggregate deposits would occur.

Mitigation Measure 5.10-1: None needed.

Potential Impact 5.10-2: Mining and processing of construction aggregate near existing residential communities, as well as ancillary uses associated with quarry operations, could result in various impacts on residents, including noise and dust from extraction, processing and transportation; light and glare from night operations; truck traffic and potential truck spillage; and alteration of short- and/or long-distance views caused by processing and conveyance structures.

The ECAP allows quarrying within the following land use designations: Large Parcel Agriculture, Resource Management, Water Management, Urban Reserve and Quarries. Where quarries are proposed adjacent to residential areas, impacts on residents could occur.

As of 1993, most major quarries in the planning area either are operated under long-standing permits with many years remaining in the permit term, or have been permitted recently and would be in operation through all or most of the plan period. Exceptions to this rule are the CalMat (formerly Jamieson) Quarry in the Quarry Area Specific Plan area (SMP-16), the former Monarch Industrial (formerly Jilchris) Quarry east of Livermore on Greenville Road (expired SMP-15), and Niles Canyon Quarry near Brightside in Niles Canyon (SMP-4); these permits have either expired or have short terms remaining on their permits. A few areas with Regionally Significant Resources have not yet been quarried, and the potential for these sectors are high, including approximately 170 acres in the southwest quadrant of the interchange of State Highway 84 and Interstate 680 in Sunol (with very high potential, Sector E), several hundred acres within the same sector, but farther south along Alameda Creek (low to moderate potential), and across of Sector C, in the Arroyo Mocho southeast of Livermore (low potential). There is the possibility of quarry development in close proximity to residential development in each of these areas.

Plan Policies and Programs: A number of policies have been provided to effectively address this impact. Policy 147 requires the County to impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual, and other impacts generated by sand and gravel quarries; the most obvious means of imposition of effective conditions is through the CEQA process, conducted for every surface mining permit application to develop proper environmental mitigation measures and reclamation plans. Policy 148 requires adherence to the Quarry Area Specific Plan in areas designated as "Urban Reserve", and requires detailed land use plans as a prerequisite to conversion of reclaimed lands to urban uses. Policy 150 requires the County to coordinate with the SFWD to ensure that future quarry activity in the Sunol Valley is compatible with the interests of the town and water management objectives. Policy 155 states that the County shall require landscaping to reduce visibility of mining activity during all phases of quarry operations, in addition to landscaping for final site reclamation; program 64 requires the County to amend the Surface Mining Ordinance to require appropriate buffering of adjacent land uses from quarry operations, including setbacks, landscaping, and use restrictions in the approval of any Surface Mining Permit and Reclamation Plan; finally, program 66 requires the County to work with the San Francisco Water Department to develop a land use and reclamation master plan for San Francisco

Water Department-owned land in the Sunol Valley, to ensure the compatibility of the quarries with the Sunol Community during active mining and following reclamation. Opportunities for habitat preservation and enhancement and recreational uses could be explored in conjunction with reclaimed uses.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact related to land use incompatibility between quarry operations and residences would result.

Mitigation Measure 5.10-2: None needed.

While no mitigation is needed, the following modifications are suggested for clarification (additional language in *italics*):

Proposed Modification to Policy 147: The County shall impose conditions on approval of new Surface Mining Permits and Reclamation Plans to protect nearby uses from potential traffic, noise, dust, health and safety, visual, and other impacts generated by sand and gravel quarries. *The conditions should at least include, but not be limited to, those developed through the California Environmental Quality Act review process.*

Proposed Modification to Policy 155: The County shall require landscaping to reduce visibility of mining activity *and ancillary uses* during all phases of quarry operations, in addition to landscaping for final site reclamation. *Landscaping should as closely as possible approximate the preexisting natural conditions prior to surface mining.*

Potential Impact 5.10-3: Mining could result in loss of plant communities or wildlife habitat by clearing land for roads, structures and extraction/processing activities; by introducing truck traffic into previously inaccessible areas; and by creating noise and dust.

The ECAP allows quarrying within the Large Parcel Agriculture, Resource Management, Water Management, Urban Reserve and Quarries land use designations. Quarry operations and associated processing activities could result in the direct loss of portions of plant communities and wildlife habitats. However, the loss may be temporary depending upon phasing and duration of the activities and reclamation of the site.

Plan Policies and Programs: Policies 121 and 153 of the plan require the County to ensure that, where quarries will be reclaimed as open space, reclamation plans are designed to restore biological value to sites through appropriate revegetation, contouring of lakes to simulate natural bodies of water, and protection or in-kind replacement of significant trees; this policy closely follows SMARA and regulations developed pursuant to SMARA, requiring that when proposed, biological habitat shall be restored as closely to desired natural conditions as possible, "...in a condition at least as good as that which existed before the lands were disturbed..." (Public Resources Code, Article 9, Section 3703). This policy

would also be effective for areas other than streambeds, including disturbed hillsides and woodlands. Policy 122 states that the County shall protect existing riparian woodland habitat present along the Arroyo Mocho, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks.

Site-specific impacts resulting from quarry construction and operations cannot be anticipated at this level of analysis. The County can encourage, however, that where mitigation is required for a site-specific impact, the mitigation efforts be consolidated to maintain a contiguous open space system in the planning area and that lands be managed to ensure long-term protection of the biological resources.

Level-of-Significance: With implementation of proposed plan policies and programs, quarry operations would not cause a significant impact on plant communities and wildlife habitats unless those activities would cause a reduction in the population of special status species. A reduction in the population of special status species would result in a significant impact. A new proposed policy (Mitigation 5.10-3) would mitigate this impact to a less-than-significant level (note that this proposed policy is also recommended in *Chapter 5.7, Biological Resources*, Mitigation 5.7-6).

Mitigation 5.10-3: Proposed New Policy: *Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as Resource Management or on lands adjacent to or otherwise contiguous with these lands, in order to establish a continuous open space system in East County and to provide for long term protection of biological resources.*

In addition, the following modification to Policy 122 is proposed to recognize existing vested rights to mine in the Arroyo del Valle (additional language in *italics*):

Proposed Modification to Policy 122: The County shall protect existing riparian woodland habitat present along the Arroyo Mocho, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks. *Exceptions to these requirements shall apply for those portions of the Arroyo del Valle to be excavated for water transfer Lakes A and B under the Specific Plan for the Livermore-Amador Valley Quarry Area Reclamation, which shall instead be subject to riparian habitat restoration as specified by policies 121 and 153; and for any approved quarry operations in Regionally Significant Construction Aggregate Resource Sector C (Arroyo Mocho) or any other streambeds, which shall also be subject to habitat restoration under policies 121 and 153, and according to applicable State Public Resources Code requirements, to the extent that proposed reclamation specifies riparian habitat as the end use.*

Potential Impact 5.10-4: Mining and processing of aggregate resources on public watershed lands, or private lands draining into public watershed, could adversely affect quality of the drinking water resource, both on the surface and in the ground.

The lands in the vicinity of the Sunol Valley are largely owned by the SFWD, for the purposes of water management and supply. Alameda Creek, the largest drainage in the County, runs through and drains the watershed, and provides a substantial source of water for the SFWD. The proposed ECAP clearly recognizes this by designating the privately owned lands within the SFWD watershed area as Resource Management, with the intent that it shall remain as open space with water management as the guiding principle for stewardship in the foreseeable future. There are also some lands located around the SFWD-owned parcels, including some privately owned lands, and some publicly owned as well (public parklands).

Numerous quarries exist within the Sunol Valley watershed, including those in Significant Resource Sector E (Sunol Valley), as well as a small dirt quarry, SMP-28, near Sheridan Road to the south. Sector D, Apperson Ridge, lies upstream of San Antonio Reservoir; SMP-17 covering Apperson Ridge is approved but the operator has not yet begun to quarry. Other lands could be proposed and approved for quarries in the future, including two more large parcels near the banks of Alameda Creek, and other locations in the hills surrounding the watershed. Each of these, even if carefully controlled, has the potential for affecting the water quality.

Plan Policies and Programs: Policy 104 states that the County shall designate an area outside of the San Francisco Water Department lands that extends to the limit of the watershed boundary as "Resource Management". Within this area, the County shall encourage land use activities to adhere to management guidelines developed for the protection of watershed lands and shall ensure that subdivisions of lands within this designation are approved only where such subdivisions would not adversely affect the watershed protection objectives of the San Francisco Water Department. Policy 149 states the County shall ensure that where quarry operations are located in areas designated as "Water Management," extraction of the aggregate resource shall be allowed in the short-term and reclamation of the land for water management and other compatible uses shall occur subject to conditions of Surface Mining Permits and Reclamation Plans and consistent with the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation*. This policy, with the appropriate language, confines its force to the Livermore-Amador Valley; furthermore, such a policy could not be created for the Sunol Valley yet, because no water management plan like the Quarry Area Specific Plan has been adopted. However, program 66 requires the County to work with the SFWD to develop a land use and reclamation master plan for SFWD-owned land in the Sunol Valley. The policy covering this program is policy 150, stating the County shall participate with the SFWD in its planning efforts for SFWD-owned watershed lands within the Sunol Valley to ensure that future quarry activity is compatible with Sunol community interests and water management objectives. Finally, policy 282 states the County shall protect surface and groundwater resources by... preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas; ... minimizing

sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil... This policy, if carefully implemented, would directly affect quarry operations, not only in the Sunol Valley but elsewhere as well. Its mitigating effect would be substantial.

Level-of-Significance: Without mitigation, this potential impact could be significant, because some policies either do not directly address quarry activity or because the framework for area planning, i.e., proposed water resources management plan, is not referenced adequately. The following modifications to policies would mitigate this impact to a less-than-significant level (new language is in *italics*):

Mitigation Measure 5.10-4 (a): Proposed Modification to Policy 104: The County shall designate an area outside of the San Francisco Water Department lands that extends to the limit of the watershed boundary as "Resource Management". Within this area, the County shall encourage land use activities to adhere to management guidelines developed for the protection of watershed lands and shall ensure that subdivisions of lands *or quarry operations and reclamation plans* within this designation are approved only where such subdivisions *or quarry operations* would not adversely affect the watershed protection objectives of the San Francisco Water Department.

Mitigation Measure 5.10-4 (b): Proposed Modification to Policy 149: The County shall ensure that where quarry operations are located in areas designated as "Water Management," extraction of the aggregate resource shall be allowed in the short-term and reclamation of the land for water management and other compatible uses shall occur subject to conditions of Surface Mining Permits and Reclamation Plans and consistent with the Specific Plan for Livermore-Amador Valley Quarry Area Reclamation *or the comparable plan prepared for the Sunol Valley/San Francisco Water Department watershed lands pursuant to policy 150 and program 66, whichever is applicable.*

Potential Impact 5.10-5: Extraction of sand and gravel could affect groundwater quality, percolation capabilities, and groundwater flows.

Sand and gravel quarries, by nature, often penetrate various levels of groundwater. The quarrying operation is generally a simple matter of excavation, so that unnatural materials are rarely placed in groundwater. Most contamination would come from natural sources, such as siltation. There is, however, possibility of contamination from fueling spills or other accidental small discharges of material onto the ground. Confinement of hazardous material handling, therefore, should be kept to a specific area away from open ground or surface water.

More likely to be affected are groundwater flows and percolation capabilities. Sand and gravel is naturally very permeable to water, allowing almost unrestricted underground flows except where natural clay lenses or other aquitards or aquicludes occur. Siltation during

mining or reclamation of pits using less permeable material can alter the flow of groundwater in the vicinity of the pit and decrease the permeability of the pit site for groundwater recharge. In virtually all cases to date in Alameda County, this is inconsequential because the pits reclaimed with less permeable silt material are surrounded by tens or hundreds of acres of open pits and gravel earth, so that the pit is no more than a spatial aberration to the groundwater flow. However, as mining and reclamation progresses in the Livermore-Amador Valley and Sunol Valley, this effect could increase in importance depending on the spacing and size of reclaimed pits. In both locations, some lakes would remain open, and these lakes would have permeable gravel walls.

In the Quarry Area Specific Plan, the Chain-of-Lakes is designed as a tool for groundwater recharge; in this case, the excavation will have an end result of improved groundwater recharge in the location where it desired, a highly permeable gravel face near Pleasanton. No such plan exists for the Sunol Valley, however, and SFWD has not completed its planning process for the watershed yet. It is unknown to what extent SFWD proposes to retain lakes and permeable zones.

Plan Policies and Programs: Policy 150 states that the County shall participate with the SFWD in its planning efforts for SFWD-owned watershed lands within the Sunol Valley to ensure that future quarry activity is compatible with Sunol community interests and water management objectives. Policy 282 requires that the County protect surface and groundwater resources by preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas; minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil. The policy would generally allow the County to make strong decisions for the protection of percolation and groundwater quality.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on groundwater would occur.

Mitigation Measure 5-10.5: None needed.

Potential Impact 5.10-6: Stripping of overburden for sand and gravel mining could result in loss of valuable agricultural soils.

Several areas of current quarry activity, as well as potential quarry activity, occupy areas of prime agricultural soils. Much of the Livermore-Amador Valley Quarry Area between Livermore and Pleasanton is, or was at one time, overlain by prime agricultural soils deposited by prehistoric flood events on the Arroyo del Valle, Arroyo Mocho and Arroyo Las Positas. As of 1993, much of the area has been quarried, resulting in creation of lake pits and permanent loss of the soil surface, although some has been retained for reclamation to agricultural and possible future urban uses. Permits for new quarries are not likely for this area, but existing quarries are expected to continue for several decades, with updated

reclamation plans being prepared on approximately five year intervals. A similar situation exists for the Sunol Valley, in which many (but not all) parcels with prime soils have been quarried. Remaining areas of prime soils in the Sunol Valley have high potential for mineral extraction, including areas near the interchange of Interstate 680 and State Highway 84. Finally, the Arroyo Mocho Sector C Regionally Significant Construction Aggregate Resource Area is overlain by patches of prime soil, as well as non-prime soil, located in a district recommended for vineyard production by the South Livermore Valley Area Plan. To date, no SMP application has been submitted; potential for future aggregate extraction in this location is uncertain but probably low.

Alameda County has generally recognized the value of maintaining active quarries in those areas designated as significant mineral resource areas, to the extent that demand for mineral products remains sufficient and environmental concerns can be adequately addressed. The County has also recognized the importance of preserving agriculturally-valuable soils, including those which are not considered "prime" but are appropriate for viticultural activity. Where Regionally Significant Construction Aggregate Resource Area coincide with Prime or other valuable soils, the availability of one resource must necessarily be reduced, at least temporarily.

If mining is to be restricted in a Regionally Significant Construction Aggregate Resource Area, the lead agency (the County) is required by SMARA to issue a decision and statement explaining why it is necessary to restrict mining in favor of the other use.

Plan Policies and Programs: Policy 75 states the County shall discourage the conversion of Prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary. Policy 144 states that the County shall allow the mining and reuse of quarries in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the *East County Area Plan*. Policy 152 encourages "concurrent mining and agricultural uses on sites where aggregate deposits are overlain by agriculturally valuable soils to minimize the premature disturbance of such soils. To this end, the County shall consider phasing of quarry operations in the approval of Surface Mining Permits and Reclamation Plans". These policies recognize the importance of **both** resources and also that the County should take all possible steps to maintain each despite the presence of the other.

Despite the best efforts of the County to balance the two uses, there will be occasions when one use will need to be lost to the other. When a new water storage lake is created, for example, that surface of soil will be lost. Conversely, in the Arroyo Mocho, if a vineyard is established, it may preclude for an indeterminate time the extraction of the significant mineral resource. The permanent losses, especially, must be considered a significant impact.

Level-of-Significance: While policies and programs would substantially lessen the impact of quarries on valuable agricultural soils, no feasible mitigation is available to

reduce the impact to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measure 5.10-6: No feasible mitigation is available.

Potential Impact 5.10-7: Petroleum extraction could result in adverse environmental impacts to land use, the land itself and to nearby water resources.

To date, petroleum extraction has been conducted on a limited basis in the East County near Greenville Road. Conditional Use Permits have allowed operations for periods up to ten years, and there have been no complaints about operations in the area. As discussed above under Part 2, **Regulatory Setting**, the County has existing policies for regulation and approval of petroleum extraction facilities, including requirements for environmental protection, which has been effective to date, although no monitoring has taken place.

In the event that permits are renewed for petroleum extraction and/or exploration in the planning area, lack of CEQA review and monitoring of the facilities could hinder effective policy enforcement, and possibly result in some environmental degradation. If groundwater protection is not adequately enforced or reclamation of the sites after abandonment is not properly performed, the impact upon the environment and future use of the land could be significantly affected.

Plan Policies and Programs: The *Draft East County Area Plan* does not include any policies or programs addressing petroleum exploration and extraction in the East County.

Level of Significance: Without mitigation, the impact of future petroleum extraction could be significant. The following new policy would reduce the impact to a less-than-significant level:

Mitigation Measures 5.10-7: Proposed New Policy: *The County shall impose conditions on approval of new Petroleum Resource Exploration and Extraction Conditional Use Permits to protect future onsite and nearby uses from potential impacts resulting from petroleum exploration or extraction; potential impacts include but are not limited to traffic, noise, dust, health and safety, and visual impacts, as well as land contamination, surface and groundwater contamination, improper disposal of petroleum wastes, and improper site reclamation. The conditions should at least include, but not be limited to, those developed through the California Environmental Quality Act review process, and shall be monitored accordingly.*

SOURCES

Alameda, County of, Regulation of Exploratory and Production Oil Wells in Alameda County (1967; addendum, 1968).

Alameda, County of, Specific Plan for Livermore-Amador Valley Quarry Area Reclamation (1983).

Alameda, County of, Surface Mining Ordinance (1977).

California, State of, Department of Conservation, Division of Mines and Geology, DMG Note 26. Surface Mining and Reclamation Act of 1975 (Revised 1992).

California, State of, Office of Planning and Research, CEQA: California Environmental Quality Act Statutes and Guidelines, Appendix G: CEQA Guidelines (1986).

California, State of, Public Resources Code, Article 9, Section 3703, "Performance Standards for Wildlife Habitat," (Revised 1992).

Chapter 5.11 - Geologic Hazards

A. EXISTING SETTING

Physical Setting

Seismicity. The East County is located in a region of great seismic activity. The seismicity of a region can be measured by the frequency, distribution, and intensity of earthquakes over a period of time. The earth's crust is composed of numerous rock masses of horizontal extent, called tectonic plates, which are in dynamic contact at their edges. Earthquakes are caused when potential energy stored in adjacent masses of rock is released and a relative shift in the positions of the plates ensues. The resulting rupture along which the displacement of earth occurs is called a fault. A fault line is a scar on the surface where earth materials have been displaced.

The repeated occurrence of earthquakes in the Bay Area is related to the accumulation of stress caused by constant motion occurring at the boundary of the North American and Pacific tectonic plate boundaries (i.e., the region's fault zones). The magnitude of an earthquake is expressed in terms of the amount of energy released at or near the epicenter of the earthquake. The magnitude is measured by seismographs and is expressed as a logarithmic number on the Richter Magnitude Scale.

Classification of Fault Zones. Faults are classified as "active," "potentially active," "activity uncertain," and "inactive." An "active" fault is one where there has been some activity within recent geologic time, and there is potential for activity in the near future. A "potentially active" fault is one in which there has not been a rupture in historic time, but there is geological evidence that a rupture has occurred in the recent geological past and could happen in the future. A fault classified as "activity uncertain" is one for which there is insufficient data concerning the level of activity or recurrence of activity. An "inactive" fault is one for which there is no evidence of activity in recent geologic time.

There are a number of active and potentially active faults in the San Francisco Bay region. The San Andreas Fault system, which runs nearly the entire length of California, includes a number of individual faults in addition to the San Andreas itself. While the San Andreas runs west of San Francisco Bay, three major components of the system--the Greenville, the Calaveras, and Hayward Faults--are found east of the Bay, extending through the East Bay Hills and the Diablo Range.

The Greenville and Calaveras are the two largest faults which actually run through the East County. The Greenville Fault, which is classified as active, traverses the central portion of the planning area in a northwest to southeast direction, generally following the western base of the Altamont Hills. The Calaveras Fault, also considered active, traverses the western

portion of the planning area in a southeasterly direction, following the eastern edge of the East Bay Hills. The Hayward Fault, located along the western margin of the East Bay Hills, is not within the planning area, but is classified as active and would significantly affect the East County in the event of seismic activity.

In addition, several smaller faults (also belonging to the San Andreas System) traverse the East County. These include the Las Positas Fault, which is considered active, and the Livermore, Mission, Pleasanton and Verona faults, which are classified as potentially active. Also found in the area is the Mocho Fault, which is classified as activity uncertain. (A 1988 study by Berlogar Geotechnical Consultants found no evidence of faulting at the base of the Tassajara hills, or at other sites along the inferred Mocho fault trace; however, this study was too localized to conclusively disprove existence of the Mocho.) Table 5.11-1 summarizes the classification of the faults discussed above, and the maximum credible earthquake for each; Figure 23 maps these faults within a countywide context.

Recent/Potential Seismic Activity in the East County. Major seismic activity occurred on the Greenville Fault in January 1980, resulting in two earthquakes--one of 5.9 magnitude which occurred eleven miles north of Livermore and one of 5.2 magnitude which occurred four miles north-northeast of Livermore. Smaller earthquakes have since occurred on other faults in the East County, but all have been relatively insignificant.

Seismic activity need not occur within the East County itself to have significant effects on lands within the planning area. Recent earthquakes on faults within Contra Costa, San Benito, and Santa Clara Counties have been widely felt in the planning area, and the 1989 Loma Prieta earthquake, with an epicenter located 70 miles to the south in Santa Cruz, was strongly felt in the East County, although little specific damage resulted.

According to the California Division of Mines and Geology, the Hayward, Calaveras, and Greenville Faults could each experience maximum credible earthquakes of magnitude 6.8 to 7.3. The other, smaller faults in the East County (such as the Las Positas) are also capable of producing earthquakes, albeit smaller ones, with a probable magnitude of 5 to 6. The United States Geological Survey has estimated that there is a 67 percent probability that one or more earthquakes of 7.0 magnitude or larger will strike the Bay Area within the next 30 years.

Geologic Hazards

Ground Shaking. Ground shaking sends seismic waves or motions through the earth away from the epicenter of an earthquake. Earthquake waves, in passing from solid rock to alluvial and water-saturated materials, tend to become reduced in velocity and increased in amplitude, so that accelerations become greater. Ground motion lasts longer on these looser, less-dense soils than it does on rock, and is also amplified to an unknown extent. Due to a combination of this and other factors, structures located on such materials suffer far greater damage than those located on solid rock; indeed, this

factor has proven in many earthquakes to be a greater hazard than proximity to the fault and epicenter.

TABLE 5.11-1		
Faults Affecting the East County		
Fault	Classification	Maximum Credible Earthquake (Richter Magnitude)
San Andreas*	Active	8.5
Hayward*	Active	7.5
Calaveras	Active	7.5
Greenville	Active	6.7
Las Positas	Potentially Active	N/A
Pleasanton	Potentially Active	5.5
Mission	Potentially Active	N/A
Verona	Potentially Active	6.8
Livermore	Potentially Active	6.5
Mocho	Activity Uncertain	N/A
*Fault Lies Outside of Planning Area		
Sources: <u>Woodward - Lungren</u> , 1973; <u>Borcherdt, et. al.</u> , 1975; <u>ABAG</u> , 1987		

Ground shaking may cause damage to structures, depending upon design, quality of construction, foundation materials, and intensity of the earthquake. Ground shaking can also result in ground failures such as landslides, liquefaction, mud slides or compaction of soils. Figure 24 shows maximum ground shaking intensity for areas in the planning area. As is evident on the map, most of the areas with potential for strong to violent groundshaking are located near active faults or within valley areas where unconsolidated soils exist.

Maximum ground shaking intensities expected for the planning area are generally classified as "strong", with some areas near the Altamont Hills classified as "very strong" to "violent" (in the event of an earthquake on the Greenville Fault, which passes through the area). By contrast, existing developed areas in Livermore can expect "weak" to "strong" intensities from earthquakes on any of the major faults, while developed areas in Pleasanton and Dublin would experience "very strong" to "violent" intensities, particularly for earthquakes located on the nearby Calaveras Fault.

Surface Rupture. Surface rupture is a break in the ground's surface associated with movement along a fault. As required by the Alquist-Priolo Special Studies Zone Act (see discussion below) the California Department of Mines and Geology (CDMG) has classified and mapped all known active faults in California capable of surface rupture. ("Active" is defined as any fault that has had movement in the last 11,000 years). Special Studies Zones have been delineated within the planning area by the CDMG for every active or potentially active fault; these faults are shown in Figure 23.

Within Alameda County, surface rupture has been documented along the Hayward Fault (as a result of earthquakes in 1836 and 1868) and possibly on the Calaveras Fault (correlated to the earthquake of 1861). While it is generally assumed that surface ruptures will be repeated along active fault traces, the historical record in California is too short to provide conclusive evidence on this point.

Subsidence. Subsidence is the sinking or settling of land. It often occurs as the result of water, oil, or gas extraction, but also occur in connection with earthquakes. No evidence of such movements has been observed in connection with any Bay Area earthquakes, however.

Lateral Spreading and Differential Settlement. Lateral spreading and differential settlement occur when severe ground motions cause a rapid compaction and settlement of underlying soil. Widespread settlements will have effects similar to those resulting from subsidence, while differential movements can lead to building damage and tilting. Unconsolidated sediments are the most susceptible to these hazards; areas in the East County that may be so affected are generally limited to stream corridors underlain by recent stream deposits, and places affected by recent debris flow or landslide deposits. These areas have not yet been mapped by the State Geologist, but it is unlikely that large portions of the planning area would be so affected.

Liquefaction. Liquefaction is the transformation of water-saturated sediments with low cohesion from a solid state to a liquefied state as the material is shaken during an earthquake. The most susceptible sediments to liquefaction are clean, loose, water-saturated fine grained sands within 0 to 30 feet of the surface. Liquefaction hazard zones have not yet been mapped by the State Geologist, but could include portions of the Las Positas Valley (in the North Livermore sub-area) and the South Livermore Valley. Site specific studies are important to determine actual liquifaction potential.

Other types of landforms that may be susceptible to liquefaction include stream zones and sandy deposits adjacent to them, as well as alluvial valleys with high water tables; examples of such areas can be found in the La Costa Valley (in the South Ridgeland sub-area) and the Sunol Valley.

Lurch Cracking. The development of irregular fractures, cracks and fissures--largely the result of sliding, settling, shaking and the passage of surface earthquake waves--is generally characteristic of all earthquakes large enough for significant ground motion to

occur. Such fractures may be many feet long, and may displace rock and soil both horizontally and vertically. Lurch cracking rarely occurs in solid rock; it is usually confined to weathered rock, alluvium and soil. Extensive and damaging lurch cracking has occurred in loose, water-saturated materials in all moderate to large earthquakes; within the East County, it is most likely to occur in those areas described above as having high liquefaction potential.

Tectonic Creep. Tectonic creep refers to very slow fault displacement which occurs as a result of tectonic forces, causing minor changes in the earth's surface along the fault. Tectonic creep has been documented in the East County along the Calaveras Fault system.

Erosion Potential. Upland areas cover approximately 72 percent of the planning area. These are roughly equivalent to the portions of the East County that have soils displaying some degree of erosiveness (which depends primarily on slope and secondarily on the amount of vegetative cover). These areas may consequently be constrained, to varying degrees, in their potential for development--their holding capacities may be restricted, or they may necessitate special considerations relating to design, construction and engineering. Erosiveness is also an issue with respect to other uses--for example, erosive soils are common in hill areas where grazing takes place. Soils found on alluvial fan and plain areas usually are not very erosive, in the East County as elsewhere.

Shrink-Swell Potential. Shrink-swell, or soil expansiveness, is a condition in which soil reacts to moisture variations by expanding or contracting as moisture infiltrates or evaporates. On open soils, this is manifested by swelling and softening of soil during rainy periods, and subsequent shrinking and cracking of the drying surface crust as moisture evaporates. Unlike erosion, shrink-swell potential is not related significantly to slope; however, this characteristic does affect development, and can necessitate special design considerations. Stability of foundations or pads may be affected significantly by soil expansiveness, and improper design can result in settling or buckling.

All soils exhibit some degree of shrink-swell potential, but the amount of soil expansiveness varies. The degree of variability in the East County is quite large; soils with a high degree of shrink-swell potential can be found in both uplands and areas of level land. Areas with high degrees of shrink-swell potential include portions of the Dougherty Hills (in the East Dublin sub-area), the West Dublin Hills and the Altamont Hills east of Livermore. Level areas which exhibit this quality include the Las Positas Valley in the North Livermore Valley sub-area.

Landslides. Landslides occur when the shear stress of a soil or rock mass exceeds its shear strength. Shear stress can be increased by adding to the weight of the soil and/or rock mass, saturation or surcharge of loading, or by decreasing needed support from the toe of the slope by erosion or grading. Zones of low shear strength are generally associated with the presence of certain clays, bedding or fracture surfaces. The motion

of the soil under saturated conditions can reduce shear strength and induce landslides. Non-seismic landslides can also be triggered by gravity or human alteration of the natural landscape.

Seismic landslides are, by definition, induced by earthquakes. Landslides are a major effect of ground shaking in earthquakes of magnitude 5 and greater, especially where earth materials are water-saturated. Failure of steep slopes and collapse of natural stream banks could occur widely during a major earthquake. Particularly vulnerable are areas in the Hayward and Calaveras fault zones, which are marked by a succession of geologically-recent slides, many of them highly unstable.

Slope is usually the most important factor contributing to landslide hazards, and potential landslide areas have been identified throughout the hilly portions of the planning area. Areas of particular concern include the Dougherty Hills (in the East Dublin sub-area) and the hills of the Diablo Range in southern and eastern Alameda County (including the Altamont Hills). An extensive landslide could also occur on the east side of Pleasanton Ridge if a major earthquake were to occur on the Calaveras Fault. Additional landslide areas exist in the West Dublin sub-area.

Landslide susceptibility for the Livermore-Amador Valley (and environs) is shown in Figure 53 in the Background Reports (see *Draft East County Area Plan-Volume 2*) (comparable data for the rest of the planning area is unavailable). While the landslide hazard zones mapped are not necessarily a function of seismic activity, the areas in question would experience additional forces during seismic events that could also set them into motion. Other portions of the East County not included on these maps could also experience landslides, as there are many rural landscapes with steep slopes and loose, deep soil; however, these areas are not expected to experience significant development during the life of this Plan, and thus are not considered critical hazard areas.

Planning for Geologic Hazards

Hazards are addressed, from a planning perspective, by recognizing the risks to life and property in different geological zones, and controlling potential land uses accordingly. Residences, public facilities and infrastructure need to be placed in accordance with the geologic constraints of the planning area--both to reduce risk wherever possible, and to allow for appropriate responses in the event of a damaging event. The following discussion examines a variety of factors that need to be considered when planning for geologic hazards.

Alquist-Priolo Act Special Study Zones. The Alquist-Priolo Special Studies Zones Act, enacted by the State Legislature in 1972, requires that geological investigations be conducted to ensure that buildings constructed for human occupation are not built on seismically active faults. The act requires the State Geologist to designate special studies zones in areas of active and potentially active major faults. The State also requires the sellers of property or their agents to inform prospective buyers if a property lies in a special studies zone.

In keeping with the Alquist-Priolo Act, a Special Studies Zone has been delineated around each active fault in the planning area, within which specific geotechnical investigations are required for all proposed development to ensure that inhabited structures are not sited on top of fault lines or in surface rupture zones. The County is required by law to maintain maps of these zones on file. In general, structures are required to maintain a 50-foot setback from all fault traces, or as determined to be necessary by the special study.

Seismic Hazards and Building Types. New buildings are generally designed to withstand substantial seismic shocks, but a substantial number of structures within the planning area were built before local building codes required earthquake bracing. Of these, small wood frame structures are least likely to collapse from earthquake shaking. However, older wood frame structures with inadequate foundation-to-frame connections, or which are weakened by rot or termite infestation, may break from their footings, often rupturing utility connections.

Unreinforced brick, stone or block structures are the most failure-prone building types (although reinforced block and concrete construction can be designed to be quite resistant to earthquakes). Steel frame structures can be designed to withstand strong shaking, and are the preferred type of construction for tall buildings in seismically-active areas. Light steel frame and glass buildings with reinforced concrete roofs can suffer severe damage or collapse due to weak connections between the structural members, as can tilt-up structures.

Seismic Hazards and Transportation Facilities

Streets and Highways. A major earthquake would likely have a number of impacts on the streets and highways of the planning area. These could include localized earth failure due to surface rupture and subsidence, and damage to and possible collapse of bridge structures. In addition, there is a high possibility of major landslides under conditions of heavy ground motion in hill areas. These could block portions of several major arterials and freeways, including portions of Interstates 580 and 680.

Bay Area Rapid Transit (BART). The BART system, which is currently being extended into the East County, has been designed and constructed with considerable attention to reduction of seismic hazards. However, BART tracks lying upon soils prone to subsidence may be distorted by even a moderate earthquake, with potential for derailment of high-speed trains. The system has responded to this problem by installing sensors to detect seismic motion, and establishing special procedures to reduce the risk of derailment.

Railroads. Most tracks in the planning area would sustain little damage due to ground shaking. The major risk involves damage to elevated structures or grade separations affected by fault slippage or rupture. It is expected that service would be disrupted where lines cross the Calaveras Fault; it is also possible that ground failures could damage bridges and trestles located on weak soils.

Seismic Hazards and Utilities

Gas and Electric Lines. The most serious damage to transmission lines can be expected in areas subject to ground rupture and severe ground failure. Disruption of gas and electric service is probable in areas traversed by the Calaveras Fault and/or subject to seismically-induced landsliding. Landsliding and ground subsidence are the most common cause of gas pipeline breaks. Damage to electric and gas lines can also be expected when they are located in highways or bridge structures subject to damage or collapse during an earthquake.

Fuel Pipelines. Damage to major gas and oil pipelines can be expected where they cross active fault lines, or are located in soils subject to lurch cracking, subsidence, or landsliding. Most gas lines are equipped with automatic shut-off valves to prevent flow from continuing if damage occurs.

Water Supply Facilities. Pipeline breaks are usually induced by fault rupture, landsliding or subsidence. In areas subject only to ground shaking, interruption of water supply by broken mains is relatively unlikely (most pipelines, if in reasonable physical condition, are flexible enough to withstand ground shaking without significant damage). Large lakes and reservoirs (such as San Antonio and Del Valle) are inspected by the State Division of Dam Safety to ensure that the risk of seismically-induced damage is acceptably low. Major water distribution systems (i.e., the Hetch Hetchy and South Bay Aqueducts) have been designed to withstand some degree of fault displacement without damage. However, it is not known whether these systems could withstand the degree of displacement likely from a major earthquake on the Hayward or Calaveras faults.

Sanitary Facilities. Damage to sewage collection systems would be minimal in areas subject only to ground shaking, and moderate to severe where lines are subject to landsliding and subsidence.

Regulatory Setting

State of California. State legislation addressing seismic and geologic hazards include the following:

- Sections 65302 (f) and 65302.1 of the Government Code require seismic safety and safety elements in all city and county general plans.
- Sections 660-662 and 2621-2625 of the Public Resources Code require the State Geologist to delineate special studies zones encompassing potentially and recently active fault traces (Alquist-Priolo Act). The Code prohibits the construction of most structures intended for human occupancy on or across the traces of active faults and requires local governments to implement programs to precisely locate fault traces and regulate development within the mapped zones. Special studies zones in or near the planning

area are found along the Hayward, Calaveras, Greenville, Las Positas and Verona Faults.

- . Sections of the Education Code require that geological and soil engineering studies be conducted on all new school sites (as well as certain existing ones) and that public schools be designed for the protection of life and property.
- . Sections of the Health and Safety Code require that certain buildings be constructed to resist lateral forces, and that geological and engineering studies be conducted on each new hospital (or additions which affect the structure of an existing hospital).

County of Alameda. County ordinances/policies dealing with seismic and geologic hazards include the following:

- . Section 2905 of the Alameda County Building Code requires applicants for new construction to submit soils and/or geologic reports for sites affected by a number of geologic and soils conditions, including the presence of primary and secondary seismic hazards. The Code also requires soils and/or geologic reports for certain types of existing occupancies (e.g., assembly halls).
- . The Alameda County Grading Ordinance, adopted in 1982, establishes minimum standards for grading and excavation, and for control of erosion and sediment.
- . The Alameda County Surface Mining Ordinance, adopted in 1977 and amended in 1983 and 1986, establishes standards for temporary slopes (during active mining) and finished slopes (post-mining reclamation of the site) for quarries.
- . The Alameda County Subdivision Ordinance requires all subdivisions to be accompanied by a soils report, a geologic report, a grading plan, and an erosion control report.
- . The County's Emergency Operations Plan includes an "Earthquake Response Directive" which applies to all portions of the planning area.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- development could augment the number of people and structures exposed to seismic hazards, increasing the risk to life and property from ground shaking and associated secondary effects
- the amount of development within existing Special Studies Zones could increase
- development could occur in hilly areas, resulting in erosion and slope stability problems (including landslides)
- withdrawal of groundwater for urban and agricultural use could result in land subsidence

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban/Open Space Delineation

Policy 1: The County shall identify and maintain an Urban Growth Boundary that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety...

Urban Growth Boundary

Policy 17: The County shall approve urban development only if it is located within the Urban Growth Boundary.

Soil and Slope Stability

Policy 283: The County shall encourage Zone 7, cities, and agricultural groundwater users to limit the withdrawal of groundwater in order to minimize the potential for land subsidence.

Policy 284: The County shall minimize development within any area exceeding 25 percent slopes to minimize hazards associated with slope instability.

Seismic and Geologic Hazards

Policy 285: The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk of surface rupture, ground failure, and subsidence caused by seismic and geologic activity.

Policy 286: The County, prior to approving new development, shall evaluate the degree to which the development could result in loss of lives or property, both within the development and beyond its boundaries, in the event of a natural disaster.

Policy 287: The County shall ensure that new major public facilities, particularly health care and communications facilities, are sited in areas of low geologic risk.

Policy 288: The County shall ensure that major transportation facilities are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.

Policy 289: The County shall require development in hilly areas to minimize potential erosion and disruption of natural slope stability which could result from grading, vegetation removal, irrigation, and drainage.

Policy 290: The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of a certified earthquake fault as defined by the Calaveras or Greenville Alquist Priolo Special Study Zones.

Policy 291: The County shall require that buildings be designed and constructed to withstand groundshaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse of the structure. The County shall require that critical facilities and structures (e.g., hospitals, emergency operations centers) be designed and constructed to remain standing and functional following an earthquake.

Program 107: The County shall delineate areas within East County where the potential for geologic hazards (including seismic hazards, landslides, and liquefaction) warrants preparation of detailed site-specific geologic hazard assessments. Areas shall be delineated based upon data from published sources and field investigations. Maps shall be maintained and updated as new data become available. These maps shall not be used by the County to determine where hazardous conditions exist, but instead to identify the presence of conditions which warrant further study.

Program 108: The County shall develop detailed guidelines for preparation of site-specific geologic hazard assessments. These guidelines shall be prepared in consultation with the County Building Official, the County Engineer, County Geologist, County Counsel, and the County Risk Manager, and shall ensure that site-specific assessments for development requiring discretionary permits are prepared according to consistent criteria.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

For purposes of this EIR, geologic impacts would be considered significant if adoption and implementation of the plan could result in increased risk to life or property from seismic, slope or soil-related hazards in the area.

Potential Impacts and Mitigation Measures

Potential Impact 5.11-1: Residential, commercial and industrial development could augment the number of people and structures exposed to seismic hazards, increasing the risk to life and property from ground shaking and associated secondary effects such as landsliding, liquefaction, and differential settlement.

Achievement of the plan's buildout holding capacity would expand the population of the planning area from 135,000 to 287,000. Any development will inevitably increase the number of people and structures exposed to seismic hazards in that the East County is traversed by a number of active or potentially active faults and is near others outside of the planning area. However, existing provisions in the County Building Code and Grading Ordinance reduce the risk to life and property from groundshaking, as do a number of plan policies and programs.

Plan Policies and Programs: Policy 285 requires site-specific analysis for new development in areas with potential for seismic hazards, and ensures that new development will not be approved unless the potential risk can be reduced. Policy 286 requires the County to evaluate the degree to which the development could result in loss of lives or property, and policies 287-288 act to minimize the effects of geologic hazards with respect to new public facilities and transportation infrastructure. Programs 107 and 108 provide guidance on the mapping of geologic hazards and the preparation of site-specific hazard assessments.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.6.3-1: None needed.

While no mitigation is necessary, the following modification would clarify policy 285 (new language is shown in *italics*; deleted language is ~~struck-out~~).

Proposed Modification to Policy 285: The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis. The County shall review new development proposals in terms of the risk of ~~surface rupture, ground failure, and subsidence~~ caused by seismic and geologic activity.

Potential Impact 5.11-2: Development under the plan could occur within existing Special Studies Zones.

The unincorporated portions of the County contain some or all of the Special Studies Zones for the Calaveras, Greenville and Verona Faults. While the plan would provide for little additional development in presently unincorporated areas along the Calaveras and Greenville Fault Zones, extensive development would occur in North Livermore within the Special Studies Zone for the Greenville Fault. This could have the effect of subjecting additional structures to significant seismic risks, most notably surface fault rupture. However, State and County regulations mandate special geotechnical studies and appropriate construction techniques for new development within Special Studies Zones, and the plan contains similar provisions.

Plan Policies and Programs: Policy 285 requires site-specific analysis for any new development in a seismically hazardous area, and allows approval of development only if the potential risk can be reduced to acceptable levels. Similarly, policy 286 requires that the County, prior to approving new development, evaluate the degree to which development could result in loss of lives or property.

Policy 290 prohibits the construction of any structure intended for human occupancy within 50 feet on either side of a certified earthquake fault as defined by the Calaveras or Greenville Special Study Zones. Because the Special Studies Zone for the Verona Fault is partially within the bounds of the unincorporated County, policy 290 should be modified to include mention of the Verona Fault.

Level of Significance: Without mitigation, this potential impact would be significant. The following modification to policy 290 would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struck-out~~).

Mitigation Measure 5.11-2: Policy 290 should be amended to read: The County shall prohibit the construction of any structure intended for human occupancy within 50 feet on either side of a certified earthquake fault as defined by the Calaveras, Greenville, *or Verona Alquist-Priolo* Special Study Zones.

Potential Impact 5.11-3: Development could occur in hilly areas, resulting in erosion and slope stability problems (stemming from grading, vegetation removal, irrigation, etc.).

Hilly areas are the primary points of concern with respect to erosion and landslides. Under the plan, most development would occur on the flat or gently sloping floor of the Livermore-Amador Valley although some residential areas in East Dublin would be located in the steeper locations. Even though some population growth would occur in upland areas, it would be minimal given the designation of these lands for parks, large parcel agriculture, and water/resource management. Under the plan's buildout holding capacity, the number of homes in these portions of the planning area would increase by 170 over 1990 figures. This number is sufficiently low that, when combined with plan policies and programs, no significant increase in soil stability hazards should result.

Under the existing Open Space Element, it is stated that "natural ridgelines, and slopes in excess of twenty-five percent in grade, should be left open permanently to eliminate mass grading (p.9)." To provide consistency between the Open Space Element and the *East County Area Plan*, this policy would be replaced with policy 284 of the Draft Plan: "The County shall minimize development within any area exceeding 25 percent slopes to minimize hazards associated with slope instability."

Plan Policies and Programs: One of the criteria used to delineate the Urban Growth Boundary was topography: lands inside the Urban Growth Boundary are generally flat and not constrained by potential geological hazards associated with slope instability. Policy 17 restricts urban development to lands inside the Urban Growth Boundary. Limitations on grading in hilly areas are formally codified in policy 289; restrictions on grading activity can also be found in the County's Grading Ordinance. Policy 284 acts to reduce hazards associated with slope instability by requiring the County to minimize development in any area where slopes exceed 25 percent. Policy 285 provides further protections, ensuring that development in areas with potential for geologic hazards will be approved only if the risk level is reduced to acceptable levels (based on site-specific analysis).

While development under the plan theoretically could occur on slopes steeper than 25 percent, the plan's Urban Growth Boundary (policy 1) effectively excludes most urban development in hilly areas. Policies 285, 286 and 289 and programs 107 and 108 would ensure that no increased risk of slope instability would occur as a result of the replacement of the Open Space Element policy and *East County Area Plan* policy 284.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.11-3: None needed.

While no mitigation is needed, the following modification would clarify policy 284 (new language is shown in *italics*; deleted language is ~~struck-out~~):

Proposed Modification to Policy 284: The County shall minimize development within any area exceeding 25 percent slopes to minimize *mass grading and* hazards associated with slope instability. (See also Chapter 5.8, Visual and Aesthetic Resources.)

Potential Impact 5.11-4: Development in areas of high shrink-swell potential could result in structural problems.

High shrink-swell potential poses a potential constraint to development in certain upland portions of the East County, as well as sections of the Livermore-Amador Valley. Modern engineering practices and designs can minimize the potential for damage to structures in high shrink-swell areas, as can soil and geotechnical studies for new development (which are required in Alameda County by the Planning Department and Public Works Agency).

Plan Policies and Programs: Policy 285 requires site-specific analysis for new development in areas with potential geologic hazards (including shrink-swell potential). Approval of development in such areas will be denied unless risk levels can be reduced to acceptable levels.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.11-4: None needed.

Potential Impact 5.11-5: Withdrawal of groundwater for urban and agricultural use could result in land subsidence.

The potential for land subsidence in the East County is essentially confined to valley areas. Growth in these portions of the planning area could increase pressures to withdraw groundwater for residential, commercial and agricultural use; absent proper management of groundwater resources, subsidence could result.

Plan Policies and Programs: Policy 283--under which the County shall encourage Zone 7, East County cities, and agricultural interests to minimize groundwater withdrawal--acts to minimize the potential for land subsidence. Policy 285 requires that the County conduct site-specific analysis for new development proposed in areas with potential for geologic hazards (including subsidence resulting from groundwater withdrawal), and that it deny approval of any project where potential risk cannot be reduced to acceptable levels.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.11-5: None needed.

Potential Impact 5.11-6: In the event of a major earthquake, damage to utilities, communications and emergency service facilities (e.g., hospitals, fire stations)--or disruption of access routes to and from these facilities--could render them unusable.

The East County is laced with numerous fault zones, including those of the Calaveras and Greenville Faults. There are numerous public facility structures throughout the East County that could be affected by earthquakes on these fault zones, many of which are located in areas of suspected high levels of groundshaking intensity. Although public facilities are required to conform to building codes and other standards for the purposes of withstanding seismic events, the potential exists for some facilities to be damaged and rendered unusable by earthquakes. Roadways and utility lines that run along or across fault rupture zones could be subject to horizontal or vertical displacements that would distort or break them, disrupting the flows of traffic, water and electricity. Structures such as hospitals and fire stations, as well as their entryways, could be placed out of service if located in an area where earthquakes could cause severe shaking, liquefaction or surface rupture. Seismically-induced landslides could damage facilities and utilities and block access routes for periods of several days. Direct damage to a potable water treatment facility or damage to support utilities such as powerlines, water pipelines or roadways could prevent access to clean water for significant periods of time. Major reservoirs such as Del Valle, Calaveras and San Antonio Reservoirs could be damaged with results of various extent from weakening to failure.

The Loma Prieta Earthquake of 1989 (magnitude 7.1) showed how substantial the effects of a large earthquake can be on facilities, even at a distance of 50 to 60 miles. Major freeway segments and bridge structures in Oakland and San Francisco were damaged, some beyond repair. The San Mateo Bridge was damaged, but repairs were effected quickly; it soon became the main route across the Bay for several months. The BART system, while basically undamaged, was without operational power for a short time following the earthquake. Damage to runways were noted at San Francisco Airport and Alameda Naval Air Station, and the airport suffered damage to the control tower, one small structure and fire sprinkler systems. Two dams near the epicenter, the Lake Elsman Dam and Lexington Reservoir, sustained substantial deep cracks; Lake Elsman experienced compaction and spillway damage as well. Power outages around the Bay Area were common. The Moss Landing fossil-fuel power plant had electrical damage, and there was evidence of liquefaction and subsidence within the plant periphery (U.S.G.S. Circular 1045, 1989). Although the East County was not severely affected by the 1989 earthquake, temblors of magnitude 7 or greater on one of the nearby faults could result in effects similar to those discussed.

Plan Policies and Programs: Policy 287 requires the County to ensure that new major public facilities are situated in areas of low geologic risk; policy 288 requires major transportation facilities to be designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service. Nevertheless, in the event of a major earthquake, damage to hospitals and fire stations, utilities, communications towers, roadways and other public facilities could render them unusable immediately following the event.

Level of Significance: While policies and programs would substantially lessen the impact, no feasible mitigation is available to reduce the impact to a less-than-significant level. Therefore, this is considered a significant and unavoidable adverse impact of the proposed plan.

Mitigation Measure 5.11-6: None available.

While no feasible mitigation is available that could reduce this impact to a less-than-significant level, the following modifications would clarify policies 287 and 288 (new language is shown in *italics*; deleted language is ~~struck out~~):

Proposed Modification to Policy 287: The County shall ensure that new major public facilities, ~~particularly including health-care~~ *emergency response facilities (e.g., hospitals and fire stations), and water storage, wastewater treatment* and communications facilities, are sited in areas of low geologic risk.

Proposed Modification to Policy 288: The County shall ensure that major transportation facilities *and pipelines* are designed, to the extent feasible, to avoid or minimize crossings of active fault traces and to accommodate fault displacement without major damage that could result in long-term disruption of service.

SOURCES

Alameda County, Seismic Safety and Safety Element of the General Plan, August 1982.

Association of Bay Area Governments, On Shaky Ground, February 1987.

Bay Area Earthquake Preparedness Project, Putting Seismic Safety Policies to Work, prepared by William Spangle and Associates, Inc., October 1988.

Berlogar Geotechnical Consultants, February 1988.

Berlogar Geotechnical Consultants, January 1992.

California Department of Conservation, Division of Mines and Geology, Fault-Rupture Hazard Zones in California, 1972 (revised 1988).

California Office of Planning and Research, General Plan Guidelines, June 1987.

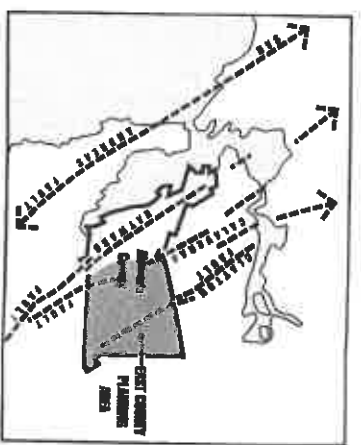
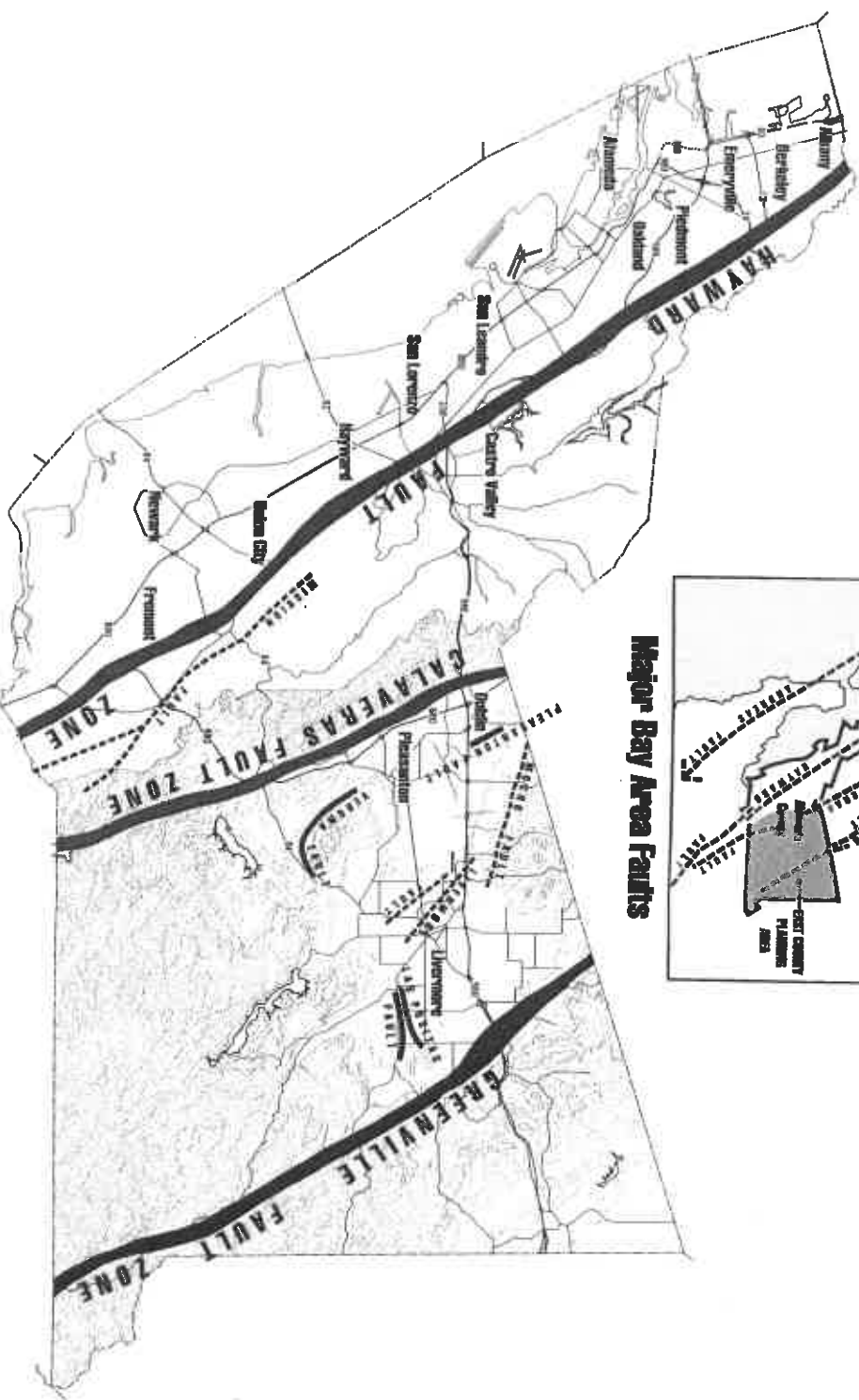
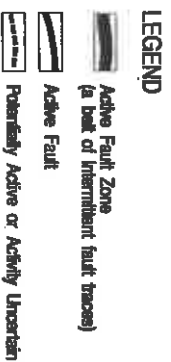
Jaffe, Martin, JoAnn Butler and Charles Thurow, Reducing Earthquake Risks: A Planner's Guide, October 1981.

Soil Conservation Service, U.S. Department of Agriculture, Soil Survey: Alameda Area, California, March 1966.

United States Geological Survey, Circular 1045: Lessons Learned from the Loma Prieta, California, Earthquake of October 17, 1989 (1989).

\\home\plan\air\chpt5-11.cmb

Faults in Alameda County



Major Bay Area Faults






COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Maximum

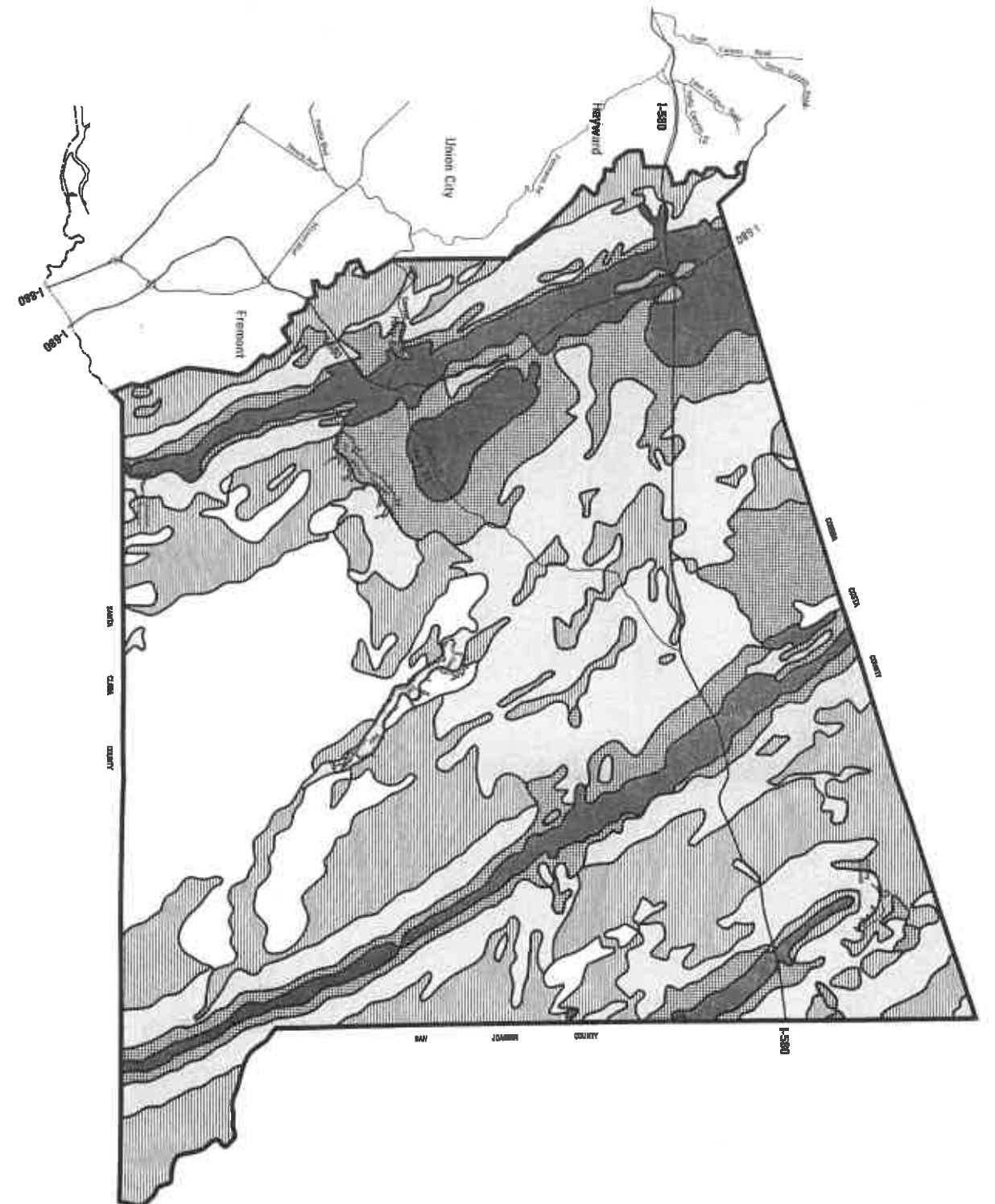
Groundshaking

Intensity

LEGEND

-  Volant
-  Very Strong
-  Strong
-  Weak
-  Negligible

NOTE: Maximum groundshaking intensity is mapped here by creating a composite of reported seismic zones for within Bay Area earthquake events. A different scenario has been generated for an earthquake on each of the study basins that may generally groundshaking in the Bay Area. For each site on the earthquake map, the worst case scenario (the highest intensity) and existing on any individual map has been added. For additional information on the assumptions and methodology used in preparing the map, see a listing of the earthquake magnitudes used in the individual scenario-see the FEMA report On Shaky Ground (1987).



Chapter 5.12 - Water Quality and Hydrology

A. EXISTING SETTING

Hydrology

Surface Water Hydrology. The East County planning area is divided into three major surface water drainage units: San Joaquin River Basin, Livermore Drainage Unit, and Sunol Drainage Unit (Figure 25). The San Joaquin River Basin drainage unit includes the watershed on the east slopes of the Altamont Hills in the planning area and contributes surface flows to several creeks which eventually empty into the San Joaquin River. The Livermore and Sunol drainage units together comprise most of East County and drain the Alameda Creek watershed which is located along the western and central portions of the planning area.

The major streams in the Livermore drainage unit include Arroyo Las Positas, Arroyo Mocho, Arroyo del Valle, Alamo Creek, and Tassajara Creek. The three Arroyos drain the uplands which surround the Livermore Valley (including San Antonio Valley in Santa Clara County to the south where the headwaters of the Arroyo del Valle originate) and Alamo Creek and Tassajara Creek drain the uplands of the Amador Valley, portions of which lie in Contra Costa County. The streams of the Livermore drainage unit join at a confluence in the Livermore Valley near Pleasanton and form the Arroyo de la Laguna which flows south into the Sunol Basin.

The Sunol drainage unit is drained by Alameda Creek and its tributaries which include the San Antonio Creek basin and San Antonio Reservoir, and the Calaveras Creek Basin whose headwaters lie within Santa Clara County. The Livermore and Sunol drainage units both outlet into Alameda Creek which flows west through Niles Canyon and eventually empties into San Francisco Bay. Because Alameda Creek is the only drainage outlet for the Livermore and Sunol drainage units, this creek is important in controlling flooding and drainage of the upstream areas.

Precipitation in the planning area is highly seasonal with almost 90 percent of the annual precipitation occurring during the six-month period of November through April. Most of the precipitation occurs as rainfall in a series of general storms which affect all portions of the East County; however, variations in local physiography strongly influence the intensity and amount of precipitation. Rainfall maps showing lines of mean annual precipitation demonstrate this increase in rainfall with elevation, particularly around the peaks and ridges in the Livermore drainage unit (see Figure 34 in the Background Reports, *Draft East County Area Plan-Volume 2*).

Imported water discharged into the streams in the Livermore drainage unit from outside the planning area, diversions of flow to other drainage units, and the construction of water

storage reservoirs have altered the natural runoff characteristics of the major watercourses in the East County. The major effects of the modifications in the natural runoff regime have been a reduction in peak storm flows and total annual discharge and a sustainment of greater than natural stream flow during the dry season. These augmentations have also increased the opportunity for groundwater recharge to the aquifers by increased infiltration through the gravel stream channels within the central portion of the Livermore-Amador Valley.

The relative absence of any significant natural surface storage areas in the planning area, and the seasonal nature of prevailing precipitation patterns have necessitated the construction of large multi-purpose reservoirs located on major watercourses. Calaveras, San Antonio, and Del Valle Reservoirs are the major water storage areas located at least partially within the planning area. Calaveras and San Antonio Reservoirs supply municipal water as part of the Hetch Hetchy Aqueduct System. These reservoirs have total capacities of 100,000 acre-feet and 50,500 acre-feet, respectively (U.S. Army Corps of Engineers, 1985). Lake Del Valle is within the jurisdiction of the East Bay Regional Park District and is used for recreation, to regulate South Bay Aqueduct flows, and to provide flood control storage.

No natural lakes are found within the planning area. A few small stock ponds and natural ponds, silt basins, and storm water retention ponds are found throughout East County. The majority of the stock ponds are located in the foothill regions where the majority of the grazing lands occur and were constructed by the ranchers to provide a water supply for livestock. Silt and storm water retention basins are increasing in number with increased development in the planning area. The Chain-of-Lakes quarry areas in the vicinity of South Livermore are proposed to be reclaimed to provide surface water conveyance and a groundwater recharge system and is being considered for surface water storage to enhance water supply. Other uses will be aquatic and wetland habitat once quarrying operations are complete.

Groundwater Hydrology. A groundwater basin is a physiographically defined area underlain by water-bearing geologic formations. The East County contains two major groundwater basins; Livermore Valley and Sunol Valley. Groundwater basins are often subdivided into subbasins along barriers that restrict the flow of groundwater. The Alameda County Flood Control and Water Conservation District (ACFCWCD), Zone 7, has divided the Livermore Valley and Sunol Valley basins into 14 groundwater subbasins based on hydrogeologic and geologic factors (see Figure 35 in the Background Reports, *Draft East County Area Plan-Volume 2*). For regulatory purposes, the Amador and Mocho subbasins, together with the Bernal subbasin are considered the "central basin", while the remaining subbasins are considered "fringe" basins.

The primary water-bearing geologic formations within the East County are found in the valley floor deposits of the Livermore, Sunol, La Costa, and Vallecitos Valleys and in the adjacent uplands to the south, west and north of the Livermore Valley. The three significant water-bearing formations within these areas are the Tassajara Formation, the Livermore Formation, and the alluvial valley fill.

The Tassajara Formation is located north of the Livermore Valley within the Tassajara and Altamont uplands and beneath the central portions of the Livermore Valley. The Tassajara Formation is found at depths ranging from 200 to 750 feet below the ground surface. The sandstone aquifer within the Tassajara Formation has a relatively low permeability and yields low quantities of moderately good quality waters suitable for limited stock, domestic and irrigation use.

The geologically younger Livermore Formation occurs beneath the valley floor alluvial deposits of both the Livermore and Sunol drainage units. The Livermore Formation is found at depths ranging from 30 to 400 feet below the ground surface. The Livermore Formation is also exposed in the upland areas on the south and east side of the Livermore Valley and on the east side of Sunol Valley. The clayey gravel aquifers in the Livermore Formation yield significant quantities of good quality water in the eastern section of the Livermore Valley for municipal, industrial and agricultural users.

The valley floor alluvial deposits which overlay the Tassajara and Livermore Formations are composed of Holocene Age unconsolidated gravel, sand, silt, and clay that range from a few feet to almost 400 feet in thickness. The alluvium is generally an unconfined aquifer in most locations throughout the Livermore - Amador Valley. Wells in this formation produce groundwater of a generally good quality suitable for high capacity uses.

The horizontal movement of groundwater within the 14 subbasins is controlled by faults, variations in aquifer thickness, and the different permeability of aquifer materials. Groundwater movement in the Livermore Valley generally occurs downslope towards the longitudinal axis of the valley and then in a westerly direction to the Bernal subbasin. Figure 36 in the Background Reports, *Draft East County Area Plan-Volume 2*, identifies the groundwater level contours in the central basin and fringe basins. Recharge of the groundwater basin is accomplished by infiltration and percolation of precipitation, stream flow, and applied water. Subsurface inflow provides a limited source of replenishment where wells penetrate both the alluvium and the underlying Tassajara and Livermore Formations and where stream channels intercept the Livermore Formation.

Prior to completion of the South Bay Aqueduct, water users in the Livermore Valley relied on local surface runoff and groundwater resources. Zone 7 of the ACFCWCD was in part established in response to a serious overdraft problem and resultant declining water table elevations which dropped over 100 feet in some areas. For a period of years, Zone 7 has used surplus water from the South Bay Aqueduct and careful management practices to recharge the aquifers by releases to the Arroyo Mocho and Arroyo del Valle, returning the groundwater to acceptable levels. Zone 7 currently relies on the available groundwater only for peak demand periods during the summer months or drought conditions.

Specific hydrologic conditions in North Livermore, specifically within the watershed for the Springtown valley sink scrub habitat have been the subject of several studies over the past few years. These studies were initiated to try and determine the relationship of groundwater and surface water contributions to the Springtown sink in order to be able to provide

management recommendations for maintaining those conditions. The Springtown sink supports one of three known populations of the federally endangered bird's beak plant (*Cordylanthus palmatus*) in California as well as some special status animal species including the California tiger salamander and the California linderiella.

In 1988, *A Management Plan for the Springtown Alkali Sink Wetlands And Endangered Cordylanthus Palmatus*, prepared by Philip Williams and Associates, consultants in hydrology, was released by the California Department of Fish and Game. This management plan acknowledges that the relative importance of surface vs. subsurface flows to the sink is unknown but concludes that the alteration of surface flows and shallow groundwater to the sink have reduced the extent of the sink habitat and affected the viability of the bird's beak which grows in the area. The PWA report identifies the areas north and northwest of the sink as the contributing watershed providing surface water and shallow groundwater to the habitat. It also concludes that as a result of alterations to surface flows and groundwater regimes historically in this area, the extent of valley sink scrub habitat has been significantly reduced. Based on the conclusions reached regarding impacts on the valley sink scrub habitat due to alterations in the normal hydrologic conditions, the report recommends that development in the defined watershed be limited for the sink in order to minimize disruption of normal surface flows and infiltration rates and thereby protect the valley sink scrub habitat.

Recently, another hydrologic investigation of the Springtown watershed was completed by Berlogar Geotechnical Consultants (February, 1993) in order to gather further information on the surface and subsurface hydrologic conditions that influence the Springtown alkali sink. Using sources similar to those used by PWA, collecting site specific rainfall and stream flow data for several storm events, and mapping surface hydrologic conditions in the sink, Berlogar concluded that groundwater is the major hydrologic contributor to the sink. Berlogar further defines the highlands to the east and southeast of the sink and the flatlands south of I-580 as the primary recharge area for this groundwater and concludes that the lands to the north and west primarily contribute surface flows to the sink.

Water Quality

Surface Water Quality. Surface water quality is highly variable depending on the season, amount of flow, recharge releases, and local geology. Although the quality of surface runoff from the Livermore and Sunol drainage units is generally good, a report released in 1984 found some violations of at least one of the water quality objectives for public drinking water at all surface water sampling stations in the Livermore Valley. The dissolved solids objective of 500 mg/L was the standard most often exceeded (USGS 1985). An increased in dissolved solids may be the result of erosion generating excessive sediment loads in surface runoff which can increase the turbidity levels within the water storage reservoirs.

Groundwater Quality. In general, groundwater quality within the central basin meets water quality objectives, while fringe basins have generally poorer ambient water quality. Groundwater quality is usually dependent upon the quality of surface runoff which percolates

into the basin and the chemical and physical properties of subsurface sediments. The central and southern portions of the Livermore Valley are recharged from stream flow of the Arroyo Mocho and Arroyo del Valle which exhibit good quality magnesium bicarbonate and calcium bicarbonate waters. The eastern area of the Livermore Valley however contains some groundwater of poor quality sodium chloride character. Another area of poor quality sodium chloride and sodium sulfate water occurs southeast of Dublin. Excessive concentrations of nitrate, boron, and total dissolved solids are found in various sites throughout the Livermore Valley and frequently are high enough to render groundwater undesirable for domestic, industrial or agricultural use. Groundwater quality in the Sunol Valley is usually adequate for irrigation purposes although some excessive nitrate concentrations are evident in some shallow wells (California Department of Water Resources, 1966).

Regulatory Setting

Water quality regulatory programs in the 1970s and the 1980s focused on "point sources" of water pollution, such as waste water treatment plants and industrial discharges. Addressing point sources of pollution has resulted in improvements to water quality, however, water quality is still being degraded by non-point sources of pollution (that is, sources of pollution not coming from a specific sources). Non-point source pollutants are washed off land and roads by storm water runoff into storm drainage systems and water bodies and probably exceed point source contributions. The types of pollutants typically found in runoff include: grease, oil, toxic chemicals and substances, lead and other metals, sediments, bacteria, organic substances and nutrients. Non-point source pollutants come from a variety of sources including fertilizers and pesticides used by agricultural activities, home and yard uses; oil and other automotive fluids leaking onto roads, parking lots and driveways; erosion and sedimentation from construction sites; and any substances spilled or littered in streets and parking lots.

State and federal regulations are the driving force behind implementation of programs addressing water quality. The 1972 Clean Water Act, the Water Quality Act of 1987, and federal Storm Water Regulations are three federal regulatory schemes requiring state and local action. The Water Quality Control Plan for the San Francisco Bay Basin, Region 2, describes policies and programs to maintain and improve water quality of San Francisco Bay and its tributaries that are to be implemented by the San Francisco Regional Water Quality Control Board and local agencies. These regulations and programs are discussed in more detail below.

Federal Clean Water Act. The 1972 Clean Water Act (CWA) prohibits the discharge of any pollutant to navigable waters from a point source unless the discharge is authorized with a National Pollution Discharge Elimination System (NPDES) permit. Efforts to improve water quality under this NPDES program traditionally focused on reducing pollutants in industrial process waste water and municipal sewage. In the last few years, it has become evident that more diffuse sources (occurring over a wide area) of water pollution, such as agricultural discharges and urban runoff are also major causes of water quality problems. These non-

point sources typically enter municipal storm drain conveyance systems and watercourses, which from a legal standpoint are considered point sources according to the CWA.

Water Quality Act of 1987. The Water Quality Act of 1987 contains provisions that allow NPDES permits to be issued on a system-or jurisdiction-wide basis, requires NPDES permits to effectively prohibit non-storm water discharges into storm drain sewers, and requires controls to be implemented to reduce the discharge of pollutants to the maximum extent possible.

Federal Storm Water Regulations. The United States Environmental Protection Agency (EPA) has established regulations to implement sections of the Clean Water Act pertaining to NPDES permit requirements for storm water discharges from municipal storm water management plans.

San Francisco Regional Water Quality Control Board. The San Francisco Regional Water Quality Control Board (Regional Board) is one of nine regional water quality control boards in the state under the direction of the State Water Resources Control Board. The Regional Board is responsible for maintaining and improving water quality in San Francisco Bay and its tributaries. The Regional Board is required by law to develop policies and programs to carry out its responsibilities and these are contained in the Water Quality Control Plan for the San Francisco Bay (Basin Plan). The Basin Plan requires implementation of a program to evaluate pollutants in urban runoff, estimate pollutant loads, and identify control measures which would help reduce the amount of pollutants in urban runoff.

Alameda County Urban Runoff Clean Water Program. The Alameda County Urban Runoff Clean Water Program has been established in order to comply with the Regional Board's Basin Plan revisions adopted in 1986 and requirements of the federal Clean Water Act and other federal regulatory programs discussed above. There are seventeen agencies in Alameda County participating in the implementation of the Program. These agencies are: Alameda County, Alameda County Flood Control and Water Conservation District, the District's Zone 7 (which serves the East County), and all fourteen Alameda County cities. The Alameda County Flood Control District is responsible for administering the overall program.

The Program participants worked jointly to prepare the *Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program* (June 28, 1991) which is an integral and enforceable part of the Program's NPDES permit. (A Storm Water Ordinance has been adopted to implement the plan.) The Storm Water Management Plan contains strategies for controlling pollutants discharges from urban runoff flowing into municipal storm drain systems. The Storm Water Management Plan proposes a number of management practices and control techniques, to be implemented over the 5-year permit period, for seven program components. The seven program components are:

- . Public Information and Participation
- . Municipal Government Activities
- . New Development and Construction Site Controls

- . Illicit Discharge Identification and Elimination
- . Industrial Dischargers Identification and Runoff Control
- . Monitoring
- . Storm Water Treatment

The "New Development and Construction Site Controls" component identifies non-point source pollution control measures that will be required as a condition of approval for development projects for pre-construction, construction, and post-construction activities that are designed to reduce the amounts of pollutants and sediments discharged into the storm drainage system.

Activities that will be conducted under the other program components include developing guidelines for planning and inspection, educating planning and public works staff to improve plan checking and permit review processes, increasing the number of inspections conducted both during and after construction, and educating and providing guidance to developers, contractors and engineers/architects.

The non-point source pollution control measures to be required as a condition of development approval include the use of best management practices during construction (e.g., proper material and equipment storage and handling, and temporary erosion controls) and installation of permanent controls (e.g., use of detention basins, infiltration trenches, and permanent erosion controls) that will be maintained over the life of the project.

Alameda County Watercourse Protection Ordinance. The County's Watercourse Protection Ordinance (adopted 1982) was enacted to restrict discharge of polluted materials to watercourses and encroachment of new development into the watercourse area in unincorporated areas of the County. In addition to prohibiting discharge into watercourses, the Ordinance establishes a 20-foot setback from the top of the bank necessary to contain flow from the 100-year flood event in order to keep the waterway area clear of new development. Implementation of the ordinance serves to protect surface water and groundwater recharge areas from erosion, sedimentation and sources of pollution.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- Proposed land uses could alter the existing hydrologic conditions in East County

- Land uses in sensitive watershed areas and groundwater recharge areas could cause increased erosion and sedimentation or add pollutants to surface water and groundwater resources
- An increase in development would increase the amount of non-point source pollutants entering the storm drain system
- Installation of septic tank systems may contaminate the groundwater basin
- The use of treated effluent for irrigation of agricultural lands could contribute excessive mineral concentrations to the groundwater basin
- An alteration of existing hydrologic conditions may affect the population of the federally endangered bird's beak plant in North Livermore

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 30: The County shall seek to ensure the compatibility of Major New Urban Development with adjacent land uses.

Policy 104: The County shall designate an area outside of the San Francisco Water Department lands that extends to the limit of the watershed boundary as "Resource Management". Within this area, the County shall encourage land use activities to adhere to management guidelines developed for the protection of watershed lands and shall ensure that subdivisions of lands within this designation are approved only where such subdivisions would not adversely affect the watershed protection objectives of the San Francisco Water Department.

Policy 105: The County shall preserve the area located between the Sunol/Ohlone Wilderness and San Francisco's San Antonio and Calaveras Reservoir watershed lands for uses compatible with watershed and recreational lands.

Program 47: The County shall develop management guidelines for lands designated "Resource Management" for the purpose of protecting watershed lands from potential degradation resulting from incompatible uses.

Policy 230: The County shall coordinate solid and hazardous waste management planning with the Alameda County Waste Management Authority and with Authority goals, policies, and plans.

Policy 234: The County shall work with the Alameda County Flood Control and Conservation District (Zone 7), local water retailers, and cities to develop a comprehensive water plan to assure effective management and long-term allocation of water resources, to develop a contingency plan for potential short-term water shortages, and to develop uniform water conservation programs. The water plan should include a groundwater pump monitoring and cost allocation system in order to facilitate ground water management and to recover the cost of purchased water stored in the groundwater basin.

Policy 238: The County shall encourage Zone 7 to maximize use of the Chain-of-Lakes for water supply development and groundwater management.

Policy 258: The County shall regulate new development on a case-by-case basis to ensure that peak rate flow of storm water from new development will not exceed the rate of runoff from the site in its undeveloped state.

Program 93: The County shall develop design criteria for on-site flood control features such as detention and retention ponds and for stream channels improved for multi-use purposes. Criteria shall address integrating visual and other multi-use concerns into the physical design of flood control features and shall encourage use of permeable materials to enhance on-site percolation.

Program 94: The County shall require new development to set aside sufficient right-of-way and setback areas to accommodate multi-use objectives for storm drainage and flood control features. Required rights-of-way and setback areas may exceed the 20 foot setback required under the County's Watercourse Protection Ordinance.

Policy 282: The County shall protect surface and groundwater resources by:

- ◆ preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas;
- ◆ minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil;
- ◆ not allowing the development of septic systems, automobile dismantlers, waste disposal facilities, industries utilizing toxic chemicals, and other potentially polluting substances in creekside, reservoir, or high groundwater table areas when polluting substances could come in contact with flood waters, permanently or seasonally high groundwaters, flowing stream or creek waters, or reservoir waters; and,
- ◆ avoiding establishment of excessive concentrations of septic systems over large land areas.

Program 104: The County shall implement the Urban Runoff Clean Water Program and Storm Water Management Plan.

Program 105: The County shall endeavor to minimize herbicide use by public agencies by reviewing existing use and applying integrated pest management principles, such as mowing and mulching, in addition to eliminating or scaling back the need for vegetation control in the design phase of a project.

Program 106: The County shall conform with Alameda County Flood Control and Water Conservation District's (Zone 7) Wastewater Management Plan and the Regional Water Quality Control Board's San Francisco Bay Basin Plan.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on hydrological resources if the project would "substantially degrade water quality", "contaminate a public water supply", "substantially degrade or deplete groundwater resources", or "interfere substantially with groundwater recharge".

For purposes of this EIR, the following analysis considered impacts on hydrological resources to be significant if they would:

- increase surface runoff such that it would substantially increase erosion and siltation in the existing watercourse
- substantially affect groundwater recharge
- degrade water quality so that it does not meet water quality criteria objectives identified in the Water Quality Control Plan for the San Francisco Bay Basin
- result in non-compliance with the *Alameda County Watercourse Protection Ordinance* result in non-compliance with the goals of the *Alameda County Urban Runoff Clean Water Program*
- substantially change hydrologic characteristics such that they would have a negative effect on other significant resources.

Potential Impacts and Mitigation Measures

Potential Impact 5.12-1: Construction of new urban development could cause an increase in surface runoff resulting in increased erosion and siltation.

Clearing and grading activities associated with new construction leaves the soil exposed and more susceptible to erosion from rainfall impact, sheet flows, creation of rills and gullies, and wind. Once construction is complete, the amount of impervious surface created could also accelerate erosion of drainage channels receiving site runoff due to increases in runoff flows, velocities and volumes. Additionally, if the natural drainages cannot accommodate the increased flows, there is also a potential for flooding of areas downstream. A discussion of the potential for increased flooding resulting from increased flows in water ways is provided in Chapter 5.15 of this document.

The area proposed for new urban development in the ECAP contains some agricultural and natural lands, particularly in the Eastern Dublin, North Livermore and South Livermore subareas. These areas are subject to some natural erosion from rainfall impact, surface flows

and wind but this natural erosion typically occurs at slow rates. Conversion of these lands for urban development could accelerate soil erosion during construction and from increases in runoff amounts and velocities due to the increase in the extent of impervious surface.

Plan Policies and Programs: The ECAP contains policies and programs to regulate discharges of flows from new development into existing drainages or flood control facilities. Specifically, policy 258 states that the County shall regulate new development to ensure that the peak flow rate from new development will not exceed the rate of runoff from the site in its undeveloped state. There is also a Grading Ordinance for the County which requires development of an erosion control plan for construction activities prior to issuance of a grading permit.

Level of Significance: Implementation of the proposed plan policies in combination with the County's Grading Ordinance (82-17) will result in a less-than-significant impact.

Mitigation Measure 5.12-1: None needed.

Potential Impact 5.12-2: New urban development would decrease the amount of area available for infiltration into the groundwater basin.

Recharge of the groundwater basin is accomplished by infiltration and percolation of precipitation, stream flow, and applied water. The amount of area available for percolation and infiltration decreases as agricultural and natural lands are converted for new urban development. The ECAP proposes conversion of agricultural and natural lands which are underlain by the May, Cayetano and Vasco fringe groundwater subbasins. An increase in the extent of impervious surface over these subbasins could reduce the amount of recharge occurring in these basins from infiltration and percolation of precipitation. Removal of natural drainages may also affect the amount of recharge in these basins.

Management of groundwater resources in East County is the primary responsibility of Zone 7 of the ACFCWCD. Zone 7 closely monitors groundwater levels in the Central Groundwater Basin and the fringe subbasins and, to keep within the limits of long-term safe yield, artificially recharges the basin up to a rate of 13,000 acre-feet per year by releasing water into the arroyos (Water Supply Background Report, *East County Area Plan - Volume 2*). The impacts of new urban development on water supply, including groundwater are discussed in *Chapter 5.13* of this document.

Plan policies and programs: The plan policies and programs listed in Section B address the potential reduction of groundwater recharge from infiltration of precipitation by encouraging on-site features which would allow percolation to continue and by supporting active groundwater management. Program 93, encourages the use of permeable materials in detention and retention ponds to enhance on-site percolation. Policy 234 and policy 238 support development of a comprehensive water plan which includes management of the groundwater basin and encourages Zone 7 to maximize use of the Chain of Lakes for water

supply development and groundwater management. Policy 282 seeks to protect surface and groundwater resources by preserving areas with prime percolation capabilities.

Although the area available for infiltration and percolation will be reduced with the new urban development proposed in the ECAP, groundwater recharge will still occur either naturally through stream courses, ponds or natural areas which are left open, or through artificial recharge of the basin. The end result will be maintenance of the groundwater levels in East County. Therefore, a reduction in the amount of area available for infiltration of precipitation would not result in a significant impact on groundwater levels in the basin.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.12-2: None needed

Potential Impact 5.12-3: New urban development could result in additional releases of nonpoint source pollutants into the storm drain system or waterways.

The *Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program* (June 28, 1991) contains strategies for controlling discharge of pollutants from urban runoff flowing into municipal storm drain systems. This program was developed in response to the 1987 amendments to the Clean Water Act which established a framework for regulating municipal, industrial, and construction storm water discharges under the National Pollutant Discharge Elimination System program. These amendments were made because it was recognized that nonpoint sources, including pollutants originating from agriculture, mining, and land disposal activities, as well as storm water from diffuse urban surfaces such as construction sites, impervious surfaces, and unsewered residential areas were contributing significantly to the impairment of the nation's surface and groundwaters.

The new urban development proposed in the ECAP will increase the potential for pollutants generated from residential uses to enter the storm drain system and waterways. During construction of new development, soil erosion can accelerate causing large loads of sediment to be deposited in natural waterways. Materials used during construction such as petroleum based products, paint, concrete, etc. can also enter the storm drain system and end up in the drainages. Once construction is complete, subsequent uses of the area may result in addition of pollutants such as motor oil, pesticides, untreated sewage and other chemicals to enter the storm drain.

Under the NPDES program municipalities as well as individual developers and commercial/industrial facilities must develop a Storm Water Management Program or Storm Water Pollution Prevention Plan when obtaining a storm water permit. Additionally, specific design features which would filter out pollutants in storm water before it is released into water ways are to be incorporated into all new projects. Alameda County has obtained a Municipal NPDES storm water permit and has completed a *Storm Water Management Plan*

for the Alameda County Urban Runoff Clean Water Program (June 28, 1991). This plan provides guidelines for best management practices (BMP's) to be employed by facilities which release runoff into municipal water ways. The Program is also in the process of developing guidelines for new developments for the design of onsite features that would filter out pollutants from storm waters before they are released into the water ways.

The California Storm Water Quality Task Force has recently (March, 1993) published a series of handbooks (Construction, Industrial/Commercial, Municipal) which provide guidelines and recommendations for selecting BMP's and designing onsite features to reduce pollutants in storm water discharge.

Plan policies and programs: Program 104 of the plan requires the County to implement the Alameda County Urban Runoff Clean Water Program. Program 105 also endeavors to minimize herbicide use by public agencies by applying integrated pest management principals for vegetation control. Each of these programs provide guidelines and standards for controlling the release of nonpoint source pollutants into storm water.

Level of Significance: Implementation of the proposed plan policies and programs, in combination with the federal and state programs established to address this issue, will reduce the potential for nonpoint source pollutants to enter the storm drains and water ways, even with new urban development and result in a less-than-significant impact on storm water quality.

Mitigation Measure 5.12-3: None needed

Potential Impact 5.12-4: Proposed land use activities could result in contamination of surface waters and the infiltration of contaminants into the groundwater basin.

Land uses other than urban development which the ECAP allows outside the UGB could affect the quality of surface waters and groundwater in the region. In particular, the use of reclaimed water for irrigation could add salts to the groundwater, leachate from solid waste facilities could seep into the water table, and septic tanks could leak sewage into the basin especially in areas of extreme percolation. A thorough discussion of the effect of septic tanks and the use of waste water for irrigation on the groundwater basin is provided in the *Chapter 5.14* of this document.

Contamination of surface waters and groundwater from solid waste disposal facilities is of major concern to the Environmental Protection Agency. To address this potential problem, EPA recently established criteria for classification of solid waste disposal facilities and practices (40 CFR Ch. 1 Part 257, 1990) in accordance with Subtitle D of RCRA. Specific requirements for the prevention of release of pollutants into surface waters (Section 257.3-3) and contamination of groundwater (Section 257.3-4) are included in this regulation.

Plan policies and programs: Policies and programs listed in Section B above address the potential effects of infiltration of contaminants into the groundwater. Policy 282 addresses the protection of groundwater resources by minimizing placement of potential sources of pollution in areas of prime percolation capabilities and programs 104 through 106 state that the County shall implement programs designed specifically for the protection of surface water and groundwater resources. Policy 230 requires coordination of solid and hazardous waste management planning with the Alameda County Waste Management Authority.

Level of Significance: With implementation of the plan policies and programs in combination with new federal regulations regarding solid waste disposal facilities, no significant impacts would result.

Mitigation Measure 5.12-4: None needed

Potential Impact 5.12-5: Land use activities within the watershed boundaries for the Calaveras and San Antonio Reservoirs could have a negative effect on the water quality in these reservoirs.

The San Francisco Water Department (SFWD) owns approximately 36 percent of the southern Alameda Creek Watershed which drains into the Calaveras and San Antonio Reservoirs. The actual hydrologic boundary of this watershed is far greater than SFWD's ownership and therefore SFWD has less control over the quality of the water in streams and tributaries which feed these reservoirs. Land use activities such as urban development, recreation or grazing which occur upstream on lands not under the control of SFWD could affect the water quality in the reservoirs.

On watershed lands in the United States, residential development, agriculture, recreation and grazing are land uses which most commonly coexist with water storage and production (Watershed Watch, February, 1993). These uses can cause considerable water quality deterioration resulting from increased erosion and increased turbidity, increases in runoff laden with contaminants, increases in the presence of human bacteria, and an increased risk of fire. Contaminated waters can be treated and processed for safe drinking but watershed managers believe that controlling contaminants at their source of origin is more cost effective (Watershed Watch, Feb. ,1993). Currently water in the Calaveras and San Antonio Reservoirs is of high quality and the SFWD is preparing a Watershed Management Plan in order to maintain and improve water quality.

Plan policies and programs: Acknowledging that effective watershed management extends to the hydrologic boundaries of a watershed, the plan policies and programs designate an area outside of the SFWD lands that extends to the watershed boundary as Resource Management. Policy 104 of the plan establishes the Resource Management designation; program 47 requires the development of management guidelines for these lands for the purpose of protecting watershed lands from potential degradation resulting from incompatible uses.

Level of Significance: With implementation of plan policies and programs established to address uses on lands within the watershed of the Calaveras and San Antonio Reservoirs, no significant impact would result.

Mitigation 5.12-5: None needed.

Potential Impact 5.12-6: Expansion of urban development in North Livermore could adversely affect the hydrologic characteristics of the Springtown valley sink scrub habitat.

As discussed in the Existing Setting of this chapter, the Springtown valley sink scrub is a sensitive biological community which supports special status species such as the California tiger salamander, the California linderiella and the palmate bracted bird's beak plant. Preservation of the population of palmate bracted bird's beak plant in this area is the primary goal of a program being undertaken by the California Department of Fish and Game, E-Max (a private enterprise), and the City of Livermore. Studies of the plant and its habitat have been conducted over the last several years by numerous agencies and individuals and most recently by the Center for Conservation Biology at Stanford University to try and determine the ecological needs for the bird's beak plant, a federally endangered species, in the Springtown area. Most of these studies have provided some information about the ecological needs of this plant but recommendations for management of the habitat are still inconclusive. One common conclusion of all the studies conducted is that the hydrologic characteristics of the Springtown valley sink scrub are critical to the maintenance of this habitat and to the viability of the bird's beak plant.

As noted in the Existing Setting, Philip Williams and Associates, consultants in hydrology, completed a proposed management plan in 1988 for the Springtown alkali sink (also known as valley sink scrub), for the California Department of Fish and Game. In this management plan PWA acknowledges that the relative importance of surface vs. subsurface flows to the sink is unknown but concludes that the alteration of surface flows and shallow groundwater to the sink have reduced the extent of the sink habitat and affected the viability of the bird's beak. PWA identifies the areas north and northwest of the sink as the contributing watershed and therefore recommends that development be limited in these areas in order to minimize disruption of normal surface flows and infiltration rates and thereby protect the valley sink scrub habitat.

Recently, another hydrologic investigation of the Springtown watershed was completed by Berlogar Geotechnical Consultants (February, 1993) in order to gather information on the surface and subsurface hydrologic conditions that influence the Springtown alkali sink. Using sources similar to those used by PWA, collecting site specific rainfall and stream flow data for several storm events, and mapping surface hydrologic conditions in the sink, Berlogar concluded that groundwater is the major hydrologic contributor to the sink. Berlogar further defines the highlands to the east and southeast of the sink and the flatlands

south of I-580 as the primary recharge area for this groundwater and concludes that the lands to the north and west contribute primarily surface flows to the sink.

While the purpose of these hydrologic investigations is to sufficiently understand the existing hydrologic conditions of the Springtown sink so that the habitat values of the area may be maintained or enhanced, it is still unclear how the hydrologic conditions affect the existing bird's beak population. Although the two studies referred to above, as well as studies conducted by the Center for Conservation Biology at Stanford, have not resulted in a conclusive understanding of the bird's beak/hydrologic relationship, they suggest that both groundwater and surface water are important factors.

The ECAP proposes new urban development on lands surrounding the Springtown valley sink scrub habitat. Assessing the impact of this development is difficult given the two different conclusions reached in the studies mentioned above. Although a number of measures can be taken in conjunction with development in the area to maintain existing hydrologic conditions (for example, (1) surface flows can be engineered and directed to reach the alkali sink at rates and amounts similar to existing conditions, and (2) recharge of the groundwater can be accomplished through active management as well as avoidance of development in areas identified as key to the recharge of the basin), further studies may indicate that a change in hydrologic conditions would maximize rather than reduce the habitat value of the sink.

Plan policies and programs: Plan policies and programs do not directly address the issue of maintaining hydrologic conditions of the Springtown valley sink scrub habitat. Policy 30 seeks to insure that Major New Urban Development in North Livermore is compatible with adjacent land uses but does not directly address the sink habitat.

Level of Significance: Without mitigation, the impact on the valley sink scrub habitat resulting from adjacent land uses is potentially significant. The following additional policy would reduce this impact to a less-than-significant level.

Mitigation 5.12-6: Proposed New Policy: *The County shall require Major New Urban Development in North Livermore to incorporate surface water and groundwater management measures to address impacts on the Springtown Valley sink scrub habitat resulting from development in the watershed.*

SOURCES

- Alameda County Flood Control and Water Conservation District, Zone 7, Preliminary Assessment of Nitrate/Nitrogen Loading Agents and Removal Mechanisms Impacting Local Groundwaters within the Livermore/Amador Valley, 1980.
- Alameda County Flood Control and Water Conservation District, Zone 7, Groundwater Contour Map, Fall 1991.
- Alameda County Urban Runoff Clean Water Program, A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program, June 28, 1991.
- Alameda County, Watercourse Protection Ordinance, adopted March 1982.
- Alameda County, Conservation Element of the County General Plan, 1976.
- Berlogar Geotechnical Consultants, Hydrologic Investigation Springtown Watershed Livermore, California, February, 1993.
- California Department of Water Resources (DWR), Livermore and Sunol Valleys--Evaluation of Groundwater Resources, Appendix A: Geology, 1966.
- California Storm Water Best Management Practice Handbooks - Construction Activity, Industrial/Commercial, Municipal. Storm water Quality Task Force. March, 1993.
- Philip Williams and Associates, A Management Plan for the Springtown Alkali Sink Wetlands and Endangered *Cordylanthus palmatus*. October 1988.
- San Francisco Watershed Management Plans Watershed Watch. Volume I, February, 1993. Prepared by EDAW, Inc.
- United States Army Corps of Engineers (USACOE), San Francisco District, Upper Alameda Creek Urban Study Background Information Appendix, 1985.
- United States Geological Survey, Water Quality Conditions and an Evaluation of Ground- and Surface-Water Sampling Programs in the Livermore-Amador Valley, California, Report 84-4352, 1985.





\\home\plan\air\chp5-12.ltr

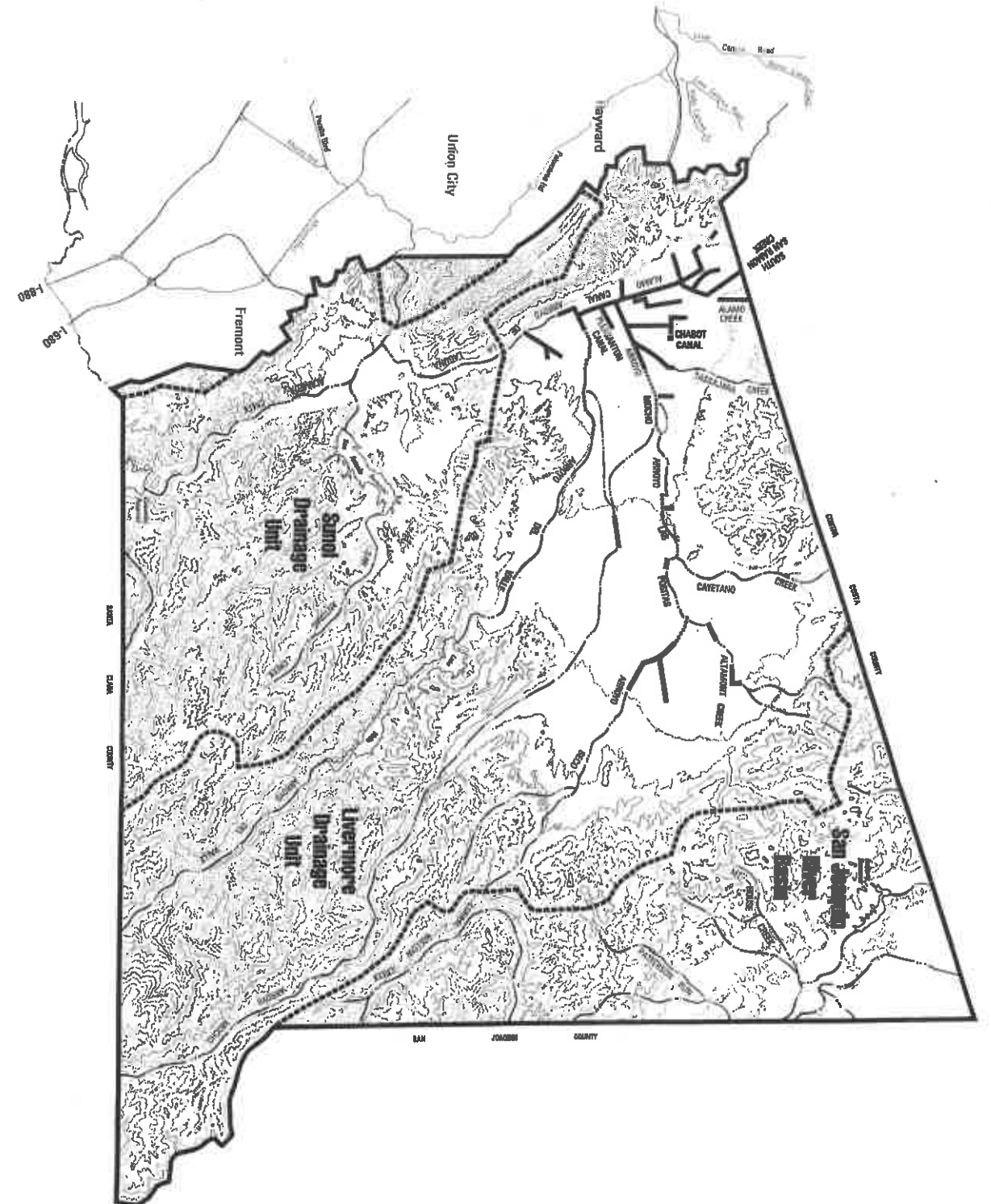
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Surface Water

Hydrology: Existing Conditions

LEGEND

-  Fully Improved Channel
-  Partially Improved Channel
-  Channel not Maintained by Zone 7
-  Drainage Unit Boundary



SOURCE: Zone 7 Owned & Maintained Facilities ACRWQCD
Bulletin No. 110-2, Livermore and San Joaquin Valley
General Water Resources, State of California Department of
Water Resources, August 1986 and June 1974



FIG. 2B

Chapter 5.13 - Water Supply

A. EXISTING SETTING

[For more detailed information on the water supply topics discussed in this section, refer to the *Water Supply Background Report* in the *Draft East County Area Plan - Volume 2.*]

Water Management

Zone 7 of the Alameda County Flood Control and Water Conservation District is the water management agency for the Livermore-Amador Valley water basin, a 425 square mile service area possessing the same geographical boundaries as the East County planning area, except along the western edge where some discrepancies occur (see Figure 26). Zone 7 is responsible for: bulk water purchase and treatment; distribution of treated drinking water and untreated agricultural irrigation water; surface water and groundwater basin management; and flood control. The East County's four water retailers are the City of Pleasanton, Dublin San Ramon Services District, California Water Service Company, and City of Livermore. Components of the water system for the Livermore-Amador Valley service area, including service boundaries for water retailers, are shown on Figure 26.

Existing Water Supply

Zone 7 water is derived from three sources: (1) imported water from the Sacramento-San Joaquin Delta via the South Bay Aqueduct, a part of the State Water Project; (2) locally conserved runoff that flows into the Del Valle Reservoir; and, (3) local groundwater. Table 5.13-1 below summarizes Zone 7's evaluation of what they describe as a "sustainable water supply" by source for the Zone 7 service area. This sustainable water supply is the amount of firm water resource the Board of Zone 7 believes is available in a typical year. It addresses issues such as the safe yield of the groundwater aquifer and the potential affect of environmental issues and drought years on the State water deliveries.

State Water Project. Imported water from the State Water Project (SWP) currently supplies about 60 percent of the water used in the Zone 7 service area. Under a long-term contract with the California Department of Water Resources (DWR), Zone 7 receives water from the Sacramento-San Joaquin Delta where SWP pumping facilities near Tracy withdraw and transport water to the Livermore-Amador Valley via the South Bay Aqueduct (SBA). The imported surface water is generally of good quality. SWP water intended for municipal use is treated by Zone 7 at either the Del Valle Water Treatment Plant or the Patterson Pass Treatment Plant and then distributed to the local water retailers via underground pipelines.

Zone 7's contracted amount of SWP water was 32,000 acre-feet in 1990 and increases each year until a maximum annual entitlement of 46,000 acre-feet is reached in 1997. (One acre-

TABLE 5.13-1.

**Existing Sustainable Water Supply by Source
for the Zone 7 Service Area**

Source	Existing Water Supply (in Acre-Feet)
State Water Project	31,700 (Average Annual Yield)
Del Valle Reservoir Storage	7,000
Safe Groundwater Yield	13,200
Total	51,900

Source: Alameda County Planning Department based on information contained in *Zone 7, Water Supply Update*, February 1992.

foot is an acre of water one foot deep and is equivalent to approximately 326,000 gallons.) The actual amount of water received by a contractor in any one year, however, is dependent upon the amount of requested deliveries from SWP contractors and the amount of water made available to the SWP system from rainfall and snowpack runoff. If cutbacks to contractors are required due to less-than-maximum yield to the SWP system, contracted amounts are reduced commensurate with the percent of shortfall. For planning purposes, Zone 7 receives per year the average annual yield of 31,700 acre-feet. Zone 7's maximum entitlement of 46,000 acre-feet in 1997 is predicated on the completion of additions to the SWP system.

Locally Conserved Runoff. Under its water rights permit for the Arroyo del Valle and under an operating agreement with the Department of Water Resources, Zone 7 captures and stores an average of approximately 7,000 acre-feet of local surface runoff in the Del Valle Reservoir.

Local Groundwater. The Livermore-Amador Valley is underlain by a central underground basin reservoir which yields groundwater from two relatively distinct water bearing formations: an unconfined upper alluvial aquifer over a sequence of deeper semi-confined aquifers called the Livermore formation (see *Chapter 5.12 - Hydrology and Water Quality*). Based on hydrologic records that have been maintained since 1974, Zone 7 has determined that the long-term safe yield¹ for the groundwater basin is 13,200 acre-feet annually. The major water retailers are permitted to pump up to 7,200 acre-feet annually with the balance of the safe yield (6,000 acre-feet) being pumped by agricultural and gravel mining interests

¹ Safe groundwater yield is defined as the amount of water that can annually be pumped from the groundwater basin that will be replaced by average annual natural recharge by percolation of rainfall and applied water, stream recharge, and subsurface inflow (Zone 7, Groundwater Basin Safe Yield, January 17, 1990).

(see **Existing Water Use and Water Allocation** below). In addition to the allotted use of long-term safe yield, Zone 7 relies on the available groundwater for operational backup of imported water, emergency reserve, and to meet peak demand during summer months.

To redress historic overdraft and to keep within the limits of long-term safe yield, Zone 7 has been artificially recharging the basin up to a rate of 13,000 acre-feet per year using: (1) releases of State Water Project water from the South Bay Aqueduct into the arroyos during off-peak months, and (2) releases from Del Valle Reservoir of the Zone's permitted local surface runoff from the Arroyo Del Valle watershed. However, due to higher than average groundwater usage during the past few years of drought, the present groundwater level has dropped from the managed groundwater elevation of 280 feet with a storage capacity of 240,000 acre-feet to the 250-foot elevation, representing storage of 200,000 acre-feet (measurements are taken at one well in Pleasanton). The existing short-term overdraft of the basin is therefore about 40,000 acre-feet. Zone 7's latest hydrologic inventory (1974-92) indicates that groundwater extraction exceeded natural and supplemental recharge by nearly 60,000 acre-feet over the nine year period between 1984 and 1992. (Refer to Appendix C for the 1992 inventory.) Zone 7 estimates that at least half the 200,000 acre-feet could readily be pumped and recharged if additional surface supplies were secured (Zone 7, Water Supply Update, 1992).

Although recharge from rainfall for the 1992-93 season is not included in this estimate of existing groundwater overdraft, Zone 7 expects that aggressive recharge of the basin will increase groundwater storage to about 215,000 acre-feet by the end of December 1993. This will replenish more than 40 percent of the storage that was used during the drought. Zone 7 also anticipates that the operating storage level of 240,000 acre-feet can be achieved in a few hydrologically normal years (Zone 7, Item No. 19d, April 21, 1993).

Existing Water Use and Water Allocation

There are five principal types of water users in the Livermore-Amador Valley: municipal and industrial; small systems and institutions; rural residential; gravel mining operations; and irrigated agriculture. Existing water demand by user type and allocation of the existing water supply to these users is summarized in Table 2 .

Municipal and Industrial. It is the policy of Zone 7 to approve water delivery requests on a first request basis. Annually, each retailer must provide a five year demand forecast to Zone 7. The contracts between Zone 7 and the water retailers provide that the retailer can obtain as much water as it needs from Zone 7 within the limits of the available supply. The Zone is currently considering adopting a method of allocating future water supplies. Under this proposed policy Zone 7 would: continue to approve reasonable water delivery requests until demand exceeds existing supply; proportionately reduce or deny approval of new requests when demand exceeds supply for any upcoming water year; not approve arbitrarily large requests or increases in requests; and, enter into separate contracts, on terms to be negotiated, for delivery of water from expensive new permanent water supplies. If the proposed policy

is adopted, the timing of demand for new connections will have a bearing on Zone 7's ability to meet that demand.

In addition to purchasing water from Zone 7, the four major retailers are permitted by contract with Zone 7 to pump an independent quota of groundwater as a supplemental source. In 1991, the water retailers supplied a service area population of roughly 133,000. According to Zone 7 (February 1992), the Zone assumes for planning purposes an overall community consumption rate of 210 gallons per capita per day (or 0.235 acre-feet per capita per year).

Small Systems and Institutions. Zone 7 has reserved 5,000 acre-feet of treated water from the SWP system and local surface runoff for small systems and institutions (located in unincorporated areas and therefore not served by municipal water retailers) and agriculture.

Rural Residential. Residents that are not located within water retailer service areas use wells for their water supply. In its groundwater management policy document (Zone 7, August 1987), the Zone states that under California law landowners are entitled to withdraw groundwater for a "beneficial use" on their own property. Zone 7 could impose, but currently does not require, pumping permits; therefore, groundwater consumption is not monitored.

Gravel Mining. The Livermore-Amador Valley Quarry Area is located south of I-580 between the cities of Pleasanton and Livermore. Water consumptive uses by the sand and gravel operations include: moisture contained in the sands and gravels that are sold; groundwater pumped from the gravel pits to facilitate the extraction process which is discharged to surface streams and leaves the basin; and evaporation losses from recycled water used to wash the gravel. Although past groundwater use has been relatively high due to dewatering activities, Zone 7 estimates that usage will level out at about 3,000 acre-feet now that the managed water table has been lowered to the 280 foot elevation (Vincent Wong, Zone 7, April 9, 1992).

Irrigated Agriculture. There are an estimated 2,250 acres of irrigated agriculture in the Livermore-Amador Valley, 2,100 acres of which are located in the South Livermore Valley, with most of the remaining irrigated acres located between Pleasanton and Livermore south of I-580. In the South Livermore Valley, vineyards require about 1 to 1.5 acre-feet of applied water per acre per year. Existing agricultural demand in the Livermore-Amador Valley is about 3,300 acre-feet, 2,400 acre-feet of which is untreated water from the South Bay Aqueduct with the remaining 900 acre-feet from groundwater (South Livermore Valley Area Plan DEIR, June 1992). Pumping permits and pump taxes are not currently being imposed by Zone 7, although their imposition is the legal prerogative of the Zone. Use is estimated by Zone 7 based on acres under cultivation. Use of groundwater in the South Livermore Valley is particularly important during peak demand when sufficient imported water is unavailable. Zone 7 has adopted an agricultural water policy (February 21, 1990) that recognizes the long-term importance of agriculture and viticulture to residents of East

County and calls upon Zone 7 to "make its best effort to distribute any required cutbacks proportionately among all users during times of drought and/or water supply shortages."

TABLE 5.13-2			
Zone 7 Allocation and Existing Water Use in the Livermore- Amador Valley			
User	Allocation/Water Use by Source ¹ (in acre-feet)		
	Groundwater	Surface Water (State Water Project and Del Valle Reservoir)	Totals
Municipal and Industrial (M&I)	7,200 af 7,200 af	33,700 af 25,500 af	40,900 af 32,700 af
Small Systems and Institutional	0	1,500 af ² 1,500 af	1,500 af 1,500 af
Rural Residential	Unknown	0	Unknown ³
Gravel Mining	3,000 af 3,000 af	0	3,000 af 3,000 af
Irrigated Agriculture	3,000 af 900 af ³	3,500 af ² 2,400 af ⁴	6,500 af 3,300 af
Totals	13,200 af 11,100 af	38,700 af 29,400 af	51,900 af 40,500 af
<p>Notes:</p> <p>¹Water allocation is indicated by the top figure; existing water use is indicated by the bottom figure and appears in bold.</p> <p>²Zone 7 has allocated a total of 5,000 acre-feet to small systems and agriculture. The split of 1,500 acre-feet to small systems and 3,500 acre-feet to agriculture assumes that future use by small systems will not exceed existing use and that agriculture will absorb the remaining allocation.</p> <p>³Estimated agriculture pumping in 1991 (Zone 7, Water Resources Monitoring Groundwater Supply and Utilization, December 1991).</p> <p>⁴Scheduled delivery of untreated water from the South Bay Aqueduct in 1991 (Zone 7, Untreated Water Delivery Summary, December 1991).</p> <p>⁵Rural residential groundwater use is not known because the wells are not monitored.</p>			
Source: Alameda County Planning Department			

Sub-Areas

South Livermore Valley. Environmental review of the County's proposed South Livermore Valley Area Plan (SLVAP) has identified and mitigated specific water-related impacts arising from implementation of SLVAP policies. Cumulative effects, caused by SLVAP together with development proposed under the plan, are examined in the impact analysis.

Doolan Canyon, East Dublin, North Livermore Valley. The undeveloped area north of I-580 between Tassajara Road and Vasco Road is not currently located within any of the valley's four water service districts. Although residents of the area are currently drawing water from individual wells, the insufficiency of groundwater for development of any size would require the installation of a complete water distribution system connecting to the Zone 7 system.

West Dublin. Most of the planning area for the Western Dublin subarea is served by private wells and is located within Zone 2 of Alameda County Flood Control and Water Conservation District. Approval by the Zone 7 Board of Directors would be required before Zone 7 water could be purveyed in this area. (At this time, Zone 7 has not committed itself to expansion of its service area.)

Mountain House. Water supply for domestic use on farms within the Mountain House subarea is provided by wells. Irrigation water for agricultural use in the Mountain House sub-area is provided by the Byron-Bethany Irrigation District (BBID), a multi-jurisdictional district that provides water to adjoining areas of San Joaquin, Contra Costa, and Alameda counties.

Sunol Valley. The San Francisco Water Department (SFWD), which owns and operates the San Antonio and Calveras reservoirs as part of the Hetch-Hetchy system, is the major water purveyor to the community of Sunol with the balance being supplied by the City of Pleasanton Water Department. The Vargas Plateau is located within the Alameda County Water District (ACWD). The ACWD was founded in 1914 to serve the needs of the residents of the Alameda Creek watershed area, including Fremont, Newark, and Union City.

Pleasanton Ridglands. Only a small portion of the West Pleasanton planning area is currently served by water agencies. The Pleasanton Water Department supplies water to a handful of homes along Santos Ranch Road. The remaining rural residences rely upon well water. Service to this area would require annexation to a water district. The Zone 7 service area extends west to roughly the Eden-Pleasanton Township line, bisecting the West Pleasanton planning area. Approval by the Zone 7 Board of Directors would be required before Zone 7 water could be purveyed in this area.

Potential Future Water Supplies

According to Zone 7 (Water Supply Update, 1992), the following options are available to the Zone for increasing its reliable water supply: 1) water conservation; 2) additions to the State Water Project; 3) use of recycled water; 4) water marketing; and, 5) increased local storage. The currently estimated maximum potential amount of additional water from each of these sources is summarized in Table 3 below. The individual amounts have not been totalled because it is extremely unlikely that all options could be realized; a more likely scenario is that future supplies would come from a combination of two or more options. Currently favored options are water conservation, water reclamation, and water purchased from agricultural sellers.

TABLE 5.13-3.

**Summary of Potential Water Supplies to Meet Future
Municipal & Industrial Demands
in the Zone 7 Service Area (in acre-feet).**

Existing M&I Supply	Water Conservation (10%)	State Water Project	Water Marketing	Additional Storage	Recycled Water*	Totals
40,900		---	---	---	---	40,900
40,900	4,100	---	---	---	---	45,000
40,900		8,400	---	---	---	49,000
40,900		---	14,300	---	---	55,200
40,900		---	---	20,000 to 50,000	---	60,900
40,900		---	---	---	25,000*	65,900

Source: Zone 7, Water Supply Update, February 1992 and Alameda County Planning Department

* For potable and/or non-potable (agricultural and landscape irrigation) depending on the treatment standard.

Water Conservation. Zone 7 and its retailers are committed to water conservation efforts that are feasible for the District. The State Department of Water Resources (DWR) estimates that Best Management Practices (BMP) will eventually result in 10 percent to 15 percent water savings.

Additions to the State Water Project. Planned additions to the State Water Project include the Kern Water Bank, Los Banos Grandes Reservoir, and an additional four pumps. The four pumps and the Kern Water Bank are complete, although all permits to operate these facilities have not been obtained. Environmental review of the Los Banos Grande Reservoir is underway and construction could begin in 1995. Nevertheless, state or federal environmental constraints that could emerge from the current Bay/Delta proceedings may preclude the full use of these facilities.

Recycled Water. A recent study undertaken by Zone 7, the Dublin San Ramon Service District and the City of Livermore (Brown and Caldwell, May 1992) indicates that up to 25,000 acre-feet per year of treated recycled water could be used for recharging the groundwater basin and/or for surface irrigation depending on the level of purification desired. The recycled water recharged to and used over the main basin would be demineralized by reverse osmosis, a process which removes most dissolved salts and organic

molecules by forcing treated wastewater through a semi-permeable membrane. (Importantly, the reverse osmosis treatment process can be adapted to meet varying performance standards associated with different potable or non-potable end uses.)

Water Marketing. The concept of water marketing is that water supplies can be purchased by water deficient agencies from agencies with surplus water. A number of legislative bills are under consideration to ease the process of purchasing water. Zone 7 believes that, on a small scale, water purchases will be a viable alternative for an additional water supply.

Increased Local Storage. Studies by Zone 7 and other South Bay Aqueduct contractors have identified potential off-stream storage sites that could provide up to an additional 50,000 acre-feet per year by maximizing the delivery capability of the South Bay Aqueduct. The water supply would come from a combination of purchasing surplus water from the state and other water delivery systems in wet years, and from the water marketing concept previously mentioned. In place of constructed off-stream storage it would be possible for Zone 7 to store the additional deliveries from the South Bay Aqueduct in the underground aquifers. Additional future storage could also be made available using the "Chain-of-Lakes" called for in the Specific Plan for the Livermore-Amador Valley Quarry Area.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- existing water supplies could be inadequate to meet increased water demand
- premature extension of water distribution infrastructure could result in urban sprawl
- increased pumping of groundwater could result in the long-term depletion of the groundwater basin

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Holding Capacity and Phasing Policies and Programs:

Policy 12: If average densities of approved new development do not meet or exceed the mid-point of the density range within a land use category (except Very High Density Residential), the County shall redesignate parcels in unincorporated areas within the Urban Growth

Boundary to compensate for reductions in holding capacity, and shall work with cities to do the same within incorporated areas.

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Policy 14: The County shall work with cities and service districts to plan adequate infrastructure capacity to accommodate development consistent with the *East County Area Plan*. The level of development in the *East County Area Plan* shall depend on the adequacy of transportation and infrastructure improvements and the extent to which these improvements can be funded.

Major New Urban Development Policies:

Policy 32: The County shall require new developments in unincorporated areas to pay their fair share of the costs for providing East County infrastructure, public facilities and services, open space, affordable housing, and child care.

Infrastructure and Services Policies:

Policy 203: The County shall rely upon the availability of infrastructure as a major determinant of development phasing.

Water Policies and Programs:

Policy 234: The County shall work with the Alameda County Flood Control and Conservation District (Zone 7), local water retailers, and cities to develop a comprehensive water plan to assure effective management and long-term allocation of water resources, to develop a contingency plan for potential short-term water shortages, and to develop uniform water conservation programs. The water plan should include a groundwater pump monitoring and cost allocation system in order to facilitate ground water management and to recover the cost of purchased water stored in the groundwater basin.

Policy 235: The County shall encourage Zone 7 to pursue new water supply sources and storage facilities to serve East County holding capacity projections.

Policy 236: The County shall approve new development contingent on verification that an adequate and permanent water supply can be provided to serve the development. The County shall encourage developers of Major New Urban Development to seek new sources of water to supplement existing sources so that there will be sufficient water for smaller infill projects.

Policy 237: The County shall encourage Zone 7 and local water retailers to require new development to pay the full cost of securing, conveying, and storing new sources of water.

Policy 238: The County shall encourage Zone 7 to maximize use of the Chain-of-Lakes for water supply development and groundwater management.

Policy 239: The County shall discourage water service retailers from constructing new water distribution infrastructure which exceeds future water needs based on the buildout projections of the *East County Area Plan*.

Policy 240: The County shall support more efficient use of water through such means as conservation and recycling, and shall encourage the development of water recycling facilities to help meet the growing needs of East County.

Policy 241: The County shall encourage Zone 7, water retailers, and cities to sign the California Urban Water Conservation Council's Memorandum of Understanding which binds parties to implement **Best Management Practices** where feasible.

Policy 242: The County shall include water conservation measures as conditions of approval for subdivisions and other new development.

Policy 243: The County shall require major projects to mitigate projected water consumption by applying one or more **Best Management Practices** that reduce water consumption off-site.

Policy 244: The County shall encourage the efficient use of water for landscape irrigation, vineyards and other cultivated agriculture. To this end, the County shall encourage the use of recycled water, treated by the reverse osmosis or other process and meeting groundwater basin standards set forth by the Regional Water Quality Control Board, for agricultural irrigation.

Policy 245: The County shall encourage Zone 7 and the water retailers to require separate service connections and meters where large quantities of water are used for special purposes such as golf courses and landscape irrigation so that consumption of water for these uses can be managed in times of drought. To this end, the County shall require the use of recycled water for golf courses and shall encourage use of recycled water for non-residential landscaping, irrigated agriculture, and groundwater recharge.

Program 88: The County Board of Supervisors shall sign the California Urban Water Conservation Council's Memorandum of Understanding which binds parties to implement **Best Management Practices** where feasible.

Program 89: The County shall work with appropriate agencies (e.g., County Agricultural Commission, Soil Conservation Service, and the University of California Experimental Station) to provide farmers with information about water conserving agricultural practices.

Program 90: The County shall prepare and adopt a water supply ordinance that provides for the distribution of recycled water in designated areas. Areas to be considered for designation should include the South Livermore Valley.

South Livermore Policies and Programs

Policy 305: The County shall encourage the development of additional sources of irrigation water for vineyards and other cultivated agriculture by investigating wastewater reclamation and development of other supply and delivery resources, and by encouraging Zone 7 to

consider developing a pump monitoring and cost allocation system to cover the cost of new water in the event that additional supplies are needed.

Program 116 (a): (in the Cultivated Agriculture Overlay District) The applicant must show, to the satisfaction of the County and Zone 7, that adequate water supplies are available for both domestic and irrigation needs, and that all proposed homesites can be served by individual septic systems.

Program 131 (f) vi.: Require that new cultivated agriculture resulting from Plan policies use water conserving best management programs, including the use of drip irrigation wherever feasible.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect if it will "substantially degrade or deplete ground water resources; interfere substantially with ground water recharge; or encourage activities which result in the use of large amounts of fuel, water, or energy".

For purposes of this EIR, implementation of the plan would create a significant environmental impact if increased water demand exceeded available water supply and/or substantially depleted groundwater resources. Expansion of existing water services would also be a significant impact if service extension occurred in areas not adjacent to existing services or if premature extension of service resulted in urban sprawl.

Potential Impacts and Mitigation Measures

Potential Impact 5.13-1: Water demand from new urban development would exceed existing water supply.

Buildout of the *East County Area Plan* would expand the population of the planning area from 136,000 to 287,000, with an interim (2010) population projected to be 259,000. Using the assumptions described under the Existing Setting discussion, the present water supply for the planning area is insufficient to meet the needs of the projected population by 2010 or for buildout of the *East County Area Plan* (refer to Table 4). In order to meet these respective demands, the water supply will have to be increased by about 12,500 acre-feet in the next

twenty years and by about 20,250 acre-feet at some later point in time, if or when buildout is achieved. (If water conservation practices cannot reduce demand, these figures would be higher by 10 percent.)

Future Growth Scenarios	Future Demand* w/no savings w/10 % savings	Existing Supply (as defined by Zone 7)	(Deficit)
Buildout, East County Area Plan (pop.287,000)	67,450	40,900	(26,550)
	61,150		(20,250)
Year 2010, East County Area Plan (pop.250,700)	58,900	40,900	(18,000)
	53,400		(12,500)

Zone 7 estimates that its current water supply can meet the needs of a service area population of 174,000 to 192,000 people depending on the effectiveness of water conservation measures in reducing water demands.² If the facilities planned for the State Water Project are put into operation, the Zone could supply the needs of 210,000 to 231,000 people.

At issue is the feasibility of securing additional water at affordable cost to meet future water needs. Given the number of potential new sources together with strategies to store surplus water, the procurement of sufficient water for planned growth (anywhere from a low of 12,500 to a high of 26,550 acre-feet as a ballpark estimate) appears feasible. Zone 7 has begun a process to identify new water sources and to estimate costs and delivery schedules. Especially promising are purchased "water transfers" coupled with the use of surface storage reservoirs such as the Chain-of-Lakes, a potential storage and recharge system. The groundwater basin underlying the Livermore-Amador Valley could also serve as a storage facility. It is likely that 25,000 acre-feet of potable recycled water could be made available

² The 174,000 population assumes per capita use of 210 gallons per day (.235 acre-feet per capita per year) for urban uses (municipal and industrial); the 192,000 population assumes per capita use of 190 gallons per day (.213 acre-feet per capita per year) for urban uses, representing a 10 percent reduction in current per capita use.

on a schedule that could meet anticipated growth (see *Chapter 5.14 - Wastewater* for a discussion of water reclamation and reuse). Nevertheless, given the complexity of the water equation and the uncertainty over future supplies, it is impossible to estimate with complete certainty how much water will be available to meet future needs and where that water will come from.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan on water supply. The plan makes it clear the County would not approve any new development that exceeds the water supply (policy 236). It is the responsibility of the developer to demonstrate the availability and proposed efficient use of water through the efficient usage of existing sources (such as through implementation of conservation, reclamation, and/or best management practices), or by working with the County and service providers in securing new sources. Other policies and programs express the commitment of the County to encourage Zone 7 to seek new sources of water and water storage facilities (policy 235) and to support efficient use of the resource through comprehensive planning and conscientious management (policies 234 and 238), conservation measures (policies 240, 241, 242, and 243), and improved technology (policies 244 and 245).

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on water supply would result.

Mitigation Measure 5.13-1: None needed.

While no mitigation is necessary, the following modification would clarify Policy 238 (new language is shown in *italics*; deleted language is ~~struck-out~~).

Proposed Modification to Policy 238: The County shall encourage Zone 7 to maximize use of the Chain-of-Lakes for water supply development and groundwater management. *Zone 7 is encouraged to stage implementation of the system so that each component may be utilized as it becomes available.*

Potential Impact 5.13-2: Pumping of groundwater could result in the long-term depletion of the groundwater basin.

The Livermore-Amador Valley groundwater basin is managed by Zone 7 to keep within the limits of long-term safe yield. Development of agricultural and rural residential land uses allowed under the plan outside the Urban Growth Boundary would result in increased demand for groundwater from the basin. Specifically, significant agricultural demand for groundwater could occur if new users could not secure imported untreated water from the South Bay Aquaduct or if the availability of untreated imported water was insufficient during periods of drought and peak demand. New golf courses created under the plan within or outside of the Urban Growth Boundary could also contribute to increased demand for groundwater. Whether or not increased demand would be sufficiently large to lead to long-

term depletion of the groundwater basin cannot be determined at this time and will require monitoring. (Estimating groundwater demand from all potential new agricultural, rural and golf course uses is too speculative to attempt.) However, long-term groundwater depletion could potentially occur if cumulative groundwater extraction consistently exceeded 13,200 acre-feet per year, the currently accepted safe yield.

Most of the increased demand would probably come from new cultivated acreage under the *South Livermore Valley Area Plan* (SLVAP). Implementation of the South Livermore Valley Area Plan could bring an additional 3,260 acres under cultivation; water needed for this acreage could exceed existing water supply allocated for agricultural use by about 2,500 acre-feet. As aggregate resources in the Livermore-Amador Valley become depleted over the next twenty years, sufficient water could be freed up to cover this potential deficit. However, if irrigated agriculture's need for water could not be met, competition for existing limited urban (M&I) water supplies could occur. This potential impact has been analyzed and mitigated in the SLVAP EIR. Like the proposed *East County Area Plan*, SLVAP policy requires that the project proponent shows, to the satisfaction of the County and Zone 7, that adequate water supplies are available for irrigation needs (program 116a). Plan policy also "encourages the development of additional sources of irrigation water for vineyards and other cultivated agriculture by investigating wastewater reclamation and development of other supply and delivery resources (policy 305)."

Although Zone 7 monitors agricultural groundwater pumping by estimating usage (the amount of acreage under cultivation by crop x annual crop requirements), the agency has not curtailed pumping in an effort to keep usage within the long-term safe yield. Zone 7's policy has been to artificially recharge the basin during years when surplus water is available. In the event that pumping for irrigation of new agricultural acreage and other rural uses exceeds long-term safe yield, Zone 7 has stated that it would continue to recharge the basin to the extent necessary to prevent overdraft using water from one or more of the possible future sources (Vincent Wong, Zone 7, personal communication, April 10, 1992). In this event, the basin would serve as a storage reservoir and Zone 7 would have to develop a groundwater pump monitoring system and a cost allocation mechanism (user charge) to cover costs of new water.

Plan Policies and Programs: Policies and programs listed in Section B. above fully address the potential effects of the plan on groundwater pumping that could exceed the long-term safe yield of the groundwater basin. Under the proposed plan, a comprehensive water plan would be developed for East County that would include a groundwater pump monitoring and cost allocation system to facilitate groundwater management (policy 234). Implementation of this comprehensive plan would assure that long-term safe yield of the basin would not be exceeded. Development of new sources of water which could be stored in the groundwater basin (especially de-mineralized recycled water) and more efficient uses of existing water (policies 235 and 244) would alleviate demand for natural groundwater by agriculture. Required use of recycled water by golf courses (policy 245) and the implementation of a recycled water supply distribution system in designated areas, including the South Livermore

Valley (program 90) would significantly reduce demand for groundwater, as would use of drip irrigation for new cultivated agriculture (program 131.f.vi).

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on the groundwater basin would result.

Mitigation Measure 5.13-2: None needed.

While no mitigation is necessary, the following modification would clarify Policy 245 (new language is shown in *italics*; deleted language is ~~struck-out~~).

Proposed Modification to Policy 245: The County shall encourage Zone 7 and the water retailers to require separate service connections and meters where large quantities of water are used for special purposes such as golf courses and landscape irrigation so that consumption of water for these uses can be managed in times of drought. To this end, the County shall, *if feasible*, require the use of recycled water for golf courses and shall encourage use of recycled water for non-residential landscaping, irrigated agriculture, and groundwater recharge.

Potential Impact 5.13-3: Premature extension of water distribution infrastructure could result in urban sprawl.

New urban development in East Dublin and North Livermore Valley would require annexation to one of the four water service districts and the construction of a complete water distribution system connecting to the Zone 7 system. East Dublin is adjacent to, and North Livermore is within a mile of, Zone 7's Cross Valley pipeline. The Dublin San Ramon Service District currently serves development adjacent to East Dublin, and the City of Livermore Water Department and the California Water Service Company currently serves development adjacent to North Livermore. Given the proximity of water supply infrastructure to areas designated for urban development, leap-frogging of infrastructure into currently remote areas would not occur. Urban sprawl could occur, however, if development followed a prematurely extended water distribution infrastructure into the entire development area of North Livermore and East Dublin before the first major development phase attained the compactness anticipated in the Land Use Diagram.

Plan Policies and Programs: Policy 239 of the proposed plan addresses issues of growth inducement and urban sprawl by discouraging the construction of infrastructure which exceeds the plan's buildout capacity. While policies 14, and 203 require that adequate infrastructure be available prior to development approval, policy 13 requires that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development." Policy 12 strengthens policy 13 by requiring that residential densities be maintained at a minimum mid-point of the density range within a land use category.

(Refer to *Chapter 5.1, Potential Impact 5.1-1* for a related discussion of urban sprawl.)

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.13-3: None needed.

SOURCES

Alameda County, Specific Plan for Livermore-Amador Valley Quarry Area Reclamation, November 1981.

California Department of Water Resources, Management of the California State Water Project (Bulletin 132-89), September 1989.

California Department of Water Resources, California State Water Project, February 1990.

California Urban Water Conservation Council, Memorandum of Understanding: Regarding Urban Water Conservation in California, September 1991.

Livingston and Associates, Mundie and Associates, Moore Iacofano Goltsman, Management Research Associates, South Livermore Valley Study, Technical Memorandum No. 1, June 1988.

Shea Homes, Final Report: North Valley Development Area Evaluation of Existing and Future Zone 7 Water Supply and Demand Elements, prepared by Kennedy/Jenks, April 1992.

Tri-Valley Wastewater Authority, Final Report. Growth Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, prepared by Economic and Planning Systems, Inc. April 1990.

Zone 7, Engineer's Report, 1987.

Zone 7, Draft EIR for Water Supply and Water Quality Improvements in the Livermore-Amador Valley, prepared for Zone 7 by Western Ecological Services Company, Inc. March 1988.

Zone 7, Memorandum: Main Groundwater Basin Storage Volume, 1974-87, July 26 1988, Dennis Maslonkowski, Water Resources Engineer II.

Zone 7, Hydrologic Inventory Components in Acre-Feet, 1974-89, 1990.

Zone 7, Memorandum: Hydrologic Inventory: 1989 Water Year, January 3, 1990, Dennis Maslonkowski, Water Resources Engineer II.

Zone 7, Memorandum: Groundwater Basin Safe Yield, 1974-89, January 17, 1990, Dennis Maslonkowski, Water Resources Engineer II.

Zone 7, Water Supply, August 1990.

Zone 7, Water Supply Update, February 1992.

Zone 7, Untreated Water Delivery Summary, February 1992.

Zone 7, Dublin San Ramon Services District, and the City of Livermore, Water Recycling Study. Summary Report Study Results prepared by Brown and Caldwell Consultants, David Dieth Todd Consulting Engineers, Inc. and EOA, Inc., March 1992.

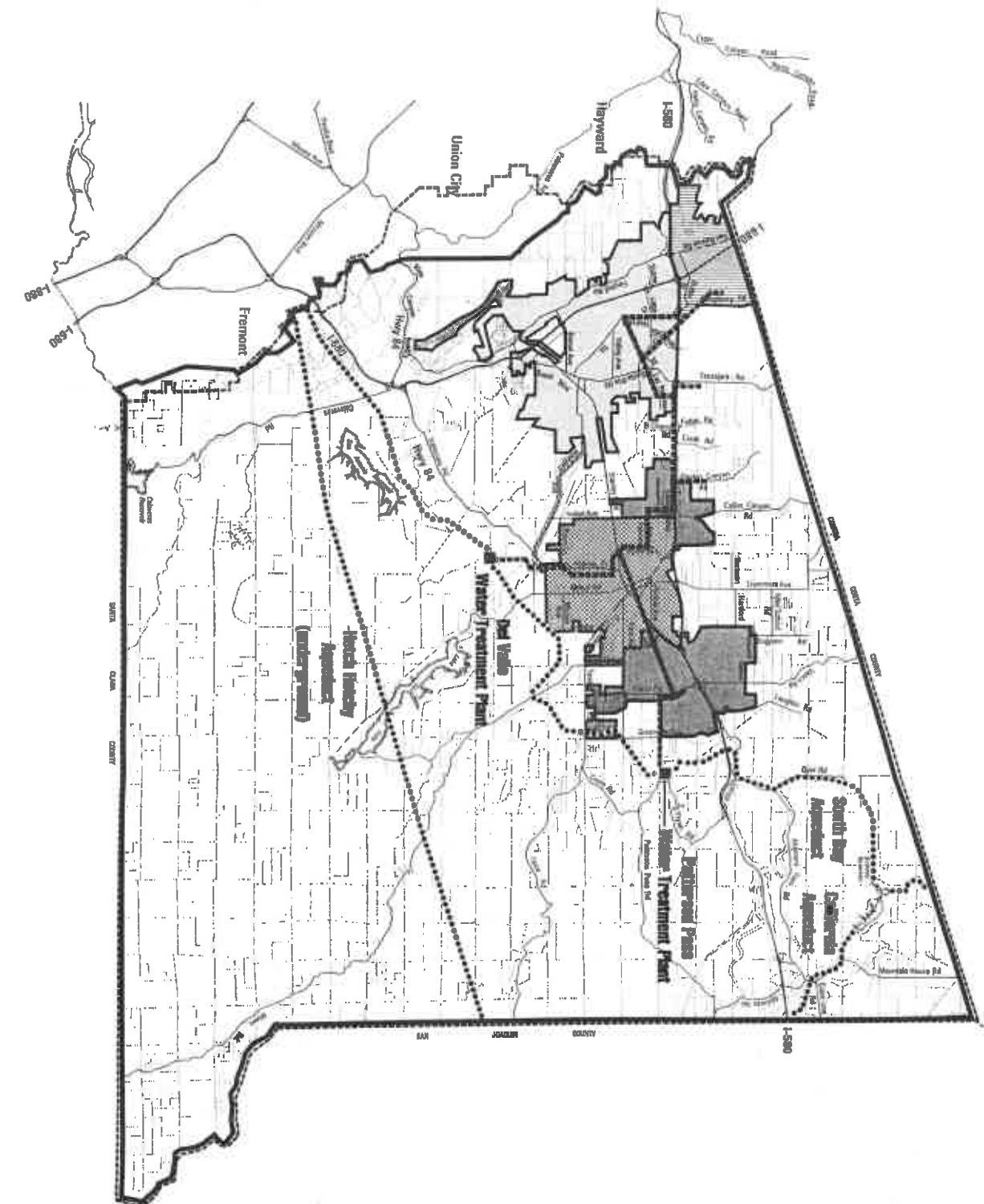
Chapter 5.13 - Water Supply

Zone 7, Personal Communications, Vincent Wong, Manager of Environmental Resources, August 10, 1990, April 9, 1992, April 10, 1992.

\\home\plan\et\chpt5-13.snd

LEGEND

- Map does not reflect new boundaries resulting from 1982 annexations by the cities of Pleasanton and Livermore.



Chapter 5.14 - Wastewater

A. EXISTING SETTING

Municipal Treatment and Export

Since the late 1970's, most East County sewage has been exported as treated effluent to San Francisco Bay, consistent with the State Basin Plan for the area. Wastewater treatment and disposal for almost all development in East County is provided by the Dublin San Ramon Services District (DSRSD) and the cities of Livermore and Pleasanton. Refer to Figure 27 for sewer service areas and major wastewater facilities. Wastewater receives secondary treatment prior to export via pipeline to San Francisco Bay. Key elements of the system are described below.

Livermore-Amador Valley Water Management Agency Livermore, Pleasanton and DSRSD are members of a joint-powers agency, the Livermore-Amador Valley Water Management Agency (LAVWMA), that owns and operates a pipeline that exports treated effluent out of the Valley. The pipeline, with a capacity of 19.72 MGD-ADMM (million gallons per day, average day maximum month), parallels I-580 before connecting with an East Bay Dischargers Authority (EBDA) pipeline in Hayward, with eventual outfall in San Francisco Bay near Oakland. An additional 1.28 MGD of interruptable capacity is available from EBDA through 1996.

The LAVWMA pipeline exports treated effluent from two treatment plants. The DSRSD Treatment Plant is located in Pleasanton and treats wastewater collected from the City of Pleasanton service area and the DSRSD service area. The City of Pleasanton collection area includes all developed areas within the city limits and the Castlewood Country Club area, which is presently unincorporated. The DSRSD collection area includes the City of Dublin and the southern portion of the City of San Ramon (located in Contra Costa County).

The DSRSD Treatment Plant has a capacity of 11.5 MGD (million gallons per day). This capacity is equal to DSRSD and Pleasanton's share of the LAVWMA export pipeline during wet weather. Since the export capacity of the treatment plant is restricted by the LAVWMA pipeline, the plant assigns capacity limits to its member cities. 7.1 MGD is allocated to Pleasanton and the remaining 4.4 MGD is allocated to DSRSD.

The Livermore Water Reclamation Plant is owned and operated by the City of Livermore. The plant treats wastewater from Livermore and from the Lawrence Livermore National Laboratory and Sandia Corporation facilities in unincorporated Alameda County. Some of the treated effluent from the plant is used for landscape irrigation at the Livermore Municipal Airport and golf course. Under the current expansion plan, which is scheduled for

completion by summer 1993, plant capacity will increase to 8.5 MGD. Livermore's allocation of the LAVWMA pipeline capacity is 8.2 MGD.

A study by Economic and Planning Systems in 1990 concluded that the capacity of the LAVWMA export pipeline will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Total remaining sewage export capacity is estimated to be fully utilized in Pleasanton and DSRSD by 1997, and Livermore by 2000. Since sewer allocations precede actual development and sewer use, the jurisdictions are likely to exhaust their sewer allocations and subsequent ability to approve new development before the actual sewer capacity runs out.

The capacity of the present wastewater system is limited by the LAVWMA export pipeline. Both municipal treatment plants could be expanded incrementally at their present sites to handle additional flows. Conceptual plans have been developed for an ultimate expansion of the Livermore treatment plant to 15 MGD. The maximum design flow that could be accommodated on the Pleasanton site is 22 MGD (Brown and Caldwell, 1992).

Tri-Valley Wastewater Authority. In recognition of the LAVWMA capacity limits, the Tri-Valley Wastewater Authority (TWA) was created in 1986 to plan and build a new system to export additional wastewater out of the Valley. TWA is a joint-powers agency that includes DSRSD, Alameda County, and the Cities of Pleasanton and Livermore.

TWA has considered a number of wastewater disposal alternatives, discussed in detail in an EIR released in 1987 and a supplemental EIR (SEIR) certified by the TWA Board in 1992. The preferred alternative evaluated in the SEIR is a system that could export untreated effluent north to a Contra Costa County Sanitary District (CCCSD) pipeline in San Ramon, where it would flow to the CCCSD plant north of Concord for treatment before disposal in Suisun Bay. As an alternative, the SEIR also considered the construction of a new pipeline, parallel to the LAVWMA pipeline, that could export treated sewage to EBDA facilities for disposal into San Francisco Bay.

While the CCCSD alternative is still under consideration, the TWA Board is presently focusing on the EBDA alternative. In March, 1993 TWA informally requested 12.7 MGD (dry weather flow) of additional capacity from EBDA, which has indicated an interest in accommodating the project. TWA's request assumes that the existing LAVWMA pipeline will eventually become a constant flow system conveying 19.7 MGD, and the new TWA pipeline would convey the additional dry weather flow, plus all future combined wet weather flows.

Water Reclamation and Reuse

Wastewater reclamation and reuse has been studied extensively in the Livermore-Amador Valley. Since 1967, the City of Livermore has been reclaiming wastewater effluent, through sand filtration and chlorination, to provide irrigation water supplies for the Las Positas Golf

Course, the Livermore Municipal Airport, and local treatment plant landscaping. Currently, these wastewater reclamation efforts average about 0.83 MGD, with a peak summer demand of 1.52 MGD. DSRSD supplies a small amount of reclaimed water for freeway landscape irrigation.

The Alameda County Flood Control and Water Conservation District, Zone 7 is responsible for managing and protecting the surface and groundwater resources of the Livermore-Amador Valley. To meet Zone 7 and the State Regional Water Quality Control Board (RWQCB) concerns regarding salt build-up in the ground water basin, further use of reclaimed water will require demineralization technology to remove salts from treated, disinfected wastewater prior to reuse. While several demineralization technologies are available, the preferred process is reverse osmosis (RO), which basically uses pressure to force water through a series of semi-permeable membranes to remove salts and organic material.

The City of Livermore is planning to construct a demonstration "Advanced Water Reclamation Plant" (AWRP) at its existing wastewater treatment plant to demonstrate the ability to reliably and cost effectively meet the water quality requirements for reuse in the Livermore Valley. The AWRP would utilize a reverse osmosis process to produce a high quality effluent suitable for reclamation as one alternative for accommodating planned future disposal capacity demand and potentially augmenting local groundwater supplies. The demonstration plant would produce 0.75 mgd of demineralized effluent that would exceed water quality standards for unrestricted reuse. The facility will also generate three tons/day of dewatered sludge, which would be disposed of in a designated landfill, and 0.13 mgd of brine, which would be disposed of through the LAVWMA pipeline. Livermore plans to use the demineralized water to upgrade the quality of filtered secondary effluent currently being used for irrigation of the Las Positas Golf Course.

If, after two years of operation, the demonstration plant indicates it is feasible, Livermore plans to expand the facility to an ultimate capacity of 6.5 mgd. Precise use of this reclaimed water has not yet been determined. A study commissioned by the City in 1989 found three viable disposal/reuse alternatives, including summer irrigation of golf courses and vineyards with winter stream discharge into the Arroyo Las Positas; summer irrigation with winter storage of excess reclaimed water; and year-round stream discharge for eventual recharge into groundwater aquifers or flow into San Francisco Bay.

A more comprehensive Valley-wide water recycling study, completed in 1992 as a joint project of Zone 7, DSRSD, and the City of Livermore, investigated feasible programs for water recycling while providing adequate protection and enhancement of the groundwater basin water quality. The study analyzed a number of potential projects for reuse of reclaimed water, and determined that water recycling is a viable method of supplementing limited water supplies in the Valley and meeting wastewater disposal needs as well.

The study recommends the development of a long-term recycling program in the Tri-Valley area that would focus on three projects with a current potential reuse volume of 10,600 acre-feet per year (AFY), that will increase to 25,500 AFY in the future, at an estimated cost of

\$880 to \$1,180 per acre-foot. The three projects include use of non-demineralized recycled water for landscape irrigation in the San Ramon and Dougherty Valleys, Dublin, and the Stoneridge and Hacienda Business Park areas in north Pleasanton; recharging the Central Groundwater Basin with demineralized recycled water via the Chain of Lakes; and use of demineralized recycled water for groundwater recharge through stream and basin recharge.

Zone 7 is currently studying methods of obtaining a blanket permit from the State RWQCB for a water recycling program. In addition, a salt management program will be developed to ensure that recycling projects are undertaken within a framework that provides for maintenance and enhancement of groundwater quality and protection of the Valley's groundwater resources.

Septic Tanks

While most homes in the rural, unincorporated portions of East County depend on individual septic tanks for sewage disposal, existing County policies discourage additional septic tanks for all but the lowest density development. The Environmental Health Department of the Alameda County Health Care Services Agency requires all residences to be connected to a sanitary sewer system administered by a public agency, unless there is no public sewer within 200 feet and the property exceeds 40,000 square feet in area, in which case a septic tank can be used if approved by the County Health Officer.

Zone 7 policies also discourage additional onsite wastewater systems (septic tanks or alternatives), and require a minimum lot size of five acres for use of septic tanks. Zone 7 policies also state that if more intense development proposing septic tanks is to be authorized in any area, a site-specific "geohydrologic study" may be required, as well as an on-site wastewater management and groundwater monitoring program. In addition, holding tanks will be required for new development on septic tanks within 1,000 feet of the proposed gravel pit lakes, particularly along Arroyo del Valle.

Zone 7 has identified eight existing rural residential areas for specific management policies regarding wastewater disposal, including Central-Scenic, Buena Vista, Lomas-Bess-Marina, Happy Valley, Sunol-Kilkare, East Tesla, the Las Positas Valley, and the Tassajara Valley. While local septic tank problems in these areas are not severe enough to require immediate sewerage, the areas are monitored for further water quality degradation. Should local septic tank problems become severe, or if additional development is proposed or adjacent areas urbanize, Zone 7 recommends that the areas be sewerage.

Zone 7 has also adopted a policy concerning industrial and commercial use of septic tanks. The policy states that such use should be prohibited in areas overlying the Central Groundwater Basin, any of its fringe areas or subbasins, or any body of groundwater hydrologically connected with the Central Basin, "unless it can be satisfactorily demonstrated to Zone 7 that the wastewater loading will be no more than the loading from an equivalent rural residential unit and said septic tanks will be in compliance with all other conditions and provisions."

Discrete ("Package") Treatment Plants

Several small treatment plants operate in the unincorporated portion of East County that are not connected to the LAVWMA export pipeline, relying on land disposal or stream discharge. The U.S. Veteran's Administration hospital on Arroyo Road, south of Livermore, utilizes a plant with a design flow of 0.5 mgd that discharges treated effluent to three percolation ponds. The General Electric Vallecitos plant on Route 84, south of Pleasanton, generates approximately 4,000 gallons of treated effluent per day, which is used for spray irrigation on the G.E. property.

While several residential development projects have, in recent years, proposed the use of discrete treatment plants, none have been constructed. Zone 7 policies regarding discrete wastewater treatment facilities call for the export of all effluent, if feasible. Wastewater treatment with land application may be permitted by Zone 7 if applied wastewater effluent has less than 250 mg/l (milligrams/liter) total dissolved solids (TDS), does not cause any significant local problems, does not cause rising groundwater to create water quality problems in the Central Basin and Niles Cone areas (by either the effluent or lower quality groundwater from the surrounding fringe basins), and if all other State and Federal standards are met.

Zone 7 policy also states that each proposed discrete system be considered on a case-by-case basis, after consideration of overall wastewater disposal needs, site-specific studies of the soils, geohydrology, groundwater, and impacts on the groundwater. Proliferation of small, inefficient plants should be avoided. If demineralization is proposed, the effluent should--if physically, financially, and institutionally feasible--be used to replace poor quality wastewater being used for irrigation. Adding wastewater to the groundwater in a manner that would force poor quality water into the streams must be avoided. Direct discharge of wastewater to streams is prohibited during dry periods, except as permitted by the RWQCB.

The 1986 amendments to the State RWQCB Basin Plan incorporated Zone 7's WMP policies for discrete systems. In addition, the RWQCB set specific water quality standards for wastewater effluent and groundwater in the central and fringe basins. The Basin Plan requires that operation and maintenance of discrete sewerage facilities be legally assumed by a public entity and that failsafe measures for emergency effluent disposal must be provided for.

In addition, Alameda County has developed specific criteria that must be met before a discrete treatment plant will be approved. These criteria include utilization of a proven design by an experienced engineer that will meet Zone 7 criteria. In addition, management and financing should be provided either by Zone 7 or through creation of or use of an existing County Service Area. Operational services should be provided by a County entity, such as the Public Works Agency or the Health Care Services Agency.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- The existing LAVWMA export system cannot accommodate the development envisioned in existing city general plans. Additional development, such as East Dublin and North Livermore, will be delayed until additional acceptable wastewater disposal capacity is in place.
- Assuming a TWA facility is in place, allocation of sewage capacity among the member agencies will be a strong determinant in the ultimate ability to develop. Cost and groundwater protection policies will largely limit urban development to areas connected to the TWA facility.
- Improvements in reverse osmosis (RO) technology are likely to make it a more viable alternative to conventional wastewater treatment. Municipal RO plants could reduce the amount of wastewater needing to be exported, while providing a "new" source of water for landscape and agricultural irrigation, groundwater recharge, or other uses.
- By allowing large-scale urban development that doesn't need to be tied directly to city services, RO technology could result in a proliferation of projects with a more dispersed development pattern.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 246: The County shall encourage the Tri-Valley Wastewater Authority (TWA) to complete as soon as possible a viable export system for urban wastewater.

Policy 247: The County shall continue to participate in the Tri-Valley Wastewater Authority (TWA) to secure sewage export capacity for unincorporated residential, commercial, and industrial development consistent with the *East County Area Plan*.

Policy 248: The County shall require that the design of large-scale urban development utilizing TWA facilities take into account equalization basins for storage of untreated wastewater during wet weather periods.

Policy 249: The County shall encourage development of water reclamation facilities, where feasible, in order to reduce wastewater export and to provide additional water to help meet the growing needs of the East County.

Policy 250: The County shall promote the use of reverse osmosis wastewater treatment and other recycling technologies at the Livermore Treatment Facility and other locations.

Policy 251: The County shall not approve new rural residential development utilizing septic tanks over the groundwater basin on lots of less than five acres. If clusters of five or more rural residences are proposed for areas of less than 100 acres, special hydrologic studies may be required.

Policy 252: The County shall support Zone 7's policy which discourages commercial and industrial development on septic tanks.

Policy 253: The County shall require that all new discrete wastewater treatment plants be operated and maintained by a County agency, and that sufficient funds for long-term operation and maintenance are assured.

Policy 254: The County shall require new development to pay its fair share of the costs of East County planned sewer system improvements including treatment, distribution, and export.

Program 91: The County shall work with cities and special districts to develop an East County Master Infrastructure Financing Plan that identifies funding generated by feasible land use development and pools resources from all East County jurisdictions.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, extending a sewer truck line with capacity to serve new development is considered a significant environmental effect.

For purposes of this EIR, implementation of the plan would result in significant environmental impacts if increased wastewater generation exceeded treatment and/or export capacity, or resulted in the contamination or loss of ground or surface water supplies. Expansion of existing wastewater treatment or export capacity would be a significant impact if it would result in urban sprawl.

Potential Impacts and Mitigation Measures.

Potential Impact 5.14-1: Wastewater generation from new urban development could exceed export capacity.

Achievement of the plan's 2010 holding capacity would expand the population of the planning area from 136,000 to 250,700, and employment from 69,180 to 151,560 jobs. As discussed above, export capacity in the existing LAVWMA pipeline will be completely allocated in Dublin and Pleasanton in the next few years, and in Livermore by the turn of the century. Any urban development beyond that point will require a new export facility and/or wastewater reclamation.

There has been some debate over what wastewater generation rates to use in planning for future capacity. The TWA EIR used a generation rate of 80 gallons per person per day, and 70 gallons per employee. While the per capita rate was based on existing flows in the early 1980's, the employee rate included an average of 50 gallons per day for present employees "plus an allowance for high water using industries that may enter the valley" (TWA 1987 DEIR).

The recent drought has further complicated wastewater generation calculations. Average dry weather flow through the DSRSD treatment plant declined slightly between 1986 and 1992, even though substantial new development was built in Pleasanton and Dublin during this period. Using the TWA generation rates, the 1989 population and employees within the LAVWMA service area would have been expected to produce about 16.3 MGD of sewage. Yet the treatment plants reported a combined average dry weather flow of about 13.1 MGD. The lower than expected flow rate can be partially explained if an employee generation rate of 50 gallons is used. However, the difference would require a lower per capita rate of about 67 gallons per person to balance 1989 population and employment with measured flows. How much of this difference was due to temporary drought conservation behavior and conditions, such as low infiltration rates, and how much is a permanent shift due to new building code requirements, such as low-flow toilets, is unknown.

As indicated in Table 5.14-1 below, the most recent TWA proposal to export an additional 12.7 MGD of treated sewage to EBDA facilities in the East Bay, combined with the existing 19.72 MGD LAVWMA facility, will provide sufficient capacity for the plan's 2010 holding capacity, if water-intensive industries (such as silicon chip manufacturing) do not become a significant portion of the employment base.

While the combined LAVWMA-TWA capacities are projected to be about 0.9 MGD short of providing sufficient capacity for full ECAP buildout, this shortfall will be almost covered by the construction of Livermore's pilot RO plant. Construction of the full-sized 6.5 MGD plant that is being considered by Livermore would provide additional capacity.

TABLE 5.14-1
WASTEWATER EXPORT REQUIREMENTS¹

	Year 2010 Population	Year 2010 Wastewater Generation²	Buildout Population	Buildout Wastewater Generation
ECAP Population	250,700	20.1	287,000	23.0
South San Ramon Population³	27,000	2.2	27,000	2.2
Population Subtotal	277,700	22.3	314,000	25.2
ECAP Employment	151,560	7.6	159,900	8.0
South San Ramon Employment	1,500	0.07	1,500	0.07
Employment Subtotal	153,060	7.7	161,400	8.1
Total Wastewater Generation	NA	30.0	NA	33.3
Permanent LAVWMA Capacity	NA	19.7	NA	19.7
Additional Capacity Needed⁴	NA	10.3	NA	13.6

Note:

1. Does not include Dougherty/Tassajara Valleys, per DSRSD request for capacity to TWA, dated March 4, 1993. All figures expressed in million gallons/day, average day dry-weather flow.
2. Wastewater generation rates used are 80 gpcd for residents and 50 gpcd for employees, based on existing use, per TWA DEIR (1987). Water-intensive industries, such as silicon chip manufacturing, could increase overall employee generation rate.
3. Portion of San Ramon presently served by DSRSD. Population/employment projections per TWA SEIR (1/1992).
4. Additional capacity could include a TWA alternative, the most recent of which has been informally sized at 12.7 MGD, completion of the Livermore Advanced Reclamation Plant (6.5 MGD), or other reclamation projects.

Source: Alameda County Planning Department

However, at this time no new export or reclaimed water project has been approved or funded. Unless a project is approved in the immediate future, there will be inadequate capacity for new development, especially in the DSRSD and Pleasanton service areas. While this situation could result from development presently planned for in existing city general plans, new development contemplated in the ECAP could exacerbate the situation. Lack of sewage treatment or export capacity could result in a temporary moratorium on new sewer connections.

Plan Policies and Programs: Policies and programs listed in Section B above address the potential effects of the plan on wastewater generation. Policies 246 and 247 encourage the completion of the TWA project as soon as possible to provide a viable export system for urban wastewater. Policies 249 and 250 encourage development of water reclamation facilities, particularly reverse osmosis wastewater treatment, to provide additional capacity. In addition, policy 13 specifies that development be phased according to availability of infrastructure, and that adequate infrastructure capacity to accommodate development be planned for.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact due to lack of wastewater capacity would result.

Mitigation Measure 5.14-1: None needed.

While no mitigation is needed, the following additional policy would further reduce the possibility that development could be approved prior to completion of additional export or reclaimed water projects:

Proposed New Policy: The County shall condition the approval of new development on verification that adequate wastewater treatment and export and/or reclamation capacity exists to serve the development.

Potential Impact 5.14-2: Distribution of capacity among East County jurisdictions may not match the ECAP development pattern.

While sufficient wastewater export capacity will be available for East County development if the current TWA project under consideration is completed, allocation of capacity among the four Valley jurisdictions may not match the plan's development pattern. This could result in too much capacity in one area, and too little in another.

At this time, the exact method of allocating capacity has not been determined by the TWA member agencies, or how unused allocations will be redistributed to other areas.

Plan Policies and Programs: Policies and programs listed in Section B above address the potential effects of wastewater capacity allocation on the plan. Policy 247 states that the County will secure sewage export capacity for unincorporated residential, commercial and industrial development consistent with the plan.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact due to allocation of wastewater capacity would result.

Mitigation Measure 5.14-2: None needed.

While no mitigation is needed, the following additional policies would further reduce the potential that development would be approved for which no treatment or export capacity exists:

Proposed New Policy: The County shall work with TWA and other East County jurisdictions to ensure that additional export capacity and/or reclaimed water capacity is allocated so that the ECAP development pattern can occur.

Proposed New Policy: The County shall continue to seek alternative methods for economic reuse of wastewater those already considered.

Potential Impacts 5.14-3: Export of additional wastewater effluent may preclude large-scale use of reclaimed water, reducing a potential future water supply source.

As discussed in *Chapter 5.13, Water Supply*, reclaimed wastewater could be a major component of the total ECAP water supply. Zone 7 has identified treated recycled wastewater as a potential source for up to 25,000 acre-feet per year of water that could replace imported water for irrigation and groundwater recharge use.

Development of additional export capacity could have two deleterious effects on the potential for large-scale use of recycled water. First, export of wastewater will decrease the amount of available water that could be recycled. The 1992 water recycling study identified three potential projects that could utilize up to 10,000 acre-feet of recycled wastewater today, increasing to 25,500 acre-feet per year in the future. In comparison, during dry weather the most recent TWA project proposal would export 12.7 million gallons per day, or about 14,250 acre-feet per year of wastewater. As shown in Table 5.14-1 above, ECAP buildout will generate wastewater flows of 13.6 MGD, or about 15,275 acre-feet per year, above the amount that can be exported by the existing LAVWMA pipeline, far short of the potential amount of recycled wastewater that could be utilized within the planning area. While these are dry-weather flows that would be substantially augmented by peak flows during wet weather, it appears that if planned export capacity is fully utilized, there will be little wastewater available within the ECAP that could be recycled as a "new" source of water for the area.

Construction of additional export capacity could also result in a reduction of the economic viability of large-scale water recycling. Reverse osmosis treatment of wastewater is an expensive process. The 1992 water recycling study estimated that reverse osmosis would cost approximately \$1,100 per acre-foot, far more than the present cost of imported water. The study concluded, however, that this cost could become competitive if it is compared to the combined cost of developing new sources of imported water and wastewater export. If

additional export capacity is developed, it may make it economically infeasible to support both water recycling and an underutilized export system.

Plan Policies and Programs: While policies and programs listed in Section B, including policies 246, 247, 249, and 250, support both additional export capacity and recycled water programs, they do not directly address the potential conflict due to a loss of additional water sources through wastewater export.

Level-of-Significance: Without an explicit policy mechanism to consider the impact of exported wastewater on potential recycled water supplies, a significant impact due to loss of a potential water source could occur.

Mitigation Measure 5.14-3: The following additional policies would reduce this impact to a less-than-significant level:

Proposed New Policy: *The County shall consider the potential impacts of the proposed TWA export project on the future ability to provide large-scale use of recycled water, prior to approval of the export project.*

Proposed New Policy: *The County shall consider the cost of the proposed TWA export project, in comparison to the estimated cost of a recycled water program, prior to committing to the export project.*

Potential Impact 5.14-4: Additional rural development could increase septic tank use, with an increased likelihood of groundwater contamination.

The ECAP (see Table A-1 in Appendix A) estimates that up to 170 additional rural residences could result from ECAP policies regarding agricultural subdivisions. While these policies would permit consideration of clustering of new homes in rural areas, a gross density of 1 unit per 100 acres would be maintained and clustered lots would be as small as five acres in size (program 36).

Policies regarding the South Livermore viticultural area would permit up to five residences per 100 acres on cultivated lands, if easements were granted permanently restricting further development. Impacts of the South Livermore Valley Area Plan are discussed in detail in the SLVAP EIR.

Plan Policies and Programs: Policies and programs listed in Section B above address the potential effects of additional rural development on groundwater contamination. Policy 251 states that the County shall not approve new rural residential development utilizing septic tanks over the groundwater basin on lots of less than five acres, and if clusters of five or more rural residences are proposed for areas of less than 100 acres, special hydrologic studies may be required. Policy 252 states that the County shall support Zone 7's policy which discourages commercial and industrial development on septic tanks.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact due to additional septic tanks would result.

Mitigation Measure 5.14-4: None needed.

Potential Impact 5.14-5: New discrete ("package") treatment plants that meet water quality requirements could contribute to urban sprawl.

Several recent residential projects have been proposed in East County that would have relied on discrete sewage systems for wastewater treatment. While none have been built, improvements in reverse osmosis technology is likely to reduce the cost while meeting the technical requirements of existing County and Zone 7 policies regarding discrete treatment plants. This could potentially result in a proliferation of "leapfrog" development that is removed from existing urbanized areas. This type of development would, in turn, have greater impacts on other services, such as roads, schools, fire and police, as well as open space and agricultural lands.

Plan Policies and Programs: Plan policies and programs address the potential effects of new discrete wastewater treatment plants on urban growth patterns. Policy 17 states that the County shall approve urban development only if it is located within the Urban Growth Boundary. Policy 46 requires all new residential development to meet County standards for all public services. Policy 49 states that the County shall allow the creation of new urban residential building sites only in areas located inside the Urban Growth Boundary which have public water and sewer service. Policy 253 requires that all new discrete wastewater treatment plants be operated and maintained by a County agency. Policy 254 requires new development to pay its fair share of planned sewer system improvements, including treatment, distribution and export.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impacts due to use of discrete wastewater treatment systems would result.

Mitigation Measure 5.14-5: None needed.










SOURCES

- Alameda County Board of Supervisors, "Discrete Sewage Disposal System Policy," 1978.
- Dublin-San Ramon Services District, Personal Communications, Bert Michalczyk, Technical Services Manager, May 12, 1993.
- Dublin-San Ramon Services District, Personal Communications, Bob Swanson, Wastewater Services Manager, May 12, 1993.
- City of Livermore, Advanced Treatment and In-Valley Effluent Reuse/Disposal, prepared by Black and Veatch, September 1989.
- City of Livermore, Advanced Water Treatment Plant Demonstration Project, Negative Declaration/Initial Study, prepared by Environmental Science Associates, Inc.), November 1991.
- City of Livermore, Personal Communications, John Hines, Director of Public Works, May 12, 1993
- San Francisco Regional Water Quality Control Board, Basin Plan, 1975.
- Tri-Valley Wastewater Valley Authority, Final Report, Growth Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, prepared by Economic and Planning Systems, Inc., April 1990.
- Tri-Valley Wastewater Authority, Long-Range Wastewater Management Plan for the Livermore-Amador Valley, prepared by EIP Associates, January 1992.
- U.S. Geological Survey, Land Application of Wastewater and its Effect on Ground-water Quality in the Livermore-Amador Valley, Alameda County, California, prepared in conjunction with Zone 7, March 1983.
- Zone 7, Wastewater Management Plan for the Unsewered, Unincorporated Area of Alameda Creek, prepared by Camp, Dresser & McKee, May 1982.
- Zone 7, Dublin San Ramon Services District, and the City of Livermore, Livermore-Amador Valley Water Recycling Study, prepared by Brown and Caldwell, May 1992.
- Zone 7, Personal Communications, Vincent Wong, Assistant General Manager, April 1993.

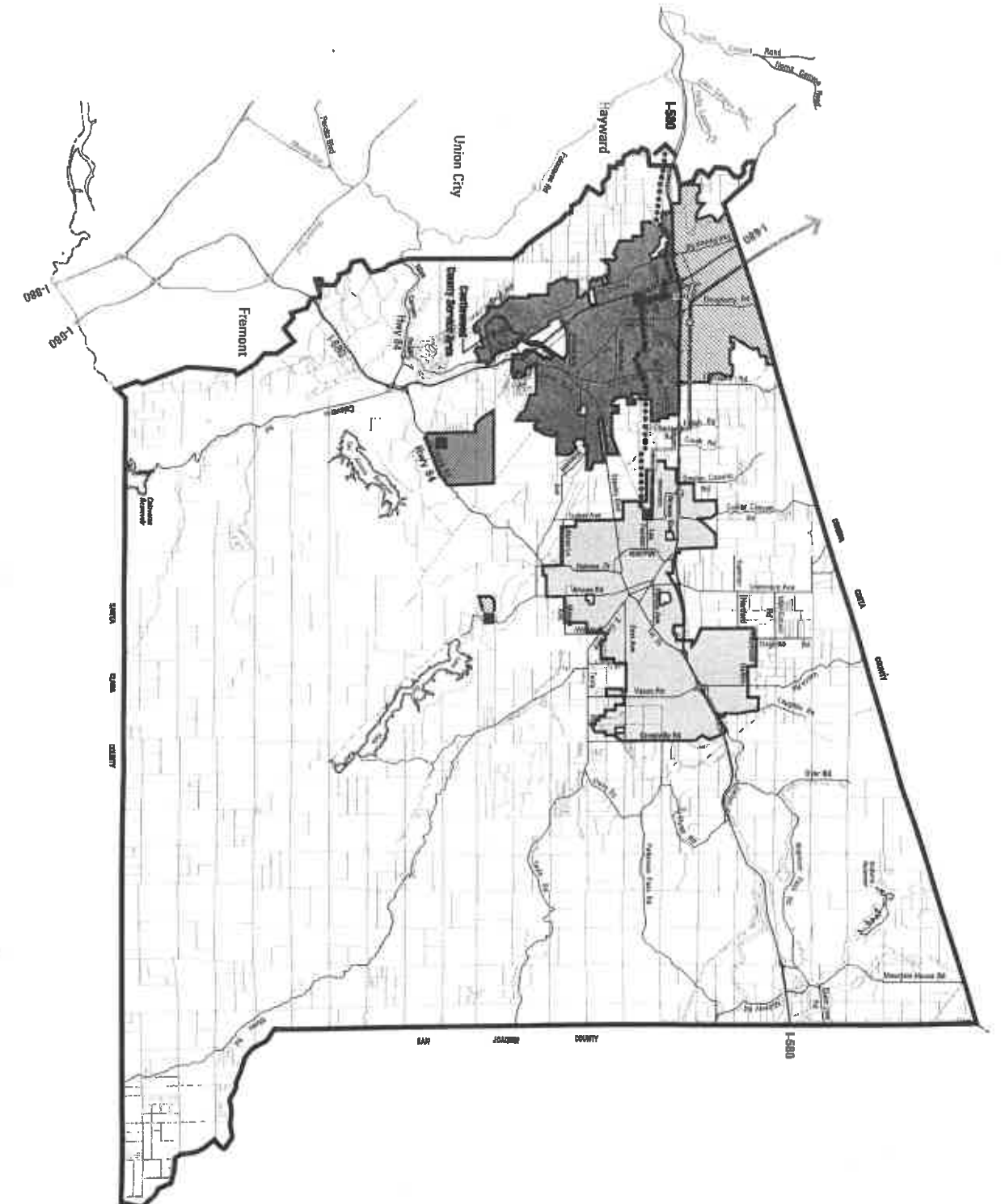
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Sewer Service Areas and Major Facilities

LEGEND

-  City of Livermore Sewage Treatment Area
-  City of Pleasanton Sewage Treatment Area
-  DSRFSD Sewage Treatment Area
-  GLE Vallecitos Sewage Treatment Area
-  VA Hospital Sewage Treatment Area
-  LAMMA Export Pipeline
-  Pump Station
-  Treatment/Redundation Plant
-  Proposed Tri-Valley Wastewater Authority System

Map does not reflect new boundaries resulting from 1992 annexations by the cities of Pleasanton and Livermore.



SOURCE: Alameda County Planning Department

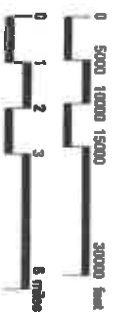


Fig. 27

Chapter 5.15 - Flood Hazards

A. EXISTING SETTING

Flooding in the Livermore-Amador Valley could potentially occur from dam failure and from overtopping of the banks of the arroyos during major storm events.

Dam Inundation

Five of the 27 publicly-owned dams in Alameda County are located in East County. All major dams are annually inspected based on current state of the art standards under the direction of the Water Resources Department, Safety of Dams Division. The most likely cause of dam failure would be from a large earthquake. Although dam failure is unlikely, state legislation requires dam inundation maps and Dam Failure and Evacuation Plans for all dams whose failure could result in death or personal injury. Areas of potential inundation from dam failure are indicated in Figures 48 and 49 in the Background Reports (see Draft East County Area Plan-Volume 2).

The County Office of Emergency Services is responsible for all flood emergency plans and evacuation procedures and has prepared such maps and plans for East County dam failures. The most recent update of the County's *Multihazard Functional Plan* (December, 1992) indicates that a failure of the Bethany, Patterson Pass, Calaveras, or James Turner (San Antonio Reservoir) dam would not affect major population centers in the plan area, although failure of either of the latter two dams would cause widespread flooding downstream in Newark, Union City, and Fremont. Failure of the Del Valle dam, however, could affect approximately 650 persons in unincorporated Alameda County, 1,500 persons in western Livermore, and 30,500 persons in Pleasanton, before flooding downstream areas to the west of Niles Canyon. Flood waters would reach the southern portion of Pleasanton in approximately 40 minutes.

Flooding

The East County is subject to relatively frequent and substantial flooding. Areas subject to flooding during a 100-year storm event in the Livermore-Amador Valley have been mapped by the Federal Emergency Management Agency (FEMA) with the most recent update occurring in 1986. These flood hazard maps are used by Alameda County and local jurisdictions to enforce existing flood plain regulations as part of FEMA's regular program of flood insurance under the Flood Disaster Protection Act of 1973. The program allows property owners in participating communities to purchase flood insurance at federally subsidized rates if development conforms to certain land use regulations. Alameda County's Flood Insurance Ordinance (1980) requires that structures built in flood hazard areas shall have the first floor above the 100-year flood elevation and that new development be

prohibited that would increase damage to any other property or would diminish the existing degree of flood protection. See Figure 28 for the location of major arroyos and flood hazard areas.

Flood Control Management

Zone 7 of the Alameda County Flood Control and Water Conservation District is responsible for improving and maintaining flood control channels in East County. Extensive widening and straightening of existing arroyo channels have significantly reduced flood hazards for low magnitude events, although portions of the Valley remain within flood-prone zones for large storm events. Most flood-prone areas on the Valley floor will be eliminated as the planned flood control system is completed (see Figure 29). However, some areas will continue to be within the 100-year flood elevation, particularly the western portion of Pleasanton along the Arroyo de la Laguna.

Channel improvements are paid for with development fees under a capital improvement program and by adjacent development, as needed. Zone 7 charges a drainage fee for new development within the Zone's drainage district (known as Special Drainage Area 7-1 or SDA 7-1). The money from the special drainage fund is used for flood control improvements or to partially reimburse developers who improve the drainage channel/creeks to meet Zone 7 flood control standards.

To date, approximately 35 miles out of a total of 85 miles of planned improvements have been completed. Zone 7 estimates that completion of all planned flood control channels will cost approximately \$100 million. Use of on-site storm water detention basins to reduce peak flows could substantially reduce the need and cost for these improvements. In addition, on-site storage basins would reduce maintenance costs by reducing channel sedimentation.

Flood Insurance Program and Community Rating System

The Alameda County Public Works Agency is responsible for administering the National Flood Insurance Program (NFIP) and the Community Rating System for unincorporated areas of Alameda County. The NFIP provides homeowners in communities that participate in the program with federally-backed flood insurance. In order for a community to participate in the program, it must adopt and enforce a floodplain management ordinance to regulate new development in flood hazard areas. The purpose of the ordinance is to ensure that new development does not increase existing flooding conditions and that new buildings will be protected from flood damage, especially from 100-year floods.

The Community Rating System (CRS) is an incentive program for those communities that wish to establish controls that exceed the minimum NFIP program requirements that prevent or reduce flood losses. The CRS program includes activities that prevent or reduce flood impacts to existing development, while the NFIP only affects minimum standards for new construction. Under the CRS, flood insurance premium rates are adjusted to reflect community activities to reduce flood damages to existing buildings, to manage development

in areas not mapped by the NFIP, to protect new buildings beyond the minimum NFIP protection level, to help insurance agents obtain flood data, and to help people obtain flood insurance.

The CRS program is voluntary and communities must submit documentation that the community is implementing one or more activities recognized in the CRS Schedule. The CRS Schedule identifies 18 activities organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Some CRS activity areas have been identified which require land use policies in the General Plan to improve the County's CRS rating. These activity areas include Open Space Preservation; Higher Regulatory Standards; and Storm Water Management. Please refer to the Background Report on Flood Hazards (see *Volume 2 of the Draft East County Area Plan*) for more detail on these activity areas.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2 of the Draft East County Area Plan*) identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- in general, further urbanization will increase flood hazard potential by increasing the magnitude and frequency of runoff (a result of increased impervious surface) and by any siting of development on or adjacent to the flood plain; however, existing flood control and storm water management programs will minimize the risk of flood hazards in the planning area, if carried out
- flood control improvements need to be integrated with other community needs (open space and recreation) and resource protection goals (such as fish and wildlife habitat, groundwater quality, and soil conservation)
- County General Plan land use policies can reduce the potential for flood damage, raise the County's CRS rating, and reduce the flood insurance premium for County residents who purchase flood insurance

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 255: The County shall work with the Alameda County Flood Control and Water Conservation District (**Zone 7**) to provide for development of adequate storm drainage and flood control systems to serve existing and future development.

Policy 256: The County shall promote flood control measures that advance the goals of recreation, resource conservation (including water quality and soil conservation), groundwater recharge, preservation of natural riparian vegetation and habitat, and the preservation of scenic values of the county's arroyos and creeks.

Policy 257: The County shall require new development to pay its fair share of the costs of East County storm drainage and flood control improvements.

Policy 258: The County shall regulate new development on a case-by-case basis to ensure that peak rate flow of storm water from new development will not exceed the rate of runoff from the site in its undeveloped state.

Policy 259: The County shall support and encourage the design of future flood control projects in a manner that preserves and/or restores and enhances riparian vegetation.

Policy 260: The County shall encourage use of natural or nonstructural storm water drainage systems to preserve and enhance the natural features of a site.

Policy 292: The County shall require new residential, public, commercial, and industrial development to have protection from a 100-year flood.

Policy 293: The County shall endeavor to improve its rating under the National Flood Insurance program so that flood insurance premiums for residents in flood areas may be reduced.

Program 92: The County shall initiate a cooperative effort among interested agencies (e.g., County Planning Department, County Public Works, Zone 7, California Department of Fish and Game, East Bay Regional Park District, Livermore Area Recreation and Park District) that will integrate multi-use objectives for storm drainage and flood control features.

Program 93: The County shall develop design criteria for on-site flood control features such as detention and retention ponds and for stream channels improved for multi-use purposes. Criteria shall address integrating visual and other multi-use concerns into the physical design of flood control features and shall encourage use of permeable materials to enhance on-site percolation.

Program 94: The County shall require new development to set aside sufficient right-of-way and setback areas to accommodate multi-use objectives for storm drainage and flood control features. Required rights-of-way and setback areas may exceed the 20 foot setback required under the County's Watercourse Protection Ordinance.

Program 95: The County shall identify the agency responsible for maintenance of on-site retention and detention basins prior to project approval.

Program 96: The County shall work with Zone 7, cities, and developers to increase the storm drainage capacity of the Arroyo de la Laguna while preserving as much as possible of the existing riparian habitat south of Bernal Avenue as well as the riparian habitat along Alameda Creek.

Program 109: The County shall continue to participate in activities that prevent or reduce flood impacts to existing and future development as described under the Community Rating System program.

Program 110: The County shall periodically review regulatory standards and land use policies pertaining to development in the 100-year flood plain and flood prone areas, including the new development and construction site control component of the County's Storm Water Management Plan, and require higher flood protection standards where appropriate. To this end, the County shall amend the Flood Insurance Ordinance as needed to conform to new flood control standards.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in Chapter 3 of this EIR.

Criteria of Significance

For flood hazards, Appendix G of the CEQA Guidelines specify that a project will normally have a significant environmental effect if it will cause substantial flooding, or interfere with emergency response or evacuation plans.

For the purposes of this EIR, implementation of the plan would have a significant adverse impact if it would conflict with County emergency response plans for dam inundation, increase the level of development in designated flood-prone areas, substantially increase the amount of storm water runoff, or affect the County's Community Rating for flood hazards.

Potential Impacts and Mitigation Measures

Potential Impact 5.15-1: Implementation of the plan could conflict with County emergency response plans for dam inundation areas.

As indicated in Figures 48 and 49 in the Background Reports (see the *Draft East County Area Plan-Volume 2*), mapped inundation zones for East County dams are primarily located outside of existing or planned urban areas. The inundation zones for the Calaveras, San Antonio and Bethany reservoir dams are located entirely outside of existing or planned East County urban areas. Plan land use policies will maintain or reduce the development potential in East County rural areas that could be inundated by failure of these dams.

While the Patterson Pass reservoir dam inundation area includes a portion of eastern Livermore, plan policies will not increase the amount of development in this area, since it is largely limited to an existing industrial area within Livermore. The County Office of

Emergency Services estimates that flooding from failure of the Patterson Pass reservoir would only be a few inches deep in most areas. Lands to the east of Greenville Road are designated as "urban reserve", permitting one residence per 100 acres.

The largest potential dam inundation area is below the Del Valle reservoir. A sudden and total collapse of the Del Valle dam with a full reservoir would result in the inundation of a large portion of Pleasanton, as well as the western edge of Livermore and the southern edge of Dublin. While much of the area within the designated dam inundation area is already developed, additional development is anticipated by the proposed plan. Up to 2,500 additional Livermore residents, and as many as 25,000 new Pleasanton residents could be added to the dam inundation area through anticipated residential development. In addition, commercial and industrial areas along I-580 in western Livermore, southern Dublin and northern Pleasanton would increase the number of workers within the designated dam inundation area.

Plan Policies and Programs: Policies and programs listed in Section B do not directly address the potential impacts of the plan on County emergency response plans for dam inundation.

Level-of-Significance: Without mitigation, this potential impact would be significant. The following additional policy would mitigate this impact to a less-than-significant level:

Mitigation Measure 5.15-1: Proposed New Policy: *The County shall ensure that development proposals within designated dam inundation areas are referred to the Office of Emergency Services and to appropriate local police departments for evaluation and updating of emergency response and evacuation plans.*

Potential Impact 5.15-2: Plan implementation could increase the level of development in designated flood-prone areas.

The proposed plan designates a number of FEMA-designated areas subject to flooding during a 100-year storm event as appropriate for development. The most significant flood-prone areas designated for development include lands near the confluence of the Arroyo Mocho and Arroyo Las Positas between Livermore and Pleasanton, lands along Altamont Creek in North Livermore, lands adjacent to Tassajara Creek in East Dublin, and the western portion of Pleasanton, along the Arroyo de la Laguna. Smaller flood-prone areas that could be developed are located along Cayetano Creek in North Livermore and along the Arroyo del Valle and Arroyo Mocho south and east of Livermore.

Zone 7 relies on adjacent development, together with Valley-wide drainage assessments, to pay for the construction of flood-control improvements. Planned Zone 7 flood-control improvements will remove many of the areas noted above from the 100-year floodway. A planned realignment of the Arroyo Las Positas and Mocho confluence, together with

widening of the arroyos, will significantly reduce the size of the largest area subject to flooding in the Valley. In addition, the proposed chain-of-lakes concept for the existing gravel quarries between Pleasanton and Livermore could be used for flood control along the Arroyo Mocho. Channel improvements are also planned along Cayetano Creek, Altamont Creek, Tassajara Creek and the upper reaches of the Arroyo Las Positas.

Plan Policies and Programs: Policies and programs listed in Section B address impacts associated with the potential encroachment of new development on floodway areas. Policy 255 states that the County shall work with Zone 7 to provide for development of adequate storm drainage and flood control systems to serve existing and future development. Policy 257 states that the County shall require new development to pay its fair share of the costs of flood control improvements. Policy 292 states that the County shall require new development to have protection from a 100-year flood. Program 94 states that the County shall require new development to set aside sufficient right-of-way and setback areas for flood control. Program 96 states that the County shall work with Zone 7, cities, and developers to increase the storm drainage capacity of the Arroyo de la Laguna while preserving existing riparian habitat. Program 110 states that the County shall periodically review regulatory standards and land use policies pertaining to development in the 100-year flood plain and flood prone areas.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact due to encroachment of development on flood prone areas would occur.

Mitigation Measure 5.15-2: None needed.

Potential Impact 5.15-3: Plan implementation could contribute to an increase in storm water runoff, increasing the likelihood of downstream flooding.

Urban development generally results in more impervious surface than non-developed areas. This in turn results in an increased magnitude and frequency of runoff, raising the peak level of storm water that must be accommodated in downstream channels. If downstream channels are not properly sized, flooding of adjacent areas could result.

According to Zone 7 officials, the system of flood control channels planned for the Livermore-Amador Valley was designed to largely accommodate a 100-year flood, assuming the development of much of the Valley floor. The Zone's "full buildout" scenario assumes that East County development will cover a larger area than is specified in the ECAP. Even with this level of development, the Zone has projected that peak storm water discharge will only increase by about 15% above existing levels, because a relatively small portion of East County watersheds are developable. The major portion of most watershed basins in East County are in the steeper hills and ridges that surround the Livermore-Amador Valley.

The Zone is currently in the process of updating the flood control master plan, using computer modeling techniques that permit more precise forecasting of future storm water peak discharge. Preliminary model runs indicate that peak discharge under the "full buildout" scenario could be 10% less than originally anticipated, due to different lag times in the various arroyo watersheds.

Zone 7's Master Plan designates 85 miles of flood control improvements for the Valley, of which approximately 35 miles are completed. According to the Chief Flood Control Engineer, completion of all flood control improvements could cost up to \$100 million. Maintenance costs, now several million dollars per year, will also be substantial for the completed system.

Plan Policies and Programs: Policies and programs listed in Section B address the potential effects of the plan on increased storm water runoff due to urbanization. Policy 258 states that the County shall regulate new development to ensure that peak rate flow of storm water from new development will not exceed the existing rate of runoff. Policy 255 states that the County shall work with Zone 7 to provide adequate storm drainage and flood control systems to serve existing and future development. Program 93 states that the County shall develop design criteria for on-site flood control features, such as detention and retention ponds, while program 95 states that the County shall identify the agency responsible for maintenance of on-site retention and detention basins.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact due to increased storm water runoff would occur.

Mitigation Measure 5.15-3: None needed.

Potential Impact 5.15-4: Plan implementation could affect the County's flood hazard ratings under the Community Rating System.

The Community Rating System (CRS) identifies four approaches to regulate new development in the watershed: 1) requiring storm water retention basins to slow the rate of runoff to pre-development rates; 2) use of a storm water management master plan to analyze the combined effects of existing and proposed development on storm water drainage; 3) requiring all new buildings to be protected from local drainage problems; and 4) regulating construction to minimize erosion and channel sedimentation. In addition, the CRS gives credit for having flood-prone property permanently preserved as open space, and for regulatory standards that exceed National Flood Insurance Program minimum standards.

Plan Policies and Programs: Policies and programs listed in Section B should enable the County to apply for reduced flood insurance premiums under the Community Rating System program. Policy 255 states that the County shall work with Zone 7 to provide for adequate storm drainage and flood control systems to serve existing and future development. Policy 256 states that the County shall promote flood control measures that advance broad

community goals. Policy 258 states that the County shall regulate new development to ensure that peak rate flow from new development will not exceed the existing rate of runoff. Policy 292 states that the County shall require new development to have protection from a 100-year flood, and program 94 states that the County shall require sufficient setback areas to accommodate multi-use storm water objectives. Policy 293 states that the County shall endeavor to improve its flood hazard rating, and program 109 states that the County shall continue to participate in activities that prevent or reduce flood impacts, as described under the CRS program. In addition, program 92 states that the County shall initiate a cooperative effort among interested agencies to integrate multi-use objectives for storm drainage and flood control features.

Level-of-Significance: With implementation of proposed plan policies and programs, no adverse impact on the County's Community Rating for flood hazards will occur.

Mitigation Measure 5.15-4: None needed.

SOURCES

Alameda County, Multihazard Functional Plan, December 12, 1992.

Alameda County, Seismic Safety and Safety Elements of the County of Alameda General Plan, August 5, 1982.

Alameda County, Specific Plan for Livermore-Amador Valley Quarry Area Reclamation, November 5, 1981.

Alameda County, Flood Insurance Ordinance, as revised August 15, 1980.

Alameda County, personal communication with Nguu Tran, Emergency Services Coordinator, Sheriff's Dept., May 18, 1993.

Alameda County, Watercourse Protection Ordinance, adopted March 1982.

Alameda County Urban Runoff Clean Water Program, A Storm Water Management Plan for the Alameda County Urban Runoff Clean Water Program, June 28, 1991.

Federal Emergency Management Agency, Flood Insurance Study (and Flood Insurance Rate Maps) Alameda County, California, Unincorporated Areas, as revised February 19, 1986.

U.S. Army Corps of Engineers, San Francisco District, Upper Alameda Creek Urban Study Background Information Appendix, 1985.



Zone 7, personal communication with Charlie Van Katwyk, Chief of Flood Control Engineering, May 10, 1992.

\\home\plan\air\chpt5-15.aac

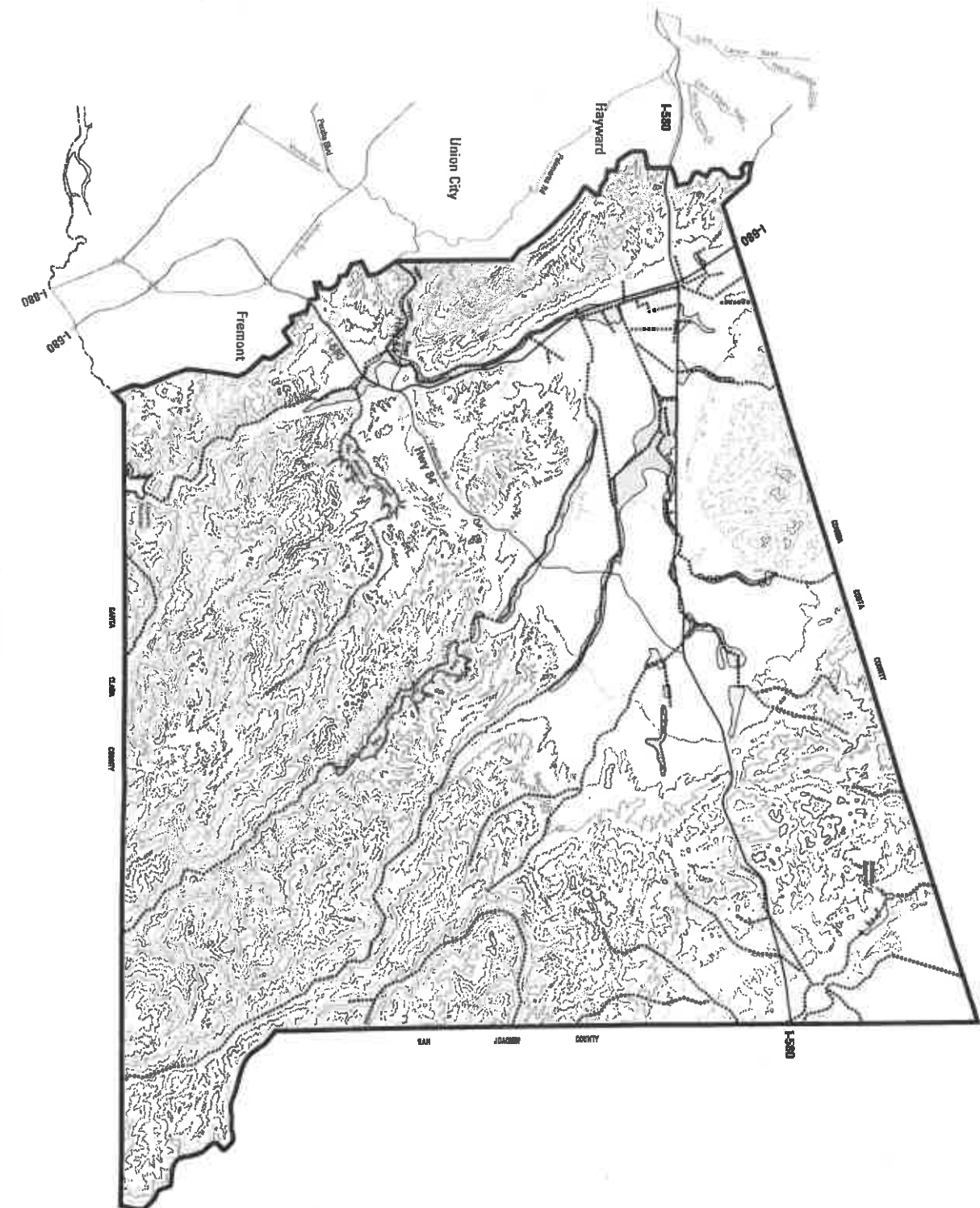
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Flood Hazard Areas

LEGEND

-  FEMA Zone A Flood Hazard Areas & Zone 7 100 Year Flood Limits
-  Watercourses

NOTE: This map is generated from original source materials; flood areas are approximate. For more specific information, visit to National Zone 7 Flood Hazard maps. The term "Watercourse" includes those which are dry, intermittent, partially improved and unimproved.





SOURCE: Flood Hazard Areas 100 Year Flood, ACFPCWCD
Zone 7 Owned & Maintained Facilities, ACFPCWCD
Food Insurance Rate Map, FEMA

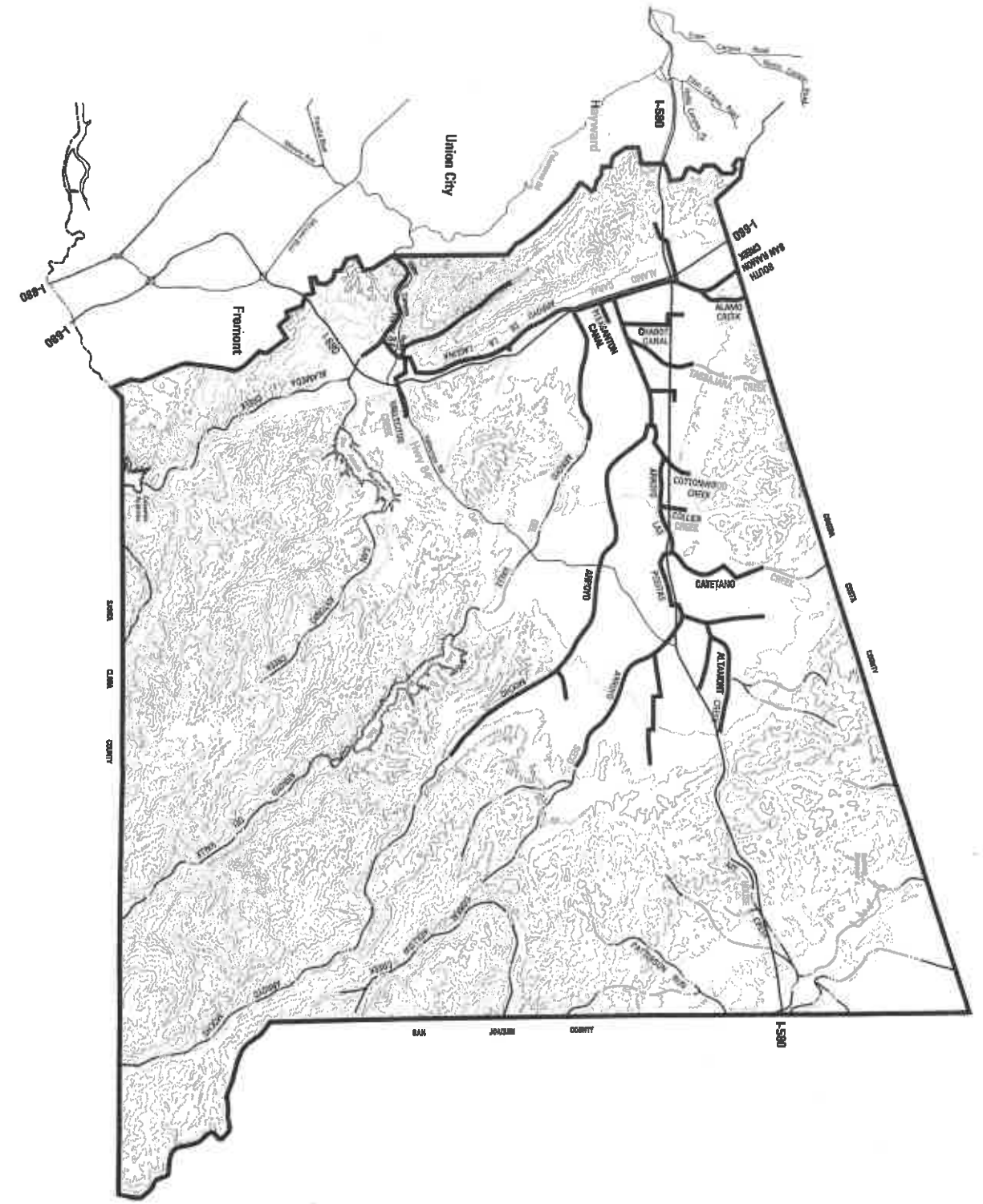


COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

**Zone 7 Master Plan
Elements**

LEGEND

-  Special Drainage Area (SDA) 7-1 Channel
-  Other Channels Maintained by Zone 7



SOURCE: Flood Control Basin Map, Authorized Project Lines, APCSWCD, 1988



Chapter 5.16 - Park and Recreation Facilities

A. EXISTING SETTING

Introduction

Population growth and changing recreation patterns over the past decade have contributed to a substantial increase in recreation demand within the planning area. Increasing public concern about health and fitness has led not only to greater recreation demand, but to demand for a wider range of recreational activities (e.g., mountain biking, hang gliding). The location and timing of recreational activities also appears to be shifting somewhat. Traditionally, weekday recreation has taken place in or near neighborhood parks in residential neighborhoods. Increasingly, however, recreation activities are occurring at or near the workplace, in areas where recreational or pedestrian facilities may not exist. The need to accommodate new activities and new recreation patterns has, in turn, added to the complexities of planning and managing parks in the planning area.

Two regional park districts currently exist within the East County planning area. The East Bay Regional Park District (EBRPD) recently assumed responsibility for regional facilities and services. Its jurisdiction now covers all of Alameda County as well as Contra Costa County. The Livermore Area Recreation and Park District (LARPD) is responsible for local and community parks and recreation facilities and services in Murray Township, including Sycamore Grove and Veterans Park.

LARPD administers land within the Livermore city limits and beyond the incorporated area; the City of Livermore owns and operates several of its own smaller parks and facilities, including Centennial Park, Hansen Park, Doolan Park, Lincoln Park, the Civic Center and Quetzaltenango Parkway. Parks within the cities of Dublin and Pleasanton are entirely under the jurisdiction of their respective municipal governments and are discussed only briefly below. Major parks and regional trails in the planning area are shown in Figure 12. Additional information on the area's parks and recreation resources is provided below.

East Bay Regional Park District

One of the most notable, and positive, trends affecting the planning area has been the continued accumulation of regional parkland for public use. The EBRPD has played the dominant role in this respect, acquiring large tracts of open space for primarily passive uses.

The EBRPD is funded through property taxes and bond measures, and provides regional park facilities throughout the planning area. These include the following: Del Valle Regional Park (4,500 acres owned by the California Department of Parks and Recreation and managed by EBRPD); Ohlone Regional Wilderness (6,758 acres); Pleasanton Ridge Regional Park (1,771 acres, a small portion of which is west of the planning area); Shadow Cliffs Regional Recreation Area (249 acres); Sunol Regional Wilderness (5,924 acres); and Tassajara Creek

Regional Park (451 acres). EBRPD also operates the Ohlone Wilderness Trail, which begins west of the planning area near Fremont, and extends 29 miles through Sunol, Ohlone and Del Valle Regional Parks. A proposed LARPD trail would eventually connect from this trail to Shadow Cliffs Regional Recreation Area via Sycamore Grove Park and the Arroyo del Valle.

EBRPD, in its 1989 Master Plan, designated two sites within the Plan Area for possible acquisition in the future: Devaney Canyon and Vargas Plateau. In addition, the District has identified several possible trail routes which would run through the plan area. One would run between Del Valle Regional Park and Shadow Cliffs, following the course of Arroyo Del Valle (this trail would connect with an adjacent segment planned by LARPD).

Livermore Area Recreation and Park District

The Livermore Area Recreation and Park District (LARPD) owns and operates a variety of parks and facilities, which are delineated in greater detail below. The District also develops, maintains and operates, through joint powers agreements, land and facilities owned by the City of Livermore and Alameda County. The District has a standard of 2 acres/1,000 people. In addition, the District maintains an agreement with the Livermore Valley Joint Unified School District, and many LARPD parks and facilities are located adjacent to school property. LARPD and the school district maintain a cooperative effort, meeting regularly and co-sponsoring many programs at each others facilities. The District is primarily funded by property taxes and developer fees.

The six types of park and recreation facilities administered by the LARPD Master Plan are summarized below (the standards used to define each park type are prescribed by LARPD; other districts may use other definitions). Although many of these facilities exist within the Livermore city limits, a number do not.

Neighborhood Parks. Neighborhood parks are generally 6-10 acres in size, serve three to five thousand people, and are used for informal, impromptu recreation. There are presently 20 neighborhood parks.

Community Parks. Community parks are a minimum of 30 acres, intended to be full-service recreation facilities. At the present time, the District only has one park (Robert Livermore) devoted exclusively to community use.

Regional Parks. 364-acre Sycamore Grove Park is the only park administered by the District where the primary use is regionally-oriented. Two other facilities (Robertson and Veteran's Park) are designated, like Sycamore Grove, as regional/special use areas, but their emphasis is more on the latter.

Special Use Facilities. The 13 existing special use facilities (e.g., senior centers, athletic complexes, equestrian centers) respond to special recreation needs of the community.

Trail and Bikeway System. The LARPD Trail Master Plan, adopted in 1991, establishes an interconnected trail and bicycle route system in the District. A number of these trails/routes are intended to connect to the EBRPD regional trail system and the future "Chain-of-Lakes" area managed by Zone 7 of the Alameda County Flood Control and Water Conservation District. In general, planned trails which affect the Plan Area follow the arroyos, existing rural streets, and the South Bay Aqueduct.

In addition, the following projects have been planned or proposed by LARPD in its 1989 Master Plan:

Sycamore Grove Park Expansion. The District has identified properties on either side of the Sycamore Grove Park for future acquisition so that the existing park can be expanded.

Ravenswood. The District intends to further its role in preserving the Valley's agricultural history by assisting Friends of the Vineyards in the planning for a wine museum at the Ravenswood site. The District also proposes to establish a park to which historic buildings may be moved on land adjacent to Ravenswood when it becomes available.

Chain-of-Lakes. The District lists a candidate project in the future Chain-of-Lakes area: an active water-oriented park centered around the one lake which would be located within LARPD jurisdiction. (Chain-of-Lakes is a major component of the *Specific Plan for Livermore-Amador Valley Area Reclamation* (1981); it will consist of a series of connected lakes, which will be dedicated to Zone 7 for water conservation, water transmission, groundwater recharge, flood control and water quality management. The Specific Plan provides that the water areas may be also used for "recreation, fish farming, and other productive uses" to the extent they are compatible with the aforementioned uses.)

Trails. The LARPD Trail Master Plan shows proposed trails along the South Bay Aqueduct, the Arroyo del Valle, and a number of streets in the Plan Area including East Vineyard Avenue.

LARPD/EBRPD Joint Agreement

An agreement has been reached between LARPD and EBRPD (and approved by LAFCO) under which the two agencies will jointly plan for regional facilities in the area currently under LARPD jurisdiction Murray Township; EBRPD will be solely responsible for acquiring and operating these areas. LARPD will still be responsible for parks and recreation facilities at the neighborhood and community levels, and will continue to operate Sycamore Grove. In addition, LARPD will continue to pursue acquisition of the regionally-oriented Brushy Peak area, although EBRPD may eventually be brought in to operate the area. The existing LARPD Master Plan and Master Trails Plan will continue to be the guiding document for regional parks in Murray Township until EBRPD undertakes its regular Master Plan review (tentatively scheduled for 1994).

One of the primary motivating factors behind the LARPD/EBRPD agreement is the expectation that EBRPD is in a better position than LARPD to acquire open space areas; if

approved, the agreement should result in a long-term increase in the amount of regional parkland in Murray Township. The agreement would not result in any tax increase for Murray Township residents; tax revenues would be gradually shifted from LARPD to EBRPD over the next ten years so that the latter is receiving the same amount per parcel as it does elsewhere in Alameda County.

It should also be noted that EBRPD is annexing the northeastern corner of the planning area--specifically, that section outside of the LARPD boundary which corresponds to the Mountain House School District (see Figure 21 in Volume 2 of the Draft East County Area Plan). This area is currently unserved by any park district, and no portion of its tax revenues are assigned to this purpose; while EBRPD's plan is to assume authority over this area in a regional capacity, its residents would continue to receive the same tax treatment. LARPD's boundary would not be extended to include this portion of the County.

City of Dublin

The City of Dublin Recreation Department provides recreation programs for the city and oversees the private company that provides maintenance for city parks and facilities. Park facilities include a large community center, six neighborhood parks, a sports ground facility that includes baseball and softball diamonds and soccer fields located at the civic center, a swim center, and a senior center. Of significance to the planning area is a north-south trail link proposed by the city which would follow the West Dublin ridgeline and connect with a regional trail network projected by EBRPD.

City of Livermore

In addition to the LARPD facilities noted above, the City of Livermore operates several small parks totalling less than ten acres.

City of Pleasanton

The City of Pleasanton provides park and recreation services within its city limits. The city operates two community/district parks totalling 335 acres, nineteen neighborhood parks totalling 117 acres, and four undeveloped park sites totalling 25 acres.

Alameda County Flood Control and Water Conservation District (Zone 7)

Zone 7 of Alameda County's Flood Control and Water Conservation District serves the majority of the planning area. In 1985, Zone 7 adopted the "Arroyo Management Plan" which provides for public recreational access along the flood channels and arroyos under its control. The plan aims to meet flood control and water control priorities while at the same time establishing an open space system suitable for uses such as walking, hiking, jogging, bicycling, horseback riding, picnicking, nature study, etc. The Trail Master Plan includes existing, future and potential trails along the following: Arroyo Mocho, Arroyo De La Laguna, Arroyo Del Valle, Arroyo Las Positas, Alamo Canal, Stanley Boulevard, Tesla

Road, and the Southern Pacific Railroad. Zone 7 acts as coordinating agency for the plan, but allocates responsibility for its implementation to EBRPD and LARPD.

State of California

The state owns and operates two parks in the far eastern portion of the planning area: Bethany Reservoir State Recreation Area (312 acres) in the Mountain House area; and Carnegie Motorcycle State Park (1,600 acres) off Tesla Road, near the San Joaquin County line.

Financing of Parkland Acquisition/Expansion

On September 2, 1992, a new Alameda County park dedication ordinance (as authorized under the Quimby Act) went into effect which applies countywide. The new ordinance, like the old one, requires the dedication of land or payment of an in-lieu fee for all residential tracts (subdivisions of five or more units). The new ordinance, adopted by the Board of Supervisors on June 3, 1992, makes minor changes in the amount of land required for dedications and significantly increases the amount of the in-lieu fee; these changes will boost County requirements to a level comparable to that of cities in the planning area.

The new requirements pertain to all new residential construction and apply both to acquisition and improvement of parkland. In allocating the revenue from these fees, the East County is divided into three benefit areas. Funds from development near Livermore go to LARPD; similarly, funds from development near Pleasanton go to the City of Pleasanton, and those from the Dublin area go to the City of Dublin.

Property taxes provide another source of financing for regional parks in the planning area: a portion of the property taxes paid by new East County residents are used for the operation, maintenance, and financing of EBRPD or LARPD projects. As noted above, taxes from Murray Township residents may eventually be allocated to both EBRPD and LARPD.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- The General Plans for Dublin, Livermore and Pleasanton all provide for significant population growth, both within their current corporate limits and in their respective spheres of influence. This growth would increase demand for park and recreation facilities, straining or exceeding the service capacity of existing facilities.

- Proposed development could conflict with planned park and recreation district facilities (e.g., potential development in the South Livermore Valley could conflict with LARPD plans for expansion of Sycamore Grove Park, and with plans for an historic receiver site south of Ravenswood).
- Future development in rural areas could conflict with proposed trails under the LARPD and EBRPD Trail Master Plan.
- Expansion or improvement of the County's park and recreation resources may conflict with other proposed land uses such as commercial or residential development or the extraction of mineral resources.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban/Open Space Delineation

Policy 1: The County shall identify and maintain an **Urban Growth Boundary** that defines areas suitable for urban development and open space areas for long-term protection of natural resources, agriculture and other productive resources, recreation, buffers between communities, and public health and safety. The Urban Growth Boundary circumscribes an area inside of which urban development will be encouraged and outside of which urban development will be prohibited...

Specific Open Space Areas

Policy 74: The County shall work with the East Bay Regional Park District (EBRPD) and the Livermore-Amador Recreation and Park District (LARPD) to ensure that open space trails adjacent to San Joaquin, Contra Costa, and Santa Clara Counties connect with trail systems in these other counties.

General Open Space Areas

Program 25: The County shall work with the Livermore Area Recreation and Park District (LARPD), the East Bay Regional Park District (EBRPD), and the San Francisco Water Department to incorporate continuous open space areas outside the Urban Growth Boundary into the **Bay Area Greenbelt** system.

Program 26: The County shall work with the EBRPD, LARPD, California Department of Fish and Game, and cities to identify **public and private uses** that should appropriately be allowed within various portions of the open space system, including active and passive recreation, and grazing.

Watershed Areas

Policy 102: The County shall encourage public water management agencies to explore recreational opportunities on watershed lands, particularly reclaimed quarries, where recreational use would not conflict with watershed protection objectives.

Policy 103: The County shall encourage the San Francisco Water Department to provide limited public access on trail corridors through the watershed lands surrounding San Antonio and Calaveras Reservoirs, Sunol Watershed, and the Arroyo de la Laguna. The County shall work with the East Bay Regional Park District to incorporate these watershed corridors into the regional trail system, where recreational use would not conflict with watershed protection objectives.

Sensitive Viewsheds

Policy 112: The County shall review development proposed adjacent to or near public parklands to ensure that views from parks and trails are maintained.

Ridgelines and Community Separators

Program 49: The County shall work with LARPD and EBRPD to acquire and maintain the Brushy Peak area as permanent public open space. The Brushy Peak open space area should be linked with the proposed Los Vaqueros Reservoir open space area in Contra Costa County.

Regional Park System

Policy 206: The County shall support expansion of the existing regional park system according to the recreational facility standards contained in the East Bay Regional Park District (EBRPD) Master Plan, the Livermore Area Recreation and Park District (LARPD) Master Plan, and applicable County specific plans.

Policy 207: The County shall require new developments to provide trails consistent with EBRPD and LARPD regional trail plans.

Policy 208: The County shall integrate East County trail plans with the California Recreational Trail System.

Policy 209: The County shall coordinate provision of regional park facilities and programs between existing special districts.

Policy 210: The County shall reserve a regional trail corridor through the "Chain-of-Lakes" area connecting Del Valle Regional Park with the Tassajara Creek open space corridor.

Table 6 - Performance Guidelines for Major New Urban Development - including a mixed use trail system and usable open space areas to provide recreational opportunities for public use

Table 7 - Parks Level of Service Guidelines for Major New Urban Developments

- **Neighborhood Parks:** One 5+ acre park within each neighborhood and within 1/4 mile of most residents, assuming 2 acres of park per 1,000 population.
- **Community Park:** One 30+ acre park per 15,000 people centrally located to provide sports fields and other community activities, assuming 2 acres per 1,000 population.
- **Special Use Park:** Parks serving special functions such as historical parks, natural interpretation, arboretums, children's play facilities, assuming 3 acres per 1,000 population.
- **Regional Park and Open Space:** Large park and open space areas serving several communities usually featuring hiking, camping and passive recreational activities, assuming 15 acres per 1,000 population. Should be accessible within a short drive.

Policy 29: The County shall approve Major New Urban Developments only if they are consistent with the performance guidelines, the level of service guidelines, and the urban design guidelines and only if they will not impose a fiscal burden on the County or cities.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For purposes of this EIR, the proposed plan would result in a significant impact to the environment if increased demand for parkland exceeded available supply, or interfered with the acquisition, expansion or development of existing plans for parks or recreation facilities.

Potential Impact 5.16-1: Growth under the plan would result in increased demand for parks and recreation facilities, potentially exceeding available supply.

Implementation of the plan would result in a population increase of approximately 151,000 people by buildout. This level of growth (more than doubling the current population) would result in significant new demand for recreational facilities--both active and passive. In addition, the increased population would result in higher maintenance requirements in all of the East County's parks as well as the need for additional law enforcement personnel patrolling the parks.

Growth under the city general plans, as contemplated by the proposed plan, would require the acquisition of many additional parks within the cities of Dublin, Pleasanton and Livermore. Assuming that a minimum of 2 acres of urban parkland would be required for each additional 1,000 people (in areas other than North Livermore and East Dublin), approximately 92 additional acres would be needed by the East County's three cities by

buildout. (It should be noted that the cities' current park dedication requirement exceeds this 2 acre per 1,000 resident minimum.)

To meet the park standards set forth in Table 7 of the *East County Area Plan*, approximately 2,332 acres would be required to serve the development of Major New Urban Development Areas in East Dublin and North Livermore (see Table 5.16-1). Pursuant to policy 29, no Major New Urban Development can be approved unless it is consistent with these standards.

TABLE 5.16-1		
Parkland Required to Serve Major New Urban Development Areas at Buildout		
City	Type of Park	Number of Acres
Eastern Dublin¹	Neighborhood	88 Acres
	Community	88 Acres
	Special Use	132 Acres
	Regional & Open Space	660 Acres
Total		968 Acres
North Livermore²	Neighborhood	124 Acres
	Community	124 Acres
	Special Use	186 Acres
	Regional & Open Space	930 Acres
Total		1,364 Acres
Note: ¹ Assumes population increase of 44,003 ² Assumes population increase of 62,005		
Source: Alameda County Planning Department		

Plan Policies and Programs: East County cities, in their general plans, already address the issue of acquiring parkland within their city limits. The policies and programs of the *East County Area Plan* fully address the issue of additional demand for parks in new development areas. As noted above, Tables 6 and 7 of the plan establish standards for acquiring and developing a full range of parks to meet the demand of new growth in areas of Major New Urban development. Policy 29 provides that such development cannot be approved unless it is consistent with the guidelines in Tables 6 and 7.

By confining urban development within the Urban Growth Boundary (policy 1), the plan provides long-term protection for recreational lands outside the boundary. The proposed plan also responds to the need for expanded park facilities through policies which call for the County's active cooperation with park districts and managers of other public lands. The goal is both to connect and expand existing facilities, and to integrate public watershed lands and other open space areas--including lands located inside the Urban Growth Boundary--with the recreational system (policies 102, 206 and 209; programs 25, 26, and 49).

Level of Significance: With implementation of proposed policies and programs, no significant impact on park and recreational facilities would occur.

Mitigation Measure 5.16-1: None required.

While no mitigation is required, the following policy is recommended for inclusion in the plan:

Proposed new policy: *The County shall support the development of recreation facilities in close proximity to major employment centers.*

Potential Impact 5.16-2: Implementation of the plan could interfere with the acquisition, expansion or development of existing plans for regional trails.

Accommodation of the plan's buildout population within the Urban Growth Boundary could hinder the ability of EBRPD and LARPD to implement proposed regional trails if new development was not planned in conjunction with those agencies' master plans. The trail network would link a broad range of open space areas--including state and regional parks and water management areas outside the Urban Growth Boundary--with urban separators and urban and special use parks within the boundary (see Figure 5.4.4-1).

Plan Policies and Programs: Policies and programs support development of an extensive trail network. The plan indicates that the County will work with EBRPD and LARPD to ensure that open space trails connect with trail systems in other counties (policy 74), and will encourage the San Francisco Water Department to provide trail access through watershed lands (policy 103). It also indicates that the County will require new developments to provide trails consistent with EBRPD and LARPD regional trail plans and that it will integrate East County trail plans with the California Recreational Trail System (policies 207 and 208). Further, it will reserve a regional trail corridor through the "Chain-of-Lakes" area connecting Del Valle Regional Park with Tassajara Creek open space corridor (policy 210).

Level of Significance: With implementation of proposed policies and programs, no significant impact on trail facilities would occur.

Mitigation Measure 5.16-2: None required.

SOURCES

Alameda County Flood Control and Water Conservation District, Arroyo Management Plan, March 1985.

Alameda County Planning Department, Specific Plan for Livermore-Amador Valley Quarry Area Reclamation, 1981.

Alameda County Planning Department, South Livermore Valley Area Plan, June 1992.

City of Pleasanton, Growth Management Report, 1991.

East Bay Regional Park Service, Master Plan, 1989.

Livermore Area Recreation and Park District, District Master Plan, 1989.

Livermore Area Recreation and Park District, Trail Master Plan, May 1991.

Santa Clara County Advance Planning Office, Looking Forward, Looking Back, November 1990.

\\home\plan\air\chpt5-16.nhd

Chapter 5.17 - Schools

A. EXISTING SETTING

Introduction

The planning area is served by five school districts (see Figure 30 for boundaries): the Livermore Valley Joint Unified School District, the Pleasanton Unified School District, the Dublin Unified School District, the Sunol Glen School District, and the Mountain House Elementary School District (the latter two operate primary schools only, relying on other school districts to provide education at the secondary level). The boundaries of these districts do not follow city limits, and are administered and funded separately from municipal entities in the planning area.

School Districts

Livermore Valley Joint Unified School District (LVJUSD). The LVJUSD serves the following areas: the City of Livermore; most of the unincorporated area in the eastern half of the planning area (with the exception of the northeast corner); and a portion of unincorporated Contra Costa County. The District currently has nine elementary schools, three middle schools, one combination elementary and middle school, two high schools, and two continuation high schools. The LVJUSD currently accommodates a total of 10,734 students, and has the capacity to accommodate a total enrollment of 11,390.

Pleasanton Unified School District (PUSD). The PUSD provides primary and secondary school education to the City of Pleasanton and surrounding unincorporated areas. The District administers seven elementary schools, two middle schools and three high schools. The PUSD has an existing student population of 10,030 students and has the capacity to accommodate a total enrollment of 10,669.

Dublin Unified School District (DUSD). The DUSD provides primary and secondary school education to the City of Dublin and the adjacent unincorporated area. The District operates three elementary schools, one middle school and two high schools, accommodating a total of 3,368 students. The DUSD has the capacity to accommodate a total of 5,821 students.

Sunol Glen School District (SGSD). The SGSD serves the Sunol area and the southeastern portion of the planning area. The District administers one primary school serving K-8 grades, with the PUSD providing secondary school education for the area. SGSD's current enrollment consists of 199 students. The SGSD has capacity for a total enrollment of 225.

Mountain House Elementary School District (MHESD). The MHESD, which consists of one primary school, is located in the extreme northeastern corner of the planning area. The

Tracy Joint Union High School District provides secondary education for this area. MHESD has an existing student population of 32 students and has the capacity to accommodate a total enrollment of 75 students.

See Table 5.17-1 for a summary of existing student population and capacity by school district, and Table 5.17-2 for a summary of existing capacity surplus and/or shortfall.

Changing Enrollment Patterns in the East County

Declining enrollment in the 1970s, resulting from a substantial decrease in family size, led to the closure of some schools in the planning area. A combination of in-migration and rising birth rates has subsequently reversed this trend; school districts in the area now anticipate the need for new facilities to accommodate projected population growth. The practical implications of this trend for each school district are summarized below:

Livermore Valley Joint Unified School District. Total enrollment at LVJUSD schools is currently at 87 percent of total capacity. According to the District, students that will be generated under existing housing permit allocations in the City of Livermore will more than absorb this existing capacity. Total projected enrollments from existing housing stock and allocated/unbuilt homes will exceed current capacity by approximately 2,825 students. To accommodate this growth, existing schools will be expanded to maximum capacity and closed schools will be reopened. New schools will be needed for the enrollments from all future approved development projects.

Pleasanton Unified School District. Total enrollment at PUSD schools is presently at 79 percent of total capacity. The PUSD projects that student populations will grow approximately three to five percent annually during the next five years. Crowding is expected in the middle schools, despite recent grade and attendance reorganization. New schools and expansion plans are underway to accommodate increasing population in the PUSD: a new middle school has recently been completed, a new elementary school will be built within the next two years, and there are plans to expand two elementary schools and two high schools. The District anticipates that there may also be a need for an additional middle school within the next four years.

Dublin Unified School District. Although the DUSD is not currently expanding, planning proposals for the East Dublin area would require the construction of a new high school as well as additional elementary and intermediate schools.

Sunol Glen School District. The SGSD recently purchased two new classrooms to ease overcrowding at Sunol Glen Elementary. A bond measure to fund expansion of the school was on the ballot in June 1992, but did not pass.

Mountain House Elementary School District. The MHESD, with a total enrollment of 39 students, is operating well below its capacity. There are no plans to expand facilities in the foreseeable future.

TABLE 5.17-1

1992 - 1993 Existing Student Population by School District

	Elementary School K - 6	Capacity	Middle School 7 - 8	Capacity	High School 9 - 10	Capacity	Total Student Population	Total Capacity
Dublin Unified School District	1,776	2,540 ¹	769 ²	768	883	2,513	3,364	5,821
Livermore Valley Joint Unified School District	5,140	5,485	2,434	2,518	3,160	3,387	10,734	11,390
Pleasanton Unified School District	4,806	4,994	2,268	2,380	2,956	3,375	10,030	10,669
Sunol Glen Unified School District	158	175	41	50	0	0	199	225
Mountain House Elementary School District	32	75	0	0	0	0	32	75

Source: Alameda County Planning Department

Notes: ¹Number assumes K - 5 instead of K - 6²Number assumes grades 6 - 8 instead of 7 - 8

TABLE 5.17-2

Status of Existing School Capacity

	K - 6	7 - 8	9 - 12	Total
Dublin Unified School District	+764	-1	+1,630	+2,393
Livermore Valley Joint Unified School District	+345	+84	+227	+656
Pleasanton Unified School District	+108	+112	+419	+639
Sunol Glen School District	+17	+9	N/A	+26
Mountain House Elementary School District	+43	N/A	N/A	+43
Total Existing Surplus Capacity				+3,801
Notes: Capacity figures in this table were derived from Table 5.4.5-2 where capacity minus enrollement equals a surplus or shortfall in capacity; + = Surplus Capacity and - = Shortfall Capacity				
Source: Alameda County Planning Department				

Overview of Traditional Funding Sources

Ever since the 1976 decision of the California Supreme Court in *Serrano v. Priest*, school budgets have been largely determined by the state. In that landmark case, the court held that the California public school financing scheme violated constitutional equal protection guarantees by basing the availability of school revenues upon the wealth of a school district. In the aftermath of the *Serrano* decision, the state equalized each district's allowable general fund revenue limit and apportioned state aid funds as the difference between that revenue limit and the district's proportional share of the county's local property tax revenues.

Prior to the passage of Proposition 13 in 1978, new schools were financed through bond measures approved by the voters. Any tax rate increases, for the purpose of assuring sufficient income to pay off the bonds, also required voter approval. For those districts that had growing student enrollments but were unable to obtain voter approval of school bonds, it was possible to borrow the funds from the State School Building Aid Program. As it relates to school construction, Proposition 13 removed the ability and authority of local voters to approve new school funding. Subsequent legislation (SB 201) instituted a Bedroom Tax or Impact fee at the rate of \$200 per bedroom, paid to the local agency at the time of the building permit. The legality of SB 201 was challenged and fees were impounded until the Supreme Court decided the Candide Case on the constitutionality of the fee under Proposition

13. In 1982, the fee was declared constitutional; however statute limited its use to interim housing consisting of portable units and trailers.

Because of the increased demand for school facilities statewide, school districts increased efforts to lobby for legislation that would not only help growing school districts meet the demands, but also to provide funds for the Leroy F. Greene Program (State School Construction Program). As a result of these efforts by school districts, State bond measures were placed on the ballot (and continue to be the only significant source of revenue for that program); school districts were given the constitutional authority to go to the voters for a 2/3 approval of General Obligation bonds; financing of schools was included in the Mello Roos Community Facilities District Act; and in 1987 AB 2926 transferred the authority for instituting and collecting school development fees from local agencies to the school districts.

State funding for school facilities still exists through the Leroy F. Greene State School Building Lease-Purchase Law of 1976, but there are several major drawbacks to this program: 1) conditions of overcrowding must exist or be extremely imminent before a district can qualify; 2) the funding-process takes time; and 3) available funds are insufficient to meet school construction needs throughout the state.

Similar problems plague all sources of state financing for new school facilities, thanks to limited funds and vigorous competition among school districts. This funding squeeze has prompted school districts to employ alternative methods for funding new construction.

The 1984 California State Lottery Act provided schools with a new income source; however, lottery revenue is only available to meet a small percentage of school funding needs, and cannot be used for capital improvements such as the construction of school buildings.

"Local" Financing Methods

The following methods give school districts some measure of local control over financing, with development fees being the most commonly used approach.

Development Fees. The authority of school districts to impose development fees derives from Section 53080 of the Government Code, and dates back to the passage of AB 2926 in 1986. AB 2926 authorizes school districts to levy development fees to pay for new school construction. The original maximum fees that could be collected under this authority were \$1.50/square foot for residential development, since adjusted for inflation to \$1.65, and \$0.27/square foot for commercial and industrial space; these figures can be adjusted upward to compensate for inflation.

Soon after the passage of AB 2926, problems began to arise in its administration. Most notable was the claim that some school districts were levying fees without establishing a clear connection between new development and the need for new schools. This concern was addressed in 1987 by AB 1600, which established nexus requirements for school district impact fees. Other problems which had arisen in the implementation of AB 2926 were

addressed in 1989 with the passage of AB 181, which clarified and modified the terms under which schools could impose fees, charges or dedications upon new development.

It should be noted that the impact fees authorized under AB 2926 are usually considered insufficient to cover the cost of new school facilities associated with new development; school districts generally find that such fees cover approximately 26% of the cost of new school facilities associated with new development. In light of this fact, some districts have negotiated impact fees which are significantly higher than the state maximum (this figure is, technically, the maximum a district can *require* a developer to pay, but it does not prevent the negotiation of higher fees based on CEQA impacts).

Mello-Roos Act. The Mello-Roos Community Facilities District Act allows financing districts to be established to fund school construction. The owners of land within the boundaries of a Mello-Roos Community Facilities District (CFD) are assessed a special tax to finance specific improvements within that district. Mello-Roos taxes must be approved by two-thirds of the voters within the proposed CFD or, when the district has fewer than 12 property owners, by majority vote of the owners. Proceeds from Mello-Roos taxes can be used to directly fund improvements such as new schools and, if bonds have been issued, to pay service on those bonds.

General Obligation Bonds. As a result of the passage of Proposition 46 in 1986, cities, counties and school districts are again empowered—subject to voter approval—to issue general obligation (G.O.) bonds to finance land acquisition and capital improvements. G.O. bonds are repaid with the revenues from increased property taxes (authorized by local voters as part of the G.O. bond measure). Approval by two-thirds of the voters within the school district is required for passage of such a bond measure—a percentage which is often difficult to achieve, particularly in the current economic climate.

Special Taxes. School districts may impose special taxes in the same manner as counties and cities, provided that the tax applies uniformly to all taxpayers or all real property within the district (exception: taxpayers who are 65 or older can be exempted from this provision). These special taxes (also known as "parcel taxes") may only be imposed when two-thirds of the school district's voters approve the school board's specific proposal for such a tax. As with G.O. bonds, it has become increasingly difficult in recent years to obtain passage of such measures.

Asset Management. Asset management is composed of two basic sub-components: sale/lease of school district property and joint venture/creative use of school district and other public property. Sale/lease of property is the more traditional type of asset management, however a variety of creative options are available (i.e., shared sites, shared facilities and joint use of other public agencies.)

Asset management can cover a variety of programs and options beyond surplus school sites. It can be a source of "pay as you go" funds or used for debt service in conjunction with redevelopment using vacant land, closed or to-be-closed schools, or continued use of schools.

Redevelopment. Cities and counties can create Redevelopment Agencies to help fund improvements in areas that are "predominantly blighted". School districts can negotiate with the Redevelopment Agency to participate in sharing the revenue generated by the Redevelopment Agency.

Redevelopment Agencies generate money by "freezing" the value of land and the property taxes, and selling bonds to finance improvements. The value of the area increases because of the improvements and the amount of tax money above the frozen level is used to repay the bonds.

School districts can use funds from Redevelopment Agencies to build schools, purchase equipment or other capital items. The funds cannot be used for regular maintenance and operation costs.

Certificates of Participation. Certificates of participation (COP) are a form of lease financing which mimics bonds in many ways, but because COPs are technically leases, voter approval is not required.

COPs can be used for construction and equipment; however, under State law, a district cannot make a lease payment on anything it does not yet have "beneficial use" of, so financing facilities has capitalized interest as an extra component.

A COP can be secured by a variety of revenue sources including:

- . General Fund
- . Developer Fees
- . Developer Agreements
- . Special Funds
- . Investment Income
- . Redevelopment Pass Through
- . Lease Property Revenue
- . Parcel Tax

The ultimate security for the COP is the general fund, even if another revenue source is initially designated as the source for repayment. Because the ultimate security for a COP is the general fund, it is critical to assess the potential that the original funding source will diminish over time.

Recent Legislative Developments

Senate Bill (SB) 1287, which significantly modifies the funding situation for school facilities, became law in September 1992. The general intent of the bill is to limit the state role in financing school districts, placing primary responsibility on the school districts themselves, and expanding their capacity to raise needed funds locally. The legislation is divided into

several distinct sections, all of which hinge on whether Assembly Constitution Amendment 6 (ACA 6) is approved by voters. ACA 6 is a ballot measure which would set a majority vote requirement for bonded indebtedness for the construction, reconstruction, or rehabilitation of school facilities; since current law mandates approval by two-thirds of the voting public, ACA 6 would make it easier to obtain local funding for school facilities. ACA 6 will be on the ballot in June 1994.

The main provisions of SB 1287 are outlined below:

- If ACA 6 passes, the Leroy F. Greene Act of 1976 will be repealed as of January 1, 1996.
- Since January 1, 1993, school districts are allowed to levy increased school financing fees on certain residential construction (an additional \$1 per square foot over the current \$1.65 limit). This provision will be repealed if ACA 6 is approved.
- Since January 1, 1993, public agencies are prohibited from denying the approval of a project pursuant to planning and zoning law based on the adequacy of school facilities, or from imposing conditions on the approval of a project for the purposes of providing school facilities in excess of the amounts noted above. This provision will also be repealed if ACA 6 is approved.

The last provision noted is an outgrowth of the 1988 ruling by the Fourth District Court of Appeal in *Mira Development Corporation v. City of San Diego*. In that case, the Court found that the City of San Diego could deny a request for rezoning if the resulting development would exceed the available public services and improvements in the area (including school facilities). While the Court refused to restrict local governments' authority over zoning decisions or other "legislative powers"—a decision upheld in two subsequent cases—SB 1287 would effectively reverse the effect of these decisions; local governments would cease to have any recourse in mitigating school impacts aside from use of the higher school facilities fee.

If ACA 6 is successful, resulting in repeal of this provision, current law would be reenacted and the effect of the *Mira* decision would be reestablished. The authority of public agencies to mitigate school impacts would be restored to its current scope, but there would also be negative implications for school district financing: removal of the \$1/square foot increase in the school fee cap, and repeal of the Leroy F. Greene School Building Lease-Purchase Act of 1976.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- school districts will be under substantial pressure in the future to provide adequate facilities and sites to serve the growing population of the planning area
- financing of new school facilities will present the most formidable challenge to school districts in the planning area; the construction of these facilities will need to be timed with new development to ensure that adequate school capacity is available when needed

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Urban and Rural Development

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Policy 29: The County shall approve Major New Urban Developments only if they are consistent with the performance guidelines contained in Table 6, the level of service guidelines contained in Table 7, and the urban design guidelines contained in Table 8, and only if they will not impose a fiscal burden on the County or cities.

Table 7 - Schools Level of Service Guidelines for Major New Urban Development

- Elementary Schools: One ten-acre school site per 650 students; generally 1 school in each neighborhood within 1/4 mile walking distance of most students; preferably adjacent to a five-acre neighborhood park.
- Middle Schools: One 20-acre school site per 800 students.
- High Schools: One 40-acre school site per 1,500 students.

Infrastructure and Services Policies

Policy 200: The County shall allow development and expansion of public facilities (e.g., parks and recreation facilities; schools; child care facilities; police, fire, and emergency medical

facilities; solid waste, water, storm drainage, flood control, subregional facilities; utilities etc.) in appropriate locations inside and outside the **Urban Growth Boundary** consistent with the policies and Land Use Diagram of the *East County Area Plan*.

School Policies

Policy 211: The County shall reserve adequate sites for elementary, middle, and high schools in unincorporated locations within East County.

Policy 212: The County shall work with school districts and developers to ensure that adequate school capacity exists or is planned prior to approving new residential development.

Policy 213: The County shall require all new residential developments to pay their fair share of the costs of school sites and facilities.

Policy 215: The County shall support the use of special school funding mechanisms such as local fees, assessment districts, and bond issues.

Policy 216: The County shall encourage school districts to take actions necessary to qualify for state school funds.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For purposes of this EIR, the proposed plan would result in a significant impact to the environment if demand for school facilities exceeded available supply.

Potential Impacts and Mitigation Measures

Potential Impact 5.17-1: Implementation of the plan would cause demand for school facilities to exceed available capacity.

Achievement of the plan's buildout holding capacity would result in 54,880 additional households over the 1990 level. The buildout holding capacity would generate a total of 35,672 new students: 16,464 children in kindergarten through grade six; 8,232 in grades

seven and eight; and 10,976 in grades nine through twelve.¹ This increase in student population would require 25.3 new elementary schools, 10.3 middle schools, and 7.3 high schools (see standards contained in Table 7 of the plan inserted above). Acreage requirements would be as follows: 253 acres for new elementary schools; 206 acres for new middle schools; and 292 acres for new high schools. It is anticipated that existing surplus capacity (see Table 5.17-2) will be used by development that has already been approved.

Because the boundaries of the East County's five school districts are not aligned with the boundaries of existing cities or subareas, estimates were made for each school district based on subarea data used elsewhere in this plan and DEIR. Table 5.17-3 indicates assumptions regarding number of households per district; Table 5.17-4 indicates probable generation of students by district; Table 5.17-5 indicates probable distribution by district and grade.

Meeting the plan's 2010 holding capacity would result in about 12,800 fewer households than buildout, or a reduction of about 13 percent. Although it cannot be known at this time what the distribution of households will be within the planning area in the year 2010, it could be assumed that the student distribution to the various school districts would approximate that of buildout described below reduced by 13 percent.

Under the plan, new residential development would primarily be located in East Dublin and North Livermore; new development would therefore have the greatest impact on the Dublin Unified School District and the Livermore Valley Joint Unified School District (LVJUSD). Although the East Dublin subarea is currently served by the LVJUSD, it is anticipated that Major New Urban Development in East Dublin will be annexed by the City of Dublin and that school boundaries will be realigned to include this area in the DUSD.

Three of the East County's school districts currently use development fees to help to cover the cost of new school construction (see Table 5.17-6). School districts estimate that development fees cover approximately 15 - 25% of the actual cost of constructing new schools. As stated previously, development fees permitted by SB 2926 and SB 1287, which now allow for a maximum of \$2.65 per square foot for residential development and \$.27 per square foot for commercial development, are not generally adequate to cover the cost of new school construction. For example, the City of Livermore estimates that cost of developing school facilities for new enrollments is \$6.17 per square foot of new residential area.

The LVJUSD addresses this situation with Board Policy 3224 which requires that development pay its own way. It states: "Financial resources are not available to the Livermore School District to provide the required facilities to serve expected growth.

¹To estimate the number of school aged children generated from new housing construction, the following student generation rates were used: 0.30 children per unit for kindergarten through grade six; 0.15 children per unit for grades seven and eight; 0.20 children per unit for grades nine through twelve; 0.65 children/unit total. These student yield estimates are conservative. They were developed for the LVJUSD where the majority of development under the proposed plan would occur.

Accordingly, it is the policy of LVJUSD that development, both residential and commercial/industrial, shall fully mitigate the impact of such growth on school facilities".

Plans and Policies: Policies and programs in the proposed *East County Area Plan* describe ways in which the County will support the school districts in providing the necessary school facilities needed under the plan.

Under Policy 211, adequate sites would be set aside for the development of new schools in unincorporated areas. (See Figure 5 in the plan for existing and planned future school sites.) The County would also require all new residential developments to pay their fair share of the costs of school sites and facilities (Policy 213). Although school district development fees would not be adequate to cover the cost of facilities required by implementation of the proposed plan, the County would support the use of special school funding mechanisms such as local fees, assessment districts and bond issues, and the efforts by the school district to obtain state funding (policies 215 and 216). Policy 212 states that the County will work with school districts and developers to ensure that adequate school capacity exists or is planned prior to approving new residential development, and Policy 13 implies that approval of all development is contingent upon the availability of required services. With respect to Major New Urban Developments, policy 29 provides that such developments can be approved by the County only if they are consistent with the level of service guidelines in Table 7, which includes specific requirements for school services. However, with respect to development that is not in the category of Major New Urban Developments, the plan lacks an explicit policy mechanism whereby approval of residential development is contingent on the assurance that adequate school facilities can be provided for that development.

Level of Significance: Without mitigation, this potential impact would be significant. The following modification to Policy 212 would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struck out~~):

Mitigation Measure 5.17-1: Policy 212 should be amended to read: The County shall work with school districts and developers to ensure that adequate school capacity exists or is planned prior to approving new residential development. *The County shall condition the approval of residential development plans on the availability of adequate school facilities if allowed under current legislation. Availability of school facilities would be indicated by a "will-serve" letter from the applicable school district describing the school facilities that would be needed and how capacity would be provided.*

TABLE 5.17-3

Estimated Total Households by School District

	Projected at Bullclout
Dublin Unified School District¹	22,885 ¹
Livermore Valley Joint Unified School District²	49,771
Pleasanton Unified School District³	29,511
Sunol Glen School District⁴	329
Mountain House Elementary School District⁵	149
Total Households in East County	102,645

Notes: Assumptions Regarding Distribution of Households into School Districts by Subarea (see Table 4.3 for housing units by subarea under the proposed plan):

¹Assumes all households in Dublin, West Dublin and East Dublin

²Assumes all households in North Livermore, City of Livermore, 1,745 households in South Livermore and 1/3 of the remainder unincorporated households

³Assumes 28,371 households in Pleasanton, all households in Pleasanton Ridge, and 1,083 households in South Livermore

⁴Assumes 180 households in Pleasanton and 1/3 of the remainder unincorporated households area

⁵Assumes 1/3 of unincorporated households

Source: Alameda County Planning Department

TABLE 5.17-4

Existing and Projected Student Population

	Existing	Bulldout ¹
Dublin Unified School District²	3,364	14,875
Livermore Valley Joint Unified School District	10,734	32,351
Pleasanton Unified School District	10,030	19,182
Sunol Glen School District	199	213
Mountain House Elementary School District	32	97
Total	24,359	66,718

Notes: ¹Assumes a student generation rate of .65 students per household. This is a conservative figure. The number will be lower for multi-family units.

²Assumes Dublin Unified School District serves East Dublin

Source: Alameda County Planning Department

TABLE 5.17-5				
Projected Student Population at Buildout by Grade				
	K - 6	7 - 8	9 - 12	Total
Dublin Unified School District¹	6,865	3,433	4,577	14,875
Livermore Valley Joint Unified School District	14,931	7,465	9,954	32,351
Pleasanton Unified School District	8,853	4,426	5,902	19,182
Sunny Glen School District	98	49	66	213
Mountain House Elementary School District	45	22	30	97
Total Student Population at Buildout				66,718
Notes: ¹ Assumes Dublin Unified School District serves East Dublin Source: Alameda County Planning Department				

TABLE 5.17-6

Status of Development Fees for Each School District

School District	Development Fee
Dublin Unified School District	No Development Fee in Place at This Time ¹
Livermore Valley Joint Union School District	\$2.65/Square Foot
Pleasanton Unified School District	\$2.65/Square Foot
Mountain House/Tracy Unified School District	No Development Fee
Sunol Glen School District	\$1.65/Square Foot ²
<p>Note: ¹A development fee is currently under consideration and one may be adopted within the next six months ²The Sunol Glen School District is considering increasing the fee to \$2.65/square foot</p>	
Source: Alameda County Planning Department	

SOURCES

Alameda County LAFCO, Doolan Road/Croak Road Sphere of Influence Study and EIR, February 1990, prepared by Thomas Reid Associates.

Alameda County Planning Department, LAVPU General Plan Issue Paper No. 3, April 1991.

Alameda County Planning Department, South Livermore Valley Area Plan, June 1992.

Governor's Office of Planning and Research, A Planner's Guide to Financing Public Improvements, June 1989 (revised 1991).



Livermore Valley Joint Unified School District, Correspondence from Kim Rutherford, Facilities Planner, November 30, 1992.

Livermore Valley Joint Unified School District, Ten Year Facilities Master Plan, Shilts Consultants, Inc., November, 1992.

h:\home\plan\air\chpt5-17.nhd

School District Boundaries

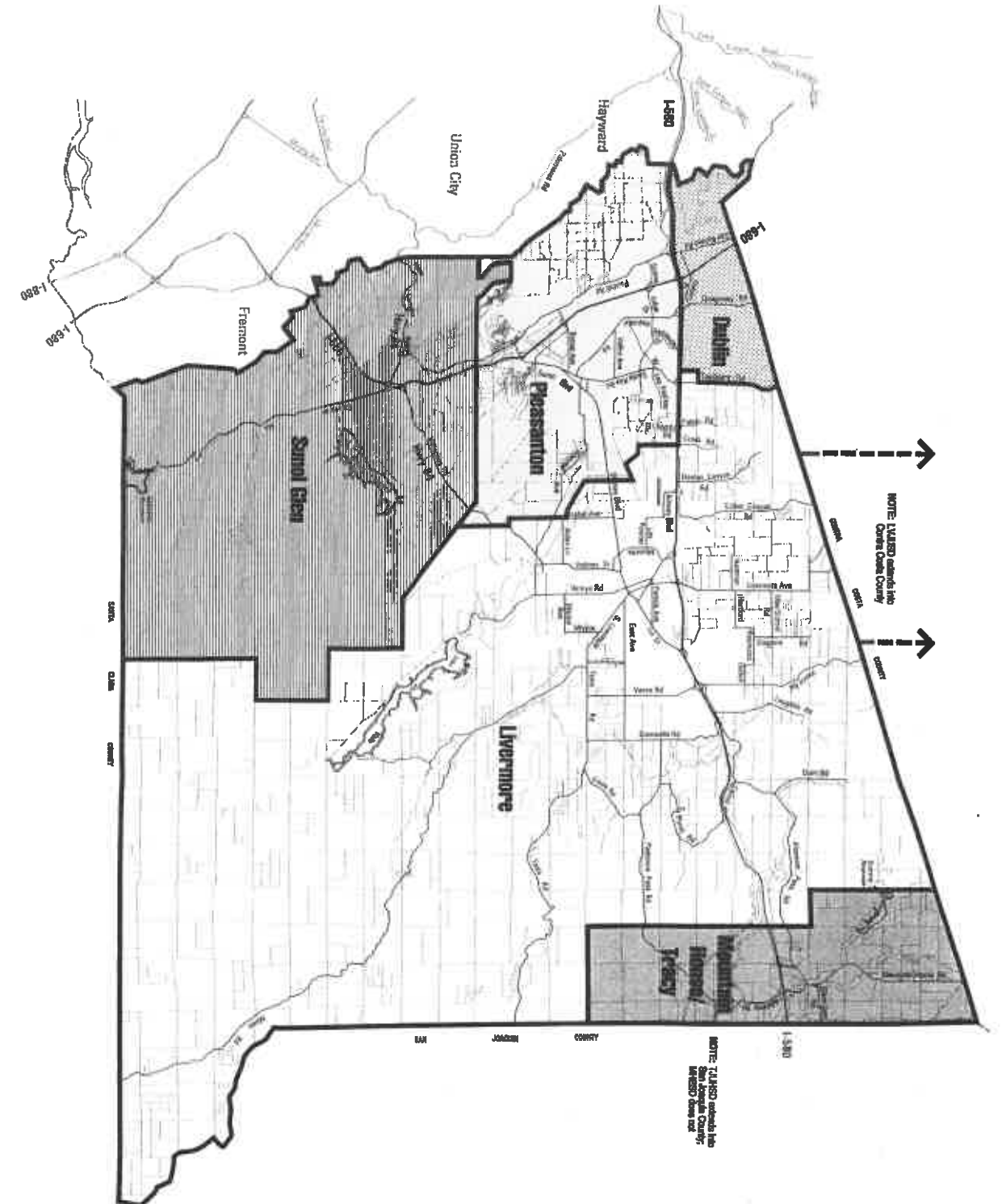
LEGEND

-  Dublin United School District (DUSD)
-  Livermore Valley Joint Unified School District (LVUSD)
-  Mountain House Elementary School District (MHESD)/Tracy Joint Union High School District (TJUHSD)
-  Presentation United School District (PUSD)
-  San Joaquin School District (SJSB)

NOTE: Presentation USD provides secondary education.

NOTE: TUSD schools are in Contra Costa County.

NOTE: TUSD schools are in Contra Costa County.



Chapter 5.18 - Child Care

A. EXISTING SETTING

Introduction

In this EIR section, "child care" refers to any care provided to children of all ages on a planned, regular basis during the portion of the day that children are not with their parents/guardians or in school. Like schools and health care, child care is an integral part of a community's infrastructure. Since child care is a service used by many people on a daily basis, local availability is particularly important and has environmental implications. Child care facilities in relation to worksites and residences affects commute patterns; when child care services are not available locally, people don't forego the service, but instead may be forced to travel further--generally during periods of heaviest traffic volumes (both AM and PM peak hours). In addition, the location of child care facilities in relation to worksites influences people's ability (or inclination) to use transit or carpooling as alternate commute methods.

Regulatory Setting

The State Assembly Office of Research estimates that half of all working mothers have children that need child care. Child care may occur in one of two general forms. It can be a formal arrangement that takes place in facilities licensed by the state or it can be an informal, private arrangement that does not require licensing. Formal child care arrangements licensed by the state can take place in family day care homes or child care centers.

Family Day Care Homes. Licensed family day care homes allow care of up to 12 children. Under state law, family day care homes with six or fewer children are a permitted use in all residential zones. In the East County, family day care homes with seven to twelve children are required to have use permits from the Cities of Livermore, Pleasanton and Dublin or, in the unincorporated areas, from Alameda County. The person applying for the day care home, or another person that might be affected by the home, may request a public hearing to allow public support of or opposition to the home. To assist family day care providers through the permit process, Resources for Family Development, (RFD) a not-for-profit resource and referral agency that advocates quality child care and consults with government and business, distributes information about permit requirements for the Cities of Livermore, Pleasanton, and Dublin. RFD does not presently provide Alameda County residents information regarding permit requirements for day care homes in unincorporated areas.

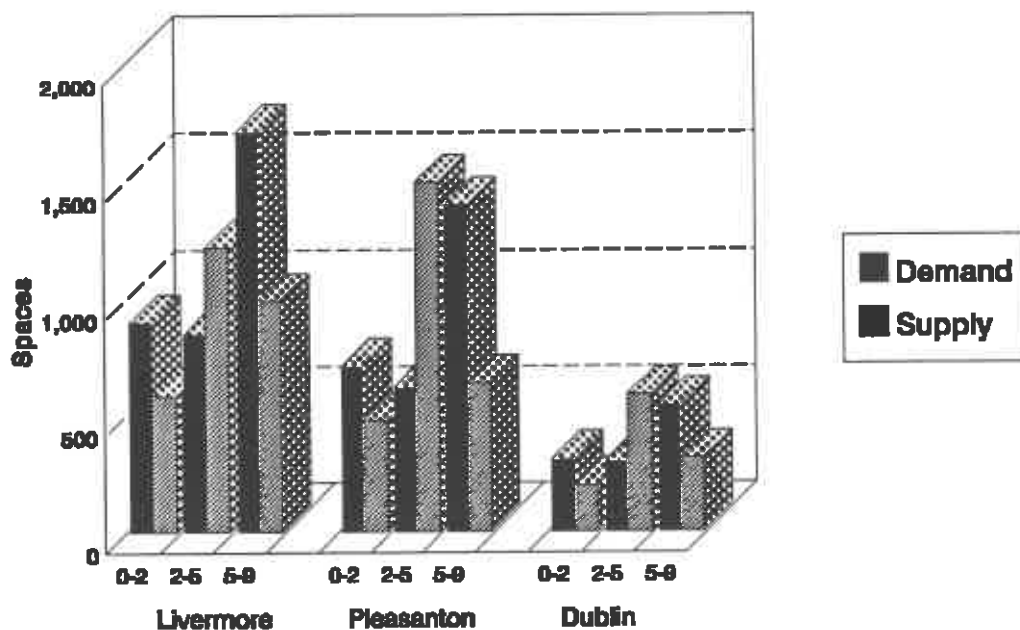
Child Care Centers. Child care centers provide care in a group setting such as a church, school, community center or other building designed or renovated for child care. This can

include infant centers, preschools, nursery schools and extended day care (such as after school) facilities. Centers are licensed by the state unless specifically exempt from licensure. Child care centers may be operated by public agencies such as school districts or cities, by non-profit organizations, or as for-profit businesses.

Availability of Existing Services

The U.S. Census reported that the East County population for persons up to nine years of age increased 23.8 percent from 1980 to reach a total of 20,108 children by 1990 (U.S. Bureau of the Census, 1990). The most recent information on child care supply and demand in the East County is summarized in the graphic below entitled "Child Care Demand and Supply by Age". As shown, the greatest number of licensed child care arrangements in these three cities is available for pre-schoolers (two to five years of age) with the least available for infants (up to two years of age). The rapid increase in population of newborns to two-year-olds in the past decade has led to a 625 space shortfall of child care for infants. Although the supply of child care for preschoolers exceeds demand in all three East County cities, when the infants become preschoolers, the shortfall could shift to the preschooler age group.

CHILD CARE DEMAND AND SUPPLY BY AGE



Source: Resources for Family Development, 1991.

As shown on Table 5.18-1, the supply of child care for before and after school falls short of meeting the need in Livermore, Pleasanton and Dublin by 1,711 spaces. The shortage of after-school care in the East County is due to the lack of an adequate number of facilities at or near schools and a means of safely transporting children between schools and child care facilities. The number of unlicensed child care providers, either informal arrangements or family day care homes and centers operating illegally without a license in the East County is unknown.

Resources for Family Development (RFD) reports that they received requests for child care referrals for 3,075 children from July 1991 to June 1992 (Leonard, 1992). Nearly three quarters of their requests for child care referrals are for children under five years old, and slightly more than half of those requests are for children under two years of age. The majority of families request child care referrals because both parents are employed. Most families request full or part-time care on a regular basis and a small portion (two percent) request night and week-end care. The majority of referral requests at RFD are for licensed family day care homes and centers with less than five percent of their requests for nanny services. In addition to requests to RFD, families seek child care for an unknown number of children through informal routes such as advertising and word of mouth.

Table 5.18-1			
Unmet Need For Before and After School Care By East County City (1991)			
	Demand ¹	Supply ²	Gap
Pleasanton	1,418	658	760
Livermore	1,720	976	744
Dublin	541	334	207
Totals	3,679	1,968	1,711
Note:	¹ Demand was calculated based on a 1985 Assembly Office of Research estimate that 50 percent of working mothers need child care.		
	² Supply includes homes and centers.		
Source:	Resources for Family Development, 1991.		

Accessibility

Most people who use child care choose facilities that are close to their home, work, their children's school, or a transportation hub. Typically, after-school care is most often needed at or near the child's school because it is difficult for parents to leave work to transport their children from their school to a child care facility. Infants and pre-school children are most likely to need care near their homes, their parent's employment, or a transportation hub.

Certain locations are particularly well-suited for new child care facilities: at or near large worksites, at transit centers, and at or adjacent to schools and neighborhood parks. Each of these locations presents an opportunity for efficiency, by reducing auto trips and/or promoting dual use of facilities (such as recreation rooms and playgrounds).

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- existing child care facilities would be inadequate to meet future child care needs
- affordable child care may not be available, especially for children with special needs
- the quality of child care may be further eroded with increased demand on already underpaid child care teachers and providers
- the location of new child care facilities could be inconvenient to working parents and incompatible with adjacent land uses.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Land Use Policies and Programs:

Policy 32: The County shall require new developments in unincorporated areas to pay their fair share of the costs for providing East County infrastructure, public facilities and services, open space, affordable housing, and child care.

Policy 49: The County shall require new unincorporated industrial, commercial, and office developments to pay their fair share of the costs for providing East County infrastructure, public facilities and services, open space, affordable housing, and child care.

Program 16: The County shall work with cities to develop a program for industrial, commercial, and office developments within incorporated and unincorporated areas to address the availability, affordability, and quality of child care.

Program 20: The County shall work with the Alameda County Economic Development Advisory Board to develop job training programs (e.g., computers, electronic technology), to improve the skills of the local labor force, and social programs (e.g., child care and job placement).

Program 21: The County shall work with cities to develop a subregional facility fee for all new East County developments within incorporated and unincorporated areas to pay their fair share of the costs for necessary future community facilities such as public hospitals, libraries, jails, child care, and cultural facilities.

Policy 131: The County shall encourage the design of new or expanding public facilities to serve as models for the community. Features that should be incorporated into public facility design include drought tolerant landscaping, energy conserving features, public art, child care, open space usable by workers and the public, and accessibility to all members of the community. The County shall investigate the potential for shared use of public facilities, such as joint use of neighborhood parks and school playgrounds.

Public Services and Facilities Policies and Programs:

Policy 200: The County shall allow development and expansion of public facilities (e.g., parks and recreational facilities; schools; child care facilities; police, fire, and emergency medical facilities; solid waste, water, storm drainage, flood control, subregional facilities; utilities etc.) in appropriate locations inside and outside the **Urban Growth Boundary** consistent with the policies and Land Use Diagram of the *East County Area Plan*.

Policy 214: The County shall support the location of school facilities adjacent to local parks and trails and shall support the shared use of school facilities with recreation, child care, and other public uses.

Policy 217: The County shall support the inclusion of child care centers in major residential and commercial developments and near transit, community centers, and schools.

Policy 218: The County shall work with the Economic Development Advisory Board to promote training for child care providers and employer use of child care benefit and information programs.

Policy 219: The County shall encourage major employers to contribute towards child care facilities and/or programs to help attract and maintain a productive work force.

Policy 220: The County shall consider the effects of major development projects on the supply of child care through the **environmental review process**, and shall require mitigation if a significant impact is identified. Mitigation may take the form of providing on-site or off-site facilities; in-lieu fees to provide facilities and/or supplement child care provider training, salaries, or information and referral services; or other measures to address supply, affordability or quality of child care.

Policy 221: The County shall support state and federal legislation to promote affordable, safe and high quality child care, and shall advocate for state subsidies to assist children with special needs.

Policy 222: The County shall encourage transit providers to serve routes linking schools, after-school child care facilities, libraries, parks, and recreational sites to facilitate mobility of school-age children.

Program 82: The County shall amend the Zoning Ordinance to include guidelines for child care centers to ensure compatibility with surrounding neighborhoods.

Program 83: The County shall inform employers of child care assistance programs (e.g., dependent care reimbursement, on-site facilities, and referral programs) for employees.

Transportation Policies and Programs:

Policy 175: The County shall require major projects to include features that promote the use of transit, bicycle, and pedestrian systems. These features could include bus turnouts, interconnected bicycle and pedestrian paths and sidewalks, and pedestrian-accessible features such as convenient local-serving retail and service uses (e.g., child care, neighborhood grocery stores, laundromats).

Program 78: The County shall work with East County cities to designate high density and high-intensity uses along major arterials and within walking distance of transit stops. The County shall work with cities to designate land near proposed BART stations for high density residential uses and personal services (e.g., child care).

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For purposes of this EIR, the proposed plan would result in a significant impact to the environment if the local supply of child care services could not meet increased demand resulting from new residential, commercial and industrial development in the planning area.

Potential Impacts and Mitigation Measures

Potential Impact 5.18-1: The existing supply of child care services would not be adequate to meet child care needs resulting from development under the plan.

Buildout of the plan would increase the East County population from the present 135,000 to 287,000 and jobs from 69,000 to 160,000. The additional people associated with residential, commercial and industrial development would result in an increased need for child care for new residents and workers with children. Existing child care facilities are inadequate to meet current needs and increased demand from implementation of the plan would significantly magnify the problem, especially for infants and school-age children. If the inability to provide salaries, benefits, and training for child care teachers continues under implementation of the plan, it would discourage child care providers from coming to and staying in the East County, thus compounding the problem of providing quality child care in the planning area.

Plan Policies and Programs: Policies and programs listed above and summarized here would mitigate the potential impacts of the plan on child care facilities. These policies and programs include requiring developers of residential, commercial, industrial and office properties to pay their fair share of the costs of child care associated with their developments and requiring major development projects to implement measures to address the impacts of their developments on child care supply (policies 32, 49 and 220). Furthermore, the plan includes provisions for the County to work with cities to develop a program in which developments would address the availability of child care (program 16). Under the plan, the County would work with the Economic Development Advisory Board to promote employer use of child care benefit and information programs (policy 218). The County would also encourage major employers to contribute towards child care facilities and/or programs to attract and maintain a productive work force (policy 219).

Child care must not only be available to meet increased demand resulting from development under the plan; child care facilities should be appropriately located to minimize travel between home, child care and worksite. Incorporation of child care facilities in employment centers, mixed use developments, public facilities, transit centers, and other suitable locations is encouraged in policies 131, 214 and 217. Policy 222 encourages transit providers to serve routes linking schools, after-school care facilities, libraries, parks and recreation sites to facilitate mobility of school-age children.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact on child care supply would result.

Mitigation Measure 5.18-1: None needed.

Although no mitigations would be needed, the following modification would strengthen policy 218 (new language is shown in *italics*; deleted language is ~~struck-out~~):

Proposed Modification to Policy 218: The County shall work with the Economic Development Advisory Board *and local resource and referral agencies* to promote training for child care providers and employer use of child care benefit and information programs.

SOURCES

Alameda County Department of Health, *1990 Resident Births: Table 48 (Age of Mother by City)*, August 6, 1991.

Alameda County Health Care Services Agency, Maternal and Child Health Services Division, telephone communication, March 5, 1992.

Bateson, Heather, Client Advocate, Valley Family Shelter, Family Crises Center, telephone communication, August 6, 1992.

Bureau of the Census (U.S. Department of Commerce), 1990.

Chan, Charles, Research Analyst, State Department of Health Services, Health Data and Statistics Branch, telephone communication, March 13, 1992.

Darrah, Rory, Alameda County Child Care Specialist.

Hayes, Rita, Director, Alameda County Child Abuse Council, telephone communication, March 5, 1992.

Emergency Services Network, Homelessness in Alameda County. 1990 Composite Profiles, 1990.

Jacome, Gloria, Curriculum and Instruction, Alameda County Office of Education, telephone communication, March 16, 1992.

Leonard, Sally, Resource and Referral Coordinator, Resources for Family Development, telephone communication, February 19, 1992 and July 21, 1992.

Meier, Helen, Executive Director, Tri-Valley Haven for Women, telephone communication, August 5, 1992.

Miller, Miriam, Director, Resources for Family Development.

Resources for Family Development, The 1991 Annual Report on Child Care in the Valley, 1991.

Street, Valerie, Alameda County Homeless Shelter Coordinator, telephone communication, March 16, 1992.

\\home\plan\air\chpt5-18.dsp

Chapter 5.19 - Police, Fire and Emergency Medical Services

A. EXISTING SETTING

POLICE PROTECTION

Police protection for the unincorporated portion of the planning area is the responsibility of the Alameda County Sheriff's Department; police services for the incorporated areas are provided by the police departments in each city. The California Highway Patrol, operating out of its Dublin office, has responsibility for traffic law enforcement on state highways and unincorporated roads. Summary information relating to the individual agencies can be found below.

Alameda County Sheriff's Department

The Alameda County Sheriff's Department currently provides police services for the unincorporated planning area. All emergency vehicles (fire and police vehicles, and ambulances) are dispatched from the Alameda County Sheriff Department's central switchboard. The planning area is included in a patrol beat that covers approximately 320 square miles. The Sheriff's Department has assigned two patrol cars with one officer each to the day shift, and one patrol car with two officers to the night shift. The closest station to the planning area is the Eden Township Substation in San Leandro, 15 miles west of the planning area. Response time to the planning area varies depending on factors such as location of the patrol car in relation to the site of the call and amount of traffic. Thirty minute response times are not uncommon due to the large distances traveled. Under mutual aid agreements, if an urgent call comes in and the County Sheriff's Department officer is at an extended distance from the call, police from the cities of Livermore or Pleasanton, or the California Highway Patrol, would respond to the call until a Sheriff's officer arrived.

The Sheriff's Department aims to maintain a service ratio of 1.0 officers/thousand people. Currently, the Department is operating with a service ratio of .86 officers/ thousand people.

City of Dublin Police Department

The Dublin Police Department provides police services to the City of Dublin. The Dublin Police Department is a division of the Alameda County Sheriff's Department which provides police services to the City through a contractual service agreement between the City of Dublin and County of Alameda. Police department personnel are employed by the County Sheriff's Department. The police department is a full service operation with the exception of dispatch operations, which are provided through the Sheriff's Department Eden Township

Substation in San Leandro. The City has one police station located at the Dublin Civic Center.

The Dublin Police Department operates a three shift schedule with a maximum average of five officers and one sergeant per shift. The department recently added two new complementary narcotics and crime prevention positions to its staff. One position is for drug education and the other position is for drug enforcement. The optimum police-to-population ratio is 1.4 police officers per 1,000 people. The current ratio is 1.2 police officers per thousand people.¹ Response time is approximately five minutes. The city is not divided into patrol sectors and is patrolled as one beat.

City of Livermore Police Department

The Livermore Police Department (LPD) provides police services within Livermore city limits. The Department occupies one police station on South Livermore Avenue. The City of Livermore is in the process of planning for a new station capable of accommodating additional personnel. The LPD operates four patrol beats with one officer assigned per shift to each beat. An additional beat is being considered by the Department to respond to growth in the area north of I-580. The LPD currently uses the following personnel generation factors: an additional 1.25 sworn officers and 0.70 non-sworn employees per 1,000 person increase in population. However, LPD is currently operating below this optimum standard with 1 police officer per thousand people and .5 non-sworn personnel per thousand people.

City of Pleasanton Police Department

The Pleasanton Police Department provides police services within City of Pleasanton city limits. In 1990, there were 1.37 sworn officers per 1,000 population. Call response time averages 3.2 minutes for emergencies and 21.4 minutes for overall response time. The City Council determines short-term Police Department personnel needs each year.

See Table 5.19-1 for existing service ratios for police protection in the East County's three cities and unincorporated area.

¹ Telephone communication with Lieutenant Gomes, Dublin Police Department, January 27, 1993.

TABLE 5.19-1

East County Police Protection - 1990

City	Population	Service Ratio Standard (Officers per 1000 Population)	Sworn Officers	Existing Service Ratio
Dublin	23,229	1.4	28	1.2
Livermore	56,741	1.25	56	1.0
Pleasanton	50,553	1.37	69	1.37
Unincorporated	5,066	1.0	4	.86
Source: Alameda County Planning Department; Dublin, Livermore, and Pleasanton Police Departments				

FIRE PROTECTION

Fire protection for the western unincorporated portion of the planning area is provided through a contract with the California Division of Forestry; the eastern unincorporated portion of the planning area is served by the Alameda County Fire Department (formerly the Alameda County Fire Patrol). The cities of Livermore and Pleasanton have their own fire protection services within city limits; the City of Dublin operates the Dougherty Regional Fire Authority in conjunction with the City of San Ramon. Summary information relating to these agencies can be found below; the boundaries of each fire district can be seen in Figure 31 in the Background Reports (*Draft East County Area Plan - Volume 2*).

Alameda County Fire Department

In April 1993, as the culmination of a three year study, LAFCO approved a consolidation of three of the County fire protection units--the Castro Valley and Eden Fire Protection Districts and the County Fire Patrol--into a single entity called the Alameda County Fire Department (ACFD). The Alameda County Board of Supervisors approved the consolidation on May 25, 1993. This reorganization will eliminate the duplicative and cumbersome administrative structure of the existing fire protection services. Sunol, Castlewood and other unincorporated areas near Pleasanton will continue to receive fire services under contract with various agencies, but will be part of the consolidated district, and the contracts would be administered by the ACFD; Fairview Fire Protection District is excluded from the consolidation. The Cities of San Leandro and Union City are considering the possibility of joining the consolidated district. At this time, consolidation is 80% complete. The new district will retain all eight of the existing fire stations.

The ACFD provides structural fire protection services and emergency medical services to the unincorporated planning area. The ACFD provides wildland fire protection services on the valley floor; above the valley floor the California Division of Forestry has jurisdiction. ACFD has one fire station in the planning area, Station 8, located on College Avenue in Livermore. The station was constructed in 1950 and is considered to be in fair condition. Current staffing levels for Station 8 include 9 firefighters, 3 captains, and one fire chief. By the end of the transition period, the proposed staffing levels for Station 8 include 6 firefighters, 3 engineers, 3 captains, and either an administrative captain or a battalion chief. Average response times within five miles of Station 8 average approximately 8 to 10 minutes. Homes within five miles of a fire station have a fire insurance rating of 9; homes beyond 5 miles have a fire insurance rating of 10, which indicates little or no fire protection. ACFD has a mutual aid agreement with the Twin Valley mutual aid system, that is comprised of the Cities of Pleasanton and Livermore Fire Departments, the Dougherty Regional Fire Authority and Lawrence Livermore National Laboratory Fire Department. For major disasters, ACFD is part of a larger countywide mutual aid system.

California Division of Forestry

The California Division of Forestry (CDF) is responsible for fire protection services in the western portion of the unincorporated area and areas above the valley floor of the Livermore-Amador Valley. CDF's local fire-fighting station, the Sunol Forest Fire Station on Pleasanton-Sunol Road, houses one engine year-round and provides structural and wildland fire protection, and emergency medical services on a contract basis. The contract is currently administered by the Board of Supervisors, but will be administered by the ACFD upon completion of consolidation. During the fire season, which generally extends from mid-May through the end of October (although it varies from year to year depending on the amount of rainfall and prevailing temperatures), the station receives additional staffing and equipment. When there is a call for fire services, the ACFD is usually the first department to arrive on the scene, when the CDF arrives it takes command of the situation if the fire is located in its jurisdiction. The CDF usually responds with six pieces of equipment, 5 engines, one bulldozer, and if necessary, air support.

Dougherty Regional Fire Authority (City of Dublin)

The Dougherty Regional Fire Authority (DFRA) is a joint powers authority operated by the cities of Dublin and San Ramon. The DFRA serves the entire City of Dublin but only a portion of San Ramon. It serves a total population of approximately 43,000. The DFRA operates from two fire stations, one located in Dublin on Donahue Drive, and the other in San Ramon on Firecrest Lane. The Authority employs a fire-fighting staff of 43, and is equipped to respond to both structural and wildland fires (it also has the capacity to respond to medical calls). Currently, the DFRA operates with a ratio of approximately 1 fire fighter per thousand population.

City of Livermore Fire Department

The Livermore Fire Department provides fire protection and fire fighting services within the city limits of Livermore. The Department has four stations in the city with a fire-fighting staff of 70 persons. There are a minimum of 14 fire-related staffpersons on duty at any given time.

City of Pleasanton Fire Department

The Pleasanton Fire Department provides fire protection and fire-fighting services within Pleasanton city limits. The Department currently has 53 fire fighters which is adequate to meet its response time standard of five minutes. The Department currently maintains three fire stations; a fourth is planned for the southwest portion of the city, but is presently unfunded.

Mutual Aid Agreement

A mutual aid agreement for the Livermore-Amador Valley includes the Alameda County Fire Department, Livermore Fire Department, Pleasanton Fire Department, Dougherty Regional Fire Authority, and Livermore Laboratory fire protection service. This arrangement provides necessary backup in case of large fires or multiple calls in which one agency would be unable to meet the demands for service.

Insurance Ratings

A measure of the level of fire protection found within fire service districts is provided by the Fire Insurance Class Rating. This rating is assigned by the State Insurance Services Office to establish the fire insurance rates paid by local residents and businesses. Ratings range from 1 (best) to 10 (worst) and are based on factors such as water supply, equipment, personnel, operations, communications systems, response time, distance of stations, and presence or absence of fire hydrants.

Wildland Fires

A combination of highly flammable vegetation, steep slopes, and long, dry summers (often with high wind conditions) creates a significant threat of large wildland fires in the East County. This threat is greatly exacerbated by the large number of people who live, work and recreate in these areas, as wildland fires are usually caused by human activities such as equipment use or smoking.

Once a wildland fire has been ignited, its progression is affected by three environmental factors: fuel loading, climate and topography. Fuel loading is a function of the quantity and type of vegetation available for burning. The main climatic determinants for wildland fires are wind speed, temperature, and relative humidity. Topography influences wildland fire behavior and the ability of firefighters to suppress fires once they occur. Fires tend to burn

more rapidly upslope than down, and the steeper the slope the more rapidly the fire spreads. Steep slopes also contribute to the channeling effects of winds, increase travel times for fire vehicles, and restrict available firefighting methods.

The California Department of Forestry (CDF) has developed a Wildland Fire Severity Scale which defines fire hazard categories based on a combination of the environmental factors mentioned above. "Moderate" hazards are generally found in grasslands, where fires burn with fairly low heat and are relatively easy to control; this is the most common hazard level in the East County. "High" hazards tend to be found on hillier terrain; not surprisingly, this hazard level is found throughout the mountainous southern portion of the planning area. No "low" or "extreme" hazard areas exist in the East County as currently mapped. Refer to Figure 32 in the Background Reports (*Draft East County Area Plan - Volume 2*) for fire hazard mapping of East County.

The potential for large, uncontrollable wildfires has been increasing throughout California and the planning area. California's explosive population growth in recent decades has been accompanied by increasing human presence in wildland areas. Development has altered the physical composition of these areas, intensifying wildland use through the construction of homes, cabins, subdivisions, resorts, recreational facilities, businesses, etc. The expansion of such uses into wildland areas has exacerbated their already-high fire potential, and increased the danger to adjoining communities as well. The applicability of this danger to the Bay Area was evidenced by the catastrophic Oakland/Berkeley firestorm of 1991.

Since 90 percent of all wildland fires in California are human in origin, it is hardly surprising that increased development in wildland areas has increased the hazard level. However, expansion of the urban/wildland interface has also augmented fire risks in a more indirect sense. As more and more people move to wildland areas, fire suppression efforts prevent smaller, naturally-occurring fires from taking place. As a result, more and more natural fuel piles up in these areas--fuel which would have, in all probability, been burned away had the land been left undeveloped.

Fire Safety Guidelines/Plans

Alameda County Fire Protection Master Plan. The County's *Fire Protection Master Plan*, adopted by the Board of Supervisors in February 1992, made several recommendations designed to improve the efficiency and effectiveness of fire services. In addition to recommendations for reorganization and consolidation, which have since been implemented, the *Master Plan* makes the following recommendations:

- . The identification and adoption of service level standards for fire protection and emergency medical response.
- . An improvement of service levels in portions of the East County.

- A proposal to contract with the Cities of Livermore and Pleasanton to improve emergency response services in the areas currently served by the County Fire Patrol.
- Establishment of an advisory committee to explore consolidation possibilities for the Livermore Valley and Sunol. The recommended alternative is that a contract be developed with the cities of Livermore and Pleasanton for emergency response services in the areas currently served by the County Fire Patrol.

It also proposes the implementation of risk management programs such as fire-resistant construction, code enforcement, fire safety education and built-in fire protection systems. The plan includes a set of "Wildland Fire Safety Requirements", which have been developed as guidelines but have not been adopted by ordinance.

Fire Safety Guide for Residential Development in California. This guide, developed by CDF, focuses on wildland development in fire hazardous areas. It includes fire safety standards which apply to all State Responsibility lands in California (including the CDF-administered portion of the planning area) but are not mandatory in other parts of the state.

Hazard Mitigation Plan for Fires in the Unincorporated Areas of Alameda County. This plan was prepared in the aftermath of the catastrophic Oakland/Berkeley firestorm as one of the conditions for receiving federal disaster aid. Included in the plan are a number of specific projects aimed at mitigating fire hazards in unincorporated Alameda County.

EMERGENCY MEDICAL SERVICE

Alameda County Emergency Medical Services (EMS) currently oversees provision of emergency medical services throughout the East County. While EMS does not provide the service directly, it organizes and contracts for services to ensure that all jurisdictions are served according to approved standards. EMS contracts with numerous ambulance companies according to need and ensures that emergency units respond to 90% of calls within eight minutes. On average, the East County currently has three ambulances in service at any one time. They are distributed as needed to meet the eight minute standard. EMS provides fire districts with basic life support training and equipment. While basic emergency service provided by the fire department must arrive within five minutes, ambulance paramedics generally arrive up to three minutes later.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan* identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth

projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- new development in the East County will increase demand for police, fire and emergency medical services, facilities and equipment
- new development may not generate adequate revenue to maintain optimal service ratios and/or provide service within established response times
- increased development and population in the planning area could result in an increase in urban and rural fire hazards

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Phasing Policies

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Program 9: The County shall work with cities to develop a subregional **Master Plan** for public facilities, services, and amenities for East County, similar to Pleasanton's Municipal Facilities Master Plan. The Master Plan shall address the potential for shared use of public facilities, such as joint use of neighborhood parks and school playgrounds.

Policy 29: The County shall approve Major New Urban Developments only if they are consistent with the performance guidelines, the level of service guidelines, and the urban design guidelines, and only if they will not impose a fiscal burden on the County or cities.

Development Fee Policy

Policy 32: The County shall require new developments in unincorporated areas to pay their fair share of the costs for providing East County infrastructure, public facilities and services, open space, affordable housing, and child care.

General Residential Use Policy

Policy 46: The County shall require all new residential development to meet County standards for adequate road access, sewer and water facilities, fire protection, building envelope location, visual compatibility, and public services.

Industrial/Commercial Office Use Policy

Policy 49: The County shall require new unincorporated industrial, commercial, and office developments to pay their fair share of the costs for providing East County infrastructure, public facilities and services, open space, affordable housing and childcare.

Hazard Zones

Policy 125: The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.

Infrastructure and Services Policies

Policy 200: The County shall allow development and expansion of public facilities (e.g., parks and recreational facilities; schools; child care facilities; police, fire, and emergency medical facilities; solid waste, water, storm drainage, flood control, subregional facilities,; utilities etc.) in appropriate locations inside and outside the Urban Growth Boundary consistent with the policies and Land Use Diagram of the *East County Area Plan*.

Policy 201: Basic urban services should normally be provided by cities and other existing public service agencies.

Policy 202: The County shall work with the City of Livermore to provide urban services to serve a population of at least 45,000 in North Livermore. If Livermore chooses not to provide services for such a population, the County shall provide urban services.

Police, Fire and Emergency Medical Service Policies

Policy 223: The County shall provide effective law enforcement, fire, and emergency medical services to unincorporated areas.

Policy 224: The County shall reserve adequate sites for sheriff, fire, and emergency medical facilities in unincorporated locations within East County.

Policy 225: The County shall require new developments to pay their fair share of the costs for providing police, fire, and emergency medical services and facilities.

Policy 226: The County shall require Major New Urban Development to meet the Level of Service standards for police, fire, and emergency medical service.

Policy 227: The County shall require that new developments are designed to maximize safety and security and minimize fire hazard risks to life and property.

Policy 228: The County shall adhere to the provisions of the Alameda County *Fire Protection Master Plan*.

Policy 229: The County shall limit development to very low densities in areas where emergency medical response times will average more than 15 minutes.

Fire Hazards

Policy 294: The County shall limit residential development to very low densities in high fire hazard zones as identified by the Fire Hazard Severity Scale.

Policy 295: The County shall adhere to the provisions of the Alameda County *Fire Protection Master Plan* and *Fire Hazard Mitigation Plan*.

Policy 296: The County shall consider, in reviewing development projects and subdivision of agricultural lands, the severity of natural fire hazards, potential damage from wildland and structural fires, the adequacy of fire protection services, road access, and the availability of adequate water supply and pressure.

Policy 297: The County shall require all new homes in rural residential areas that are located in high fire hazard areas to be sited and designed to minimize risks to life and property.

Policy 298: The County shall support fire service agencies in maintaining and improving existing Insurance Safety Organization (ISO) ratings.

Policy 299: The County shall refer development applications to the County Fire Patrol, or local fire district, for review and recommendation.

Policy 300: The County shall require the use of fire resistant building materials, fire-resistant landscaping, and adequate clearance around structures in high fire hazard zones.

Program 111: The County shall develop wildland fire regulations including site criteria, building setbacks, construction standards, minimum road widths, maximum road grades, and evacuation routes.

Program 112: The County shall prepare a comprehensive wildland fire prevention program including fuelbreaks, brush management, controlled burning, and access for fire suppression equipment.

Program 113: The County shall prepare a disaster response plan for buildings exceeding three stories (or 30 feet, whichever is less), public assembly facilities, and facilities housing dependent populations.

Table 7 of the Plan - Level of Service Guidelines for Major New Urban Development

Police, Fire, and Emergency Medical Services: A maximum 5 minute response time for Priority One Emergency calls for service.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For purposes of this EIR, the proposed plan would result in a significant impact to the environment if demand for police, fire and emergency medical services exceeded the ability of the respective department to provide the service in accordance with established service ratios and/or within established response times.

Potential Impact 5.19-1: Implementation of the plan would result in increased demand for police services, which could exceed the ability of existing police and sheriff departments' personnel to provide service in accordance with established service ratios and/or within established response times.

Under the proposed plan, the population of the planning area would more than double, growing from a current population of 135,000 to 287,000. This increase in population would lead to an associated increased demand for police and sheriff department services. Buildout of each city's adopted general plan is assumed under the proposed plan, leading to an increase in population within current city general plan planning areas of about 43,000 people.

Major new urban development would occur in the East Dublin and North Livermore subareas. Buildout of these areas would add more than an additional 100,000 people. It is anticipated that new development in East Dublin would be annexed to the City of Dublin; however, it is possible that North Livermore will be developed as an unincorporated area. Should the latter occur, the County Sheriff's Department would retain responsibility for providing law enforcement services to this area resulting in a significant demand for new personnel. If North Livermore is annexed to Livermore, population in the unincorporated area is expected to decline. If North Livermore is not annexed to Livermore, the County Sheriff's Department would require approximately 62 additional officers to provide adequate law enforcement services for this new unincorporated community.

Achievement of the plan's buildout capacity would require a total of 260 new police officers and personnel: 57 new officers would be required in the City of Dublin; 44 new officers would be required in the City of Pleasanton and, if North Livermore is annexed to Livermore, 159 new personnel (102 sworn officers and 56 non-sworn personnel) in the City of Livermore.

Plan Policies and Programs: The proposed *East County Area Plan* is designed so that development approval will be phased depending upon the availability of required services (policy 13). Under the plan, the County will work with cities and service districts to plan

adequate infrastructure capacity and to develop a subregional Master Plan for public facilities, services and amenities (program 9). To ensure that public services are adequately funded, the plan requires that new developments pay their fair share of the costs for providing police, fire and emergency medical services and facilities (policies 32 and 225).

As indicated in policy 29, the County will only approve a Major New Urban Development if it is consistent with level of service guidelines contained in Table 7 of the plan. Further, policy 29 indicates that Major New Urban Development can only be approved if it does not impose a fiscal burden on the County or cities. With respect to services in Major New Urban Development Areas, plan policies require compliance with the five minute maximum response time for police, fire and emergency medical service for Priority One Emergency calls (policy 226). Policy 229 indicates that the County would limit development to very low densities in areas where emergency medical response times would average more than 15 minutes.

Plan policies also account for two possible scenarios that affect provision of services. The two areas where most of the development would occur are East Dublin and North Livermore. In policy 201, the plan indicates that basic urban services should normally be provided by cities and other existing public service agencies. The plan anticipates that East Dublin will be annexed to the City of Dublin and that the city will provide the needed services. For North Livermore, policy 202 indicates that the County will work with the City of Livermore to provide urban services to serve a population of at least 45,000. If Livermore chooses not to provide services for such a population, policy 202 indicates that the County would provide the required services. Detailed development plans are required for these Major New Urban Development projects (policy 27).

Together, these policies and programs are designed to ensure that the plan is largely "self-regulating": with respect to Major New Urban Developments, development cannot be approved if performance standards for services are not met. With respect to other development, the County is required to phase development in accordance with infrastructure availability.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact to police and sheriff services would result.

Mitigation Measure: None needed.

Potential Impact 5.19-2: Implementation of the plan would result in increased demand for fire services, which could exceed the ability of existing fire protection agencies' personnel to provide service in accordance with established service ratios and/or within established response times.

As noted in the previous police service analysis, the population of the planning area would more than double under the plan, growing from a current population of 135,000 to 287,000.

This increase in population would lead to an associated increased demand for fire department services, facilities, and equipment. It is anticipated that most new development would be annexed to currently incorporated areas in which case fire services would be provided by the cities. North Livermore, however, may be developed in the unincorporated portion of the County. Should the latter occur, the County would retain responsibility for providing fire services to this area and the demand for County fire services would increase.

Implementation of the plan would require expansion of existing fire service agencies and departments to serve an additional population of about 151,000. Assuming that one fire fighter would be required for every thousand people, approximately 151 additional fire fighters would be required within the incorporated cities: 40 new fire fighters would be required in Dublin; 19 new fire fighters in Livermore (81 if North Livermore is annexed); and 32 new fire fighters in Pleasanton.

If North Livermore remains unincorporated, it is estimated that developers would need to provide funds for the construction of up to four fire stations and for fire engines to be used at these stations to serve the buildout population.² If North Livermore were to annex to Livermore, demand for the services of the Alameda County Fire Department and the California Division of Forestry would not be projected to increase under the full buildout scenario. Average response time to fires in rural areas is already significantly longer than in urbanized sections of the planning area; this situation is unlikely to change with the proposed plan.

Policies and Programs: Under the plan, basic urban services would be provided by cities and other existing public service agencies (policy 201). It is assumed that cities would not annex new development without the intention to provide adequate services to that development in accordance with city standards. In the case of new urban development in North Livermore, policy 202 states that the County will provide services if the City of Livermore "chooses not to provide services for (a population of at least 45,000)". The plan indicates that the County would only approve development if it can meet designated public service performance standards and would not impose a fiscal burden on the County or cities (policy 29). In the unincorporated area, all new development would be required to pay its fair share of costs to provide public services (policies 32 and 49). The plan also requires that the County adhere to the provisions of the *Alameda County Fire Protection Master Plan* which includes reorganizing the existing fire protection system (already accomplished) and improving service levels in portions of the East County (policy 228).

Level of Significance: With implementation of proposed plan policies and programs, no significant impact to fire services would result.

Mitigation Measure 5.19-2: None needed.

²Telephone communication, Mr. Hollis Franks, Alameda County Fire Patrol, March 31, 1993.

Potential Impact 5.19-3: The risk of wildland fires could increase as a result of new development and increased population.

Under the Plan, some population growth could occur in unincorporated portions of the East County (the projected number of homes in unincorporated areas in the year 2010 would only increase by 170 over 1990 figures), but it would be minimal given the land use categories designated for these areas. Much of the "high" fire hazard area is covered by regional parks and publicly-owned water management lands. Virtually all of the remaining land is classified as either "Large Parcel Agricultural" or "Resource Management". The Plan allows for subdivision of "Large Parcel Agricultural" lands where it can be shown that such action would not interfere with the ability to initiate or continue agricultural uses on-site or in adjacent parcels. Subdivision of "Resource Management" lands will be permitted where such action would not adversely affect watershed or biological resource protection objectives. A minimum parcel size of 100 acres will be retained for both land use categories, and larger parcel sizes may be required where conditions warrant.

Still, the potential increase in 170 homes scattered throughout the remote areas of East County could result in decreased service levels, strain on existing facilities and equipment, higher risk for wildland fires, and exposure of more people to wildland fire risk. Average response times in these areas is already significantly longer than in urbanized sections of the planning area; this situation could be exacerbated if new homesites are created without incorporating preventive measures.

The portions of the East County that are most susceptible to wildland fire are in the uplands surrounding the Livermore-Amador Valley. Of particular note are the southern reaches of the planning area--the only portion of the East County which CDF places in the "high" fire hazard category. (The rest of the planning area is classified as "moderate"; no "extreme" hazards levels are found in the East County as currently mapped). Under the plan, some population growth could occur in these upland areas through subdivision of parcels, but it would be minimal by virtue of their land use classifications. However, any increased human presence and activity would inevitably augment fire risks to some extent, and approval of new homesites and other non-urban development in remote areas could increase the number of people living in "high" fire hazard areas.

Policies and Programs: Policies 223-226 ensure that new development in the planning area will be accompanied by fire protection services that are sufficient to support the needs of a larger population. These policies require the County to provide effective fire services to unincorporated portions of the planning area, and mandate that the County reserve adequate sites for fire protection facilities.

Policy 295, which requires adherence to the County's *Fire Protection Master Plan* and *Fire Hazard Mitigation Plan*, is also relevant in that the two plans reflect much of the progress that has been made in the understanding of fire hazards. The latter document, in particular, incorporates many of the latest techniques in this area (new prevention measures, fire-

fighting techniques, wildland management concepts, etc.); utilization of these techniques will help to diminish the potential impact of new development in wildland areas.

Policies 296, 297 and 299 require that new development address a variety of factors relating to fire hazards, and that development applications be reviewed by local fire agencies. Policy 125 mandates that the County approve new development in potential fire hazard areas only if the risk can be reduced to acceptable levels. Policy 300 specifically addresses wildland fire hazards, requiring the use of fire-resistant building materials and landscaping, and adequate clearance around structures in high fire hazard zones. Also significant in mitigating any potential impacts are programs 111 and 112, which provide for the establishment of wildland fire regulations and a wildland fire prevention program.

Level of Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.19-3: None needed. While no mitigation is necessary, the following modification would clarify the Plan policies relating to "high fire hazard areas" (new language is in *italics*; deleted language is ~~struck-out~~):

Proposed Modification to Policy 297: The County shall require all new homes in rural residential areas that are located in ~~high fire hazard areas~~ *"high" and "extreme" fire hazard areas* to be sited and designed to minimize risks to life and property.

Proposed Modification to Policy 300: The County shall require the use of fire resistant building materials, fire-resistant landscaping, and adequate clearance around structures in ~~high fire hazard zones~~ *"high" and "extreme" fire hazard areas*.

Potential Impact 5.19-4: Implementation of the proposed plan would result in increased demand on emergency medical services, which could exceed the ability of existing personnel to provide the service within established response times.

Achievement of the plan's buildout capacity would roughly double demand for emergency medical services. Emergency medical services are coordinated at a county-wide level based on population and response time. Currently, three ambulances are stationed within the East County at any one time. It is estimated that six to seven ambulances would be required to serve the buildout population.³ The city fire departments, which are the first service providers to arrive on the scene of medical emergencies, would also require additional emergency medical equipment and training.

³Telephone communication and correspondence, Diane Akers, Assistant Administrator, Alameda County Health Care Services Agency, March 9, 1993. Estimate assumes that 1 ambulance is required per 45,323 residents.

Policies and Programs: As indicated under the discussion of impacts to police and fire services, the *East County Area Plan* policies are designed to ensure adequate provision of services. The plan requires that development be phased according to the availability of infrastructure and public services so that a high degree of predictability exists for planning infrastructure and services (policy 13). The plan also requires adequate sites for sheriff, fire and emergency medical facilities be reserved and that new developments pay their fair share of the costs for providing police, fire and emergency medical services and facilities (policies 224 and 225). Emergency response is also enhanced by program 113 which calls for the County to prepare a disaster response plan for public facilities. With respect to Major New Urban Developments, Table 7 requires that a maximum 5-minute response time be met for such developments. Pursuant to policy 29, such developments cannot be approved unless they are consistent with this standard.

Level of Significance: With implementation of plan policies and programs, impact to emergency medical services would be less than significant.

Mitigation Measure 5.19-4: None needed.

SOURCES

Alameda County, Fire Protection Master Plan, prepared by Fire Loss Management Systems, 1992.

Alameda County, Hazard Mitigation Plan for Fires in the Unincorporated Areas, 1992.

Alameda County, Ruby Hill General Plan Amendment EIR, prepared by EIP Associates, November 1989.

California Department of Forestry and Fire Protection, A Discussion of the County General Plan and the Role of Strategic Fire Protection Planning, 1989.

California Department of Forestry and Fire Protection, Fire Safety Guides for Residential Development in California, 1980.

City of Livermore, North Livermore General Plan Amendment, Environmental Impact Report, prepared by Environmental Science Associates, January 1992.

City of Dublin, West Dublin General Plan Amendment Specific Plan Study, prepared by WPM Planning Team, Inc., November 1989.





City of Dublin, East Dublin General Plan Amendment/Specific Plan Studies, Environmental Setting, Work Task 9, prepared by Wallace, Roberts & Todd, November 1988.

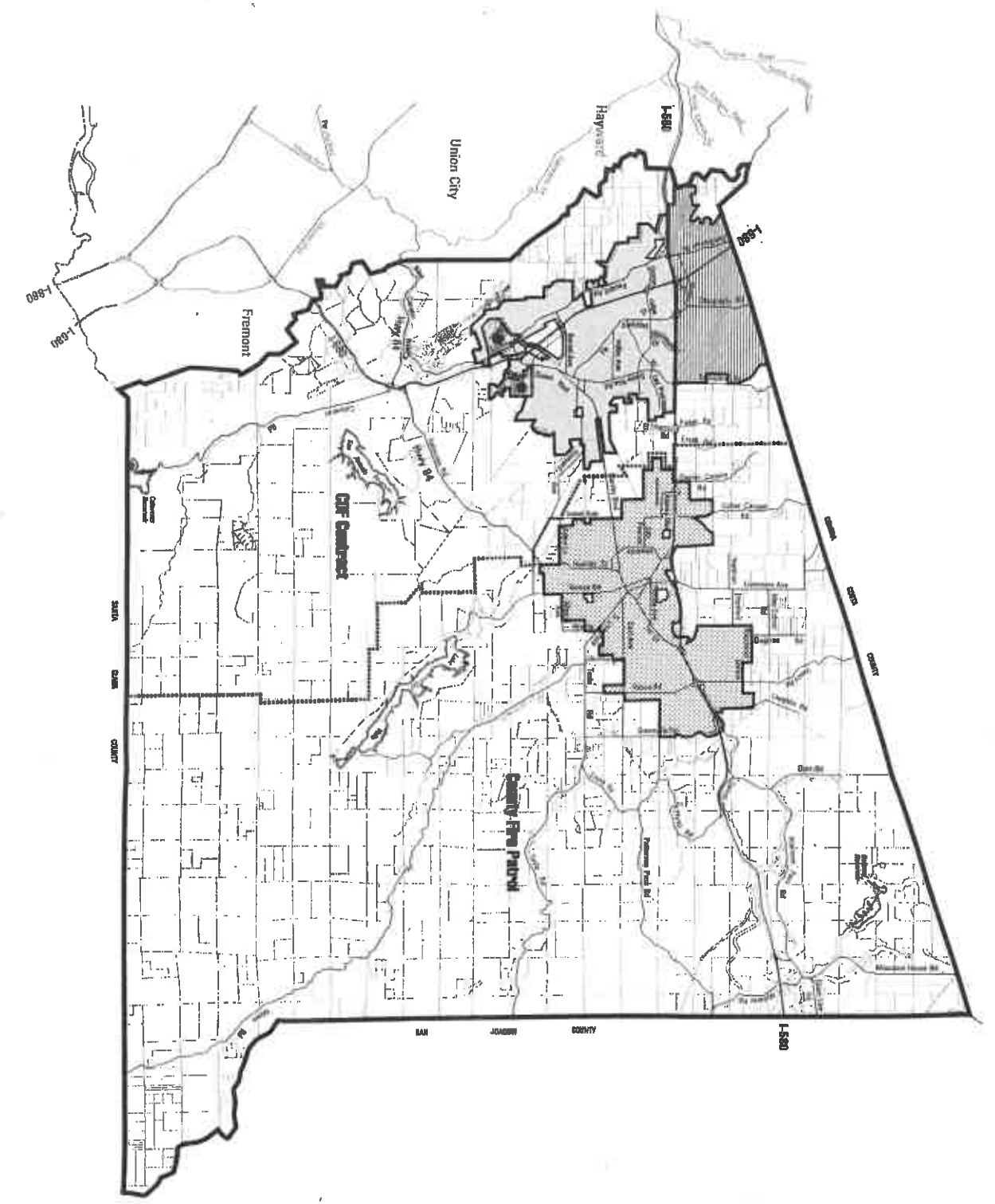
City of Pleasanton, Growth Management Report, 1991.

Hazard Mitigation Team, Hazard Mitigation Report for the East Bay Fire in the Oakland-Berkeley Hills, 1991.

\\home\plan\eir\chpt5-19.nhd

Fire District Boundaries

- LEGEND**
-  Dougherty Regional Fire Authority Area
 -  City of Livermore Fire Department
 -  City of Pleasanton Fire Department
 -  Services Contract with Pleasanton Fire Department



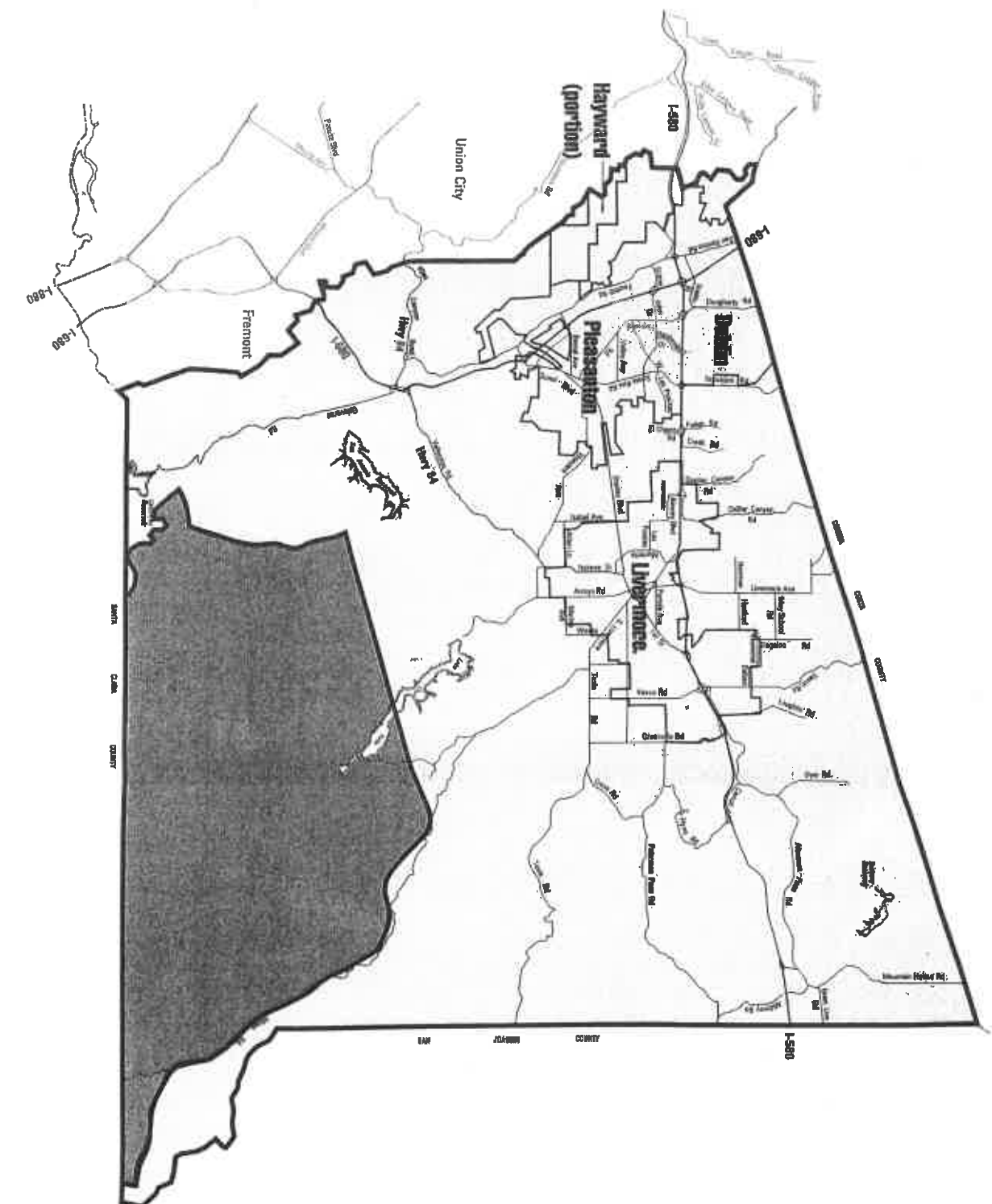
COUNTY OF ALAMEDA
EAST COUNTY AREA PLAN EIR

Fire Hazards

LEGEND

-  Moderate Hazard Level
-  High Hazard Level

NOTE: This map has been prepared to aid in general land use planning. It is based on judgments that are subjective and open generally to large errors. As such, it is neither intended, nor suitable, for evaluation of individual sites.



SOURCE: California Department of Forestry, 1988

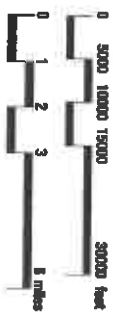


FIG. 32

Chapter 5.20 - Solid and Hazardous Waste Management

A. EXISTING SETTING

Solid Waste

Regulatory Setting. Alameda County manages solid waste in accordance with state legislation, which includes three Assembly Bills discussed below.

California Integrated Waste Management Act of 1989 (Assembly Bill 939, Sher) (Public Resources Code §4000, et seq.). The goals of AB 939 are to divert the amount of solid waste generated in the state to the maximum extent feasible; to improve regulation of landfills; to streamline permitting procedures for solid waste facilities; and to specify the responsibilities of local governments to develop and implement integrated waste management programs. AB 939 establishes a hierarchy of waste management practices for state and local level planning, including (in preferential order) source reduction, recycling and composting, environmentally safe landfill disposal, and environmentally safe transformation, where certain materials, such as wood waste, can be converted to fuel pellets.

AB 939 requires Cities and counties to prepare plans to divert 25 percent of solid wastes generated from landfill disposal by 1995, and 50 percent by the year 2000. Specific plans required by AB 939 regulations include: 1) a Source Reduction and Recycling Element (SRRE) by cities and county; 2) a Household Hazardous Waste Element (HHWE), as amended by AB 2707, by cities and county; 3) a Non-Disposable Facility Element by cities and county; and, 4) an Integrated Waste Management Plan (CoIWMP), including a countywide Siting Element, by county.

The Siting Element will provide a description of the areas to be used for development of disposal (or transformation) capacity for a 15-year planning period, commencing in 1991. Section 41703 requires that if a county's disposal capacity will be depleted within 15 years, the County must either designate a site for the location or expansion of a disposal site, or include a specific strategy for the disposal of solid wastes in excess of remaining capacity. Alameda County's landfill capacity will be depleted within 15 years (See East County Facilities, below.)

Although AB 939 requires that the California Integrated Waste Management Board (CIWMB) revise and adopt State standards of solid waste handling, no new regulations have been adopted to date.

Assembly Bill 2296 (Public Resources Code §50000, et seq.). AB 2296, often referred to as the "Gap Bill," specifies procedures for planning, approving, and siting solid waste projects during the transition period when CoIWMP's are being developed to replace the previously mandated Solid Waste Management Plan (CoSWMP) as the counties' primary solid waste planning document. Pending approval of the CoIWMP by the CIWMB, no city or county may establish a new or expand an existing solid waste facility which will result in a "significant increase" in the throughput capacity at the facility unless specific conditions can be met.

Assembly Bill 2707 (LaFollette. 1990) (Public Resources Code §41003, et seq.). AB 2707 revises state law regarding the exportation of solid waste from a city or county to any other jurisdiction. The law prohibits the exportation of solid waste to any jurisdiction unless the exporting county has, by January 1, 1992 or a later date specified by the CIWMB, obtained approval for and implemented a HHWE and SRRE, or submitted a County-wide Integrated Waste Management Plan with which it is in compliance. Alameda County has adopted both the HHWE and SRRE. The law permits jurisdictions to assess special fees of a reasonable amount on the importation of waste from outside of the county, and does not specify how the fees must be used.

With the new recycling, composting, and other landfill diversion programs mandated by legislative action, sanitary landfill sites are beginning to serve a multitude of functions. AB 939-mandated diversion programs will encourage consolidation of resources and facilities for more efficient, long-term operations.

Waste Management Agencies. The California Integrated Waste Management Board is the principal State agency regulating solid waste management facilities; its primary function is to implement the goals and policies of AB 939 and related legislation.

California law places responsibility for the provision of solid waste collection, processing, transfer, and disposal with local jurisdictions. State standards are enforced by local officials through Local Enforcement Agencies (LEA). The LEA has the primary responsibility for ensuring that a solid waste management facility complies with all applicable federal, state, and local regulations.

The Alameda County Department of Environmental Health, Office of Solid/Medical Waste Management is the LEA designated by the Alameda County Waste Management Authority responsible for enforcement in East County. The LEA is responsible for enforcing standards and inspecting the field for adequate solid waste storage, collection, and transport operations, and inspection of transfer stations and disposal sites for compliance with state standards.

By virtue of a Joint Powers Agreement among the County, the incorporated cities, and the sanitary districts of Alameda County, the Alameda County Waste Management Authority ("Authority") is responsible for waste planning, policy-making, and budgeting in the County. The Authority is charged with preparing, implementing, and enforcing the Alameda County Integrated Waste Management Plan (CoIWMP) as well as implementing and enforcing the

existing County Solid Waste Management Plan (CoSWMP) until replaced by CoIWMP. Any major changes or developments in the County's waste management system are subject to Authority approvals, and must be found to conform to the CoSWMP and, when adopted, to the CoIWMP.

Applicable Plans and Policies. The Source Reduction and Recycling Element (SRRE) and the Household Hazardous Waste Element (HHWE) for the unincorporated area of Alameda County have been adopted. (The HHWE is discussed below under Hazardous Waste Disposal.) The SRRE (Volume I, December 1991) contains proposed source reduction programs needed to reach or exceed the 25 percent and 50 percent waste diversion goals. Preliminary data reveal that about 28 percent of the Alameda County waste stream is diverted from landfilling (Edminster, 1991). Similarly, the current waste diversion rate for the City and County of San Francisco, which exports to Alameda County landfills, is estimated to be at least 25 percent (Johnson, 1991). Under the SRRE, a County regional composting facility has been proposed for the unincorporated Altamont area of the East County.

Alameda County's Solid Waste Management Plan (CoSWMP) provides a mechanism for project approval until a County Integrated Waste Management Plan is approved. The deadline for approval of each CoIWMP (including all approved Elements) is based on the county's remaining landfill capacity; under this criteria, March 1995 is the earliest possible date for adoption of Alameda County's CoIWMP.

The County Waste Management Authority policy calls for a 50-year continuous landfill capacity.

East County Facilities. The Altamont Sanitary Landfill and the Vasco Road Landfill, located in the East County planning area, handle most of the County's solid waste. The Tri-Cities Recycling and Disposal Facility in Fremont, formerly Durham Road Landfill, is the County's only other active landfill. All three landfills are Class III disposal sites, a classification which permits receipt of municipal solid waste with separate disposal areas required for asbestos and auto shredder wastes. (A portion of the Tri-Cities landfill has been designated Class II, which allows receipt of designated hazardous wastes - see discussion of Hazardous Waste Disposal below). These three landfills provide for the disposal needs of all jurisdictions within Alameda County. As of December 1992, the estimated available disposal capacity for the East County area was approximately 50.4 million cubic yards. The rate at which this capacity is depleted will be based on future waste generation and diversion rates, which determine the amount of waste to be disposed. An evaluation of possible future waste-disposal scenarios for Alameda County estimated that County-wide permitted capacity could expire by 2003 under currently permitted facilities (Time Extension of Importation of Contra Costa County Waste to the Altamont Sanitary Landfill EIR, August 5, 1991).

Additional waste management facilities in the planning area include the City of Pleasanton Transfer Station on Busch Road off Valley Avenue operated by the Pleasanton Garbage

Service, Inc. and a recently approved household hazardous waste drop-off center to be located off Vasco Road and Brisa Street in the City of Livermore.

Vasco Road Sanitary Landfill. The 644-acre Vasco Road landfill site is located 3.7 miles west of the Altamont facility on Vasco Road. Owned and operated by Browning Ferris Industries, Inc., it receives solid waste from the cities of Berkeley, Pleasanton, and Livermore, and self-haul waste from County-wide sources. Municipal solid waste is processed at both the Berkeley Transfer Station and Pleasanton Transfer Station before transportation by transfer truck to the Vasco facility.

As of May 1992, the remaining capacity of the designated 226-acre fill area was estimated at about 21.6 million cubic yards. With a projected four percent annual increase in the waste stream, Browning Ferris Industries estimates this facility has approximately 14 years of remaining capacity. The company has applied for an 86-acre Class II Sanitary Landfill Expansion designed to hold an additional 12.1 million cubic yards of refuse. As of this writing, project environmental review is underway.

Altamont Landfill and Resource Recovery Facility (ALRRF). The Altamont Landfill and Resource Recovery Facility is a 2,170 acre site located north of I-580 in the Altamont Hills, which is owned and operated by the Oakland Scavenger Company. Approximately 60 percent of the County's waste stream is disposed of at this facility. Solid waste originating in the following jurisdictions is disposed of at the Altamont Sanitary Landfill: the cities of Alameda, Albany, Dublin, Emeryville, Hayward, San Leandro, Oakland, and Piedmont; and the Castro Valley and Oro Loma Sanitary Districts.

Once collected, most municipal solid waste is taken to the Davis Street Transfer Station in San Leandro, then hauled to the landfill. The City of Dublin and the unincorporated area of the County near the City of Livermore hauls the following waste directly to the site: commercial, construction/demolition, nonhazardous industrial and institutional wastes, as well as residential wastes.

As of December 1992, the remaining capacity of the designated 225-acre fill area was estimated at nearly 28.8 million cubic yards. At current disposal rates, Oakland Scavenger Company estimates this remaining capacity will be exhausted in 1997. Altamont has two pending conditional use permit applications. Approval of these permits would allow a 1,020-acre expansion of the designated fill area, increasing the total capacity by an additional 350 million cubic yards. They would also reclassify the balance of the existing designated fill area and new expansion area from Class III to Class II to allow designated waste disposal at the site. As of this writing, project environmental review is underway.

Proposed Waste Management Authority Landfill. The Waste Management Authority has acquired a site in the Altamont Hills of East County for a publicly-owned Integrated Waste Management Facility. This facility could include any or all of the following

components: recycling, such as recovery of construction/demolition materials; composting, such as green waste composting and/or co-composting of green waste with sewage sludge; solid waste landfill; and energy resource development, such as landfill gas recovery and windpower. The Authority also proposes to include public education and recreation facilities, open space and habitat preserve in any integrated facility.

Environmental Review for Solid Waste Facilities. The *Altamont Hills Landfill Program EIR* (1989) was prepared as a program level EIR to address the acquisition and possible development of a publicly owned landfill site in the Altamont Hills portion of East County. Site-specific environmental review would be needed for any proposal (private or public) to develop a new or expand an existing landfill in the Altamont Hills study area.

Proposals for new facilities and expansion or modification of existing facilities are subject to review by several regulatory agencies; Alameda County, as lead agency, would be responsible for preparing a site-specific environmental document under CEQA. Responsible agencies -- which must consider the lead agency's document before taking action on subsequent discretionary approvals for the project -- include the County Waste Management Authority, County Department of Environmental Health, Regional Water Quality Control Board, Bay Area Air Quality Management District, and under certain circumstances the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Army Corps of Engineers.

Importation from Outside Alameda County. A recent Supreme Court decision has made it illegal for jurisdictions to discriminate by origin in accepting solid waste at their landfill sites. The Altamont and Vasco Road landfill sites have the potential to function as regional landfill facilities for both the County and other jurisdictions lacking adequate landfill capacity. The County, therefore, allows importation of solid waste if (non-discriminatory) mitigation can be provided to cover environmental liability and costs associated with importation such as damage to roads and loss of landfill capacity.

Municipal solid waste from San Francisco is hauled from the Sanitary Fill Transfer Station on the San Francisco/Brisbane border to the Altamont Sanitary Landfill in accordance with agreements (adopted in 1988) between Oakland Scavenger Company and Sanitary Fill Company, and between the Alameda County Waste Management Authority and the City and County of San Francisco. The terms of the agreements allow for disposal of up to 15 million tons of municipal solid waste and 130,000 tons per year of wastewater treatment sludge over a 65-year time limit. However, given that the Alameda CoSWMP requires nearly all waste from San Francisco to be disposed of at the ALRRF on a continuous basis, the Alameda County Waste Management Authority expects the 15 million tons of capacity to last for only 20 to 25 years (Alameda County Waste Management Authority, 1991). The agreements acknowledge that expansion areas would be needed for Oakland Scavenger to fulfill its contract with Sanitary Fill Company.

A two-year waste importation agreement with Contra Costa County that allowed disposal of municipal solid waste at the Altamont site expired on December 18, 1991. A two-year time

extension for continued waste import has been approved by the Alameda County Zoning Administrator on December 26, 1991. This time extension has not yet been exercised.

Implications on Long-term Capacity. The County Waste Management Authority's policy calling for a 50-year continuous landfill capacity can be achieved either by expanding existing privately-owned facilities or by acquiring a new publicly-owned facility. Either alternative would provide from 50 to 100 years of disposal capacity beyond 2003, the year when existing capacity is estimated to expire. Implementation of both alternatives would double this lifespan estimate. (The lifespan of a landfill cannot be estimated with complete assurance due to the inability to predict the amount of solid waste that will be imported to the site from sources outside the County.)

Over the next 20 years, the East County is projected to grow by 5.2 percent annually (ABAG, 1992). Although this growth rate somewhat exceeds the 4 percent annual growth rate used by the Authority in calculating landfill capacity in terms of years, it is safe to conclude that at least 50 years capacity will remain by the year 2010 under either scenario (i.e., expansion or new facility).

As mentioned above, the Waste Management Authority has acquired a site for a publicly-owned integrated waste management facility in the Altamont Hills of East County; this facility is planned in order to fulfill the Authority's policy to maintain 50-year fully-permitted landfill capacity. In addition, expansion plans are under consideration by the County for the Altamont and Vasco Road sanitary landfill operations (both proposals are currently undergoing environmental review).

Hazardous Waste

Hazardous waste is defined in the California Health and Safety Code (Section 25117, et seq) as, "a waste or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either ... cause or significantly contribute to the mortality or an increase in serious irreversible, or incapacitating, reversible illness or pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed ... " No permitted landfill facilities that can accept Class I (hazardous wastes) are located in the County. These materials must be transported at great expense to Kettleman City in the Central Valley for disposal.

About one percent of the total residential solid waste disposed per year consists of illegally disposed Household Hazardous Wastes (HHW). Examples of HHW stored in homes and garages include leftover paints, solvents, antifreeze, used oil and auto batteries, cleansers, furniture polish, pesticides, and pool chemicals. These materials are frequently disposed of in sewers, storm drains, and the soil. In the past there has been no active HHW collection or recycling program in the unincorporated County, however, load checking for hazardous waste occurs at the Altamont and Vasco Road landfills.

Regulations & Policies. The County has prepared its Household Hazardous Waste Element (February 25, 1992) as part of AB 939 requirements (see above). The new HHW program includes three components to increase program effectiveness: the creation of three permanent facilities for HHW collection (located in Oakland, Hayward, and Livermore); the recycling of HHW; and public education and information programs.

The first priority of the County will be to encourage source reduction, reuse, and recycling of HHW on the site from which it is generated. This will be achieved through a comprehensive public education program that will be managed by the County Department of Environmental Health. The second priority will be reuse and recycling off-site. In this program, all of the HHW will be either recycled, reused, or disposed at an appropriate disposal facility. Every city in Alameda County has agreed to support and publicize the Countywide permanent HHW facility program through education programs now being developed.

As of January 1, 1992, AB 869 (Farr) required lead agencies under CEQA to consult the "Cortese List" to determine whether any project or its alternative sites are located on sites which were designated by the State Departments of Health Services, Toxic Substances Control, Water Resources Control Board, Air Resources Board, or the California Environmental Protection Agency as containing hazardous wastes or substances. The lead agency must specify the list and include the information in any Notice of Preparation, Draft EIR, or Negative Declaration. A Cortese List has been prepared for Alameda County. This new procedure has been incorporated into standard County environmental review practice.

Sites. As noted above, a portion of the Tri-Cities Landfill has been permitted for Class II (Designated Wastes) disposal. Two current applications would allow Class II materials to be deposited at the Altamont and Vasco Road Sanitary Landfill sites. Class II landfills are allowed to accept designated wastes as well as non-hazardous wastes. Designated waste is (1) nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at the landfill, could be released at concentrations in excess of applicable water quality objectives, or that could cause degradation of waters of the State; or (2) hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 66310 of Title 22 of the California Code of Regulations. Hazardous wastes can be discharged at Class II landfills that comply with the applicable provisions of CCR Title 23 only with approval from the Regional Water Quality Control Board for containment of the particular kind of waste to be discharged (CCR Title 23, Section 2522).

The three permanent household hazardous waste collection facilities to be located in the north, south, and East County, will be the responsibility of the County Department of Environmental Health, Health Services Department. As of this writing, the Livermore and Hayward sites have received conditional approvals for use for household hazardous waste collection facilities; the Oakland site is under review. These proposed permanent collection facilities will receive, recycle, and transfer hazardous waste from households and mini-generators for out-of-county disposal. The operation of each facility will consist of

collection, chemical identification, sorting, storing, lab packing, and recycling. The facilities will accept all hazardous wastes that are delivered except for radioactive wastes and explosives.

Handling of Special Wastes. The CoSWMP addresses the handling of sewage sludge as follows:

Management Operations Policy 2(b): The Authority recognizes that sludge disposal is an integral part of solid waste management. It further recognizes that there is an urgent and long-term need to provide disposal adequate to handle Alameda County sludge derived from municipal water and wastewater facilities.

Management Operations Policy 2(b(4)): It shall be a priority of the Authority to study countywide sludge disposal alternatives including reuse, incineration, composting, regulatory trends in the sludge management area, availability of regional disposal facilities, and the possibility of siting an approved sludge disposal site in Alameda County. The Authority shall update this study with each triennial review of the Solid Waste Management Plan.

Alternative Diversion Methods. Programs initiated by the State Department of Hazardous and Toxic Substances to replace leaky gasoline/oil storage tanks have resulted in stockpiles of contaminated soils. These soils are contaminated with benzene and other petroleum products which often can be removed, restoring the soil for productive use (such as backfill, daily cover in landfills, and as base layers of silt for gardens). Currently, soil remediation and related new remediation technologies do not fit under permitted or conditional land uses as defined in the County's zoning ordinance.

Direct application of sewage sludge as a soil amendment or composting of sewage sludge with municipal solid waste for use in landscaping, agriculture, and cover material at landfills is also hampered by existing permitting limitations. The need to divert sewage sludge will become more urgent as the number of advanced water recycling plants generating significant amounts of sludge increases in the planning area.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan*) identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- existing landfill capacity is inadequate to accommodate projected growth countywide
- lack of available landfill sites outside of Alameda County could result in increased importation of out-of-county waste to East County landfills
- expanding existing landfills or creating a new landfill could cause one or more effects on the environment; encroachment of incompatible uses (such as residences) near an existing landfill could interfere with expansion or continued operation of a waste management facility
- existing regulations could hinder diversion of waste (e.g., sewage sludge) and remediation of contaminated soils
- existing hazardous waste facilities in and out of Alameda County would be further burdened with additional hazardous waste generated with new development proposed in the plan

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 141: The County shall coordinate with the Alameda County Waste Management Authority to provide for a continuous 50-year landfill capacity through landfill expansion and/or new landfill facilities.

Policy 142: The County shall locate future solid waste facilities and/or expand existing solid waste facilities in appropriate locations outside the Urban Growth Boundary that allow for compliance with all of the state minimum standards for solid waste management, and where the separation of the facility from residences and other sensitive uses is sufficient to permit adequate control of possible impacts of the solid waste facility including, but not limited to, noise levels, odor and litter nuisances, traffic congestion, and disease carrying vectors.

Policy 143: The County shall not approve land uses adjacent to any designated solid waste facility if the use would restrict or preclude the establishment, maintenance or potential expansion of the facility due to its incompatibilities with the proposed use, or if development of the new use would result in exposure of residential or other sensitive uses to possible adverse impacts of the solid waste facility.

Program 61: The County shall amend the General Plan as necessary to identify all sites required for the maintenance and expansion of existing and/or the establishment of new, solid waste facilities.

Program 62: The County shall amend the Zoning Ordinance to include performance standards to reduce or eliminate land use conflicts between solid waste facilities and existing and future adjacent land uses. Performance standards may include mandatory buffers,

setbacks, and other screening techniques, and reclamation plans that promote visual compatibility with surrounding land.

Program 63: The County shall require adoption of findings of compliance with policy 143 for all land uses proposed within one-half mile of sites designated as solid waste facilities.

Policy 230: The County shall coordinate solid and hazardous waste management planning with the Alameda County Waste Management Authority and with Authority goals, policies, and plans.

Policy 231: The County shall promote use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes.

Policy 232: The County shall support efforts to provide solid waste resource recovery facilities and household hazardous waste collection facilities convenient to residences, businesses, and industries.

Policy 233: The County shall encourage development of innovative technologies to reclaim contaminated soils and sewage sludge.

Program 84: The County shall identify vendors who can supply recycled products to County departments, and shall establish vendor procurement criteria of minimum percentage recycled material products for inclusion in the County purchasing guidelines.

Program 85: The County shall amend the Zoning Ordinance as necessary to conditionally allow solid waste resource recovery facilities and household hazardous waste collection facilities in locations convenient to residences, businesses and industries.

Program 86: The County shall amend the Zoning Ordinance as necessary to conditionally allow soil treatment facilities and co-composting in conjunction with existing landfill sites or on other appropriate locations.

Program 87: The County shall amend the Zoning Ordinance as necessary to specifically recognize bio-remediation of contaminated soils and co-composting of sewage sludge as industrial processes which can take place in industrial areas of the County as a permitted or conditionally permitted land use.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

For the purposes of this EIR, the inability to maintain 50 years of continuous landfill capacity to serve Alameda County would be considered a significant impact. In addition, implementation of the plan would result in a significant impact if it did not provide for safe and reliable collection of hazardous waste.

Potential Impacts and Mitigation Measures

Potential Impact 5.20-1: Existing landfill capacity in Alameda County is inadequate to accommodate projected population increases countywide, including the East County planning area.

The capacity of current facilities is expected to last only until 2003. Increased population growth in Alameda County, combined with growth in other parts of the region (where landfill sites are unavailable or constrained by public pressure, high land costs, or environmental sensitivity), will necessitate approval of additional landfill space in the East County.

The County Waste Management Authority's policy calling for a 50-year continuous landfill capacity can be achieved either by expanding existing privately-owned facilities (Vasco Road and Altamont Sanitary Landfills, both of which have pending applications) or by developing a new publicly-owned facility (such as the Waste Management Authority's proposed facility in the Altamont Hills). Either alternative would provide from 50 to 100 years of disposal capacity beyond 2003, the year when existing capacity is estimated to expire. Implementation of both alternatives would double this lifespan estimate. (The lifespan of a landfill cannot be estimated with complete assurance due to the inability to predict the amount of solid waste that will be imported to the site from sources outside the County.)

Over the next 20 years, the East County is projected to grow by 5.2 percent annually (ABAG 92). Although this growth rate somewhat exceeds the 4 percent annual growth rate used by the Authority in calculating landfill capacity in terms of years, it is safe to conclude that at least 50 years capacity will remain by buildout of the *East County Area Plan* (some time after the year 2010) under either scenario (i.e., expansion or new facility).

Plan Policies and Programs: Policies and programs listed in Section B above address the potential effects of the plan on landfill capacity. To address fulfilling landfill capacity needs, policy 141 of the *East County General Plan* calls for the County to coordinate with the Waste Management Authority to expand existing facilities or construct a new facility in order to ensure a 50-year landfill capacity for the County. Policy 230 coordinates solid and hazardous waste management planning with Waste Management Authority policies.

To minimize land use conflicts, policy 143 and programs 62 and 63 reduce the potential for incompatible uses to restrict establishment or expansion of waste facilities. Policy 142 addresses location of solid waste facilities. To reduce the demand for additional landfill

capacity, policies 231, 232, and programs 84 and 85 advocate reducing the wastestream, including encouraging the County's use of recycled products, and encouraging the development of resource recovery facilities. Furthermore, program 86 encourages amending County regulations to facilitate waste diversion.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact would result.

Mitigation Measure 5.20-1: None needed.

Although no mitigation is needed, the following modifications to Policy 142 and Program 61 would provide clarification (new language is shown in *italics*; deleted language is ~~struck-out~~):

Proposed Modification to Policy 142: The County shall locate future solid waste facilities and/or expand existing solid waste facilities in appropriate locations *within the study area addressed in the Altamont Hills Landfill Program EIR (1989)* outside the Urban Growth Boundary that allow for compliance with all of the state minimum standards for solid waste management, and where the separation of the facility from residences and other sensitive uses is sufficient to permit adequate control of possible impacts of the solid waste facility including, but not limited to, noise levels, odor and litter nuisances, traffic congestion, and disease carrying vectors.

Proposed Modification to Program 61: The County shall amend the General Plan as ~~necessary~~ to identify ~~all sites~~ *the general locations of sites* required for the maintenance and expansion of existing and/or the establishment of new, solid waste facilities *when the Siting Element of the County's Integrated Waste Management Plan is adopted.*

Potential Impact 5.20-2: Increased generation of hazardous wastes from the East County could place an additional burden on hazardous waste collection facilities serving this area.

Hazardous waste generated from additional people, businesses and industry in the East County would require treatment and/or disposal to limited facilities within and outside of the East County. Residences, businesses and industry would generate household hazardous waste. A household hazardous waste collection facility has been approved in Livermore but has not commenced operation yet. Hazardous waste generated from industrial users would be transported to out-of-county landfills, thereby placing a greater demand on these limited facilities.

Policies and Programs: General Plan policies, discussed in Section B above, address household hazardous waste and reclamation of contamination soils and sewage sludge. In policy 232 and program 85, the County supports efforts to provide household hazardous waste collection facilities in convenient locations. Policy 233 and programs 86 and 87

encourage facilities and zoning to encourage developing innovative technologies to reclaim contaminated soils and sewage sludge.

Level-of-Significance: With implementation of proposed plan policies and programs, no significant impact related to hazardous waste collection would result.

Mitigation Measure 5.20-2: None needed.

While no mitigation is needed, the following new programs are proposed to implement the plan's policies (new language is shown in *italics*):

Proposed Program: The County shall evaluate new development proposals for their ability to provide hazardous waste collection points or other collection measures, such as curbside pick-up service, where the number of households (as identified in the County Household Hazardous Waste Element) warrants this service. The County shall coordinate collection points with the Waste Management Authority.

Proposed Program: The County should develop an ordinance requiring new industrial users to provide a hazardous waste plan, as part of the Development Title, prior to starting operations.

SOURCES

Alameda County, Final Draft, Alameda County Unincorporated Area Source Reduction and Recycling Element and Household Hazardous Waste Element, Volume 1, December 1991

Alameda County, Final Draft, Alameda County Unincorporated Area Source Reduction and Recycling Element and Household Hazardous Waste Element, Volume 2, February 25, 1992.

Brady & Associates, Draft EIR for the Altamont Hills Landfill Program, October 1988.

Environmental Science Associates, Time Extension of Importation of Contra Costa County Waste to the Altamont Sanitary Landfill DEIR, prepared for Alameda County, August 5, 1991.

Chapter 5.21 - Energy

A. EXISTING SETTING

Major energy sources for the East County include electricity, wind, and oil and natural gas. The County currently does not have hydroelectric, major solar, geothermal, or nuclear power production facilities within its boundaries.

Overview of the East County's Major Sources of Energy

Electricity. Electricity is provided to Alameda County by PG&E, Western and NCPA. The Alameda Bureau of Electricity receives 38 percent of its electric generating capacity from NCPA's geothermal plants in the Geysers Resource Area in Lake County, 24 percent from NCPA's hydroelectric project in Calaveras County, 18 percent from NCPA's combustion turbine plants in Placer County, Roseville, Tracy and Alameda, and 20 percent from Western.

The East County planning area is traversed by several 69-, 115-, 230-, and 500 kV electric transmission lines. These lines are owned and operated by PG&E and Western. The only Western line is a 230-kV transmission line that runs from the Tracy substation to Lawrence Livermore Lab. All lines in the planning area are above-ground.

Two of the County's three major substations, Tracy and Tesla, are located in the East County. These substations are the distribution points for various lines and voltages. The Tracy substation has three 230-kV transmission lines; the Tesla substation has nine 230-kV lines, two 115-kV lines and a 500-kV line. The East County also contains eleven of the County's twelve 69-kV substations. Except for the Livermore Lab 115-kV substation, all of the County's 115-kV substations are in the western portion of the County. For further discussion, see the *Major Public Facilities and Utilities* Background Report in *Volume 2* of the *Draft East County Area Plan*.

Wind. There are extensive wind turbine fields in the areas north and south of Altamont Pass near the boundary with San Joaquin County. The Altamont Pass Wind Resource Area straddles both Alameda and Contra Costa Counties. It is the most developed wind resource area in the world with approximately 7,000 wind turbines (5,800 in Alameda County), producing 1,100 million kilowatt hours of electricity annually for distribution by PG&E.

There are 103 wind developments approved in Alameda County, of which 75 developments are currently operating. Operators include U.S. Windpower, Fayette, FloWind, LFC, Seawest, and Altamont Americal Partners. For additional information, see the *Non-Urban*

Land Use and Open Space Background Report in Volume 2 of the Draft East County Area Plan and Chapter 5.1 in this DEIR.

Natural Gas, Oil and Product Pipelines. Both of Alameda County's two major petroleum and gas fields are in the East County area: Hospital Nose Gas Field (abandoned) several miles south of Livermore, and Livermore Field, 3 miles east of Livermore. There are also various individual wells scattered throughout the planning area. Currently, there are 74 plugged and abandoned dry hole wells, 6 plugged and abandoned oil wells, 1 plugged and abandoned gas well, and 8 complete oil wells. The total petroleum production for 1990 was 19,053 barrels. There is presently no natural gas production in the County.

Pipelines traversing the planning area include natural gas pipelines, oil pipelines and product pipelines. Santa Fe Pacific Pipe Line Partners (S.F.P.P.) has a pipeline that extends north to south from the Contra Costa County line through Pleasanton and down to Santa Clara County. S.F.P.P. has another pipeline that extends from the Tracy area southwest across the planning area to Santa Clara County. Chevron Pipeline Company also contains a product pipeline following the same general route. PG&E has several natural gas pipelines traversing the East County. In addition, five oil pipelines traverse the northeastern corner of the planning area. For additional information see the *Major Public Facilities and Utilities Background Report in Volume 2 of the Draft East County Area Plan.*

Solid Waste. The East County planning area contains one solid waste-to-energy facility located in Pleasanton and one landfill gas facility located at the Altamont Landfill. The waste-to-energy facility is operated by the Dublin San Ramon Service District; the landfill gas is used as a fuel source to produce electricity for PG&E.

Proposed Facilities

Energy facilities under consideration in the East County include a cogeneration plant and a 500-kV transmission line. The cogeneration plant would consist of a natural gas cogeneration facility at Lawrence Berkeley Labs with an estimated size of 400 kW. The California-Oregon Transmission Project (COTP) is a 500-kV transmission line currently being constructed from southern Oregon to the Tracy Substation. It will then extend to the Tesla substation where PG&E will distribute power to customers in Alameda County. Lawrence Livermore Lab also has a contract with Western to receive COTP power directly from the Tracy Substation through its 230-kV transmission line. Western anticipates that the transmission line will be fully operational sometime in 1993.

Energy Conservation

There are no specific energy conservation codes for Alameda County; however, the County follows the provisions set forth by Title 24 of the California Code of Regulations (Energy Conservation Standards). Title 24 requires home builders to meet specified energy performance budgets based on local climate conditions and building type. Means of achieving the goal of energy conservation include: decreasing overall per capital energy

consumption; decreasing reliance on natural gas and oil; and increasing reliance on renewable energy sources.

The Subdivision Map Act (§66473.1) requires design of a subdivision for which a tentative map is required to "provide, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision." This section of the Map Act includes examples and provides for consideration of other factors (e.g., parcel configuration and contour) in the design of projects; it also states that this provision shall not result in reducing allowable densities or allowable lot coverage under applicable local regulations.

Siting of Energy Facilities

The development and placement of local electrical distribution lines, major transmission lines and substations are currently exempt from regulation in local city zoning ordinances. However, buildings for utility company offices, service yards and storage yards are required to comply with land use regulations. Offices and business uses by utility companies are allowed in commercial and industrial districts.

The Scenic Route Element of the County General Plan (adopted 1966) recommends that transmission lines be placed underground near scenic routes or in inconspicuous locations. Utility company buildings and yards are assumed to be the same as any other business and receive no special attention in these plan elements and policies.

Safety and nuisance considerations for the siting of transmission lines include: aviation hazards, electromagnetic field effects, interference with communication systems, fire hazards, audible noise, hazardous shocks and nuisance shocks. New electric transmission right-of-way distances need to be developed on an interim basis to ensure protection of public health until more definitive information on the effects of electromagnetic fields is available (see the *Electromagnetic Fields* Background Report in *Volume 2* of the *East County Area Plan* for additional information) and Chapter 5.22 in this DEIR.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan*) identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- increased energy consumption resulting from population and employment growth
- implications of growth with respect to energy conservation measures

- possible impacts on public health from poor siting of energy facilities

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Policy 13: The County shall require that development be phased according to the availability of infrastructure and public services in conformance with policies of the *East County Area Plan* which encourage compact development. The County shall not adopt an annual growth management limit for development within unincorporated areas.

Policy 16: The County shall promote an approximate balance between jobs and housing within East County and shall further promote a range of housing types reflecting the income distribution of the local employment base.

Policy 31: The County shall recognize that compact development results in more efficient use of land and infrastructure, and less conversion of open space, than low-density sprawl. To encourage compact development, the County shall provide economic incentives to developers who provide higher densities and affordable housing.

Policy 174: The County shall promote the use of transit, ridesharing, bicycling, and walking, through land use planning as well as transportation funding decisions.

Policy 175: The County shall require major projects to include features that promote the use of transit, bicycle, and pedestrian systems. These features could include bus turnouts, interconnected bicycle and pedestrian paths and sidewalks, and pedestrian-accessible features such as convenient local-serving retail and service uses (e.g., child care, neighborhood grocery stores, laundromats).

Policy 176: The County shall require new non-residential developments in unincorporated areas to incorporate Transportation Demand Management (TDM) measures and shall require new residential developments to include site plan features that reduce traffic trips such as mixed use development and transit-oriented development projects.

Policy 184: The County shall support investment in transit as an alternative to automobile-intensive transportation improvements.

Policy 185: The County shall work with transit providers to complete transit improvements to meet the demand for existing and future development.

Policy 186: The County shall encourage high-intensity development in locations convenient to public transit facilities and along transit routes.

Policy 193: The County shall create and maintain a safe, convenient, and effective bicycle system that maximizes bicycle use.

Policy 194: The County shall create and maintain a safe and convenient pedestrian system that links residential, commercial, and recreational uses and encourages walking as an alternative to driving.

Policy 262: The County shall facilitate the provision of adequate gas and electric service and facilities to serve existing and future needs while minimizing noise, electromagnetic, and visual impacts on existing and future residents.

Policy 263: The County shall work with PG&E to design and locate appropriate expansion of gas and electric systems.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect if it will "encourage activities which result in the use of large amounts of fuel, water, or energy" or "use fuel, water or energy in a wasteful manner."

Potential Impacts and Mitigation Measures

Potential Impact 5.21-1: Residential, commercial and industrial growth under the plan would significantly increase energy consumption in the East County.

Significant residential growth is planned for the East County. The proposed plan projects a near doubling of the area's population between 1990 and buildout, and an additional 57,473 housing units. Assuming that every new residence will require around 6150 kwh of electricity a year (California Energy Commission, 1988), new residences in the planning area would use approximately 353,458,950 kwh per year. In addition, 27,012,310 therms of natural gas would be required each year for space and water heating (assuming an average of 470 therms per unit each year).

Employment growth will boost commercial and industrial energy demand in the East County. The plan projects an additional 83,570 jobs between 1990 and buildout, which will in turn prompt increased fuel consumption. While use of energy conservation measures can extend existing resources, the amount of population and employment growth is sufficiently great that expansion of existing energy facilities--and, possibly, identification of new energy sources--will be necessary.

Growth projected in the East County will boost fossil fuel consumption as a result of increased vehicle miles traveled. Increased residential, commercial and industrial development will augment demand for energy used in conjunction with transportation activity. Partial mitigation can be achieved via approaches such as compact development,

balancing jobs and housing, and supporting mass transit, alternative transportation methods and trip reduction programs.

Plan Policies and Programs: Policies 262 and 263 act to ensure that adequate gas and electric service will be provided to meet existing and future needs. County adherence to the Energy Conservation Standards contained in Title 24 of the California Code of Regulations will help to mitigate the increased energy demand resulting from population and employment growth. While the plan will discourage wasteful and inefficient use of energy resources, through such means as promoting transit (policies 174, 175, 184, 185); encouraging high density housing near transit (policies 35 and 36); promoting compact, pedestrian-oriented development (policies 31, 186 and 194); and reducing commuting (policy 16), implementation of the plan will result in a marked increase in population and employment which will inevitably boost energy consumption.

Level of Significance: While policies and programs would substantially lessen the impact on energy consumption, no feasible mitigation is available to reduce the impact to a less-than-significant level. Therefore, this is considered a **significant and unavoidable adverse impact** of the proposed plan.

Mitigation Measures: No feasible mitigation is available.

SOURCES

California Energy Commission, Energy Aware Planning Guide, January 1993.

California Energy Commission, Energy Efficiency and Conservation Report of the Energy Element for Alameda County, November 1992.

Ebasco Environmental, Draft Final Report: Environmental Setting of the Energy Element for Alameda County, June 1992.

Ebasco Environmental, Draft Final Report: Energy Facility Siting Report of the Energy Element for Alameda County, June 1992.

\\home\plan\air\chpt5-21.cmb

Chapter 5.22 - Electromagnetic Fields

A. EXISTING SETTING

Common sources of electromagnetic fields (EMF) include high voltage, long distance transmission lines, low-voltage distribution lines, substations, electrical service vaults, and appliances such as VCRs, video display terminals, vacuums, hair dryers and toasters. Studies in a number of countries have indicated that electromagnetic fields may pose a health hazard (See *Electromagnetic Fields* background report in the *Draft East County Area Plan*, Volume 2, Section F.). Over the last several years, members of the medical community, particularly epidemiologists, have raised concerns about exposure to electromagnetic fields and possible links to the development of certain cancers, such as leukemia in children, and brain tumors, leukemia, and lymphoma in adults.

Radio frequency (RF) radiation emitted from radio transmission is a high-frequency type of electromagnetic radiation. High intensities of RF radiation may be harmful under certain circumstances due to the ability of RF energy to heat biological tissue rapidly. There is disagreement over exactly what levels of RF radiation are "safe," particularly with regard to low levels of exposure. There is currently no official federal standard for exposure of the general public to RF radiation.

The U.S. Government's Committee on Interagency Radiation Research and Policy Coordination evaluated the scientific literature on the health effects of low-frequency electric and magnetic fields and concluded that there is no convincing evidence in the published literature to support the contention that exposures to EMFs are demonstrable health hazards.

No U.S. federal agency has yet set extremely low frequency (ELF) EMF standards. The International Radiation Protection Association, whose mission is to review scientific evidence and propose safety standards, has issued draft exposure guidelines for power-frequency electric and magnetic fields. They call for a limit of 5-kVm (kilovolt-meter) for continuous exposures to electric fields and 2,000 mG for magnetic fields.

A consensus group working under the auspices of the California Public Utilities commission (CPUC) has recommended a "prudent avoidance" policy. As a practical matter, "prudent avoidance" means locating people away from high power transmission lines and equipment consuming large quantities of electrical energy. Some shielding mechanisms may reduce the effect of electric fields, but generally are not effective in reducing the effect of magnetic fields.

In a 1989 report to the Congressional Office of Technology Assessment (OTA), a team from Carnegie Mellon University proposed a policy of "prudent avoidance" in which decision makers would "look systematically for strategies which can keep people out of 60 Hz fields

arising from all sources but only adopt those which look to be 'prudent' investments given costs and the current level of scientific understanding about possible risks." These might include widening of rights-of-way, rerouting transmission lines, and reducing exposure to avoidable sources of EMFs, such as electric blankets.

To address potential risks associated with exposing children to EMF, the California Department of Education's *School Site Selection and Approval Guide* (1989) contains recommended setbacks for new school sites near high voltage transmission line easements. The setbacks are not based on health standards and do not apply to existing schools. The recommended setbacks are: 100 feet from the edge of easements for 100 to 110 kV lines; 150 feet from the edge of easements for 220 to 230 kV lines; and 250 feet from the edge of easements for 345 kV lines. The Department of Education also requires that alternative school sites, away from a power line easement, be considered. Any future plans PG&E might have to increase voltage or add lines should also be a factor in the siting decision.

Sources of Electromagnetic Fields in the East County

Electric Transmission Lines and Substations. Electromagnetic fields are associated with all of the East County's electric transmission and distribution lines, and substations. The greatest electromagnetic field emitters are substations and transformers where power is stepped down, and the system's distribution lines where varying demands for current can yield imbalances. Refer to Figure 26 in the *Draft East County Area Plan - Volume 2* for the approximate locations of major electrical facilities.

Federal Communications Commission Monitoring Station. The Federal Communications Commission (FCC) Monitoring Station is located in the North Livermore subarea on a 117-acre site between May School Road and Hartford Avenue, north of I-580 and west of the Livermore city limits in unincorporated Alameda County. While transmitting, the four rhombic antennas, which transmit less than five minutes per week, emit high-frequency (RF) radiation. The FCC now uses the protection guidelines of the American National Standards Institute (ANSI), a non-governmental organization that develops recommended standards for a variety of applications, for purposes of evaluating environmental impact from the RF transmitters it regulates. Public access to broadcasting antennas is normally restricted so that individuals cannot be exposed to high-level fields that might exist near an antenna.

Although potential health impacts from the FCC station appear to be minimal (given that most of the activity at the station consists of the receiving rather than the transmitting of radio signals), assessment of the relative health hazard to future residents of the area should be addressed before any development adjacent to the FCC station is approved. (For further discussion of the Federal Communications Commission Monitoring Station, refer to Section D of the *Major Public Facilities* background report in the *Draft East County Area Plan - Volume 2*, and *Chapter 5.1, Land Use and Planning*, in this document.

B. PLAN POLICIES AND PROGRAMS DEVELOPED TO ADDRESS PLANNING ISSUES

The "Planning Issues" section of each topic area Background Report (see *Volume 2* of the *Draft East County Area Plan*) identified historical and emerging trends and discussed growth projections for the planning area and the region. Based on those trends and growth projections, the Background Reports analyzed planning issues that should be addressed in the planning process. These planning issues are summarized below:

- exposure of sensitive uses/receptors (e.g., schools, hospitals and retirement homes) to sources of electromagnetic fields could be a potential health hazard.

The following policies and programs of the *Draft East County Area Plan* were developed to address these planning issues:

Electromagnetic Fields Policies and Programs:

Policy 301: The County shall not approve sensitive uses (e.g., hospitals, schools, and retirement homes) near sources of electromagnetic fields such as major electrical transmission lines and substations.

Program 114: The County shall monitor emerging research concerning electromagnetic fields and develop guidelines to reduce potential impacts.

Policy 133: The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations.

C. IMPACT ANALYSIS

CEQA requires an environmental impact report to identify (and describe) the significant environmental effects of a proposed project. This section analyzes the potential environmental effects of the *Draft East County Area Plan* as described in *Chapter 3* of this EIR.

Criteria of Significance

According to Appendix G of the *CEQA Guidelines*, a project would normally have a significant effect on the environment if the project would create a potential public health hazard.

Potential Impacts and Mitigation Measures

Potential Impact 5.22-1: Development near sources of electromagnetic fields such as high voltage electrical transmission lines may result in exposure of the public to potential health hazards associated with electromagnetic fields.

Development in accord with the proposed plan may result in exposure of the public to potential health hazards associated with electromagnetic fields generated by high voltage electrical transmission lines, substations, and transformers. The East County is traversed by several electrical transmission lines of various voltages, some of which pass through or near areas designated for development.

Uncertainty regarding the potential adverse health risks from exposure to electromagnetic fields makes a substantive analysis of any health hazards that may result from implementation of the proposed plan impossible. The primary planning issue at this stage is developing and implementing a strategy of prudent avoidance. Sensitive land uses would include those in which people would spend long periods of time, prolonging their exposure to EMF, and those which would create a concentration of people that may be particularly susceptible to any potential health hazard created by EMF. For new facilities, it may be prudent to keep people out of fields to the extent that is reasonably feasible. Taking more drastic action would be costly and disruptive without providing any assurance that public health would be protected.

Plan Policies and Programs: Policies and programs listed in Section B above do not fully address the potential effects of the plan on exposure of the public to potential health hazards associated with high voltage power lines. Under the proposed plan, sensitive uses would not be approved near sources of electromagnetic fields such as major electrical transmission lines and substations (policy 301). However, policy 301 does not include residential uses as an example of a sensitive use. Because of the prolonged periods of time spent in the home and the likelihood of the presence of children there, residential uses should be considered sensitive to EMF exposure. While the list of sensitive uses in policy 301 is not intended to be all-inclusive, the addition of residential uses to this list would clarify that the policy is intended to apply to residential development as well.

Because a great deal of research is currently underway concerning electromagnetic fields, the plan would require that the County continue to monitor emerging research and develop guidelines to reduce potential impacts (program 114). Until more definitive information concerning possible health risks becomes available, the setbacks recommended by the California Department of Education could be used as a guide for siting development. Any guidelines that are developed should be revised periodically to reflect the most recent information available.

Level-of-Significance: Without mitigation, this potential impact would be significant. The following modifications would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struckout~~):

Mitigation Measure 5.22-1(a): Proposed Modification to Policy 301: The County shall not approve sensitive uses (e.g., *residential uses*, hospitals, schools, and retirement homes) *near within setbacks recommended by the California Department of Education (in accordance with Program 114)* from sources of electromagnetic fields such as major electrical transmission lines and substations.

Mitigation Measure 5.22-1(b): Proposed Modification to Program 114: The County shall monitor emerging research concerning electromagnetic fields and develop guidelines to reduce potential impacts. *Until more definitive information is available, the guidelines should incorporate the setbacks recommended by the California Department of Education for the siting of new schools near high voltage electrical transmission lines for all sensitive land uses. The County shall periodically revise these guidelines as new information becomes available.*

Potential Impact 5.22-2: Development near the Federal Communications Commission (FCC) station may result in exposure of the public to potential health hazards associated with high-frequency radio frequency (RF) radiation.

Development in accord with the proposed plan may result in exposure of the public to potential health hazards associated with high-frequency radio frequency (RF) radiation generated by the FCC station in the North Livermore Valley. Ground-level intensities of the RF electromagnetic fields resulting from broadcast transmissions depend on several factors, including the type of station, design characteristics of the antenna being used, power transmitted to the antenna, height of the antenna, and distance from the antenna. Calculations can be performed to predict what field intensity levels would exist at various distances from an antenna. Since energy at some frequencies is absorbed by the human body more readily than energy at other frequencies, the existence of a possible hazard would depend on the frequency of the transmitted signal as well as the intensity.

Measurements made by the Environmental Protection Agency and others have shown that RF radiation levels in inhabited areas near broadcasting facilities are generally well below levels believed to be hazardous. There have been a few situations around the country where exposure levels have been found to be higher than those recommended by applicable safety standards, but such cases are relatively rare, and few members of the general public are likely to be routinely exposed to excessive levels of RF radiation from broadcast towers.

Plan Policies and Programs: Policies and programs listed in Section B. above do not fully address the potential effects of the plan on exposure of the public to potential health hazards associated with RF radiation. Under the proposed plan, development in the vicinity of the FCC station would be required to be compatible with FCC operations (policy 133). Plan policies do not address potential health risks.

Level-of-Significance: Without mitigation, this potential impact would be significant. The following modifications would mitigate this impact to a less-than-significant level (new language is shown in *italics*; deleted language is ~~struckout~~):

Mitigation Measure 5.22-2: Policy 133 should be amended to read: The County shall ensure that all new uses approved near the Federal Communications Commission (FCC) station in North Livermore are compatible with FCC operations *and that development in the vicinity of the FCC station does not expose the public to potential health hazards associated with high-frequency radio frequency (RF) radiation.*

SOURCES

- California EMF Consensus Group, Issues and Recommendations for Interim Response and Policy Addressing Power Frequency Electric and Magnetic Fields, March 1992.
- Carnegie Mellon University, Department of Engineering and Public Policy, Electric and Magnetic Fields from 60 Hertz Electric Power: What do we know about Possible Risks?, 1989
- Hester, Gordon L., Electric and Magnetic Fields: Managing an Uncertain Risk, Environment, Volume 34 Number 1, Jan./Feb. 1992.
- Leonard, Alvin, Raymond Neutra, Michael Yost and Geraldine Lee, Electric and Magnetic Fields: Measurements and Possible Effects on Human Health from Appliances, Power Lines and Other Common Sources, Special Epidemiological Studies Program, California Department of Health Services, 1990.
- Sage, Cindy and Joseph G. Johns, Electromagnetic Radiation: A Case for Relevance in Real Estate Transactions and Eminent Domain, Real Estate Law Journal Vol. 20: 193 1991.
- San Joaquin County Community Development Department, Final Environmental Impact Report on the San Joaquin County Comprehensive Planning Program, Volume I, May 1992.
- Slesin, Louis, Matthew Connelly and David Bergman, Electromagnetic Fields and Land Use Controls, American Planning Association Planning Advisory Service, Report Number 435, 1991.
- U.S. Government's Committee on Interagency Radiation Research and Policy Coordination, Health Effects of Low-Frequency Electric and Magnetic Fields, Environmental Science and Technology, Vol 27, No. 1, 1993.

\\home\plan\leir\chp5-22.ejm

Chapter 6 - Evaluation of Alternatives

Introduction

CEQA requires that an EIR identify and analyze alternatives to the proposed project which could feasibly attain the basic objectives of the project while substantially reducing or eliminating any significant environmental effects. An environmentally-superior alternative must be identified as well. If the alternative with the least environmental impact is the "no-project" alternative, then another alternative must be designated.

Three types of alternatives have been analyzed in this chapter: (1) two "no-project" alternatives were evaluated, one which considers the effects of buildout of the existing adopted city general plans (Alternative 1), and one which looks at buildout of prospective city general plans (Alternative 2), both assuming no change to the existing county general plan for the planning area; (2) two alternatives that analyze the effects of recently approved or proposed city general plan amendments for East Dublin (Alternative 3) and North Livermore (Alternative 4) in the larger cumulative context of the East County planning area; and (3) a "minimum growth/high density" alternative that confines the geographical extent of new urban development to the Santa Rita and Camp Parks properties (Alternative 5).

The following is a list of the five different development scenarios considered as alternatives:

- Alternative 1: "No-Project" (Adopted General Plans)
- Alternative 2: "No-Project" (Prospective General Plans)- Max.Growth/Low Density
- Alternative 3: Modified East Dublin
- Alternative 4: Modified North Livermore
- Alternative 5: Minimum Growth/High Density

First, each alternative is described and evaluated for its environmental impacts. Then, the alternatives are compared to the proposed plan and an environmentally superior alternative identified. Table 6-6 compares the proposed plan and alternatives with regard to jobs, housing, and population; Table 6-7 compares the proposed plan and alternatives with regard to approximate number of acres in open space converted to urban uses and housing density under each alternative. Potential impact areas that do not have a direct bearing on the choice of alternatives are not evaluated. These include cultural and mineral resources, geologic and flood hazards, and services (schools, police and fire, park and recreation, and solid waste disposal). Impacts associated with these topic areas can be mitigated and are generally correlated to the buildout population of the alternative where a higher population would result in a comparatively greater impact.

In addition to these five full alternatives, this chapter concludes with a series of "What if....?" questions that explore the implications of modifying isolated features of the plan. The terms "proposed plan" and "ECAP" have been used interchangeably throughout this chapter. They refer to the proposed *East County Area Plan*.

6.1 Alternative 1: "No-Project" (Buildout of Adopted General Plans)

Objectives

This alternative fulfills the CEQA requirement to analyze the environmental impacts in the planning area based on the assumption that the existing general plan for East County remains in effect. The alternative also assumes a "no-project" scenario for the three cities in the planning area: City of Dublin, Dublin General Plan, adopted February 11, 1985. City of Pleasanton, Pleasanton General Plan, as amended to 1992. City of Livermore, Livermore General Plan, as amended to November 14, 1988. (This alternative excludes the City of Dublin's recent action on East Dublin which is potentially subject to referendum at the time of publication of this DEIR.)

Analysis of this alternative highlights the problems facing the planning area with no change to the adopted city and county plans.

Description

Under the "no-project" alternative, development would be limited to that which could occur under adopted city general plans (as described above) and under the County's 1977 plan for the Livermore-Amador Planning Unit. Table 6-1 shows the land use development potential by city. Urban development would be confined to existing city general plan areas (see Figure: Alternative 1).

[This development scenario was first analyzed by Economic Planning Systems, Inc. (Growth-Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, April 1990) for use in the Draft Subsequent Environmental Impact Report for the Tri-Valley Wastewater Authority's (TWA) Long-Range Wastewater Management Plan for the Livermore-Amador Valley (EIP Associates, January 1992) as a consequence of court decision which had ruled that further analysis of growth-inducing impacts from TWA's proposed wastewater export capacity expansion was necessary to fulfill CEQA requirements. The Tri-Valley Existing Plan scenario has been adapted for the East County Area Plan EIR by Economic Planning Systems, Inc. and the Alameda County Planning Department.]

TABLE 6-1

Alternative 1: "No-Project" - Buildout of Adopted General Plans*

City	Jobs/Housing			Population
	Jobs (#)	Housing Units (#)	Jobs/Housing Ratio	
Dublin	13,049	7,617	1.14	20,261
Pleasanton	64,568	30,054	1.43	79,944
Livermore	101,547	27,243	2.48	72,466
Unincorporated (remainder)	100	470	0.14	1,250
Totals:	179,263	65,384	1.83	173,921
<i>minus unrealized employment</i>	<i>-55,803</i>			
Totals:	123,460	65,384	1.26	173,921

Notes: Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household.

"Unrealized employment" refers to the number of jobs that cannot be filled in East County given an inadequate housing supply for potential resident workers and the incommute constraints on the transportation system entering the Tri-Valley. See Table G-10 in Appendix A.

* This alternative excludes the City of Dublin's recent action on East Dublin which is potentially subject to referendum at the time of publication of this DEIR.

Sources: Holding capacity estimates were developed by Economic and Planning Systems (EPS), Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992; this table was derived from Table A-1 in the appendix of the *Draft East County Area Plan - Volume 1* [adds existing West Dublin subarea (925 dus and 291 jobs) to Dublin]

City of Dublin, Dublin General Plan, adopted February 11, 1985.

City of Pleasanton, Pleasanton General Plan, as amended to 1992.

City of Livermore, Livermore General Plan, as amended to November 14, 1988.

Environmental Evaluation of Alternative 1

Land Use

Population growth allowed under this alternative would accommodate only another 39,000 people, or 76,000 fewer than projected by ABAG for the year 2010. Under this "no-project" alternative, urban growth would continue to occur within the city adopted general plan planning areas as infill development, and therefore would not contribute to further sprawl in the Livermore-Amador Valley. However, the over-designation of commercial/industrial land uses in comparison to land designated for housing (see Employment and Housing discussion below) could lead to land use inefficiencies. If land committed to commercial/industrial development cannot be absorbed due to market and incommute constraints, redesignation of the land for other uses may result in a sub-optimal land use pattern. This may occur where infrastructure, adjacent zoning and design guidelines geared to commercial/industrial uses are inappropriate for land converted to residential use.

Most of the jobs growth would be in the north portions of Pleasanton and Livermore and two-thirds of the housing growth would occur in Pleasanton and one-third in Livermore.

Open Space and Agricultural Resources

About 500 acres of prime agricultural soils would be lost under this alternative. (This acreage is currently unincorporated land owned by the City of San Francisco and is located within the City of Pleasanton's adopted general plan planning area where it is designated for residential development.) Agriculture is poorly protected under Alternative 1, having to rely on 100-acre zoning under the existing general plan. Pressure for the conversion of agricultural and open space lands to urban and suburban uses would increase as the population in the Bay Area region grows and general plan amendments are proposed by the cities. Continued pressure could result in piecemeal conversion of the planning area's agricultural resources.

Visual and Cultural Resources

Development under this alternative would not substantially change the visual character of the Livermore-Amador Valley because development would be confined to the edges of existing urban land uses. Although some additional development would occur in North Livermore and West Pleasanton, East Dublin would remain unchanged. No development would occur in the surrounding upland areas.

Employment and Housing

Compared to a total of 108,000 housing units and 160,000 jobs under ECAP, the number of housing units and jobs under Alternative 1 would increase from about 51,000 units to 65,000

units and from about 76,000 jobs to about 123,000 jobs. A severe jobs/housing imbalance would be created by the insufficient amount of land designated for housing in comparison to that designated for commercial/industrial use. (Land designated for commercial/industrial uses would potentially create more than one job for every person living in the East County.) Transportation constraints on the number of workers that could commute into the East County would result in unrealized employment of about 56,000 jobs, resulting in an inefficient use of developable land. The relative scarcity of residential land would raise house prices, making it less likely that affordable units would be developed. The lack of affordable housing would (continue to) force workers to seek housing in outlying areas with associated adverse effects on traffic and air quality.

Traffic

Because of the significant jobs increase with little housing under this "no-project" alternative, there would be substantial traffic pressure along I-580 and I-680 since most of the new job holders would live outside of the Tri-Valley. Traffic volumes along these corridors would probably be as high, or higher, than ECAP or alternatives with more housing units. (This alternative has the poorest jobs-housing balance of the five alternatives considered. The transportation section of this DEIR contains a detailed discussion of the effects on traffic volumes through the Altamont Gateway in situations where job and housing opportunities are not balanced.) However, because of the minimal increase of housing and the focus of jobs growth along the I-580 corridor, there would be less need for new or widened arterials in the areas north of I-580 contemplated for residential development under ECAP. However, pressure would be even greater for residential development in Contra Costa County responding to this imbalance resulting in a greater impact to the north-south arterials connecting to Contra Costa County.

Air Quality

The amount of new development and related emissions sources (automobiles, residential sources, industrial sources) within the Tri-Valley sub-airbasin would be less than that under the proposed plan because this alternative would accommodate 23 percent fewer jobs and 39 percent fewer housing units. This alternative would have a lesser impact on air quality within the Tri-Valley sub-airbasin. From a regional viewpoint, this alternative would have a greater effect on the San Francisco air basin and neighboring San Joaquin Valley air basin. The jobs/housing imbalance would increase demand for housing in neighboring counties. This would shift some air quality impacts outside the Tri-Valley, while increasing long-distance commuting.

Noise

The 60 dB noise contours on both sides of I-580 and I-680 would be as wide or wider under this alternative as under the proposed plan due to high commute traffic on these interstates.

However, with less development and fewer new arterials, noise levels in most other areas would be far less.

Biological Resources

Although the initial footprint of development under this alternative is less extensive than the proposed plan, there are no built-in mechanisms to guarantee that this footprint will not continue to expand to accommodate growth. Therefore, the impact on biological resources resulting from the direct loss of habitat would be less with this alternative but there is still a potential for additional losses of habitat with the expansion of this footprint.

Grasslands and cultivated lands would be lost under this alternative in the North Livermore area and agricultural land, grasslands and woodlands would be affected in South and West Pleasanton.

The lack of mechanisms to confine growth to less biologically sensitive areas and to permanently protect open space under resource management guidelines could result in future unavoidable significant adverse impacts.

Hydrology and Water Quality

The proposed area of development under this alternative includes portions of the watershed for the Springtown valley sink scrub habitat which supports the federally endangered Bird's Beak Plant. There are no policies or programs which address the potential for development in the watershed to alter the existing hydrologic conditions of the sink. Alteration of existing hydrologic conditions of the sink could result in a decline of the habitat and affect the population of bird's beak found there.

Alternative 1 also proposes development within the watershed boundary of the San Antonio Reservoir which supplies water for the San Francisco Municipal Water District. Development in this watershed could degrade the water quality in this Reservoir.

The extent of new development should not have an affect on surface water quality because all new development will need to incorporate design features to protect the quality of the storm water released into drainages and waterways as part of the Alameda County Storm Water Management Plan, Urban Clean Runoff Program.

Water Supply

The present water supply for the planning area (40,900 acre-feet) is just sufficient to meet the needs of the population under this alternative. Assuming per capita use at 0.235 acre-feet per year, demand would equal 40,200 acre-feet, leaving a surplus of 700 acre-feet.

Wastewater

Like ECAP, the capacity of the Livermore-Amador Valley Water Management Agency export pipeline, will not be sufficient to meet projected growth under this alternative: it is anticipated that pipeline capacity will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Compared to total wastewater generation under the plan of 33.3 million gallons a day (MGD) (average dry weather flow), this alternative will generate 22.35 MGD. Additional export capacity and/or advanced water reclamation plants would be needed.

Energy

While overall energy consumption would be considerably less under this alternative than for the proposed plan, the alternative's lack of housing for employed residents would increase fuel consumption for incommuting workers.

6.2 Alternative 2: "No-Project" - Maximum Growth/Low Density (Prospective City General Plans)

Objectives

Like Alternative 1, the "maximum growth" alternative fulfills the CEQA requirement to analyze the environmental impacts in the planning area based on the assumption that the existing general plan for East County remains in effect. While Alternative 1 analyzes "no project" conditions under existing city general plans (excluding, as noted in Alternative 1, the City of Dublin's recent action on East Dublin which is potentially subject to referendum at the time of publication of this DEIR), Alternative 2 looks at "no project" conditions under prospective city general plans. For development in North Livermore and East Dublin, the largest prospective development scenarios that have been put forward by the respective cities for evaluation in the environmental review documents have been used for this alternative. The inclusion of the maximum development scenarios in North Livermore and East Dublin, as well as development of Pleasanton Ridge and West Dublin allows an examination of a worst-case development scenario for the planning area.

Identifying the problems facing the planning area resulting from (maximum) proposed city development plans outside of their adopted general plan area establishes the backdrop against which the proposed plan was developed. (*Chapter 2* of this DEIR document examine this regional and institutional context in greater detail.)

Description

The "Maximum Growth/Low Density" Alternative is a "no-project" alternative that maximizes potential development in the planning area based on general plan amendment projects that have been proposed by the East County's jurisdictions since 1990. Under this alternative, the County's 1977 plan for the Livermore-Amador Planning Unit would remain in effect (including the recently adopted South Livermore Valley Area Plan). Table 6-2 shows the land use development potential by subarea. The extent of urban development is shown on Figure: Alternative 2. This alternative represents the prospective general plan scenario as described in Table A-1 in the Appendix of the Draft Plan.

[This development scenario was first analyzed by Economic Planning Systems, Inc. (Growth-Inducing Impacts Analysis of Tri-Valley Wastewater Authority Export Capacity Expansion, April 1990) for use in the Draft Subsequent Environmental Impact Report for the Tri-Valley Wastewater Authority's (TWA) Long-Range Wastewater Management Plan for the Livermore-Amador Valley (EIP Associates, January 1992) as a consequence of court decision which had ruled that further analysis of growth-inducing impacts from TWA's proposed wastewater export capacity expansion was necessary to fulfill CEQA requirements. The Tri-Valley Prospective General Plan scenario has been adapted for the East County Area Plan EIR by Economic Planning Systems, Inc. and the Alameda County Planning Department.]

TABLE 6-2

**Alternative 2: "No-Project" - Maximum Growth/Low Density
(Prospective City General Plans)**

Area	Jobs/Housing			Population
	Jobs (#)	Housing Units (#)	Jobs/Housing Ratio	
Dublin ¹	12,758	6,692		17,801
East Dublin ²	25,717	18,473		49,138
West Dublin ³	291	4,153		11,047
Pleasanton ²	64,568	30,054		79,944
Pleasanton Ridge ²	50	2,658		7,070
Livermore ⁴	101,547	27,243		72,466
North Livermore ⁵	13,792	16,531		45,000
South Livermore ⁶	4,055	2,820		7,501
Unincorporated ⁹ (remainder)	100	470		1,250
Totals:	222,878	109,094	1.36	291,211
<i>minus unrealized employment</i>	<i>- 60,053</i>			
Totals:	162,825	109,094	0.99	291,211

Notes: Because of an overlap between the East Dublin and North Livermore plans, the composite holding capacity assumes a scenario which divides the two plans along a line just east of Collier Canyon Road following the East Dublin eastern boundary to the Livermore City Limits and then proceeding westward to Doolan Canyon Road and southward to I-580. This division yields the maximum amount of development provided between the two plans while respecting land currently within Livermore's City limits.

"Unrealized employment" refers to the number of jobs that cannot be filled in East County given an inadequate housing supply for potential resident workers and the incommute constraints on the transportation system entering the Tri-Valley. See Table G-10 in Appendix A.

Sources: Unless otherwise noted, holding capacity estimates were developed by Economic and Planning Systems (EPS), Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992. Subareas are defined by Tri-Valley Traffic Zones developed for the Tri-Valley Transportation model (see Figure _____) and may not conform to city general plan and general plan amendment boundaries. Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household.

¹City of Dublin, Dublin General Plan, adopted February 11, 1985. Prospective Plan based on EPS interpretation of the Dublin General Plan, adopted February 11, 1985.

²City of Dublin, Eastern Dublin General Plan Amendment (Draft), February 1992. Prospective Plan based on Eastern Dublin General Plan Amendment (as of February 1992), which yields 18,473 housing units and 27,925 jobs, modified to delete 120 acres of Industrial Park east of Doolan Canyon Road at densities assumed in the Draft Eastern Dublin General Plan Amendment yielding 2,210 fewer jobs (1,304,400 s.f. at 1 job per 590 s.f.).

³City of Dublin, West Dublin Specific Plan EIR, January 1992. Prospective Plan based on 3,260 units cited in West Dublin EIR plus EPS estimate of 872 existing units and 291 existing jobs.

⁴City of Livermore, Livermore General Plan, as amended to November 14, 1988. Prospective Plan based on EPS interpretation of Livermore General Plan, as amended to November 14, 1988; holding capacity based on 2010 Livermore Circulation Element Scenario, December 1988.

⁵City of Livermore, North Livermore 45,000 Population Plan, January 30, 1992. Prospective Plan based on North Livermore 45,000 Population Plan which yields 16,513 housing units and 22,111 jobs modified to delete 200 acres of Business Commercial Park (BCP) (2,613,600 sf / 325 sf/job = 8,041 jobs) and 20 acres of Commercial (174,240 sf / 625 sf/job = 278 jobs) land lying west of Doolan Canyon Road at North Livermore GPA EIR assumed densities yielding 8,319 fewer jobs.

⁶Alameda County, Draft South Livermore Valley Area Plan, February 6, 1992. Prospective Plan based on high estimate shown in South Livermore Valley Area Plan and assumes 100,000 square feet of vineyard-related commercial development at an average employment density for commercial uses of 1 job per 450 square feet (222 jobs) plus 3,833 existing jobs.

⁷City of Pleasanton, Pleasanton General Plan, as amended to 1992. Prospective Plan based on EPS interpretation of the Pleasanton General Plan, as amended to 1992.

⁸City of Pleasanton, Pleasanton Ridgeland Plan, January 10, 1992. Prospective Plan based on maximum holding capacity of 2,640 units cited in Pleasanton Ridgeland Plan plus 18 existing units; job holding capacity based on EPS.

⁹Alameda County, Livermore-Amador Valley Planning Unit General Plan, 1977. East County totals 267,500 acres of which about 98,000 acres are included within other subareas; of the remaining 169,500 acres, it is assumed that about 90% are unbuildable due to access, infrastructure, slope, public ownership, or other constraints. The potentially buildable 16,950 acres could yield 170 housing units in addition to the 300 existing units in unincorporated areas outside subareas (According to Bill Spear and the 1990 census, there are 90 units on Tesla Road, 70 in Mountain House area, 40 in Niles Canyon, 30 on Greenville Road, 50 on Mines Road, and 20 on Vallecitos Road.) Assumes 100 existing agricultural jobs in unincorporated areas, estimated by County Agricultural Commissioner.

Environmental Evaluation of Alternative 2

Land Use

Population growth allowed under this alternative would be similar to the proposed plan (291,000 buildout population compared to ECAP's 287,000). Under this alternative, cities would eventually annex and develop for urban uses about 13,500 acres of unincorporated land in comparison to the plan's 10,000 acres (which includes 800 acres of potential development under the South Livermore Area Plan). Development in the West Dublin and Pleasanton Ridge subareas would promote significant urban sprawl by developing upland areas remote from existing services and infrastructure. Considerable development would also occur north of I-580 in the East Dublin and North Livermore subareas including Doolan and Collier Canyons. Gross average residential densities in North Livermore would be less than 2 dwelling units per acre and in Pleasanton Ridge would be about 2.4 units per gross acre.

Over-designation of land for commercial/industrial purposes (see Employment and Housing discussion) could lead to the same type of land use inefficiencies described in Alternative 1.

Open Space and Agricultural Resources

About 700 acres of prime agricultural soils would be lost under this alternative, or the same as the proposed plan. As in Alternative 1, agricultural lands would be poorly protected. Pressure for additional general plan amendments in areas adjacent to newly developed areas could cause the incremental and substantial conversion of agricultural and open space lands to urban uses as growth pressure in the region continues. Without institutional safeguards, it is assumed under this alternative that "future study areas" and sensitive ridgeland areas recently considered for development would be eventually developed.

Visual and Cultural Resources

Under Alternative 2, the visual character of the planning area would be significantly changed, far more so than under the proposed plan. Although development in the upland areas of Pleasanton Ridge and West Dublin would not be highly visible from the valley floor, traffic to these areas would contribute to a change in psychological perspective from an urban area surrounded by open space and ridgeland separators to an urbanized area connected to urban communities near the Bay. Solid development north of I-580 from West Dublin to eastern North Livermore, with only major hills remaining in a natural state, would seriously degrade views, alter the Valley's character and create an undifferentiated block of urbanization.

Employment and Housing

This alternative is very close in total jobs and housing as the proposed ECAP. In ECAP there are about 7,000 more dwelling units in North Livermore than in Alternative 2. ECAP has about 5,000 less dwelling units in Dublin and about 2,000 less units in Pleasanton. The jobs totals are about the same in this alternative as in ECAP. While the number of housing units would be only somewhat more than ECAP, this "prospective general plan" alternative designates an excess amount of land for commercial/office/industrial uses so that a severe jobs/housing imbalance would occur. Transportation constraints on the number of workers that could commute into the East County would result in unrealized employment of about 60,000 jobs, resulting in an inefficient use of developable land. With an overall average gross residential density of 3.4 dwelling units per acre, the probable lack of affordable housing would exacerbate the commute situation.

Traffic

As stated above, about 60,000 jobs would be unrealized due to constraints on the transportation network. With these jobs unfilled, traffic impacts of this alternative would be very similar to those of the ECAP. Impacts along the freeways and other gateways would be the same while the distribution of traffic would be somewhat different due to dispersed development.

Air Quality

The amount of new development and related emissions sources (automobiles, residential sources, industrial sources) within the Tri-Valley sub-airbasin would be slightly greater than that under the proposed plan (2 percent more jobs and 1 percent more housing/population). This alternative would have a slightly greater impact on air quality within the Tri-Valley sub-airbasin.

Noise

The 60 dB noise contours on both sides of I-580 and I-680 would be as wide under this alternative as under the proposed plan due to high commute traffic on these interstates. The overall area affected by increased noise levels would be higher under this alternative than the plan due to the conversion of more acres to urbanization.

Biological Resources

This alternative would result in the removal of a majority of the grassland habitat in North Livermore and Eastern Dublin. It would also result in the removal of oak woodland and riparian habitats in West Dublin. The proposed footprint of development north of I-580 would create isolated pockets of open space on hillsides and ridgetops and disrupt wildlife movement along the Doolan Canyon and Collier Canyon corridors. This proposal would

essentially cut off access for wildlife into Eastern Dublin and North Livermore, west of Vasco Road, from the open lands in the Altamont hills.

As in Alternative 1, the lack of mechanisms to confine growth to less biologically sensitive areas and to permanently protect open space under resource management guidelines could result in unavoidable significant adverse impacts

Hydrology and Water Quality

Under this alternative, less development would occur in the watershed in North Livermore where the Springtown valley sink scrub habitat occurs than under the proposed plan. However, without policies to address the potential for development to alter the existing hydrologic conditions of the sink, the population of bird's beak could be adversely affected.

Water Supply

The present water supply for the planning area (40,900 acre-feet) is insufficient to meet the needs of the population under this alternative. Like the proposed plan, water demand would exceed existing sustainable water supply by about 27,000 acre-feet. (If conservation practices were effectively implemented, a 10 percent savings would occur, reducing this figure to about 21,000 acre-feet.) As with the proposed plan, securing additional sources of water would be necessary. Feasible water sources include buying water on the market and using reclaimed water.

Wastewater

Like ECAP, the capacity of the Livermore-Amador Valley Water Management Agency export pipeline, will not be sufficient to meet projected growth under this alternative: it is anticipated that pipeline capacity will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Compared to total wastewater generation under the plan of 33.3 million gallons a day (MGD) (average dry weather flow), this alternative will generate 33.72 MGD. Additional export capacity and/or advanced water reclamation plants would be needed.

Energy

Overall energy consumption would be somewhat more under this alternative than the proposed plan due to slightly higher population and jobs. Lower density residential development and the wider geographical distribution of urban development in the planning area will also increase energy use.

6.3 Alternative 3: Modified East Dublin

Objectives

This alternative evaluates the effects of the City of Dublin's recently adopted general plan amendment for the East Dublin subarea (May 10, 1993) in the larger cumulative context of accommodating projected growth in the East County planning area. Alternative 3 assumes ECAP's land use diagram for all areas except East Dublin. Although Alternative 3 and ECAP are similar in terms of the development footprint and buildout population, the "Modified East Dublin" alternative does not include policies and programs that identify and implement the Urban Growth Boundary proposed in ECAP. The alternative also differs from ECAP by having a "future study area" designation that indicates the potential for possible future development in the Doolan Canyon area between East Dublin and North Livermore. The alternative therefore tests the effects of the lack of a permanent urban limit line in addition to other effects associated with the land use program. (This alternative scenario is intended to be a broad-brush cumulative discussion to look at this modified land use plan in the context of the entire planning area; it is not intended to substitute for the project specific analysis prepared by the City of Dublin.)

Figure: Alternative 3 shows how the alternative modifies the proposed plan's development footprint in the East Dublin subarea and delineates the boundary of the "future study area".

Description

Under the "Modified East Dublin" alternative, as under the proposed plan, the footprint of land converted to urban uses is located within the city's sphere of influence. (Under Alternative 3, developable land covers about 3,050 acres, while ECAP includes an additional 75 acres of mixed use/business park and medium density residential west of Doolan Canyon Road.) However, under the alternative, an additional 2,750 acres, including Doolan Canyon, is set aside for future study. The "future study area" designation indicates the potential for possible future development. Under ECAP, this area is identified as permanently protected open space under a Resource Management designation ("A" Agricultural District with a 100-acre minimum parcel size).

Compared with the proposed plan, Alternative 3 has about 2,550 fewer housing units and about 5,800 more jobs, lowering the buildout population from 287,000 to 280,600. Compared with the proposed plan, the overall density for the East Dublin subarea under Alternative 3 would increase from about 16,475 units on 2,500 acres (an average of 6.6 units per acre) to about 13,930 units on about 1,700 acres (an average of 8.2 units per acre).

Table 6-3 shows the land use potential for this alternative.

Table 6-3
Alternative 3: "Modified East Dublin"

Area	Jobs/Housing			Population
	Jobs (#)	Housing Units (#)	Jobs/Housing Ratio	
Dublin	12,758	6,692	1.27	17,801
East Dublin	26,380	13,930	1.26	37,054
West Dublin	291	925	0.21	2,460
Pleasanton	58,111	30,054	1.29	79,944
Pleasanton Ridge	0	60	0	160
Livermore	55,849	27,243	1.37	72,466
North Livermore	8,167	23,310	0.23	62,005
South Livermore	4,055	2,820	0.96	7,501
Unincorporated (remainder)	100	470	0.14	1,250
Totals:	165,711	105,504	(1.05)	280,563
<i>minus unrealized employment</i>	<i>-6,119</i>			
Totals:	159,592	105,504	1.01	280,563

Notes: Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household.

"Unrealized employment" refers to the number of jobs that cannot be filled in East County given an inadequate housing supply for potential resident workers and the incommute constraints on the transportation system entering the Tri-Valley. See Table G-10 in Appendix A.

Source: Alameda County Planning Department; City of Dublin

Environmental Evaluation of Alternative 3

Land Use

Under Alternative 3, projected growth for 2010 would be accommodated. The alternative's buildout holding capacity would be about 280,000, or 7,000 less people than ECAP. The location and amount of planned development would also be about the same as ECAP with about 9,950 acres of unincorporated land being converted to urban uses. Under this alternative, 2,750 acres in the East Dublin subarea would be designated as a "future study area", opening up the possibility of future development in the Doolan Canyon area and raising the potential total number of converted acres up to 11,000 acres. Designating this area for possible future development would have a growth-inducing effect and would provide substantially more land than needed to accommodate projected growth. (About 8,600 acres is needed to accommodate projected growth at ECAP's densities and distribution of land uses. Under ECAP, an additional 1,400 acres is designated for urban growth that would accommodate an additional 37,000 people and an additional 8,000 jobs; possible conversion of the "Urban Reserve" designation would provide more flexibility for future growth in the planning area.)

Under Alternative 3, the lack of an urban limit line such as ECAP's Urban Growth Boundary could result in incremental urban sprawl, and inefficient use of land in Doolan Canyon where services would have to be extended along a linear corridor. Without an Urban Growth Boundary and policies to permanently protect open space outside of the boundary (such as the creation of a County Land Trust and the dedication by Major New Urban Development in North Livermore of 4,200 acres and the designation of 3,200 acres in East Dublin for permanent open space protection in the Doolan Canyon area), the geographical containment of growth unlikely to occur.

Open Space and Agricultural Resources

About 700 acres of prime agricultural soils would be lost under this alternative, or the same as the proposed plan (about 200 acres in East Dublin and about 500 acres in currently unincorporated land owned by the City of San Francisco and located within the City of Pleasanton's adopted general plan planning area where it is primarily designated for residential and business development). Like Alternatives 1 and 2, agricultural lands are poorly protected under this alternative. Without a permanent urban limit line to discourage real estate speculation of agricultural and open space lands in the vicinity of planned urban development and mechanisms other than zoning to protect open space, continued loss of open space and loss of agricultural resources would be a significant potential impact of this alternative.

Visual and Cultural Resources

In comparison to the plan, this alternative has a visual beneficial impact by having no development adjacent to I-580 west of Doolan Canyon Road. This gap provides an open space visual corridor important as a community separator between East Dublin and North Livermore.

Employment and Housing

Although similar to the plan in population, this alternative has about 2,500 fewer housing units and about 6,000 more jobs. Alternative 3 ratio of jobs to housing indicates that an excess amount of land has been designated for commercial/industrial uses so that a moderate jobs/housing imbalance would occur. Transportation constraints on the number of workers that could commute into the East County would result in unrealized employment of about 6,000 jobs, resulting in an inefficient use of developable land.

Traffic

This alternative has the same number and location of jobs as ECAP with about 2,500 fewer housing units in East Dublin. This would reduce traffic impacts somewhat along some East Dublin arterials but have little effect elsewhere on the Tri-Valley transportation network. However, if Dublin Boulevard is not ultimately extended across the Future Study Area, it could have a major impact on regional traffic levels of service.

Air Quality

The amount of new development and related emissions sources (automobiles, residential sources, industrial sources) within the Tri-Valley sub-airbasin would be slightly less than that under the proposed plan. This alternative would accommodate 4 percent more jobs and 2 percent fewer housing units when compared to the proposed project; therefore, this alternative would have a slightly lesser impact on air quality within the Tri-Valley sub-airbasin.

Noise

The 60 dB noise contours on both sides of I-580 and I-680 would be as wide under this alternative as under the proposed plan due to similar traffic conditions on these interstates. The overall area affected by increased noise levels would also be about the same as the plan unless development occurred in Doolan Canyon in which case noise levels in that area would increase significantly.

Biological Resources

Although the proposed extent of habitat removal for this alternative and ECAP are similar, the "Modified East Dublin" Alternative does not include policies and programs that identify and implement the Urban Growth Boundary. This alternative also identifies the potential for future development in the Doolan Canyon area. The primary impact resulting from implementation of this alternative would be the absence of long-term protection for biological resources by not setting limits on the expansion of new urban development and not providing policies and programs to secure large contiguous open space areas outside of these limits specifically for the protection of biological resources.

Hydrology and Water Quality

Hydrology and water quality impacts would be the same as the plan unless development occurred in Doolan Canyon, in which case runoff would increase thereby increasing the potential for erosion and stream sedimentation in that area.

Water Supply

The present water supply for the planning area (40,900 acre-feet) is insufficient to meet the needs of the population under this alternative. Somewhat less than the proposed plan, water demand would exceed existing sustainable water supply by about 25,000 acre-feet. (If conservation practices were effectively implemented, a 10 percent saving would occur, reducing this figure to about 22,500 acre-feet.) If development occurred in the Doolan Canyon area, the need for water would increase. As with the proposed plan, securing additional sources of water would be necessary. Feasible water sources include buying water on the market and using reclaimed water.

Wastewater

Like ECAP, the capacity of the Livermore-Amador Valley Water Management Agency export pipeline, will not be sufficient to meet projected growth under this alternative: it is anticipated that pipeline capacity will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Compared to total wastewater generation under the plan of 33.3 million gallons a day (MGD) (average dry weather flow), this alternative will generate 32.7 MGD. Additional export capacity and/or advanced water reclamation plants would be needed.

Energy

Overall energy consumption would be somewhat less under this alternative than the proposed plan due to slightly lower population.

6.4 Alternative 4: Modified North Livermore

Objectives

This alternative evaluates the effects of the City of Livermore's proposed general plan amendment for the subarea (Calthorpe Associates, December 1992) in the larger cumulative context of accommodating projected growth in the East County planning area. Under the city's plan for North Livermore, both the population and geographical extent of development would be about half that proposed under ECAP. Alternative 4 assumes the plan's land use diagram for all areas other than North Livermore. While an urban limit line is implied in the land use diagram, the "Modified North Livermore" alternative does not include policies and programs that identify and implement the Urban Growth Boundary proposed in ECAP. The alternative is intended to test the effects of reduced development in the North Livermore subarea as well as the effects of an urban limit line that relies on zoning to maintain its integrity. (This alternative scenario is intended to be a broad-brush cumulative discussion to look at this modified land use plan in the context of the entire planning area; it is not intended to substitute for the project specific analysis being prepared by the City of Livermore.)

Figure: Alternative 4 shows how the alternative modifies the proposed plan's land use diagram in the North Livermore subarea.

Description

The alternative assumes a pattern of land uses in North Livermore which is more compact in terms of both density and land area than that proposed for the subarea under ECAP. "Modified North Livermore" results in an overall building area which is reduced from about 6,100 developed acres encompassing most of the flat area from I-580 to just south of the County line (in ECAP) to about 3,615 developed acres concentrated south of Raymond Road (in Alternative 4) with rural residential development in Collier and Doolan Canyons and north of Raymond Road. Housing units would be reduced by more than 10,000 units from 23,310 (under ECAP) to 12,940 (under Alternative 4); employment would increase by about 7,500 jobs, from 8,167 (under ECAP) to 15,679 (under Alternative 4). About 75 acres of land designated for Business Park Commercial would be located west of Doolan Canyon Road on I-580. Unlike the proposed plan, the North Livermore plan described by this scenario would include only limited retail and commercial services.

Under Alternative 4, the buildout population of the planning area would be lowered by 10 percent (from about 287,000 to about 260,000) and approximately 2,485 fewer acres would be designated for new development (6,100 acres compared to 3,615 acres). Compared with ECAP, the overall residential density for the North Livermore subarea under this alternative would increase from about 23,300 units on about 5,800 acres (an average of about 4.0 units per acre) to about 12,940 units on about 2,738 acres (an average of about 4.7 units per acre).

Table 6-4 shows the land use potential for this alternative.

TABLE 6-4

Alternative 4: "Modified North Livermore"

Area	Jobs/Housing			Population
	Jobs (#)	Housing Units (#)	Jobs/Housing Ratio	
Dublin	12,758	6,692	1.27	17,801
East Dublin	20,572	16,473	0.84	43,818
West Dublin	291	925	0.21	2,460
Pleasanton	58,111	30,054	1.29	79,944
Pleasanton Ridge	0	60	0	160
Livermore	55,849	27,243	1.37	72,466
North Livermore	15,679	12,939	0.81	34,418
South Livermore	4,055	2,820	0.96	7,501
Unincorporated (remainder)	100	470	0.14	1,250
Totals:	167,415	97,676	1.14	259,818
<i>minus unrealized employment</i>	-14,873			
Totals:	152,542	97,676	1.04	259,818

Notes: Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household.

"Unrealized employment" refers to the number of jobs that cannot be filled in East County given an inadequate housing supply for potential resident workers and the incommute constraints on the transportation system entering the Tri-Valley. See Table G-10 in Appendix A.

Source: Alameda County Planning Department

Environmental Evaluation of Alternative 4

Land Use

Under Alternative 4, projected growth for 2010 would be accommodated. The alternative's buildout holding capacity would be about 260,000, or about 27,000 less than ECAP. The location of planned development would be about the same as ECAP except in North Livermore where about 2,500 fewer acres (most of it north of May School Road) would be converted to urban uses.

Although about 2,500 fewer acres would be designated for urban development, the "Modified North Livermore" Alternative allows rural residential development (at a density of 1 dwelling unit per 20 acres) along the hills east of May School Road and in Doolan and Collier Canyons, which precludes the use of this land as undeveloped open space. Under ECAP, the Urban Growth Boundary is used to distinctly separate urban land uses from open space where open space either has a maximum density of 1 dwelling unit per 100 acres or is purchased in fee title or easement by the County Land Trust with funds generated by Major New Urban Development in North Livermore. The purchase of 4,200 acres of open space requires a threshold number of residential units upon which fees can be assessed. Under this alternative, there would be 10,000 fewer units, making it unlikely that sufficient money could be raised to permanently secure land in open space north of May School Road.

As with Alternative 3, the "Modified North Livermore" alternative's lack of an urban limit line such as ECAP's Urban Growth Boundary and probable fiscal inability to secure permanent open space could result in incremental urban sprawl. The potential proliferation of rural ranchettes surrounding higher density development south of May School Road and in Doolan Canyon and Collier Canyon would contribute to urban sprawl and the inefficient use of land in terms of the provision of infrastructure and services.

The exclusive reliance on zoning to contain growth would be an ineffective tool to mitigate this impact due to real estate speculation on adjacent lands.

Open Space and Agricultural Resources

About 700 acres of prime agricultural soils would be lost under this alternative, or the same as the proposed plan (about 200 acres in East Dublin and about 500 acres in currently unincorporated land owned by the City of San Francisco and located within the City of Pleasanton's adopted general plan planning area where it is primarily designated for residential and business development). Like the other alternatives, agricultural and open space lands are poorly protected under Alternative 4. As described above, without a permanent urban limit line to discourage real estate speculation of agricultural and open space lands in the vicinity of planned urban development and mechanisms other than zoning to protect open space, continued loss of open space and loss of agricultural resources would be a significant potential impact of this alternative.

Visual and Cultural Resources

Under Alternative 4, the visual character of the Livermore-Amador Valley would be about the same as the proposed plan. Like the proposed plan, this alternative lacks a community separator between East Dublin and North Livermore adjacent to I-580.

Employment and Housing

This alternative has about 10,000 fewer housing units and about 7,000 more jobs than the proposed plan. The alternative's jobs/housing ratio indicates that an excess amount of land has been designated for commercial/industrial uses so that a significant jobs/housing imbalance would occur. Transportation constraints on the number of workers that could commute into the East County would result in unrealized employment of almost 15,000 jobs, resulting in an inefficient use of developable land.

Under this alternative, fewer affordable housing units for low income groups may be possible if the reduced number of housing units makes their provision fiscally infeasible.

Traffic

Traffic impacts would be somewhat reduced in North Livermore along the arterials. Elsewhere, there would be a slight reduction in traffic along portions of I-580 near East Dublin and North Livermore. Otherwise, traffic impacts would be similar to the proposed plan.

Air Quality

The amount of new development and related emissions sources (automobiles, residential sources, industrial sources) within the Tri-Valley sub-airbasin would be less than that under the proposed plan. Because this alternative would accommodate 5 percent fewer jobs and 10 percent fewer housing units when compared to the proposed project, this alternative would have a lesser impact on air quality within the Tri-Valley sub-airbasin.

Noise

As with all the other alternatives, the 60 dB noise contours on both sides of I-580 and I-680 would be as wide under this alternative as under the proposed plan due to similar traffic conditions on these interstates. The overall area affected by increased noise levels would be somewhat less due to reduced development north of May School Road unless development occurred in Doolan Canyon in which case noise levels in that area would increase significantly.

Biological Resources

This alternative is similar to Alternative 2 in that it creates disjunct islands of open space disrupting the movement of wildlife from the Altamont Hills into the areas north of I-580. Development is also proposed along the riparian corridors in Doolan Canyon and Collier

Canyon. This alternative relies on zoning to maintain the integrity of its urban limit line, therefore, there is no commitment for long-term protection of biological resources outside the implied urban limit. As the demand for new urban development increases, additional losses of habitat could occur in the North Livermore area.

Hydrology and Water Quality

Hydrology and water quality impacts would be greater than the plan due to development in Doolan Canyon and Collier Canyon where increased runoff would increase the potential for erosion and stream sedimentation in those areas.

Water Supply

Like all the alternatives and the proposed plan, the present water supply for the planning area (40,900 acre-feet) is insufficient to meet the needs of the population under this alternative. Somewhat less than the proposed plan, water demand would exceed existing sustainable water supply by about 20,000 acre-feet. (If conservation practices were effectively implemented, a 10 percent saving would occur, reducing this figure to about 18,000 acre-feet.) As with the proposed plan, securing additional sources of water would be necessary. Feasible water sources include buying water on the market and using reclaimed water.

Wastewater

Like ECAP, the capacity of the Livermore-Amador Valley Water Management Agency export pipeline, will not be sufficient to meet projected growth under this alternative: it is anticipated that pipeline capacity will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Compared to total wastewater generation under the plan of 33.3 million gallons a day (MGD) (average dry weather flow), this alternative will generate 30.6 MGD. Additional export capacity and/or advanced water reclamation plants would be needed.

Energy

Overall energy consumption would be somewhat less under this alternative than the proposed plan due to a slightly lower buildout population.

6.5 Alternative 5: "Minimum Growth/High Density"

Objectives

This alternative evaluates the effects of less development and a more compact land use pattern (higher density in a smaller land area) in the East Dublin and North Livermore subareas than that found under the proposed plan or the "Reduced East Dublin" or "Reduced North Livermore" alternatives.

Description

East Dublin. Alternative 5 confines all development in the East Dublin subarea to the 600-acre Santa Rita and adjacent Camp Parks properties immediately north of I-580 within the incorporated city of Dublin.

Half of the Santa Rita property and 100 acres of the Camp Parks property immediately west of the Santa Rita site is assumed appropriate for residential development at a gross density of 12 units per acre, resulting in a total of about 4,800 housing units (a reduction of 11,670 units compared to ECAP). The remaining half of the Santa Rita property is assumed to be developed for office, commercial and industrial uses resulting in about 8,000 jobs (a reduction in about 12,500 jobs compared to ECAP).

Compared with ECAP, overall densities in the East Dublin subarea would increase from an average of 6.6 units per acre (about 16,500 units on 2,500 acres) to about 4,800 units on about 400 acres (an average of 12 units per acre).

North Livermore. Alternative 5 confines all development in the North Livermore subarea to south of Raymond Road, reducing the overall building area from about 6,100 developed acres under ECAP to about 2,375 developed acres. Residential uses occur on 1,500 acres of land at an average density of 8 housing units per acre, resulting in about 12,000 units. It is assumed that local retail uses within the developed area create 568 jobs and that business park and other regional commercial uses are excluded.

Compared with ECAP, overall residential densities in the North Livermore area under Alternative 5 would increase from about 23,300 units on about 5,800 acres (an average of 4.0 units per acre) to about 12,000 units on 1,500 acres (an average of 8.0 units per acre).

Overall, 2,375 acres would be developed outside of incorporated city limits; residential density would occur at 8.8 units per acre.

Figure: Alternative 4 shows the extent of urban development under Alternative 5 compared to the plan's urban growth boundary; Table 6-5 shows the alternative's land use potential.

TABLE 6-5

Alternative 5: "Minimum Growth/High Density"

Area	Jobs/Housing			Population
	Jobs (#)	Housing Units (#)	Jobs/Housing Ratio	
Dublin	12,758	6,692	1.27	17,801
East Dublin	8,000	4,800	1.11	12,768
West Dublin	291	925	0.21	2,460
Pleasanton	58,111	30,054	1.29	79,944
Pleasanton Ridge	0	60	0	160
Livermore	55,849	27,243	1.37	72,466
North Livermore	568	12,000	0.03	31,920
South Livermore	4,055	2,820	0.96	7,501
Unincorporated (remainder)	100	470	0.14	1,250
Totals:	139,732	85,064	1.09	226,270
Notes: Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household.				
Source: Alameda County Planning Department				

Environmental Evaluation of Alternative 5

Land Use

Under Alternative 5, projected growth would not be accommodated. The alternative's buildout holding capacity would be about 226,000, or about 61,000 less than ECAP. Because growth would be lower and concentrated at high densities within the Santa Rita and Camp Parks areas of the City of Dublin and south of Raymond Road in North Livermore, only a little more than 3,000 acres would be converted to urban uses (compared to the plan's 10,000 acres). With densities at 12 units per gross acre in the East Dublin subarea and 8 units per gross acre in the North Livermore subarea, this alternative would promote the most efficient use of land. Although urban sprawl would not occur as a result of planned growth, like the rest of the alternatives, this alternative would be subject to growth pressures (housing demand, land values and the profitability of different projects) that could result in future unanticipated sprawl.

Open Space and Agricultural Resources

Like Alternative 1, about 500 acres of prime soils would be lost to urban development (this would occur on unincorporated land within the City of Pleasanton's general plan planning area), or 200 fewer acres than under the proposed plan. As described under Alternatives 2, 3, and 4, without a permanent urban limit line to discourage real estate speculation of agricultural and open space lands in the vicinity of planned urban development and mechanisms other than zoning to protect open space, continued loss of open space and loss of agricultural resources would be a significant potential impact of this alternative. This alternative lacks the scale of housing needed to generate the mitigation fees to place open space under permanent protection.

Visual and Cultural Resources

Under this alternative, the visual resources of the Livermore-Amador Valley would be minimally affected. However, unless open space areas (especially East Dublin) were permanently protected, significant visual impacts could occur as a result of incremental urbanization beyond designated growth areas.

Employment and Housing

This alternative has about 23,000 fewer housing units and 20,000 fewer jobs than the ECAP. The jobs/housing ratio is fairly balanced and commercial/industrial land uses are not over-designated as under all the other alternatives. However, the narrow range of types of residential units could create indirect impacts on open space, traffic, and air quality. Because it is unlikely that the market could absorb the number of multi-family units provided in this alternative, demand for more single-family units could both increase pressure on undeveloped land within East County and generate more incommuting from Tri-Valley workers living in single-family units in San Joaquin County.

Traffic

Both jobs and housing are drastically reduced in East Dublin and North Livermore. The traffic impacts along the arterials and the freeways in the ECAP area would be reduced by the reduction in development. However, due to the unsatisfied demand for single-family housing, there would probably be greater in-commuting required than in the ECAP. This would create somewhat more traffic pressure on the gateways to the Tri-Valley.

Air Quality

The amount of new development and related emissions sources (automobiles, residential sources, industrial sources) within the Tri-Valley sub-airbasin would be less than that under the proposed plan. This alternative would accommodate 13 percent fewer jobs and 13 percent fewer housing units when compared to the proposed plan. This alternative would have a lesser impact on air quality within the Tri-Valley sub-airbasin.

From a regional viewpoint, this alternative would have a greater effect on the San Francisco air basin and neighboring San Joaquin Valley air basin. The lower buildout capacity of this alternative might increase demand for housing in neighboring counties. This would shift air quality impacts outside the Tri-Valley, while increasing long-distance commuting.

Noise

As with all the other alternatives, the 60 dB noise contours on both sides of I-580 and I-680 would be as wide under this alternative as under the proposed plan due to similar traffic conditions on these interstates. However, the overall area affected by increased noise levels would be considerably less due to reduced development in East Dublin and North Livermore. Noise levels could be expected to be considerably higher in the areas of new development where high densities would occur.

Biological Resources

This alternative proposes to limit the extent of the development footprint and maximize development densities within that footprint. Although the direct loss of habitat would be minimal, there is a potential that with proposed densities, the development could indirectly affect the Springtown valley sink scrub habitat and the population of bird's beak found in the Bird's Beak Preserve immediately adjacent to the development footprint.

Hydrology and Water Quality

Under this alternative, there may not be enough land within the urbanized area to provide adequate filtering of storm water as required under new NPDES requirements and Alameda County Urban Clean Runoff Program.

Water Supply

Like all the alternatives and the proposed plan, the present water supply for the planning area (40,900 acre-feet) is insufficient to meet the needs of the population under this alternative. Although considerably less than the proposed plan, water demand would exceed existing sustainable water supply by about 12,000 acre-feet. (If conservation practices were effectively implemented, a 10 percent saving would occur, reducing this figure to about 10,800 acre-feet.) As with the proposed plan, securing additional sources of water would be necessary. Feasible water sources include buying water on the market and using reclaimed water.

Wastewater

Like ECAP, the capacity of the Livermore-Amador Valley Water Management Agency export pipeline, will not be sufficient to meet projected growth under this alternative: it is anticipated that pipeline capacity will be fully allocated by the mid-1990s and reach its physical capacity by the year 2000. Compared to total wastewater generation under the plan of 33.3 million gallons a day (MGD) (average dry weather flow), this alternative will generate 27.4 MGD. Additional export capacity and/or advanced water reclamation plants would be needed.

Energy

Overall energy consumption would be lower under this alternative than the proposed plan due to a lower buildout population. Potential incommuting or through-commuting due to limited housing could increase result in higher fuel consumption.

6.6 Comparison of Alternatives

Table 6-6 compares project growth (jobs, housing, population) under each alternative; Table 6-7 compares the number of acres converted to development and gross residential densities for the proposed plan and Alternatives 3, 4, and 5. Table 6-8 compares major significant impacts under each alternative to those identified in the proposed *East County Area Plan*. The impact table identifies whether or not impacts under the various alternatives would be greater, lesser or similar to the proposed plan.

Based on the evaluation of all the alternatives, Alternative 5 is the environmentally superior alternative. This alternative minimizes sprawl and visual resource impacts as well as the conversion of prime agricultural land and the extent of biological habitats. It also slightly reduces traffic and air quality impacts.

Nevertheless, this alternative is not recommended over the proposed plan because it would not accomplish a number of the project objectives (as discussed in *Chapter 3 - Project Description*) nor provide many of the benefits the plan will provide. First, as discussed in the environmental evaluation for Alternative 5, this alternative would not accommodate projected growth. This alternative provides 23,000 fewer housing units than the ECAP, with a holding capacity of approximately 61,000 less than buildout of the ECAP. Second, the alternative would not accomplish project objectives of providing for a match between local jobs and the local workforce. Although this alternative would provide for more compact development than the ECAP, the alternative's failure to provide a range of housing types that will satisfy the demand for more single-family units could result in a number of undesirable effects, including increased development pressure on undeveloped land within the East County (potentially leading to urban sprawl and loss of open space), and adverse traffic and air quality impacts due to incommuting workers living in single-family units in San Joaquin County. Third, unlike the ECAP, Alternative 5 lacks the scale of housing needed to generate mitigation fees necessary to provide long-term protection for open space and does not provide for such protection through an Urban Growth Boundary. Moreover, this alternative also fails to accomplish the project objective of providing economic incentives to place or retain agricultural land in production. In contrast, the ECAP's urban growth boundary discourages real estate speculation and the long-term pressure to convert agricultural land to urban uses.

In addition, although some environmental effects would be reduced under this alternative, this alternative would provide greater adverse impacts than the plan in some respects. For example, Alternative 5 could have adverse impacts on the Springtown Valley sink scrub habitat and the population of Bird's Beak. Also, the alternative may not provide enough land within the development boundary to provide adequate filtering of stormwater.

TABLE 6-6

Comparison of Alternatives - Jobs, Housing, and Population

Alternative	Jobs/Housing			Population
	Jobs (J) (minus unrealized employment) ³	Housing Units (#)	Jobs/Housing Ratio	
Baseline Data Year 1990 ¹	69,180	49,750	0.93	135,820
ABAG Projections Year 2010 ²	151,560	94,310	1.07	250,700
Proposed Plan	159,903	108,047	0.99	287,405
Alternative 1: "No-Project" (adopted general plans)	179,263 -55,803 123,460	65,384	(1.83) 1.26	173,921
Alternative 2: "No-Project" (prospective general plans)	222,878 -60,053 162,825	109,094	(1.36) 0.99	291,211
Alternative 3: Modified East Dublin	165,711 -6,119 159,592	105,504	(1.05) 1.01	280,643
Alternative 4: Modified North Livermore	167,415 -14,873 152,542	97,676	(1.14) 1.04	259,818
Alternative 5: Minimum Growth /High Density	139,732	85,064	1.09	226,270
Notes: Assumes 5 percent vacancy rate, 2.8 persons per household, and 1.58 workers per household ¹ ABAG Projections 90 ² ABAG Projections 92 ³ "Unrealized employment" refers to the number of jobs that cannot be filled in East County given housing limitations and the incommute constraints on the transportation system entering the Tri-Valley. See Table G-10 in Appendix A.				
Source: Alameda County Planning Department				

TABLE 6-7
Comparison of Alternatives
Open Space Conversion and Housing Density

Alternative (Sub Area)	Acres Converted to Development ¹	Acres Converted to Residential	Number of Housing Units	Gross Density ²
ECAP				
East Dublin	3,125	2,500	16,475	6.6
North Livermore	6,100	5,800	23,300	4.0
South Livermore	800	800	1,600	2.0
Total	10,025	9,100	41,375	4.6
Alternative 2				
East Dublin	4,248	2,321	17,943	7.7
North Livermore	6,636	5,765	10,833	1.9
West Dublin	1,270	730	3,260	4.5
Pleasanton Ridge	1,250	1,100	2,660	2.4
South Livermore	800	800	1,600	2.0
Total	14,204	10,716	36,296	3.4
Alternative 3				
East Dublin	3,050	1,700	13,930	8.2
North Livermore	6,100	5,800	23,300	4.0
South Livermore	800	800	1,600	2.0
Total	9,950*	8,300	38,830	4.7
Alternative 4				
East Dublin	3,600	2,500	16,475	6.6
North Livermore	3,615	2,740	12,940	4.7
South Livermore	800	800	1,600	2.0
Total	8,015	6,040	31,015	5.1
Alternative 5				
East Dublin	0	400	4,800	12.0
North Livermore	2,375	1,500	12,000	8.0
South Livermore	800	800	1,600	2.0
Total	3,175	2,700	18,400	6.8
¹ Outside of currently incorporated areas; includes parks and schools; assumes residential densities of 0.1 or higher; all numbers are approximate ² Actual densities may vary due to different assumptions regarding density selection within the density range. * If the designated "future study area" were to be developed, the total number of converted acres would be closer to 11,000.				
Sources: City of Dublin: <u>Eastern Dublin GPA (Draft)</u> February 1992, <u>West Dublin Specific Plan EIR</u> January 1992, and <u>Adopted Plan</u> May 10, 1993; City of Livermore: <u>North Livermore 45,000 Population Plan</u> January 1992 and Calthorpe Associates <u>North Livermore GPA</u> December 1992; City of Pleasanton: <u>Pleasanton Ridgeland Plan</u> , January 10, 1992; Alameda County: <u>South Livermore Valley Area Plan</u> February 1993.				

6.7 "What If?" Discussions

This section discusses a series of "What if...?" questions that explore the implications of modifying isolated features of the plan. The analysis of such "mini-alternatives" is a way of testing the effectiveness of the proposed policies and land use plan.

What if the Minimum Size Requirement for Large Parcel Agriculture Were Increased to 320 Acres? Reduced to 40 Acres?

The issue of agricultural parcel size has been a topic of extensive debate. There is no clear "right" answer to the question of the most appropriate minimum parcel size for agriculture. The range of minimum parcel sizes in other counties listed in the *Agriculture* background report in the *Draft East County Area Plan Volume 2, Background Reports – Setting, Trends and Issues* is evidence of this. The appropriate parcel size depends on a variety of local conditions, such as climate, topography, and quality of the soil.

Under the proposed plan, the "Large Parcel Agriculture" land use designation covers more than half of the East County planning area. This designation is intended to generally foster agricultural activity and maintain a stable environment for continued agricultural operations. The proposed plan would maintain the 100-acre minimum parcel size first adopted by the County in 1972 and continued under the 1977 *Livermore-Amador Valley Planning Unit General Plan*.

A minimum parcel size is the smallest size to which land can be subdivided under a given land use designation. The primary criterion for determining minimum parcel size is the minimum size that can accomplish the goals established in the plan. The goals in the *Draft East County Area Plan* affected by agricultural parcel size are: "To maximize long-term productivity of East County's agricultural resources;" and "To protect regionally significant open space and agricultural land from development." The 100-acre minimum parcel size proposed in the *Draft East County Area Plan* provides for each of these goals by maintaining agricultural land in parcels of an appropriate size to sustain agricultural viability and protect the land from development.

Both larger and smaller minimum parcel sizes have been suggested at public hearings conducted throughout the process of updating the *Livermore-Amador Valley Planning Unit General Plan* beginning in 1986. Parcel sizes of 320 acres and larger are considered by many agriculturalists to be more appropriate for land intensive agricultural activities such as grazing, and by conservationists to provide greater protection for open space. However, there are several features and provisions in the proposed plan (including the Urban Growth Boundary, subdivision criteria, buffer requirements, site development review requirements, and economic incentives) that will achieve plan goals without increasing the minimum parcel size. While increasing the minimum parcel size to 320 acres may be effective in maintaining large parcels of open space, this action may be counter-productive to promoting agricultural investment. Allowing farmers the flexibility to raise capital for ongoing operations by selling off part of their land holdings could promote investment in existing agricultural operations and start-up of new agricultural operations.

A minimum parcel size of as small as 40 acres has been discussed. Certain agricultural products or activities may be suitable for smaller acreage farms and the cost of buying, improving and maintaining large acreage may be prohibitive for such intensive activities. There is evidence that suggests that parcels smaller than 100 acre are appropriate for vineyards, orchards and similar types of agriculture in areas with the proper conditions. The recently adopted *South Livermore Valley Area Plan*, which is incorporated into the *Draft East County Area Plan* by reference, allows parcels as small as 20 acres under limited circumstances.

It is likely that allowing 40-acre parcels throughout the planning area would have a negative effect on agriculture in the East County. Smaller parcels have less flexibility and once agricultural land is subdivided it is difficult to reassemble into larger parcels. While intensive, high-value agriculture can occur on large parcels, sometimes in conjunction with other agriculture, most crops and grazing activities are not viable on small parcels. Thus, the likely use for small parcels may be rural residential or rural estate.

With the exception of highly productive lands, such as vineyards, a very large percentage of the market price of agricultural land can be in its value as a residential building site. This suggests that a smaller, subdivided parcel is likely to be only slightly less expensive for agricultural use than a larger parcel. A perceived trend toward smaller parcels may accelerate speculative price increases.

A reduction in the minimum parcel size from 100 acres to 40 acres in areas designated "Large Parcel Agriculture" would dramatically increase the number of potential new parcels and if each newly created parcel is developed with a residence, a substantial increase in the population of the unincorporated area would result. This increase in population would increase the demand for services (primarily police, fire, and schools) and the scattered nature of the development could make the provision of services difficult. The increased rural population could also increase the fire hazard in the area, could have greater visual impacts, and could create a greater demand on the ground water supply.

While a few farmers may benefit from a smaller minimum parcel size through reduced land costs, the majority of the farmers and the County as a whole would lose as a result of the loss of flexibility for a variety of agricultural uses, increased demand for County services, and greater environmental impacts caused by the increased intensity of development and density of population.

By maintaining the existing 100-acre minimum parcel size in the proposed plan, the County balances the preservation of large areas of agricultural land with the economics of land costs as they affect agricultural operations. The proposed plan also contains provisions for clustering of small residential sites if performance standards can be met regarding a variety of factors, including impacts on agricultural viability, fire hazards, and biological resources. As a result, there is no appreciable benefit to be gained by increasing or reducing the minimum parcel size in areas designated "Large Parcel Agriculture."

What if the Clustering Provisions in the Draft East County Area Plan (Program 36) were Broadened?

Program 36 of the *Draft East County Area Plan* enables clustering of single family homes on parcels of 400 acres and greater in the "A" (Agriculture) District. As provided in program 36, each home site would be limited to a maximum parcel size of 5 acres, at an overall density of one home per 100 acres, in exchange for dedication of an agricultural easement on the remaining 95 percent of the original parcel. The intent of the clustering provision is to maximize the long-term productivity of the East County's agricultural resources (by ensuring that large blocks of agricultural lands are protected from division), while allowing agriculturalists to realize some return on their asset base. The purpose of this discussion is to determine whether adding flexibility to the clustering provisions would preserve the intent of the program and successfully implement the agricultural policies of the plan.

One variable is the minimum size of the parcel on which clustering could occur. Under the proposed plan, clustering would be permitted on parcels that are 400 acres in size or larger; however, this parcel size could be reduced to as low as 200 acres without increasing the overall density of one housing unit per 100 acres. Because the density would not be increased, the potential for adverse environmental effects would not be increased—as long as the site-specific effects of clustering were addressed. Reducing the required parcel size would allow property owners who do not have large land holdings to participate in the program.

A second variable is the dedication of an easement over the remaining block of land. In order to preserve the large remaining block of land for long-term agricultural use, the proposed plan would require the dedication of a permanent agricultural easement as a condition for subdividing large agricultural parcels under the clustering provision. Alternative mechanisms, such as long-term contracts, could encourage the continuation of agricultural activities by adding flexibility to the program—allowing agriculturalists to adapt to changes in future agricultural conditions and techniques while still maintaining a large block of land dedicated to agricultural uses for a fixed term.

Another variable is the size of the building envelope for individual homesites. To promote maximum retention of land in large parcels for agricultural operations, the proposed plan would allow for clustering of home sites on a building envelope of 5 acres. Allowing residential home sites to exceed 5 acres in size when circumstances warrant (e.g., for topography, access or security reasons) could similarly fulfill the intent of the plan's agricultural policies, as long as existing agricultural operations are preserved.

In sum, the intent of the clustering program is to provide economic incentives to continue agricultural operations. If the program can be made more flexible without increasing potential environmental impacts, it would be more effective in fulfilling this intent. It appears that the changes discussed above would have the effect of greater flexibility without greater environmental effects. Case-by-case review at the time of application would ensure thorough consideration of potential environmental effects.

What if State Route 84 remains a two-lane road?

The *East County Area Plan* assumes a four-to-six lane, local-serving roadway along the Highway 84 Corridor from I-680 to Vasco Road. If this roadway were restricted to a two-lane facility, traffic on parallel routes would increase accordingly. Both I-580 and I-680 freeways would add traffic to facilities already projected to experience Level of Service E and F. First Street, in Pleasanton and Livermore, Stanley Boulevard, and Sunol Boulevard would also add significant traffic volumes to already congested facilities. In addition, current safety problems on existing Highway 84, along Vallecitos Road, would continue and possibly increase with increased demand for this undersized facility. This scenario would effectively prevent construction of the proposed Mid-State Toll Road at the expense of increasing traffic on local streets. The *East County Area Plan*, in contrast, would allow a free flow of local-serving traffic and accommodate projected traffic that would otherwise use parallel roadways.

What if out-of-county projects incorporated in the Tri-Valley Transportation Model (e.g., Dougherty Valley and Tassajara Valley General Plan Amendments) were deleted from the land use database and not included in the model results?

Without the development of major residential projects in the Dougherty Valley and the Tassajara Valley of Contra Costa County, there would be less demand to use major north-south arterials such as Dougherty Road, Hacienda Boulevard, and Tassajara Road. In this situation, it would not be necessary to construct the portion of Hacienda Boulevard linking the Dougherty Valley with Alameda County. At least a four lane roadway would still be necessary between I-580 and the Alameda County governmental facilities. The portions of both Dougherty Road and Tassajara Road near the county line could be reduced from 6 lanes to 4 lanes.

What if the Tri-Valley Transportation Model were changed to reflect assumptions for traffic volumes on the Altamont Pass used by San Joaquin County's transportation model?

Alameda County and the other Tri-Valley jurisdictions have taken the approach that I-580 through the Altamont Pass will be constrained in the future to its current 8 lanes, with the possible addition of uphill truck lanes. Thus, the Altamont gateway meters the traffic that may enter and leave the Tri-Valley during peak traffic periods. If the San Joaquin County model plans on more traffic and the development producing the traffic actually occurs, then the length of the peak traffic periods would be extended over time, causing a peak period of greater duration.

What would be the impact on affected roadway segment levels of service if East County Area Plan buildout land uses were assumed on the 2010 East County Area Plan transportation network?

In this DEIR, the impact analysis for traffic (as well as air quality and noise) focuses on the year 2010 in order to reflect agreed-upon assumptions regarding regional land use

distribution, transportation network and air quality emissions. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region, as projected by ABAG, and for the San Joaquin Valley, as projected by San Joaquin County. The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan) and for which rules have been promulgated for air quality emissions by the Bay Area Air Quality Management District. This scenario looks at the effect of the plan's buildout holding capacity on the transportation network assumed in the 2010 traffic model.

Buildout of *East County Area Plan* land uses represents about a 14 percent increase in housing units and a 6 percent increase in jobs over projections for the year 2010 land uses assumed in the Tri-Valley Transportation Model. This is equivalent to about a 10 percent increase in traffic over year 2010 conditions. On arterials and collectors within the planning area, it would be necessary and possible to increase the capacity available to motorists, particularly at key intersections. Along facilities such as I-580 and I-680, full mitigation suggested in *Chapter 5.4 - Transportation* would be required to accommodate traffic at buildout, although LOS F conditions would still occur at least along I-580, and perhaps parallel arterials, particularly Dublin Boulevard. Both Vasco Road and State Route 84, if constructed to the full improvements (six lanes) recommended, would be able to accommodate increased traffic associated with buildout, probably within LOS E conditions. It would probably be necessary to develop improved east-west traffic capacity, particularly north of I-580.

What would be the impact on affected roadway segment levels of service if East County Area Plan buildout land uses were assumed on a scaled-back roadway network which included only improvements that are currently funded?

Roadway and transit improvements which are included in the *East County Area Plan* network but that are not completely funded at this time are listed in *Chapter 5.4 - Transportation*. These include the extension of Hacienda Drive from Dublin Boulevard to the Contra Costa County line, interchange and local roadway improvements in North Livermore, BART Extension from East Dublin/Pleasanton to Livermore, portions of Highway 84 widening, etc. (refer to Table 5.4-3). Deletion of these unfunded improvements from the network would make future development in areas currently underserved by roadway improvements virtually impossible. The areas most affected would be primarily located in East Dublin and North Livermore. Arterials in these areas include Hacienda Drive, Dublin Boulevard, Tassajara Road, North Canyons Parkway, Cayetano Parkway, North Livermore Avenue, and Vasco Road. Lack of improvements on routes parallel to the freeways, as well as termination of the proposed BART extension to

Livermore, would also increase traffic volumes on I-580 and I-680 beyond the levels of service projected for the year 2010.

When considering this situation it is important to remember what is meant by "currently funded". As used by the Tri-Valley Transportation Committee this term means that they can identify these funds in existing federal, state or local programs. Most of these existing funding sources have horizons that extend less than ten years into the future. It is likely that similar programs will, by the turn of the century, be available to fill this need. In light of this fact, the likelihood of this scenario occurring is extremely remote.

What land use reductions would be needed to meet level of service standards if the scaled-back roadway network (only improvements that are currently funded) were assumed?

If a scaled-back roadway network were to function with satisfactory levels of service, required land use reductions would be severe. In exercises conducted by the Technical Advisory Committee of the Tri-Valley Transportation Council, it was estimated that only about one half of the growth contemplated for the 1990 to 2010 period could occur. Even in this case, level of service standards would be exceeded on portions of the scaled-back network. Even if all future development were stopped and only funded improvements were constructed, levels of service on several freeway and arterial segments (e.g., portions of I-580, Highway 84, and Vasco Road) would undoubtedly exceed LOS D. If growth in the planning area were necessarily curtailed, growth would probably leap-frog to further outlying areas such as the Central Valley bringing about associated indirect impacts such as loss of prime soils and reduced air quality.

As mentioned above, a total lack of additional funding is unlikely. It is more likely that new funding sources, comparable to those now in place but scheduled to end before the end of the century, will be available to serve new growth.

What would be the impact on roadway segment levels of service, and what would be the costs of additional improvements, if East County Area Plan buildout land uses were assumed on a buildout network (ultimate improvements, funds available when needed) and what would be the approximate cost per future housing unit and square foot of commercial space to pay for these improvements?

Under these conditions, it would be possible to develop acceptable levels of service on virtually all roadway links, with the possible exception of I-580. In this case, selected road widenings would be needed and some streets beyond those envisioned in the *East County Area Plan* would be required. The Tri-Valley Transportation Council estimated these ultimate improvements and conducted a model run to determine the effects on roadway levels of service. The results of this analysis are published in a memorandum by Barton-Aschman titled, "Tri-Valley Transportation Plan, Input to Financially Constrained Network - Maximum Highway Alternative (Beyond the Year 2010)", May 19, 1993. The costs for this level of highway improvements are estimated at \$623 million of which only \$63 million are categorized as potentially funded. However, it should be noted that funding sources may change over the 17 year period of the *East County Area Plan*. These funding sources also are difficult to predict considering the seven year funding cycle currently used by MTC and the

Alameda County CMA. Other sources of local funds may also be available, e.g., the recently increased Livermore Traffic Impact Fee of approximately \$2,100 per unit.

The Tri-Valley Transportation Council estimated that the year 2010 Tri-Valley network included future roadway improvements valued at \$609 of which \$240 million were categorized as "potentially funded improvements" and \$11 million as "unfunded improvements." The *East County Area Plan* includes about 59,000 additional housing units and about 52 million additional square feet of industrial, commercial, and office development expected to be built between 1990 and 2010 in the Tri-Valley area, including portions of Contra Costa County (assuming 149,000 additional jobs at an average of 1 job per 350 square feet of space). The \$11 million in "unfunded improvements" would require a traffic fee equivalent to about \$100 per housing unit and about \$.10 per square foot of commercial space or some variation on each in order to generate the required \$11 million. A fee on this order of magnitude probably could be absorbed by future development without rendering development financially infeasible. Such a determination would require a detailed calculation of costs and benefits as required by state law. In comparison, the unlimited funds network described above would require \$560 of unfunded improvements from the "Maximum Highway Network" plus the \$11 million unfunded in the 2010 network for a total of \$571 million. This would require a traffic fee equivalent to about \$ 8,800 per housing unit and about \$1.00 per square foot of commercial space or some variation on each in order to generate the required \$571 million. A fee on this order of magnitude probably could not be absorbed by future development without rendering development financially infeasible. On the other hand, it is unlikely that regional traffic fees will be the only source of such funds. It is likely that existing federal, state and local programs, which now look less than ten years into the future, will also be available to fill this need.

What would be the effect on transit patronage and roadway levels of service if transit service is radically improved (assuming funding were not a constraint)?

The Tri-Valley Transportation Council estimated ultimate transit improvements and conducted a model run to determine the effects on transit patronage and roadway levels of service. The results of this analysis are published in a memorandum by Barton-Aschman titled, "Tri-Valley Transportation Plan, Input to Financially Constrained Network - Maximum Transit Alternative," May 19, 1993. The costs for this level of transit improvements are estimated at \$676 million of which only \$18 million is categorized as potentially funded. The net effect of these improvements was to increase transit patronage from 3 percent (under the baseline 2010 condition, including BART service to Dublin and existing LAVTA service) to 6 percent. The reason for this relatively small increase appears to be the dispersed geographic pattern of suburban trip origins and destinations. In other words, few trips are made from a single residential neighborhood in one community to a single commercial location in another community, thereby decreasing the propensity to take transit due to the number of transfers and added time involved. The net effect on roadway levels of service attributable to this 3 percent increase would probably be negligible.

What would be the effect on reclaimed wastewater if the TWA wastewater export pipeline project was developed?

As discussed in *Chapter 5.13 - Water Supply*, reclaimed wastewater could be a major component of the total ECAP water supply. Zone 7 has identified treated recycled wastewater as a potential source for up to 25,000 acre-feet per year of water that could replace imported water for irrigation and groundwater recharge use.

Development of additional export capacity could have two deleterious effects on the potential for large-scale use of recycled water. First, export of wastewater will decrease the amount of available water that could be recycled. The 1992 water recycling study identified three potential projects that could utilize up to 10,000 acre-feet of recycled wastewater today, increasing to 25,500 acre-feet per year in the future. In comparison, during dry weather the most recent TWA project proposal would export 12.7 million gallons per day, or about 14,250 acre-feet per year of wastewater. As shown in Table 5.14-1 above, ECAP buildout will generate wastewater flows of 13.6 MGD, or about 15,275 acre-feet per year, above the amount that can be exported by the existing LAVWMA pipeline, far short of the potential amount of recycled wastewater that could be utilized within the planning area. While these are dry-weather flows that would be substantially augmented by peak flows during wet weather, it appears that if planned export capacity is fully utilized, there will be little wastewater available within the ECAP that could be recycled as a "new" source of water for the area.

Construction of additional export capacity could also result in a reduction of the economic viability of large-scale water recycling. Reverse osmosis treatment of wastewater is an expensive process. The 1992 water recycling study estimated that reverse osmosis would cost approximately \$1,100 per acre-foot, far more than the present cost of imported water. The study concluded, however, that this cost could become competitive if it is compared to the combined cost of developing new sources of imported water and wastewater export. If additional export capacity is developed, it may make it economically infeasible to support both water recycling and an underutilized export system.

SOURCES

Barton-Aschman, "Memorandum: Tri-Valley Transportation Plan - Maximum Highway Alternative (Beyond the Year 2010)," February 24, 1993

Barton-Aschman, "Memorandum: Tri- Valley Transportation Plan - Maximum Transit Alternative," February 19, 1993

Barton-Aschman Associates, "Memorandum: Tri-Valley Transportation Plan, Input to Financially Constrained Network," May 19, 1993

Chapter 7 - CEQA Considerations

7.1 Cumulative Impacts

The CEQA Guidelines require a discussion of the potential cumulative impacts that could result from a proposed project in conjunction with other projects in the vicinity. Cumulative impacts occur when two or more individual effects together create a significant environmental impact, or if they compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place simultaneously or over time.

The topic area impact analyses contained in *Chapter 5* of this DEIR are, in effect, cumulative analyses because they examine the effects of growth in the entire planning area, i.e., growth in East County's incorporated cities in addition to growth in unincorporated areas as envisioned under this plan. The plan's jobs/housing balance and open space preservation strategies reflect this cumulative analysis approach. On a larger cumulative scale, the traffic section (and, by association, air quality and noise) takes into account subregional and regional effects.

The cumulative analysis in this chapter broadens the cumulative perspective of this DEIR by looking at each of the environmental issue areas and considering ways in which impacts may be increased or compounded by growth outside the East County planning area. The Association of Bay Area Governments (ABAG) projects that the population of the San Francisco region is expected to grow from about 6 million in 1990 to about 6.8 million by 2010 (about 15 percent of this growth is projected to occur in East County). In particular, impacts of the plan are looked at in conjunction with regional growth patterns, especially those occurring in the adjacent Contra Costa and San Joaquin Counties where general plan updates have recently been adopted. Under the San Joaquin General Plan (adopted July 1992), the population of the Tracy planning area would increase by almost 400 percent (from about 42,000 to about 168,000). Population growth in the Contra Costa portion of the Tri-Valley subregion is anticipated to increase by 66 percent (from about 87,000 to 145,000). Growth is also anticipated west of the planning area in Alameda County's unincorporated Castro Valley and Cherryland-Fairview areas where the combined population is projected to increase by 20 percent in the next twenty years (from about 68,000 to about 82,000).

Table 5.1-2 in *Chapter 5.1 - Land Use and Planning* shows the major land use proposals in Contra Costa and San Joaquin Counties in the East County vicinity.

The geographical focus for the analysis of cumulative environmental impacts varies by issue area. Analysis of some impacts, such as for land use, is done according to jurisdictional boundaries. Others impact areas are analyzed by physical boundaries such as air basins or watersheds, as appropriate.

Land Use and Agricultural Resources

The cumulative land use analysis focuses on the Tri-Valley area as well as the Tracy area of San Joaquin County east of the planning area boundary.

Cumulative impacts related to land use include the general intensification of land uses in the region and a transition of an agricultural landscape to an increasingly urban setting. Major growth areas developing in the region include the Tri-Valley area consisting of the cities of Pleasanton, Dublin, San Ramon and Livermore; the city of Tracy and vicinity, and the new town of Mountain House along the eastern boundary of the planning area. Development of these growth areas results in the conversion of agricultural land to urban uses and the loss of prime agricultural soils. Also, the encroachment of urban development into agricultural areas increases conflicts between farmers and new residents, resulting in nuisance complaints. Increased urbanization also impacts industries associated with farming such as farm equipment and feedlot supplies--the availability of which also affects ongoing viability of agriculture.

The Mountain House project will convert about 4,400 acres of active agricultural land, 3,600 acres of which is prime farmland, to urban uses. Development of the urban centers proposed under the Tracy Urban Management Plan would result in the loss of about 21,000 acres of agricultural land, all of which is prime. Proposed development in Dougherty and Tassajara Valleys in Contra Costa County would cause the conversion of approximately 12,000 acres of agricultural land, most of which is used for grazing. While approximately 10,000 acres of open space, much of which is agricultural land, would be converted to urban uses under the proposed plan, only roughly 700 acres of prime farmland would be converted. Taken together, these projects would convert about 75 square miles of open space in the project vicinity to urban uses, of which approximately half is prime agricultural land. Figure 13 shows generalized land uses in the project vicinity. No new impacts would occur other than those identified in *Chapter 5.1 - Land Use and Planning* and *Chapter 5.2 - Agricultural Resources* of this DEIR. Plan policies, programs and mitigations listed in those chapters would help reduce the effect of this impact.

Employment and Housing

The cumulative analysis for employment and housing focuses on the nine-county Bay Area, as well as the Central Valley area, particularly San Joaquin County in the Tracy vicinity. The East County planning area is linked to the development of both regions. Currently, the amount of growth in the Central Valley is closely related to the projected growth in the Bay Area and East County, as much of the housing being built in the valley is being purchased by Bay Area workers due to its affordability. A 1989 study co-sponsored by the Metropolitan Transportation Commission and the San Joaquin County Council of Governments determined that 50 percent of the workers now traveling east across the pass during the evening were

returning from jobs in the Tri-Valley area of Livermore, Pleasanton, Dublin and San Ramon. Another 25 percent were returning from other jobs in Alameda County.¹

Implementation of the proposed plan would have a beneficial affect on commute patterns by providing affordable housing and a jobs/housing balance within the planning area. Positive steps are also being taken in San Joaquin County where more employment opportunities will reduce the need to commute to work in the Tri-Valley or Bay Area. See *Chapter 2* and *Chapter 5.3* for additional discussion of the regional jobs/housing issue.

Traffic

The cumulative impact analysis for traffic is contained in the Transportation section of this DEIR (see *Chapter 5.4*). The geographical area considered for the cumulative traffic analysis includes the Tri-Valley area, and San Joaquin County, particularly the I-580 and I-205 Corridors. Cumulative development of all projects within the nine-county Bay Area, based on ABAG projections, in addition to the development in San Joaquin County, was included in the year 2010 land use projections used in the Tri-Valley Transportation Model used for the project. A complete description of the land use assumptions used in the TVTM are described in a report by Barton-Aschman Associates entitled "Draft Report: Tri-Valley Transportation Model" (April 1993).

The traffic impact analysis, as well as the air quality and noise analyses, was developed for the plan's 2010 holding capacity based on traffic model runs using the Tri-Valley Transportation Model (TVTM) and *East County Area Plan* land uses for the year 2010. The year 2010 is the last year for which an identified transportation network has been developed for the Tri-Valley and for which land uses have been developed for the nine-county Bay Region, as projected by ABAG, and for the San Joaquin Valley, as projected by San Joaquin County. The year 2010 is also the last year for which an identified transportation network has been developed for the Bay Region (the Metropolitan Transportation System as described in MTC's Regional Transportation Plan) and for which rules have been promulgated for air quality emissions by the Bay Area Air Quality Management District. Cumulative development of all projects within the nine-county Bay Area, based on ABAG projections, in addition to development in San Joaquin County was included in the year 2010 land use projections used in the Tri-Valley Transportation Model run conducted for the project and is included in this traffic analysis. A complete description of the land use, trip distribution, and network assumptions used in the TVTM are described in a report by Barton-Aschman Associates titled "Draft Report: Tri-Valley Transportation Model" (April 1993). No new impacts would occur other than those identified in *Chapter 5.4 - Transportation* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

¹Metropolitan Transportation Commission and San Joaquin County Council of Governments, I-580/I-205 Corridor Study (1989); Contra Costa General Plan discussion p. X-21.

Air Quality

The cumulative impact analysis for air quality is contained in the air quality chapter of the DEIR (see *Chapter 5.5*). The traffic volumes on which the air quality analysis is based is described in the Transportation section of this DEIR (see *Chapter 5.4*).

Implementation of the proposed plan in the Livermore-Amador-Sunol sub-basin is part of a continuing pattern of urbanization that affects and is affected by air quality in the greater Bay Area air basin and the adjacent San Joaquin Valley air basin. These air basins have shown gradual improvements in overall air quality in past years, despite growth in population and vehicle use, due to off-setting reductions in emissions resulting from emission controls on mobile and stationary air pollutant sources. The overall cumulative effect of new development in these air basins is to slow the rate of improvement.

Current projections show a continuation of this improving trend with overall emissions decreasing in the future, despite cumulative growth in population and vehicle use, due to regional programs for reducing emissions that are in place or are currently being considered. Continued improvement in regional air quality is projected through the year 2000, although attainment of all air quality standards through the entire Bay Area Air Basin is not projected by the year 2000. No new impacts would occur other than those identified in *Chapter 5.5 - Air Quality* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

Noise

The cumulative noise impact analysis is contained in the noise chapter of this DEIR (see *Chapter 5.6*). The analysis focuses on traffic noise sources along all of the major transportation corridors extending through the East County planning area including the I-580 and I-680 transportation corridors. The noise contours projected for 2010 substantially expand the 60 dB contour on both sides of I-580 and I-680 (see Figure ____). Continued development in Alameda, Contra Costa and San Joaquin counties are the primary contributors to traffic, and therefore to traffic noise, on these transportation corridors. No new impacts would occur other than those identified in *Chapter 5.6 - Noise* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

Water Supply

The analysis of cumulative water impacts considers all of the State of California due to water allocation and trading that occurs on a state-wide basis.

Accommodation of projected growth by jurisdictions throughout most regions of the state will have cumulative water supply impacts. Cumulative water supply impacts would result from the increased competition for limited state supplies. Implementation of the plan's buildout holding capacity will require anywhere from 20,000 to 26,000 acre-feet of new water. It is

possible that sufficient reclaimed water could be developed within the planning area, in conjunction with increased local storage, to provide much of the needed new water. If reclaimed water is either not developed or developed at an inadequate scale, Zone 7 and its water purveyors will have to seek additional outside sources by purchasing water from agencies with surplus water. In this event, East County's Zone 7, together with other water agencies in the state needing more water to support projected growth, will compete for limited supplies of the state's water. Increased pressure for new sources of water and higher prices will place new pressures on groundwater basins throughout the state. Significant overdrafting can cause subsidence, decreased storage capacity in the groundwater basin, and reduced opportunities to use the groundwater to serve future water needs. Water demand from cumulative urban development in the state could exceed the state's limited water resources. This is a potential significant cumulative impact of continued growth in the state. Plan policies, programs and mitigations listed in *Chapter 5.13 - Water Supply* would help reduce the effect of this impact.

Water Quality

Cumulative water quality impacts depend on the particular system, or systems, employed for wastewater treatment and/or export for the East County. A new export pipeline, such as the proposed TWA project, will ultimately discharge to the San Francisco Bay, with the potential for cumulative water quality impacts. However, the Subsequent Environmental Impact Report for the TWA project found that even at maximum discharge rates, which are double the discharge now under consideration, ambient Bay water quality conditions would not be significantly altered, nor result in a violation of applicable water quality objectives. Cumulative sedimentation of the Delta and San Francisco Bay and tributary streams could also occur as a result of erosion associated with new construction. Plan policies, programs and mitigations listed in *Chapter 5.12 - Water Quality and Hydrology* would help reduce the effect of this less-than-significant impact.

Solid and Hazardous Waste Management

The geographical area considered for the analysis of cumulative hazardous waste impacts includes Alameda County and the Central Valley. Although Alameda County is in the process of constructing facilities to accommodate household hazardous wastes, hazardous wastes generated from industrial users would be transported out-of-county to the Kettleman Hills facility in the Central Valley.

The geographical area considered for the analysis of cumulative solid waste impacts includes Alameda and Contra Costa Counties and the City and County of San Francisco. Up to 15 million tons of municipal solid waste and 130,000 tons per year of wastewater treatment sludge from San Francisco is hauled to the Altamont Sanitary Landfill. In addition, until December 1991, Contra Costa County also hauled solid waste to the Altamont Landfill.

While existing landfill capacity in Alameda County is inadequate to accommodate projected population increases countywide, including the East County planning area, the County Waste

Management Authority's policy calling for a 50-year continuous landfill capacity can be achieved either by expanding existing privately owned facilities currently under consideration, or by acquiring and developing a new publicly-owned facility. Either alternative would provide from 50 to 100 years of disposal capacity beyond 2003, the year when existing capacity is estimated to expire. Plan policies, programs and mitigations listed in *Chapter 5.20 - Solid and Hazardous Waste Management* would help reduce the effect of this less-than-significant impact.

Biological Resources

Anticipated cumulative development in the Tri-Valley area as well as the Tracy area of San Joaquin County would result in loss of about 75 square miles of plant and wildlife habitat, much of it currently used for grazing or other agricultural uses. Cumulative conversion of this land may have a significant impact on special-status taxa, sensitive natural communities, and other important biotic features. The significance of potential impacts of cumulative development would be dependent on the resources associated with specific development sites, and the extent to which important resources are protected and enhanced. Site-specific studies would be necessary to determine the presence or absence of special-status taxa and sensitive natural communities, and to recommend measures to mitigate potential adverse effects of development on identified resources.

Confining development to within the Urban Growth Boundary would minimize habitat loss while the plan's preservation strategy affords the opportunity to acquire large expanses of contiguous land and to link open space lands forming wildlife corridors. Linking new acquisition areas to the regional greenbelt will also help to mitigate this impact. No new impacts would occur other than those identified in *Chapter 5.7 - Biological Resources* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

Visual and Aesthetic Resources

Accommodation of growth contained in the proposed plan and under the general plans of Contra Costa and San Joaquin counties, in addition to projected growth for the Castro Valley planning area, will require unavoidable and significant changes to the visual character of the region.

Conversion of about 75 square miles of undeveloped land to urban uses, plus pressure on open space land in the Castro Valley area would result in a loss of rural character and visual deterioration as a result of the loss of open space. Visual deterioration would also occur along the I-580 and I-680 corridors due to the development of regional shopping centers. No new impacts would occur other than those identified in *Chapter 5.8 - Visual Resources* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

Energy

Energy demands of residential, commercial, and industrial uses, combined with transportation energy demands, would greatly increase throughout the region as new development occurred. Cumulative energy consumption would relate primarily to that used for cooling and heating of new homes and fuel used for transportation, primarily automobiles. No new impacts would occur other than those identified in *Chapter 5.21 - Energy* of this DEIR. Plan policies and programs listed in that chapter would help reduce the effect of this impact.

Geologic Hazards

Accommodating projected growth in the San Francisco Bay region, the Tri-Valley subregion and the eastern margin of the San Joaquin Valley would expose a large number of people and structures to seismic shaking and associated seismic risks such as inundation from ruptured dams and landslide. In the event of a moderate to large earthquake occurring within this region, emergency services within each community and within the region as a whole would be significantly stressed. No new impacts would occur other than those identified in *Chapter 5.21 - Energy* of this DEIR. Plan policies, programs and mitigations listed in that chapter would help reduce the effect of this impact.

7.2 Growth-Inducing Impacts

In accordance with Section 15126 of the California Environmental Quality Act (CEQA), an EIR must assess the growth-inducing impacts of a project. Growth-inducing impacts refer to the way in which the proposed project could "foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (California Office of Planning and Research 1986). CEQA identifies a project to be growth-inducing if it extends urban services into a previously unserved or underserved area; extends a major transportation corridor into a previously unserved or underserved area; or removes a major obstacle to development and growth. Secondary growth generally relates to retail and other service employment related to new development activity.

The *East County Area Plan* induces growth by virtue of accommodating projected growth for the planning area (see Table 3-1 in *Chapter 3 - Project Description*). By 2010, the population of the planning area is projected to increase by 85 percent over the 1990 population (ABAG *Projections 92*, July 1992). As discussed in *Chapter 5.1* under *Potential Impact 5.1-1*, about 8,600 acres is needed to accommodate this projected growth; designation of an additional 1,400 acres to urban uses provides capacity for a 14 percent increase in population and a 6 percent increase in commercial development over the twenty year projections. This amount is sufficient to provide some flexibility for future growth within the Urban Growth Boundary past the year 2010. In addition to this 1,400 acres, about 3,600 acres of land designated "Urban Reserve" and located within the Urban Growth Boundary

provides room to expand beyond that needed to accommodate the buildout holding capacity. The flexibility offered by the designation of land in excess of that needed to accommodate twenty-year projected growth is necessary given that the Urban Growth Boundary is intended to be a permanent boundary that includes the planning area's land most suited for development.

The North Livermore and East Dublin areas in particular would be subject to significant growth. It is anticipated that North Livermore would potentially have a buildout population of 65,268 and East Dublin a population of 46,124. New infrastructure and services would be extended to these areas.

While accommodating projected growth, the *East County Area Plan* establishes a jobs/housing balance and provides for affordable housing to minimize the need for employees to commute from outside the East County, particularly the Central Valley, and thus minimizes associated traffic and air quality impacts. The plan includes measures to prevent unanticipated growth beyond what is planned; the Urban Growth Boundary, in concert with policies to promote compact development and phasing based on availability of infrastructure, will contain growth and prevent sprawl. The durability of the Urban Growth Boundary will remove speculation on agricultural lands beyond this boundary and will prevent further conversion of these open space lands.

Plan policies, programs and mitigations listed in *Chapter 5.1 - Land Use and Planning* and in other chapters of this DEIR would help reduce the effect of this impact.

7.3 Unavoidable Significant Adverse Impacts

Chapter 4 of this DEIR summarizes the environmental impacts of the proposed plan and includes recommendations for mitigation measures to reduce or eliminate identified impacts. The following **unavoidable significant adverse impacts** are impacts for which feasible mitigation is either unavailable or insufficient to reduce them to less-than-significant levels.

Agricultural Resources

- New urban development would result in the conversion of prime agricultural land to non-agricultural uses.

Transportation

- Freeway and highway capacities would be inadequate to meet increased traffic demand: segments of I-580 and I-680 would exceed the LOS E standard. Improvements (as yet unfunded) would improve the LOS but not to acceptable levels. Improvements (as yet unfunded) could improve the LOS on SR 84 to acceptable levels.

- Arterial roadway capacities could be inadequate to meet increased traffic demand: segments of Vasco Road, Hacienda Drive, and Greenville Road would exceed the LOS E standard (sic). Mitigations are unfunded.
- Public transit capacities would be inadequate to meet increased traffic and transit demand: BART would not be extended to Livermore by 2010.

Air Quality

- Pollutant emissions from sources associated with new urban development, including indirect (mobile) sources, direct (stationary or point, such as commercial or industrial) sources and area (home, such as heaters and small gas equipment) sources would exceed thresholds established by the BAAQMD for carbon monoxide, ozone precursors and PM-10.
- Urban development under the plan would contribute to the existing exceedance of state air quality standards for PM-10, but not for other criteria pollutants.

Noise

- Increased traffic resulting from growth under the plan could expose some existing residential land uses to a significant increase in noise.

Visual and Aesthetic Resources

- Increased development in the Livermore-Amador Valley would substantially alter the Valley's visual character.

Mineral Resources and Extraction

- Stripping of overburden for sand and gravel mining could result in loss of valuable agricultural soils.

Geologic Hazards

- Residential, commercial and industrial growth under the plan would significantly increase energy consumption in the East County.

Cumulative Water Supply

- Water demand from cumulative urban development in the state could exceed the state's limited water resources.

7.4 Relationship Between Short-Term Uses of the Environment and the Maintenance of Long-Term Productivity

CEQA Section 21100 of the Public Resources Code states that the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity must be discussed. This discussion must include the cumulative and long-term effects of the proposed project that would adversely affect the environment. Special attention must be given to impacts that would narrow the range of beneficial uses of the environment.

Implementation of the plan would represent a long-term commitment to urbanization of land within the Urban Growth Boundary and to protection of open space outside of the Urban Growth Boundary. The plan's comprehensive approach to planning for the accommodation of projected growth for the entire planning area (including incorporated cities) provides for the most efficient use of the land (by designating land for urban uses on flatter land adjacent to existing services and infrastructure). By incorporating a jobs/housing balance (with the including affordable housing), the plan also reduces commuting thus conserving air quality and energy. Providing needed housing in the planning area also reduces the need for housing in the Central Valley that results in the loss of prime soils.

By concentrating development around existing cities, vast amounts of regional open space for recreation, watershed, habitat value and protection of visual quality of the region can be preserved. Under the plan, the County is requiring the dedication of approximately 4,200 acres of land designated "resource management" as a condition of approval of Major New Urban Development in North Livermore. The Urban Growth Boundary is designed to provide certainty regarding development potential for long-term infrastructure financing, agricultural investment, and environmental protection. The plan incorporates a number of trade offs such as these to ensure maintenance of the long-term productivity of the region.

7.5 Significant Irreversible Environmental Changes

Uses of nonrenewable resources during the initial and continued phases of a project may be irreversible, since a large commitment of such resources makes removal or non-use thereafter unlikely. The irreversible commitment of resources associated with the proposed project would be the following:

- conversion of approximately 10,000 acres of undeveloped land (at buildout) would be converted to urban uses; this land includes about 700 acres of prime farmland as well as grazing land and wildlife habitat
- degradation of air quality associated primarily with increased automobile travel throughout the planning area and region

- commitment of non-renewable energy resources for vehicular travel, construction activities, and indoor climate controls
- irreversible change in the visual character of the planning area in the vicinity of new urban growth

7.6 Effects Found Not To Be Significant

Table 4-2, Summary of Less-Than-Significant Impacts in *Chapter 4* , identifies potential impacts determined to be less-than-significant due to ECAP policies and programs.

CONTRIBUTORS TO THIS DRAFT EIR

This DEIR was prepared under the direction of the Alameda County Planning Department; Adolph Martinelli, Planning Director and Deborah Stein, Assistant Planning Director (Acting).

Project Managers: Deborah Stein
 Annemarie Dietzgen, AICP

Authors: Annemarie Dietzgen, AICP
 Liz McElligott
 Chris Bazar
 Nancy Dakin
 Diane Pierce
 Bruce Jensen
 Stuart Cook, AICP
 Chandler Lee

Contributors: Mark Hall (Graphics)
 Jim Walsh
 Sandi Rivera
 Holly Janvier
 Joyce Brewer
 MaryAnn Smith (Graphics)

Consultants: Leslie Zander, Zander Associates (Biology, Water Quality and Hydrology)
 Donald Ballanti (Air Quality)
 Charles M. Salter Associates, Inc. (Noise)
 David Gates and Associates (Graphics)

Appendix A

East County Area Plan: **Data Sources, Assumptions, and Methodology**

APPENDIX A

Source: Appendix, Draft East County Area Plan (February, 1993)

1. Explanation of Demographic Data Sources

Formulation of the *East County Area Plan* required demographic data for East County and the Tri-Valley subregion capable of reflecting, first, existing demographic conditions; second, projected growth to the 2010 time horizon; and, last, a composite view of city plans for future development. This latter composite view was structured into a development scenario termed the "Prospective General Plans" which is a combination of buildout of the three cities' adopted general plans, plus proposed general plan amendments, plus buildout of unincorporated land under the existing Livermore-Amador Valley Planning Unit General Plan (1977). A similar scenario was prepared for the Tri-Valley subregion. The "Prospective General Plans" scenario describes the shape and extent of growth as currently planned in the planning area and subregion and thus is useful as a basis of comparison with the *East County Area Plan*.

The County relied on two sources of demographic data --- the Association of Bay Area Governments (ABAG) and Economic and Planning Systems (EPS). ABAG Projections 92, which is projected at geographic levels no smaller than city spheres of influence, was used at the regional and county level for the years 1990 and 2010 to establish the regional context of the *East County Area Plan*. In cases where demographic projections were needed by subarea, the County used data developed by EPS. These subareas include Eastern and West Dublin, North and South Livermore, Pleasanton Ridge, Tassajara and Dougherty Valleys. Subareas are defined by Tri-Valley Traffic Zones developed for the Tri-Valley Transportation model (see Figure 11) and may not conform to city general plan and general plan amendment boundaries. EPS used county and sphere of influence control totals established in ABAG's Revised Projections 90 (the only data available at the time the EPS projections were developed), disaggregating them to the subarea level. This process resulted in minor variations at the subregional (Tri-Valley) level between EPS and ABAG data.

Much of the data used in the "Prospective General Plans" scenario was already developed by EPS in previous work done for the Tri-Valley Wastewater Authority (see Long-Range Wastewater Management Plan for the Livermore-Amador Valley Draft Subsequent EIR, January 31, 1992) and for the Contra Costa Transportation Authority's (CCTA) land use data base for the Tri-Valley area.

2. Formulation of the *East County Area Plan* Holding Capacities

The *East County Area Plan* uses holding capacities for two time horizons - the year 2010 and buildout (see Tables 4 and 5 in Part IV. Plan Tables). The 2010 holding capacity for the *East County Area Plan* reflects ABAG's growth projections for East County (based on ABAG

Projections '92). All cities in the planning area and Tri-Valley subregion have agreed upon the projections as the common holding capacity for the Tri-Valley and the basis of the traffic model being developed by the Tri-Valley Transportation Council.

The buildout holding capacity for the *East County Area Plan* has just about the same population and housing as the "Prospective General Plans" scenario but scales back employment potential in response to two objectives: (1) to realistically address the in-commute constraint on the transportation gateways leading into East County which requires a reduction of employment generating land uses, and (2) the desire to achieve a jobs/housing balance (which requires a further reduction of jobs). Refer to Appendix 4 of the Background Reports for additional explanation.

The buildout holding capacities of the "Prospective General Plans" scenario and the *East County Area Plan* are summarized in Table A-1 below. The footnotes accompanying Table A-1 describe how the holding capacity for each subarea was derived. Estimated holding capacities assume buildout of all land designated for urban and rural uses at mid-point residential densities and building intensities, as defined in Table 11 (Part IV. Plan Tables), unless otherwise specified in existing and approved projects.

In general, the "Prospective General Plans" scenario reflects existing and proposed general plans of the cities of Dublin, Livermore, and Pleasanton. In the case of Doolan Canyon, the Dublin and Livermore plans overlapped, resulting in a conflict of projected land uses. In this area, the "Prospective General Plans" holding capacity assumes a scenario which divides the two plans along a line just east of Collier Canyon Road following the Eastern Dublin eastern boundary to the Livermore city limits and then proceeding westward to Doolan Canyon Road and southward to I-580. This division yields the maximum amount of development provided between the two plans while respecting land currently within Livermore's city limits.

Holding capacity estimates for all other areas were derived by Economic and Planning Systems (EPS) in April 1992 and reflect the status of local plans at that time. Several of the plans (notably Pleasanton Ridge, Eastern Dublin, and North Livermore) have been revised by cities since that time. The holding capacities of these plans were estimated by EPS based on the average densities shown in Table 11 and adjusted according to traffic zone boundaries. As a result, holding capacities within several subareas (notably Dublin and West Dublin) do not conform exactly with the holding capacities shown in respective city general plans and general plan amendments.

Ultimately, the buildout assumptions specified herein represent a "credible worst case" buildout scenario under the *East County Area Plan*. On one hand, the buildout calculations are based on assumptions for residential densities and floor-area-ratios that are somewhat lower than the maximum intensities legally possible under the *East County Area Plan*. On the other hand, the buildout calculations assume full buildout of virtually all lands at the assumed residential densities and floor area ratios. Ultimately, these two sets of assumptions are likely to offset each other, resulting in a credible worst case scenario.

Generally, the assumed residential densities range from about 60% to about 80% of the maximum densities legally possible under the *East County Area Plan*. For example, the assumed density of 11 units per acre for Medium/High Density Residential is 79% of the allowable maximum of 14 units per acre. The assumed floor-area-ratios generally range from 50% to 80% of the maximum floor-area-ratios legally possible under the *East County Area Plan*. These assumptions are based on discussions with city and county staff, developers, and planners in other Bay Area communities and reflect intensities typical of the type likely to occur under the *East County Area Plan*. While in a given situation a development may exceed the assumed intensity, the buildout calculations assume that development "on average" will occur at the assumed intensities.

Assumptions of future development also affect the timing of buildout of East County. Although buildout does not correspond to an exact date, an extension of future trends would indicate that buildout of all residential and non-residential land could theoretically occur between the years 2015 and 2020. Practically speaking, however, general plans rarely build out completely, leaving a certain amount of vacant land undeveloped. Therefore, it would be reasonable to assume that development could be expected to reach the year 2010 holding capacity and perhaps a certain amount beyond that, but would probably fall somewhat short of ultimate "buildout" of the *East County Area Plan*. Regardless of timing, full development of the East County Area Plan is dependent on infrastructure funding, improvements, and capacity which may reduce the buildout estimates assumed in East County holding capacity projections.

TABLE A-1
Comparison of the "Prospective General Plans" Scenario
and *East County Area Plan* at Buildout

City/SubArea	<u>Prospective Plan</u>		<u>East County Area Plan</u>	
	Housing	Jobs	Housing	Jobs
Dublin (1)	6,692	12,758	6,692	12,758
Eastern Dublin (2)	18,473	25,715	16,473	20,572
West Dublin (3)	4,153	291	925	291
Livermore (4)	27,243	101,545	27,243	55,849
North Livermore (5)	16,531	13,792	23,310	8,167
South Livermore (6)	2,820	4,055	2,820	4,055
Pleasanton (7)	30,054	64,568	30,054	58,111
Pleasanton Ridge (8)	2,658	50	60	0
Remainder Unincorporated (9)	470	100	470	100
Total East County	109,094	222,874	108,047	159,903
Note: Because of an overlap between the Eastern Dublin and North Livermore plans, the "Prospective General Plans" holding capacity assumes a scenario which divides the two general plan amendment proposals along a line just east of Collier Canyon Road following the Eastern Dublin eastern boundary to the Livermore City Limits and then proceeding westward to Donlan Canyon Road and southward to I-580. This division yields the maximum amount of development provided between the two plan proposals while respecting land within Livermore's city limits.				

Sources for Table A-1:

Unless otherwise noted, holding capacity estimates were developed by Economic and Planning Systems (EPS), Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992. Subareas are defined by Tri-Valley Traffic Zones developed for the Tri-Valley Transportation model (see Figure 11) and may not conform to city general plan and general plan amendment boundaries.

(1) Source: City of Dublin, Dublin General Plan, adopted February 11, 1985. Prospective Plan based on EPS interpretation of the Dublin General Plan, adopted February 11, 1985; *East County Area Plan* based on same.

(2) Source: City of Dublin, Eastern Dublin General Plan Amendment (Draft), February 1992. Prospective Plan based on Eastern Dublin General Plan Amendment (as of February 1992), which yields 18,473 housing units and 27,925 jobs, modified to delete 120 acres of Industrial Park east of Doolan Canyon Road at densities assumed in the Draft Eastern Dublin General Plan Amendment yielding 2,210 fewer jobs (1,304,400 s.f. at 1 job per 590 s.f.); *East County Area Plan* based on same minus 2,000 units in Doolan Canyon and assumes 20% of industrial/ commercial/ office acreage is not absorbed due to lack of labor supply (see Economic and Planning Systems, Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992).

(3) Source: City of Dublin, West Dublin Specific Plan EIR, January 1992. Prospective Plan based on 3,260 units cited in West Dublin EIR plus EPS estimate of 872 existing units and 291 existing jobs; *East County Area Plan* based on Large Parcel Agriculture and 100 acre minimum parcel size plus existing units and jobs.

(4) Source: City of Livermore, Livermore General Plan, as amended to November 14, 1988. Prospective Plan based on EPS interpretation of Livermore General Plan, as amended to November 14, 1988; holding capacity based on 2010 Livermore Circulation Element Scenario, December 1988; *East County Area Plan* based on same except buildout of jobs which assumes that 45% of industrial/ commercial/ office acreage is not absorbed due to lack of labor supply (see EPS Report).

(5) Source: City of Livermore, North Livermore 45,000 Population Plan, January 30, 1992. Prospective Plan based on North Livermore 45,000 Population Plan which yields 16,513 housing units and 22,111 jobs, modified to delete 200 acres of Business Commercial Park (BCP) (2,613,600 sf / 325 = 8,041 jobs) and 20 acres of Commercial (174,240 sf / 625 = 278 jobs) land lying west of Doolan Canyon Road at North Livermore GPA EIR assumed densities yielding 8,319 fewer jobs; *East County Area Plan* based on a land use plan yielding 23,310 housing units and 8,167 jobs which assumes mid-point densities for all residential and employment generating General Plan categories.

(6) Source: Alameda County, Draft South Livermore Valley Area Plan, February 6, 1992. Prospective Plan based on high estimate shown in South Livermore Valley Area Plan and assumes 100,000 square feet of vineyard-related commercial development at an average employment density for commercial uses of 1 job per 450 square feet (222 jobs) plus 3,833 existing jobs; *East County Area Plan* based on same.

(7) Source: City of Pleasanton, Pleasanton General Plan, as amended to 1992. Prospective Plan based on EPS interpretation of the Pleasanton General Plan, as amended to 1992; *East County Area Plan* based on same except for buildout of jobs which assumes 10% of industrial/ commercial/ office acreage is not absorbed due to lack of labor supply (see Economic and Planning Systems, Alameda County General Plans: Land Use and Jobs/Housing Analysis, July 1992).

(8) Source: City of Pleasanton, Pleasanton Ridgeland Plan, January 10, 1992. Prospective Plan based on maximum holding capacity of 2,640 units cited in Pleasanton Ridgeland Plan plus 18 existing units; job holding capacity based on EPS; *East County Area Plan* based on Large Parcel Agriculture and 100 acre minimum parcel size.

(9) Source: Alameda County, Livermore-Amador Valley Planning Unit General Plan, 1977. East County totals 267,500 acres of which about 98,000 acres are included within other subareas; of the remaining 169,500 acres, it is assumed that about 90% are unbuildable due to access, infrastructure, slope, public ownership, or other constraints. The potentially buildable 16,950 acres could yield 170 housing units in addition to the 300 existing units in unincorporated areas outside subareas (According to Bill Spear and the 1990 census, there are 90 units on Teala Road, 70 in Mountain House area, 40 in Niles Canyon, 30 on Greenville Road, 50 on Mines Road, and 20 on Vallecitos Road.) Assumes 100 existing agricultural jobs in unincorporated areas, estimated by County Agricultural Commissioner.

Source: Alameda County Planning Department

3. Assumptions Underlying Buildout Calculations

Residential Density and Building Intensity Assumptions

The following general assumptions concerning residential density, population density, and building intensity were used in developing calculations of buildout potential under the East County Area Plan. For each land use designation, the East County Area Plan specifies either a range of residential densities for residential uses or a maximum floor-area-ratio (FAR) for nonresidential uses. In calculating buildout on vacant land for which there are no proposed plans, the mid-point of residential density range or non-residential FAR range was used, as indicated in Table 11.

East County Area Plan land use categories, allowable densities, and uses are described below and summarized in *Table 10* in the plan document (Table 4.5 in the Project Description). Residential densities, building intensities (floor-area-ratios), population, and employment generation rates are summarized in *Table 11* in the plan document (see below).

Residential densities are expressed in terms of an allowable range of housing units per gross acre, exclusive of secondary units. Gross acreage includes all land (including streets and rights-of-way) within a parcel, while net acreage excludes streets and rights-of-way. Net acreage is generally about 25 percent less than gross acreage.

Population densities are expressed in terms of persons per household. In calculating East County holding capacities, an average of 2.8 persons per household is assumed for all residential units, although household size typically varies by location, type of unit, and density. The 1990 Census for East County cities shows variations from an average of 2.73 persons per household in Pleasanton, 2.74 in Livermore, and 2.86 in Dublin.

Building intensities are expressed in terms of maximum floor-area-ratios (FARs), based on net acreage for non-residential uses. An FAR is a ratio of the gross building square footage permitted on a lot to the net square footage of the lot. For example, on a site with 10,000 square feet of net land area, an FAR of 1.0 will allow 10,000 gross square feet of building floor area. On the same site, an FAR of 2.0 would allow 20,000 square feet; and an FAR of .5 would allow 5,000 square feet.

Residential development may occur at any point within the specified density range. However, in Table 11 the mid-point of the density range has been used to calculate holding capacity in all categories, except Very High Density Residential which assumes an average of 30 units per gross acre, based on recently proposed building types.

Non-residential development may occur at any point up to the specified maximum FAR.

However, in Table 11 **assumed average intensities** have been used to calculate holding capacity.

TABLE 11

Land Use, Population and Employment Densities

Land Use	Allowable Gross Density ¹	Assumed Density ²	Population/ Employment Density ³
Large Parcel Agriculture	1 Unit/100+ Acre	1 Unit/100 Acre	3.1 Pop./hh
Rural Residential	< 1 Unit/Acre	1 Unit/5 Acre	3.1 Pop./hh
Low Density Residential	1.0-4.0 Units/Acre	2.5 Units/Acre	3.1 Pop./hh
Medium Density Residential	4.1-8.0 Units/Acre	6 Units/Acre	3.1 Pop./hh
Medium/High Density Residential	8.1-12.0 Units/Acre	10 Units/Acre	2.3 Pop./hh
High Density Residential	12.1-25.0 Units/Acre	18 Units/Acre	2.0 Pop./hh
Very High Density	25.1-75.0 Units/Acre	30 Units/Acre	2.0 Pop./hh
Major Commercial (General)	Maximum .6 FAR	.3 FAR	1 Job/450 sf
Major Commercial (Office)	Maximum .6 FAR	.5 FAR	1 Job/250 sf
Industrial	Maximum .4 FAR	.2 FAR	1 Job/1,000 sf
Business Park/Mixed Use Development	Maximum .5 FAR	.4 FAR	1 Job/250 sf
Major Public Facilities	Maximum .6 FAR	.5 FAR	1 Job/250 sf

Notes: All other land use categories (e.g., Major Parks, Resource Management, Urban Reserve, Quarries, and Water Management) assume no development density in calculating holding capacity.

¹Units refer to housing units per gross acre; sf refers to gross square feet of building space.

²Density assumed in calculating holding capacity in cases where projects are not proposed or densities are not specified.

³Population densities were derived from the 1990 U.S. Census and vary by city. The 1990 Census showed an East County average of 3.1 persons per household for detached single family homes, 2.3 for attached single family homes, and 2.0 for multiple family units. An average population densities in East County for all unit types of 2.3 persons per housing unit was used.

Source: *Draft East County Area Plan*

Generally, the assumed residential densities range from about 60% to about 80% of the maximum densities legally possible under the East County Area Plan. For example, the assumed density of 11 units per acre for Medium/High Density Residential is 79% of the allowable maximum of 14 units per acre. The assumed floor-area-ratios generally range from 50% to 80% of the maximum floor-area-ratios legally possible under the East County Area Plan. These assumptions are based on discussions with city and county staff, developers, and planners in other Bay Area communities and reflect intensities typical of the type likely to occur under the East County Area Plan. While in a given situation a development may exceed the assumed intensity, the buildout calculations assume that development "on average" will occur at the assumed intensities.

Description of Land Use Categories and Assumptions Used for Calculating Buildout Holding Capacity

Rural Density Residential allows for densities up to 1 unit per acre. Unless otherwise specified in proposed plans, assumes residential buildout at 1.0 units per gross acre with 3.1 persons per occupied housing unit. Assumes a 5% vacancy rate.

Low Density Residential allows for densities of 1.0 to 4.0 units per acre for residential uses, a maximum of .3 FAR for neighborhood commercial uses (e.g., convenience stores on sites of 15 acre and less), and a maximum of .4 FAR for neighborhood support uses (e.g., child care facilities). Unless otherwise specified in proposed plans, assumes residential buildout at 2.5 units per gross acre with 3.1 persons per occupied housing unit. Assumes a 5% vacancy rate.

Medium Density Residential allows for densities of 4.1 to 8.0 units per acre for residential uses, a maximum of .3 FAR for neighborhood commercial uses (e.g., convenience stores on sites of 15 acre and less), and a maximum of .4 FAR for neighborhood support uses (e.g., child care facilities). Unless otherwise specified in proposed plans, assumes residential buildout at 6.0 units per gross acre with 3.1 persons per occupied housing unit. Assumes a 5% vacancy rate.

Medium/High Density Residential allows for densities of 8.1 to 12.0 units per acre for residential uses, a maximum of .3 FAR for neighborhood commercial uses (e.g., convenience stores on sites of 15 acre and less), and a maximum of .4 FAR for neighborhood support uses (e.g., child care facilities). Unless otherwise specified in proposed plans, assumes residential buildout at 10.0 units per gross acre with 2.3 persons per occupied housing unit. Assumes a 5% vacancy rate.

High Density Residential allows for densities of 12.1 to 25.0 units per acre for residential uses, a maximum of .3 FAR for neighborhood commercial uses (e.g., convenience stores on sites of 15 acre and less), and a maximum of .4 FAR for neighborhood support uses (e.g., child care facilities). Unless otherwise specified in proposed plans, assumes residential buildout at 20.0 units per gross acre with 2.0 persons per occupied housing unit. Assumes a 5% vacancy rate.

Very High Density Residential allows for densities of 25.1 units to 75.0 units per acre for residential uses, a maximum of .3 FAR for neighborhood commercial uses (e.g., convenience stores on sites of 15 acre and less), and a maximum of .4 FAR for neighborhood support uses (e.g., child care facilities). Unless otherwise specified in proposed plans, assumes residential buildout at 30.0 units per gross acre with 2.0 persons per occupied housing unit. Assumes a 5% vacancy rate.

Major Commercial allows for a maximum building intensity of .6 FAR, except within 1/4 mile of a BART station or within downtown commercial areas where a maximum building intensity of 2.0 FAR is allowed. Unless otherwise specified in proposed plans, assumes buildout at .4 FAR.

Industrial allows for a maximum building intensity of .4 FAR except within 1/4 mile of a BART station or within downtown commercial areas where a maximum building intensity of 2.0 FAR is allowed. Unless otherwise specified in proposed plans, assumes buildout at .2 FAR.

Business Park/Mixed Use allows for a maximum building intensity of .5 FAR except within 1/4 mile of a BART station or within downtown commercial areas where a maximum building intensity of 2.0 FAR is allowed. Unless otherwise specified in proposed plans, assumes buildout at .4 FAR.

Major Public allows maximum building intensity of .6 FAR. Unless otherwise specified in proposed plans, assumes buildout at .5 FAR.

Major Parks allows for a maximum intensity of .01 FAR. Unless otherwise specified in proposed plans, assumes no buildout potential.

Large Parcel Agriculture allows for a minimum parcel size of 100 acres and a maximum building intensity of .01 FAR except in areas supporting greenhouses where a maximum building intensity of .1 is allowed. Unless otherwise specified in proposed plans, assumes no buildout potential.

Resource Management allows for a minimum parcel size of 100 acres and a maximum building intensity of .01 FAR except in areas supporting greenhouses where a maximum building intensity of .1 is allowed. Unless otherwise specified in proposed plans, assumes no buildout potential.

Urban Reserve allows for a minimum parcel size of 100 acres and a maximum building intensity of .01 FAR. Unless otherwise specified in proposed plans, assumes no buildout potential.

Water Management Lands allows for a minimum parcel size of 100 acres and a maximum building intensity of .01 FAR. Unless otherwise specified in proposed plans, assumes no buildout potential.

Source: Appendix 4 in the Background Reports (*Draft East County Area Plan - Volume 2*)

4. The Tri-Valley Jobs/Housing Study

EPS developed jobs/housing data by subarea as apart of the "Prospective General Plans" scenario for the Tri-Valley subregion. Table G-3 projects housing need based on potential employment, and Table G-4 projects housing need by income category. This data reveals a significant "affordability gap" in housing for workers of low to moderate incomes. The number of housing units needed within the income categories was determined by projecting potential employment by sector (e.g., agriculture, manufacturing, retail, service, etc.) and by occupation (e.g., professional sales, clerical, service, etc.) and applying average annual salaries to each component. Table G-5 provides data relating rent or the cost of a new home to income; Table G-6 defines the household income category (i.e., very low, low, median, moderate, and above moderate) by income range.

5. COMMUTE CONSTRAINT METHODOLOGY

The freeways running through the Tri-Valley (I-680 running north-south and I-580 running east-west) form four principal "gateways" into the Tri-Valley. These major routes are supplemented by smaller routes such as Vasco Road, Crow Canyon Road and Niles Canyon Road/Highway 84, which provide additional capacity to the gateways.

As shown in Table G-7, these various routes have been aggregated into four gateways, and the capacity available to serve commuters into the Tri-Valley has been estimated. Vasco Road has been combined with I-580 to define the East/Northeast gateway because both routes serve more affordable housing markets than the other three gateways. Planned rail transit capacity (BART) has also been incorporated into the analysis.

The future trip capacity estimates, provided by TJKM Transportation Consultants, reflect all feasible roadway improvements (i.e., improvements which are shown in cities' General Plans but which may or may not have committed funding, programmed improvements shown in regional and state improvement plans, and all other improvements which can feasibly be made to the roadway network to maximize the capacity); therefore, the estimates represent the maximum capacity of the transportation system once all roadway improvements are in place. This capacity has been expressed in terms of vehicles and workers during a three hour commute peak.

The percentage of A.M. peak trips which pass through the Tri-Valley to other destinations (i.e., trips for which neither the origin nor the destination is in the Tri-Valley) has also been estimated. For this analysis, it was assumed that the percentage of trips passing through the Tri-

Valley in the future remains the same as it is now, i.e., per Metropolitan Transportation Commission (MTC) pass-through factors estimated in 1989. As shown in Table G-7, a relatively high proportion (55 percent) of commute trips coming from the east via I-580 in the A.M. peak period pass through to other destinations. This pattern has been verified by residential market studies in Modesto and other Central Valley communities.

Table G-7 estimates the number of workers that will commute into the Tri-Valley given employment and housing capacities under the "Prospective General Plans" scenario, and the proportion of employed residents likely to work in the Tri-Valley. In 1980, about 50 percent of employed Tri-Valley residents worked in the Tri-Valley. It is assumed that in the future, as local employment opportunities become more abundant, the percentage of employed residents will increase to 60 percent.

Table G-8 compares the demand under the "Prospective General Plans" scenario for workers coming into the East County who live outside the planning area with the capability of the transportation system to accommodate in-commuting to the Tri-Valley. In-commute demand has been distributed to the respective gateways based on a consideration of the affordability gap identified in Table G-4.

Because of the deficit of housing affordable to households on the lower end of the income distribution of the employment base, it was assumed that a disproportionate share of in-commuters will reside in the more affordable communities to the east and northeast of the Tri-Valley; that is, in the Central Valley, accessible to I-580, and in Antioch/Pittsburg, accessible via Vasco Road. As shown in Table G-7, the capacity of I-580 east and Vasco Road (28,500 vehicles) represents about 34 percent of the capacity of all four gateways combined (84,000 vehicles). In recognition of the affordability gap, EPS allocated 40 percent of in-commute demand to this east/northeast gateway.

As Table G-9 illustrates, under the "Prospective General Plans" scenario, in-commute capacity presents a major constraint to the realization of employment potentials, equivalent to nearly 40,000 jobs. This projected unrealized potential is equivalent to a resident workforce of approximately 26,500 households.

In summary, the following commute-constraint variables were analyzed:

- . the number of jobs and housing units within the Tri-Valley;
- . the affordability of Tri-Valley housing;
- . the number of Tri-Valley households employed outside the Tri-Valley, and thus not available to fill Tri-Valley jobs;
- . the availability and affordability of housing in areas within commute distance of Tri-Valley jobs; and,
- . the highway and transit capacities to serve commuters coming into the Tri-Valley.

6. FORMULATION OF THE EAST COUNTY AREA PLAN HOLDING CAPACITIES

The *East County Area Plan* uses holding capacities for two time horizons - the year 2010 and buildout (see Tables 4 and 5 in Part IV. Plan Tables). The 2010 holding capacity for the *East County Area Plan* reflects ABAG's growth projections for East County (based on ABAG Projections '92). All cities in the planning area and Tri-Valley subregion have agreed upon the projections as the common holding capacity for the Tri-Valley and the basis of the traffic model being developed by the Tri-Valley Transportation Council.

The buildout holding capacity for the *East County Area Plan* has just about the same population and housing as the "Prospective General Plans" scenario but scales back employment potential in response to two objectives: (1) to realistically address the in-commute constraint on the transportation gateways leading into East County which requires a reduction of employment generating land uses, and (2) the desire to achieve a jobs/housing balance (which requires a further reduction of jobs).

TABLE G-1

**Comparison of EPS and ABAG Projections for Households
and Employment - 1990**

Area	EPS Projections - 1990		ABAG Projections - 1990	
	Households	Employment	Households	Employment
East County Portion of Tri-Valley	47,696	76,231	48,449	70,399
Contra Costa County Portion of Tri-Valley	30,857	35,418	31,329	37,454
Total Tri-Valley	78,553	111,649	79,778	107,853

TABLE G-2

**Comparison of EPS and ABAG Projections for Households
and Employment - 2010**

Area	EPS Projections - 2010		ABAG Projections - 2010	
	Households	Employment	Households	Employment
East County Portion of Tri-Valley	92,068	147,962	91,898	140,495
Contra Costa County Portion of Tri-Valley	47,584	54,924	47,408	62,398
Total Tri-Valley	139,652	202,886	139,306	202,893

Source: Economic and Planning Systems, CCTA Projections based on ABAG Revised Projections 90 (revised 1992)

TABLE G-3

Housing Need and Capacity: Buildout of the "Prospective General Plans" Scenario in the Tri-Valley Subregion

Tri-Valley Subareas	Potential Employment ¹	Housing Need ²	Housing Capacity ³	Surplus/(Deficit) of Housing	Capacity as % of Need
Contra Costa County					
Danville	7,705	4,873	13,223	8,350	271%
San Ramon	45,308	28,654	15,880	(12,774)	55%
Dougherty Valley	1,500	949	9,601	8,652	1012%
Alamo/Blackhawk	1,622	1,026	8,466	7,440	825%
Tassajara Valley	12	8	4,344	4,336	57240%
Other Uninc. CCC	99	63	308	245	492%
Contra Costa County Subtotal	56,246	35,573	51,822	16,249	146%
Alameda County					
Dublin	12,759	8,069	6,358	(1,711)	79%
East Dublin	25,716	16,264	17,550	1,288	108%
West Dublin	292	185	3,945	3,760	2136%
Livermore	101,545	64,219	25,881	(38,338)	40%
South Livermore	4,055	2,565	2,679	114	104%
North Livermore	13,791	8,722	15,705	6,983	180%
Pleasanton	64,566	40,833	28,552	(12,281)	70%
Pleasanton Ridge	50	32	2,509	2,477	7935%
Other Uninc. AC	200	126	257	131	203%
Alameda County Subtotal	222,974	141,015	103,436	(37,577)	73%
Total Tri-Valley	279,220	176,588	155,258	(21,328)	88%

Notes: ¹ Buildout projections were derived from, or developed using:

Contra Costa County Subareas: CCTA Land Use System Preliminary Draft Projections, February 1992.

Alameda County Subareas:

Dublin:

East Dublin:

West Dublin:

Livermore:

South Livermore:

North Livermore:

Pleasanton:

Pleasanton Ridge:

Remainder Uninc.:

Livermore/Amador Valley General Plan, 1989

Livermore General Plan as amended to 1992.

Pleasanton Ridge/Landis Plan, January 1992.

Livermore/Amador Valley General Plan, 1989

Livermore General Plan as amended to 1992.

Livermore GP Amendment DEIR, 45,000 Population Alternative, January 1992.

South Livermore Valley Area Plan, February 1992.

West Dublin Specific Plan EIR, January 1992.

Dublin General Plan, February, 1985.

Draft East Dublin General Plan Amendment, February 1992.

² Housing need calculated for Tri-Valley workers assuming 1.58 workers per occupied household.

³ Capacity in terms of occupied dwelling units assuming 0.05 vacancy rate for dwelling units at buildout.

Sources: CCTA Land Use Information System; General Plans of Tri-Valley Cities; Chandler W. Lee, AICP; Economic and Planning Systems, Inc.

TABLE G-4

**Housing Need by Income Category:
Buildout of the "Prospective General Plans" Scenario
in the Tri-Valley Subregion**

Subarea and Income Category ¹	Housing Need ²	Housing Capacity ³	Surplus (Deficit) of Housing ⁴	Capacity as % of Need
Contra Costa County Portion:				
\$0 to \$15,099	4,328	153	(4,175)	4%
\$15,100 to \$28,399	6,900	1,367	(5,533)	20%
\$28,400 to \$47,299	10,531	7,843	(2,688)	74%
\$47,300 to \$66,199	6,522	5,197	(1,325)	80%
\$66,200 to \$94,599	4,693	17,897	13,205	381%
\$94,600 and +	2,597	19,365	16,768	746%
CC Subtotal	35,571	51,822	16,252	146%
Alameda County Portion:				
\$0 to \$15,099	15,680	1,142	(14,539)	7%
\$15,100 to \$28,399	25,308	7,638	(17,670)	30%
\$28,400 to \$47,299	41,699	32,204	(9,496)	77%
\$47,300 to \$66,199	27,595	19,234	(8,361)	70%
\$66,200 to \$94,599	20,458	23,332	2,874	114%
\$94,600 and +	10,275	19,887	9,612	194%
AC Subtotal	141,015	103,437	(37,580)	73%
Total By Income Category				
\$0 to \$15,099	20,009	1,295	(18,714)	6%
\$15,100 to \$28,399	32,208	9,004	(23,203)	28%
\$28,400 to \$47,299	52,231	40,047	(12,184)	77%
\$47,300 to \$66,199	34,117	24,431	(9,686)	72%
\$66,200 to \$94,599	25,151	41,229	16,079	164%
\$94,600 and +	12,872	39,252	26,380	305%
Tri-Valley Total	176,588	155,258	(21,328)	88%

Notes:

¹Maximum affordable housing cost assumed to be about 3.75 times annual income (for-sale units) or 30 percent of gross monthly income (for-rent units).

²Household incomes in 1990 \$, based in part on 1980 Census PUMS Sample A for Contra Costa County.

³Housing price distribution based on assumed relation of residential land use capacities, development densities and product types; 1990 Census data for Tri-Valley Community housing values and contract rents; and recent surveys of new for-sale and for-rent housing projects.

⁴Comparisons based on occupied dwelling units assuming 5% vacancy rates. Total dwelling unit capacity of Alameda County Composite City General Plans is 108,878, of which 103,436 are assumed occupied at buildout.

Sources: 1980 PUMS Sample A for Contra Costa County; Bay Area Council, Economic and Planning Systems, Inc.

TABLE G-5

**Tri-Valley Housing Affordability Ranges (Rental and Purchase)
By Income**

1990 Household Income	1990 Purchase Price¹	Monthly Rent²
\$0 to \$15,099	\$0 to \$ 56,999	\$0 to \$ 377
\$15,100 to \$28,399	\$ 57,000 to \$106,999	\$ 378 to \$ 709
\$28,400 to \$47,299	\$107,000 to \$177,999	\$ 710 to \$1,182
\$47,300 to \$66,199	\$178,000 to \$248,999	\$1,183 to \$1,654
\$66,200 to \$94,599	\$249,000 to \$355,999	\$1,655 to \$2,364
\$94,600 and Over	\$356,000 and Over	\$2,365 and Up

Notes: ¹The purchase price is assumed to be based upon:

Interest Rate:	10.0%
Term of Loan (Years):	30
Percent Down Payment:	20.0%
Income Ratio Requirement:	33.0%

Purchase prices for incomes up to \$28,399 are theoretical and rental is assumed.

²Assumes that 30% of gross monthly income is spent on rent.

Source: Economic and Planning Systems, Inc.

TABLE G-6**Household Income Levels for East County - 1992**

Household Income Category	1992 Household Income Range
Above Moderate	\$56,160 and above
Moderate	\$37,440 to \$56,160
Median	\$46,800
Low	\$23,400 to \$37,440
Very Low	Below \$23,400
Note: Above Moderate Income Range equals above 120% of the median income; Moderate equals 80% to 120% of the median income; Low equals 50% to 80% of the median income; and Very Low equals less than 50% of the median income. Figures are for Oakland Primary Metropolitan Statistical Area (includes Alameda and Contra Costa Counties for a family of four).	
Source: U.S. Department of Housing and Urban Development, 1992 for Oakland Primary Metropolitan.	

TABLE G-7

Tri-Valley Gateway Traffic Analysis

Tri-Valley's Share of Gateway Capacity Assuming Pass-Through Trips Remain at the 1989 Percentage¹

Gateway	Future Capacity Assuming All Planned Improvements			Pass-Through Factor	Tri-Valley's Share of Gateway Capacity ²		
	Vehicles (3 Hr. Period)	Workers ³ (3 Hr. Period)	Distribution of Highway In-commuters		Vehicles (3 Hr. Period)	Workers (3 Hr. Period)	Distribution of Highway In-commuters
<i>From East's Northeast I-580 Vascor</i>	16,500 12,000	20,625 15,000	20% 14%	55% 15%	7,400 10,200	9,250 12,750	11% 15%
Subtotal	28,500	35,625	34%	38%	17,600	22,000	26%
<i>From North I-680</i>	16,500	20,625	20%	15%	14,000	17,500	21%
<i>From West I-580 Canyon Way Crow Canyon</i>	16,500 2,000 2,000	20,625 2,500 2,500	20% 2% 2%	15% 15% 15%	14,000 1,700 1,700	17,500 2,125 2,125	21% 3% 3%
Subtotal	20,500	25,625	24%	15%	17,400	21,750	27%
<i>From South I-680 Niles</i>	16,500 2,000	20,625 2,500	20% 2%	5% 5%	15,700 1,900	19,625 2,375	24% 3%
Subtotal	18,500	23,125	22%	5%	17,600	22,000	27%
Roadways	84,000	105,000	100%	21%	66,600	83,250	100%
Rail Transit	0	9,000	#N/A	0%	0	9,000	#N/A
Total	84,000	114,000	#N/A	21%	66,600	92,250	#N/A

Notes: ¹The Tri-Valley share of gateway capacity is estimated assuming pass through-trips remain at 1989 levels. Approximately 39,000 vehicles commuted through the gateways. Approximately 39,000 vehicles commuted through the gateways in 1989. This was equivalent to approximately 48,750 workers or 46 % of future gateway capacity.

²The Tri-Valley's share of capacity is equal to the future capacity minus the pass-through trips.

³Workers per vehicle is assumed to equal 1.25.

Sources: TJKM Transportation Consultants; Economic and Planning Systems, Inc.

TABLE G-8

**Comparison of Employment and Housing Capacities:
Buildout of the "Prospective General Plans" Scenario in the Tri-Valley Subregion**

	Prospective General Plans
Household Capacity in the Tri-Valley¹	155,255
Resident Labor Force Capacity in the Tri-Valley²	245,490
Tri-Valley Residents Employed in the Tri-Valley³	147,295
Employment Capacity in the Tri-Valley	279,225
Employees who Must Commute into the Tri-Valley	131,930
Employees who Could Commute via Rail Transit	9,000
Employees who Must Commute via Roadways	122,930

Notes: ¹Capacity in Terms of Occupied Dwelling Units Assuming Vacancy Rate at Buildout: 5%
 ²Workers Per Household: 1.58
 ³Assumed Percentage of Tri-Valley Residents Who Work in Tri-Valley as of Buildout: 60%

Sources: General Plans of Tri-Valley Cities; TJKM; Economic and Planning Systems

TABLE G-9

**Employment Potential:
Buildout of the "Prospective General Plans" Scenario in the Tri-Valley Subregion**
Given Commutation Constraints and Likely Distribution of Future Labor Force Assuming Pass-Through Trips Remain at the 1989 Percentage¹

Highway Work-Trip Capacity Available to Tri-Valley	Distribution of In-Commuter Demand			Unrealized Employment and Equivalent Housing Need	
	Workers ² (3 Hr. Period)	Percent of In-Commuter Demand ³	Number of In-Commuters Demanded ⁴	Potential Employment Unrealized	Equivalent Housing ⁵ Needed
<i>From East/Northeast</i>					
I-580	9,250	17%	20,675	11,425	7,611
Yosemite	12,750	23%	28,497	15,747	10,491
Subtotal	22,000	40%	49,172	27,172	18,102
<i>From North</i>					
I-680	17,500	20%	24,586	7,086	4,721
<i>From West</i>					
I-580	17,500	16%	19,782	2,282	1,520
Canyon Way	2,125	2%	2,402	277	185
Crow Canyon	2,125	2%	2,402	277	185
Subtotal	21,750	20%	24,586	2,836	1,890
<i>From South</i>					
I-680	19,625	18%	21,932	2,307	1,537
Niles	2,375	2%	2,654	279	186
Subtotal	22,000	20%	24,586	2,586	1,723
Roadways Total	83,250	0%	122,930	39,680	26,436

Notes: ¹Model assumes commutation consisting and likely distribution of future labor force of pass-through trips remain at 1989 levels. Pass-through trips are taken from Table G-7. The projected rail transit capacity of 9,000 in-commuters has been deducted from the 92,250 total capacity.

²The share of total demand assigned to East/Northeast Gateway is assumed = 40%, based on current and projected housing costs in Central Valley and Pittsburg/Antioch/Brentwood areas.

³From Table G-7. The projected rail transit capacity of 9,000 in-commuters has been deducted from the 131,930 total demand.

⁴Additional occupied housing unit demand, assuming 1.58 workers per occupied dwelling. Assuming 5% vacancy rate, the equivalent total dwelling unit demand is approximately 27,827 du.

Sources: Economic and Planning Systems, Inc.

TABLE G-10

ECAP: Comparison of Employment and Housing Capacities

	East County Area Plan
Household Capacity in East County¹	(108,047 x .95) = 102,644
Resident Labor Force Capacity in East County²	(102,644 x 1.58) = 162,178
East County Residents Employed in East County³	(162,178 x .6) = 97,307
Employment Capacity in East County⁴	(ECAP Jobs) = 159,903
Employees who Must Commute into East County⁵	(159,903 - 97,307) = 62,596
Capacity of Gateways into East County⁶	(92,250 x .70) = 64,575
Unrealized Employment⁷	(62,596 - 64,575) = -1,979

Notes:¹Capacity in Terms of Occupied Dwelling Units Assuming Vacancy Rate at Buildout: 5%²Workers Per Household: 1.58³Assumed Percentage of Tri-Valley Residents Who Work in Tri-Valley as of Buildout: 60%⁴Number of Proposed Jobs⁵Row #4 Minus Row #3⁶Tri-Valley Gateway Capacity Times % of Tri-Valley Jobs in East County (ABAG - Year 2010) = 70% (See Table G-7)⁷A positive number indicates planned employment which cannot be realized due to lack of local housing supply and in-commute gateway capacity; a negative number indicates the amount of additional jobs which could be accommodated.**Sources:** Draft East County Area Plan; TJKM; Economic and Planning Systems

Appendix B

Comparison of Land Use Categories

3. Comparison of *East County Area Plan* Land Use Categories with Eastern Dublin General Plan Amendment, North Livermore General Plan Amendment, and South Livermore Valley Area Plan

Land use designations shown on the *East County Area Plan* Land Use Diagram in subareas outside city general plan areas are aggregations of land use categories used in the Eastern Dublin and North Livermore General Plan Amendments and the South Livermore Valley Area Plan. Table A-2 shows the relationship between these subarea land uses and East County land use designations as they are used in the *East County Area Plan* Land Use Diagram. The *East County Area Plan* categories are intended to be consistent with subarea plans within these respective subareas.

Table A-2			
EAST COUNTY/SUBAREA PLAN LAND USE CATEGORY COMPARISON			
Proposed East County Land Use Category	Eastern Dublin (1)	N Livermore (2)	S Livermore(3)
Residential			
Rural Density Less Than 1 unit/acre	None	Rural Residential .1-1.0 hu/ac	Ruby Hill
Low Density 1.0-4.0 unit/acre	Low Density 0-6 hu/ac; includes parks and schools	Very Low Density 1-2 hu/ac; Low Density 3-4.5 hu/ac	Transitional Areas
Medium Density 4.1-8.0 unit/acre	None	Medium/Low Density 4.5-6 and Medium 4.5- 9 hu/ac	None
Medium/High Density 8.1-12.0 units/acre	Medium Density 6- 14 hu/ac; includes parks and schools	Medium/High 8-14 hu/ac	None
High Density 12.1-25.0 units/acre	Medium/High Density 14-25 hu/ac	High Density 14-18 hu/ac	None
Very High Density 25.1-75.0 units/acre	Very High Density 25+ hu/ac		None
Industrial/Commercial			
Major Commercial	Campus, Neighborhood, and General Commercial	Commercial; Subregional Shopping Center	None
Industrial	Industrial Park	None	Livermore Gateway
Mixed Use/Business Park	None	Community Center; Business and Commercial Park	None

Other			
Major Public Facilities	None	Institutional	Public
Urban Reserve	None	None	None
Open Space/Agriculture			
Major Parks	None	Sports Park	Sycamore Grove Park
Large Parcel Agriculture	Rural Residential 1 hu/100 ac	None	Vineyard Area (5); Cultivable and Non-Cultivable Land; New & Existing Vineyards; and Steep Slopes
Resource Management	Open Space	Hillside Protection; Open Space	Arroyos
Quarries	None	None	None
Water Management Lands	None	None	None

Note: If a subarea land use category spans more than one East County category, the mid-point of the subarea designation is assumed.

- (1) Draft Eastern Dublin General Plan Amendment, February, 1992
- (2) Draft North Livermore General Plan Amendment - 45,000 Plan, January 30, 1992
- (3) Draft South Livermore Valley Area Plan, February 6, 1992

4. Comparison of *East County Area Plan* Land Use Categories with City General Plans

Land use designations shown on the *East County Area Plan* Land Use Diagram within city planning areas are aggregations of land use categories used in the Dublin, Livermore, and Pleasanton General Plans. Table A-3 shows the relationship between city and East County land use designations as they are used in the *East County Area Plan* Land Use Diagram. The *East County Area Plan* categories are intended to be consistent with city general plans within respective city planning areas.

Table A-3			
EAST COUNTY/CITY GENERAL PLAN LAND USE CATEGORY COMPARISON			
Proposed East County Land Use Category	Dublin General Plan (1)	Livermore General Plan (2)	Pleasanton General Plan (3)
Residential			
Rural Less Than 1 unit/acre	None	Rural .2-1 hu/ac	Rural .2 hu/ac
Low 1.0-4.0 units/acre	Single Family 1-6 hu/ac	Urban Low 1.5-2 hu/ac; Low/Medium 3 hu/ac	Low Density 0-2 hu/ac
Medium 4.1-8.0 units/acre	None	Medium 4.5 hu/ac; Medium/High 6 hu/ac; High 6-8 hu/ac	Medium Density 2-8 hu/ac
Medium/High 8.1-12.0 units/acre	Medium 6-14 hu/ac	High 8-14 hu/ac	None
High 12.1-25.0 units/acre	Medium/High 14- 25 hu/ac	High 14-18 hu/ac	High Density 8+ hu/ac
Very High 25.1-75.0 units/acre	None	None	None

Industrial/Commercial			
Major Commercial	Retail Office & Automotive	All Commercial	Retail Commercial & Offices
Industrial	Business Park Industrial/ Outdoor Storage	Low Intensity; High Intensity	General & Limited Industrial
Mixed Use/Business Park	Business Park/ Industrial	Business and Commercial Park	Business Park
Other			
Urban Reserve	None	None	None
Major Public Facilities	None	None	None
Open Space/Agriculture			
Major Parks	Community Parks	Community Parks	Community Parks
Large Parcel Agriculture 1 hu/100 ac	None	General Agriculture; Viticulture; Range & Grassland	None
Resource Management	Open Space/Stream Corridor	Parks, Trailways, etc.	Public Health & Safety
Quarries	None	Sand and Gravel	Sand and Gravel
Water Management	None	None	None

Note: If a city general plan category spans more than one East County category, the mid-point of the city designation is assumed.

- (1) Dublin General Plan, as amended to January 1992
- (2) Livermore General Plan, as amended to November 1988
- (3) Pleasanton General Plan, as amended to January 1992

Appendix C

Transportation

TABLE C-3 Roadway Level of Service Definitions		
Level of Service	Volume-to-Capacity Ratio*	Description
A	< 0.60	Free flow, volumes and densities, high speeds. Drivers can maintain their desired speeds with little or no delay.
B	0.60 - 0.69	Stable flow, operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speeds.
C	0.70 - 0.79	Stable flow, but speeds and maneuverability are more closely controlled by higher volumes.
D	0.80 - 0.89	Approaching unstable flow, tolerable operating speeds which are; however, considerably affected by operating conditions. Drivers have little freedom to maneuver.
E	0.90 - 1.00	Unstable flow, with yet lower operating speeds and, perhaps, stoppages of momentary duration. Volumes at or near capacity.
F	> 1.00	Forced flow. Both speeds and volumes can drop to zero. Stoppages may occur for short or long periods. These conditions usually result from queues of vehicles backing up from a restriction downstream.
<p>*V/C ratio = The ratio of traffic volume to roadway capacity on a given roadway segment. Volumes adjusted using peak hour % of trucks, and peak hour factors actually observed at 35 sample locations (% trucks: 3% to 6%; peak hour factor: .83 to 1.00).</p> <p>Source: <i>Highway Capacity Manual</i>.</p>		

Appendix D

Air Quality Methodology and Assumptions

AIR QUALITY METHODOLOGY AND ASSUMPTIONS

CALINE-4 MODEL

The CALINE-4 model is a fourth-generation line source air quality model that is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway.¹ Given source strength, meteorology, site geometry and site characteristics, the model predicts pollutant concentrations for receptors located within 150 meters of the roadway. The CALINE-4 model allows roadways to be broken into multiple links that can vary in traffic volume, emission rates, height, width, etc..

A screening-level form of the CALINE-4 program was used to predict concentrations.² The intersection mode of the screening model was employed, which superimposes the worst case concentrations of the two intersecting roadways. Normalized concentrations for each roadway size (2 lanes, 4 lanes, etc.) are adjusted for the two-way traffic volume and emission factor. Calculations were made for distances of 25 feet from the roadway curbline.

Emission factors were derived from the California Air Resources Board EMFAC-7EPSCF2 computer model. Average vehicle speed was assumed to be 15 MPH in the year 1990, declining to 10 MPH in 2010.

¹ California Department of Transportation, CALINE-4- A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways, Report No. FHWA/CA/TL-84-15, 1984.

² Bay Area Air Quality Management District, Air Quality and Urban Development-Guidelines, November 1985, Revised 1991.

The CALINE-4 model calculates the local contribution of nearby roads to the total concentration. The other contribution is the background level attributed to more distant traffic. The 1-hour background level was taken as 6.6 PPM in 1990 and 4.4 PPM in 2000.³

To calculate 8-hour concentrations from the 1-hour output of the CALINE-4 model, a persistence factor of 0.7 was employed.

BASIN-WIDE VEHICULAR EMISSIONS ESTIMATES

The emissions data for on-road vehicles in the a.m. and p.m. peak travel hours were derived from statistics on Vehicle Miles Travelled by speed category generated by the transportation model. VMT estimates were obtained for 6 speed categories (less than 15 mph, 16-25 mph, etc.) and these were multiplied by emission factors for a speed at the middle of the speed range. The California Air Resources Board's current EMFAC7EPSCF2 emission factors were applied to the model output to estimate running emissions from the Tri-Valley roadway system.

The calculation of emissions for ozone precursors (hydrocarbons and oxides of nitrogen) assumed an average ambient temperature of 75 degrees Fahrenheit. Emissions of carbon monoxide were based on an average ambient temperature of 50 degrees Fahrenheit.

URBEMIS-3 PROGRAM

Estimates of regional vehicular emissions generated by new trips were made using a program called URBEMIS-3. URBEMIS-3 is a program that estimates the emissions that would result from various land use development projects. Land use project can include residential uses such as single-family dwelling units, apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS-3 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

³ Bay Area Air Quality Management District, Air Quality and Urban Development-Guidelines, November 1985 (Revised 1991).

The following is a description of the parameters that were used in the regional air quality analysis of the proposed project:

-Ambient Temperature: 75 degrees F,

-Trip Lengths:

Home-Based Work	11.4 miles
Home-Based Shop	4.4 miles
Home-Based Other	6.0 miles
Non-Home Based Work	10.5 miles
Non-Home Based Non-Work	4.7 miles

-Year of Analysis: 2010

-Average Speed: 35 miles per hour for all trip types.

Trip lengths were taken from Metropolitan Transportation Commission travel statistics for Livermore-Pleasanton Superdistrict and Alameda County.⁴

INDUSTRIAL AND AREA-SOURCE RESIDENTIAL EMISSIONS

The Bay Area Air Quality Management District has developed emission factors for industrial sources and area-source emissions for residences.⁵ These emission factors, published in 1985, reflect air pollution controls in place at that time.

⁴ Metropolitan Transportation Commission, Bay Area Travel Forecasts, Congestion Management Program Databook #1: Regional Summary, March 1991.

⁵ Bay Area Air Quality Management District, Air Quality and Urban Development-Guidelines, 1985.

Since 1985 controls have been adopted or are being considered for virtually all residential sources of pollutants (fireplaces, space and water heaters, volatile consumer products, paints and solvents, lawn mowers). By project buildout, the majority of household pollutant sources will have been controlled to a large extent. The 1985 emission factors were therefore reduced by 50% to estimate residential emissions in the assumed year of project buildout.

Regulation and controls have also been adopted for new industrial sources since 1985. Emission rates (in pounds/day per acre) from BAAQMD guidance were reduced by 50% to reflect current conditions. An average emission factor was calculated assuming that new industrial acreages would be equally proportioned among semiconductor, electronic component and instrument industrial manufacturing categories.

Figure 2

SAN FRANCISCO BAY AREA AIR BASIN MONITORING STATIONS OPERATING DURING 1991



Appendix E

CEQA Guidelines for the Protection of Archaeological Resources

Appendix K

ARCHAEOLOGICAL IMPACTS

- I. CEQA applies to effects on historic and prehistoric archaeological resources.
- II. Public agencies should seek to avoid damaging effects on an archaeological resource whenever feasible. If avoidance is not feasible, the importance of the site shall be evaluated using the criteria outlined in Section III.
 - A. In-situ preservation of a site is the preferred manner of avoiding damage to archaeological resources. Preserving the site is more important than preserving the artifacts alone because the relationship of the artifacts to each other in the site provides valuable information that can be lost when the artifacts are removed. Further, preserving the site keeps it available for more sophisticated future research methods. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.
 - B. Avoiding damage may be accomplished by many approaches, including:
 1. Planning construction to miss archaeological sites;
 2. Planning parks, greenspace, or other open space to incorporate archaeological sites;
 3. "Capping" or covering archaeological sites with a layer of soil before building tennis courts, parking lots, or similar facilities. Capping may be used where:
 - a. The soils to be covered will not suffer serious compaction;
 - b. The covering materials are not chemically active;
 - c. The site is one in which the natural processes of deterioration have been effectively arrested; and
 - d. The site has been recorded.
 4. Deeding archaeological sites into permanent conservation easements.
- III. If the Lead Agency determines that a project may affect an archaeological resource, the agency shall determine whether the effect may be a significant effect on the environment. If the project may cause damage to an important archaeological resource, the project may have a significant effect on the environment. For the purposes of CEQA, and "important archaeological resource" is one which:
 - A. Is associated with an event or person of:
 1. Recognized significance in California or American history, or
 2. Recognized scientific importance in prehistory.
 - B. Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;
 - C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
 - D. Is at least 100 years old and possesses substantial stratigraphic integrity; or
 - E. Involves important research questions that historical research has shown can be answered only with archaeological methods.
- IV. If an archaeological resource is not an important archaeological resource, both the resource and the effect on it shall be noted in the Initial Study or EIR but need not be considered further in the CEQA process.

- V. If avoidance of the important archaeological resource is not feasible, the Lead Agency should include an excavation plan for mitigating the effect of the project on the qualities which make the resource important under Section III.
- A. If an excavation plan is prepared, it shall:
 1. Be a brief summary of the excavation proposed as part of a mitigation plan;
 2. Be available for review only a need-to-know basis;
 3. Not include the specific location of any archaeological resources if the plan will be made known to the general public.
 - B. An excavation plan may:
 1. List and briefly discuss the important information the archaeological resources contain or are likely to contain;
 2. Explain how the information should be recovered to be useful in addressing scientifically valid research questions and other concerns identified in subdivision (a);
 3. Explain the methods of analysis and, if feasible, display of excavated materials;
 4. Provide for final report preparation and distribution; and
 5. Explain the estimated cost of and time required to complete all activities undertaken under the plan.
 - C. The Lead Agency may require a mitigation plan to be carried out as a condition of approval of the project.
- VI. A public agency following the federal clearance process under the National Historic Preservation Act or the National Environmental Policy Act may use the documentation prepared under the federal guidelines in the place of documentation called for in this appendix.

VII. Limitations on Mitigation

Special rules apply to mitigating significant effects on important archaeological resources.

- A. If it is not feasible to revise the project to avoid an important archaeological resource, the Lead Agency shall require the project applicant to guarantee to pay one half of the cost of mitigating the significant effect of the project on important archaeological resources.
 1. In determining the payment to be required from the applicant, the Lead Agency shall consider the in-kind value of project design or expenditures intended to permit any or all important archaeological resources or California Native American culturally significant sites to be undisturbed or preserved in place.
 - a. Consideration of in-kind values does not require a dollar for dollar set-off against the payment by the project applicant.
 - b. In deciding on an appropriate set-off, the Lead Agency shall consider such factors as whether the project design or expenditures would provide other benefits to the applicant and whether the design or expenditures required special changes in the project plans.
 2. When it decides to carry out or approve the project, the Lead Agency shall, if necessary, reduce the mitigation measures specified in the EIR to those which can be funded with:
 - a. The money guaranteed by the project applicant, and
 - b. Money voluntarily guaranteed by any other person or persons for the mitigation.
 3. In order to allow time for interested persons to provide a voluntary funding guarantee, the Lead Agency shall not decide to carry out or approve a project having a significant effect on important archaeological resources until 60 days after completing the final EIR on the project.
 4. In no event shall the Lead Agency require the applicant to pay more for mitigation within the site of the project than the following amounts:

- a. One half of one percent of the projected cost of the project, if the project is a commercial or industrial project.
 - b. Three fourths of one percent of the projected cost of the project for a housing project consisting of one unit.
 - c. If a housing project consists of more than one unit, three fourths of one percent of the projected cost of the first unit plus the sum of the following:
 - (i) \$200 per unit for any of the next 99 units,
 - (ii) \$150 per unit for any of the next 400 units,
 - (iii) \$100 per unit for units in excess of 500.
- B. Unless special or unusual circumstances warrant an exception, the field excavation phase of an approved mitigation plan shall be completed within 90 days after the applicant receives the final approval necessary to begin physical development of the project.
 - 1. With a phased project, the mitigation measures shall be completed within 90 days after approval is granted for the phased portion to which the specific mitigation measures apply.
 - 2. The project applicant can elect to extend the time limits for completing the field excavation phase of the approved mitigation plan.
 - 3. A mitigation plan shall not authorize violation of any law protecting American Indian cemeteries.
- C. Excavation as part of a mitigation plan shall be restricted to those parts of an important archaeological resource that would be damaged or destroyed by the project unless special circumstances require limited excavation of an immediately adjacent area in order to develop important information about the part of the resource that would be destroyed.
- D. Excavation as mitigation shall not be required for an important archaeological resource if the Lead Agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, provided that the determination is documented in the EIR.
- E. The limitations on mitigation shall not apply to:
 - 1. A public project if the Lead Agency decides to comply with other provisions of CEQA that apply to mitigation of significant effects, and
 - 2. A private project if the applicant and the Lead Agency jointly elect to comply with other provisions of CEQA that apply to mitigation of significant effects.
- F. The time and cost limitations described in this section do not apply to surveys and site evaluation activities intended to determine whether the project location contains archaeological resources, and if so, whether the archaeological resources are important as defined in this appendix.

VIII. Discovery of Human Remains

- A. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - 1. The coroner of the county in which the remains are discovered has been informed and has determined that no investigation of the cause of death is required, and
 - 2. If remains are of Native American origin,
 - a. The descendants from the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or

- b. The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.
 - B. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.
 - 1. The Native American Heritage Commission is unable to identify a descendant;
 - 2. The descendant identified fails to make a recommendation; or
 - 3. The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.
 - C. If the human remains are discovered before the Lead Agency has finished the CEQA process, the Lead Agency shall work with the Native American Heritage Commission and the applicant to develop an agreement for treating or disposing, with appropriate dignity, of the human remains and any associated grave goods. Action implementing such an agreement is exempt from:
 - 1. The general prohibition on disintering, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
 - 2. The requirements of CEQA and the Coastal Act.
- IX. As part of the objectives, criteria, and procedures required by Section 21082 or as part of conditions imposed for mitigation, a Lead Agency should make provisions for archaeological sites accidentally discovered during construction. These provisions should include an immediate evaluation of the find. If the find is determined to be an important archaeological resource, contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ one of the avoidance measures should be available. Construction work could continue on other parts of the building site while archaeological mitigation takes place.

Note:

Authority cited: Sections 21083 and 21087, Public Resources Code; Reference: Section 7050.5, Health and Safety Code; Sections 5097.98, 21001(b) and (c), and 21083.2, Public Resources Code; *Society for California Archaeology v. County of Butte*, (1977) 65 Cal. App. 3d 832.

Discussion:

This appendix responds to problems that have arisen in applying CEQA to archaeological resources. In some areas of the state, full excavations of archaeological sites have been required for nearly every site discovered within the tract where a project would be located regardless of the importance of the sites. As a result, federal officials have noted that in CEQA documents they have found descriptions of archaeological excavations of sites that would not be regarded as important enough to call for excavation under federal law. In this experience has shown a need for establishing standards to guide agencies in deciding whether a site would be important enough to call for analysis under CEQA.

While there have been problems in some parts of the state, archaeological impacts have been handled well in other areas. Mendocino County and Santa Barbara County especially have been noted for the excellence of their methods for dealing with archaeological resources. This appendix does not mandate a uniform system statewide so that successful local programs can continue.

The unnecessarily large number of excavations has also involved an unnecessary conflict with Native American values. Native Americans have been upset by people digging up the remains of their ancestors. While archaeology can be carried out in conjunction with Native Americans, and has been done successfully to help Native Americans learn about their ancestors, too often excavations have been carried out without concern for the sensitivities of Native Americans. The approaches described in this appendix should reduce the conflict with Native American values concerning protection of burial sites.

An important principle in this appendix is the emphasis on avoidance of archaeological sites. Avoidance is discussed as a way of avoiding a significant impact in the first place, thereby enabling a project to qualify for a Negative

Declaration. Where the proposed project includes a potential impact on a site, avoidance is suggested as a preferred mitigation measure where all other factors are equal. If a project can be altered to avoid a site, the costs and delays involved in an archaeological excavation may also be avoided, and there would be no interference with Native American sensitivities. Possible methods of avoidance are listed in order to give people ideas of how to proceed. These methods are not exclusive and could be supplemented by other methods at the option of the Lead Agency.

The appendix also identifies standards for determining the importance of the archaeological site and provides that a project would have a significant effect on the environment if it would cause damage to an important archaeological site. These standards are in keeping with the efforts in CEQA to focus on significant effects rather than on all effects. The standards are an effort to focus on archaeological resources that people would generally agree are important rather than requiring protection of all archaeological resources. The standards are consistent with the standards included in AB 952 (Deddeh), Chapter 1623 of the Statutes of 1982. The appendix uses the term "important" archaeological resources rather than "unique" archaeological resources in order to use terminology more closely related to accepted scientific usage. The substance of the standards remains consistent with the bill despite the change in label.

The appendix encourages the preparation of an excavation plan in an EIR as one of several possible mitigation measures for destruction or damage to an archaeological site. The excavation plan is an effort to achieve greater precision in the ways in which any necessary excavation would be carried out. The excavation plan would put a burden on the archaeologist to explain the importance of the site and to demonstrate how the proposed excavation would serve some public interest. The elements listed for an excavation plan are suggested but not required. This approach allows Lead Agencies to take various approaches in excavation plans. The plans are intended to shift the burden to the archaeologist to demonstrate the necessity for an excavation rather than requiring a staff worker in the Lead Agency to deal with unfocused claims of the importance of the site. The Resources Agency has received information suggesting that planners working for Lead Agencies have had difficulty in evaluating claims from expert archaeologists demanding that excavation be allowed. The excavation plan requirement is designed to alleviate that problem.

To conform to the recently enacted Assembly Bill 952, Chapter 1623 of the Statutes of 1982, the appendix identifies various restrictions on archaeological mitigation and cost limitations on archaeological mitigation. These restrictions apply to the CEQA process, and people implementing the Act need to be made aware of them. The appendix reorganizes and clarifies the limitations and adds interpretations with a few subjects from the bill such as offsets and the 60-day delay in approval after completing the EIR.

The appendix also suggests ways for Lead Agencies to standardize their methods of dealing with archaeological resources. The methods could be included within mitigation measures in EIRs or included in the CEQA procedures which an agency is required to adopt by Section 21082 of the Public Resources Code. The appendix also encourages Lead Agencies to deal with the problem of unexpected sites which may be discovered during construction. The appendix does not mandate any particular way to deal with this situation.

The appendix also reflects the protections recently enacted in Senate Bill 297 (Garamendi), Chapter 1492 of the Statutes of 1982, for human remains discovered during excavation. If the human remains are of Native American origin, special rules and procedures apply. The rules and procedures are included here because they are so closely related to the archaeological activities discussed in this appendix.

Appendix F

Water Supply Data

ZONE 7 MUNICIPAL AND INDUSTRIAL WATER NEEDS AND POPULATION

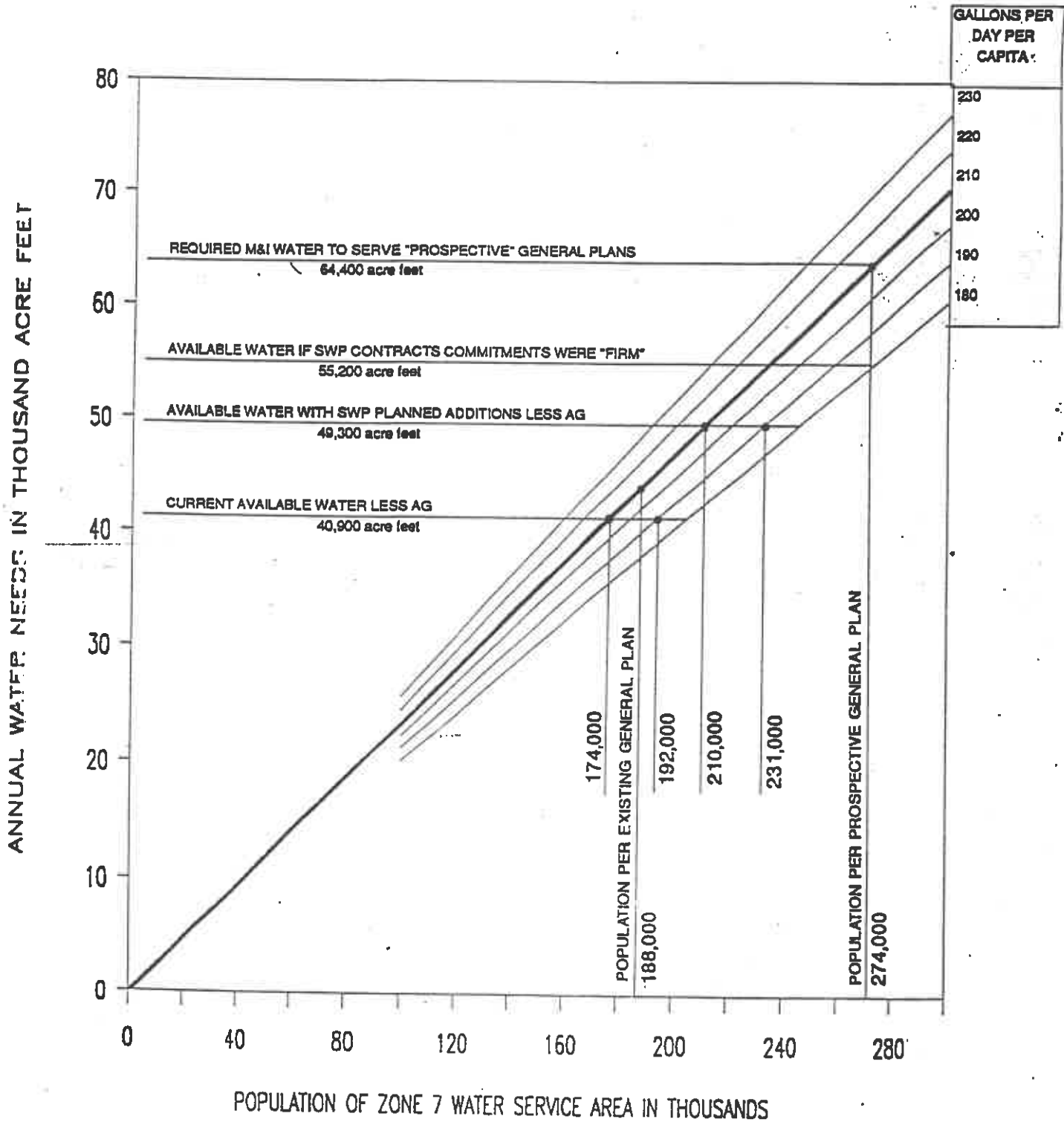


FIGURE 2

WATER RESOURCES ENGINEERING
LIVERMORE-AMADOR VALLEY MAIN GROUNDWATER BASIN
HYDROLOGIC INVENTORY COMPONENTS IN ACRE-FEET

HYDROLOGIC INVENTORY COMPONENTS IN ACRE-FEET																					
1974-92 WATER YEARS										1974-1992 AVERAGE TOTAL											
Water Year		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
SUPPLY COMPONENTS																					
Stream Recharge																					
Natural																					
Arroyo del Valle	2,400	2,950	360	290	2,450	1,290	1,750	840	2,970	4,893	2,580	751	2,831	527	679	458	418	1,215	970	1,612	30,622
Arroyo Mocho	3,160	3,760	540	140	5,900	1,170	2,500	880	4,810	8,514	4,616	1,716	4,176	843	902	809	428	1,884	1,711	2,550	48,459
Arroyo las Positas	500	400	200	200	500	400	600	480	840	980	1,130	1,074	1,161	1,328	1,072	1,322	1,404	1,320	1,315	854	16,224
Total	6,060	7,110	1,100	630	8,850	2,860	4,850	2,200	8,620	14,387	8,326	3,541	8,168	2,696	2,653	2,589	2,250	4,419	3,996	5,016	95,305
Artificial																					
Arroyo del Valle	3,210	5,860	1,990	1,300	4,040	6,870	5,960	7,250	4,290	1,870	1,160	1,206	877	869	724	1,110	592	750	748	2,667	50,676
Arroyo Mocho	1,670	1,810	3,220	1,290	2,840	5,780	5,270	5,130	3,290	901	0	0	0	0	0	1,172	4,184	3,178	502	2,339	44,436
Arroyo las Positas	500	600	600	600	600	600	400	460	220	0	0	0	0	0	0	0	0	0	0	241	4,590
Total	5,380	8,290	5,810	3,190	7,480	13,250	11,630	12,840	7,800	2,771	1,160	1,206	877	869	1,896	5,291	4,776	3,928	1,250	5,247	99,694
Total																					
	11,440	15,400	6,910	3,820	16,330	16,110	16,480	15,040	16,420	17,158	9,486	4,747	9,045	3,565	4,549	7,880	7,026	8,347	5,246	10,263	194,999
Rainfall Recharge	3,031	2,523	0	0	4,398	2,002	3,891	967	11,423	16,357	3,110	1,249	9,008	290	398	283	141	1,838	1,760	3,298	62,669
Applied Water Recharge	2,637	2,437	3,070	2,962	2,708	2,974	2,613	2,045	1,285	1,299	2,058	1,834	1,855	1,833	1,948	1,561	1,641	222	1,567	2,029	38,549
Subsurface Basin Inflow	1,200	1,300	1,010	1,790	1,230	990	650	630	630	430	650	750	740	770	920	1,160	1,260	1,680	1,610	1,021	19,400
SUPPLY TOTAL																					
	18,308	21,660	10,990	8,572	24,666	22,076	23,634	18,682	29,758	35,244	15,304	8,580	20,648	6,458	7,815	10,884	10,058	12,087	10,183	16,611	315,617
DEMAND COMPONENTS																					
Municipal Pumpage																					
City of Pleasanton	2,284	1,497	1,707	3,271	2,640	3,273	2,961	3,089	3,585	3,886	3,486	3,056	3,705	3,310	3,548	3,316	3,856	4,164	3,368	3,156	59,962
Cal. Water Service	2,612	2,852	2,781	1,312	1,964	2,383	2,531	2,695	2,286	2,660	3,035	2,788	2,774	3,276	2,761	2,850	3,074	3,967	3,744	2,755	52,345
Zone 7	5,405	3,089	1,281	310	745	825	42	0	0	23	348	1,199	1,164	488	2,043	3,213	3,227	8,119	5,082	1,928	36,603
Others	1,271	1,251	1,673	1,500	1,394	1,495	1,393	1,476	1,278	1,194	1,305	666	764	771	752	723	642	754	754	1,108	21,056
Total	11,552	8,689	7,442	6,393	6,743	7,976	6,927	7,260	7,129	7,763	8,174	7,709	8,407	7,845	9,104	10,102	10,799	17,004	12,948	8,946	169,966
Agricultural Pumpage																					
	3,862	2,280	4,753	5,129	2,394	3,822	2,698	2,569	1,391	1,472	1,695	2,100	2,012	1,654	1,655	1,359	1,540	767	625	2,304	43,777
Mining Use																					
Gravel Co. Mining Export	1,200	2,220	680	470	800	2,000	3,480	6,530	6,050	12,760	4,340	4,265	8,858	558	2,443	1,808	665	639	712	3,184	60,488
Evaporation/Production Use	1,849	1,634	2,367	2,476	1,858	1,750	2,106	2,475	1,564	1,191	3,140	3,137	2,545	3,795	3,428	2,677	2,645	2,729	2,839	2,432	46,205
Total	3,049	3,854	3,057	2,946	2,658	3,750	5,586	9,005	7,614	13,951	7,480	7,402	11,403	4,353	5,871	4,485	3,310	3,368	3,551	5,615	106,693
Subsurface Basin Outflow	0	0	0	0	0	150	530	550	2,160	2,960	2,240	1,200	600	600	400	100	0	0	0	605	11,490
DEMAND TOTAL																					
	18,463	14,823	15,252	14,468	11,795	15,696	15,741	19,384	18,294	26,146	19,589	18,411	22,422	14,452	17,030	16,046	15,649	21,139	17,124	17,470	331,926
NET RECHARGE																					
	(155)	6,837	(4,262)	(5,896)	12,871	6,378	7,893	(702)	11,464	9,098	(4,285)	(9,831)	(1,774)	(7,994)	(9,215)	(5,162)	(5,581)	(9,052)	(6,941)	(858)	(16,309)

* Does not include the repredation of gravel mining company discharges.

9 yrs. cvar draft
54,835 AF
from 1992

Appendix G

List of Acronyms

List of Acronyms and Abbreviations

ABAG	Association of Bay Area Governments
ACFP	Alameda County Fire Patrol
ACFCWCD	Alameda County Flood Control and Water Conservation District
ACSMO	Alameda County Surface Mining Ordinance
ACTAC	Alameda County Technical Advisory Committee
ACTA	Alameda County Transportation Authority
ACWMA	Alameda County Waste Management Authority
ACWD	Alameda County Water District
ADNL	Annual Day-Night Noise Level
ADT	Average Daily Traffic
ADTs	Average Daily Trips
af/yr	acre-feet of water per year
af	acre-feet
AFY	acre-feet per year
ALUC	Alameda County Airport Land Use Commission
APA	Airport Protection Area
AWRP	Advanced Water Reclamation Plant
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BBID	Byron-Bethany Irrigation District
BMP	Best Management Practices
Camp Parks	U.S. Army Parks Reserve Forces Training Area
CCAA	California Clean Air Act
CCCSD	Central Contra Costa Sanitary District
CDF	California Department of Forestry
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CHP	California Highway Patrol
CIP	Capital Improvement Program
CMAAs	Congestion Management Agencies
CMP	Congestion Management Program
CFD	Community Facilities District
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
Corps	U.S. Army Corps of Engineers

County	Alameda County
CRS	Community Rating System
CSA	County Service Area
CTC	California Transportation Council
CWA	Clean Water Act, 1972
dB	decibel
dBA	A-weighted dB scale
DFG	California Department of Fish and Game
DHS	Department of Health Services
DOD	Department of Defense
DRFA	Dougherty Regional Fire Authority
DSRSD	Dublin San Ramon Services District
du/ga	dwelling units per gross acre
du/na	dwelling units per net acre
DUSD	Dublin Unified School District
DWR	California Department of Water Resources
EDAB	Alameda County Economic Development Advisory Board
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPS	Economic and Planning Systems, Inc.
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
GPA	General Plan Amendment
GPD	Gallons Per Day
G.O.	General Obligation
HEAF	High Explosives Application Facility
ISO	Insurance Services Office
LAFCO	Local Agency Formation Commission
LARPD	Livermore Area Recreation and Park District
LAVTA	Livermore-Amador Valley Transit Authority
LAVWMA	Livermore-Amador Valley Water Management Agency
Ldn	Day-night equivalent sound level
LLNL	Lawrence Livermore National Laboratory
LOS	Level of Service
LRT	Light Rail Transit
LVJUSD	Livermore Valley Joint Unified School District

MAP	Mean Annual Precipitation
MGD-ADWF	Million gallons per day-average dry weather flow
MGD-AWWF	Million gallons per day-average daily wet weather flow
mg/l	Milligram per liter
MHSD	Mountain House Elementary School District
MTC	Metropolitan Transportation Commission
NFIP	National Flood Insurance Program
NPDES	National Pollution Discharge Elimination System
PDR	Purchase of Development Rights
PGE	Pacific Gas & Electric
PM-10	Particulate Matter, 10 micron
PPM	Parts Per Million
psi	Pounds per Square Inch
PSTIP	Proposed State Transportation Improvement Program
PUSD	Pleasanton Unified School District
RO	Reverse Osmosis
RTIP	Regional Transportation Improvement Plan
RWQCB	Regional Water Quality Control Board
SACAR	Southern Alameda County Association of Realtors
SBA	South Bay Aqueduct
SCS	Soil Conservation Service
SEIR	Subsequent Environmental Impact Report
SFWD	San Francisco Water Department
SGSD	Sunol Glen School District
SHAMA	Seismic Hazards Mapping Act
SLVAP	South Livermore Valley Area Plan
SMARA	State Mining and Reclamation Act
SNLL	Sandia National Laboratories, Livermore
SOV	Single Occupant Vehicle
SMP	Surface Mining Permit
SOI	Sphere of Influence
SPRR	Southern Pacific Rail Road
SRVFPD	San Ramon Valley Fire Protection District
SRVUSD	San Ramon Valley Unified School District
S RTP	Short Range Transportation Plan
STIP	State Transportation Improvement Plan
SWP	State Water Project
SWRCB	California State Water Resources Control Board
TAC	Toxic Air Contaminants
TAZ	Traffic Analysis Zone
TCM	Transportation Control Measures

TDR	Transfer of Development Rights
TDS	Total Dissolved Solid
TIP	Transportation Improvement Plan
TOD	Transit Oriented Development
TPD	Tons of Solid Waste Per Day
TSM	Transportation Systems Management
TVC	Tri-Valley Council
TWA	Tri-Valley Wastewater Authority
ug/m3	Micrograms per Cubic Meter
UPRR	Union Pacific Railroad
USDA	U.S. Department of Agriculture
USF&WS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAC	Visual Absorption Capability
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
V/C	Volume to Capacity
WMP	Wastewater Management Plan
ZONE 7	Zone 7 of the Alameda County Flood Control and Water Conservation District