PREFACE TO THE FINAL ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) was prepared to conform to the California Environmental Quality Act (CEQA), as amended, and the City of Mountain View CEQA Guidelines. This EIR provides environmental review for the adoption of the Mountain View 1992 General Plan Update

The Draft EIR dated April 1992 was circulated from April 21, 1992 to June 5, 1992 to various Federal, State, regional and local agencies for their review and comment. The Draft EIR was also provided to specific groups and organizations in the community who had expressed an interest in the project, as well as to members of the general public.

During the circulation period, the City of Mountain View held one study session with the Environmental Planning Commission and five public hearings. The purpose of each of these meetings was to receive comments on the 1992 General Plan Update document and the Draft EIR for the 1992 General Plan Update. Each of the public hearings was attended by individuals interested in the proposed General Plan Update process. While extensive testimony was provided on the General Plan Update document, testimony was received from only one member of the community on the EIR. The City of Mountain View distributed 100 copies of the Draft EIR for public review as indicated in *Section IV., Draft EIR Distribution List.* All of the comments received on the Draft EIR, both oral and written, which address environmental concerns are accompanied by responses in Section XII of this Final EIR.

A public hearing on the Draft EIR was held on October 29, 1992 before the City of Mountain View City Council. The City Council certified that this EIR was complete and prepared in accordance with the requirements of CEQA, as amended.

This Final EIR incorporates all changes (deletions and additions) made since the Draft EIR was printed. All additions are <u>underlined</u> and any deletions are indicated with a ~~line-through~~ the original text.

New sections added to the document include the following:

X.	DRAFT EIR DISTRIBUTION LIST
XI.	LIST OF AGENCIES AND ORGANIZATIONS COMMENTING ON THE DRAFT EIR
XII.	RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR

PREFACE

This document has been prepared by the City of Mountain View as the Lead Agency in conformance with the California Environmental Quality Act (CEQA). The City of Mountain View has determined that a Program Environmental Impact Report (EIR) is required for the proposed 1992 Mountain View General Plan Update. This EIR provides program level environmental review to assist the Lead Agency in considering the approval or denial of the proposed General Plan Update and the actions involved in establishing the project. These actions include: amending the General Plan Land Use Map, and text amendments including revised goals, policies and action programs. The primary amendments to the Land Use Map include changing sites that are currently designated Industrial, Regional Commercial, Downtown Commercial, and Service Commercial to land use designations that would support residential development. The General Plan Update in total is defined as the "project" for this CEQA analysis.

Pursuant to the California Government Code Section 65300, each city is required to adopt a comprehensive long-term General Plan for the physical development of the city and of any land within its Sphere of Influence. The General Plan consists of a statement of development policies, a diagram, and text establishing the objectives, principles, standards and proposals. The Government Code further requires that a General Plan contain seven mandatory elements, and any additional elements that the City chooses to add. The seven mandatory elements include the: 1) land use element, 2) circulation element, 3) housing element, 4) conservation element, 5) open space element, 6) noise element, and 7) public safety element.

The City of Mountain View General Plan Update contains four chapters: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter, and the Environmental Management Chapter. These chapters include the seven mandated elements as well as additional elements. This EIR provides the environmental review for the update to the seven elements, as well as the following optional elements that the City of Mountain View has included in its General Plan: 1) air quality, 2) urban design, 3) economic welfare, 4) hazardous waste, and 5) solid waste.

The City of Mountain View previously updated and subsequently adopted one of the seven General Plan elements in 1990. The Housing Element was adopted separately to conform with established State requirements. Environmental review was provided for the adoption of the Housing Element in the form of a Negative Declaration. The adopted Housing Element is incorporated into the *Residential Neighborhoods* Chapter of the updated General Plan.

The City of Mountain View initiated the General Plan Update process in January, 1990. At the time this process was initiated, the City identified a total of 18 sites with the potential for future redevelopment with residential uses. These sites primarily involved the conversion of industrial zoning designations to residential zoning designations. During the preparation of various environmental analyses and land use studies for these 18 sites, as well as during the public hearing process on the General Plan Update, various issues regarding these sites were identified. As a result, one of the 18 sites was eliminated, seven sites were identified as *land use alternatives* (sites requiring future studies to determine their potential for *residential redevelopment*), and the remaining 10 sites were maintained as *residential redevelopment* sites (properties that the City determined have potential for redevelopment with high density residential uses), early in the process.

In September, 1991, the Environmental Planning Commission directed the Planning Department Staff to further revise these sites. Of the original 18 sites, five land use alternative sites and one residential redevelopment site were dropped from further analysis, and one residential redevelopment site was designated as a land use alternative site. As a result, there are now a total of 11 possible future housing sites of which seven are residential redevelopment sites and four are land use alternative sites ("study sites") (see Table 8).

In addition to the impacts associated with the proposed changes in the General Plan Land Use Map, this Program EIR also generally evaluates the potential impacts associated with seven of the 11 sites that may be redeveloped with residential uses. This EIR is therefore, intended to provide the decision makers with information regarding the possible future development of residential uses on the identified sites, should the City decide to pursue rezonings and other development approvals in the future as specified by the 1992 General Plan goals, policies, and action programs.

This Program EIR is prepared pursuant to CEQA Guidelines Sections 15143 and 15168. The level of impact analysis included in this Program EIR is adequate for the purpose of amending the Mountain View General Plan. Without specific project information and a development time frame, it is not possible to adequately address all of the specific project level impacts that would occur with any of the possible future specific rezonings and other development approvals permitted by the proposed General Plan text and Land Use Map changes. Therefore, it will be necessary to conduct further analysis at the time specific rezonings and development projects are proposed within the City of Mountain View.

In accordance with CEQA, the EIR provides objective information regarding the environmental consequences of the proposed project to the decision makers for the review of a project. The following guidelines are included in CEQA to clarify the role of an EIR.

> **15121(a) Informational Document.** An EIR is an informational document which will inform public agency decision makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR, along with other information which may be presented to the agency.
>
> **15151 Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision, which intelligently considers environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In Section 15126(c) of the CEQA Guidelines, the State Resources Agency states that *the discussion of mitigation measures shall distinguish between the measures that are proposed by project proponents to be included in the project, and other measures that are not included but could reasonably be expected to reduce adverse impacts*. Feasible mitigation measures and alternatives are presently included in the project where specifically noted.

ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15140 and 15143, an EIR should be organized and written in a manner that allows decision makers and the public to understand the material contained in the document. Furthermore, an EIR should focus on the significant effects of the project on the environment. In accordance with these guidelines, this EIR focuses on the pertinent information necessary to make an informed decision regarding the project approval. This EIR is organized into separate sections as follows:

- *Summary:* The Summary highlights the significant environmental impacts resulting from the General Plan Update (the "project") and the mitigation measures included in the project to reduce the effects to a non-significant level.

- *Section I:* Section I contains a description of the proposed project and the discretionary approvals for which this EIR is intended to provide environmental review.

- *Section II:* Section II contains a description of the project's consistency with federal, state, regional, and local goals, policies, and plans.

- *Section III:* Section III includes the discussion of the environmental setting, project impacts, and mitigation measures for 20 environmental issues. This section is divided into the 20 environmental issues. Each environmental issue includes a discussion of the existing setting, impacts associated with that particular environmental concern, and mitigation measures to reduce or avoid the impact. An example of this organization is provided below:

A. LAND USE

1. <u>Setting</u>

Mountain View is completely surrounded by urban development except for a northern border of open space (San Francisco Bay). The City is bounded by San Francisco Bay on the north, the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west.

2. <u>Impacts</u>

A discussion of the impacts associated with the 1992 General Plan revised goals, policies, and action programs for each of the four chapters is provided below.

3. <u>Mitigation</u>

The following policies and action programs included in the Community Development Chapter would preserve and enhance the quality of life in Mountain View. These mitigation measures are included in the project.

- *Section IV:* Section IV contains a discussion of alternatives to the proposed project , including a No Project Alternative, No General Plan Land Use Map Changes, and an analysis of the Land Use Alternative Sites that could be developed as a result of the future implementation of the General Plan Update policies and action programs.

- *Sections V - XI:* The remaining sections of this EIR include a discussion of the Significant Unavoidable Impacts, Cumulative Impacts, Growth Inducing Impacts, Relationship between Short-Term Uses and Long-Term Productivity, and Irreversible Changes. In addition, the EIR author and consultants, as well as EIR references are identified in the last sections of this EIR.

This EIR includes a discussion of the environmental effects associated with the General Plan Update Land Use Map changes, General Plan goals, policies, and action programs, as well as, the future effects that are likely to occur as a result of the implementation of the General Plan Update policies and action programs.

MOUNTAIN VIEW GENERAL PLAN UPDATE
ENVIRONMENTAL IMPACT REPORT

SUMMARY

A. PROJECT DESCRIPTION

The proposed project is the update of the City of Mountain View 1982 General Plan (General Plan Update). Mountain View is located approximately 34 miles south of San Francisco and 10 miles north of San Jose, on the southern end of San Francisco Bay, in Santa Clara County, California. The City is bounded by San Francisco Bay on the north, the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west (see Figures 1, 2, and 3). About half of Moffett Field Naval Air Station lies within the City of Mountain View's Sphere of Influence, and is included within the boundaries of the General Plan.

The 1992 General Plan Update is an update of the City's 1982 General Plan. This update process includes revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the previously adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs.

The General Plan Update also involves changes to the General Plan Land Use Map. The General Plan Update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations. There are five types of changes between the existing adopted 1982 General Plan Land Use Map and the proposed 1992 General Plan Update Land Use Map. These categories of change result in approximately 95 specific amendments to the existing 1982 Land Use Map (see Figure 4 and Table 1). These 95 changes include:

1) Site specific land use designations instead of general designations;
2) A new mobile home park designation;
3) A new residential designation and a new industrial designation;
4) The addition of the City's Sphere of Influence boundary; and,
5) Population densities and building intensities (floor area ratios) are specified for the land uses in the General Plan text.

Most of the General Plan Land Use Map changes result from the change in mapping style to specifically follow the property line boundaries for land the land use designations. This change clarified the 1982 Land Use Map, and is consistent with the existing zoning and land uses.

In addition, the 1992 General Plan provides policies and action programs to encourage and study the potential for residential redevelopment on all or a portion of 11 identified sites. In order to fully evaluate the implications of the goals, policies and action programs contained in the 1992 General Plan Update that are related to the provision of additional housing in Mountain View, this EIR generally addresses the potential impacts associated with the 11 sites that may be redeveloped with residential uses (see Table 8). While this EIR does not provide environmental review for the future rezoning approvals, this EIR does provide the decision makers with information regarding the possible future impacts associated with the development of residential uses on the identified sites, should the City decide to pursue rezonings in the future. This information on possible future impacts should be referenced in subsequent environmental analyses of those rezonings, at the time those rezonings are proposed.

B. PROJECT OBJECTIVES

The purpose of the proposed General Plan update is to:

- Assess the physical, social, economic, and environmental character of the City;
- Define a realistic vision of what the community intends to be in 15 years;
- Chart the course of conservation and development in Mountain View;
- Record collective community issues raised during the General Plan update process.

The purpose of the proposed General Plan amendments to the Land Use Map are to:

- Establish new land use categories that are reflective of existing land uses,
- Establish new land use categories for residential development densities, and
- Establish consistency between the General Plan and the Zoning Ordinance and Map.

C. PROJECT ALTERNATIVES

This EIR evaluates three alternatives to the proposed General Plan Update: 1) the No Project Alternative, 2) 1992 General Plan Update Without 11 Potential Housing Sites, and 3) Land Use Alternatives to the Residential Redevelopment Sites.

The **No Project Alternative** consists of continuing the goals, policies, and action programs included in the 1982 General Plan. This alternative does not contain text amendments to the General Plan, nor does it include any changes to the General Plan Land Use Map. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 7"), since it was already approved in September, 1991 (covered by a separate EIR).

The **No Project Alternative - 1992 General Plan Update Without 11 Potential Housing Sites** consists of adopting the 1992 General Plan goals, policies, and action programs that would replace those included the 1982 General Plan. This alternative contains text amendments to the General Plan, and includes the 95 changes to the General Plan Land Use Map that would bring the General Plan into conformance with the Zoning Ordinance. However, this alternative does not include the adoption of those policies and action programs permitting future housing opportunities at 11 sites, nor does it include the changes to the General Plan Land Use Map resulting in residential land use designations on two of the 11 potential housing sites. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes for potential housing opportunities, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 3"), since it was already approved in September, 1991.

The No Project Alternative would not plan for, nor facilitate the transition from the existing industrial, commercial, and vacant properties to residential land uses. As a result, Mountain View would not achieve the levels established by ABAG's *Housing Needs Determination*, as described in the adopted 1990 Mountain View Housing Element.

The **Land Use Alternatives Sites** includes the four land use alternative sites ("Sites 2, 4, 6, and 7) which together, represent a total of 3,140 potential dwelling units. This alternative evaluates the impacts associated with these four *land use alternatives* sites in addition to the four residential rezoning sites and the three policy change sites that are included in the project.

SUMMARY OF IMPACTS AND MITIGATION

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Land Use	
The 95 changes indicated in the 1992 Land Use Map do not change the status of the existing land uses, nor do they change the development potential of the properties. Increases or decreases in the land use intensities of these 95 properties are not proposed as part of the General Plan Update. As a result, the parcel-specific changes to the Land Use Map on the 95 sites would not result in significant direct or indirect land use impacts. These changes would also be compatible with the Zoning Ordinance. **(Nonsignificant impact)**	No mitigation is required.
The 1992 General Plan Update consists of the updating of the 1982 General Plan. This update process includes revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs. The 1992 General Plan is intended to reduce the potential impacts associated with existing and future development in Mountain View. **(Nonsignificant impact)**	No mitigation is required.
The 1992 General Plan policies and action programs encourage future residential redevelopment by calling for the rezoning of four identified sites. In addition, the 1992 General Plan provides for future Precise Plan, Zoning Ordinance and policy changes for housing opportunities on three sites (Sites 9, 10, and 11). These future changes would result in potential land use compatibility impacts, residential hazards, increased land use intensity and changes to the land use/visual character of these seven areas. **(Significant impact)**	Implementation of the Community Development Chapter policies and action programs #1-40 as described on pages 60-63 of this EIR would mitigate potential land use impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Traffic Circulation	
Added travel demand in the City, due both to local growth and to development in the region, would cause several key highways and streets to experience significant peak hour congestion. These include: Grant Road, north of Cuesta Drive; State Route 237, north of El Camino Real; State Route 85, south of El Camino Real; and U.S. 101, from San Antonio Road to State Route 85. These impacts would occur under all scenarios. **(Significant Impact)**	Implementation of the Community Development Chapter policies and action programs #44a-c and the Circulation Chapter policies and action programs #1-40, as described on pages 93-102, would mitigate significant local and cumulative traffic impacts to a nonsignificant level for local impacts. **(Less than significant impact with mitigation for local and cumulative project impacts.)**

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Air Quality	
Future development under the 1992 General Plan and with residential development of the seven sites would result in increased air pollutant emissions above existing conditions. These levels would not exceed State and Federal standards at a local level, but would exceed these standards at a regional level. **(Significant regional impact)**	Implementation of the Circulation Chapter policies and action programs #31-32 and the Environmental Management Chapter policies and action programs #19-20 would reduce air pollutant impacts (see pages 114-115). Local impacts would be reduced to a non-significant impact. Although regional impacts would remain, the provision of additional housing near jobs would contribute to the regional strategy of reducing home to work commute distances. **(Significant unavoidable cumulative impact with mitigation)**
Future residential development in heavy industrial areas would result in the potential exposure to hazards associated with toxic air contaminants. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #19-20 would reduce air quality impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Noise	
Temporary noise impacts would result during construction of future residential development on the seven identified sites. **(Temporary significant impact)**	Implementation of the Environmental Management Chapter Noise policy #42 and action programs b-c on page 125 would reduce temporary significant impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Increased traffic associated with development under the 1992 General Plan and future residential development would result in noise levels that exceed accepted standards. Future residences at most of the seven sites would be exposed to noise levels in excess of the City's standards. **(Significant impact)**	Implementation of the Environmental Management Chapter Noise policy and action programs #42-45 (p. 125) would reduce noise impacts. However, noise levels would continue to exceed accepted standards at those locations where standards are exceeded under existing conditions. **(Significant unavoidable impact)**
Geology and Soils	
Under the existing General Plan, the majority of the land uses located in the Geologic Hazards Zone D consist of public park and open space uses. Future land uses under the 1992 General Plan could be located in Zones D and E, the two most seismically sensitive areas of Mountain View. These land uses would primarily include Industrial Park and General Industrial land uses. Potential hazards in these zones include liquefaction, differential settlement, lurching and lateral spreading, strong groundshaking and dike failure as a result of a major seismic event. Future residential development of the seven sites would be primarily located in Zone F, the least susceptible zone of geologic hazards. **(Significant impact)**	Implementation of the Environmental Management Chapter policies and action programs #32 a-d (p. 136) pertaining to soils, geologic, and seismic impacts would mitigate potential hazards to land uses in Mountain View. **(Less than significant impact with mitigation)**

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Drainage and Flooding	
Generally, five sources of flooding present potential hazards to Mountain View: excessive accumulation of precipitation and surface runoff, tidal action, coastal velocity hazards, dam and levee failure, tsunamis resulting from seismic activity, and flooding due to subsidence.	Implementation of Community Development Chapter policy #6 and Environmental Management Chapter policies and action programs #11 and 33, as described on page 141 would reduce potential flooding and drainage impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Future development projected by the year 2005 would minimally increase the amount of impervious surfaces in the city, since Mountain View is almost completely developed. Residential redevelopment of the seven sites would primarily occur in areas that are already developed and have adequate storm drainage facilities. However, several of the sites could require storm drain extensions, if significant grading is proposed. Redevelopment of one of the seven potential rezoning sites, the Old Mill Site, could present specific storm drainage concerns. **(Significant impact)**	
Vegetation and Wildlife	
The 1992 General Plan contains goals, policies, and action programs encouraging the provision of open space areas and recreational facilities in the city. The development of urban trails within or near the Stevens Creek riparian corridor and near the wildlife habitat areas located at Shoreline would result in potentially significant impacts to the existing wildlife habitat. Human and domestic animal intrusion into these sensitive habitat areas would result in the disturbance of the habitat quality. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #10-13, as described on pages 151-152, would mitigate potential impacts to vegetation and wildlife habitat resources in Mountain View. **(Less than significant impact with mitigation)**
Visual Quality	
Few significant changes in the city's form and image are anticipated to result from the 1992 General Plan. Since most of the city's infrastructure is already in place, the greatest impacts to visual and aesthetic quality would result from any future in-fill development.	Implementation of Community Development Chapter policies, #9, 23 and 31-35 (as described on pages 157-158) would further ensure that visual impacts do not occur with development of the remaining vacant and underdeveloped parcels. **(Less than significant impact with mitigation)**
Residential redevelopment of the seven sites would result in a maximum of 2,387 dwelling units, resulting in housing opportunities for these undeveloped and underdeveloped areas of the City. Construction of mid-scale buildings would potentially alter the visual character of the surrounding area. **(Less than significant impact)**	

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Cultural Resources	
Based upon the results of a Cultural Resources Assessment, the potential for the future disturbance of subsurface deposits is limited given that extensive urbanization has already occurred. If remaining deposits exist, grading, excavation, and construction activity associated with development could potentially affect these resources. **(Potentially significant impact)**	Implementation of Environmental Management Chapter policies and action programs #22a-b and Community Development Chapter policies and action programs #17a-j, as described on pages 162-163, would reduce the potential for significant impacts to subsurface and surface cultural resources. **(Less than significant impact with mitigation)**
Hazardous Materials	
Mountain View residents could potentially be exposed to safety hazards associated with the release of hazardous substances. Future development could result in exposure of additional people to potential risks associated with hazardous substances. Future residential redevelopment of seven commercial and industrial areas could result in exposure to soil and groundwater contamination. In addition, the development of residential uses on some of these sites could result in the exposure of residents to possible nuisances and safety hazards attributed to industrial uses. Industrial facilities that use, store, or handle hazardous materials would present a risk to residences in the area. In addition, most of the seven sites are in areas with confirmed soil and groundwater contamination. **(Significant impact)**	Implementation of Community Development Chapter policies and action programs #1-2 and 23, and Environmental Management Chapter policy and action program #38, as described on page 172-173, would reduce potential hazardous materials-related impacts. **(Less than significant impact with mitigation)**
Water Quality	
Several of the seven residential redevelopment sites are located in areas with confirmed soil and groundwater contamination. In addition, several of the areas are located within a one mile radius of reported soils and groundwater contamination, and are, therefore, subject to potential contamination from groundwater migration. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #15, 30, and 38 as described on pages 177-178, would mitigate potential water quality impacts to a nonsignificant level. Any site over five acres will require its own stormwater NPDES permit, issued by the State. **(Less than significant impact with mitigation)**
Utilities and Urban Services	
Future residential redevelopment of the seven sites would result in a demand for services and utilities. The services and utilities affected by this development include: schools, water, police, fire protection, parks, sanitary sewer, storm drainage, solid waste, and electricity. **(Significant impact)**	Implementation of the Environmental Management Chapter policies and action programs pertaining to the provision of utilities and urban services would mitigate potential impacts to a nonsignificant level. **(Less than significant impact with mitigation)**

MOUNTAIN VIEW GENERAL PLAN UPDATE
ENVIRONMENTAL IMPACT REPORT

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SECTION I

DESCRIPTION OF THE PROPOSED PROJECT

A. PROJECT OVERVIEW

The proposed project is the update of the City of Mountain View 1982 General Plan (General Plan Update). The General Plan Update consists of changes to the General Plan Land Use Map, as well as new and revised goals, policies and action programs. The General Plan update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations.

B. PROJECT LOCATION

The City of Mountain View is located approximately 34 miles south of San Francisco and 10 miles north of San Jose, on the southern end of San Francisco Bay, in Santa Clara County, California. The City is bounded by San Francisco Bay on the north, a portion of the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west (see Figures 1, 2, and 3). Approximately half of Moffett Field Naval Air Station lies within the City of Mountain View's Sphere of Influence, and is included within the boundaries of the General Plan.

Mountain View is situated on 7,782.5 acres at the northwest end of the low-lying alluvial plain[1] comprising the Santa Clara Valley. The Santa Clara Valley is bounded on the north by San Francisco Bay, on the west by the Santa Cruz Mountains, and on the east by the Diablo Range. The Guadalupe River and Coyote Creek are primary waterways in the Santa Clara Valley. Stevens Creek and Permanente Creek flow through the City of Mountain View, while Adobe Creek runs along the westernmost boundary of the City, and Hale Creek extends along the southwestern portion of Mountain View. These creeks empty into Whisman Slough, Mountain View Slough, and Charleston Slough, respectively, along the San Francisco Bay margin.

C. DESCRIPTION OF THE PROJECT

The 1992 General Plan Update is an update of the City's 1982 General Plan. This update process contains revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the previously adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs.

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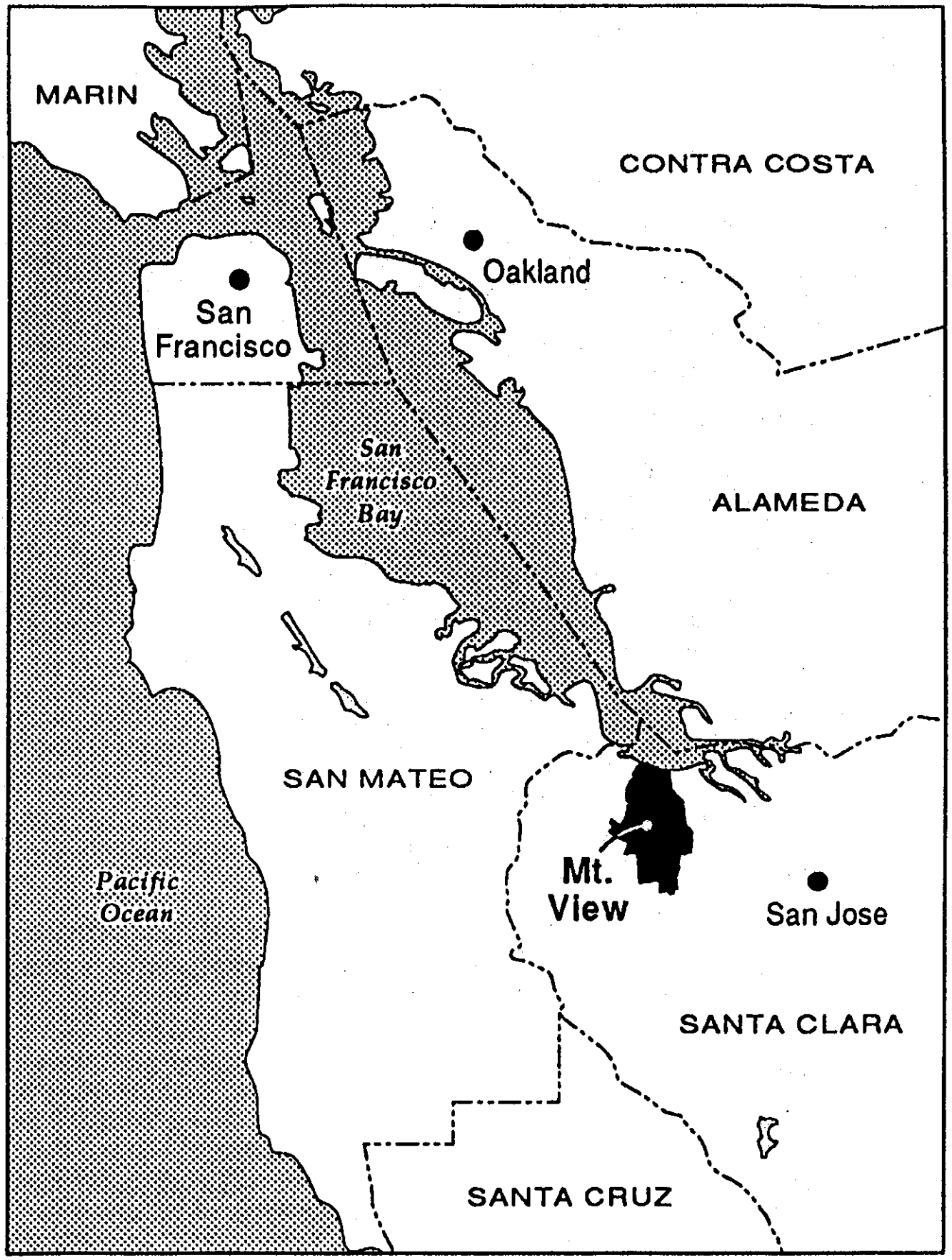
[1] An alluvial plain is a flood plain produced by the filling of a valley bottom, consisting of fine mud, sand, or gravel.



REGIONAL MAP FIGURE 1

PREFACE TO THE FINAL ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) was prepared to conform to the California Environmental Quality Act (CEQA), as amended, and the City of Mountain View CEQA Guidelines. This EIR provides environmental review for the adoption of the Mountain View 1992 General Plan Update

The Draft EIR dated April 1992 was circulated from April 21, 1992 to June 5, 1992 to various Federal, State, regional and local agencies for their review and comment. The Draft EIR was also provided to specific groups and organizations in the community who had expressed an interest in the project, as well as to members of the general public.

During the circulation period, the City of Mountain View held one study session with the Environmental Planning Commission and five public hearings. The purpose of each of these meetings was to receive comments on the 1992 General Plan Update document and the Draft EIR for the 1992 General Plan Update. Each of the public hearings was attended by individuals interested in the proposed General Plan Update process. While extensive testimony was provided on the General Plan Update document, testimony was received from only one member of the community on the EIR. The City of Mountain View distributed 100 copies of the Draft EIR for public review as indicated in *Section IV., Draft EIR Distribution List.* All of the comments received on the Draft EIR, both oral and written, which address environmental concerns are accompanied by responses in Section XII of this Final EIR.

A public hearing on the Draft EIR was held on October 29, 1992 before the City of Mountain View City Council. The City Council certified that this EIR was complete and prepared in accordance with the requirements of CEQA, as amended.

This Final EIR incorporates all changes (deletions and additions) made since the Draft EIR was printed. All additions are <u>underlined</u> and any deletions are indicated with a ~~line through~~ the original text.

New sections added to the document include the following:

X.	DRAFT EIR DISTRIBUTION LIST
XI.	LIST OF AGENCIES AND ORGANIZATIONS COMMENTING ON THE DRAFT EIR
XII.	RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR

PREFACE

This document has been prepared by the City of Mountain View as the Lead Agency in conformance with the California Environmental Quality Act (CEQA). The City of Mountain View has determined that a Program Environmental Impact Report (EIR) is required for the proposed 1992 Mountain View General Plan Update. This EIR provides program level environmental review to assist the Lead Agency in considering the approval or denial of the proposed General Plan Update and the actions involved in establishing the project. These actions include: amending the General Plan Land Use Map, and text amendments including revised goals, policies and action programs. The primary amendments to the Land Use Map include changing sites that are currently designated Industrial, Regional Commercial, Downtown Commercial, and Service Commercial to land use designations that would support residential development. The General Plan Update in total is defined as the "project" for this CEQA analysis.

Pursuant to the California Government Code Section 65300, each city is required to adopt a comprehensive long-term General Plan for the physical development of the city and of any land within its Sphere of Influence. The General Plan consists of a statement of development policies, a diagram, and text establishing the objectives, principles, standards and proposals. The Government Code further requires that a General Plan contain seven mandatory elements, and any additional elements that the City chooses to add. The seven mandatory elements include the: 1) land use element, 2) circulation element, 3) housing element, 4) conservation element, 5) open space element, 6) noise element, and 7) public safety element.

The City of Mountain View General Plan Update contains four chapters: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter, and the Environmental Management Chapter. These chapters include the seven mandated elements as well as additional elements. This EIR provides the environmental review for the update to the seven elements, as well as the following optional elements that the City of Mountain View has included in its General Plan: 1) air quality, 2) urban design, 3) economic welfare, 4) hazardous waste, and 5) solid waste.

The City of Mountain View previously updated and subsequently adopted one of the seven General Plan elements in 1990. The Housing Element was adopted separately to conform with established State requirements. Environmental review was provided for the adoption of the Housing Element in the form of a Negative Declaration. The adopted Housing Element is incorporated into the *Residential Neighborhoods* Chapter of the updated General Plan.

The City of Mountain View initiated the General Plan Update process in January, 1990. At the time this process was initiated, the City identified a total of 18 sites with the potential for future redevelopment with residential uses. These sites primarily involved the conversion of industrial zoning designations to residential zoning designations. During the preparation of various environmental analyses and land use studies for these 18 sites, as well as during the public hearing process on the General Plan Update, various issues regarding these sites were identified. As a result, one of the 18 sites was eliminated, seven sites were identified as *land use alternatives* (sites requiring future studies to determine their potential for *residential redevelopment*), and the remaining 10 sites were maintained as *residential redevelopment* sites (properties that the City determined have potential for redevelopment with high density residential uses), early in the process.

In September, 1991, the Environmental Planning Commission directed the Planning Department Staff to further revise these sites. Of the original 18 sites, five land use alternative sites and one residential redevelopment site were dropped from further analysis, and one residential redevelopment site was designated as a land use alternative site. As a result, there are now a total of 11 possible future housing sites of which seven are residential redevelopment sites and four are land use alternative sites ("study sites") (see Table 8).

In addition to the impacts associated with the proposed changes in the General Plan Land Use Map, this Program EIR also generally evaluates the potential impacts associated with seven of the 11 sites that may be redeveloped with residential uses. This EIR is therefore, intended to provide the decision makers with information regarding the possible future development of residential uses on the identified sites, should the City decide to pursue rezonings and other development approvals in the future as specified by the 1992 General Plan goals, policies, and action programs.

This Program EIR is prepared pursuant to CEQA Guidelines Sections 15143 and 15168. The level of impact analysis included in this Program EIR is adequate for the purpose of amending the Mountain View General Plan. Without specific project information and a development time frame, it is not possible to adequately address all of the specific project level impacts that would occur with any of the possible future specific rezonings and other development approvals permitted by the proposed General Plan text and Land Use Map changes. Therefore, it will be necessary to conduct further analysis at the time specific rezonings and development projects are proposed within the City of Mountain View.

In accordance with CEQA, the EIR provides objective information regarding the environmental consequences of the proposed project to the decision makers for the review of a project. The following guidelines are included in CEQA to clarify the role of an EIR.

> **15121(a) Informational Document.** An EIR is an informational document which will inform public agency decision makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR, along with other information which may be presented to the agency.
>
> **15151 Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision, which intelligently considers environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In Section 15126(c) of the CEQA Guidelines, the State Resources Agency states that *the discussion of mitigation measures shall distinguish between the measures that are proposed by project proponents to be included in the project, and other measures that are not included but could reasonably be expected to reduce adverse impacts.* Feasible mitigation measures and alternatives are presently included in the project where specifically noted.

ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15140 and 15143, an EIR should be organized and written in a manner that allows decision makers and the public to understand the material contained in the document. Furthermore, an EIR should focus on the significant effects of the project on the environment. In accordance with these guidelines, this EIR focuses on the pertinent information necessary to make an informed decision regarding the project approval. This EIR is organized into separate sections as follows:

- *Summary:* The Summary highlights the significant environmental impacts resulting from the General Plan Update (the "project") and the mitigation measures included in the project to reduce the effects to a non-significant level.

- *Section I:* Section I contains a description of the proposed project and the discretionary approvals for which this EIR is intended to provide environmental review.

- *Section II:* Section II contains a description of the project's consistency with federal, state, regional, and local goals, policies, and plans.

- *Section III:* Section III includes the discussion of the environmental setting, project impacts, and mitigation measures for 20 environmental issues. This section is divided into the 20 environmental issues. Each environmental issue includes a discussion of the existing setting, impacts associated with that particular environmental concern, and mitigation measures to reduce or avoid the impact. An example of this organization is provided below:

A. LAND USE

1. <u>Setting</u>

Mountain View is completely surrounded by urban development except for a northern border of open space (San Francisco Bay). The City is bounded by San Francisco Bay on the north, the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west.

2. <u>Impacts</u>

A discussion of the impacts associated with the 1992 General Plan revised goals, policies, and action programs for each of the four chapters is provided below.

3. <u>Mitigation</u>

The following policies and action programs included in the Community Development Chapter would preserve and enhance the quality of life in Mountain View. These mitigation measures are included in the project.

- *Section IV:* Section IV contains a discussion of alternatives to the proposed project , including a No Project Alternative, No General Plan Land Use Map Changes, and an analysis of the Land Use Alternative Sites that could be developed as a result of the future implementation of the General Plan Update policies and action programs.

- *Sections V - XI:* The remaining sections of this EIR include a discussion of the Significant Unavoidable Impacts, Cumulative Impacts, Growth Inducing Impacts, Relationship between Short-Term Uses and Long-Term Productivity, and Irreversible Changes. In addition, the EIR author and consultants, as well as EIR references are identified in the last sections of this EIR.

This EIR includes a discussion of the environmental effects associated with the General Plan Update Land Use Map changes, General Plan goals, policies, and action programs, as well as, the future effects that are likely to occur as a result of the implementation of the General Plan Update policies and action programs.

MOUNTAIN VIEW GENERAL PLAN UPDATE
ENVIRONMENTAL IMPACT REPORT

SUMMARY

A. PROJECT DESCRIPTION

The proposed project is the update of the City of Mountain View 1982 General Plan (General Plan Update). Mountain View is located approximately 34 miles south of San Francisco and 10 miles north of San Jose, on the southern end of San Francisco Bay, in Santa Clara County, California. The City is bounded by San Francisco Bay on the north, the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west (see Figures 1, 2, and 3). About half of Moffett Field Naval Air Station lies within the City of Mountain View's Sphere of Influence, and is included within the boundaries of the General Plan.

The 1992 General Plan Update is an update of the City's 1982 General Plan. This update process includes revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the previously adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs.

The General Plan Update also involves changes to the General Plan Land Use Map. The General Plan Update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations. There are five types of changes between the existing adopted 1982 General Plan Land Use Map and the proposed 1992 General Plan Update Land Use Map. These categories of change result in approximately 95 specific amendments to the existing 1982 Land Use Map (see Figure 4 and Table 1). These 95 changes include:

1) Site specific land use designations instead of general designations;
2) A new mobile home park designation;
3) A new residential designation and a new industrial designation;
4) The addition of the City's Sphere of Influence boundary; and,
5) Population densities and building intensities (floor area ratios) are specified for the land uses in the General Plan text.

Most of the General Plan Land Use Map changes result from the change in mapping style to specifically follow the property line boundaries for land the land use designations. This change clarified the 1982 Land Use Map, and is consistent with the existing zoning and land uses.

In addition, the 1992 General Plan provides policies and action programs to encourage and study the potential for residential redevelopment on all or a portion of 11 identified sites. In order to fully evaluate the implications of the goals, policies and action programs contained in the 1992 General Plan Update that are related to the provision of additional housing in Mountain View, this EIR generally addresses the potential impacts associated with the 11 sites that may be redeveloped with residential uses (see Table 8). While this EIR does not provide environmental review for the future rezoning approvals, this EIR does provide the decision makers with information regarding the possible future impacts associated with the development of residential uses on the identified sites, should the City decide to pursue rezonings in the future. This information on possible future impacts should be referenced in subsequent environmental analyses of those rezonings, at the time those rezonings are proposed.

B. PROJECT OBJECTIVES

The purpose of the proposed General Plan update is to:

- Assess the physical, social, economic, and environmental character of the City;
- Define a realistic vision of what the community intends to be in 15 years;
- Chart the course of conservation and development in Mountain View;
- Record collective community issues raised during the General Plan update process.

The purpose of the proposed General Plan amendments to the Land Use Map are to:

- Establish new land use categories that are reflective of existing land uses,
- Establish new land use categories for residential development densities, and
- Establish consistency between the General Plan and the Zoning Ordinance and Map.

C. PROJECT ALTERNATIVES

This EIR evaluates three alternatives to the proposed General Plan Update: 1) the No Project Alternative, 2) 1992 General Plan Update Without 11 Potential Housing Sites, and 3) Land Use Alternatives to the Residential Redevelopment Sites.

The **No Project Alternative** consists of continuing the goals, policies, and action programs included in the 1982 General Plan. This alternative does not contain text amendments to the General Plan, nor does it include any changes to the General Plan Land Use Map. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 7"), since it was already approved in September, 1991 (covered by a separate EIR).

The **No Project Alternative - 1992 General Plan Update Without 11 Potential Housing Sites** consists of adopting the 1992 General Plan goals, policies, and action programs that would replace those included the 1982 General Plan. This alternative contains text amendments to the General Plan, and includes the 95 changes to the General Plan Land Use Map that would bring the General Plan into conformance with the Zoning Ordinance. However, this alternative does not include the adoption of those policies and action programs permitting future housing opportunities at 11 sites, nor does it include the changes to the General Plan Land Use Map resulting in residential land use designations on two of the 11 potential housing sites. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes for potential housing opportunities, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 3"), since it was already approved in September, 1991.

The No Project Alternative would not plan for, nor facilitate the transition from the existing industrial, commercial, and vacant properties to residential land uses. As a result, Mountain View would not achieve the levels established by ABAG's *Housing Needs Determination*, as described in the adopted 1990 Mountain View Housing Element.

The **Land Use Alternatives Sites** includes the four land use alternative sites ("Sites 2, 4, 6, and 7) which together, represent a total of 3,140 potential dwelling units. This alternative evaluates the impacts associated with these four *land use alternatives* sites in addition to the four residential rezoning sites and the three policy change sites that are included in the project.

SUMMARY OF IMPACTS AND MITIGATION

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Land Use	
The 95 changes indicated in the 1992 Land Use Map do not change the status of the existing land uses, nor do they change the development potential of the properties. Increases or decreases in the land use intensities of these 95 properties are not proposed as part of the General Plan Update. As a result, the parcel-specific changes to the Land Use Map on the 95 sites would not result in significant direct or indirect land use impacts. These changes would also be compatible with the Zoning Ordinance. **(Nonsignificant impact)**	No mitigation is required.
The 1992 General Plan Update consists of the updating of the 1982 General Plan. This update process includes revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs. The 1992 General Plan is intended to reduce the potential impacts associated with existing and future development in Mountain View. **(Nonsignificant impact)**	No mitigation is required.
The 1992 General Plan policies and action programs encourage future residential redevelopment by calling for the rezoning of four identified sites. In addition, the 1992 General Plan provides for future Precise Plan, Zoning Ordinance and policy changes for housing opportunities on three sites (Sites 9, 10, and 11). These future changes would result in potential land use compatibility impacts, residential hazards, increased land use intensity and changes to the land use/visual character of these seven areas. **(Significant impact)**	Implementation of the Community Development Chapter policies and action programs #1-40 as described on pages 60-63 of this EIR would mitigate potential land use impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Traffic Circulation	
Added travel demand in the City, due both to local growth and to development in the region, would cause several key highways and streets to experience significant peak hour congestion. These include: Grant Road, north of Cuesta Drive; State Route 237, north of El Camino Real; State Route 85, south of El Camino Real; and U.S. 101, from San Antonio Road to State Route 85. These impacts would occur under all scenarios. **(Significant Impact)**	Implementation of the Community Development Chapter policies and action programs #44a-c and the Circulation Chapter policies and action programs #1-40, as described on pages 93-102, would mitigate significant local and cumulative traffic impacts to a nonsignificant level for local impacts. **(Less than significant impact with mitigation for local and cumulative project impacts.)**

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Air Quality	
Future development under the 1992 General Plan and with residential development of the seven sites would result in increased air pollutant emissions above existing conditions. These levels would not exceed State and Federal standards at a local level, but would exceed these standards at a regional level. **(Significant regional impact)**	Implementation of the Circulation Chapter policies and action programs #31-32 and the Environmental Management Chapter policies and action programs #19-20 would reduce air pollutant impacts (see pages 114-115). Local impacts would be reduced to a non-significant impact. Although regional impacts would remain, the provision of additional housing near jobs would contribute to the regional strategy of reducing home to work commute distances. **(Significant unavoidable cumulative impact with mitigation)**
Future residential development in heavy industrial areas would result in the potential exposure to hazards associated with toxic air contaminants. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #19-20 would reduce air quality impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Noise	
Temporary noise impacts would result during construction of future residential development on the seven identified sites. **(Temporary significant impact)**	Implementation of the Environmental Management Chapter Noise policy #42 and action programs b-c on page 125 would reduce temporary significant impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Increased traffic associated with development under the 1992 General Plan and future residential development would result in noise levels that exceed accepted standards. Future residences at most of the seven sites would be exposed to noise levels in excess of the City's standards. **(Significant impact)**	Implementation of the Environmental Management Chapter Noise policy and action programs #42-45 (p. 125) would reduce noise impacts. However, noise levels would continue to exceed accepted standards at those locations where standards are exceeded under existing conditions. **(Significant unavoidable impact)**
Geology and Soils	
Under the existing General Plan, the majority of the land uses located in the Geologic Hazards Zone D consist of public park and open space uses. Future land uses under the 1992 General Plan could be located in Zones D and E, the two most seismically sensitive areas of Mountain View. These land uses would primarily include Industrial Park and General Industrial land uses. Potential hazards in these zones include liquefaction, differential settlement, lurching and lateral spreading, strong groundshaking and dike failure as a result of a major seismic event. Future residential development of the seven sites would be primarily located in Zone F, the least susceptible zone of geologic hazards. **(Significant impact)**	Implementation of the Environmental Management Chapter policies and action programs #32 a-d (p. 136) pertaining to soils, geologic, and seismic impacts would mitigate potential hazards to land uses in Mountain View. **(Less than significant impact with mitigation)**

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Drainage and Flooding	
Generally, five sources of flooding present potential hazards to Mountain View: excessive accumulation of precipitation and surface runoff, tidal action, coastal velocity hazards, dam and levee failure, tsunamis resulting from seismic activity, and flooding due to subsidence.	Implementation of Community Development Chapter policy #6 and Environmental Management Chapter policies and action programs #11 and 33, as described on page 141 would reduce potential flooding and drainage impacts to a nonsignificant level. **(Less than significant impact with mitigation)**
Future development projected by the year 2005 would minimally increase the amount of impervious surfaces in the city, since Mountain View is almost completely developed. Residential redevelopment of the seven sites would primarily occur in areas that are already developed and have adequate storm drainage facilities. However, several of the sites could require storm drain extensions, if significant grading is proposed. Redevelopment of one of the seven potential rezoning sites, the Old Mill Site, could present specific storm drainage concerns. **(Significant impact)**	
Vegetation and Wildlife	
The 1992 General Plan contains goals, policies, and action programs encouraging the provision of open space areas and recreational facilities in the city. The development of urban trails within or near the Stevens Creek riparian corridor and near the wildlife habitat areas located at Shoreline would result in potentially significant impacts to the existing wildlife habitat. Human and domestic animal intrusion into these sensitive habitat areas would result in the disturbance of the habitat quality. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #10-13, as described on pages 151-152, would mitigate potential impacts to vegetation and wildlife habitat resources in Mountain View. **(Less than significant impact with mitigation)**
Visual Quality	
Few significant changes in the city's form and image are anticipated to result from the 1992 General Plan. Since most of the city's infrastructure is already in place, the greatest impacts to visual and aesthetic quality would result from any future in-fill development.	Implementation of Community Development Chapter policies, #9, 23 and 31-35 (as described on pages 157-158) would further ensure that visual impacts do not occur with development of the remaining vacant and underdeveloped parcels. **(Less than significant impact with mitigation)**
Residential redevelopment of the seven sites would result in a maximum of 2,387 dwelling units, resulting in housing opportunities for these undeveloped and underdeveloped areas of the City. Construction of mid-scale buildings would potentially alter the visual character of the surrounding area. **(Less than significant impact)**	

SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Cultural Resources	
Based upon the results of a Cultural Resources Assessment, the potential for the future disturbance of subsurface deposits is limited given that extensive urbanization has already occurred. If remaining deposits exist, grading, excavation, and construction activity associated with development could potentially affect these resources. **(Potentially significant impact)**	Implementation of Environmental Management Chapter policies and action programs #22a-b and Community Development Chapter policies and action programs #17a-j, as described on pages 162-163, would reduce the potential for significant impacts to subsurface and surface cultural resources. **(Less than significant impact with mitigation)**
Hazardous Materials	
Mountain View residents could potentially be exposed to safety hazards associated with the release of hazardous substances. Future development could result in exposure of additional people to potential risks associated with hazardous substances. Future residential redevelopment of seven commercial and industrial areas could result in exposure to soil and groundwater contamination. In addition, the development of residential uses on some of these sites could result in the exposure of residents to possible nuisances and safety hazards attributed to industrial uses. Industrial facilities that use, store, or handle hazardous materials would present a risk to residences in the area. In addition, most of the seven sites are in areas with confirmed soil and groundwater contamination. **(Significant impact)**	Implementation of Community Development Chapter policies and action programs #1-2 and 23, and Environmental Management Chapter policy and action program #38, as described on page 172-173, would reduce potential hazardous materials-related impacts. **(Less than significant impact with mitigation)**
Water Quality	
Several of the seven residential redevelopment sites are located in areas with confirmed soil and groundwater contamination. In addition, several of the areas are located within a one mile radius of reported soils and groundwater contamination, and are, therefore, subject to potential contamination from groundwater migration. **(Significant impact)**	Implementation of Environmental Management Chapter policies and action programs #15, 30, and 38 as described on pages 177-178, would mitigate potential water quality impacts to a nonsignificant level. Any site over five acres will require its own stormwater NPDES permit, issued by the State. **(Less than significant impact with mitigation)**
Utilities and Urban Services	
Future residential redevelopment of the seven sites would result in a demand for services and utilities. The services and utilities affected by this development include: schools, water, police, fire protection, parks, sanitary sewer, storm drainage, solid waste, and electricity. **(Significant impact)**	Implementation of the Environmental Management Chapter policies and action programs pertaining to the provision of utilities and urban services would mitigate potential impacts to a nonsignificant level. **(Less than significant impact with mitigation)**

MOUNTAIN VIEW GENERAL PLAN UPDATE
ENVIRONMENTAL IMPACT REPORT

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SECTION I

DESCRIPTION OF THE PROPOSED PROJECT

A. PROJECT OVERVIEW

The proposed project is the update of the City of Mountain View 1982 General Plan (General Plan Update). The General Plan Update consists of changes to the General Plan Land Use Map, as well as new and revised goals, policies and action programs. The General Plan update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations.

B. PROJECT LOCATION

The City of Mountain View is located approximately 34 miles south of San Francisco and 10 miles north of San Jose, on the southern end of San Francisco Bay, in Santa Clara County, California. The City is bounded by San Francisco Bay on the north, a portion of the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west (see Figures 1, 2, and 3). Approximately half of Moffett Field Naval Air Station lies within the City of Mountain View's Sphere of Influence, and is included within the boundaries of the General Plan.

Mountain View is situated on 7,782.5 acres at the northwest end of the low-lying alluvial plain[1] comprising the Santa Clara Valley. The Santa Clara Valley is bounded on the north by San Francisco Bay, on the west by the Santa Cruz Mountains, and on the east by the Diablo Range. The Guadalupe River and Coyote Creek are primary waterways in the Santa Clara Valley. Stevens Creek and Permanente Creek flow through the City of Mountain View, while Adobe Creek runs along the westernmost boundary of the City, and Hale Creek extends along the southwestern portion of Mountain View. These creeks empty into Whisman Slough, Mountain View Slough, and Charleston Slough, respectively, along the San Francisco Bay margin.

C. DESCRIPTION OF THE PROJECT

The 1992 General Plan Update is an update of the City's 1982 General Plan. This update process contains revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the previously adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs.

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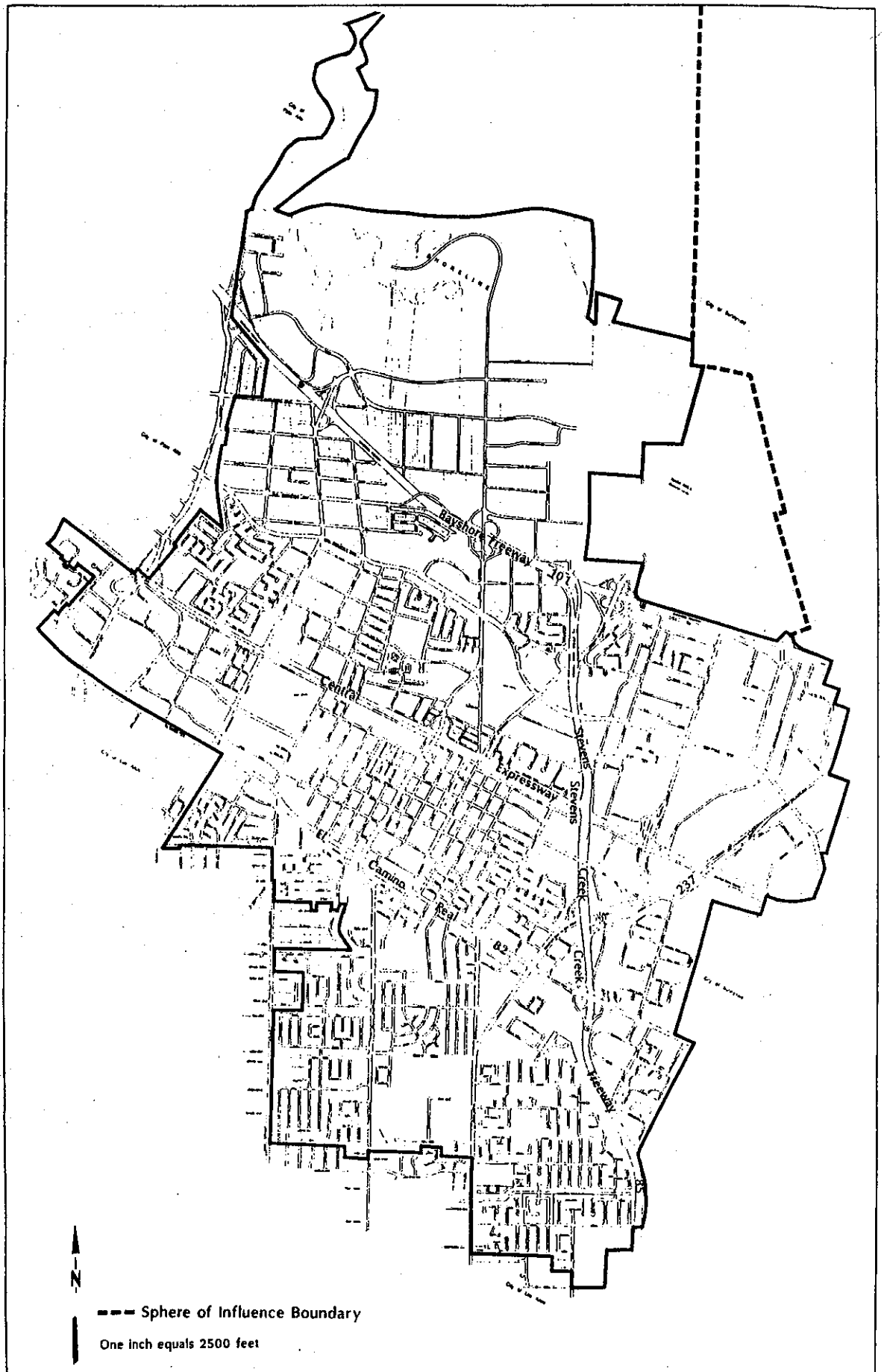
[1] An alluvial plain is a flood plain produced by the filling of a valley bottom, consisting of fine mud, sand, or gravel.



MOUNTAIN VIEW GENERAL PLAN PROJECT AREA FIGURE 2

AERIAL PHOTOGRAPH OF MOUNTAIN VIEW

FIGURE 3

The General Plan Update also involves changes to the General Plan Land Use Map. The General Plan Update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations. These designations include: Industrial, Industrial Park, Low Density Residential (0-6 du/ac), Mobile Home Park Residential (7-14 du/ac), Medium-Low Density Residential (7-12 du/ac), Medium-High Density Residential (13-30 du/ac), and High Density Residential (31-80 du/ac). In addition, the public facilities land use designations are proposed to be divided into three categories: 1) Government Facilities, 2) Educational Facilities, and 3) Institutional Facilities. The commercial designations are the same as those contained in the 1982 General Plan.

A description of the proposed changes to the General Plan text and the General Plan Land Use Map are provided below. The General Plan Update involves comprehensive revisions to the text of the four General Plan Chapters: Community Development, Circulation, Residential Neighborhoods, and Environmental Management.

1. <u>1992 General Plan Update Text Revisions</u>

Community Development Chapter

The Community Development Chapter contained in the proposed 1992 General Plan Update addresses three main issues: land use, urban design, and economic welfare. This chapter contains 19 goals, 49 policies, and 132 action statements that address the local Mountain View community within a larger regional context, as well as within a historical context. The 1992 goals, policies, and action statements also address land use planning issues for the business community. This chapter further addresses the revisions to the General Plan land uses categories. The 19 goals included in this chapter are summarized in Table 1.

Circulation Chapter

The Circulation Chapter addresses the movement of people and goods through and around the city. In accordance with General Plan law, the goals, policies, and action programs contained in the Circulation Chapter are closely related to the land use goals, policies, and action programs contained in the Community Development Chapter. The Circulation Chapter goals, policies, and action programs address regional traffic issues, the balance between land use and transportation, alternative modes of travel, and traffic effects on noise and air quality. This chapter also emphasizes rail transit as a major transportation investment. Additional policies and action programs are included to enhance transportation facilities and to ensure accessibility to transportation services for all members of the community. The Circulation Chapter includes 15 goals, 40 policies, and 99 action programs. A summary of the 15 goals is provided in Table 2.

Residential Neighborhoods Chapter

The Residential Neighborhoods Chapter contains the Housing Element adopted by the Mountain View City Council on October 16, 1990. The Residential Neighborhoods Chapter addresses the provision of housing for low and moderate income families, the distribution and condition of available housing, the projected need for new construction, and governmental and other constraints on the provision of housing. In addition, this chapter includes a land inventory for

TABLE 1

COMMUNITY DEVELOPMENT CHAPTER GOALS

GOAL A:	Promote a pattern of land use that protects the community's health and safety.
GOAL B:	Preserve and strengthen Mountain View's identity.
GOAL C:	Maintain and enhance the special diversity of the City's businesses and neighborhoods.
GOAL D:	Encourage development that preserves the beauty of the natural environment.
GOAL E:	Use landscaping to maintain an open space character and enhance the built environment.
GOAL F:	Encourage both public and private artwork that expresses the diversity and aspirations of the city.
GOAL G:	Protect Mountain View's historic buildings and districts and encourage their restoration.
GOAL H:	Provide Mountain View residents with high-quality public facilities and services.
GOAL I:	Cooperate with the school districts to provide educational opportunities.
GOAL J:	Support retaining and protecting the City's major institutional facilities.
GOAL K:	Maintain a variety of attractive and convenient commercial districts that provide needed goods, services, and entertainment activities.
GOAL L:	Promote a variety of industrial districts that maintain a diversified economic base.
GOAL M:	Maintain strong and stable sources of city revenues while promoting an appropriate balance of land uses in the City.
GOAL N:	Encourage suitable development through effective regulation and efficient city approval procedures.
GOAL O:	Preserve and enhance the quality of life enjoyed by residents of the San Francisco Bay Area.
GOAL P:	Promote the opportunity to both work and live in Mountain View.
GOAL Q:	Coordinate the location, intensity, and mix of land uses with transportation resources.
GOAL R:	Focus public redevelopment efforts on important areas where revitalization will benefit the entire community.
GOAL S:	Maintain the predominant low building height in Mountain View, while allowing a limited number of well-designed tall buildings in selected areas of the City.
GOAL U:	Guide change in special opportunity areas to maintain the vitality of Mountain View.

TABLE 2

CIRCULATION CHAPTER GOALS

GOAL A:	Help reduce regional traffic growth.
GOAL B:	Coordinate transportation and land use planning.
GOAL C:	Increase the number of riders per vehicle during peak commute periods.
GOAL D:	Improve the flow of traffic on freeways and expressways serving Mountain View.
GOAL E:	Build and maintain a safe and efficient local street system with the aim of meeting LOS goals.
GOAL F:	Protect residential neighborhoods from excessive through traffic, where feasible.
GOAL G:	Improve rail transit serving Mountain View.
GOAL H:	Provide fast, convenient, comprehensive, and dependable bus service in Mountain View.
GOAL I:	Make it easier and safer for people to travel by bicycle.
GOAL J:	Make it easier, safer, and more enjoyable for people to move around the City on foot.
GOAL K:	Support the development and maintenance of transportation facilities that are aesthetically pleasing and have minimal adverse environmental effects.
GOAL L:	Ensure that people who are mobility-impaired have access to transportation.
GOAL M:	Expand private transportation services within Mountain View.
GOAL N:	Seek public involvement in planning and carrying out transportation improvements.
GOAL O:	Ensure balanced funding for transportation systems.

the purposes of identifying available land suitable for future residential development, such as vacant property and lands with the potential for redevelopment.

The Residential Neighborhoods Chapter includes nine goals, 28 policies, and 60 action programs. A summary of the nine goals is provided in Table 3.

Environmental Management Chapter

The Environmental Management Chapter contains four of the seven State-mandated General Plan Elements, including Open Space, Conservation of Resources, Public Safety, and Noise. The Open Space Element contains goals, policies, and action programs for the long-term acquisition, development, use, and preservation of the City's open space resources. This Element focuses on cost effective methods for the acquisition of additional open space, the development of a system of urban trails throughout Mountain View, and the use of the City's parks and other public spaces for cultural activities.

The Conservation of Resources Element contains various City policies regarding wildlife and wildlife habitat, water quality and supply, air quality, historic resources, solid waste, energy, and soil. This Element combines various State environmental laws that have been implemented over the last 10 to 15 years. This Element also identifies important natural resources in Mountain View and provides strategies for their preservation.

The Public Safety Element establishes policies and programs to protect Mountain View from hazards associated with earthquakes, soils and geologic conditions, floods, fires, toxic waste, and crime. This Element emphasizes both the prevention of hazardous circumstances and adequate responses to those hazardous circumstances when they occur.

The Noise Element analyzes and quantifies the existing noise environment, and presents policies and programs to control the source, path, and reception of noise. This Element evaluates both stationary and motor vehicle noise sources. A contour map is included in this Element to reflect the major noise sources in the community. The goal of the Noise Element is to protect the community from undesirable noise intrusion.

The Environmental Management Chapter contains 16 goals, 45 policies, and 176 action programs. A summary of the 16 goals is provided in Table 4.

2. <u>1992 General Plan Land Use Map Amendments</u>

The General Plan Land Use Map designates the general distribution and location of land to be used for housing, commercial/retail development, industrial uses, open space, public facilities, and other types of land uses. The General Plan establishes standards for population density and building intensity for each of the City's General Plan land use categories. The Land Use Map and the accompanying definitions of the land use categories designate the distribution, location, and intensity of land use within the city.

There are five types of changes between the existing adopted 1982 General Plan Land Use Map and the proposed 1992 General Plan Update Land Use Map. These categories of change result

TABLE 3

RESIDENTIAL NEIGHBORHOODS CHAPTER GOALS

GOAL A:	Provide a range of housing types including single-family, townhouses, apartments, and other housing types.
GOAL B:	Provide affordable housing in a number of locations, in a variety of housing types and prices, for purchase and for rent.
GOAL C:	Allow modular housing and maintain mobile home parks.
GOAL D:	Preserve and increase the supply of affordable housing.
GOAL E:	Provide housing opportunities and promote the development of safe, sanitary, and desirable housing for people of all economic levels.
GOAL F:	Insure a choice of Housing and Locations to all people regardless of race, sex sexual orientation, national origin, age, marital status, familial status, ancestry, religion, color, or physical or mental handicaps.
GOAL G:	Provide temporary shelter for the homeless and those in crisis.
GOAL H:	Improve the condition of the housing in the City.
GOAL I:	Maintain and enhance the quality and character of Mountain View's neighborhoods.

TABLE 4

ENVIRONMENTAL MANAGEMENT CHAPTER GOALS

GOAL A:	Acquire enough open space to satisfy local needs.
GOAL B:	Improve open space areas to provide a diversity of recreational and leisure opportunities for the community.
GOAL C:	Make open spaces and recreational facilities available for different uses.
GOAL D:	Preserve open space for future generations.
GOAL E:	Preserve and enhance the diversity of ~~environmental~~ biological resources in Mountain View.
GOAL F:	Manage the City's water resources to supply urban uses and protect the environment.
GOAL G:	Protect and improve air quality.
GOAL H:	Identify and preserve the city's archaeological resources.
GOAL I:	Reduce the amount of solid waste generated in Mountain View.
GOAL J:	Encourage optimal use of available energy resources.
GOAL K:	Protect and preserve soil as a natural resource.
GOAL L:	Protect the community from the harmful effects of natural disasters.
GOAL M:	Protect residents and the environment from fire and hazardous materials.
GOAL N:	Reduce criminal activity and instill a feeling of safety and security in our community.
GOAL O:	Reduce noise levels at the source.
GOAL P:	Protect people from the intrusion of noise.

in approximately 95 specific amendments to the existing 1982 Land Use Map (see Figure 4 and Table 5). These 95 changes consist of five categories of change, as follows:

a) Site specific land use designations instead of general "bubble" designations;

b) A new mobile home park designation;

c) A new residential designation and a new industrial designation;

d) The addition of the City's Sphere of Influence boundary; and,

e) Population densities and building intensities (floor area ratios) are specified for the land uses in the General Plan text.

The majority of the 95 changes are attributed to the site-specific land use designations shown on the 1992 Land Use Map which clarify the general "bubble" 1982 Land Use Map designations and establish consistency with the existing land uses and Zoning Ordinance.

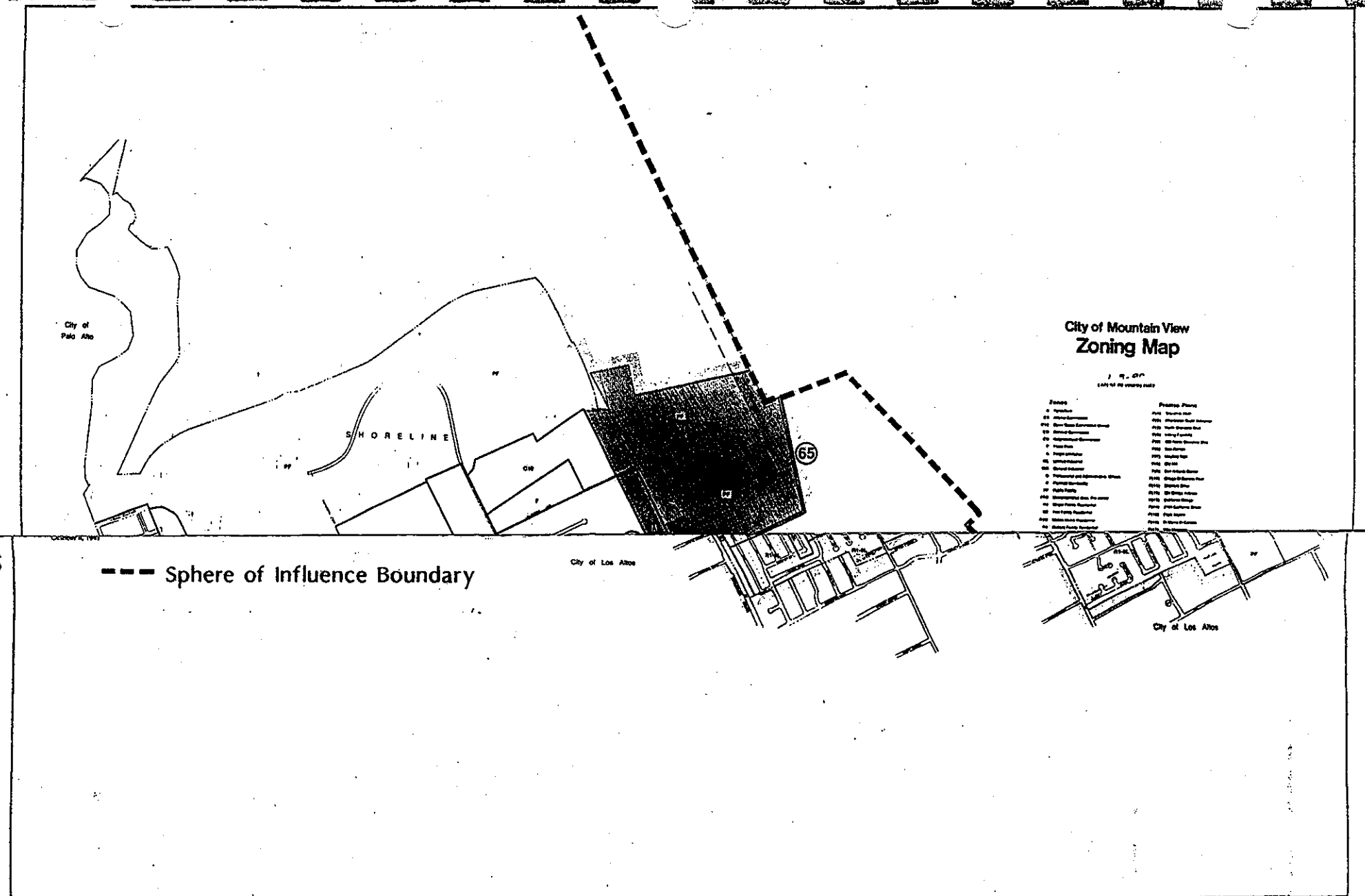
a) Site Specific Designations

The General Plan Update will result in changes to the City's Land Use Map. The primary change to the Land Use Map involves revisions to the 1982 Land Use Map to indicate parcel-specific General Plan designations. The 1982 Land Use Map depicted broad trends ("bubble" boundaries) in a neighborhood or district, and did not show small pockets of different land uses or densities within each district. It is intended that the zoning district boundaries will precisely conform to the General Plan land use designations on the 1992 Land Use Map. This more detailed Land Use Map will provide better information to all property owners about the designated long range land use for their property, and will eliminate any ambiguities associated with the transition areas where no designations were depicted on the 1982 Land Use Map.

There are approximately 95 sites with land use changes on the 1992 Land Use Map. These sites are shown on the Land Use Changes Map and listed on the General Plan Update table (see Figure 4 and Table 5). Most of these changes reflect the change from the "bubble" boundaries to parcel specific land use designations. Most of the sites are developed with a use that is consistent with the proposed land use map designation and existing zoning. The changes indicated in the 1992 Land Use Map do not change the status of the existing land uses, nor do they change the development potential of the properties.

b) Mobile Home Park Designations

The 1992 Land Use Map shows a new Mobile Home Park designation for the six parks currently zoned for mobile home park use. Four of the six sites are presently designated for 6-12 dwelling units per acre. Although the General Plan Update proposes to change the designation on these sites to Mobile Home Park Residential (7-14 du/ac), this change would not result in an increase in residential densities on these sites. Two of the six mobile home sites are designated 1-6 dwelling units per acre. The General Plan Update proposes to change the designation on these two sites to Mobile Home Park Residential (7-14 du/ac). The 7-14 du/acre allowable



LAND USE MAP CHANGES

FIGURE 4

REVIS

GENERAL PLAN LAND USE MAP UPDATE

Site	Existing General Plan	New General Plan	Current Zoning
1	12+ Units/Acre	High density	MM
2	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-1.5
3	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
4	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2-h1
5	6-12 Units/Acre	Neighborhood Commercial	CN
6	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
7	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
8	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
9	12+ Units/Acre	Low Density (1-6 Units/Acre)	R1
10	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
11	6-12 Units/Acre	High Density (31+ Units/Acre)	R3-1
12	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
13	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2.5
14	Linear Commercial/Residential	Low Density (1-6 Units/Acre)	R1
15	12+ Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
16	1-6 Units/Acre	Medium High Density (13-30 Units/Acres)	PF
17	1-6 Units/Acre	High Density (31+ Units/Acre)	R3-2
18	Linear Commercial/Residential	High Density (31+ Units/Acre)	R3-1
19	12+ Units/Acre	Low Density (1-6 Units/Acre)	R1
20	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
21	12+ Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
22	12+ Units/Acre	High Density (31+ Units/Acre)	R3-1

REVISED
GENERAL PLAN LAND USE MAP UPDATE

Site	Existing General Plan	New General Plan	Current Zoning
23	6-12 Units/Acre	High Density (31+ Units/Acre)	R3-3
24	1-6 Units/Acre	High Density (31+ Units/Acre)	R3-1.25
25	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
26	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
27	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
28	1-6 Units/Acre	Neighborhood School/Park	PF
29	Regional Commercial	Medium High Density (13-30 Units/Acre)	R3-1
30	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
31	6-12 Units/Acre	High Density (31+ Units/Acre)	R3-1
32	6-12 Units/Acre	High Density (31+ Units/Acre)	R3-1
33	Neighborhood Commercial	High Density (31+ Units/Acre)	R3-1
34	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
35	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-4
36	12+ Units/Acre	Low Density (1-6 Units/Acre)	R1
37	1-6 Units/Acre	Mobile Home Park	R2-M
38	1-6 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2-10L
39	12+ Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
40	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
41	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3
42	6-12 Units/Acre	Mobile Park	R2-M
43	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3
44	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2

RE ED

GENERAL PLAN LAND USE MAP UPDATE

Site	Existing General Plan	New General Plan	Current Zoning
45	12+ Units/Acre	Linear Commercial/Residential	P(32)
46	Major Industrial	Institutional	PF
47	Neighborhood School/Park	Medium Low Density (7-12 Units/Acre)	R3-P
48	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-P
49	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
50	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3
51	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
52	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R1-1.5
53	Neighborhood Commercial	Office	O
54	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3
55	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
56	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
57	6-12 Units/Acre	High Density (31+ Units/Acre)	R3-1
58	6-12 Units/Acre	Neighborhood Commercial	C3
59	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3sd
60	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
61	Downtown Commercial	Medium High Density (13-30 Units/Acre)	PF
62	6-12 Units/Acre	Low Density (1-6 Units/Acre)	R1
63	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R3-3sd
64	12+Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
65	Major Industrial	Institutional	PF
66	District Regional Park	District Regional Park	R3-2

REVISED
GENERAL PLAN LAND USE MAP UPDATE

Site	Existing General Plan	New General Plan	Current Zoning
67	12+Units/Acre	High Density (31+ Units/Acre)	R3-1
68	12+Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
69	12+Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
70	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
71	Industrial	Industrial	A (W)
72	Agriculture	Institutional	A
73	Agriculture	Agriculture	A
74	Blank	High Density (31+ Units/Acre)	R3-1
75	6-12 Units/Acre	Medium Low Density (7-12 Units/Acre)	R2
76	District Regional Park	District Regional Park	PF
77	1-6 Units/Acre	Mobile Home Park	R2-M
78	Blank	District Regional Park	PF
79	12+ Units/Acre	High Density (31+ Units/Acre)	R3-1
80	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
81	6-12 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
82	12+Units/Acre	Medium Low Density (7-12 Units/Acre)	R2-10Lsd
83	12+Units/Acre	Industrial	ML
84	Industrial	Institutional	O
85	Service Commercial	Neighborhood Commercial	CN
86	Industrial	Agriculture	A
87	Service Commercial	Linear Commercial	C3
88	Neighborhood Commercial	Neighborhood Commercial	C3

RE ED

GENERAL PLAN LAND USE MAP UPDATE

Site	Existing General Plan	New General Plan	Current Zoning
89	1-6 Units/Acre	High Density (31+ Units/Acre)	R3-1
90	District Regional Park	Neighborhood Park	PF
91	District Regional Park	Neighborhood Park	PF
92	District Regional Park	Neighborhood Park	PF
93	1-6 Units/Acre	Medium High Density (13-30 Units/Acre)	R3-2
94	R2-M	Mobile Park	R2-M
95	R2-M	Mobile Park	R2-M

density is consistent with the range of the existing mobile home park densities in 1992. The new mobile home park designation, combined with the 9 unit/acre maximum density in the mobile home park zone (R-2M), would not increase the mobile home park densities.

c) New Land Use Categories

The 1992 Land Use Map updates the 1982 Land Use Map categories to provide five residential designations (including the Mobile Home Park designation), rather than the three previous categories; and two industrial designations, rather than one category (see Figure 4). The 1982 Land Use Map identified three residential designations: Low (0-6 units/acre), Medium (6-12 units/ acre), and High (12+ units/acre). The High density residential category on the 1992 Land Use Map consists of two designations: the Medium-High density designation (13-30 units/ acre), and a High density designation (31+ units/acre). This new High density designation corresponds to the R3-1, R3d, and some P Zoning Districts. The refinement of the residential designations does not increase or decrease the allowable densities and distribution of residential uses. This refinement would establish consistency between the General Plan and the Zoning Ordinance.

The 1982 Land Use Map depicted one General Industrial category. The 1992 Land Use Map includes a new Industrial Park designation, in addition to the General Industrial designation.

A summary of the 1992 General Plan residential land use designations is provided below.

Low Density Residential (1-6 units/acre) applies to detached, single-family homes and similar uses compatible with a quiet, family living environment. The maximum density is 6 units/acre and the resulting population is 1 to 13 persons per acre.

Mobile Home Park Residential (7-14 units/acre) applies to mobile homes occupying a park with shared recreational and open space facilities. The maximum density for new mobile home parks is 9 units/acre (based upon the restrictions of the Zoning Ordinance) and the corresponding population is approximately 17 persons/acre. Some of the existing mobile home parks are at a density of 13 units/acre and do not conform with the existing General Plan designations. The establishment of the Mobile Home Park designation at a density of 7-14 units/acre would bring the existing mobile home parks into conformance with the General Plan.

Medium-Low Density Residential (7-12 units/acre) applies to duplexes, townhouses, and other types of residential uses with open space characteristics similar to single family neighborhoods. The maximum density is 12 units/acre and the corresponding population is approximately 26 persons/acre.

Medium-High Density Residential (13-30 units/acre) applies to multiple family housing which is consolidated to provide generous open space areas for common use. Apartments, condominiums, and other similar types of uses are permitted under this designation. The maximum density is 30 dwelling units to the acre, with a resulting population of up to 64 persons per acre.

High Density Residential (31-80 units/acre) applies to multiple family housing that is characterized by multiple story structures in locations near transit, shopping, and public facilities.

Apartments, condominiums, and similar types of residential uses are included in this category. The maximum density is 80 units to the acre with a population of up to 170 persons per acre.

The following General Plan public land use designations are proposed:

City Facilities applies to facilities owned and operated by the City of Mountain View, such as City Hall, the Senior Center, and fire stations. These facilities are indicated by symbols on the Land Use Map. City facilities are allowed in any of the land use designations. In general, the FAR will range from 0.1 to 1.0.

Educational Facilities designation is intended for public schools and the reuse of those schools in a manner consistent with the character of the surrounding neighborhood. Educational facilities are shown with symbols on the Land Use Map. They are allowed in the Neighborhood School/Park land use designation. In general, the average floor area ratio is 0.25.

Institutional Facilities designation applies to public and quasi-public uses that serve as an important regional function and are vital to Mountain View. This designation covers El Camino Hospital, NASA/Ames, and Moffett Naval Air Station. The FARs generally range from 0.25 to 1.25.

Public and Quasi-Public Facilities designation applies to facilities owned by State, federal, or county governments and for uses that may be privately owned, but are non-profit and generally open to the public. The U.S. Post Office, churches, non-commercial private schools, and other similar types of uses are in this category. Public and Quasi-Public Facilities are not shown on the Land Use Map and are allowed in all land use designations with zoning approvals. In general, the average FAR is 0.35.

The following General Plan commercial, office, and industrial designations are proposed in the updated Land Use Map.

Neighborhood Commercial designation provides for convenience shopping to surrounding residential neighborhoods. Retail and service business, such as grocery stores, cleaners, restaurants, beauty salons, and similar uses are permitted in this category. This designation, however, is not intended for uses that attract traffic from outside the local area. The average FAR for this designation is 0.35.

General Commercial designation applies to service industrial and commercial uses that serve local residents and businesses. Automotive repair, retail and wholesale businesses, carpenter shops, veterinary clinics, and other similar uses are allowed in this category. The average FAR for this designation is 0.40.

Linear Commercial/Residential designation applies to a broad range of commercial, office, and residential uses located along the City's major arterials. Businesses in this district serve the local population and also provide services and goods to visitors from outside the city. Hotels, car sales, restaurants, offices, housing, and other similar uses are allowed in this category. The average FAR for this designation is 0.35 and the maximum residential density is 43 units/acre. Residential floor area is not included in the FAR.

Regional Commercial designation is intended for businesses supplying comparison goods and specialty items that depend on a broad customer base. Businesses in this district provide a wider range of merchandise than is available elsewhere in the city. Clothing stores, department stores, appliances, restaurants, offices, and similar uses are allowed in this category. The average FAR for this designation is 0.50.

Downtown Commercial is intended to accommodate a mix and concentration of commercial, office, government, cultural, and residential uses in the core of the city. Theaters, restaurants, offices, specialty retail stores, government offices, housing, and other similar uses are allowed. In addition, grocery stores, drug stores, and cleaners that serve the local population are also permitted. New development in this area should contribute to the district's vitality. The development intensity and building height are determined by the Downtown Precise Plan which allows development of about 745 housing units and 2,200,000 square feet of commercial and office space.

Office designation applies to general business offices, medical, and professional offices. Real estate offices, financial offices, and other similar uses are also permitted in this category. The average FAR for this designation is 0.35.

General Industrial applies to manufacturing, production, storage, or sale of consumer goods and services. General Industrial districts are intended for a variety of industrial enterprises that create a broad industrial base. Research and development offices, start-up businesses, warehouses, manufacturing plants, ancillary restaurants, retail stores, and other similar uses are allowed in this category. This designation does not apply to heavy industrial uses. The average FAR is 0.55 for personal storage facilities, 0.45 for warehouses, and 0.35 for all other industrial and office uses.

Industrial Park is intended to create a high quality environment for major corporations, high technology industries, and other scientific facilities. Development in the Industrial Park district promotes scientific advancement and exemplifies the best collaboration of human values and modern technology. Corporate headquarters, research and development offices, public facilities, supporting hotel and retail businesses, and other similar uses are allowed in this category. Development intensity is determined by the Precise Plans for this area. The average FAR is 0.40 for warehouse and 0.35 for all other industrial and office uses.

The following open space and recreational land use designations are proposed for the 1992 General Plan.

Neighborhood/Community Parks and Schools applies to open space, leisure, recreational, and educational uses that serve surrounding neighborhoods and districts. City-owned parks and gardens, public schools, and similar uses are allowed in this category.

Regional Park is intended for open space and recreational uses that preserve regional natural resources and features, and attract visitors from a regional area. This category includes Shoreline at Mountain View and the proposed Stevens Creek trail.

Agriculture applies to land that is used for the production of food and fiber. Growing crops and similar uses are permitted in this category.

d) Sphere of Influence Boundary

Mountain View's Sphere of Influence boundary is the same as the municipal boundary, except in the northern part of the city where the Sphere of Influence boundary includes part of Moffett Field and two privately owned salt-evaporation ponds. The 1992 Land Use Map shows the City's Sphere of Influence boundary through Moffett Field.

e) Population Densities and Building Intensity

Population estimates for the residential land use designations and average floor area ratios (FARs) for the majority of the non-residential land use categories are provided in the 1992 Land Use Map. The population densities are provided only for planning purposes to estimate the need for public services and facilities. These population densities are not intended to provide an absolute limit on population in Mountain View. The population estimates are based upon an average of 2.13 persons/household[2], multiplied by the number of dwelling units permitted under each designation.

The floor area ratios (FARs) used to specify building intensity are an average for the entire land use designation. Three Zoning districts in Mountain View do not have FAR regulations. As a result, the General Plan requires new FARs for the related land use designations. These districts include Neighborhood Commercial (CN), General Commercial (CG), and Office (O). The Downtown Commercial district does not have FARs. However, building intensity is clearly defined in the Downtown Precise Plan, and the total allowable building area and residential units are indicated in the updated General Plan text. The Linear Commercial/ Residential district (C3) has a 0.35 FAR limit for office uses, but does not specify FARs for other commercial uses in the zone. As a result, the General Plan update identifies appropriate General Plan FARs as follows:

TABLE 6

GENERAL PLAN FLOOR AREA RATIOS (FARs)

Land Use Category	Proposed FAR
Neighborhood Commercial	0.35
General Commercial	0.40
Linear Commercial	0.35
Office	0.35

[2] The 2.13 persons/household is based upon ABAG's Projections '90 household size estimates for Mountain View in 1990. It is important to note that the persons per household ratio varies according to the type of residential designation. The 2.13 persons/household ratio is an average ratio.

The FARs for public uses are intended to be general, and not as specific as the commercial, office, and industrial designations.

In addition to the Land Use Map amendments described above, the City of Mountain View is proposing two amendments to the Land Use Map to allow for the possible future redevelopment of the identified properties with residential uses. These amendments are described below.

3. Land Use Map Amendments for the Residential Redevelopment Sites

The City of Mountain View initiated the General Plan Update process in January, 1990. At the time this process was initiated with the preparation of the updated Housing Element, the City had identified a total of 18 sites with the potential for future redevelopment with residential uses (see Table 7 and Figure 5). These sites primarily involved the conversion of industrial zoning designations to residential zoning designations or zoning amendments to encourage new housing. Eight sites were identified as *land use alternatives* for future analysis to determine their potential as residential redevelopment sites, and the remaining 10 sites were maintained as residential redevelopment sites, early in the process.

During the preparation of various environmental analyses and land use studies for these 18 sites, as well as during the public hearing process on the General Plan Update, various issues regarding these sites were identified. In September, 1991, the Environmental Planning Commission directed the Planning Department Staff to further revise these sites. As a result, there are now a total of 11 possible future housing sites of which seven are *residential redevelopment* sites and four are *land use alternative* sites (sites for future study). The *residential redevelopment* sites are the most likely candidates for private redevelopment for residential use, as they tend to lie within or near existing residential areas. The *land use alternative* sites are less certain candidates. They tend to be large industrial areas with many individually owned properties. These sites would require further detailed evaluation to determine whether housing would be appropriate on all or a portion of the sites.

The Draft 1992 General Plan Land Use Map proposes land use amendments on two of the 11 sites (see Figure 6). These two sites are the Evelyn Avenue Corridor Study Area at Evelyn Avenue and Villa Street (Site 8) and the Old Mill Site at Showers and California Street (Site 3). The General Plan amendments are as follows:

Evelyn Avenue Corridor Study Area (Site 8): Change the land use designation from Service Commercial to Medium High Density Residential (13-30 du/ac) on a 26 acre site located at Evelyn Avenue and Villa Street (see Figure 6). This change would result in a total of 365 dwelling units.

Old Mill Site (Site 3): Change the land use designation from Regional Commercial to High Density Residential (31+ du/ac) and Neighborhood Commercial at the 18 acre Old Mill Site (Showers and California) (see Figure 6). This General Plan amendment allows a total of 720 new dwelling units. This General Plan amendment was previously initiated and was approved by the City Council in September, 1991.

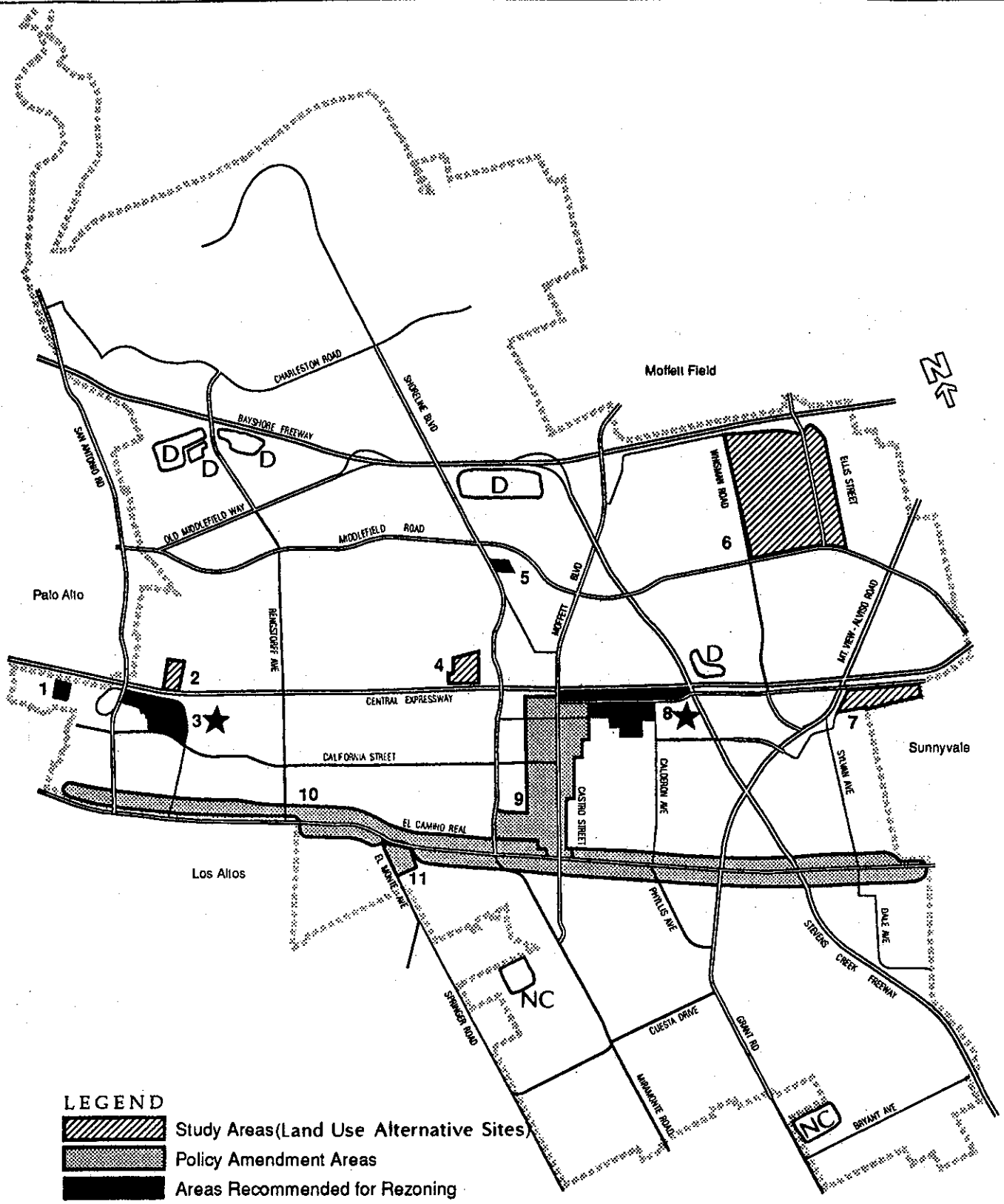
TABLE 7

POTENTIAL HOUSING SITES IN MOUNTAIN VIEW
ORIGINAL 18 SITES

Site No.	Planning Area	Area Description	EPC Rec	Current Zoning	Potential Zoning	Area (Acres)	Potential DU/Acre	Potential Unit
1	San Antonio	Del Medio Court (Sears WH)	RR	MM	R3-2.2	4	18	72
2	Thompson	Mayfield Ave./Central Exp (HP)	LUA	PC-off/Comm	R3-3	4	12	48
3	San Antonio	Old Mill Site (Showers/Calif.)	RR	PC-Com	PC-Res	18	35	720
4	Stierlin	Polaris and Gemini Avenues	LUA	ML	R3-2	7	21	147
5	Stierlin	Shoreline Blvd. s/o Middlefield	RR	PC-Ind	R3-2	3	20	60
6	Whisman	Fairchild Dr. and Ellis Street	LUA	ML	R3-2	126	20	2,520
7	Sylvan/Dale	Evelyn Ave. and Moorpark Way	LUA	PC-Ind	R3-1.5	17	25	425
8	Central	Evelyn Ave. and Villa Street	RR	CG	R3-2.5	17	15	365
9	Central	Downtown	RR	PC-Mixed Use	PC-Mixed Use	48	15	720*
10	Partial	El Camino Commercial Strip	RR	C3	C3	150	40	500
11	Miramonte	SE Corner of El Camino/El Monte	RR	RC-Mixed Use	PC-Mixed Use	6	25	150
12	Rengstorff	Leghorn/Independence West	LUA	MM-40	R3-2.2	41	18	738
13	Rengstorff	Leghorn/Independence East	LUA	MM-40	R3-2.2	18	18	324
14	Rengstorff	Plymouth/Sierra Vista	LUA	MM-40	R3-2.2	23	18	414
15	Stierlin	Terra Bella/Linda Vista	LUA	MM	R1	43	6	258
16	Whisman	NE Corner of Easy St./Central Exp	RR	ML	R3-3	2	12	24
17	Miramonte	Greenhouse at Marilyn Avenue	RR	A	R1	6	5	30
18	Grant	SE Corner of Grant/Levin	LUA	Pre R1-8L	R1-8L	15	4	6
SUBTOTAL		RR Sites				261		2,588
		LUA Sites				287		4,787
TOTAL						548		7,375

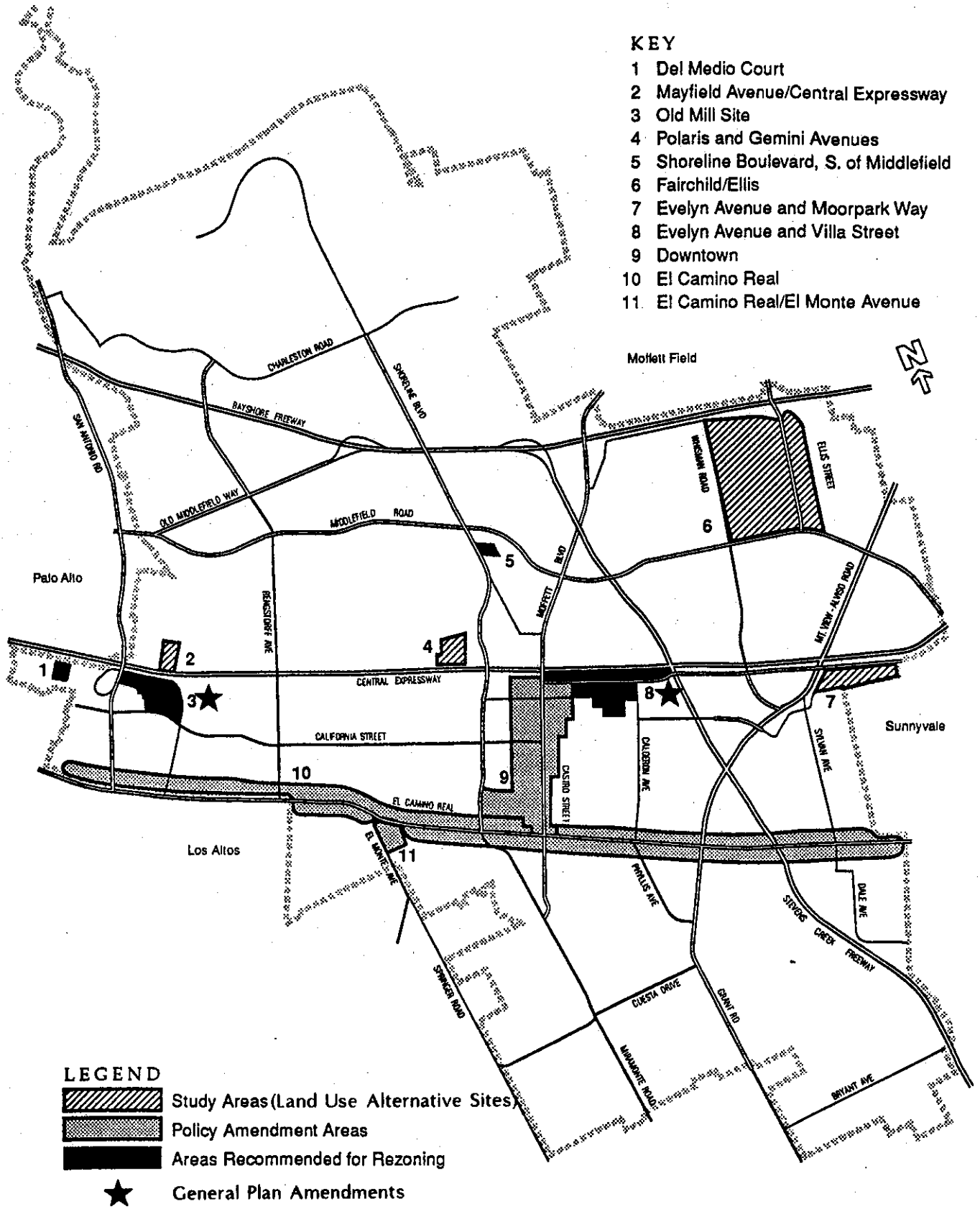
Notes: LUA = Land Use Alternative RR = Redevelop for Residential DU = Dwelling Units EPC Rec = Environmental Planning Commission Recommendation

* The Old Mill Site ("Site 7") was approved with a total of 720 dwelling units.
** 370 units already built and occupied after EIR preparation initiated.



NOTE: Information corresponds to Table .

ORIGINAL EIGHTEEN POTENTIAL HOUSING SITES FIGURE 5



NOTE: Information corresponds to Table .

ELEVEN POTENTIAL HOUSING SITES FIGURE 6

The land use map changes on these two sites would allow up to 1,085 new housing units and a reduction of 880 jobs on a total of 44 acres.

Of the remaining nine potential housing sites, the five residential redevelopment sites do not require General Plan amendments. However, the four land use alternative sites ("study sites") would require Land Use Map amendments, if they were designated for housing. Eight of the 11 sites (including the two General Plan amendment sites) will require rezonings to allow residential development. The remaining three sites would require Zoning Ordinance and Precise Plan changes. These sites are described below in the section entitled "Potential Housing Sites."

Potential Housing Sites

In order to fully evaluate the implications of the goals, policies and action programs contained in the 1992 General Plan Update that are related to the provision of additional housing in Mountain View, this EIR generally addresses the potential impacts associated with the possible rezoning or Zoning amendments for 11 sites that may be redeveloped with residential uses. Table 8 provides a list of these 11 sites. While this EIR does not provide environmental review for the future rezoning and other development approvals, this EIR does provide the decision makers with information regarding the possible future impacts associated with the development of residential uses on the 11 potential housing sites, should the City decide to pursue rezonings in the future.

The goals, policies, and action programs contained in the 1992 General Plan would result in the following **future actions**:

1) the rezoning of four sites from non-residential to residential uses,
2) future studies on the four land use alternative sites ("study sites"),
3) Zoning Ordinance amendments, Precise Plan changes, and other programs to promote housing on three sites along El Camino Real and in the Downtown.

1. <u>Residential Redevelopment Rezonings</u>

The General Plan Update calls for the future rezoning of four sites from industrial and commercial zoning designations to residential zoning designations. These sites include:

- Evelyn/Villa Street, the Evelyn Avenue Corridor Study Area ("Site 8" in Table 8). In addition to the proposed General Plan amendment to Medium High Density Residential (13-30 du/ac), this rezoning would involve a change from General Commercial (CG) to Residential (R3-2.5) and would allow up to 365 dwelling units.

- Showers/California Street, the Old Mill Site ("Site 3" in Table 8). The rezoning for this site allows up to 720 dwelling units. Although a General Plan amendment and Planned Community Zoning were approved on this site in October, 1991, this site is included in this EIR analysis, because the project approval was granted during the preparation of the General Plan Update.

POTENTIAL 11 HOUS..G SITES IN MOUNTAIN VIEW
PROPOSED SEVEN RESIDENTIAL REDEVELOPMENT SITES AND FOUR LAND USE ALTERNATIVE SITES

Site #	Area Description	EPC Recommendation	Future Approval	Current Zoning	Potential Zoning	Area Acres	Potential DU/Acre	Potential Unit	Key to Figure 6
1	Del Medio Court (Sears WH)	Project	Residential Redevelopment Site recommended for rezoning.	MM	R#-2.2	4	18	72	
2	Mayfield Ave. /Central Exp (HP)	Alternative	Land Use Alternative addressed in the Alternative Section.	PC-off/Comm	R3-3	4	12	48	
3	Old Mill Site (Showers./Calif.)	Project	Residential Redevelopment Site recommended for rezoning.	PC-Com	PC-Res	18	35	720	
4	Polaris and Gemini Avenues	Alternative	Land Use Alternative addressed in the Alternative Section.	ML	R3-2	7	21	147	
5	Shoreline Blvd. s/o Middlefield	Project	Residential Redevelopment Site Recommended for rezoning.	PC-Ind	R3-2	3	20	60	
6	Fairchild Dr. and Ellis Street	Alternative	Land Use Alternative addressed in the Alternative Section.	ML	R3-2	126	20	2,520	
7	Evelyn Ave. and Moorpark Way	Alternative	Land Use Alternative addressed in the Alternative Section.	PC-Ind	R3-1.5	17	25	425	
8	Evelyn Ave. and Villa Street	Project	Residential Redevelopment Site recommended for rezoning.	CG	R3-2.5	17	15	365	
9	Downtown	Project	Residential Redevelopment Site requiring Policy Amendment.	PC-Mixed Use	PC-Mixed Use	48	15	720	
10	El Camino Commercial Strip	Project	Residential Redevelopment Site requiring Policy Amendment.	C3	C3	150	40	500	
11	SE Corner of El Camino/El Monte	Project	Residential Redevelopment Site requiring Policy Amendment.	RC-Mixed Use	RC-Mixed Use	6	25	150	
							Sub-Total Residential Redevelopment Sites	2,587	
							Sub-Total Land Use Alternative Sites	3,140	
							Total	5,727	

Legend

- Study Areas (Land Use Alternative Sites)
- Policy Amendment Areas
- Areas Recommended for Rezoning
- ★ General Plan Amendments approved as part of the project

11 POTENTIAL HOUSING SITES IN MOUNTAIN VIEW

SEVEN RESIDENTIAL REDEVELOPMENT SITES

Site #	Area	Future Approval	# of Units	Key
1	Del Medio Court (Sears WH)	Rezoning	72	■
3	Old Mill Site (Showers/Calif.)	Rezoning	720	■ ★
5	Shoreline Blvd. s/o Middlefield	Rezoning	60	■
8	Evelyn Ave. and Villa Street	Rezoning	365	■ ★
9	Downtown	Policy Amendment	720*	▒
10	El Camino Commercial Strip	Policy Amendment	500	▒
11	SE Corner of El Camino/El Monte	Policy Amendment	150	▒
	Sub-Total Residential Redevelopment Sites		2,587	

* 370 units already built and occupied.

FOUR LAND USE ALTERNATIVES SITES

Site #	Area	Future Approval	# of Units	Key
2	Mayfield Ave./Central Exp (HP)	Future Studies	48	▨
4	Polaris and Gemini Avenues	Future Studies	147	▨
6	Fairchild Dr. and Ellis Street	Future Studies	2,520	▨
7	Evelyn Ave. and Moorpark Way	Future Studies	425	▨
	Sub-Total Land Use Alternative Sites		3,140	

LEGEND

▨ Study Areas (Land Use Alternative Sites)

▒ Policy Amendment Areas

■ Areas Recommended for Rezoning

★ General Plan Amendments approved as part of the project

- Del Medio Court, Sears Warehouse ("Site 1" on Table 8). The existing General Plan designation is High Density Residential (12+ du/ac). This rezoning would involve a change from Industrial (MM) to Residential (R3-2.2) for a total of 72 dwelling units.

- Shoreline Boulevard south of Middlefield Road ("Site 5" on Table 8). The General Plan designation on this site is High Density Residential (12+ du/ac). This rezoning would involve a change from PC-Commercial to PC-Residential with a 30 year amortization. A total of 60 dwelling units could be developed on this site.

Only one of four sites, the Evelyn/Villa Street site, involves a change to the General Plan Land Use Map. The second site, the Old Mill Site, recently received an approval for a General Plan change and rezoning to residential uses. Therefore, one of the four sites (Site 8) represents a General Plan amendment and three of the four sites (Sites 1, 5, and 8) represent new rezonings. These four sites (including Site 3) would result in a total of 1,217 future dwelling units.

2. Future Studies of Sites with Potential for Residential Redevelopment

The General Plan Update calls for further studies for four of the 11 sites, prior to pursuing any rezoning of these properties. The General Plan Update identifies these sites as *land use alternatives* ("study sites") which include:

- Fairchild/Ellis Street industrial area ("Site 6" on Table 8). This site will be studied for a range of possible uses including mixed use, housing, and industrial uses that support light rail and revitalize the area. The maximum number of potential units is approximately 2,520.

- Evelyn/Moorpark industrial service area ("Site 7" on Table 8). This site will be studied to determine the potential for private residential redevelopment and rezoning from PC-Industrial to Residential (R3-1.5). This rezoning could allow up to 425 dwelling units.

- Polaris/Gemini Avenue industrial area ("Site 4" on Table 8). This site will be studied to determine the potential for private residential redevelopment and rezoning from Light Industrial (ML) to Residential (R3-2). This rezoning could allow up to 147 units.

- Mayfield Avenue/Central Expressway commercial/office area ("Site 2" on Table 8). This site will be studied to determine the potential for private residential redevelopment and rezoning from PC-Office/Commercial to Residential (R3-3). This rezoning could allow up to 48 units.

These four land use alternative sites represent a total of 3,140 potential dwelling units. An evaluation of the impacts associated with these four *land use alternatives* sites in addition to the four residential rezoning sites and the three policy change sites is included in SECTION IV., ALTERNATIVES of this EIR.

3. Zoning Ordinance Amendments, Precise Plan Changes, and Policy Changes

The General Plan Update action programs contained in the Community Development Chapter call for future policy and precise plan changes to establish additional housing. These action programs reflect changes to the text of the General Plan, but do not reflect changes to the General Plan Land Use Map. These sites identified for Zoning Ordinance, Precise Plan, and policy amendments are included as residential redevelopment sites. The following future approvals are identified as action programs:

- Amend the Downtown Precise Plan to encourage the development of new housing in the Downtown area ("Site 9" on Table 8). This could allow the development of up to 720 additional dwelling units, including the 370 dwelling units constructed and occupied since the time the General Plan Update analysis was initiated.

- Amend the Precise Plan for the site located at the Southeast corner of El Camino Real and El Monte Avenue ("Site 11" on Table 8). This Precise Plan amendment would allow multiple-family housing as a permitted use instead of a conditional use. This may encourage the development of 150 additional housing units, at a density of 25 dwelling units to the acre.

- Allow mixed-use housing as a permitted use along the El Camino Real commercial district ("Site 10" on Table 8). This would encourage the development of an estimated 500 dwelling units.

These Zoning Ordinance, Precise Plan, and policy changes could encourage the development of up to 1,370 dwelling units (including the 370 units already constructed in the Downtown Precise Plan area). Together, the ordinance, Precise Plan, and policy changes and the four identified residential redevelopment sites requiring rezonings would result in a total of 2,587 future housing units.

D. PROJECT OBJECTIVES

The purpose of the proposed General Plan update is to:

- Update the goals, policies, and action statements that affect the physical, social, economic, and environmental character of the City;

- Define a realistic vision of what the community intends to be in 15 years;

- Chart the course of conservation and development that will determine the future character of Mountain View and the nature of its environment; and,

- Serve as a collective community memory of issues raised and directions chosen during the process that updated the plan.

The purpose of the proposed General Plan amendments to the Land Use Map are to:

- Establish new land use categories that are reflective of existing land uses,
- Establish new land use categories that would allow increased residential development opportunities, and
- Establish consistency between the General Plan and the Zoning Ordinance and Zoning Ordinance Map.

E. USES OF THE EIR

The City of Mountain View is the Lead Agency under CEQA and requires environmental review prior to initiating its discretionary approvals for the proposed Mountain View General Plan Update. This Program Environmental Impact Report provides the environmental review and informs the decision makers and the public of the environmental impacts associated with adopting the proposed General Plan Update.

The City of Mountain View will use this EIR in various aspects of the project approval process. This EIR will provide the environmental review for the following discretionary approvals: adoption of the 1992 General Plan Update, including related text amendments and corresponding changes to the General Plan Land Use Map, as described above. The approval of the changes to the General Plan Land Use Map would allow the future development of Medium High Density Residential (13-30 du/ac) in the Evelyn Avenue Corridor Study Area at Evelyn Avenue and Villa Street and Medium High Density Residential (13-30 du/ac) at the Old Mill Site (Showers and California).

This EIR may be used for actions which are consistent with the 1992 General Plan goals, policies, and action statements. The EIR may be used to provide environmental review for the following actions. However, it is likely that subsequent environmental review will be required, depending upon the nature of these discretionary approvals, and their associated environmental impacts.

- Future General Plan amendments that are consistent with the 1992 General Plan,
- Special studies listed under the action statements that are required by or related to the implementation of the General Plan policies,
- Ordinances which implement General Plan policies,
- Policies adopted by the City Council to implement the General Plan,
- Zoning actions consistent with the General Plan, and
- Subdivisions.

This EIR is further intended to be used by the surrounding jurisdictions and responsible agencies as a reference document.

SECTION II

CONSISTENCY WITH FEDERAL, STATE, LOCAL AND REGIONAL PLANS, GOALS AND POLICIES

A. FEDERAL POLICIES

Clean Air Act

The purpose of the Clean Air Act is to protect and enhance air quality, as well as to promote the public health and welfare of the population. The U.S. Environmental Protection Agency established a set of Ambient Air Quality Standards which are primarily implemented by state and local agencies.

Consistency: The Environmental Management Chapter of the General Plan Update includes one goal, three policy statements and 13 action statements that are designed to protect and enhance air quality in Mountain View and the region. The Circulation Chapter contains eight goals, 24 policies, and 66 action programs designed to protect and enhance air quality by reducing dependence on the single-occupant vehicle. Residential development of the redevelopment sites with proposed amendments to the General Plan Land Use Map would also be consistent with the Clean Air Act, since the development would occur near transit facilities and jobs, thereby reducing commute travel distances, improving access to public transportation, and reducing corresponding air pollutant levels.

Air Installation Compatible Use Zone (AICUZ)

The Federal Aviation Administration (FAA) has regulatory authority over military air traffic. The Airport Land Use Commission (ALUC) Plan does not apply to NAS Moffett Field. The FAA guidelines are established in the form of the Air Installation Compatibility Use Zone (AICUZ). The Department of Defense prepared a study for NAS Moffett Field in 1976 to analyze land use compatibility around Moffett Field. This study was updated in 1982 with new noise contours. The study designated zones based upon noise levels and accident potential to limit development around Moffett Field. Additional purposes of the study included establishing or continuing liaison with adjacent communities to encourage compatible land uses, informing the public of the AICUZ program, and protecting the air installation's operational capabilities.

The *Air Installation Compatible Use Zones* are designated areas where aircraft operations can adversely impact certain land uses. Land uses must be setback 750 feet in each direction from the runway centerline and 3,000 feet from the end of the runway. The AICUZ also establishes Accident Potential Zones and Noise Zones (see Figure 20). The AICUZ applies land use restrictions on a small percentage of Mountain View. This area is primarily located at the intersection of Route 237 and US 101.

Consistency: The General Plan Update provides policies and action statements for the provision of public safety and acceptable noise levels for land uses within Mountain View that could be affected by Moffett Field operations. The General Plan Update does not propose to locate any sensitive land uses within the designated AICUZ.

Safe Drinking Water Act of 1974

The goal of the Safe Drinking Water Act of 1974 is to assure safe drinking water for all persons served by public water systems. In particular, the Act contains specific provisions for the protection of aquifers that are sources of drinking water and for surface water sources.

Consistency: The General Plan Update includes goals, policies, and action statements to ensure the quality of surface water bodies and groundwater sources of the City's water supply is maintained.

Federal Water Pollution Control Act of 1972 and Clean Water Act of 1977

The Federal Water Pollution Control Act (FWPCA) of 1972 and the Clean Water Act of 1977, along with amendments added in 1981 and 1987, contain comprehensive provisions to *restore and maintain the chemical, physical, and biological integrity* of the nation's water resources in seven provisions. Together, these acts require the following: 1) that the Environmental Protection Agency (EPA) establish a system of national effluent standards for major water pollutants, 2) that municipalities use at least secondary sewage treatment, 3) that regulations be established for safe water and elimination of the discharge of 129 priority pollutants, 4) a permit for the point source and non-point source discharge of pollutants into waterways, 5) that industries use the *best practicable technology* (BPT), and 6) that industries use the more stringent *best available technology* (BAT) by 1987. The seventh provision authorizes federal expenditures to assist states and localities in constructing new secondary sewage plants, upgrading existing plants, or employing innovative waste treatment techniques.

Consistency: Presently, the South Bay area communities are not in compliance with the established water quality regulations. Specifically, high levels of silver and other metals were found discharged into the Bay by the Palo Alto Regional Water Quality Control Plant. Although South Bay communities are not in conformance with various water quality regulations, the City of Mountain View is attempting to ~~improve its status.~~ implement measures to control pollutant discharge. The General Plan Update includes goals, policies, and action statements to ensure the quality of surface water bodies and groundwater sources of the City's water supply is maintained. Implementation of the relevant policies and action programs would be consistent with the goal of ~~maintaining~~ improving the quality of water resources.

National Pollutant Discharge Elimination System Permit Program

The National Pollutant Discharge Elimination System permit program requires an owner or operator of any facility or activity that discharges waste into any surface waters of the United States to obtain a National Pollutant Discharge Elimination Systems (NPDES) permit from the Regional Water Quality Control Board (RWQCB). The NPDES permit is designed to ensure the highest reasonably-attainable water quality.

Consistency: The City of Mountain View is a co-permittee with 14 other public agencies in Santa Clara Valley in obtaining an NPDES permit for municipal storm drainage discharge in

June, 1990. This group NPDES permit applies to the discharge of all sources of runoff in the City not covered by individual NPDES permits. Facilities with individual NPDES permits discharge large amounts of runoff into the Bay. Beginning in 1992, all industrial activities and construction projects larger than five acres will be required to be covered by an NPDES Permit to be issued by the State. The General Plan Update includes goals, policies, and action statements to ensure the quality of stormwater discharge is maintained and improved.

Dept. of the Army, Chief of Engineers Wetlands Policy

This policy discourages the alteration or destruction of wetlands which are considered productive and valuable public resources.

Consistency: The General Plan Update does not propose the alteration or destruction of wetlands. In addition, the General Plan Update provides goals, policies, and action statements designed to protect and enhance the existing wetlands located in the Shoreline area of Mountain View. Therefore, the General Plan Update is consistent with this policy.

Executive Order 11990 - Protection of Wetlands

Under this order, Federal agencies must provide direction to minimize the destruction, loss or degradation of wetlands. Federal agencies should avoid, to the greatest extent feasible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Agencies should also avoid new construction, unless no practicable alternative exists and all practicable measures have been implemented to minimize harm to wetlands.

Consistency: The General Plan Update does not propose the alteration or destruction of wetlands. In addition, the General Plan Update provides goals, policies, and action statements designed to protect and enhance the existing wetlands located in the Shoreline area of Mountain View. Therefore, the General Plan Update is consistent with this order.

Federal Endangered Species Act

The federal Endangered Species Act (ESA or the Act) was passed in 1973 and has since been amended and reauthorized. The Act provides a process for listing species as either "endangered" or "threatened" and methods of protecting listed species. The ESA has several major sections, usually referred to by number.

The Act defines as "endangered" any species which is in danger of extinction throughout all or a significant portion of its range (other than certain species of Insecta). A "threatened" species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Additional species of concern are divided into three further categories:

a) Proposed listing as threatened or endangered;
b) C1 Candidate, enough data are on file to support the federal listing; and
c) C2 Candidate, threat and/or distribution data are sufficient to support federal listing.

The Act dictates that all federal departments and agencies shall use their authority to conserve endangered and threatened species. Procedural rulemakings provide for interagency cooperation with USFWS in meeting the goals of Act.

Consistency: The EIR for the General Plan Update identifies the listed and special status plant and animal species located in the Mountain View Sphere of Influence. The General Plan Update proposes goals, policies, and action statements to protect and enhance the habitat for rare, threatened, and endangered species, as well as, species of special concern. Therefore, the General Plan Update is consistent with the goals of this act.

Toxic Air Contaminants

Assembly Bill 2588, the Toxic "Hot Spots" Information and Assessment Act of 1987, requires that industry provide information to the public about emissions of toxic air contaminants and their impact on public health. This law requires local air districts and the state Air Resources Board to prepare a detailed inventory of sources of over 200 toxic air contaminants, the identification of high priority emission sources, and the preparation of health risk assessment for each of these priority sources.

Consistency: The General Plan Update EIR includes a discussion of the Toxic Air Contaminants from stationary sources in Mountain View. The General Plan Update includes goals, policies, and action statements pertaining to stationary sources of air pollutants in Mountain View.

Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery Act of 1976 (RCRA) regulates the disposal of both non-hazardous and hazardous wastes. For non-hazardous wastes, this Act required the closure of all open dumps (uncovered land disposal sites where solid and liquid wastes are deposited) or upgrading to landfills by 1983, and banned the establishment of new open dumps. A landfill is a land waste disposal site in which the waste is covered intermittently with a layer of earth. RCRA also requires the Environmental Protection Agency (EPA) to identify hazardous wastes, to set standards for their management, and to issue guidelines for waste management.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which may result in the future development of residential uses in areas with documented hazardous materials contamination. Several of the documented sites are listed under RCRA. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards.

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), the Emergency Planning and Community-Right-To-Know Act, mandated the formation of local emergency planning committees (LEPCs) for the purpose of improving community preparedness for hazardous substance incidents. One of the goals of SARA Title III is to reduce risks, that

cannot be eliminated. The Act allows members of the public to obtain information about hazardous chemicals in the community, possible risks, and emergency procedures.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which may result in the future development of residential uses in areas with documented hazardous materials contamination. Site remediation will be required, if contamination is identified on any of the potential residential redevelopment or land use alternative sites. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards. The General Plan Update contains policies and action statements pertaining to public safety hazards that are consistent with SARA Title III.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA, also referred to as Superfund, was enacted in 1980 to ensure that funds were available to cleanup abandoned hazardous waste sites, compensate victims of contamination, handle releases of hazardous substances, and establish liability standards for Responsible Parties. The Act also established the National Priorities List (NPL) which identifies the sites with the highest priority for cleanup under Superfund. The Environmental Protection Agency implements CERCLA, although there is some State and local involvement.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which would result in the future development of residential uses in areas with documented hazardous materials contamination. Several of the documented sites are listed under CERCLA. Site remediation will be required, if contamination is identified on any potential residential redevelopment or land use alternative sites. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards.

Federal Aviation Administration Part 77 Regulations

The Federal Aviation Administration (FAA) regulates development around civil and military airports through Part 77 Regulations, Objects Affecting Navigable Airspace. Part 77 Regulations establish standards for identifying obstructions (buildings, equipment, and vegetation) in navigable airspace and requirements for notice to FAA of land uses after these obstructions are identified. Both the FAA and the Navy review development adjacent to NAS Moffett Field. The FAA also reviews development adjacent to the Palo Alto Airport north of Mountain View.

Consistency: The General Plan Update provides policies and action statements for the provision of public safety and acceptable noise levels for land uses within Mountain View that could be affected by Moffett Field operations. The General Plan Update does not propose to locate any sensitive land uses within the designated AICUZ, nor does it include the construction of any structures that would exceed the FAA height limit requirements. Therefore, the General Plan Update would be consistent with these regulations.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a federal program designed to reduce federal disaster spending that results from flooding. Subsidized flood insurance is conditioned upon

strict land use regulations and permitting procedures, to promote safe development in flood-prone areas. The NFIP covers land affected by flooding due to the 100-Year Flood. These areas are designated by the Federal Emergency Management Agency (FEMA).

Consistency: The General Plan Update would allow future development in areas designated with flood hazards. However, the General Plan Update also includes goals, policies, and action statements, which when enforced, would reduce or avoid significant flooding hazards to a non-significant level. Therefore, the General Plan Update would be consistent with FEMA's National Flood Insurance Program.

National Recreation and Parks Association Standards

The NRPA establishes open space standards which many jurisdictions use as guidelines to quantify and evaluate local open space needs. The NRPA defines mini parks as small facilities serving a specific population (i.e., children or senior citizens), and recommends one-quarter to one half acre per 1,000 people served. Neighborhood parks are higher intensity recreation areas intended to serve a one half mile radius. They require one to two acres per 1,000 people served. A community park is a larger recreational facility consisting of athletic fields, picnic areas, swimming pools, tennis courts, and other recreational uses. District parks generally provide five to eight acres per 1,000 people. In summary, NRPA recommends a total of 6.25 to 10.5 acres of parks and recreational facilities per 1,000 residents.

Consistency: The General Plan Update Environmental Management Chapter includes a policy for the establishment of a priority system for acquiring open space. One of the action statements identified for implementing this policy relies on the continued use of the NRPA standards for evaluating open space demand at the neighborhood level.

B. STATE POLICIES

Safe Drinking Water and Toxic Enforcement Act of 1986

Commonly referred to as Proposition 65, the State Safe Drinking Water and Toxic Enforcement Act serves two primary functions. First, the Act prohibits substances known by the State to cause cancer or reproductive toxicity to be discharged to California waters. Secondly, Proposition 65 prohibits the exposure, without warning, of any individual to substances which cause cancer or reproductive harm. Civil penalties can be assessed for violations of the Act.

Consistency: The General Plan Update includes goals, policies, and action statements to ensure the quality of surface water bodies and groundwater sources of the City's water supply is maintained.

Section 1603 of the State Fish and Game Code

The California Department of Fish and Game (CDFG) under Section 1603 has jurisdiction over all construction activities which may result in the modification of stream channels in the State.

Section 1603 applies to private projects which would result in any alteration of the stream channels. The CDFG interprets this jurisdiction to extend to the edge of riparian vegetation. Therefore, a Stream Alteration Permit must be obtained from CDFG, in order to grade or fill channels, or to remove riparian vegetation.

Consistency: The General Plan Update does not propose the alteration or destruction of wetlands, riparian corridors, or channels. In addition, the General Plan Update provides goals, policies, and action statements designed to protect and enhance the existing riparian corridors along Stevens Creek and part of Permanente Creek, and wetlands located in the Shoreline area of Mountain View. Although the General Plan includes policies to protect riparian corridors in Mountain View, the Santa Clara Valley Water District is primarily responsible for maintaining creeks that flow through the city. As a result, the City has limited control over the riparian corridors.

State of California Wetlands Policy

This policy applies to the protection of marshlands and other wetlands.

Consistency: The General Plan Update does not propose the alteration or destruction of wetlands. In addition, the General Plan Update provides goals, policies, and action statements designed to protect and enhance the existing wetlands located in the Shoreline area of Mountain View. Therefore, the General Plan Update is consistent with this policy.

California Endangered Species Act

The California Department of Fish and Game (CDFG) is the state's trustee agency for endangered and threatened species under the California Environmental Quality Act (CEQA). Section 15065(a) of the CEQA Guidelines declares that impacts on rare or endangered plants or animals are significant. The passage of the California Endangered Species Act (CESA) in 1984 gave CDFG a clearly defined responsibility to review proposed projects for impacts on California species listed as rare, threatened or endangered. CESA defines California endangered species as those whose continued existence is jeopardized. California's rare or threatened species, although not presently threatened with extinction, are in such small numbers throughout their range that they may become endangered if their environments change or deteriorate. CESA established a policy that State agencies should not approve projects that would jeopardize listed species or cause the destruction or adverse modification of essential habitat for listed species.

Consistency: The EIR for the General Plan Update identifies the listed and special status plant and animal species located in the Mountain View Sphere of Influence. The General Plan Update proposes goals, policies, and action statements to protect and enhance the habitat for rare, threatened, and endangered species, as well as, species of special concern. Therefore, the General Plan Update is consistent with the goals of this act.

California Government Code Section 65032

The California Government Code Section 65032(e) requires that *every City and county shall prepare, adopt, and submit to the Secretary of Resources Agency a local open space plan for*

the comprehensive and long range preservation and conservation of open space land within its jurisdiction. The Open Space section is a local plan consisting of adopted goals, policies, and action programs for the preservation and protection of open space. Open space is defined as a parcel or area of land or water that is essentially unimproved and devoted to an open space use for the purposes of (1) the preservation of natural resources (wildlife habitat, water, energy, etc.), (2) the managed production of resources, (3) outdoor recreation, and (4) public health and safety. California law requires that the Open Space Element include:

- *An inventory of privately and publicly owned open-space lands,*
- *Goals and policies for preserving and managing open-space lands, and*
- *A program of specific implementation measures.*

Consistency: The General Plan Update includes goals, policies, and action statements for the provision of open space in Mountain View, and is, therefore consistent with this code. The majority of the open space goals and policies are contained in the Open Space Element of the Environmental Management Chapter.

California Integrated Waste Management Act

In 1989, California passed the Integrated Waste Management Act (AB 939). The Act is a package of new legislation that focuses on waste reduction and recycling, promotes an integrated waste management system, and expands markets for recycled material. AB 939 requires cities in California to reduce landfilled solid waste by 25 percent by 1995, and by 50 percent by 2000. The Act requires that each county prepare an Integrated Waste Management Plan to replace the existing County Solid Waste Management Plans. These new plans are required to include source reduction and recycling elements from each city located in the county. Mountain View adopted the Source Reduction and Recycling Element and the Hazardous Waste Management Element on December 10, 1991.

Consistency: In accordance with the Integrated Waste Management Act, Mountain View is evaluating the City's waste stream. This evaluation was completed in the spring of 1991. The Environmental Management Chapter of the General Plan Update also includes policies and action statements to further encourage solid waste reduction, recycling, and reuse.

Hazardous Waste Control Act

The Hazardous Waste Control Act (HWCA), Chapter 6.5 of Division 20 of the Health and Safety Code, contains the primary State statutory provisions for governing hazardous waste management. The HWCA requires the State Department of Health Services (DHS) to adopt regulations for identifying and managing hazardous wastes.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which may result in the future development of residential uses in areas with documented hazardous materials contamination. The existing land uses that use, handle, store, or dispose of hazardous materials in the areas proposed for residential development are generally regulated by the Department of Health Services. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards.

Uniform Fire Code

The Uniform Fire Code establishes maximum levels of risk and identifies resources needed to address fire hazards. Acceptable risk is defined by local plans and ordinances. The Fire Code emphasizes fire prevention, including the use of nonflammable construction materials, automatic alarms and sprinkler systems, and a diligent building inspection program. Mountain View's Fire Department reviews building plans, as part of the Site Plan and Architectural Review (SPAR) process, and emphasizes improving fire safety through building design and construction reduces risks of personal and property damage.

Consistency: The General Plan Update includes goals, policies, and action statements to reduce the potential for fire hazards. One of these measures requires that future development in Mountain View conform to the Uniform Fire Code.

Toxic Substance Control Act

This act establishes testing and regulation of new chemicals introduced each year. The act was established to ensure investigation of these chemicals prior to human and environmental exposure. Under this act, the EPA compiles information needed to examine new and "new use" chemicals, issues testing guidelines, and regulates the production, use, distribution, and disposal of hazardous chemical substances. The Act also includes provisions for exemption, trade secrets, testing, cost-sharing, and regulations and banning of PCBs (polychlorinated biphenyls).

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which may result in the future development of residential uses in areas with documented hazardous materials contamination. The existing land uses that use, handle, store, or dispose of hazardous materials in the areas proposed for residential development are generally regulated by the Department of Health Services. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards.

Hazardous Substances Account Act (State Superfund)

This act is the state equivalent of CERCLA and SARA. The act provides for the State of California to conduct hazardous waste investigations at private and state cleanup sites in order to expedite waste removal.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which would result in the future development of residential uses in areas with documented hazardous materials contamination. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards. The General Plan Update contains policies and action programs pertaining to public safety hazards that are consistent with this act.

Sher and Cortese Acts Pertaining to Underground Storage Tanks

State regulations for underground storage tanks (USTs) are contained in the Sher and Cortese Acts. These regulations establish standards applicable to the closure and reuse of USTs, define procedures for reports UST leaks, and maintain UST inventory data. The tanks under this

catagory must be visually monitored and have secondary containment. An underground tank tester has to be certified by the State Water Board.

Consistency: The Environmental Management Chapter includes action statements related to the regulation of the storage of hazardous materials. These action statements would be consistent with the Sher and Cortese Acts.

Beverage Container Recycling and Litter Reduction Act

The Beverage Container Recycling and Litter Reduction Act was passed in 1986 to establish a system to promote the recycling and reuse of beverage containers sold in California. The Act required the location of a certified recycling facility in every convenience zone (an area within a one-half mile radius of large volume supermarkets) by October 1, 1987. Dealers selling beverages (in beverage containers) in convenience zones that did not have recycling facilities by January 1, 1988, were fined or required to redeem those containers at the store until a certified redemption recycling facility was established. Almost 13 billion beverage containers were sold in California in 1988, representing approximately 10 percent of the total beverage container sales in the United States. In 1988, Californians recycled over 6.6 billion beverage containers (51 percent of those sold), equivalent to 220 containers for every resident of the state. The Act pursues a goal of 80 percent recycling for the four beverage container types (aluminum, glass, plastics, and non-aluminum).

Consistency: The Environmental Management Chapter of the General Plan Update includes policies and action statements to further encourage solid waste reduction, recycling, and reuse.

Recycling Legislation

In addition to the legislation discussed above, other recently enacted recycling legislation includes:

- SB 1221 which redefines payments made to the recycling program,
- SB 1451 Convenience Incentive Payments (CIP),
- SB 933 beverage container manufacturers audit,
- SB 926 display of redemption payment information,
- SB 125 regarding CIP suspensions,
- AB 940 to implement a pilot mobile buy-back program,
- AB 1001 revisions to payments for recycling,
- AB 1020 curbside program information,
- AB 1097 convenience zone effectiveness,
- AJR 13 (Assembly Joint Resolution) to establish a federal recycling policy.

Consistency: The Environmental Management Chapter of the General Plan Update includes policies and action statements to further encourage solid waste reduction, recycling, and reuse.

Tanner Bill, AB 2948

In 1986, the Tanner Bill was adopted to require hazardous waste policies and programs in all counties in California. The Tanner Bill only applies to proposed new commercial off-site hazardous waste management facilities, or expansions of existing facilities, if a local discretionary action is required. The law requires counties to develop Hazardous Waste Management Plans for review and approval by the State's Department of Health Services. Pursuant to this legislation, the Department of Health Services (DHS) prepared the Guidelines for the Preparation of Hazardous Waste Management Plans.

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which may result in the future development of residential uses in areas with documented hazardous materials contamination. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards. The General Plan Update contains policies and action statements pertaining to public safety hazards that are consistent with the County's Hazardous Waste Management Plan that is prepared in conformance with the Tanner Bill. The General Plan also includes the adoption of the County's Hazardous Waste Management Plan by reference, in order to conform to the "Greene Bill."

C. REGIONAL PLANS AND POLICIES

Association of Bay Area Governments (ABAG) The San Francisco Bay Area Environmental Management Plan

This plan was prepared in 1981 by ABAG with the assistance of the Bay Area Air Quality Management District (BAAQMD), under the direction of the Environmental Management Task Force. The plan addresses problems of regional water quality, water supply, solid waste, and air quality in an attempt to meet State and Federal standards. In addition, the plan designates agencies that are responsible for executing these activities.

Consistency: The General Plan Update includes goals, policies, and action statements to address local water quality, water supply, solid waste, and air quality problems within Mountain View. Regional issues are also addressed in the General Plan Update, where appropriate. Therefore, the project is consistent with the Environmental Management Plan.

ABAG Regional Plan 1980, July, 1980

This plan is an update and revision of the ABAG Regional Plan 1970-1990, and combines policies from subsequently adopted plan elements and other ABAG actions. The plan consists of Regional Strategies and Sub-regional Planning Area, Objectives, Policies and Strategies.

Consistency: The General Plan Update includes goals, policies, and action statements to address housing, open space, vegetation/wildlife resources, local water quality, water supply, solid waste, traffic, and air quality problems within Mountain View. These issues are also

addressed on a regional basis, where appropriate, in the General Plan Update. Therefore, the project is consistent with the ABAG Regional Plan.

1982 Bay Area Air Quality Plan and 1991 Clean Air Plan ABAG/BAAQMD/MTC

The Bay Area Air Quality Management District (BAAQMD) is a regional agency empowered to regulate air quality. The BAAQMD's Air Quality Plan identifies air pollutant control strategies, including new source emissions controls and more stringent control of currently regulated sources, to attain mandated Federal and State air quality standards. New development must be consistent with the strategies of the BAAQMD for reducing levels of two non-attainment criteria pollutants: carbon monoxide (CO) and ozone (O), and for maintaining the attainment levels of the other criteria pollutants: nitrogen dioxide (NO), sulfur dioxide (SO), total suspended particulates (PM-10), and lead (Pb). The BAAQMD regulates air quality both through emissions standards, which limit the amount of air pollutants discharged into the atmosphere, and through ambient air quality standards, which limit the total concentration of a specific pollutant in the atmosphere.

The 1982 Bay Area Air Quality Plan and 1991 Clean Air Plan ('91 CAP) establish regional policies and guidelines to meet the requirements of the Clean Air Act, as amended through 1990. The Bay Area is a non-attainment area for ozone and carbon monoxide since Federal standards are exceeded for these pollutants. Though the Clean Air Act stipulated that standard attainment must occur by 1987, Bay Area pollutants still exceed these standards. The '91 CAP mandates meeting the more stringent State air quality standards and establishes rates of progress toward this goal. Each nonattainment area adopted detailed plans in late 1991, to demonstrate new control programs and schedules for their implementation.

Consistency: The Environmental Management Chapter of the General Plan Update includes one goal, three policy statements and 13 action statements that are designed to protect and enhance air quality in Mountain View and the region. Action statements consistent with the Transportation Control Measures identified in the CAP '91 are also included in the General Plan Circulation Chapter. Residential development of the redevelopment sites with proposed amendments to the General Plan Land Use Map would also be consistent with the Clean Air Act, since the development would occur near transit facilities and jobs, thereby reducing commute travel distances and corresponding air pollutant levels.

San Francisco Bay Regional Water Quality Control Plan

The 1982 Water Quality Control Plan by the Regional Water Quality Control Board has preliminarily recommended the discontinuation of discharge of sewage effluent into South San Francisco Bay. Although sewage is treated at the tertiary level prior to discharge by the Palo Alto Regional Water Quality Control Plant, the effect on bay water is still a sensitive concern. Specifically, the main water quality problem has been the high metal contamination.

The 1986 Water Quality Control Plan identified the South San Francisco Bay as an impaired water body under Section 304.L of the Clean Water Act. The Santa Clara County NPS Pollution Control Program was formed in response to Section 304.L, as an Individual Control Strategy,

as mandated by the EPA. Mountain View is one of 15 public agencies in Santa Clara Valley that are active participants in this program.

Exemption from the discharge prohibition would be allowed if it can be demonstrated that continued discharge would enhance the quality of the receiving waters and would result in an environmental net benefit. In response to these requirements the South Bay Dischargers Authority, formed by the cities of San Jose, Santa Clara, Palo Alto, and Sunnyvale, commissioned a five year study (commencing in December 1981) of the water quality and biological resources of the South Bay. The study was completed and the Regional Board found a net benefit in continued effluent discharges into the lower South San Francisco Bay. Consequently, a new NPDES permit was issued to the South Bay Dischargers Authority in 1989.

Subsequent to the issuance of the new NPDES permit, the State Water Quality Control Board acted on appeal by CBE and reversed the concept of net benefit. The Regional Board was then ordered to issue a revised permit in 1991. This revised permit lowered the metal limits. The South Bay Dischargers Authority has not yet achieved compliance.

Consistency: The General Plan Update identifies the quality of water in the Bay, ponds, creeks, and other surface water resources as an issue of concern. The General Plan Update includes goals, policies, and action statements to ensure surface water quality is maintained. The General Plan Update is, therefore, consistent with this plan.

Santa Clara County Solid Waste Management Plan

The Solid Waste Management and Resources Recovery Act requires counties to prepare comprehensive solid waste management plans. *The Solid Waste Management Plan of Santa Clara County* (CoSWMP) was prepared in response to the Resources Recovery Act. The Plan was jointly adopted by the County and 15 cities in 1976 and approved by the State Solid Waste Management Board in 1978. The Plan established four solid waste management service areas: the Northwest Area, Central Area, Southwest Area, and South County Area. Mountain View is located in the Northwest Area with Palo Alto, Los Altos, and Los Altos Hills. The Plan calls for an extensive resource recovery program which would reduce the volume of material deposited at landfill sites located in the County.

Under AB 939, counties are required to prepare Integrated Waste Management Plans which replace the CoSWMP. Under AB 939, counties which have more than eight years of landfill capacity, such as Santa Clara County, have until January 1, 1994 to submit their new county plans for approval. Therefore, the existing CoSWMP, revised in 1989, serves as a planning guide for the next four years.[1]

The 1989 Revision of the Santa Clara CoSWMP describes the countywide solid waste management system and establishes goals, policies, and an implementation plan for short, medium, and long-term planning horizons. The Plan focuses on solving the countywide problem of insufficient long-term disposal capacity through the expansion of resource recovery, improved

[1] As stated in the Sunnyvale SMaRT Station Draft EIR, page III-18.

operations at existing landfills, development of additional long-term capacity, and inter-jurisdictional cooperation. The responsibility for solid waste management falls to the cities.

Consistency: In accordance with the Integrated Waste Management Act, Mountain View is evaluating the City's waste stream. This evaluation was completed in the spring of 1991. The Environmental Management Chapter of the General Plan Update also includes policies and action statements to further encourage solid waste reduction, recycling, and reuse. In addition, the Source Reduction and Recycling Element was adopted on December 10, 1991.

Transportation 2010

Santa Clara County's long range transportation plan, Transportation T2010 was updated in 1991 and will guide the county's transportation system to the year 2000. Its purpose is to provide an integrated intra-county transportation system allowing for convenient and timely travel, including highways, transit, ride-sharing and related land use strategies, so that in the future a more balanced transportation system will offer greater choice. The Transportation 2010 (T2010) Plan Program of Santa Clara County addresses the completion of the improvements listed in the Traffic Circulation Section of this EIR.

Consistency: The traffic analysis conducted for the Circulation Chapter of the General Plan Update assumes that the improvements identified in the T2010 will be implemented by the T2010 Plan's designated year of completion. The General Plan Update policies and action statements pertaining to transportation improvements in Mountain View are consistent with those listed in the T2010 Plan.

Santa Clara County Congestion Management Program

In accordance with Proposition 111, the County of Santa Clara recently completed the preparation of the 1991 Santa Clara County *Congestion Management Program* (CMP). The CMP legislation requires that all urbanized counties in California prepare a Congestion Management Program, in order to obtain each county's share of the increased gas tax revenues. The CMP legislation requires that each CMP contain five mandatory elements: 1) a system definition and traffic Level of Service standard element, 2) a transit service and standards element, 3) a transportation demand management and trip reduction element, 4) a land use impact analysis element, and 5) a capital improvement element. Santa Clara County's CMP includes the five mandated elements (formatted into six elements) and three additional elements, including: a county-wide transportation model and database element, an annual monitoring and conformance element, and a deficiency plan element.

The Santa Clara County CMP includes roadways within the City of Mountain View Sphere of Influence and adjacent to Mountain View that are identified as CMP roadway facilities. These facilities are either principle arterials, freeways, or County expressways, and include the following roadways: El Camino Real (State Route 82), San Antonio Road, State Route 237, State Route 85, U.S. 101, and Central Expressway.

Consistency: The General Plan Update will include policies and action statements requiring conformance to the Congestion Management Program policies. Traffic analyses for future

projects within Mountain View will be required to use a level of service methodology that is consistent with the CMP Level of Service methodology. Impacts to CMP roadway facilities will require mitigation to acceptable levels of service. The General Plan's Level of Service goals are consistent with the CMP goals.

Future land use decisions in Mountain View will require conformance to the CMP. A land use impact analysis will be required to ensure that local land use decisions will not degrade traffic level of service below the established standard for Santa Clara County's CMP roadway facilities within Mountain View and the surrounding region. The Circulation Chapter of the 1991 General Plan contains goals, policies, and action programs to ensure that future land use decisions consider traffic impacts to both local and regional roadway facilities.

Midpeninsula Regional Open Space District

The Midpeninsula Regional Open Space District (MROSD) and Santa Clara County also plan for and manage open space resources in and near Mountain View. MROSD acquires and preserves large areas of open space land in the Santa Cruz Mountains and along the Bay. This land provides open space for low intensity public recreation, wildlife habitat, native vegetation preservation, public safety, and a scenic viewshed. MROSD owns Crittenden Marsh and hillside properties outside of Mountain View's city limits.

Consistency: The General Plan Update identifies goals, policies, and action statements to provide open space resources in and near Mountain View. Coordination with the MROSD will facilitate the maintenance of the existing and future open space areas in the Mountain View.

2020 Task Force Open Space Preservation Program

In 1987, Santa Clara County adopted the Preservation 2020 Task Force *Open Space Preservation Program* to manage and preserve existing open space resources in the County. The program emphasizes inter-jurisdictional cooperation and public and private participation through a combination of acquisition, planning, regulatory and development techniques. Mountain View contributes important open space resources to the County, including Shoreline Regional Recreation and Wildlife Area, Stevens Creek and Permanente Creek.

Consistency: The General Plan Update provides for the acquisition and maintenance of open space resources in Mountain View. The goals, policies, and action statements included in the General Plan Update are consistent with the 2020 Open Space Preservation Program.

Santa Clara County Hazardous Waste Management Plan

The Santa Clara County Hazardous Waste Management Plan (HWMP) was prepared in 1989 to comply with the requirements of AB 2948. The purpose of the County Plan is to evaluate local hazardous waste management issues, and to recommend measures to better protect public health and safety and the environment through the proper management of hazardous waste. The Plan establishes a method of evaluating proposals for hazardous waste management facilities, and offers strategies for developing and implementing a waste reduction program. The CHWMP

does not address nuclear wastes which are under federal regulation, or municipal solid waste, covered by the Santa Clara County Solid Waste Management Plan.

The CHWMP was submitted in 1989 to the Department of Health Services (DHS). As of November, 1990, the Department of Health Services has not approved the Santa Clara County HWMP. The County and DHS are attempting to address various issues pertaining to the Fair Share Agreement. This Agreement among local governments apportions responsibility for the treatment, storage, and disposal of various types of hazardous waste on a regional and mutually equitable basis.[2]

Consistency: The General Plan Update includes changes to the General Plan Land Use Map which would allow the future development of residential uses in areas with documented hazardous materials contamination. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards. The General Plan Update contains policies and action statements addressing public safety hazards that are consistent with the County's Hazardous Waste Management Plan that is prepared in conformance with the Tanner Bill.

Airport Land Use Commission

An airport land use commission (ALUC) is required in each county with a public airport. The ALUC formulates a comprehensive plan to provide for the orderly growth of each public airport and the area surrounding the airport. The plan typically designates large areas of land around the airport for light industrial and commercial uses, since these land uses are more compatible with an airport than are residential uses. Conformance with the ALUC plan takes precedence over city and county General Plans. However, the local legislative body may override the provisions of the ALUC plan, if it makes specific findings to justify such actions, and does so with a two thirds majority vote.

The ALUC for the Palo Alto Airport affects a very small portion of land within Mountain View's city boundary. The ALUC land use restrictions apply to the northernmost portion of Charleston Slough along the border between Palo Alto and Mountain View.

Consistency: The General Plan Update provides policies and action statements for the provision of public safety and acceptable noise levels for land uses within Mountain View that could be affected by aircraft operations. The General Plan Update does not propose to locate any sensitive land uses within the ALUC boundaries that would not meet the ALUC's restrictions. Therefore, the General Plan Update would be consistent with these regulations.

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[2] The Santa Clara County Hazardous Waste Management Plan, page 12-107.

D. LOCAL PLANS AND POLICIES

Mountain View Hazardous Materials Storage Permit Code

The City adopted a Hazardous Materials Storage Permit Code in 1983 to prevent and control the unauthorized discharge of hazardous materials. The Code regulates two classes of hazardous materials: toxic liquids and solids. Any person, firm, or corporation which stores these classes of hazardous materials must obtain a Hazardous Materials Storage Permit. The code also includes regulations for underground storage tanks, primary and secondary containment facilities, and monitoring requirements. In addition, the code requires that a person, firm, or corporation which uses hazardous materials prepare a Hazardous Materials Management Plan, a Hazardous Materials Inventory, and an Emergency Response Plan.

Consistency: Residential uses may be developed in areas with industrial uses permitted to use, store, or dispose of hazardous chemicals. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards associated with the location of residential uses near industrial uses that store hazardous materials.

The General Plan Update contains action statements specifying the continued updating and enforcement of local ordinances regulating the permitted use and storage of hazardous gases, liquids, and solids. Therefore, the General Plan Update would be consistent with the local ordinance.

Mountain View Toxic Gas Ordinance

The City adopted a Toxic Gas Ordinance in the Winter of 1990, that is designed to protect the public from acute exposure to an accidental release of toxic gases. The Toxic Gas Ordinance regulates all materials, regardless of their state (liquid, solid, or gas), if they act as a toxic gas at normal temperature and pressure. Although some toxic gas regulations for specific gases are included in the Uniform Fire Code, the City's Toxic Gas Ordinance (TGO) provides regulations for those gases that were not previously regulated. The Uniform Fire Code primarily regulates toxic medical gases and toxic refrigerant gases at new facilities. The Fire Code only regulates toxic gases at existing facilities if life safety conditions are threatened. The City's TGO is retroactive and requires existing facilities to upgrade their facilities to meet the new standards within three years of the adoption of the ordinance.

Consistency: Residential uses may be developed in areas with industrial uses permitted to use, store, or dispose of hazardous chemicals. Implementation of the General Plan Update goals, policies, and action statements would reduce potential hazards associated with the location of residential uses near industrial uses that store hazardous materials. The General Plan Update contains action statements specifying the continued updating and enforcement of local ordinances regulating the permitted use and storage of hazardous gases, liquids, and solids. Therefore, the General Plan Update would be consistent with the local TGO.

SECTION III

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

A. LAND USE

1. Setting

The City is bounded by San Francisco Bay on the north, the unincorporated Moffett Field Naval Air Station on the northeast, the City of Sunnyvale on the east and southeast, the City of Los Altos on the south and southwest, and by the City of Palo Alto on the west. Mountain View is completely surrounded by urban development except for a northern border of open space (San Francisco Bay).

The Mountain View Planning Area includes 7,600 acres and is roughly 15 square miles. The distance from north, (Shoreline Regional Recreation and Wildlife Area) to south (Los Altos City boundary) is approximately five and one-half miles. From east to west the planning area is about three miles. Mountain View's Sphere of Influence also includes two salt ponds, extending two miles into the Bay, as well as Moffett Field, and 17 acres of Navy housing at Middlefield Road and Moffett Boulevard.

Ninety-five percent of the land in Mountain View is developed. As of 1992, about 43 percent of the City's land use is residential (2,781 acres), 11 percent is commercial and professional offices (717 acres), 19 percent is industrial (1,194 acres), five percent is vacant (314 acres), and the remainder includes public uses, such as city facilities (i.e., reservoirs, City Hall), parks, schools, and agriculture. In March, 1991, approximately 31,741 dwelling units and 26.6 million square feet of commercial, industrial, and office buildings were located in Mountain View. Approximately 789 acres of redevelopable or vacant land remain in Mountain View (see Table 9). The 789 acres consist of 313.5 acres of vacant land and 475.5 acres of redevelopable land[1].

Mountain View has 10 Planning Areas including nine within the City boundaries: North Bayshore, Whisman, Stierlin, Rengstorff, Thompson, San Antonio, Central, Sylvan-Dale, Grant, and Miramonte. The tenth Planning Area, Moffett Field, is located outside the City's boundaries, but within the Sphere of Influence[2]. The land uses characterizing each Planning Area are provided below (see Figure 7).

Moffett Planning Area

The Moffett Planning Area includes the land between the Moffett Field aircraft runways and Stevens Creek. The General Plan Land Use Map classifies this area as Institutional. There are

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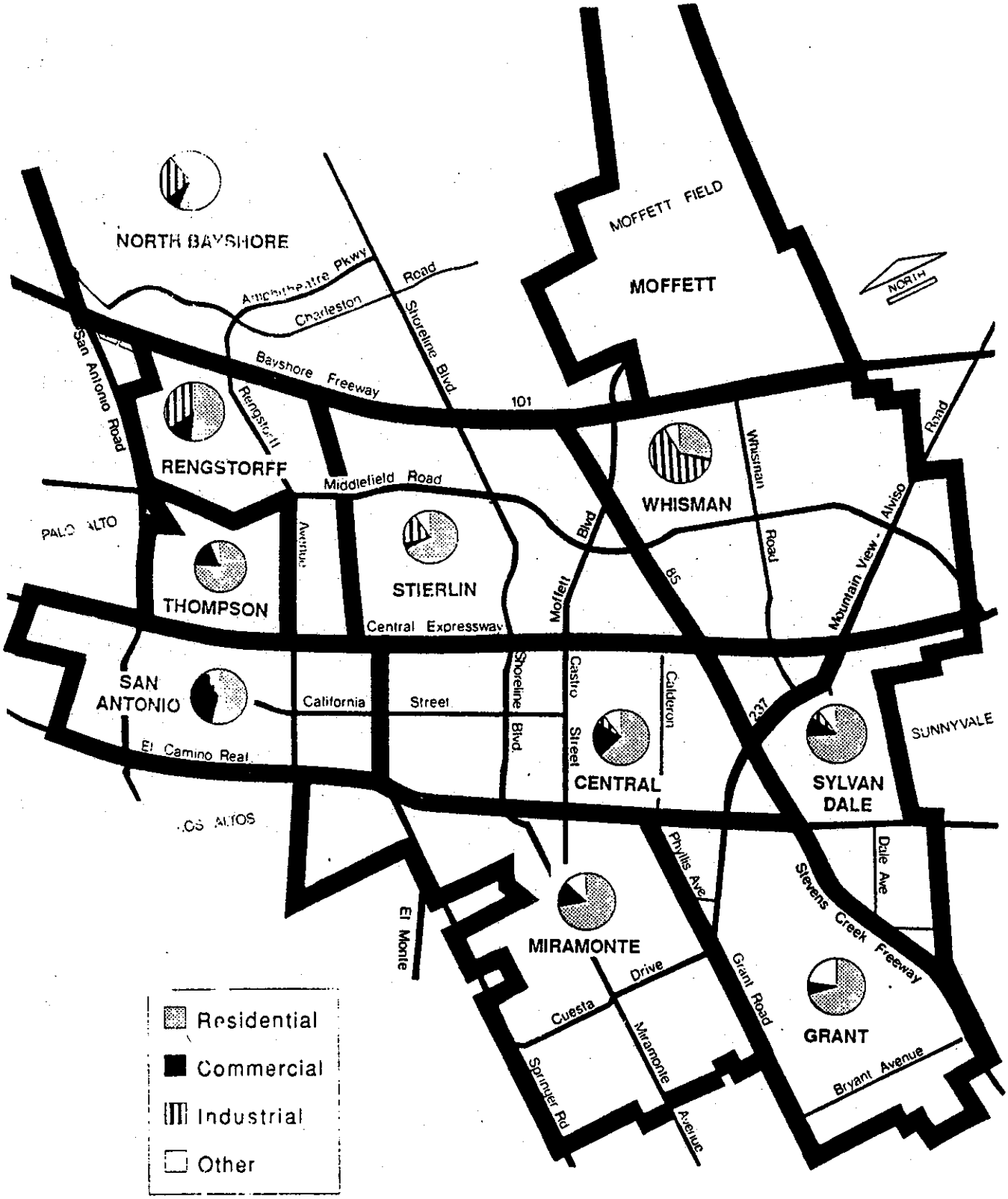
[1] Redevelopable land is defined as land that is greatly underutilized, currently occupied by a nonconforming use, or is one of the housing sites that the Environmental Planning Commission is recommending for future rezoning.

[2] The Sphere of Influence boundary is defined by the Local Agency Formation Commission (LAFCo) and includes those areas that would be annexed into the City, if they were incorporated.

Table 9
City of Mountain View
TOTAL ACRES VACANT AND REDEVELOPABLE LAND

Planning Area	Vacant Land Acres	Redevelopable Acres	Vacant and Redevelopable Acres
Central	20.1	112	132.1
Grant	16.9	26.2	43.1
Miramonte	29.5	69.1	98.6
North Bayshore	160.8	55.9	216.7
Rengstorff	9.5	40.3	49.8
San Antonio	14	72	86
Stierlin	3.8	22.5	26.3
Sylvan Dale	8.1	18.3	26.4
Thompson	0	6.4	6.4
Whisman	50.8	52.8	103.6
TOTAL	313.5	475.5	789



MOUNTAIN VIEW PLANNING AREA LAND USES FIGURE 7

three distinct sections in this area: the NASA/Ames facility (wind tunnel complex and research offices), the Moffett Naval Air Station (including administrative offices, repair facilities and base commissary), and 680 dwelling units for Moffett personnel.

The federal government has decided that the Naval Air Station at Moffett Field should be closed. However, the closure is not anticipated to occur prior to 1995. Although the future land use of Moffett Field has not been confirmed, NASA may expand its facilities to occupy Moffett Field, once the Naval Air Station is closed. Given the uncertain status of future land uses on Moffett Field, this EIR does not evaluate the potential environmental impacts associated with the closure and/or reuse of the base.

North Bayshore Planning Area

The North Bayshore Planning Area is located north of U.S. 101, between San Antonio Road and Moffett Field. Approximately 25 percent of the North Bayshore Planning Area is industrial, eight percent is commercial, seven percent is residential and 61 percent is other (i.e. natural habitat, boat lake, Shoreline Amphitheater, golf course). The majority of Mountain View's vacant land is located in the North Bayshore Area (161 of the 313 acres). The 161 acres consist of private and City-owned property.

The North Bayshore Planning Area has four distinct areas. One area is Shoreline Regional Recreation and Wildlife Area. This section contains natural habitat area, a small boat lake, a golf course, and Shoreline Amphitheater. The three remaining areas include a 350-unit mobile home park, industrial areas along San Antonio Road, Shoreline Boulevard and Stevens Creek, and industrial, office and R&D development in the remainder of the Planning Area.

Presently, the City owns 220 acres of vacant and underdeveloped property north of Charleston Road on either side of Shoreline Boulevard, of which 90 acres are developable and are included in the 161 acres of vacant land in the North Bayshore Area. The City is currently evaluating the types of land uses that could be developed in this area, including industrial, commercial, and institutional land uses. Some of the possibilities include an air and space center, commercial uses, open space, recreational facilities, a hotel, maybe even a landmark office or an R&D development.

Whisman Planning Area

The Whisman Planning area is located to the east of State Route 85 between U.S. 101 and Central Expressway. This Planning Area also includes a small area south of Central Expressway. Approximately 61 percent of the area is industrial, 29 percent is residential, 1.5 is commercial, and eight percent consists of other uses (i.e. public, agriculture).

Several of the oldest industrial areas in Mountain View are located in the Whisman Planning Area between Middlefield Road and Central Expressway. Middlefield Road, Whisman Avenue, U.S. 101 and Ellis are also characterized by older industrial facilities. The Fairchild/Ellis land use alternative site ("Site 4") is located in this Planning Area.

Clyde Avenue and Logue Street are characterized by light industrial/manufacturing buildings. State Route 237, Central Expressway and the Sunnyvale/Mountain View border are also designated for light industrial-manufacturing uses. No significant change in land use is anticipated at this location for the next 15 years. The 75-acre Pioneer Way area is classified as general industrial, and is expected to remain industrial for some time.

The residential areas within Whisman are not well defined, in that the residences vary dramatically from block to block. There is a range of densities, types, building conditions, from dwelling unit to dwelling unit. These areas include Wake Forest, east of Wake Forest, Fairchild Drive, north of Middlefield, and south of Middlefield.

Stierlin Planning Area

Stierlin Planning Area is bordered by U.S. 101, State Route 85, Central Expressway, and Permanente Creek. Approximately 68 percent of Stierlin Planning Area is residential, 19 percent is industrial, four percent is commercial and nine percent consists of other uses. The industrial areas are Terra Bella and San Rafael. The single family residential areas within the Stierlin Planning Area are Stierlin Estates, Meadow Glen, Farley/Burgoyne, and Spring/Morgan. The higher density residential areas are: Central Expressway (on both sides of the Shoreline Overpass), south of Middlefield Road (on both sides of Shoreline Boulevard), and between Moffett Boulevard and State Route 85. Potential housing sites #4 and #5 are located in this Planning Area.

Rengstorff Planning Area

The Rengstorff Planning Area is situated between Permanente Creek, San Antonio Road, U.S. 101 and Central Expressway. Approximately 52 percent of this area is residential, 34 percent is industrial, and 14 percent is commercial. There are less than 10 acres of vacant land within this Planning Area.

The largest residential area in the Rengstorff Planning Area is Sierra Vista. The second residential area consists of low density apartments and townhouses on both sides of Rengstorff Avenue. The commercial area is located on Old Middlefield Way. The industrial section is located on Independence/Leghorn.

Thompson Planning Area

The Thompson Planning Area includes 220 acres surrounded by Middlefield Road, Rengstorff Avenue, Central Expressway and the Palo Alto boundary at San Antonio Road. Approximately 77 percent of the Thompson Planning Area is residential, 17 percent is commercial, and six percent consists of other land uses. There is no vacant land located within this Planning Area. This Planning Area is characterized by single-family residential development, with a strong sense of community. Potential housing site #2 is located in this Planning Area.

San Antonio Planning Area

The San Antonio Planning Area is bounded by Escuela Avenue to the Palo Alto city boundary, and Central Expressway to El Camino Real. The land uses within the San Antonio Planning Area consist of 53 percent residential, 39 percent commercial, less than one percent of industrial and seven percent of other land uses. The commercial area is located along San Antonio Road and El Camino Real, and is primarily characterized by regional commercial uses. There are two predominantly high-density residential areas in the San Antonio Planning Area: Del Medio Neighborhood, and Showers Drive-Escuela Avenue (the largest concentration of multiple-family housing in Mountain View). Castro City is also designated high-density residential, but is primarily small-lot, single-family residential. Potential housing sites #1 and #3 are located in this Planning Area.

Central Planning Area

The Central Planning Area is located between Central Expressway and El Camino Real, and between Escuela Avenue on the west and State Routes 237 and 85 on the east. The land use distribution of the Central Planning Area consists of 66 percent residential uses, 20 percent commercial, six percent industrial, and 10 percent of other land uses. Approximately 20 acres of the entire 132 acre Planning Area are actually vacant, and are primarily located along Evelyn Avenue.

This Planning Area includes the oldest section of Mountain View with several buildings constructed in the late 1800's. Most of the land is occupied by single-family residential uses. Multiple-family housing is located west of Pettis Avenue.

The historic Downtown is located within this Planning Area and consists of six blocks on either side of Castro Street located between Evelyn Avenue and Mercy Street. The historic Downtown, however, was expanded to include areas east of Hope Street and west of Franklin Street, and north to Central Expressway and south to El Camino Real. The Downtown is the center of civic focus for the City. Potential housing sites #8 and #9 are located in this Planning Area.

Sylvan Dale Planning Area

The Sylvan Dale Planning Area is located between State Routes 237 and 85 and the City of Sunnyvale boundary line. Approximately 75 percent of the land uses in this planning area consist of residential development. Commercial uses account for 11 percent of the land uses, while industrial uses account for another five percent. The remaining 9.5 percent include other land uses. The Sylvan portion of this planning area contains a significant amount of multiple-family residential uses. Dale is occupied primarily by apartments and condominiums. Both areas contain single-family dwellings. However, the housing in the Dale area consists of planned development rather than standard subdivisions. Commercial development is located along El Camino Real. Potential housing site #7 is in this Planning Area.

Grant Planning Area

The Grant Planning Area is located between State Route 85 and Grant Road. The land uses in this Planning Area consist of 71 percent residential uses, seven percent commercial uses, and 22 percent other land uses. Single-family homes are the predominant land use in this area, with multiple-family development concentrated near El Camino Real. The regional shopping areas are located on Grant Road near El Camino.

Miramonte Planning Area

The Miramonte Planning Area is located south of El Camino Real and west of Grant Road. Approximately 73 percent of the Planning Area contains residential development. Another 15 percent of the land uses are commercial, while 12 percent consist of other land uses. About two-thirds of the land is used for single-family homes. Most of the multiple-family establishments are located within a block of El Camino. The commercial development is concentrated along El Camino. The El Camino Hospital is also located within this Planning Area. Potential housing site #11 is located in this Planning Area.

Unincorporated Areas

Mountain View includes all land within the incorporated City limits, as well as the unincorporated properties within the City's Sphere of Influence. Three unincorporated pockets in Mountain View include: approximately half of Moffett Field, the 17 acre Navy housing site at Middlefield Road and Moffett Boulevard, and the 15.6 acre agricultural land at Grant Road and Levin. With the exception of Moffett Field, the unincorporated areas would not significantly change the balance of uses, if these areas were developed.

Demographics

Extensive background information on employment and housing is contained in the adopted *City of Mountain View General Plan Housing Element*. This information is incorporated by reference and is on file at the City of Mountain View Planning Department. According to the Housing Element, the Association of Bay Area Governments (ABAG) estimates that there were a total of 30,220 households in Mountain View with a household population of 64,700 residents. Average household size is approximately 2.13 persons per household in Mountain View in 1990, compared to 2.72 persons per household for Santa Clara County. In 1990, there were a total of 68,040 jobs in Mountain View.

2. <u>Impacts</u>

The 1992 General Plan Update consists of the updating of the 1982 General Plan. This update process contains revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs, as described in SECTION I., DESCRIPTION OF THE PROPOSED PROJECT.

The General Plan Update also involves changes to the General Plan Land Use Map. The 1992 General Plan contains text amendments to establish new Land Use Map designations and to revise the existing land use designations. These designations include: Industrial, Industrial Park, Low Density Residential (0-6 du/ac), Mobile Home Park Residential (7-14 du/ac), Medium-Low Density Residential (7-12 du/ac), Medium-High Density Residential (13-30 du/ac), and High Density Residential (31-80 du/ac). In addition, the public facilities land use designations are proposed to be divided into three categories: 1) Government Facilities, 2) Educational Facilities, and 3) Institutional Facilities. The commercial designations are the same as those contained in the 1982 General Plan.

Impacts Associated with the 1992 General Plan Text Amendments

A discussion of the impacts associated with the 1992 General Plan revised goals, policies, and action programs for each of the four chapters is provided below.

Community Development Chapter

The Community Development Chapter contained in the proposed 1992 General Plan Update addresses three main issues: land use, urban design, and economic welfare. The goals, policies, and action programs contained in this chapter are designed to mitigate future impacts resulting from new development. Those direct land use impacts and indirect land use impacts (i.e., traffic, noise, air quality, etc.) resulting from the implementation of the action programs providing for residential redevelopment are described in subsequent sections of this EIR.

Circulation Chapter

The Circulation Chapter addresses the movement of people and goods through and around a city. The goals, policies, and action programs contained in this chapter are designed to be compatible with the land use goals, policies, and action programs. Although the Circulation Chapter goals, policies, and action programs are primarily designed to reduce traffic congestion and to promote alternative travel modes, some of the action programs involve improvements to the existing roadway system that could result in a growth-inducing impact. The potential growth inducing impacts are discussed in Section VII. of this EIR.

Residential Neighborhoods Chapter

The Residential Neighborhoods Chapter contains the Housing Element adopted by the Mountain View City Council on October 16, 1990. The Residential Neighborhoods Chapter addresses the provision of housing for low and moderate income families, the distribution and condition of available housing, the projected need for new construction, and governmental/other constraints on the provision of housing. In addition, the Residential Neighborhoods Chapter includes a land inventory evaluation for the purposes of identifying available land suitable for future residential development, such as vacant property and lands with the potential for redevelopment.

The provision of new housing opportunities, in accordance with the Residential Neighborhood Chapter policies and action programs, would involve changes in the General Plan Land Use Map, the addition of a *Mobile Home Park* designation as a residential land use category on the

Land Use Map, and potential rezoning of at least four of the previously identified 11 sites. Although the Housing Element would preserve existing housing, the proposed action programs would encourage alterations to the industrial and commercial character of areas identified for future residential development. Encouraging the development of housing in areas surrounded by industrial and commercial uses may result in some land use incompatibility. However, most of the proposed new housing areas involve the eventual elimination of isolated pockets of industrial uses by adding residential development, thereby eliminating existing land use incompatibility. Therefore, the Residential Neighborhoods Chapter would not result in a significant land use impact.

In accordance with Golden Triangle Policies to provide future additional housing, the Housing Element identifies 11 potential housing sites which would require rezoning to allow the development of future housing at these locations. One of the action programs further establishes that the City *shall review and amend the zoning map to provide land in a range of residential zoning classifications appropriate to meet new housing construction needs.*
Amendments to the zoning map will occur after changes to the General Plan Land Use Map are adopted and after completion of the Environmental Impact Report for the General Plan. These changes also include amendment to land use designations for the selected potential residential redevelopment sites. While amendments to the Zoning Ordinance and map will then occur to assure consistency with the General Plan, those amendments will also require separate environmental review. In summary, while amendment of the Zoning Ordinance and zoning changes of some properties are identified as action programs under the Housing Element, neither immediate rezoning, nor conflict with the Zoning Ordinance will result from the adoption of the Housing Element and from the incorporation of the Housing Element into the Residential Neighborhoods Chapter into the General Plan.

Environmental Management Chapter

The Environmental Management Chapter contains four of the seven State-mandated General Plan Elements, including Open Space, Conservation of Resources, Public Safety, and Noise. The Open Space Element contains goals, policies, and action programs for the long-term acquisition, development, use, and preservation of the City's open space resources. This Element addresses cost effective methods for the acquisition of additional open space, the development of a system of urban trails throughout Mountain View, use of the City's parks and other public spaces for cultural activities, and preservation of these resources for future generations.

The goals, policies, and action programs contained in this chapter are intended to reduce potential hazards and environmental impacts that could affect existing and future development in Mountain View, and would not result in a significant land use impact.

Impacts Associated with the General Plan Land Use Map Amendments

The six types of changes to the Land Use Map are described in Section I., C., Description of the Proposed Project. The proposed changes included in the 1992 General Plan Update would result in approximately 95 changes to the Land Use Map from the 1982 Land Use Map (see Figure 4 and Table 5).

1. Impacts due to Site Specific Designations

The General Plan Update will result in changes to the City's Land Use Map. The primary change to the Land Use Map involves 95 revisions to the 1982 Land Use Map to indicate parcel-specific General Plan designations. The changes primarily reflect the change from the "bubble" boundaries to parcel specific land use designations. Most of the parcels are developed and the new land use designations reflect the existing intensity of development and existing zoning. Increases or decreases in the land use intensities of these 95 properties are not proposed as part of the General Plan Update. As a result, the parcel-specific changes to the Land Use Map on the 95 sites would not result in significant direct or indirect land use impact. These changes would also be compatible with the Zoning Ordinance and Zoning Map.

2. Mobile Home Park Designations

Six sites are currently occupied by mobile home parks. Although the General Plan Update proposes to change the designation on these sites to Mobile Home Park Residential (7-14 du/ac), this change would not result in an increase in residential densities on these sites, because the 9 unit/acre maximum density in the mobile home park zone (R-2M), already establishes the maximum allowable densities. Some of the existing mobile home parks are at a density of 13 units/acre and do not conform with the existing General Plan designations. The establishment of the Mobile Home Park designation at a density of 7-14 units/acre would bring the existing mobile home parks into conformance with the General Plan. As a result, this category of land use change would neither result in a change in land use type nor intensity. This change would not result in a significant land use impact.

3. New Land Use Categories

The 1992 Land Use Map updates the 1982 Land Use Map categories to provide four residential designations, rather than the three previous categories, and two industrial designations, rather than one category. The refinement of the residential land use designations does not result in an increase or decrease in the allowable densities and distribution of residential uses. Therefore, this refinement of the residential land use categories would not result in significant direct or indirect land use impacts.

The 1982 Land Use Map depicted one General Industrial category. The 1992 Land Use Map includes a new Industrial Park designation, in addition to the General Industrial designation. This new Industrial Park designation is consistent with the existing Zoning District for the land uses within the areas proposed to receive this designation. No changes in land use type or intensity are proposed. Therefore, this change would not result in a significant land use impact.

4. Sphere of Influence Boundary

Mountain View's Sphere of Influence boundary is the same as the municipal boundary, except in the northern part of the city where the Sphere of Influence boundary includes part of Moffett Field and extends into the Bay. The 1992 Land Use Map shows the City's Sphere of Influence boundary through Moffett Field and extending into San Francisco Bay. This change is intended to correct a mapping error and would not result in a significant land use impact.

5. Population Densities and Building Intensity

Population estimates for the residential land use designations and average floor area ratios (FARs) for the majority of the non-residential land use categories are provided in the 1992 Land Use Map. These population densities are not intended to provide an absolute limit on population in the city. The population estimates are based upon an average of 2.13 persons/household[3], multiplied by the number of dwelling units permitted under each designation.

The floor area ratios (FARs) used to specify building intensity are an average for the entire land use designation. These FARs are not intended to be applied on a parcel-by-parcel basis. FARs in the City's Zoning Ordinance are applied on a parcel-by-parcel basis. The 1992 Land Use Map FARs are generally consistent with the City's existing Zoning Ordinance FARs. The inclusion of FARs in the General Plan Update would not result in an increase in land use intensities, but would maintain the levels of intensity permitted by the existing Zoning Districts. Therefore, these changes would not result in a significant land use impact.

Impacts due to Land Use Changes for Potential Housing Sites

The Mountain View Environmental Planning Commission is proposing to change the General Plan Land Use Map designations on two of 11 potential housing sites. These two sites are the Evelyn Avenue Corridor Study Area at Evelyn Avenue and Villa Street (Site 8) and the Old Mill Site at Showers and California Street (Site 3). The land use impacts associated with these General Plan amendments are identified below. The land use map changes on these two sites would allow up to 1,085 dwelling units and a reduction of 880 jobs on a total of 44 acres.

Evelyn Avenue Corridor Study Area

The Evelyn Avenue Corridor Study Area is bounded by Central Expressway to the north, single-family residential uses to the south, multiple-family residential uses to the east, and Downtown Commercial to the west. The 1992 General Plan Update proposes a change in the land use designation in the Evelyn Avenue Corridor Study Area ("Site 8") from Service Commercial to Medium High Density Residential (13-30 du/ac) on a 26 acre site located between Evelyn Avenue and Villa Street. This change would result in a total of 365 dwelling units.

The General Plan amendment would alter the character of the project area by changing the generally vacant and marginally developed lots and commercial nature of the area to medium high density residential uses. The conversion to medium high density residential uses would replace the various different types of land uses in the project which include approximately 0.4 acres of commercial retail uses, 19.6 acres of commercial services and light industrial, 4.5 acres

[3] The 2.13 persons/household is based upon ABAG's Projections '90 household size estimates for Mountain View in 1990.

of public/institutional uses, 1.4 acres of single family residential development, and 0.6 acres of multi-family residential development[4].

The change from the existing land uses to residential development would be compatible with the nearby commercial retail, office, and personal service uses located along Castro Street.

During the long-term transition from the existing land uses to residential development, potential land use compatibility conflicts could, however, occur as the residential uses co-exist with the existing commercial uses within the Corridor Area. Potential land use compatibility impacts could also result with the proximity of the railroad to the residential uses. Impacts associated with the railroad would primarily consist of exposure to high noise levels and potential vibration effects. As a result, the continued presence of commercial uses and railroad operations could affect the residential uses that locate in the project area, as well as the land use character of the project vicinity.

Several facilities have been issued toxic permits within the project area. Although there are no high-hazard uses of hazardous chemicals, the co-existence of service commercial activities with new residential development may result in the exposure of future residents to hazardous materials and the potential for contamination due to the use, storage, and handling of hazardous chemicals.

The Evelyn Corridor Phase I Concept Plan was completed in April, 1991 and recommends the future transition to residential uses in this area. This Plan recommends that the majority of the area transition to residential development at densities ranging from 10 dwelling units per acre (du/ac) near Dana Street, to 15 du/ac near Villa Street, and 35 du/ac near Evelyn Avenue and the CalTrain/LRT Station. This residential development should be oriented to the new residential neighborhood streets extending from Dana Street to Evelyn Avenue. In addition to residential development, office or retail development, including possible mixed use, could occur in the block bounded by Evelyn Avenue, Bush Street, Villa Street, and View Street. Support commercial uses could be located between Evelyn Avenue and the railroad to provide a buffer between the railroad activities and future residential development.

Indirect land use impacts, including impacts on services and utilities, increased traffic, and visual changes will also result and are addressed in their respective sections of this EIR.

The proposed General Plan Land Use Map amendment would allow residential uses that are compatible with the surrounding land uses and that would change the existing character of the project area. These impacts are not considered significant. However, interim land use compatibility conflicts could result as the existing commercial uses remain in the project area while new residential development occurs. This temporary impact would be considered potentially significant.

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[4] As described in Chapter II. The Evelyn Corridor Today, The Evelyn Corridor Phase I Concept Plan, April, 1991.

Old Mill Site

The General Plan amendment and Precise Plan zoning change for the Old Mill Site ("Site 7") were approved in September, 1991. An EIR was prepared for the Old Mill Area Precise Plan in February, 1991, and was subsequently certified in September, 1991. This EIR is incorporated by reference into the EIR for the General Plan Update. A copy of the Old Mill Area Precise Plan Final EIR is on file at the City of Mountain View Department of Planning and Community Development and library. A summary of the identified land use impacts is provided below.

The Old Mill Area Precise Plan site consists of 18 acres bounded by Sondgroth Way and Pacchetti Way to the west (both private streets), California Street to the south, and Showers Drive to the east and north. The Old Mill Area Precise Plan originally divided the total 38.3 acre parcel into three areas, Areas A, B, and C. The project approved in September included the division of Area B into two areas: Area B (9.1 acres) and Area D (18 acres). The project site is Area D. This General Plan amendment allows a change in the land use designation from Regional Commercial to Medium High Density Residential (13-30 du/ac) on the 18 acre Old Mill Site Area D at Showers and California. This General Plan amendment would provide for a total of 540 to 720 residential units, up to 20,000 square feet of office use, and up to 12,000 square feet of retail use on Area D. The hotel or lodging use on the site is eliminated.

The General Plan amendment on the Old Mill Area Precise Plan site will result in the conversion of commercial development to a primarily high density residential development, with some retail, service, and commercial office uses. Development of this project will alter the existing character of the area by introducing a higher development density and intensity of use. This amendment will allow taller buildings. The mixed-use residential development is determined to be compatible with the surrounding land uses. However, potential impacts could result from the intrusion of transit patrons into the private residential spaces. This impact will be avoided by the Precise Plan guidelines.

Indirect land use impacts, including impacts on services and utilities, schools, increased traffic, and visual changes will also result and are addressed in their respective sections. No significant direct land use impacts will result from this approved General Plan amendment.

Impacts Associated with the Residential Redevelopment Sites

The General Plan Update calls for the future rezoning of four residential redevelopment sites from industrial and commercial zoning designations to residential zoning designations. These sites include:

- Evelyn/Villa Street, the Evelyn Avenue Corridor Study Area ("Site 8" in Table 8). This rezoning would involve a change from General Commercial (CG) to Residential (R3-2.5) and would allow up to 365 dwelling units.

- Showers/California Street, the Old Mill Site ("Site 3" in Table 8). The rezoning for this site allows up to 720 dwelling units. Although a General Plan amendment and Planned Development Zoning were approved on this site in September, 1991, this site is included in this EIR analysis.

- Del Medio Court, Sears Warehouse ("Site 1" on Table 8). This rezoning would involve a change from Industrial (MM) to Residential (R3-2.2) for a total of 72 dwelling units.

- Shoreline Boulevard south of Middlefield Road ("Site 5" on Table 8). This rezoning would involve a change from PC-Commercial to PC-Residential with a 30 year amortization. A total of 60 dwelling units could be developed on this site.

Only one of these sites, the Evelyn/Villa Street site (Site 8), involves a change to the General Plan Land Use Map. The second site recently received an approval for a General Plan amendment and rezoning to residential uses. Therefore, one of the four sites (Site 8) represents a General Plan amendment and three of the four sites (Sites 1, 5, and 8) are new rezonings. These four sites (including Site 3) would result in a total of 1,217 future dwelling units.

The General Plan Update action programs contained in the Community Development Chapter also call for future policy and precise plan changes to establish additional housing. These action programs reflect changes to the text of the General Plan, but do not reflect changes to the General Plan Land Use Map. The action programs identify Zoning Ordinance, Precise Plan, and policy amendments to allow the future development of three residential redevelopment sites.

- Promote the development of new housing Downtown in the Downtown area ("Site 9" on Table 8). This would allow the development of up to 720 additional dwelling units. This would allow multiple-family housing as a permitted use instead of a conditional use. (Note: 370 of the 720 units were constructed and occupied after the General Plan Update was initiated.)

- Amend the Precise Plan for the site located at the Southeast corner of El Camino Real and El Monte Avenue ("Site 11" on Table 8). This Precise Plan amendment would allow multiple-family housing as a permitted use instead of a conditional use. This could allow the development of 150 additional housing units.

- Allow mixed-use housing as a permitted use along the El Camino Real commercial district ("Site 10" on Table 8). This would allow the development of up to 500 dwelling units.

These Zoning Ordinance, Precise Plan, and policy changes would result the development of a maximum of 1,370 dwelling units (including the 320 units already constructed in the Downtown). Together, the ordinance, Precise Plan, and policy changes and the four identified residential redevelopment sites requiring rezonings would result in a total of 2,587 future housing units (including the 320 units constructed Downtown).

Evelyn Avenue Corridor Study Area ("Site 8")

The land use impacts described for the General Plan amendment for this site would also occur with the rezoning of this site. Specifically, land use compatibility impacts are likely to occur with the future development of residential uses in an area with industrial development.

Old Mill Site ("Site 3")

The approved rezoning of the Old Mill Area Precise Plan site will result in the conversion of commercial development to a primarily high density residential development, with some retail, service, and commercial office uses. The corresponding land use impacts are the same as those described for the General Plan amendment for this site. No significant direct land use impacts will result from this approved zoning change.

Del Medio Court ("Site 1")

The rezoning of the Del Medio Court (Sears Warehouse) site would involve a change from Industrial (MM) to Residential (R3-2.2) which would allow up to 72 dwelling units. Currently, this site consists of a four acre industrial "pocket" surrounded by high density multiple family residential uses. The rezoning of this site to residential development would eliminate present land use incompatibility associated with the presence of the existing industrial uses on the site.

Although no contamination has been reported for this site, potential soil and/or groundwater contamination could exist, since toxic permits have been issued to the present occupant of the site. However, there are no high hazard users. Therefore, potential hazardous materials impacts could result during excavation and construction activities for future residential development.

Additional indirect land use hazards may also include noise and vibration impacts associated with railroad operations on the Southern Pacific Railroad tracks along the northern border of the site. These impacts would be mitigated through special construction requirements.

Shoreline Boulevard south of Middlefield ("Site 5")

The rezoning of the three acre, three-parcel site on Shoreline Boulevard south of Middlefield Road would involve a change from PC-Commercial to PC-Residential with a 30 year amortization. A total of 60 dwelling units could be developed on this site. The existing structures on the site are approximately 30 years old, with the exception of one wood frame industrial structure that was constructed in 1990 on the northernmost of the three lots. This site is primarily surrounded by residential and neighborhood commercial uses.

The rezoning of this site to residential development would eliminate present land use incompatibility impacts associated with the presence of the existing industrial uses on the site. The development of 60 residential units in this area is not anticipated to result in a significant increase in land use intensity.

A low level toxic user occupies the project area and minor levels of subsurface contamination were reported on this site. Therefore, potential hazardous materials impacts could result during excavation and construction activities for future residential development.

Downtown Area ("Site 9")

Promoting housing in the Downtown area would allow the development of up to 720 additional dwelling units, of which 370 units have already been constructed and occupied. Residential uses

are already included in the Downtown Precise Plan as a Principally Permitted Use on the outlying blocks and as a Provisional Use on second floors along Castro Street and the immediately adjacent streets.

The development of up to 720 dwelling units would be compatible with the type and intensity of development permitted in the Downtown Area. However, these 720 units would represent a significant increase in land use intensity.

El Camino and El Monte Avenue ("Site 11")

An amendment to the Precise Plan for the six acre, three-parcel, site located at the Southeast corner of El Camino Real and El Monte Avenue would allow multiple-family housing as a permitted use instead of a conditional use. This would allow the development of 150 additional housing units which would be compatible with the existing residential and commercial land uses surrounding the property.

The six acre site is presently occupied by the Hubbard and Johnson Lumber Yard, although the majority of the property is vacant. This site is one of the largest underdeveloped parcels along El Camino in Mountain View. Given its location at a congested intersection, localized traffic impacts could occur from the 150 housing units.

Although no known toxic contamination has been reported for this site, potential soil and/or groundwater contamination could exist, since toxic permits have been issued to the present occupant of the site. Despite the lack of high hazard users, potential hazardous materials impacts could result during excavation and construction activities for future residential development.

Additional indirect land use impacts could include noise impacts associated with the high traffic volumes on El Monte and El Camino, along the western and northern borders of the site. These impacts could be considered significant.

El Camino Real Commercial District ("Site 10")

Allowing mixed-use housing as a permitted use along 80 acres of the El Camino Real commercial district would promote the development of up to 500 dwelling units. The existing zoning along El Camino allows housing as a Conditional Use. The development of residential uses in this area would be compatible with the existing land use designations, as well as with the surrounding land uses. The development of up to 500 dwelling units, however, could result in an increase in land use intensity in the El Camino area.

Indirect land use impacts resulting from the development of 500 housing units in an area with significant traffic volumes could include potential noise and air quality impacts. These indirect land use impacts are addressed in their respective sections.

Population and Employment

Between 1990 and 2005, both the number of households and the total population in Mountain View will increase nine percent, according to Association of Bay Area Governments (ABAG) projections included in Projections '90. It is estimated that the total population will be 72,200 in the year 2005, with 33,080 total households. By contrast, the projected rate of employment growth in Mountain View is 17 percent for the same 15 year period. According to ABAG projections based upon policies from the 1982 General Plan and currently in effect, the City will add about 11,300 jobs for a total of 79,340 jobs. The percentage of employed residents in Mountain View will remain unchanged at about 65 percent of total population, resulting in the addition of 7,500 more jobs than employed residents. Santa Clara County will add about 94,000 more jobs than employed residents over this same period.

These projections indicate that despite efforts to improve the balance of jobs and employees locally and at the County level, demographers predict that, in the absence of any significant change in local land use policy, job formation will continue to exceed growth in the labor force.

3. Mitigation

The following policies and action programs included in the Community Development Chapter respond to the regional impacts of land use decisions. These mitigation measures are included in the project.

Policy 41: Support volunteer local government cooperation in making regionally responsible land use decisions.

Action 41a: Consider regional implications of land use decisions when reviewing new projects and zoning or General Plan changes.

Action 41b: Strive to make land use decisions that will be beneficial both regionally and locally.

Action 41c: Support voluntary regional cooperation as a preferred alternative to a new mandated regional government.

The following Community Development Chapter policies and action programs would improve the jobs/housing imbalance. These measures are included in the project.

Policy 42: Strive for a better balance of jobs and housing units in Mountain View.

Action 42a: Maintain and periodically evaluate the effectiveness of floor area limits to manage job growth.

Policy 43: Investigate sites with the potential to generate new housing, and amend the General Plan and Zoning on these sites to residential use where appropriate. (The land use impacts associated with Policy #3 and each of the sites identified for future rezoning are addressed above. Development of these sites with residential uses would improve the jobs/ housing imbalance both locally and regionally.)

The following Community Development Chapter policies and action programs would coordinate the location, intensity, and mix of land uses with transportation resources, and would reduce potential traffic impacts. These mitigation measures are included in the project.

Policy 44: Make land use decisions that support transportation alternatives to the automobile.

Action 44a: Encourage mixed use projects and the City's highest-density residential projects along major transit lines and around stations.

The following Community Development Chapter policies and action programs would reduce hazards to the existing residential community and to future residential development at the identified Residential Redevelopment Sites that are located in hazardous locations.

Policy 1: Ensure that new development is built and located to minimize the dangers of flooding, air field effects, earthquake hazards, and hazardous materials.

Action 1a: Review development applications for consistency with guidelines established in the Moffett Field Air Installation and Compatible Use Zone or other airfield safety guidelines.

Policy 2: Minimize the risks from the use of hazardous materials.

Action 2a: Establish standards and regulations for locating hazardous-materials users.

Action 2b: Assess the risk from hazardous materials when new residential development, schools, and other sensitive land uses are considered near industrial areas.

Action 2c: Establish a system to notify adjoining property owners when new hazardous materials permits are issued.

Policy 23: Support NASA Ames as the future federal operator of Moffett Field.

Action 23a: Ensure that the reuse of Moffett is compatible with City goals, policies, and concerns through coordination with the new federal operator.

Action 23b: Monitor the Navy's short-term and long-term transition and clean-up of Moffett Field.

Action 23c: If Moffett Field is declared surplus, develop a specific plan for the property in cooperation with NASA/Ames and the City of Sunnyvale.

The following Residential Neighborhood policies and action programs would maintain and enhance residential neighborhoods in Mountain View. These mitigation measures are included in the project.

Policy 28: Preserve and enhance the character of Mountain View neighborhoods.

Action 28a: Continue code enforcement and maintenance of public areas and neighborhoods.

Policy 5: Preserve the six major mobile home parks as a vital part of housing opportunities in the community.

Action 5a: Designate Mobile Home Park as a separate residential land use category on the Land Use Map of the General Plan.

Policy 6: Assure the construction of safe and attractive mobile and modular housing.

Action 6a: Encourage mobile and manufactured housing that is safe and attractive.

Action 6b: Maintain Zoning Ordinance design requirements and criteria for modular housing and mobile homes.

The following Community Development Chapter policies and action programs would reduce potential land use compatibility impacts associated with future development.

Policy 25: Ensure that neighborhood shopping centers are compatible with the surrounding neighborhood.

Action 25a: Review the design and use of neighborhood centers.

Action 25b: Require upgrading of neighborhood centers with applications for discretionary permits.

Action 25c: Continue to carry out measures requiring the maintenance of neighborhood shopping centers.

Policy 26: Maintain the General Commercial districts for heavy commercial services and uses.

Action 26b: Determine whether there is a need to keep the current amount of service commercial uses before any change in General Commercial zoning and General Plan designations.

Policy 27: Enhance the appearance of General Commercial districts.

Action 27a: Update the General Commercial zoning district development standards.

Policy 28: Maintain and enhance the City's Linear Commercial/Residential districts.

Action 28a: Develop strategies for El Camino Real and Moffett Boulevard commercial districts.

Policy 29: Maintain attractive and exciting Regional Commercial districts that offer residents a broad selection of retail goods and create a strong retail base for the city.

Action 29a: Encourage remodeling of the city's older regional centers.

Action 29b: Ensure distinctive and enjoyable building and site design for regional shopping centers.

Action 29c: Encourage mixed-use project with high-density residential uses near San Antonio Center so people can live close to shopping and transit.

Action 29d: Consider extending the Grant Road Precise Plan to El Camino Real and changing the General Plan designation on these properties to Regional Commercial.

Policy 31: Protect the residential neighborhoods surrounding Downtown.

Action 31a: Prevent commercial encroachment, including the effects of traffic, into the neighborhoods.

Action 31b: Ensure compatible uses and building design along the boundaries of the residential and commercial districts.

Policy 34: Ensure that General Industrial districts are compatible with adjoining residential neighborhoods.

Action 34a: Continue to review and revise the Zoning Ordinance to ensure that setback, design, use, and similar regulations reduce the negative effects of industrial uses on adjacent residents.

Action 34b: Require improvements, such as landscaping and equipment screening, on older industrial sites when businesses apply for changes or additions.

Action 34c: Rezone industrial areas that are not consistent with the new industrial General Plan designations.

Policy 40: Ensure that zoning, building regulations, and public works requirements are equitable and that City processes are efficient.

Action 40a: Review and revise zoning, public works, and building regulations routinely.

Implementation of the identified policies and action programs would reduce potentially significant land use impacts to a non-significant level.

B. TRAFFIC CIRCULATION

Korve Engineering, Inc. conducted a traffic analysis in December, 1990, April 1991, and July 1991 to address traffic circulation, transit, and bicycle/pedestrian circulation in Mountain View. This traffic analysis was prepared in conjunction with the City of Mountain view General Plan Update. Several "background reports" were prepared for the Circulation Chapter of the General Plan Update. These reports include the *Existing Conditions Report*, the *Summary of Accomplishments*, the *Future Conditions Report*, and the *Circulation Glossary*. These reports are summarized in SECTION B., TRAFFIC CIRCULATION of this EIR.

1. Setting

The existing traffic circulation conditions were included in the *Existing Conditions Report.*

Existing Roadway Network

The existing regional and local roadway network is shown in Figure 8.

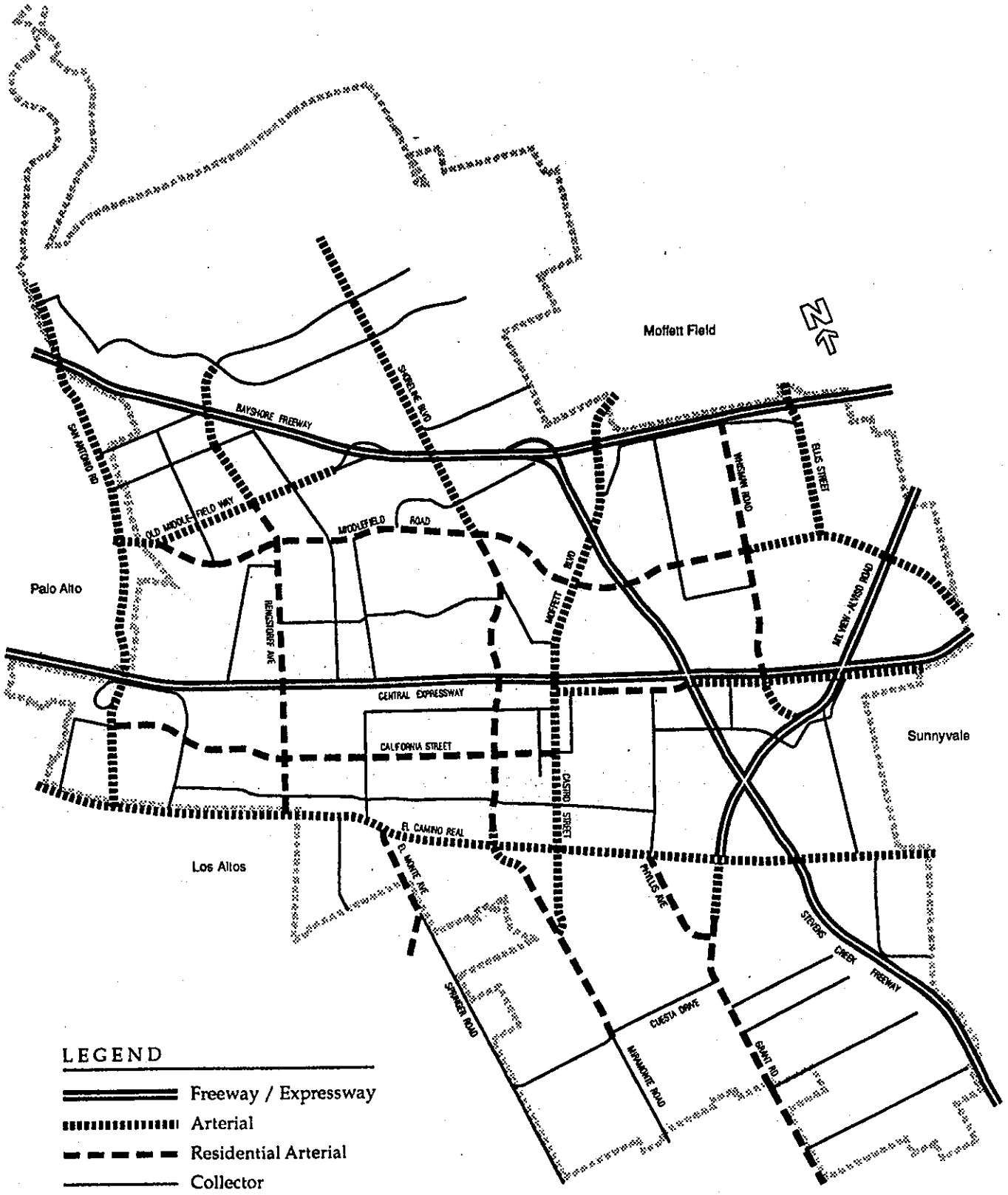
Freeways and Expressways

Regional access to the City of Mountain View is provided by several state and county routes. The state routes that serve Mountain View are: U.S. 101 (Bayshore Freeway); Interstate 280 (Junipero Serra Freeway); State Route 85 (Stevens Creek Freeway); State Route 82 (El Camino Real); and State Route 237 (Mountain View-Alviso Freeway). The State highways and freeways are under the jurisdiction of the California State Department of Transportation (Caltrans) which controls the design, operation, maintenance, and even the traffic signals where state routes intersect county or local roads. Expressways, are maintained by the County of Santa Clara. The two expressways that serve Mountain View, are Central Expressway (G6) and the Foothill Expressway (G5). (Foothill Expressway is outside of the city limits.)

Bayshore Freeway (U.S. 101) has a north-south alignment on the Peninsula. As it crosses through Mountain View, however, it is nearly an east-west facility. U.S. 101 is therefore, referred to as an east-west facility in this report. U.S. 101 was widened to eight lanes in 1989 with the addition of commuter lanes[5] through Mountain View from the Lawrence Expressway to the San Mateo County line in Menlo Park. The typical hours of commuter lane operations are 5:00-10:00 AM or 6:00-9:00 AM and 3:00-6:00 PM or 3:00-7:00 PM. In 1986, two commuter lanes were added to U.S. 101 east of Mountain View, between Guadalupe Parkway and the Lawrence Expressway.

Junipero Serra Freeway (Interstate 280) is located south of Mountain View. The interchanges that provide access to I-280 from Mountain View are El Monte Avenue, Magdalena Avenue, Foothill Expressway, and Stevens Creek Freeway. Although none of these interchanges lie

[5] Commuter lanes are lanes on expressways or freeways reserved for use during peak commute periods by buses, motorcycles, and carpools with two or more occupants. This term is synonymous with High Occupancy Vehicle lanes.



LOCAL AND REGIONAL ROADWAY NETWORK FIGURE 8

within the City, I-280 provides major access to the north and south along the Peninsula, while linking the South Bay to San Francisco. I-280 and U.S. 101 serve many of the same destinations to and from the South Bay and San Francisco.

Stevens Creek Freeway (Route 85) connects U.S. 101 near Shoreline Boulevard with Interstate 280 in Cupertino. Caltrans has widened this route to six lanes between I-280 and Route 237, with the addition of two commuter lanes. Between Route 237 and Route 101 Route 85 consists of four lanes. Work funded by Measure A money is presently underway to extend the freeway from Cupertino to the south side of San Jose, parallel with Blossom Hill Road. This extension would provide an alternative route to U.S. 101. This will serve travelers between southern and northern Santa Clara County, and the Peninsula.

Mountain View - Alviso Freeway (Route 237) extends from El Camino Real at Grant Road to Interstate Routes 880 and 680 in Milpitas. This four-lane highway has substantial congestion during peak periods where Route 237 intersects with El Camino Real, Middlefield Road and Maude Roads at grade. Future plans include upgrading Route 237 to full freeway status east of Route 85.

Central Expressway (G6) provides connections to Palo Alto to the north and west, and Santa Clara and Sunnyvale to the south and east. This divided four-lane arterial is parallel to the Southern Pacific railroad tracks. Santa Clara County plans to widen Central Expressway with two commuter lanes east of Shoreline Boulevard, in the next 10 years. Research is in progress to utilize Central Expressway as an alternative route to U.S. 101. As Central Expressway enters Palo Alto, it becomes Alma Street which is a four-lane arterial. During the peak commute time, traffic congestion can extend into Mountain View.

Foothill Expressway (G5) is a limited-access surface arterial to the south and west of the City. Its termini are located in Palo Alto and Cupertino, and its intersections are located in Los Altos and Los Altos Hills. Although this divided four lane road does not pass through Mountain View, it is accessible to numerous arterials which do pass through the City. Access to Foothill Expressway is via at-grade, signal-controlled intersections.

El Camino Real (Route 82) functions as an arterial and is discussed below.

Arterials

Mountain View has several major arterials. There are two east-west arterials: Evelyn Avenue and El Camino Real; and five major north-south arterials: Ellis Street, Moffett Boulevard, sections of Shoreline Boulevard, Castro Street, a section of Rengstorff Avenue, and San Antonio Road.

Evelyn Avenue is located south of Central Expressway. This east-west two lane road extends from Castro Street in downtown Mountain View to downtown Sunnyvale.

El Camino Real is a State highway located along the length of the Peninsula, and it therefore, carries people in the immediate vicinity and long distances. This six lane arterial serves as an access to the many commercial driveways directly facing the street.

Ellis Street is a four-lane arterial that runs from Middlefield Road to just north of Bayshore Freeway.

Moffett Boulevard/Castro Street is located north-south from the Central Expressway to north beyond the Bayshore Freeway, providing primary access to Moffett Field. South of Central Expressway this four-lane road becomes Castro Street.

Shoreline Boulevard is a six lane arterial that becomes a residential arterial south of Middlefield. The street was previously named Stierlin Road and Bailey Avenue.

Rengstorff Avenue is a four-lane arterial that runs in a north-south direction through Mountain View. The portion south of Old Middlefield Way is a residential arterial, as described below.

San Antonio Road is a four to six lane arterial that runs south from the Bay to Foothill Expressway to Los Altos. The roadway north of Central Expressway is in Palo Alto.

Residential Arterials

Mountain View has eight residential arterials: Middlefield Road, California Street, most of Whisman Road, parts of Regnstorff, parts of Shoreline Boulevard, Grant Road, Miramonte Avenue, and El Monte Avenue/Springer Road.

Middlefield Road runs east-west through the northern portion of Mountain View. This four-lane arterial extends west from the Central Expressway at Mary Avenue, through Mountain View, Palo Alto, Menlo Park, and Redwood City.

California Street is a four lane arterial with a median in some locations which extends from Del Medio to Downtown Mountain View. California Street is the first through route south of the Southern Pacific railroad tracks, although it ceases to be an arterial at Bush Street. Traffic continuing east must travel on Central Expressway or Evelyn Avenue.

Whisman Road is located east of State Route 85 and west of State Route 237. This four-lane road provides access to Central Expressway and State Route 237.

Rengstorff Avenue, south of Old Middlefield Way, is four lane arterial that runs in a north-south direction. This facility provides access to residential areas. Although this facility is not aligned directly, Rengstorff Avenue also provides relatively easy access to El Monte Avenue and El Camino.

Shoreline Boulevard, south of Middlefield Road, is a residential arterials. It becomes Miramonte south of El Camino Real. The two arterials form the longest north-south route in the City.

Grant Road is a four to six lane arterial that is located north-south from the intersection of Route 237 and El Camino, to the Foothill Expressway to the south.

Miramonte Avenue is a four-lane arterial that begins at El Camino Real and extends south to the Foothill Expressway in Los Altos. Miramonte becomes Shoreline Boulevard north of El Camino.

El Monte Avenue-Springer Road is a two lane north-south arterial that serves the southwest corner of Mountain View.

Existing Traffic Conditions

The traffic analysis for the General Plan Update evaluates the level of service and volume to capacity ratios for street segments ("links"). This analysis evaluates links instead of intersections for the following reasons.

- Intersection level of service indicates conditions during a given period of time. Link level of service indicates the traffic demand on a section of roadway at a specific time of day.

- The level of service or volume/capacity deficiencies at intersections are often corrected through limited capital improvements, such as approach widening, modernized traffic signal control, or parking elimination. Link deficiencies, however, indicate more significant imbalances between demand and supply, since it is more difficult and costly to add lanes to an existing roadway than to modify intersections.

- The Mountain View Department of Public Works is completing the development of a city-wide travel forecasting model which will provide intersection level of service estimates. This model will be used to test future specific land use proposals in more detail.

The street capacity is the maximum amount of traffic a given street can carry during a specified period without resulting in extreme congestion. Hourly or daily (24-hour) capacities are most often used to define roadway operations. The Level of Service (LOS) systematically characterizes traffic conditions associated with varying levels of traffic.

The LOS evaluation indicates the degree of congestion which occurs during peak travel periods and is the principal measure of roadway traffic flow. Table 10 defines the LOS for roadway conditions which range from "A" (free flowing conditions) to "F" (barely moving conditions). LOS A, B, and C~~,~~ are generally considered acceptable service levels, while LOS D is marginally acceptable, LOS E is undesirable, and LOS F conditions are unacceptable. The definitions for each level of service ~~is~~ are provided on the following page. Figure 13 indicates the existing and future AM peak hour levels of service for selected roadway links throughout the City. Under existing conditions, roadway facilities operating at unacceptable levels of service include: Grant Road, north of Cuesta Drive; State Route 237, north of El Camino; State Route 85, south of El Camino Real; and U.S. 101 from San Antonio Road to State Route 237.

For urban roadways, the proportion of roadway capacity used during a defined period of time is the primary criterion that defines the level of service. This "Volume-to-Capacity Ratio" (V/C ratio), expresses the ratio of traffic volumes to ideal capacity.

Current traffic conditions were evaluated through an analysis of the available traffic data collected by the City. Volume/Capacity Ratios and Levels of Service were estimated for major

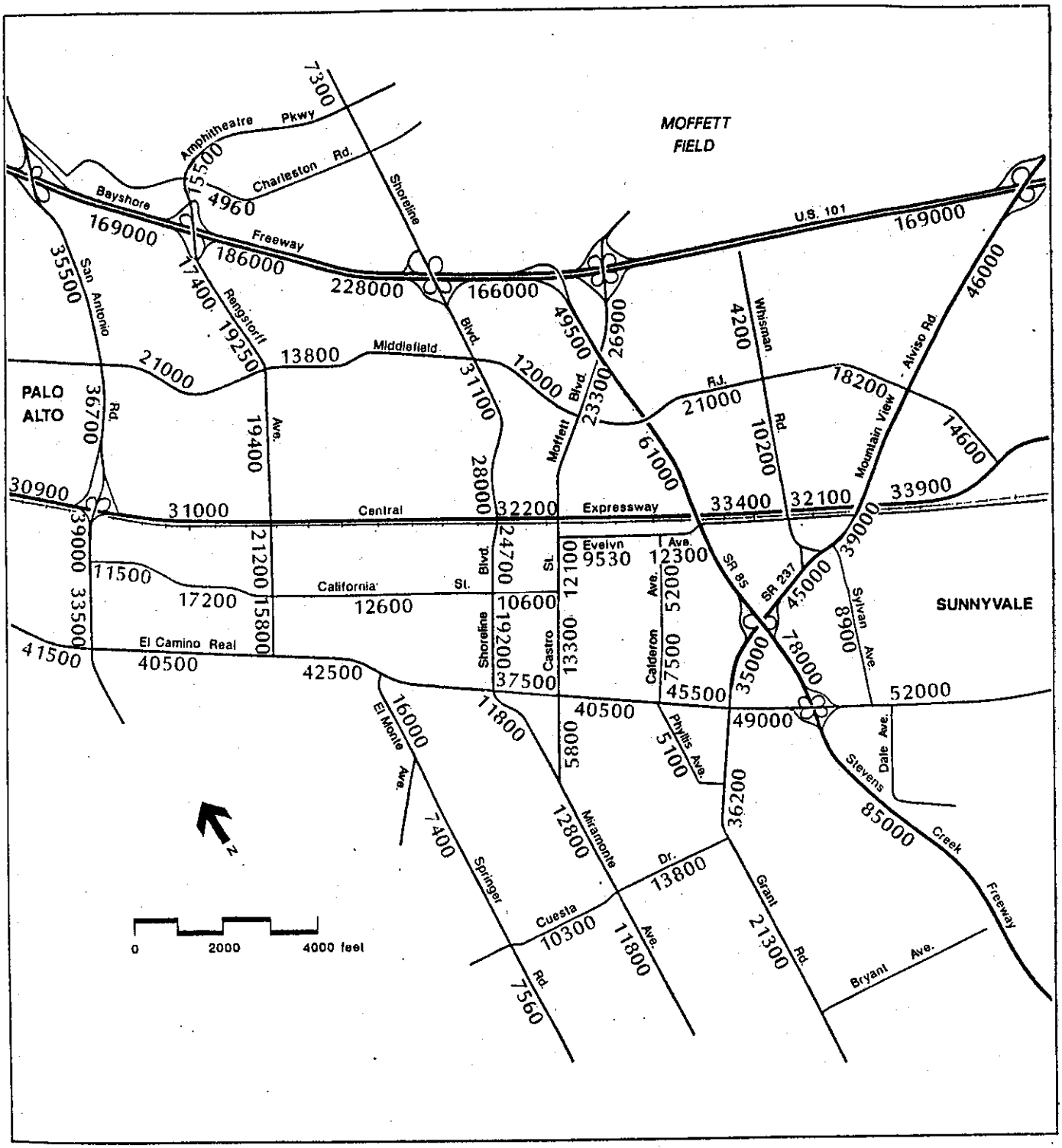
Level of Service Descriptions

Service Level Category	Descriptions of Traffic Conditions	
	Intersections (Average Length of Wait[1])	**Arterials** (Average Speed[2])
Free Flowing (LOS A)	Most vehicles do not have to stop. On the average, each driver waits less than 5 seconds to get through intersection.	Vehicles can maneuver completely unimpeded and without restrictions on speed caused by other cars and delays at intersections. *El Camino Real at 7 a.m. on a Sunday morning.*
Minimal Delays (LOS B)	Some vehicles have to stop, although waits are not bothersome. Average wait at intersections is 5 to 15 seconds.	Drivers feel somewhat restricted within traffic stream and slightly delayed at intersections. Average speed is about 70 percent of free flow. *El Camino Real at 10 a.m. on a weekday.*
Acceptable Delays (LOS C)	Significant number of vehicles have to stop because of steady, high traffic volume. Still, many pass through without stopping. On the average, vehicles have to wait 15 to 25 seconds to get through intersection. *Typical LOS at major intersections during mid-day.*	Traffic still stable, but drivers may feel restricted in their ability to change lanes. They begin to feel the tension of traffic. Delays at intersections contribute to lower average speeds—about 50 percent of free flow. *El Camino Real at noon most weekdays.*
Tolerable Delays (LOS D)	Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach. On the average, vehicle wait is 25 to 40 seconds. *Common afternoon peak hour LOS at many intersections.*	High traffic volumes and delays at intersections reduce average travel speeds to 40 percent of free flow. Drivers aware of slower pace of traffic. *El Camino Real at 4 p.m. at most intersections.*
Significant Delays (LOS E)	Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches. Average waits of 40 to 60 seconds. *Apparent at major arterial intersections at peak hour.*	High traffic volume and many signalized intersections with long queues reduce average travel speed to one-third of free flow. *El Camino Real at 5 p.m. near Grant Road.*
Excessive Delays (LOS F)	*Intersection is jammed.* Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into "up-stream" intersections. Generally caused by obstruction or irregular occurrence (*e.g.*, signal preemption). This condition often viewed as gridlock.	Travel is "stop and go"—one-third or one-fourth of free flow. Usually caused by a "down-stream" obstruction, such as lanes reduced from 4 to 3, or a stalled car, or signal preemption for a train. *At times, El Camino Real experiences LOS F where freeway Route 237 ends.*

[1] "Average wait" is a measure of traffic conditions at intersections. It is an estimate of the average delay for all vehicles entering the intersection in a defined period of time, for example, the evening peak hour. It is expressed as a range rather than a single value. Some drivers will actually wait more or less time than indicated by the range.

[2] "Average speed" is a measure of traffic conditions on arterials. "Average speed"is based on the total time it takes to travel a certain distance, including the time spent waiting at intersections. It is determined more by traffic volume and conditions at intersections, than by the legal speed limit.

LEVEL OF SERVICE AND VOLUME/CAPACITY DEFINITIONS TABLE 10



NOTE: The average daily traffic counts are from 1990.

RECENT DAILY TRAFFIC VOLUMES FIGURE 9

roadways. Figure 9 indicates the existing daily (24-hour) traffic volumes within Mountain View as measured during 1988 and 1989.

Heavy commute-period volumes reach or exceed the ideal capacity of several regional links in the roadway system. U.S. 101 generally achieves capacity during the evening peak commute period, when congestion occurs in both directions, and the Highway 85/U.S. 101 interchange impedes traffic flow. El Camino also operates at or near capacity through Mountain View, with heavy congestion occurring along intersections with San Antonio Road, Rengstorff Avenue, Shoreline Boulevard, and Grant Road. Significant congestion frequently occurs on weekdays between 6:30 AM and 9:30 AM and from 3:00 PM to 6:00 PM or later.

Several routes in Mountain View, such as Middlefield Road and Central Expressway, have unused capacity and could therefore, carry more traffic without significant congestion. Although these facilities are congested during portions of the commute periods, they are relatively uncongested during the rest of the 12-hour period between 6:00 AM and 6:00 PM. Shoreline Boulevard is also relatively uncongested over most of its length throughout most of the day.

The local and regional transportation system could be improved in several areas. Capacity constraints exist at several major intersections, particularly those located on El Camino and other heavily travelled arterials. Four of the most impacted intersections include:

- El Camino at San Antonio Road, Castro Street, and Grant Road;
- Central Expressway at Rengstorff and Moffett Boulevard/Castro Street;
- San Antonio Road at California Street and Bayshore Parkway;
- Southbound on-ramps at U.S. 101 and Charleston Road and Rengstorff.

These intersections are generally located at the junction of major arterials or expressways, where the proportion of left- and right-turns is relatively high. Although the roadways are operating at acceptable levels of service, these key intersections experience significant peak period congestion.

The region's freeways and expressways are unable to accommodate the increase in vehicular miles of travel, without resulting in significant congestion. Congestion on these regional facilities occurs for a longer period of time than on city streets. However, the recent trend towards travel demand management can reduce this congestion.

Mountain View's grid street system in the Downtown lacks a clear hierarchy of collector routes, which permits commuter and other non-local traffic to use residential neighborhood streets to avoid congestion on arterial and collector roads. At-grade rail crossings present additional capacity and safety problems at Rengstorff and Castro Street. Train activity during peak periods restricts traffic flow and can cause the formation of vehicular queues which sometimes take more than an hour to fully dissipate.

Mountain View's pattern of development has separated residential and commercial areas by significant distance. This land use pattern discourages walking and cycling as viable travel modes for local trips, and reduces the efficiency of public transit. In addition, concentrated employment centers, such as the North Bayshore area, are neither close to residential areas nor

to arterial transit routes. Recent development, primarily adjacent to downtown, have attempted to reverse this trend.

Funded Near-Term Improvements

The transportation improvements in the North Bayshore Area include:

- Extension of Charleston Road to Moffett Boulevard is conceptual at this time.

- Widening of the Shoreline Boulevard overcrossing of the Bayshore Freeway from two lanes to four lanes, and the addition of two weaving lanes for traffic entering and exiting Shoreline Boulevard. These improvements are presently under construction. Part of the financing for these improvements is provided by the Santa Clara County Traffic Authority Measure A.

The State Ramp Metering Porject is scheduled to start in 1992. Caltrans freeway improvements within Mountain View include the construction of a new eastbound on-ramp at San Antonio Road, and closure of the existing on-ramp at Charleston Road. This will improve the weaving problem under the Rengstorff overpass. The freeway access ramp metering would control the number of vehicles entering the freeway eastbound during peak commute periods. Ramp metering will divert short trips off the freeway to the arterial streets, thereby preventing excessive congestion on the freeway mainline, and improving freeway capacity.

Santa Clara County Congestion Management Program

In accordance with Proposition 111, the County of Santa Clara recently completed its 1991 *Congestion Management Program* (CMP), as described in Section II of this EIR. The Santa Clara County CMP includes roadways within the City of Mountain View Sphere of Influence and adjacent to Mountain View that are identified as CMP roadway facilities. These facilities are either principal arterials, freeways, or County expressways, and include the following: El Camino Real (State Route 82), State Routes 101, 237, and 85, San Antonio Road, and Central Expressway.

Future land use decisions in Mountain View will require conformance to the CMP. A land use impact analysis will be required to ensure that local land use decisions will not degrade traffic level of service below the established standard for Santa Clara County's CMP roadway facilities within Mountain View and the surrounding region. The Circulation Chapter of the 1992 General Plan contains goals, policies, and action programs to ensure that future land use decisions consider traffic impacts to both local and regional roadway facilities.

Existing Transit Service

Transit service in Mountain View is provided by the Santa Clara County Transit District (SCCTD). The system has approximately 17 routes that service Mountain View and 80 routes system-wide. SCCTD also provides connections to Amtrak, Greyhound, Bart, AC Transit, the downtown train station and Peerless Bus Service in San Jose. The downtown train station is also a transfer station for nine routes.

The County bus routes travel on the major arterial roadways throughout the city. The Mountain View Transit Center is located along Showers Drive between San Antonio Road and California Street. This center serves as a transfer point for approximately 10 bus lines. The County Transit buses generally run on 10-30 minute headways during the weekdays and every 15-60 on the evenings, weekends and holidays. Figure 10 depicts the bus routes which serve Mountain View.

The SCCTD also provides two Bonus Bus Routes (Routes 300 and 304) to the City. The Bonus Bus is similar to an Express Bus which makes fewer stops, but has the same fare as the regular transit service. These routes provide service to offices, industrial areas, and colleges during peak periods. See Table 11 for the existing bus lines and their routes.

County Transit does not provide exclusive service for elderly and handicapped passengers. However, approximately 90 percent of the buses are lift-equipped, and discounted fares are provided for seniors and the handicapped.

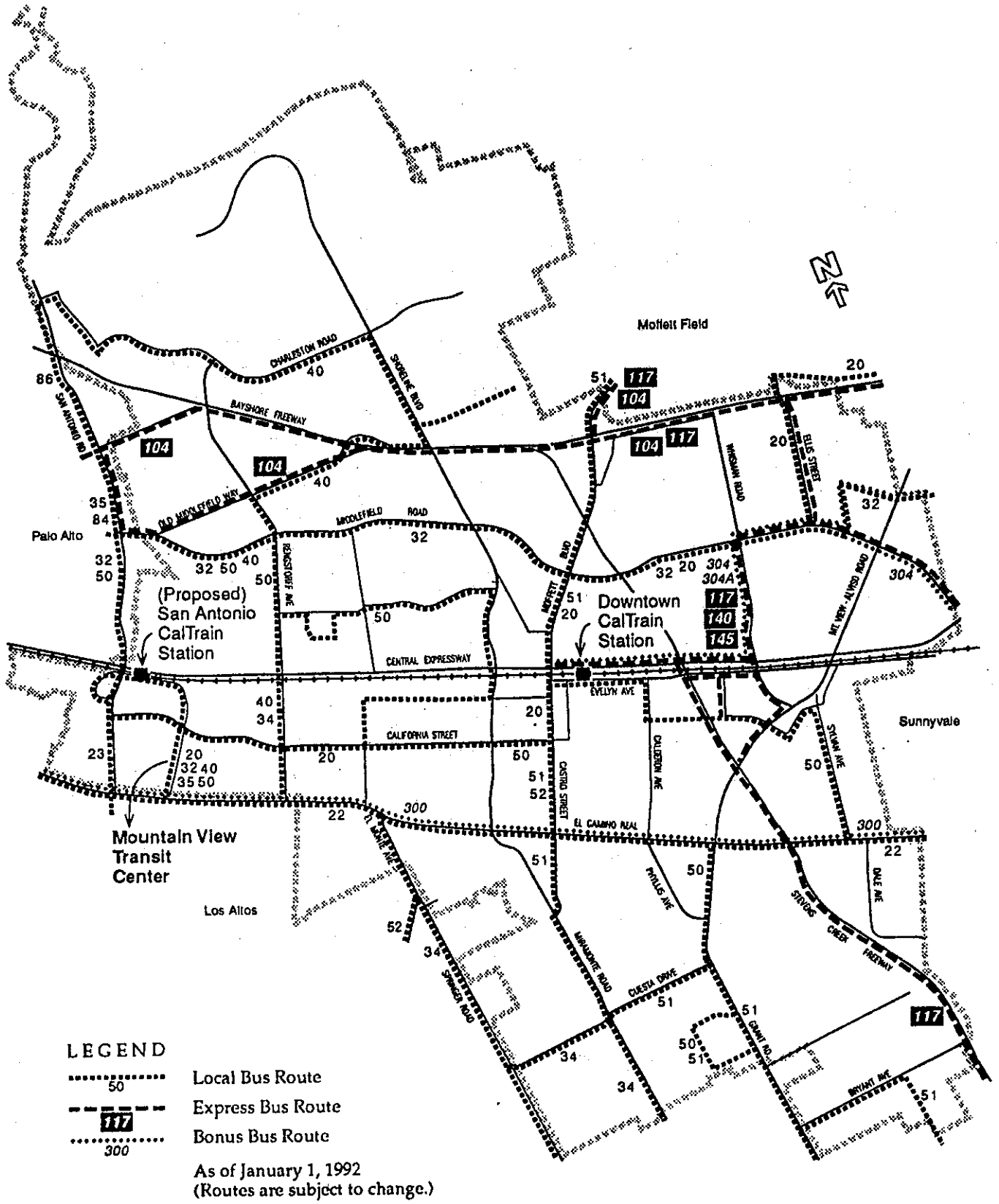
The Community Services Agency provides paratransit service for Mountain View, Los Altos, and Los Altos Hills. The VANTRANS service runs from 8:30 AM until 5:00 PM, Monday through Friday on a pre-scheduling and demand-sensitive basis. VANTRANS also contracts with a local cab company and an ambulance service to provide demand-responsive transit. Most of the VANTRANS budget is funded from the State sales tax, while eight percent is funded by the City of Mountain View.

The "CalTrain" Peninsula commuter rail service (formerly Southern Pacific) provides service in the Southern Pacific right-of-way from San Francisco to San Jose. CalTrain depots are located in Mountain View at Crisanto and Rengstorff, and Downtown near Castro Street and West Evelyn Avenue (see Figure 11). Train service is provided from 4:50 AM until 11:25 PM.

Shuttle bus service between the Castro CalTrain Station and the North Bayshore area industrial and office park is provided through an agreement with larger employers. This shuttle connects the Rengstorff station with all of the larger businesses on Charleston Road between Amphitheater Parkway and Shorebird Way. Caltrans and Mountain View split the cost of the shuttle. In turn, the City seeks partial reimbursement of its 50 percent share from those businesses served by the shuttle.

Proposed improvements to both the Castro and Downtown Caltrain stations will encourage commuter use of rail to jobs in Mountain View. Additional physical improvements and circulation policies which eliminate physical and economic obstacles are also required to continue a pedestrian and transit environment in Downtown.

Extension of light rail transit into Mountain View may present opportunities to improve the share of inbound and outbound work trips made by transit. However, as Mountain View will be the northern terminus (for the interim), it may also generate substantial auto traffic from the outside, as residents of adjacent cities drive to the Mountain View stations to use the system.



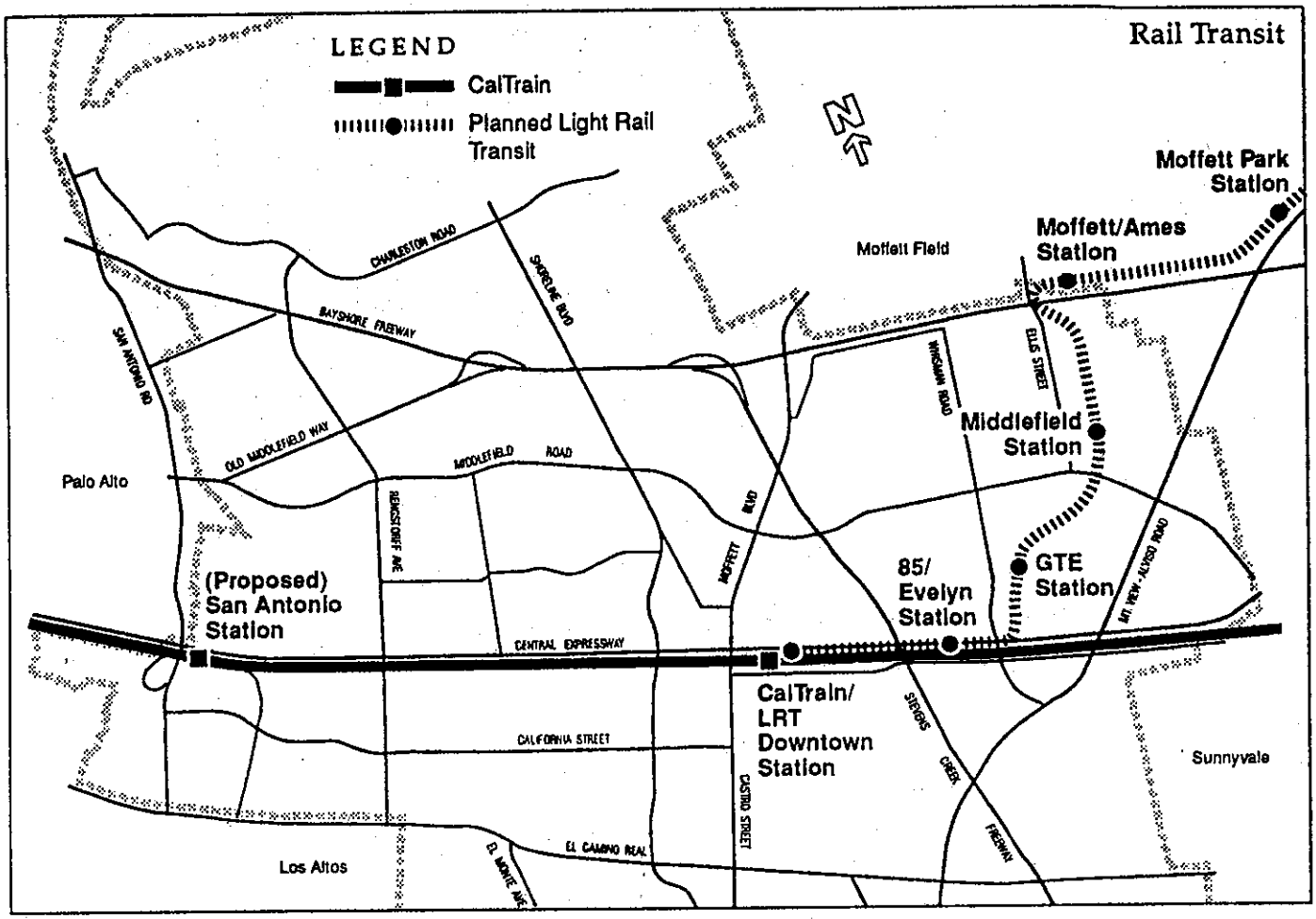
EXISTING TRANSIT ROUTES FIGURE 10

TABLE 11

Santa Clara County Transit District Bus Routes

Bus Line	Route Description
Local Routes	
20	Milpitas to Mountain View
22	San Jose to Palo Alto/Menlo Park
23	San Jose to San Antonio Center (MV)[a]
32	Santa Clara to San Antonio Center
34	Santa Clara to San Antonio Center
35	Stanford University to Foothill College (LA)[b]
40	L'Avenida to San Antonio Center
50	El Camino Hospital (MV) to San Antonio Center
51	Cupertino to Moffett (MV)
84	Palo Alto to San Antonio Center
86	Stanford Shopping Center (PA)[c] to San Antonio Center
Express Routes	
104	San Jose to Palo Alto
117	San Jose to Moffett Field
140	Fremont BART to Mountain View
145	San Jose to Mountain View Industrial Area
Bonus Routes	
300	San Jose to Palo Alto via El Camino
304	South San Jose to Palo Alto

[a] MV - Mountain View
[b] LA - Los Altos
[c] PA - Palo Alto



RAIL TRANSIT FIGURE 11

Existing Bicycle Circulation

The Caltrans Highway Design Manual classifies three types of bikeways:

Class I - (Bike Path) Provides for bicycle travel on a right-of-way completely separated from any street or highway. Bikeways have a minimum width of five feet for one-way bike paths, and eight feet for two-way. A minimum 2-foot wide graded area should be provided adjacent to the pavement. When possible, dual use by pedestrian traffic is undesired, and the two should be separated. The minimum design speed for Class I Bikeways should be 20 miles per hour; however, speed should be based upon the terrain and the expected type of use.

Class II - (Bike Lane) Provides a striped lane for one-way bike travel on a street or highway. In Class II Bikeways there are specific lines of demarcation (signs and pavement markings) in areas reserved for bicycles and lanes occupied by motor vehicles. Bike lanes are one way facilities. The minimum bike lane width is five feet where parking is permitted or four feet where parking is prohibited.

Class III - (Bike Route) Provides for shared facilities with pedestrian and/or motor vehicle traffic. Bicycle usage is secondary and the areas designed for bikes are marked by signs along the roadway.

The County has designated a Class II bike lane on Central Expressway throughout Mountain View. The major Bikeways in Mountain View include:

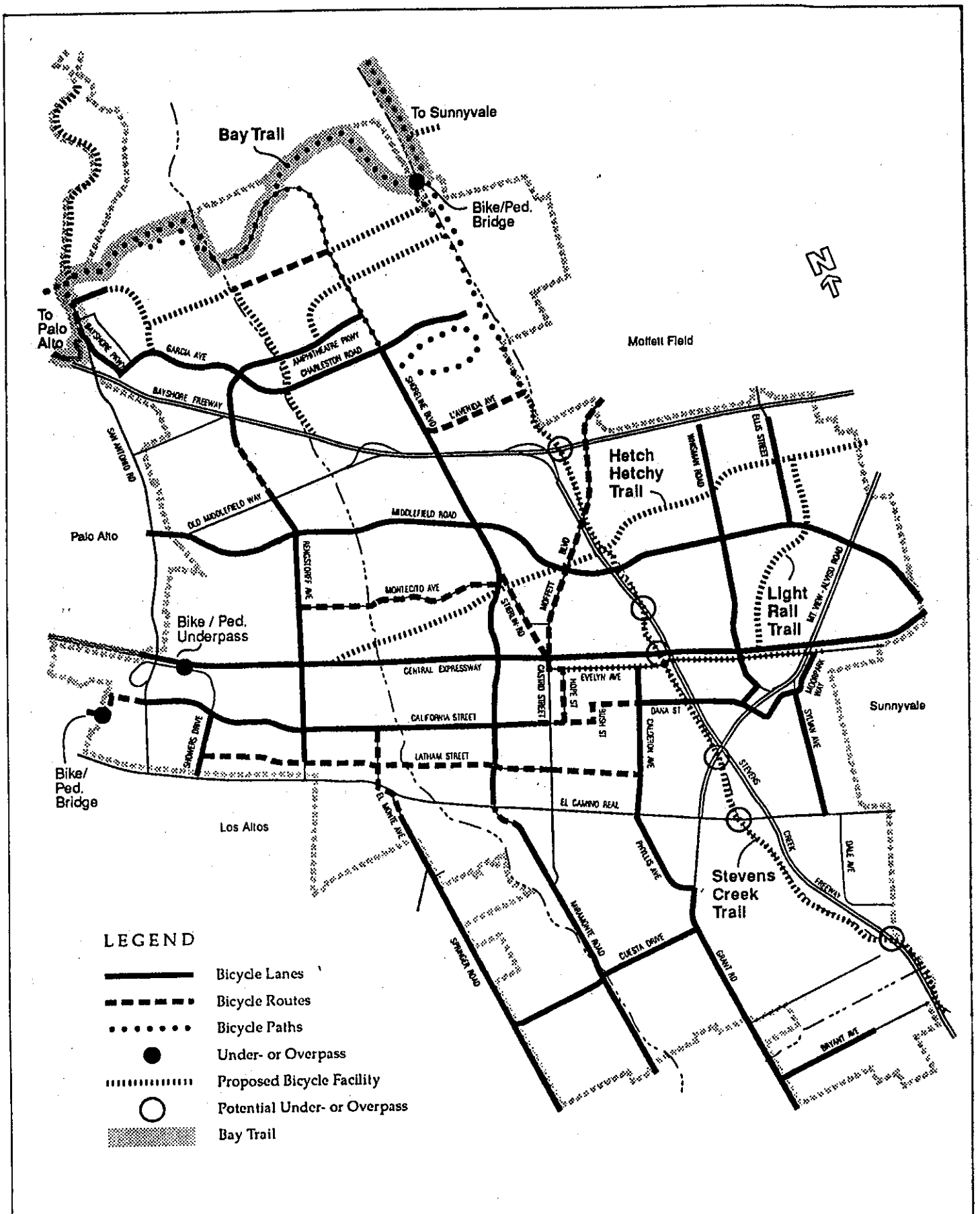
Bicycle Lanes

- Shoreline Boulevard north of El Camino Real to Charleston above the U.S. 101.
- Rengstorff Avenue from El Camino Real to Middlefield Road.
- Middlefield Road from San Antonio Road to Route 237.
- California Street from San Antonio Road to Castro Street.
- Whisman Road, Calderon Avenue, Phyllis Avenue, Grant Road, Sylvan Avenue, Springer Road, Miramonte Avenue, Cuesta Drive, Amphitheatre Parkway, and Charleston Road, north of U. S. 101.

Bicycle Routes

- Rengstorff Avenue from Old Middlefield Way to U.S. 101 interchange.
- Moffett Boulevard
- Montecito Avenue from Rengstorff Avenue to Moffett Boulevard.
- Latham Street from Showers Drive to Calderon Avenue.

Figure 12 depicts the location of the bicycle lanes and routes throughout the City.



EXISTING BIKE FACILITIES FIGURE 12

Travel arteries, such as Central Expressway, the Southern Pacific right-of-way, and U.S. 101 present significant obstacles to non-motorized travel. Improvement in the number of biking or walking trips will require additional connections between critical employment, retail, and residential areas. Recreational cycling and walking can also be enhanced through the completion of missing links in the system.

Existing Pedestrian Circulation

Sidewalks are generally required on roadways in the incorporated portions of the City, and enhanced pedestrian walkways exist along Middlefield Road and Castro Street. Shoreline Park provides trails for riding and hiking. The Bay Trail is 450 miles (280 miles are completed) of environmental and recreational pathway which runs along the Bay Area shoreline and it runs through northern Mountain View between Stevens Creek and the Palo Alto Baylands. The trail provides access to 90 parks, San Pablo and San Francisco Bays.

Aviation

Moffett Field Naval Air Station is located immediately northeast of the City limits. The airfield is split by a boundary which defines the legal Spheres of Influence between Mountain View and Sunnyvale. Moffett has turboprop antisubmarine patrol aircraft, and is used for NASA aircraft testing. The Navy recently announced that the Naval Air Station would be closed by 1994. However, the airfield will continue to be used by NASA/Ames and other federal tenants.

San Jose International is located 20 miles south of Mountain View on U.S. 101. The San Francisco International Airport is located approximately 25 miles northwest of Mountain View. In addition, the Palo Alto Airport located to the north of Mountain View also affects Mountain View's air space.

Existing Accident Data

According to the Mountain View Police Station the number of accidents that occurred during the 1990 calendar year are 12,746. Out of this number 12,062 were non injury accidents, 452 were injury accidents, 226 were hit and run accidents, and 6 were fatalities.

2. Impacts

Summary of Findings and Issues

The future transportation conditions report provides the traffic analysis for the "project" (General Plan Update) and the "project alternatives." This analysis identifies potential changes in the area of transportation that are likely to occur from 1990 to 2005.

The future conditions analysis is both local and regional in scope, and considers the effect of projected land use and transportation system changes outside of the City, as well as within. Similarly, the discussion of potential actions and strategies includes those that require regional cooperation, as well as those which are primarily local.

Highway System Improvements

Mitigating projected deficiencies in the regional highway system will be difficult. Most of the economically feasible highway improvements have already been assumed in the County's T-2000 and T-2010 modelling process. Further widening of freeways and expressways would require costly acquisition of developed right of way. More specific "spot" improvements are more likely, such as the expansion of existing interchanges, or the replacement of at-grade intersections with partial or fully grade-separated interchanges.

Most local roads in Mountain View are also surrounded by development and are unlikely to be widened significantly. Local intersection improvements are more likely to be accomplished, for example, through addition of traffic signals at unsignalized intersections, addition of pedestrian crossing signals, and provision of auxiliary turn lanes at intersections lacking them.

Rail Transportation

Extension of light rail transit in the Tasman Corridor to Downtown Mountain View will benefit the local area and the region, but will not have a large impact on peak hour highway congestion. Total daily travel by auto, and therefore auto emissions, would be reduced by the availability of light rail transit in Mountain View. Further benefits from the light rail investment depend upon the concentration of relatively dense employment and residential opportunities along the rail corridor. Extension of the system into residential portions of the City, and into neighboring communities, will further increase the benefits of the investment. The more intense residential development scenarios proposed by the City would complement the light rail system by increasing ridership and reducing the need for large commuter parking lots at rail stations.

Other Modes of Travel

Elimination of obstacles to pedestrian and cyclist travel is important to facilitate recreational travel as well as to increase use of these modes for commute trips. Critical obstacles to be surmounted include the Central Expressway, Stevens Creek Freeway, and the Bayshore Freeway. Particularly where one of these major highways separates an employment center from a residential area, pedestrian and bike bridges are desirable investments.

Transportation Demand Management

Reduction of peak period auto travel through specific infrastructure investments and policies or programs will play an important role in managing the transportation network. Criteria should be developed for making investment decisions regarding transportation facilities that favor alternatives to the single-occupant automobile. Facilities such as sidewalks, bicycle lockers, bus shelters, and preferential carpool parking at major activity centers are advised. Where possible, routes for several modes of travel should be established in existing corridors.

Impacts on Residential Neighborhoods

Growth in congestion on certain key arterial roadways in the City may lead to increased diversion of commute-period trips into residential neighborhoods. Examples of where this is

most likely to occur include the area between Grant Road and Springer Road, and the area between Central Expressway and El Camino Real. Should future conditions in selected neighborhoods decline to undesirable levels due to diverted through traffic, there are numerous physical and programmatic actions that can mitigate the problem. Several such actions have been studied and proposed for implementation in the Old Mountain View neighborhoods surrounding downtown, where through traffic and excessive speed have been identified as a problem, both real and perceived.

Assumptions

A summary of the assumptions most relevant to the projected year 2005 transportation conditions is provided below.

Alternative Land Use Scenarios

The traffic analysis evaluates five alternative future land use scenarios to determine whether substantial conversion of commercial areas to housing would have a significant traffic impacts. These scenarios include Scenario 1, population and employment estimates prepared by ABAG, Scenarios 2 and 3, variations on the ABAG projections related to residential rezoning and redevelopment within the City, and Scenarios 4 and 5 using the Scenarios 2 and 3 with Light Rail Transit. These five alternative future land use scenarios are described below.

Scenario 1 - ABAG Projections

Forecasts of future regional transportation demand for the San Francisco Bay Area are based on ABAG demographic forecasts. The ABAG forecasts are revised every two to three years to account for new local land use policies and revised base year information. The current series of demographic data, ABAG's "Projections '90," was issued in December 1989, and was slightly revised subsequently. Of the three alternative land use scenarios, the ABAG projections most closely represent land use policies contained in the City's existing (1982) General Plan.[6]

A detailed discussion of the ABAG projections for both Mountain View and Santa Clara County is provided in Appendix B. Table 12 summarizes existing and projected year 2005 population and employment for Mountain View and Santa Clara County. These data do not reflect recommendations for lower employment growth and more residential development in the County which have been defined, but not yet adopted, as part of the "Golden Triangle" Task Force planning process.[7] One goal of the Golden Triangle effort is to provide 60,000 dwelling units in addition to those presently planned for the area. The 1992 General Plan process reflects Mountain View's efforts to achieve its share of the goal as described in the next section.

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[6] ABAG's "Projections 90: Forecasts for the San Francisco Bay Area to the Year 2005", December, 1989, were used to develop travel forecasts for the Mountain View General Plan Studies. These data have not yet undergone the same degree of formal local agency review as the older "Projections 87" data.

[7] Participants in the Golden Triangle Task Force planning process include the cities of Mountain View, Milpitas, Palo Alto, San Jose, and Sunnyvale, and the County of Santa Clara.

TABLE 12

EXISTING AND PROJECTED POPULATION AND EMPLOYMENT 1990 AND 2005

	1990	2005	ABSOLUTE GROWTH	PERCENT GROWTH
CITY OF MOUNTAIN VIEW				
Households	30,220	33,080	2,860	9%
Household Population	64,700	70,100	5,400	8%
Total Population	66,400	72,200	5,800	9%
Total Jobs	68,040	79,340	11,300	17%
Employed Residents	43,500	47,300	3,800	9%
SANTA CLARA COUNTY				
Households	526,013	617,565	91,552	17%
Household Population	1,432,004	1,620,547	188,543	13%
Total Population	1,463,605	1,658,097	194,492	13%
Total Jobs	868,486	1,097,029	228,543	26%
Employed Residents	815,904	950,693	134,789	17%

Source: ABAG, "Projections '90", December, 1989.

It is important to note that Scenario 1 (as well as the other scenarios included in this analysis) assumes that Moffett Field continues in use as a Naval Air Station, with an insignificant change in level of activity or on-site population.

Scenarios 2 and 3 - Residential Redevelopment Alternatives

Preparation of the City's General Plan Housing Element resulted in identification of 18 sites (comprising approximately 548 acres) to be considered for rezoning and redevelopment. These include vacant or under-utilized residential sites, as well as vacant or underdeveloped commercial and industrial lands. Specific parcels or groups of parcels ranging from two acres to about 150 acres were identified for a total redevelopment potential of approximately 7,375 dwelling units. Figure 5 illustrates the location of the potential residential sites. As this figure shows, the sites tend to be clustered along the Bayshore Freeway, Central Expressway, and El Camino Real.

Scenarios 2 and 3 reflect the EPC's distinction between "redeveloped for residential" sites (RR), and "land use alternative" sites (LUA) as defined in the Draft Housing Element of June 20, 1990 and described in Section I., Description of the Proposed Project, of this EIR.

This traffic analysis evaluated whether significant differences in transportation conditions would occur as a result of adoption of one of these alternative residential redevelopment scenarios. Scenario 2 assumes that the 10 RR sites would be redeveloped, in addition to the residential growth assumed in Scenario 1 (the ABAG projections.) This would add 2,590 dwelling units above the ABAG projections. Scenario 3 assumes that both the RR and LUA sites would be redeveloped, representing 7,375 new dwelling units above the ABAG projections. The eight LUA parcels account for just over 50 percent of the total potential redevelopment acreage, and 65 percent of the dwelling units that could potentially be added to the City's supply of housing, beyond ABAG projections for the year 2005.

Scenario 2 reflects the "project" with the following modifications. The residential rezoning sites evaluated in the traffic analysis (Scenario 2) consist of a total of 2,588 dwelling units. These residential rezoning sites include the original list of potential residential redevelopment sites: Site 1, Site 3, Site 4, Site 5, Site 8, Site 9, Site 10, Site 11, Site 16, and Site 17 as described in Table 7. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, the difference between the number of dwelling units associated with the original residential redevelopment sites (2,588 units) and the number of new units associated with the modified residential redevelopment sites (2,587 units) is minimal.

Scenario 3 reflects the "land use alternative" with some modifications as explained in the following discussion. While the development of the potential residential redevelopment sites has essentially remained unchanged, the potential residential development on the land use alternative sites has decreased from an original estimate of 4,787 units to approximately 3,140. These numbers reflect the modifications to the project to include only Sites 1, 3, 5, 8, 9, 10, and 11, and the land use alternative sites only include Sites 2, 4, 6, and 7. These changes to the land use alternative sites result in 1,648 fewer units than were analyzed for Scenario 3. As a result, the traffic volumes and impacts in Scenario 3 are actually greater than those associated with the modified alternative.

Scenario 4 assumes the same land use development of the residential redevelopment sites as Scenario 2, with the addition of light rail transit to downtown Mountain View. Similarly, Scenario 5 assumes the same land use development of the residential redevelopment and land use alternative sites as Scenario 3, with the addition of light rail transit to downtown Mountain View.

A discussion of the employment and residential development associated with these scenarios is provided below.

Resulting Changes in Population and Employment

As Table 13 indicates, residential redevelopment of these 17 sites would result in a reduction in employment and increase in resident population in Mountain View, relative to projections made by ABAG for the year 2005 (Scenario 1). Relative to Scenario 1, development of the RR sites (Scenario 2) would result in a two percent reduction in employment (1,600 jobs) and an eight percent increase in households (approximately 2,600 units). Scenario 3, the combined RR and LUA sites, (7,375 additional dwelling units) would result in a 16 percent reduction in employment (or 12,700 fewer jobs) and a 22 percent increase in households (7,575 units) relative to ABAG year 2005 projections. As these numbers show, redevelopment of the LUA sites (Scenario 3) would have a more significant effect on reduction in employment and increase in households than the RR sites. Scenarios 1 and 2 project growth in both housing and employment relative to 1990 levels. However, in Scenario 3, the conversion of currently developed commercial and industrial sites to housing could reduce citywide employment below estimated 1990 levels.

Future Transportation Network

Estimating future transportation conditions requires that a year 2005 baseline transportation network be defined. Major, regional transportation network improvements in Santa Clara County and adjoining counties have been proposed, and in many cases, programmed for implementation with County Measure A and other funds. The most comprehensive study to date of County-wide improvements, the Transportation-2010 Plan, identified "baseline" improvements assumed to be in place by the early 1990s, and recommended additional specific and generic improvements and strategies for implementation by 2010.[8] Many of these improvements have already been completed or are now under construction, such as commuter lanes[9] and interchange improvements. Significant highway and transit system improvements assumed to be in place by the year 2010 are described on the following page.

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[8] Transportation 2010 Final Plan, Santa Clara County Transportation Agency, October, 1991.

[9] Commuter lane, carpool lane, and High Occupancy Vehicle (HOV) lane all refer to lanes which are restricted to vehicles carrying two or more persons during defined commute periods.

TABLE 13

ALTERNATIVE LAND USE SCENARIOS
YEAR 2005 PROJECTIONS

	Households	Total Population	Jobs	Employed Residents
Scenario 1 - ABAG Projections	33,080	72,200	79,340	47,300
Scenario 2 - Resid. Redevelopment (RR) Sites	35,670	77,400	77,710	50,310
Scenario 3 - Land Use Alternative (LUA) and Residential Redevelopment (RR) Sites	40,460	87,800	66,630	57,070
Scenario 4 - Light Rail Transit Plus Residential Redevelopment (RR) Sites	35,670	77,400	77,710	50,310
Scenario 5 - Light Rail Transit Plus Residential Redevelopment (RR) and Land Use Alternative (LUA) Sites	40,460	87,800	66,630	57,070

Source: City of Mountain View and ABAG "Projections 90", December, 1989.

Highway System Improvements

Physical improvements to the highway system will focus on completion of the commuter lane network, specific interchange capacity improvements, and upgrading of certain expressway segments to freeway standards. Important improvements include:

- Extension of the Stevens Creek Freeway (State Route 85), with commuter lanes, from its present southerly terminus at Stevens Creek Boulevard to U.S. 101 in south San Jose.

- Completion of all Measure "A" program improvements for Routes 101, 85 and 237. These include interchange modifications, commuter lanes, and other capacity-increasing improvements. Specific projects include:

  - Route 237 will be upgraded to freeway standards over its entire length.

- Stevens Creek Freeway will be widened from four to six lanes from Route 237 to U.S. 101.

- The Shoreline Boulevard interchange at U.S. 101 will be improved.

- A new eastbound on-ramp to U.S. 101 will be constructed at San Antonio Road, coupled with closure of the existing on-ramp at the end of Charleston Road.

- Commuter lanes for all segments of U.S. 101 and I-280 that are to be widened (the segments of U.S. 101 in Mountain View have already been widened and commuter lanes added).

- Freeway ramp bypass lanes[10] to enhance the effectiveness of commuter lanes for carpools and buses.

- Operational improvements on numerous arterials, expressways, and freeways, including signal coordination and freeway surveillance.[11]

Transit System Improvements

Comparable improvements to the public transportation system are presumed to be in place by the year 2005. Important projects include:

- Upgraded CalTrain Peninsula service, and extension of commuter rail service to south Santa Clara County.

- Extension of BART south from Fremont to meet the extended Tasman light rail line. (Further extension of BART or other high-capacity rail to downtown San Jose was not assumed by 2005.)

- Expanded commuter express bus service, with use of commuter lanes by buses.

- A modified route structure which focuses capacity on commute lanes, primary arterial streets, and "feeder" routes to rail stations. Primary bus transit destinations will include large employment centers and rail stations. This would not directly improve local transit service within Mountain View, but should improve the utility of the system for longer work trips to and from destination outside the City.

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[10] "Bypass lanes" on a freeway ramp allow buses and other high occupancy vehicles (HOV) to bypass ramp signals and non-HOVs and enter commuter lanes directly.

[11] Signal coordination may be used to improve the flow of traffic, and thus reduce the consumption of gas, on arterial streets or expressways with numerous traffic signals, Freeway surveillance, or "incident detection," is an evolving technology which uses video cameras or electronic detectors to monitor the flow of freeway traffic and provide motorists (and others) with currents information about traffic conditions.

- New park-and-ride lots at strategic locations to encourage carpooling and commuter lane utilization.

- Aggressive public/private programs to manage transportation demand with emphasis on ridesharing and transit usage, including adoption and implementation of the Golden Triangle TDM ordinance.

Extension of the County's light rail service in the Tasman Corridor from I-680 is assumed in place under Scenarios 4 and 5.

Other Assumptions

Certain other assumptions are explicitly or implicitly incorporated into projections of future transportation network conditions.[12] The most relevant of these include:

- Automobiles will remain the principal mode for personal transportation in the region, with or without major investments in the system of public transportation.

- Gasoline prices at the pump will rise at an average of five percent per year, in current dollars, and will return to pre-1985 levels by 1997. Due to continued improvement in automobile fuel economy, total auto operating costs (per mile) will not change significantly between 1990 and 2005, in constant or "real" dollars.[13]

- Availability of gasoline is presumed to be stable.

- Other transportation costs - transit fares, tolls, and most non-gasoline auto operating costs - will not increase significantly, in constant dollars. Parking charges in San Francisco and San Jose central business districts, in contrast, will increase significantly.

Findings and Issues

Year 2005 transportation system conditions were evaluated using travel demand forecasts provided by Santa Clara County, as well as based upon both quantitative and qualitative evaluation of land use alternatives. While the County forecasts are useful in assessing the regional impact of alternative land use and transportation scenarios, the model is not detailed enough to provide accurate evaluation of changes that might be expected at the local level. Assessment of local conditions is therefore based upon a variety of sources and professional judgment.

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[12] These assumptions are documented by MTC in "Year 2005 and 2010 Bay Area Travel Forecast Input Assumptions, Technical Summary", February, 1990.

[13] The recent California state gasoline tax increase had not been explicitly factored into these estimates of future operating costs.

Regional Travel Demand Forecasts

The results of the regional travel model indicate that several important roadway segments would experience significant congestion[14] during peak commute periods. Figure 13 depicts the AM peak hour level of service for existing and projected future conditions on selected segments of the regional network. This data is more accurate for regional facilities (i.e., freeways and expressways), and less accurate for local facilities, including some of Mountain View's major arterials, because the scale and level of detail contained in the County's regional model does not provide as great a degree of accuracy on local facilities. Under Scenario 1 with buildout under the 1982 General Plan to the year 2005 conditions the following roadway segments would experience congestion during peak commute periods (see Figure 13):

- Grant Road — North of Cuesta Drive
- State Route 237 — North of El Camino Real
- State Route 85 — South of El Camino Real
- U.S. 101 — San Antonio Road to State Route 237

These congested conditions will occur in the mixed-flow[15] lanes, rather than in commute lanes. The commute lanes are projected to operate at favorable levels of congestion, even during peak hours. As the above list indicates, most of the severe congestion will occur on state and county facilities carrying regional traffic, rather than on major city streets. The exception is Grant Road, a major north/south residential arterial roadway which provides direct access to State Route 237. Other major surface arterial roadways within the City, such as El Camino Real, San Antonio Road, and Shoreline Boulevard, will still operate at acceptable levels of service, despite overall growth in travel demand. The County model results indicate that due to the expansion of regional system capacity through projects such as the commuter lanes and completion of the Route 85 freeway, growth in congestion on surface arterials will not be proportionally as great as growth in population and employment. A large portion of the new travel demand will be accommodated on these improved regional routes.

In Scenario 2, redevelopment of Mountain View's Residential Redevelopment sites would result in only incremental changes to peak hour conditions on the regional network. Development of these sites would add 2,588 dwelling units, primarily along El Camino Real, Castro Street, and Evelyn Avenue. Potential job reduction would be only about 1,630 jobs. Apparent impacts of Scenario 2, relative to Scenario 1, would be minor changes in level of service on Central Expressway and on the Stevens Creek Freeway. Furthermore, changes in service level on Central Expressway are positive in some locations and negative in others, depending upon proximity to access to the RR sites. It appears that the Castro Street/Central Expressway/Moffett Boulevard intersection would be negatively impacted due to additional traffic associated with nearby residential development. Conditions on Central Expressway east of Castro Street would improve slightly, as a result of redistribution of auto trips. Conditions would improve on Grant Avenue and the southern portion of Route 237 as well.

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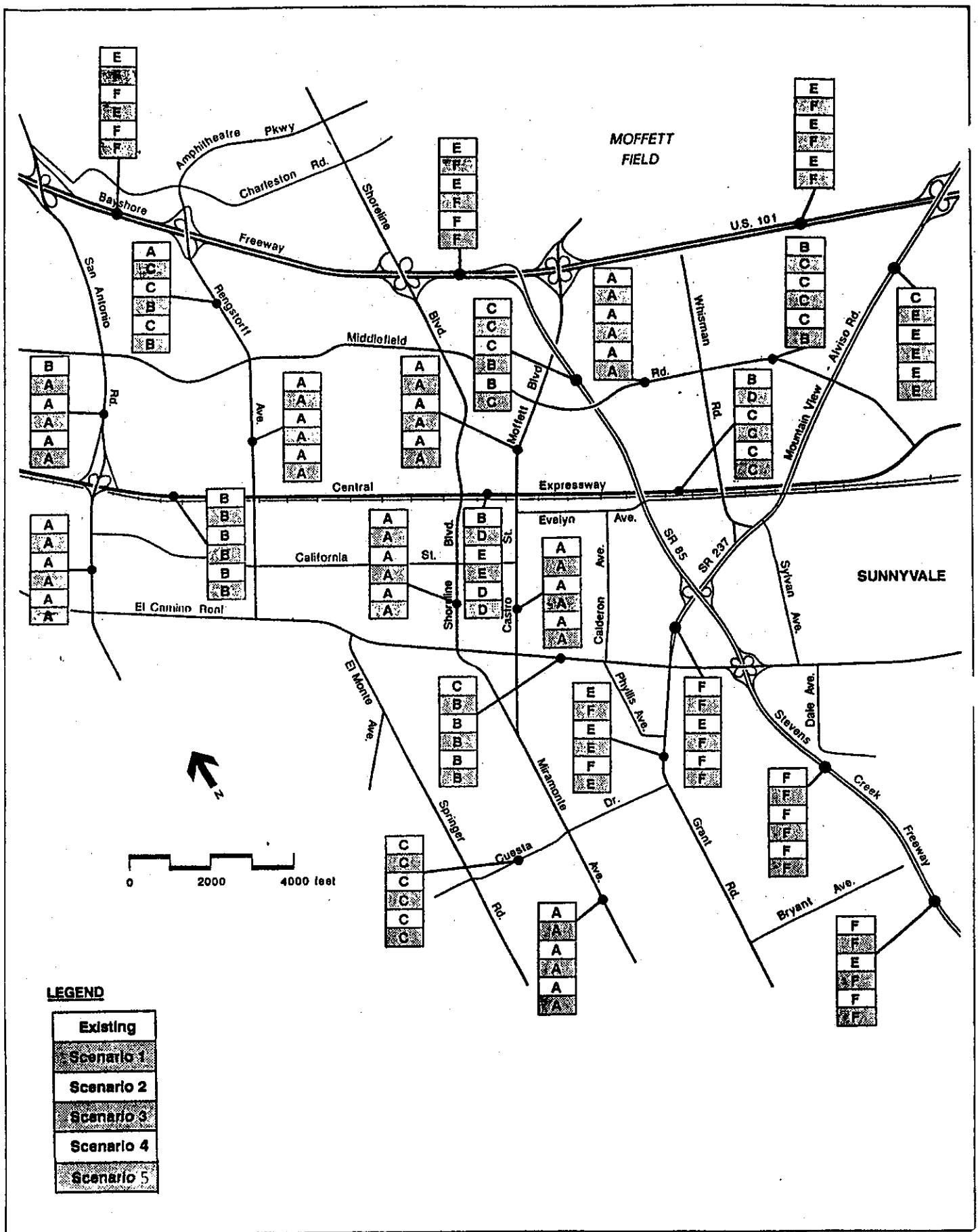
[14] Level of Service E or F.

[15] "Mixed-flow" lane refers to a conventional (non-carpool) lane.



AM PEAK HOUR CURRENT AND FUTURE LEVELS OF SERVICE

FIGURE 13

Scenario 3, the combined Residential Redevelopment and Land Use Alternative sites, again would not result in dramatic changes in level of service on most regional highways. However, certain improvements are noted. The cluster of LUA sites near Rengstorff Avenue appears to improve service levels on adjacent portions of Rengstorff and U.S. 101. Conditions on the northern portion of Stevens Creek Freeway would also improve slightly. A high proportion of the LUA dwelling units would be located adjacent to U.S. 101, and thus their effect in reducing traffic circulation in Mountain View is somewhat attenuated. While they may result in a reduction in commute trips which otherwise would come from outside of the City, they still generate work trips which must travel on the local network to reach local employment. For example, residents of the large LUA site near Fairchild Drive (Site #6, Figure 6) do not have direct access to the North Bayshore area. More direct connections between these larger LUA sites and the employment areas north of U.S. 101 might result in a more significant reduction in commute traffic.

Scenario 4 evaluates the effect of adding light rail transit, in conjunction with the land uses in Scenario 2. Rail stations would be located at Evelyn Avenue near Castro Street (i.e., the terminal station), Evelyn Avenue near Route 85, at GTE, at Middlefield Road near Ellis Street, and at Moffett Field. Travel modelling conducted specifically for the Mountain View General Plan, as well as the detailed impact analysis conducted for the Tasman Corridor Light Rail Transit project, reveal that peak hour conditions on freeways, expressways, and major arterial roadways will incrementally change as a result of the light rail system extension into the Tasman Corridor and Mountain View. Total vehicle miles of travel (VMT) in the County would be reduced about one percent below conditions that would otherwise exist in the year 2005. In Mountain View, conditions on Central Expressway in the vicinity of the Castro Street station would improve slightly under Scenario 2 land uses.

Scenario 5 evaluates the effect of adding light rail transit, in conjunction with the land uses of Scenario 3. Total transit trips would increase by approixmately three percent in Scenario 5 when compared to Scenario 3 due to the extension of LRT. Most of the roadway link volumes would result in the same or better levels of service under Scenario 5, as they would under Scenario 3 with the exception of the following roadway links:

- At U.S. 101 from San Antonio to Rengstorff the level of service would degrade from LOS E under Scenario 3 to LOS F under Scenario 5; and

- At State Route 85, south of U.S. 101, the level of service owuld degrade from LOS B under Scenario 3 to LOS C under Scenario 5.

Comparison of Impacts of Alternative Land Use Scenarios

Comparison of Scenarios 1, 2, and 3 reveals that although rezoning for residential redevelopment in the City will have certain benefits, it will not have dramatic impacts on peak hour congestion within the greater region. Although the land use changes are significant within the City, they alone are not sufficient to alter regional travel patterns. On a City-wide basis, significant rezoning for residential development will reduce the number of commute trips to and from the City during peak periods. This indicates that Scenarios 2, 3, 4, and 5 bring the number of

employed residents[16] closer to the number of jobs within the City. As the levels of service in Figure 13 indicate, Scenarios 3 and 5 are most effective in balancing the number of jobs with the number of employed residents.

Relative to Scenario 1, Scenario 2 (RR sites) would result in modest changes to local traffic volumes and circulation patterns. The potential reduction in employment resulting from conversion of these sites is relatively small. On a per-acre basis, moderate density housing would generate about the same number of daily vehicle trips as uses such as industrial parks or light manufacturing. However, the clustering of these infill sites along major shopping streets such as El Camino Real and Castro Street increase the likelihood of certain trips being made by walking, bike or local transit, rather than by auto. Also, the number of truck trips would be lower with residential conversion.

Scenario 3, which adds more housing than Scenario 2, increases the likelihood that Mountain View residents would fill local jobs, by increasing the pool of employed residents. With the higher density of residential development proposed in Scenario 3, it is also more likely that the City could effectively support more intensive public transit services, including light rail and express buses. Therefore, large-scale rezoning for residential development, particularly at a moderate to high density, will contribute to a greater proportion of trips on regional transit rather than auto.

Scenarios 4 and 5 combine the land uses of Scenarios 2 and 4, respectively, with the extension of light rail transit into Downtown Mountain View. The primary benefits of light rail to Mountain View will be reflected in the reduced travel time for those trips made in the light rail corridor. On a peak hour basis, the reduction in vehicle miles of travel is rather modest. The modest impact of the rail system in the peak hour reflects the fact that although person trips are removed from the highway, travel is still very high. This "latent" demand for travel in the peak period causes any spare capacity on the highway system due to the rail line to be quickly filled by motorists who would otherwise have to travel outside of the peak period. However, reduction in total daily vehicular travel, as opposed to peak hour vehicle mile, would be proportionately greater. This would contribute to shorter peak travel periods[17] than would otherwise exist in the future without the light rail system.

Effects of the 1992 General Plan Update on the Transportation System

Comparison of the General Plan alternative land use strategies indicates that simply increasing the number of housing units and decreasing projected employment within the City will not necessarily significantly benefit the regional or local transportation system. The apparently modest impact of residential rezoning is due to several factors. One appears to be a lack of connection between jobs and housing in the City. The mere addition of housing does not guarantee that any significant proportion of new residents would take jobs in Mountain View.

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[16] The number of Mountain View residents who are employed. This is not the same as the number of Mountain View residents who are employed in the City of Mountain View.

[17] That is, the duration of congested commute periods in the morning and afternoon would be shorter.

It is possible that the disparity between the cost of this housing and the income level afforded by much of the projected job growth reduces the probability that new jobs will be filled by new residents. Potential solutions to this problem include affordable housing goals or quotas as recommended in the Housing Element, programs to match residents to local job opportunities, and prioritization of site redevelopment to provide the best proximity between jobs and housing as discussed in the Residential Neighborhoods Chapter.

A second explanation is the regional nature of the jobs/housing situation. Addition of residential population, even with a reduction in projected employment, does not assure a reduction in local traffic congestion. The regional forecasting model used to develop these estimates redistributes work (and other) trips on the basis of residential location, employment opportunity, and the effort required to travel from home to work. Income, auto ownership, and other factors are also considered. One result is that Mountain View residents are found to be just as likely to work in Sunnyvale, Palo Alto, or other surrounding communities with large quantities of high-income employment. Thus although increased housing opportunities may reduce long-distance trips, and may reduce total daily miles of travel, the reduction in commute-period trips on the network in and around Mountain View is less certain.

The Role of Transportation Demand Management

It is anticipated that the single largest change in transportation in the next 15 years will be a greater average auto occupancy for work-related trips. In addition to the land use strategies and future transportation network improvements described above, the General Plan identifies aggressive policies and implementation statements which promote Transportation Demand Management (TDM). This approach will further reduce the proportion of single-occupant vehicles during the most congested periods through shift to alternative modes of travel, including high-occupancy vehicles.

The City of Mountain View participated in the Golden Triangle Task Force planning process, and adopted a TDM ordinance which embodies many typical strategies for travel reduction. The TDM Ordinance establishes requirements for transportation demand management within the Golden Triangle area, which included the cities of Mountain View, Palo Alto, Sunnyvale, Milpitas, San Jose and an unincorporated area within Santa Clara County located near Milpitas and Highway 101. The purpose of the ordinance is to promote the development of TDM programs at employer work sites. The program establishes reporting requirements to enable the City to evaluate the effectiveness of existing TDM programs and note progress city-wide toward achieving average vehicle ridership goals. The Golden Triangle TDM Ordinance was adopted by the Santa Clara County Congestion Management Agency for countywide application.

The program also requires certain employers to designate specified individuals, a manager and commute coordinator, to ensure the proper coordination of reporting and implementation of TDM programs. Managers are expected to manage the operation of any TDM program implemented at the work site, compile annual TDM reports for the City, and serve as management liaison with the City. The commute coordinators may be one in the same. Every employer would be required to file a baseline TDM report and an annual TDM report to the City. The Future Conditions Report for the Circulation Chapter contains a detailed list of provisions that could be included in an employer-based TDM program.

3. Mitigation

The following Community Development Chapter policies and action programs would coordinate the location, intensity, and mix of land uses with transportation resources. These policies and action programs would reduce potential traffic impacts associated with existing and future development. These mitigation measures are included in the project.

Policy 44: Make land use decisions that support transportation alternatives to the automobile.

Action 44a: Encourage mixed use projects and the City's highest-density residential projects along major transit lines and around stations.

Action 44b: Prepare land-use plans for the Light Rail corridor that will complement and enhance Light Rail use.

Action 44c: Work with property owner on facilitating joint development and use of land at Light Rail Stations.

The following Circulation Chapter policies and action programs are included in the project and would mitigate future traffic impacts to a non-significant level, as summarized below. The following Circulation Chapter policies and action programs would reduce regional traffic growth.

Policy 1: Participate actively in regional planning efforts and programs at the Bay Area, County, and subregional level.

Action 1a: Continue to provide Council and staff representation on regional transportation planning groups.

Action 1b: Work with the Congestion Management Agency to carry out the Congestion Management Plan.

Policy 2: Support regional transportation policies, programs, and projects that will limit growth of traffic on freeways, expressways, and local streets.

Action 2a: Coordinate local transportation plans and improvements with those of regional agencies.

Action 2b: Commit staff resources to the review, analysis, and monitoring of regional transportation plans.

The following Circulation Chapter policies and action programs would help coordinate land use and transportation planning.

Policy 3: Ensure that future development and the transportation system are in balance.

Action 3a: Develop and maintain a citywide traffic model as a tool to help evaluate the balance between development and transportation.

Action 3b: Require a traffic analysis for large new developments and those expected to noticeably worsen traffic conditions.

Action 3c: Require developers to lessen their share of the effects that their new developments have on transportation, as a condition of project approval.

Action 3d: Consider requiring measures such as street improvements, Transportation Demand Management programs, employer-financed shuttle buses, traffic impact fees, assessment district or other financial commitment, and reduced project size to reduce traffic impacts.

Policy 4: Use peak-hour Level of Service D as the design standard for new or reconstructed streets, intersections, and traffic-control devices on arterials.

Policy 5: Establish goals for intersection Levels of Service that reflect the special circumstances of the surrounding area.

Action 5a: Use Level of Service D, "acceptable delays", for most arterials and their intersections.

Action 5b: Use Level of Service E, "significant delays", for Downtown and San Antonio Center where vitality, activity, and transit use are primary goals.

Action 5c: Use Level of Service E, "significant delays, "for roads in the Congestion Management Program street network, in accord with Congestion Management Program legislation.

Action 5d: Use Level of Service C, "acceptable delays," for local and collector streets in residential neighborhoods.

The following Circulation Chapter policies and action programs would help increase the number of riders per vehicle during peak commute periods.

Policy 6: Promote Transportation Demand Management programs at work sites.

Action 6a: Enforce the Transportation Demand Management ordinance.

Action 6b: Help employers achieve Transportation Demand Management goals.

Action 6c: Collaborate with other cities to evaluate the effectiveness of voluntary compliance with the Transportation Demand Management ordinance and to determine whether to make compliance mandatory by 1995.

Action 6d: Work with employers to develop Transportation Management Associations where appropriate.

Action 6e: Hold special events and conduct promotions to encourage bicycling, transit, and other commute alternatives in cooperation with local employers, merchants, and other organizations.

Policy 7: Promote TDM programs in residential developments, retail centers, and other activity centers.

Action 7a: Consider requiring developers of large residential projects, retail centers, and other activity centers to prepare TDM plans, including mechanisms to ensure the TDM programs remain in effect after the project is complete.

Policy 8: Require new development to incorporate design features that will strengthen TDM programs.

Action 8a: Use the design review process to require new buildings and major additions to incorporate design features that will encourage alternatives to driving alone.

Action 8b: Consider establishing incentives for new developments to provide showers, cafeterias and lunchrooms, and other on-site employee services that will encourage alternatives to driving alone.

Action 8c: Consider reducing parking requirements for new development as an incentive for strong and effective TDM programs.

The following Circulation Chapter policies and action programs would help improve the flow of traffic on freeways and expressways serving Mountain View.

Policy 9: Support, where appropriate, improvements that will allow freeways and expressways to operate more efficiently.

Action 9a: Pursue Federal, State, and other non-City funding for completion of these freeway and interchange improvements.

Action 9b: Seek to have State and County agencies provide commuter lanes, ramp metering, signal coordination, and incident warning systems on freeways and expressways.

The following Circulation Chapter policies and action programs would help build and maintain a safe and efficient local street system.

Policy 10: Improve safety and traffic flow on streets and at congested intersections, where feasible.

Action 10a: Consider whether improvements can be made in the existing right of way before widening or otherwise expanding streets and intersections.

Action 10b: Decide if there are cost-effective improvements such as new traffic signals, signal coordination, improved signal timing, pavement markings, turn lanes, island modifications, realignment, improved sight distance, or construction of urban interchanges which can be made at the following intersections:

- El Camino Real with, Clark Avenue~~, (possible new signal or island modifications), and San Antonio Road (possible urban intersection)~~.
- Shoreline Boulevard with Pear Avenue/theater driveway ~~(traffic signal)~~, L'Avenida, Middlefield Road ~~(additional turn lanes)~~, and Montecito Avenue ~~(possible reconstruction)~~.
- Grant Road and Levin Avenue/Covington Road ~~(realignment)~~.
- Ellis Street and U.S. 101 on-ramps ~~(possible traffic signal and other modifications for Light Rail Transit)~~.
- El Camino Real with Grant Road/Route 237. ~~(right turn only lanes, improved signal timing, and possible inclusion into El Camino Real synchronization system, possible future urban interchange).~~ (The City and Caltrans will need to coordinate on any improvements to the intersection.)

Action 10c: Improve Evelyn Avenue between Castro Street and Bernardo Avenue. (The Evelyn Avenue Corridor Study recommended that it be widened to four lanes from the Sunnyvale boundary to Downtown and be connected to Villa Street. This would provide a through route to Downtown and re-route traffic from neighborhood streets.)

Action 10d: Widen Grant to three lanes, two of these two be southbound, and install curbs, gutters, and sidewalks between Waverly Place and Levin Avenue.

Action 10e: Install curbs, gutters, and sidewalks on the east side of Springer Road between the south City boundary and approximately Pilgrim Avenue.

Action 10f: Study the feasibility of completing the interchange at Shoreline Boulevard and the south side of Central Expressway.

Action 10g: Consider prohibiting left turns during peak periods, closing medians, consolidating driveways, and other modifications to ease traffic congestion.

Action 10h: Synchronize traffic signals on Shoreline Boulevard and Rengstorff Avenue.

Policy 11: Ensure smooth flow of vehicles, bicycles, and pedestrians at rail crossings.

Action 11a: Consider an overpass or underpass at the railroad tracks at Rengstorff.

Action 11b: Work with appropriate agencies to improve the traffic signal preemption system at CalTrain crossings to eliminate unnecessary delay to auto traffic.

The following Circulation Chapter policies and action programs would help protect residential neighborhoods from excessive through traffic, where feasible.

Policy 12: Work to actively discourage through traffic from using neighborhood collectors and local streets.

Action 12a: Develop neighborhood protection plans when traffic studies confirm that there is excessive traffic volume, speeding, or accidents.

Action 12b: Emphasize visual deterrents to through traffic; Install physical obstacles only as a last resort.

Action 12c: Maintain the existing standards for narrower widths on new or reconstructed residential streets.

Policy 13: Route through traffic around the perimeters of neighborhoods where possible.

Action 13a: Identify arterials clearly by using design, signs, and other markers. An example is the sign on Shoreline Boulevard directing traffic to Castro Street by way of California Street.

The following Circulation Chapter policies and action programs would help improve rail transit serving Mountain View.

Policy 14: Give strong support to plans to increase CalTrain service frequency and hours of service.

Action 14a: Give active support to plans to increase the number of Peninsula commuter trains.

Action 14b: Work with appropriate agencies to improve train service in off-peak periods, and on weekends and holidays.

Action 14c: Give active support to plans to extend CalTrain service into south Santa Clara County.

Action 14d: Participate in evaluating the costs and benefits of extending CalTrain into downtown San Francisco.

Policy 15: Improve the design and function of Mountain View's CalTrain stations.

Action 15a: Work with appropriate agencies, and possibly a private developer, to replace the Mountain View station with a modern, attractive transportation center which could also include retail, office, or other uses. Its design should be compatible with the Downtown street improvements, the Evelyn Avenue Corridor Plan, and the Downtown Precise Plan.

Action 15b: Work with appropriate agencies to relocate the Castro Station to San Antonio Road.

Action 15c: Evaluate the feasibility of retaining the Castro name for either the train station at Castro Street or the new San Antonio stop, when the present Castro Station is closed.

Policy 16: Participate actively with the County Transportation Agency in planning and carrying out the Light-Rail Transit extension into Downtown Mountain View.

Action 16a: Work with the County Transit District to acquire the right of way for the Light-Rail Transit extension.

Action 16b: Support plans to extend Light Rail Transit service throughout the County.

Policy 17: Seek to improve access to rail transit in Mountain View.

Action 17a: Continue to work with employers on planning and running shuttle service between train stations and major employment centers.

Action 17b: Work with the County Transit District to schedule convenient train and bus connections at new and existing stations.

Action 17c: Make sure there is adequate auto parking at rail stations.

Action 17d: Work with appropriate agencies to provide adequate bicycle and pedestrian facilities at train stations.

Policy 18: Ensure that new Light Rail Transit and expanded CalTrain service operate safely within Mountain View.

Action 18a: Work with the County Transit District to incorporate safe rail crossings into the design of the proposed Light-Rail Transit line, including the crossing at Ellis Avenue near the U.S. 101 interchange and the crossing of Central Expressway east of Castro Street.

Action 18b: Monitor safety conditions at rail crossings and train stations as the number of trains increases, and seek to develop proposals to have safety problems corrected promptly.

Action 18c: Provide adequate, safe waiting areas for bicyclists and pedestrians at railroad crossings.

The following Circulation Chapter policies and action programs would help provide fast, convenient, comprehensive, and dependable bus service in Mountain View.

Policy 19: Seek to have the County Transit District provide bus service and bus stops wherever there is a demonstrated need in the city.

Action 19a: Seek changes to bus routes and schedules when needed to serve riders better. (Much of the City's role in improving bus service is to serve as a liaison between residents who use the buses and the Transit District.)

Action 19b: Work with the County Transit District and potential riders to increase express bus service to major employment centers during commute hours.

Policy 20: Ensure attractive, well-lighted, comfortable, and protected waiting areas for bus and train passengers.

Action 20a: Review bus shelter design and plans for installing shelters in specific locations.

Action 20b: Support special designs for bus shelters when they will help carry out a broader design plan in new public and private development.

Action 20c: Identify locations where bus shelters are needed based on use and available space, and request the County Transit District to install the shelters.

The following Circulation Chapter policies and action programs would make it easier and safer for people to travel by bicycle.

Policy 22: Provide and maintain a safe and comprehensive bicycle system that connects all parts of the city.

Action 22a: Complete the bicycle system as shown on Figure 7.

Action 22b: Locate and design bikeways that are separate from streets wherever possible. Designate on-street bike lanes or routes where off-road bike paths are not possible.

Action 22c: Consider building bridges or undercrossings for bicyclists and pedestrians at locations shown on Figure 7.

Action 22d: Incorporate bicycle facilities into the design of interchanges, intersections, and other street improvement projects.

Action 22e: Develop bike paths in the Stevens Creek corridor and on the Hetch Hetchy right of way; develop bike paths in rail corridors if feasible.

Action 22f: Establish a bicycle advisory committee to review the bicycle system to advise staff and the City Council on needed improvements. Bicyclists are the best source of information about improvements to the bicycle system.

Action 22g: Make improvements to roads, signs, and traffic signals as needed to improve bicycle travel.

Action 22h: Keep bikeways free of overhanging shrubbery and other obstacles.

Action 22i: Regularly sweep bikeways to remove debris, which can damage tires.

Policy 23: Ensure that there is secure bicycle parking at centers of public and private activity.

Action 23a: Require new development to provide secure bicycle parking. (The Zoning Ordinance requires new development, as a condition of approval, to provide bicycle parking equal to five percent of the total auto parking required.)

Action 23b: Install bicycle parking in Downtown Mountain View and at city parks, civic buildings, and other community facilities.

Action 23c: Encourage shopping centers and businesses to install bike racks.

Policy 24: Support arrangements for allowing bicycles on trains and buses.

Policy 25: Actively promote bicycling and bicycle safety.

Action 25a: Distribute maps of Mountain View's bicycle system and other information about bicycle safety through newspapers and other publications, at City buildings and schools, and at street fairs and special events.

Action 25b: Continue to expand the Police Department's bicycle education program.

The following Circulation Chapter policies and action programs would make it easier, safer and more enjoyable for pedestrians.

Policy 26: Provide a continuous system of sidewalks along streets.

Action 26a: Require sidewalks on both sides of public streets in all new developments.

Action 26b: Work with neighborhoods to decide where curbs, gutters, and sidewalks are needed on unimproved local streets and how to pay for the improvements.

Action 26c: Install and maintain temporary sidewalks or paths on at least one side of all unimproved arterial and collector streets.

Action 26d: Continue to replace sidewalks that have deteriorated.

Policy 27: Ensure that pedestrian paths are included within major new developments and public facilities.

Action 27a: Require new developments to build clearly identified internal walkways that are distinct from roadways and that directly connect building entrances to public sidewalks and transit stops.

Policy 28: Provide for safe walkways and pedestrian crossings of arterial streets, railroad tracks, creeks, and other physical barriers.

Action 28a: Ensure that sidewalks are free of obstructions such as signs and driveways and that they are wide enough to accommodate pedestrians easily.

Action 28b: Identify locations where there is substantial pedestrian traffic and improve traffic controls and lighting that benefit pedestrians.

Action 28c: Avoid placing travel lanes right next to sidewalks when considering plans to widen streets. (A landscaped strip provides the best protection for pedestrians, but even parked cars and bicycle lanes can serve as buffers.)

Action 28d: Continue to work with the school districts to provide safe crossings for school children.

Policy 29: Maintain the pedestrian orientation of the Castro Street area.

Action 29a: Carry out the development standards and design guidelines in the Downtown Precise Plan.

The following Circulation Chapter policies and action programs would support the development and maintenance of transportation facilities that are aesthetically pleasing and have minimal adverse environmental effects.

Policy 30: Enhance the character of arterials in residential neighborhoods with landscaping and special design elements

Action 30a: Prepare design plans for and improve the residential arterials that have not yet been upgraded:

- Whisman Road from Middlefield Road to U.S. 101.
- Miramonte Avenue.
- El Monte Avenue/Springer Road.
- Rengstorff Avenue from California Avenue to Middlefield Road.
- Cuesta Drive from Miramonte Avenue to Springer Road.
- Shoreline Boulevard from Central Expressway to U.S. 101.

Policy 31: Reduce the negative effects caused by roadways and rail lines on visual quality, air quality, and noise.

Action 31a: Seek to have sound walls installed along sections of freeways and expressways that pass through residential areas when the roadways are widened or otherwise improved.

Action 31b: Assess the visual and noise effects of proposed underpasses, overpasses, and interchanges and soften their effects on residential neighborhoods.

Action 31c: Review environmental impact studies for proposed transportation projects to be sure that adequate measures are taken to make the impacts of their noise, traffic, and other effects less severe.

The following Circulation Chapter policies and action programs would help insure that people who are mobility-impaired have access to transportation.

Policy 33: Support improved access to public transportation by people with disabilities.

Action 33a: Represent the needs of Mountain View residents to transit providers responsible for carrying out handicapped-access regulations.

Action 33b: Review the plans for new train stations and transfer centers and identify potential obstacles for people who are mobility-impaired.

Policy 34: Supplement the public transit system with paratransit services for the elderly and mobility-impaired where needed.

Action 34a: Continue to contribute resources to Vantrans or similar paratransit service.

Policy 35: Ensure that people who are mobility-impaired can conveniently and safely move from parking lots to buildings and transportation boarding areas.

Action 35a: Continue to carry out requirements for handicapped parking and building access in public and private development.

The following Circulation Chapter policies and action programs would expand private transportation services within Mountain View.

Policy 36: Encourage innovative methods of running shuttle or jitney services as needed within Mountain View.

Action 36a: Work with employers who want to provide shuttle service from industrial and office areas to Downtown Mountain View and other shopping and entertainment districts.

Action 36b: Identify other potential shuttle routes. (There may be other travel corridors, for example between high-density residential areas and rail stations or shopping centers, that would benefit from shuttle services.)

Policy 37: Encourage ~~Maintain~~ private taxi service in Mountain View.

Action 37a: Continue to monitor taxi service in Mountain View and require improvements as needed.

Action 37b: Evaluate the potential role of taxi companies in providing service to people who are mobility-impaired.

The following Circulation Chapter policies and action programs would help seek public involvement in planning and carrying out transportation improvements.

Policy 38: Encourage regular public comment and suggestions on regional and local transportation plans and projects.

Action 38a: Continue to supply clear, readily available information and to hold public meetings on proposed transportation projects and plans.

Policy 39: Help residents communicate their concerns and suggestions about transportation facilities to the appropriate people or agencies.

Action 39a: Publicize the names of agencies and individuals responsible for responding to questions and concerns about traffic and transit problems.

Action 39b: Notify the public when construction projects are about to begin on local streets, expressways, and freeways.

The following Circulation Chapter policies and action programs would help ensure balanced funding for transportation systems.

Policy 40: Shift a greater proportion of transportation funding toward improvements related to bus, rail, bicycle, pedestrian, and carpool transportation.

Action 40a: Emphasize funding for alternatives to the single-passenger auto when appropriating funds for transportation projects.

Implementation of the identified policies and action programs would mitigate potential traffic impacts to a non-significant level.

C. AIR QUALITY

The following summary evaluation of the air quality environment in Mountain View is based upon a technical Air Quality Analysis prepared by Don Ballanti, Consulting Meteorologist in November, 1990 and updated in April, 1992. This study contains a description of the air pollution climatology in Mountain View, a discussion of air quality standards, estimated levels and sources of pollutants in the city, and the predicted worst case concentrations for the year 2005. This Air Quality Analysis is included as a technical appendix to the Air Quality Background Report for the Environmental Management Chapter which is on file at the City of Mountain View Planning and Community Development Department.

1. Setting

Air Pollution Climatology

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine. The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution and terrain that restricts horizontal dilution give Mountain View a relatively high atmospheric potential for pollution.

Winds

Mountain View has a mild climate, with a mean average temperature of 57 degrees. Average annual rainfall is slightly above 13 inches, occurring primarily during a six-month period from November to April. Prevailing winds in the daytime originate from the San Francisco Bay in a north and northwest direction, becoming more westerly in the evening.

Northwest winds and northerly winds are most common in Mountain View, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from northern areas of the Peninsula towards Mountain View, particularly during the summer months. Winds are lightest on the average in fall and winter. Every year in fall and winter there are periods of several days when winds are very light and local pollutants can build up.

Atmospheric Stability

Dilution of pollutants via vertical mixing is suppressed under inversion conditions, when a warm layer of air traps cooler air close to the surface. The level of atmospheric stability is measured in the Bay Area twice daily by radiosondes (balloon-borne instruments and radio transmitters) released at the Oakland Airport. During the summer, inversions are elevated above ground level, and are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Terrain

The topography of the Peninsula also affects air quality. The lower-Peninsula area is somewhat sheltered, so that the terrain partially restricts lateral dilution of pollutants.

Air Quality Standards

The Federal Clean Air Act of 1967, as amended, established air quality standards for several pollutants. These standards are divided into primary standards which are designed to protect the public health and secondary standards which are intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. In addition, the State of California has adopted its own more stringent standards. The state standards are durations of time for specific contaminant levels which are designed to avoid adverse effects with a margin of safety. The state and federal standards for criteria pollutants are shown in Table 14. The pollutants in Table 14 are known as "criteria" pollutants because of published documents providing information on the health and other effects of various exposures to pollutants.

Another group of substances known as "Toxic Air Contaminants" is receiving increased attention as a subject of public concern and regulation. These pollutants may be highly injurious, even in small quantities. Because there are many toxic pollutants, and they are relatively uncommon, limits are established for these pollutants without the lengthy and costly process of developing ambient air quality standards.

Characteristics and Sources of Pollutants

The major air quality problems in the Bay Area are ozone, carbon monoxide and suspended particulates.

Ozone

Ozone is not emitted directly to the atmosphere by any source, but is the result of a complex chemical reaction in the atmosphere in the presence of sunlight. The major pollutants involved in this reaction, known as ozone precursors, are hydrocarbons and oxides of nitrogen. The sources of these precursor pollutants are numerous and widespread, but the major sources are vehicles, industrial processes, combustion, solvents and paints. Because of the time delay of several hours involved in the formation of ozone, the highest concentrations are found downwind of urban areas. Ozone can also be transported long distances by wind so that ozone created in the Bay Area may be transported as far as the Sacramento area and communities in the Sierra Nevada range.

Carbon Monoxide

Carbon monoxide is a local pollutant since high concentrations occur very near the source. Carbon monoxide is a colorless, odorless, poisonous gas primarily resulting from automobiles. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

TABLE 14
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 1-Hour	9.3 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual 1-Hour	0.05 PPM ---	--- 0.25 PPM
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 PPM 0.14 PPM ---	--- 0.05 PPM 0.5 PPM
Particulates	AGM 24-Hour	50 ug/m3 150 ug/m3	30 ug/m3 50 ug/m3
Lead	30-Day Average 3-Month Average	1.5 ug/m3 ---	1.5 ug/m3 ---

PPM = Parts Per Million

ug/m3 = Micrograms Per Cubic Meter

Suspended Particulates

The major sources of particulate matter affecting Mountain View are dust from industrial processes, automobiles, and aerosols generated during the creation of photochemical smog. Construction-related dust also contributes to particulate concentrations.

Toxic Air Contaminants

Assembly Bill 2588, the Toxic "Hot Spots" Information and Assessment Act of 1987, requires that industry provide information to the public about emissions of toxic air contaminants and their impact on public health. This law requires local air districts and the state Air Resources Board to prepare a detailed inventory of sources of over 200 toxic air contaminants, the identification of high priority emission sources, and the preparation of health risk assessment for each of these priority sources.

The inventory of toxic air contaminant sources for the Bay Area identified 42 sources within Mountain View city limits. The majority of these sources are electronic and semiconductor manufacturers that utilize numerous solvents and gases. Twelve of the identified sources are dry cleaners, and another three deal with petroleum products. Of the 42 sources identified in Mountain View, three were designated as high priority facilities by the Bay Area Air Quality Management District. Health risk assessments for these three facilities were required to be submitted to the District in 1991.

Past and Current Air Quality

The Bay Area Air Quality Management District operates a network of permanent air quality monitoring sites throughout the Bay Area, including an ozone monitoring site in Mountain View. For other pollutants, the closest monitoring site is in Redwood City. Historical air quality data for these two sites show that the State and federal standards for sulfur dioxide, nitrogen dioxide and lead are met in the Mountain View area. However, concentrations of other criteria pollutants occasionally exceed the ambient air quality standards.

Ozone

Table 15 shows ozone air quality data for the Mountain View and Redwood City monitoring sites for the years 1982-1989. Table 15 provides the maximum measured concentration and the number of days that the state and federal standards were exceeded each year. Table 15 indicates that Mountain View, located south and generally downwind of Redwood City, has higher ozone levels. This is consistent with observations that ozone air quality deteriorates as the wind moves southeast along the San Francisco Peninsula.

Suspended Particulates

Since 1982, the suspended particulate standard was modified from specifying Total Suspended Particulate (TSP) to PM-10 (Particulate Matter, 10 micron). The State standard for suspended particulate was changed in 1983; the federal standards were similarly changed in 1987. Monitoring of PM-10 began at Redwood City in 1986.

TABLE 15
NUMBER OF DAYS EXCEEDING STATE OR FEDERAL AMBIENT AIR QUALITY OZONE STANDARDS IN REDWOOD CITY AND MOUNTAIN VIEW, 1982-1989

Year	Maximum (PPM)	Days Exceeding Standard	
		State	Federal
Redwood City			
1982	0.10	0	1
1983	0.17	2	8
1984	0.11	0	14
1985	0.13	1	12
1986	0.10	0	1
1987	0.12	0	5
1988	0.10	0	2
1989	0.10	0	1
Mountain View			
1982	0.11	0	6
1983	0.16	5	16
1984	0.12	0	13
1985	0.12	0	5
1986	0.13	1	5
1987	0.14	4	44
1988	0.12	0	28
1989	0.11	0	6

Source: Reference 1

TABLE 16

Annual Average Concentrations and Number of Days Exceeding State and Federal Standards of Suspended Particulate, 1982-1989, in Micrograms per Cubic Meter

Year	Annual Mean:[1] Geometric	Annual Mean:[1] Arithmetic	Days Exceeding Standard Federal	Days Exceeding Standard State
		Total Suspended Particulate		
1982	41.9	--	0	0
1983	36.7	--	0	0
1984	43.6	--	0	-
1985	44.0	--	0	-
1986	43.8	--	0	-
		PM-10		
1987	25.4	29.0	0	6
1988	29.8	34.7	0	4
1989	29.1	33.3	0	10

Source: Ref. 1

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[1] The federal annual TSP standard prior to 1987 and PM-10 standard since 1987 specifies an annual geometric mean of 24-hour measurements. The state standard for PM-10 specifies an arithmetic mean of all 24-hour measurements.

TABLE 17

Maximum Concentrations and Number of Days Exceeding State or Federal Ambient Air Quality Carbon Monoxide Standards in Redwood City, 1982-1989

Year	Maximum (PPM)	Days Exceeding Standard:
1982	6.0	0
1983	9.6	1
1984	5.6	0
1985	6.4	0
1986	6.4	0
1987	5.4	0
1988	5.0	0
1989	5.3	0

Source: California Air Resources Board, California Air Quality Data Annual Summary, Vols. XIV-XXI, 1983-1990.

Unlike gaseous pollutants, suspended particulates are not measured on a daily basis, but are measured every sixth day. The state and federal standards are for both a 24-hour and annual averaging time. Data from the Redwood City monitoring site for TSP (prior to 1987) and for PM-10 (since 1987) are shown in Table 16. The limited data base from Redwood City for PM-10 indicates that the federal ambient air quality standards are met, but the more stringent state standards are exceeded.

Carbon Monoxide

Table 17 shows the maximum concentrations measured each year during 1982-1989 for carbon monoxide, and the number of days that the 8-hour State and federal standards were exceeded. Only one violation of the standard was recorded in Redwood City during this 8-year period.

Additional monitoring of carbon monoxide concentrations has also occurred nearby in Palo Alto. In addition to regular monitoring of carbon monoxide levels at Redwood City, the City of Palo Alto and Bay Area Air Quality Management District funded a special monitoring program for carbon monoxide within Palo Alto from November 1985 to February 1986. This study revealed that carbon monoxide concentrations within Palo Alto generally met the State and federal standards with the exception of two locations.

Regional Air Quality Planning

The San Francisco Bay Area is designated as a region where three national ambient air quality standards are exceeded. Under the 1977 Clean Air Act, the Association of Bay Area Governments (ABAG) was empowered to prepare a plan to address the region's non-attainment of standards for ozone, carbon monoxide, and suspended particulates. The entire Bay Area is considered a non-attainment area for ozone; urbanized areas within the Bay Area are considered non-attainment for carbon monoxide. The Clean Air Act Amendments of 1977 specified that the national ambient air quality standards were to be met by 1982, with provision for extension of the deadline five years to 1987. However, the national ambient air quality standards were not met in the Bay Area by 1987.

Although the State of California has maintained its own ambient air quality standards for many years, until recently there was no requirement that these standards be attained by any date. The California Clean Air Act was signed into law on January 2, 1989. This legislation requires areas that exceed the state ambient air quality standards to plan for eventually attaining the standards.

The State Clean Air Act requires local Air Pollution Control Districts to prepare air quality attainment plans for ozone and carbon monoxide. Generally, these plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods. The Act also grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage or require the use of ridesharing, vanpooling, flexible work hours, or other measures which reduce the number or length of vehicle trips. The State Clean Air Act also grants air quality districts explicit statutory authority to adopt indirect source regulations and transportation control measures. These measures would encourage or require the use of ridesharing, vanpooling, flexible work hours, or other measures to reduce the number or length of vehicle trips.

The Bay Area '91 Clean Air Plan (CAP) is the adopted air quality plan for the Bay Area mandated by the State Clean Air Act. The '91 CAP contains numerous control measures for stationary sources and mobile sources and Transportation Control Measures (TCMs) designed to reduce automobile emissions in the region. The Bay Area '91 Clean Air Plan forecasts continued improvement in regional air quality.

2. Impacts

The air quality analysis evaluated existing (1990) base case carbon monoxide concentrations (Case 1), and future base case air pollutant emissions and concentrations associated with the year 2005 base conditions (Case 2). These conditions were based upon traffic volumes associated with population projections contained in the ABAG Projections '90 data.

In order to evaluate the potential air quality impacts associated with the future implementation of the Community Development Chapter action programs for the potential housing sites, the traffic volumes associated with the residential redevelopment sites were added to the year 2005 base conditions (Case 3). To evaluate the air quality impacts of the residential redevelopment sites and land use alternative sites, the corresponding traffic volumes were also added to the year 2005 base conditions (Case 4). The resulting values for each of the evaluated year 2005 conditions reflect the net change in trip generation after subtracting trips from existing uses that would be removed.

The residential redevelopment sites evaluated in the air quality analysis (Case 3) consist of a total of 2,640 dwelling units. These residential redevelopment sites include the original list of potential residential redevelopment sites: Site 1, Site 3, Site 4, Site 5, Site 8, Site 9, Site 10, Site 11, Site 16, and Site 17, as described in Table 8. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, the difference between the number of dwelling units associated with the original residential redevelopment sites (2,640 units) and the number of new units associated with the modified residential redevelopment sites (2,587 units) is minimal. The modified sites consist of 53 fewer residential units, with less traffic, and reduced corresponding air pollutant emissions.

The residential rezoning sites plus the land use alternative sites (Case 4) involve residential development of the original 18 sites for a total of 7,375 dwelling units. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, and the land use alternative sites only include Sites 2, 4, 6, and 7, the difference between the number of dwelling units associated with Case 4 (7,375 units) and the number of new units associated with the modified alternative sites (5,727 units) is not substantial. The modified alternative consists of 1,648 fewer residential units, with less traffic, and reduced corresponding air pollutant emissions. This air quality analysis applies to the alternative discussion contained in Section IV of this EIR.

Local Pollutants

The local pollutant of greatest importance in the Mountain View area is carbon monoxide. Computer models have been developed that allow the prediction of carbon monoxide concentrations near roadways in future years. One such model, the CALINE-4 program developed by the California Department of Transportation, was applied to six major intersections

within Mountain View for current traffic volumes and projected year 2005 traffic volumes under three land use scenarios.

Given traffic volumes, meteorology, site geometry, and site characteristics, the model predicts pollutant concentrations for receptors located near the roadway. An intersection model was constructed, extending 250 meters in all directions. Receptors (locations where the model calculates concentrations) were located at a distance of 10 meters from the roadway edge for all four corners of the intersection. Concentrations of carbon monoxide were calculated at six intersections. These intersections were selected as having the highest potential for carbon monoxide based upon the volume of traffic and congestion conditions, and concentrations at these locations should represent the highest to be expected within the Mountain View area.

Table 18 shows the results of the intersection analysis for the peak hour traffic period and the 8-hour peak traffic period[1]. These values are compared to the federal 1-hour standard of 35 PPM and the state standard of 20 PPM, and the 8-hour standard (federal and state) of 9.0 PPM. Concentrations shown in Table 18 for existing conditions are all well below the most stringent state and federal standards. The air quality analysis evaluates four different land use scenarios: the existing 1990 conditions, and Cases 2, 3, and 4 described above.

By the year 2005, concentrations would be below current concentrations for all three future land use scenarios. Despite projected increases in traffic, the future levels would be less than the current concentrations due to the implementation of better vehicular emission controls.

Regional Pollutants

Future development within Mountain View would affect driving patterns in the region, and would therefore affect regional air quality. Vehicle trips to and from Mountain View result in automobile emissions affecting the entire Bay Area.

To estimate the emissions associated with future land use changes, the URBEMIS-2 computer program, developed by the California Air Resources Board, was applied to alternative land use scenarios for Mountain View. Table 19 shows the daily vehicular emissions associated with the three land use scenarios in the year 2005. Emissions are shown for the ozone precursors (hydrocarbons and oxides of nitrogen) and PM-10.

Guidelines for the evaluation of projects and plans issued by the Bay Area Air Quality Management District consider emission increases of PM-10 or ozone precursors to be significant if they exceed 150 pounds per day. Based upon this criterion, the Base Case scenario (Case 1), Residential Redevelopment (Case 2), and Residential Redevelopment and Land Use Alternatives scenario (Case 3) would result in significant regional emissions.

The URBEMIS-2 program calculates emissions associated with land use changes. It cannot account for regional changes in travel patterns that may result from the project. In the case of

[1] The 1-hour concentrations consist of carbon monoxide levels measured for a one-hour period, usually during the peak hour. The 8-hour concentration is the average of eight 1-hour measurements.

TABLE 18

Predicted Worst Cast 1-Hour and 8-Hour Concentrations, in Parts per Million

Intersection	Case 1	Case 2	Case 3	Case 4
	1-Hour Concentrations			
San Antonio/El Camino	15.4	13.6	13.8	13.4
Rengstorff/El Camino	14.3	12.5	12.7	12.2
Grant/El Camino	17.1	16.1	16.2	16.2
Central/Castro	15.0	14.1	14.2	14.2
Grant/Cuesta	13.7	12.2	12.2	12.1
Rengstorff/Central	15.2	14.2	14.2	14.2
	8-Hour Concentrations			
San Antonio/El Camino	6.5	5.7	5.8	5.6
Rengstorff/El Camino	6.0	5.3	5.3	5.1
Grant/El Camino	7.2	6.8	6.8	6.8
Central/Castro	6.3	5.9	6.0	6.0
Grant/Cuesta	5.8	5.1	5.1	5.1
Rengstorff/Central	6.4	6.0	6.0	6.0

Case 1 = Existing (1990)
Case 2 = Base Case (2005)
Case 3 = Residential Redevelopment Scenario - 2,640 dwelling units. (2005)
Case 4 = Residential Redevelopment and Land Use Designation Scenario - 7,375 dwelling units. (2005)

TABLE 19
YEAR 2005 REGIONAL EMISSIONS INCREASES,
IN POUNDS PER DAY

	HC	NOX	PM-10
Base Case	402.1	752.7	73.3
Residential Redevelopment	289.3	482.5	52.9
Residential Redevelopment Land Use Designations	362.0	500.3	51.5

HC = Hydrocarbons
NOX = Oxides of Nitrogen
PM-10 = Particulate Matter, 10 Micron

Residential Redevelopment and Residential Redevelopment and Land Use Alternatives scenarios, shifts in the jobs/housing balance would occur within Mountain View and the South Bay that would influence travel patterns. Increasing housing availability is an air quality strategy for the South Bay. Presumably, new housing in Mountain View would absorb some population growth that would occur elsewhere in the Bay Area, and because of its proximity to employment, would ultimately reduce long distance commuting (and regional air emissions). The regional impacts of the Residential Redevelopment scenario and Residential Redevelopment and Land Use Alternatives scenario would, therefore, be partially offset by reductions in emissions elsewhere in the Bay Area. The amount of this offset is unknown.

Development under either the Residential Redevelopment or Residential Redevelopment and Land Use Alternatives scenarios does not appear to result in problems with criteria pollutants at a local level. At a regional level, the Residential Redevelopment scenario and Residential Redevelopment and Land Use Alternatives scenario would result in hydrocarbon and oxides of nitrogen emissions that would exceed the 150 pound per day "threshold of significance." Despite these exceedances, the project and project alternative would result in lower emissions than under the Base Case scenario for the year 2005. While the regional emissions associated with traffic generated by the Residential Redevelopment scenario and Residential Redevelopment and Land Use Alternative scenario exceeds the "threshold of significance," at a regional level, the development of housing within Mountain View is part of a larger, overall regional strategy for improving air quality. This scenario would be consistent with regional programs and strategies for attaining the air quality standards in the region.

Toxic Air Contaminants

Future growth under either the Residential Redevelopment or the Residential Redevelopment and Land Use Designations scenarios could potentially result in land use conflicts. Under both of these scenarios, lands currently zoned for industrial use or within areas zoned for industrial use would be developed with housing. Residential development adjacent to facilities that currently use toxic air contaminants may expose more people to harmful pollutants under either scenario.

Either scenario would locate new housing in proximity to industrial lands. As noted earlier, there are 42 known sources of toxic air pollutants within Mountain View, the majority of which are located in industrial and manufacturing areas. Unlike criteria pollutants, toxic air pollutants have not been the subject of public scrutiny or regulation for a long time. Federal, State, and local programs for the identification of public health risks have only recently begun, and the process of identifying sources and quantifying risks will be ongoing for a period of several years.

3. Mitigation

Regional and Local Air Quality Impacts

Implementation of the Community Development Chapter policies and action programs pertaining to alternative transportation modes would also improve related air quality. The policies include Policies 6, 7, and 8 and Action Programs 4.a and 5.a.

Implementation of the Circulation Chapter policies and action programs identified in SECTION II., B. TRAFFIC CIRCULATION of this EIR would have the secondary benefit of reducing air pollutant emissions attributed to mobile sources. Implementation of the following Circulation Chapter policies and action programs would specifically reduce potential air quality impacts: Policy 31 and Action Program 31.c, Policy 32 and Action Programs 32.a and 32.b.

Implementation of the following Environmental Management Chapter policies and action programs would reduce local and regional air quality impacts.

Policy 19: Participate in regional planning efforts to improve air quality.

Action 19a: Continue to cooperate with the Bay Area Air Quality Management District in carrying out the regional Clean Air Plan.

Action 19b: Work with the Congestion Management Agency to carry out the Congestion Management Plan.

Policy 20: Promote local efforts to improve air quality.

Action 20a: Use the development review process to evaluate the cumulative effects of new development on air quality and impose appropriate measures through enforcement of CEQA to lessen the effect.

Action 20b: Use the City's Transportation Demand Management Ordinance and similar transportation measures to encourage commute alternatives.

Action 20c: Improve awareness of the Bay Area Air Quality Management District's enforcement program to regulate specific businesses, especially those near residential neighborhoods.

The City of Mountain View is presently implementing several programs that would continue to achieve acceptable local and regional air quality. These programs are described below.

- Mountain View adopted a Transportation Demand Management Ordinance, and designated the Commuter Network as the implementing agency for the Ordinance. The TDM program includes both mandatory and voluntary elements. Annual reports are required from employers with over 100 employees. However, employers are only encouraged to implement voluntary TDM programs. The California Clean Air Act required the implementation of transportation control measures, such as commute alternatives programs, in order to achieve State and Federal air quality standards. As a result, the Ordinance's rideshare goals now comply with the Clean Air Act provisions.[2]

[2] City of Mountain View Golden Triangle Task Force Transportation Demand Management (TDM) Ordinance, October 1, 1990.

- The North Bayshore Area has been identified as one of two County-wide demonstration areas for a Transportation Management Association to create a local public/private congestion relief and air quality improvement program. Implementation of this program has not yet been initiated.

- Mountain View is a member of the Santa Clara County Congestion Management Agency. Future development in the City is required to conform to the provisions of the Congestion Management Program (CMP). The CMP identifies measures to reduce air pollutant emissions in conformance with the Bay Area Air Quality Management District Clean Air Plan '91.

- The City operates a shuttle to and from the industrial areas to provide transit riders with transportation to their places of employment.

Toxic Air Contaminant Impacts

Implementation of the Community Development Chapter policies and action programs aimed at minimizing risks from the use of hazardous materials would reduce potential toxic air contaminant hazards. The policies include Policies 1 and 2 and the Action Programs include 1.a., 2.a., 2.b. and 2.c. These measures are included in the project.

Implementation of the following Environmental Management Chapter policies and action programs would reduce local and regional air quality impacts.

Policy 19: Participate in regional planning efforts to improve air quality.

Action 19a: Continue to cooperate with the Bay Area Air Quality Management District in carrying out the regional Clean Air Plan.

Policy 20: Promote local efforts to improve air quality.

Action 20c: Improve awareness of the Bay Area Air Quality Management District's enforcement program to regulate specific businesses, especially those near residential neighborhoods.

Active implementation of the identified policies and action programs would reduce significant air quality impacts to a non-significant level. The success of these programs, however, depends upon whether future levels of criteria and toxic air pollutants achieve acceptable standards.

D. NOISE

The following summary evaluation of the noise environment in Mountain View is based upon a technical Noise Study prepared by MO'C Physics Applied in November, 1990 (see Appendix D). This study contains a detailed description of the noise descriptors, differences between the City's current General Plan Noise Guidelines, and the proposed new guidelines, and future projections of noise levels for the Year 2005.

1. Setting

Noise Guidelines

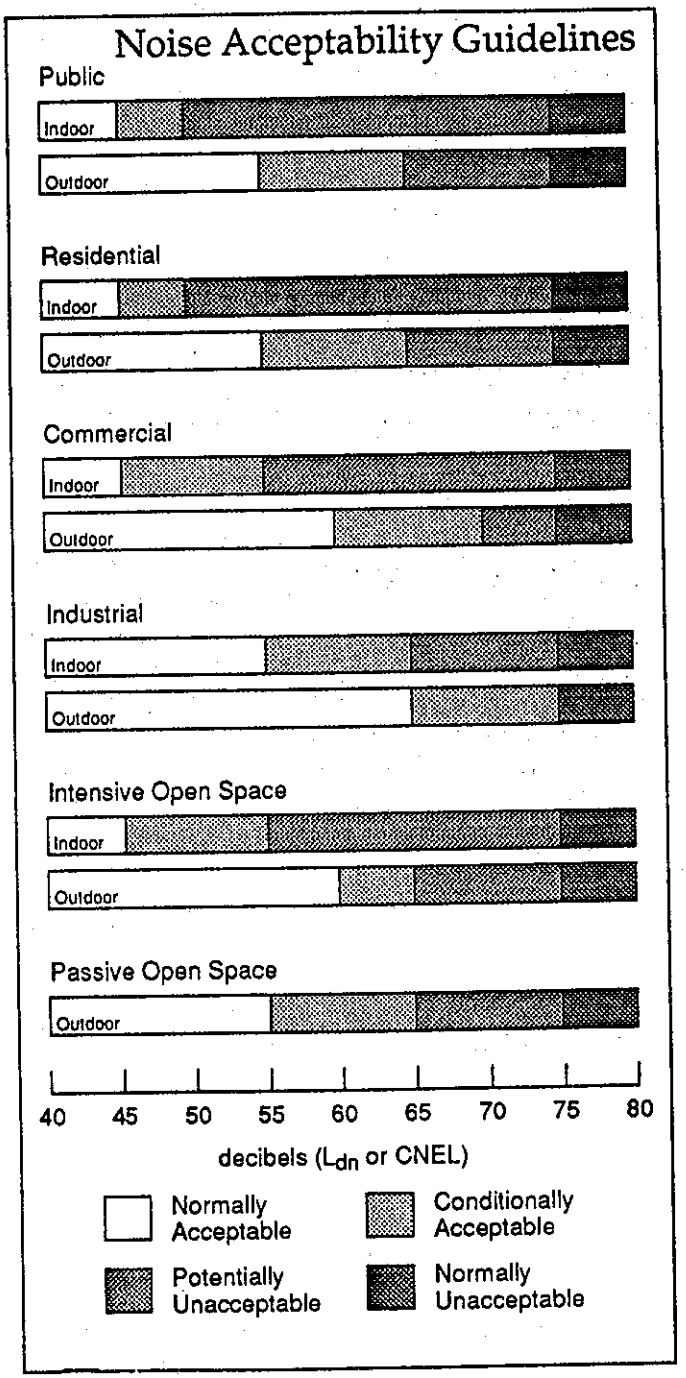
The 1982 General Plan Noise Guidelines provide a benchmark for evaluating specific plans and projects in noise-sensitive locations. The 1982 noise guidelines are presently expressed in terms of *dB(A)* L_{10} which is a measurement of the intensity of sound (dB), weighted by the frequency to correspond with human perception of sound (A), and adjusted to allow for the short-term sounds that occur less than ten percent of the time (L_{10}). Over any specified interval of time, the L_{10} is the level which the instantaneous environmental noise level exceeds ten percent of the time.[3] The L_{10} descriptor was selected in 1975 for Mountain View's first Noise Element. The descriptor was selected because it was an accepted measurement by the EPA and because of the noise equipment available to the city at the time.

The City's L_{10} guidelines are expressed in terms of daytime (7:00 am to 10:00 pm) and nighttime (10:00 pm to 7:00 am). The daytime L_{10} is the decibel level which exceeds the environmental noise level for 90 minutes of the day, and the nighttime L_{10} is the level exceeded for a total of 54 minutes of the night. The technical report to this background report provides a detailed explanation of these differences.

The noise and land use compatibility guidelines on the following page were recommended to replace the 1982 General Plan noise guidelines. Although the City's levels indicated in the existing guidelines are preserved, the L_{dn} is used in place of the daytime and nighttime L_{10}'s and degrees of compatibility are suggested.

In addition to the City of Mountain View's Noise Guidelines, the California Administrative Code establishes sound transmission control standards which are applicable to non-detached residential units, such as apartments, condominiums, "zero lot line" homes, hotels, and motels. If, at such a proposed residential structure, the outdoor CNEL exceeds 60 decibels, then an acoustical analysis must be performed. This analysis must further demonstrate that the exterior walls, the roof, the windows, etc., of the proposed structure would reduce the transmission of exterior noises into the interior in such a way as to maintain the annualized CNEL in any inhabitable room at a level which is not in excess of 45 decibels. Other noise insulation requirements which

[3] For example, if the environmental noise level is greater than 60 decibels during a cumulative six minutes of an hour, then the L_{10} for that hour is 60 dB because six minutes are 10 percent of an hour. The exceedance does not have to occur over six consecutive minutes.


Noise Acceptability Guidelines
Public
Indoor
Outdoor
Residential
Indoor
Outdoor
Commercial
Indoor
Outdoor
Industrial
Indoor
Outdoor
Intensive Open Space
Indoor
Outdoor
Passive Open Space
Outdoor
40
45
50
55
60
65
70
75
80
decibels (Ldn or CNEL)
Normally Acceptable
Conditionally Acceptable
Potentially Unacceptable
Normally Unacceptable

are stated elsewhere (i.e., the Uniform Building Code) provide minimum standards for the noise insulating properties of the panels which separate the units.

Noise Sources

The major sources of noise in Mountain View are transportation facilities, such as freeways and the Southern Pacific Railroad, aviation operations associated with Moffett Field, the NASA Ames' wind tunnel, and the Shoreline Amphitheater. Figure 14 depicts the approximate noise contours associated with these noise sources.

Noise Generation

Roadway Noise

Table 20 provides the estimated roadside noise levels along major roadways in Mountain View. The values are based on traffic counts and projections used for the Circulation Element of the General Plan. The data in Table 20 pertain to fully-exposed receptors which have hard ground and no obstructions between them and the roadway. These conditions are often manifest, but along some roadways there are extended sections where noise walls have been constructed.

Train Noise

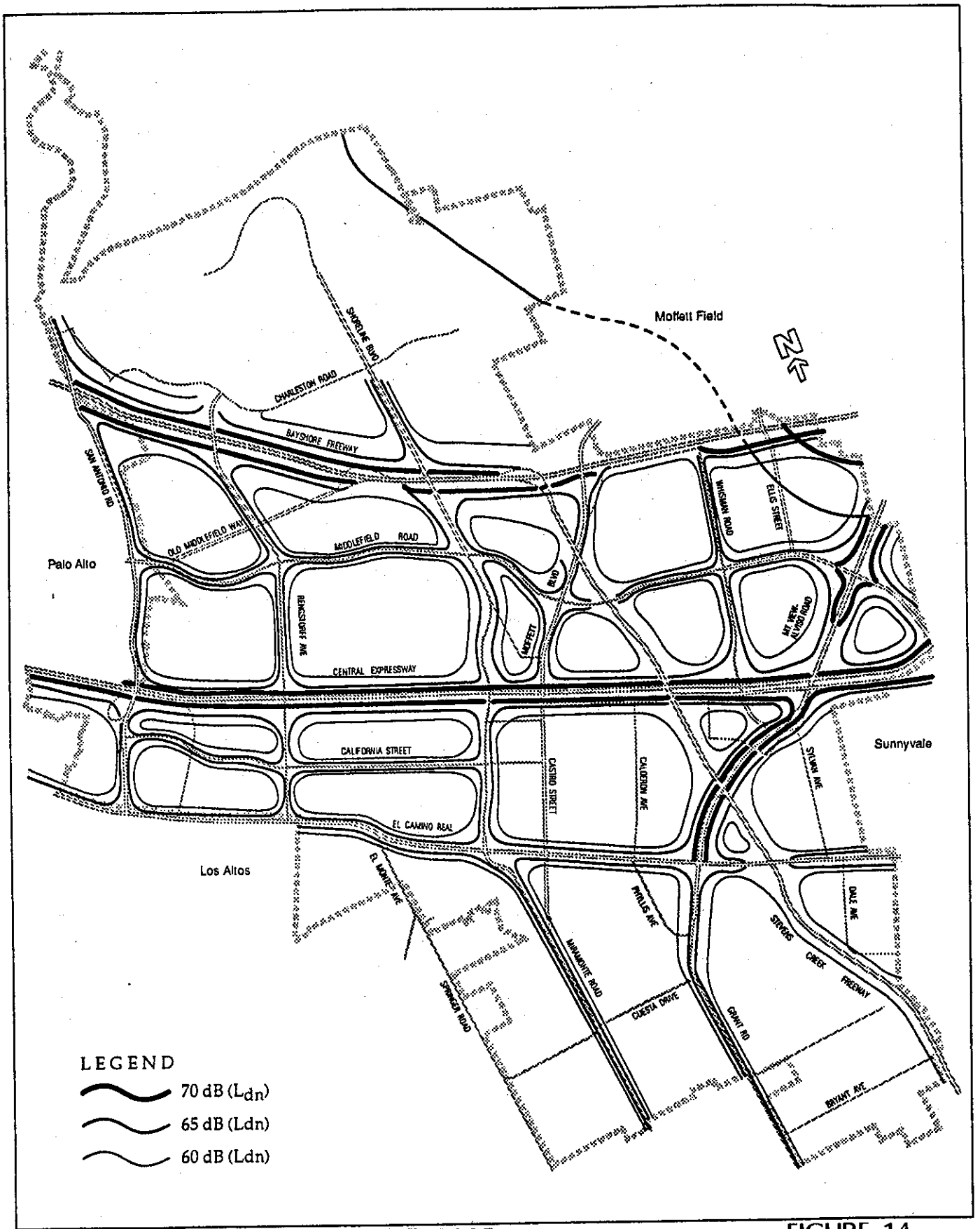
Noise in Mountain View is also generated from Caltrain operations on the Southern Pacific Railroad. Daytime levels for 40 trains in 15 hours are 64 dB L_{dn}, 100 feet from the tracks (L_{10}=56 dB), and nighttime levels are 60 dB L_{dn} for 10 trains in nine hours (L_{10}=48 dB). Caltrans purchased all new locomotives and replaced its old cars in 1985. A few freight trains run each day, but most of the freight trains which formerly ran up the Peninsula have been diverted inland to a rail line which runs along Interstate 5. However, freight traffic could return to the SP tracks, thereby increasing future noise levels. A doubling of the number of freights on the SP lines would result in a less than three-decibel increase in average train noise over the course of a day. A 26 percent increase in the number of Caltrain operations amounts to about a one-decibel increase in the L_{dn}.

NAS Moffett Field

The EIS for the proposed closure of the NAS Moffett Field states that the NASA flight operations would remain, but the Navy's Orion P-3 aircraft and other naval aircraft would no longer use the field. This would result in a reduction in CNEL levels of at least five decibels. As a result, the 65 decibel CNEL contour would no longer reach to Mountain View. All but a small percentage of the City would be free of aviation noise exceeding a CNEL of 60 decibels.

Shoreline Amphitheater

The cities of Mountain View and Palo Alto have been affected by noise impacts from the Amphitheatre since it opened in 1986. In Mountain View, concert impacts most frequently occur in and around the Santiago Villa Mobile Home Park area located less than one mile to the southeast of the Amphitheatre facility.



NOISE CONTOURS, 1990 AND 2005

FIGURE 14

In Palo Alto the sound impacts usually occur in the area bounded by Oregon Expressway, Middlefield Road, University Avenue and the Bayshore Freeway. The area is approximately two to four miles northwest of the Amphitheatre. The noise impacts in this area are attributed to an unanticipated effect due to nocturnal temperature inversions aloft. These inversions frequently form at night during the summer months in the Bay Area. The sound waves travel up, hit the inversion layer and boomerang down in Mountain View, and Palo Alto neighborhoods.

Several mitigation measures recently implemented include: installation of an insulated roof over the stage area, re-aiming lawn sound system speakers, repositioning front-of-house speakers, retaining an acoustical consultant (to study the occurrence of concert sound impacts), establishing a 98 dBA average sound limit for the back of the amphitheatre, researching weather data before a performance (to minimize the sound impacts), and recalibration of amphitheatre sound monitoring equipment annually. Attempts to further minimize the noise impacts to the surrounding areas include exploring several operational and structural sound mitigation measures. Some of these potential mitigation measures are provided below:

- Imposition of sound level restrictions.
- Modifications to concert ending times and concert days.
- Raising the height of the facility's back wall.
- Installation of a "flying canopy."
- Installation of a permanent front-of-house sound system.

When the Amphitheatre opened in 1986, Mountain View had 69 noise complaints and Palo Alto had 1,040 noise complaints. In 1991, Mountain View had 17 noise complaints and Palo Alto had 442. ~~Therefore, it appears that the Amphitheatre's sound mitigation measures have achieved some success.~~[4]

Noise Sensitive Receptors

Land uses sensitive to noise are defined as noise sensitive receptors. These sensitive receptors include residences, schools, hospitals, senior citizen housing, and parks.

2. Impacts

Construction Noise

Construction and renovation activities associated with future development of the two General Plan amendment sites and the seven rezoning sites, as well as any of the other potential residential redevelopment sites, will result in temporarily elevated noise levels of 70 to 90 dBA at a 50 foot distance from the source. These temporary noise increases will, under most conditions, occur during daytime hours. Construction noise impacts in the project vicinity may

[4] Information regarding the Shoreline Amphitheatre is based upon Measurements and Mitigation Methods Community Noise Impact of Concert Operations at the Shoreline Amphitheatre, Mountain View, CA, January 10, 1991.

be restricted to small areas, or may impact large parts of the surrounding neighborhoods. In either case, construction noise is likely to result in a temporary annoyance to nearby residences.

Construction activities occur in several reasonably discrete phases, with each phase characterized by its own mix of equipment and noise characteristics. When new buildings are constructed, the site preparation requires the use of heavy equipment such as bulldozers, scrapers, and diesel trucks. Building construction or renovation phases will be quieter, as they involve the use of various small hand and power tools. Consequently, noise levels within the project vicinity will result in a temporary significant impact during construction activities. These levels will be reduced essentially to the traffic noise levels upon completion of construction activities.

Traffic Noise

The noise analysis evaluated the future base case noise conditions associated with the year 2005 (Scenario 1) based upon the ABAG Projections '90 data. In order to evaluate the potential noise impacts associated with the future implementation of the Community Development Chapter action programs for future housing, the traffic volumes associated with the residential redevelopment sites were added to the year 2005 base conditions (Scenario 2). To evaluate the noise impacts of the future residential redevelopment sites and land use alternative sites, the corresponding traffic volumes were also added to the year 2005 base conditions (Scenario 3).

The residential redevelopment sites evaluated in the noise analysis (Scenario 2) include a total of 2,640 dwelling units. These sites include the original list of residential redevelopment sites: Site 1, Site 3, Site 4, Site 5, Site 8, Site 9, Site 10, Site 11, Site 16, and Site 17, as shown in Table 8. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, the difference between the number of dwelling units associated with the original residential redevelopment sites (approximately 2,640 units) and the number of new units associated with the modified residential redevelopment sites (2,387 units) is minimal. The modified sites consist of 253 fewer residential units, with less traffic, and reduced corresponding noise levels.

The residential redevelopment sites plus the land use alternative sites (Scenario 3) involve residential development of the original 18 sites for a total of 7,375 dwelling units. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, and the land use alternative sites only include Sites 2, 4, 6, and 7, the difference between the number of dwelling units associated with Scenario 3 (7,560 units) and the number of new units associated with the modified alternative sites (5,527 units) is not substantial. Therefore, any error will be on the conservative side. The modified alternative consists of 1,833 fewer residential units, with less traffic, and reduced corresponding noise levels. This noise analysis applies to the alternative discussion contained in Section IV of this EIR.

Future residential redevelopment of any of the potential housing sites addressed in the General Plan text amendments are located near major roadway corridors experiencing noise levels that exceed City noise standards. Residential development in areas of noise levels exceeding City standards would require noise attenuation as part of building design and construction, in order to reduce the risk of exposure to unsafe noise levels. Exposure of future residences to exterior noise levels that exceed acceptable standards would result in a significant impact.

Future residential redevelopment of the two General Plan Land Use Map amendment sites would occur outside of the Moffett Field AICUZ area. Future residential redevelopment of the seven future rezoning sites would be located outside of the established 65 CNEL contour for NAS Moffett Field. Only a small percentage of the existing land uses in the City would be exposed to CNEL levels of 60 dB, if NAS Moffett Field were closed. However, the City may still wish to coordinate with the Navy and NASA/Ames to minimize flight pattern noise, thereby reducing the instantaneous noise levels experienced during aircraft flyovers.

Table 20 presents the projected noise levels for the future year 2005 base case and two scenarios for potential housing: 1) 2,640 dwelling units, and 2) 7,560 dwelling units.[5] Projected traffic would result in a minimal impact on future noise levels. If the noise intensity increases by ten decibels, then it sounds twice as loud. It takes a 26 percent increase in traffic to generate a one-decibel increase in the time averaged roadside noise level (L_{dn}). Such a small increase in the overall intensity of the always-fluctuating traffic noise is barely perceptible. A three-decibel increase would be discernible, but would seem to amount to a slight increase in loudness. Future increases along major roadways would amount to a maximum of three decibels from 1990 to the 2005 base case (scenario 1). The additional residential redevelopment scenarios (scenarios 2 and 3) would add a one decibel to the base case and three decibels to the existing levels.

Noise contours for 2005 are presented in this analysis only, because these contours are almost identical to the noise contours for 1990.

3. Mitigation

Implementation of the following Environmental Management Chapter policies and action programs would reduce significant noise impacts associated with the exposure of residential development to unacceptable exterior noise levels to a non-significant level.

Policy 43: Reduce the effects of vehicular noise.

Action 43a: Identify roadways that contribute to high noise levels on neighboring properties and lessen these effect with land use plans and new developments.

Action 43b: Use traffic management techniques, such as rerouting traffic out of residential neighborhoods, lowering speed limits, and reducing the number of stopping points.

Action 43c: Support State and Federal legislation regulating noise produces by motor vehicles.

Action 43d: Continue to enforce State muffler and exhaust laws.

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[5] Only one noise contour map is given because two noise contour maps (1990, 2005) would be very similar to each other.

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
Central Expressway: San Antonio to Rengstorff				
traffic volume:	2,755 vph[6]	2,801 vph	2,818 vph	2,783 vph
Ldn at 50 feet:	69 dB	69 dB	69 dB	69 dB
Ldn at 100 feet:	67	67	67	67
Ldn at 200 feet:	64	65	65	65
Central Expressway: Castro to Shoreline				
traffic volume:	3,015 vph	3,717 vph	3,767 vph	3,805 vph
Ldn at 50 feet:	69 dB	70 dB	70 dB	70 dB
Ldn at 100 feet:	67	68	68	68
Ldn at 200 feet:	65	66	66	66
Central Expressway: SR 85 to Whisman				
traffic volume:	3,025 vph	3,130 vph	3,250 vph	3,242 vph
Ldn at 50 feet:	69 dB	69 dB	70 dB	70 dB
Ldn at 100 feet:	67	67	68	68
Ldn at 200 feet:	65	65	65	65
Cuesta: Springer to Miramonte				
traffic volume:	1,100 vph	1,152 vph	1,151 vph	1,180 vph
Ldn at 50 feet:	61 dB	61 dB	61 dB	61 dB
Ldn at 100 feet:	59	59	59	59
Ldn at 200 feet:	56	56	56	57

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
El Camino Real: Grant to SR 85				
traffic volume:	2,470 vph	2,785 vph	3,130 vph	3,130 vph
Ldn at 50 feet:	66 dB	66 dB	67 dB	67 dB
Ldn at 100 feet:	64	64	65	65
Ldn at 200 feet:	61	62	62	62
Grant: Cuesta to El Camino				
traffic volume:	2,150 vph	3,196 vph	3,219 vph	3,209 vph
Ldn at 50 feet:	68 dB	69 dB	69 dB	69 dB
Ldn at 100 feet:	65	67	67	67
Ldn at 200 feet:	63	64	65	65
Grant: South of Cuesta				
traffic volume:	1,620 vph	1,793 vph	1,793 vph	1,720 vph
Ldn at 50 feet:	66 dB	67 dB	67 dB	67 dB
Ldn at 100 feet:	64	64	64	64
Ldn at 200 feet:	62	62	62	62
Middlefield: San Antonio to Rengstorff				
traffic volume:	2,085 vph	2,409 vph	2,444 vph	2,540 vph
Ldn at 50 feet:	66 dB	66 dB	66 dB	67 dB
Ldn at 100 feet:	63	64	64	64
Ldn at 200 feet:	61	62	62	62

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
Middlefield: SR 85 to Whisman				
traffic volume:	1,080 vph	1,248 vph	1,228 vph	1,214 vph
Ldn at 50 feet:	65 dB	65 dB	65 dB	65 dB
Ldn at 100 feet:	62	63	63	63
Ldn at 200 feet:	60	60	60	60
Middlefield: Whisman to SR 237				
traffic volume:	1,860 vph	2,581 vph	2,653 vph	2,431 vph
Ldn at 50 feet:	67 dB	68 dB	68 dB	68 dB
Ldn at 100 feet:	65	66	66	66
Ldn at 200 feet:	62	64	64	63
Miramonte: South of Cuesta				
traffic volume:	670 vph	710 vph	709 vph	673 vph
Ldn at 50 feet:	61 dB	61 dB	61 dB	61 dB
Ldn at 100 feet:	59	59	59	59
Ldn at 200 feet:	56	56	56	56
Moffett: Central to Middlefield				
traffic volume:	1,060 vph	1,875 vph	1,855 vph	1,740 vph
Ldn at 50 feet:	64 dB	67 dB	67 dB	67 dB
Ldn at 100 feet:	62	65	65	64
Ldn at 200 feet:	60	62	62	62

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
Rengstorff: Central to Middlefield				
traffic volume:	1,350 vph	1,407 vph	1,414 vph	1,450 vph
Ldn at 50 feet:	64 dB	64 dB	64 dB	64 dB
Ldn at 100 feet:	62	62	62	62
Ldn at 200 feet:	59	59	59	59
Rengstorff: Middlefield to US 101				
traffic volume:	1,200 vph	1,381 vph	1,397 vph	1,300 vph
Ldn at 50 feet:	63 dB	64 dB	64 dB	64 dB
Ldn at 100 feet:	61	62	62	61
Ldn at 200 feet:	59	59	59	59
San Antonio: El Camino to Central				
traffic volume:	1,995 vph	2,122 vph	2,176 vph	1,945 vph
Ldn at 50 feet:	66 dB	66 dB	66 dB	65 dB
Ldn at 100 feet:	63	64	64	63
Ldn at 200 feet:	61	61	61	61
San Antonio: Central to Middlefield				
traffic volume:	NA vph	1,905 vph	1,934 vph	1,896 vph
Ldn at 50 feet:	NA dB	65 dB	65 dB	65 dB
Ldn at 100 feet:	NA	63	63	63
Ldn at 200 feet:	NA	61	61	61

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
SR 237: Middlefield to US 101				
traffic volume:	NA vph	7,423 vph	7,423 vph	7,423 vph
Ldn at 50 feet:	NA dB	74 dB	74 dB	74 dB
Ldn at 100 feet:	NA	72	72	72
Ldn at 200 feet:	NA	69	69	69
SR 237: South of SR 85				
traffic volume:	3,400 vph	5,188 vph	5,188 vph	5,188 vph
Ldn at 50 feet:	70 dB	71 dB	71 dB	71 dB
Ldn at 100 feet:	67	69	69	69
Ldn at 200 feet:	65	67	67	67
SR 85: South of US 101				
traffic volume:	4,310 vph	5,786 vph	5,704 vph	5,786 vph
Ldn at 50 feet:	73 dB	74 dB	74 dB	74 dB
Ldn at 100 feet:	71	72	72	72
Ldn at 200 feet:	69	70	70	70
US 101: San Antonio to Rengstorff				
traffic volume:	NA vph	12,883 vph	12,883 vph	12,883 vph
Ldn at 50 feet:	NA dB	76 dB	76 dB	76 dB
Ldn at 100 feet:	NA	74	74	74
Ldn at 200 feet:	NA	72	72	72

TABLE 20

MOUNTAIN VIEW ROADWAY Ldn VALUES
EXISTING AND YEAR 2005[1]

Distance	Existing[2]	Scenario 1[3]	Scenario 2[4]	Scenario 3[5]
US 101: Rengstorff to Shoreline				
traffic volume:	NA vph	15,070 vph	15,070 vph	15,070 vph
Ldn at 50 feet:	NA dB	76 dB	76 dB	76 dB
Ldn at 100 feet:	NA	75	75	75
Ldn at 200 feet:	NA	72	72	72
US 101: Whisman to SR 87				
traffic volume:	NA vph	14,064 vph	14,064 vph	14,064 vph
Ldn at 50 feet:	NA dB	76 dB	76 dB	76 dB
Ldn at 100 feet:	NA	74	74	74
Ldn at 200 feet:	NA	72	72	72

1 The distances are measured from the near edge of the travelled roadway. Note that all of the estimates pertain to locations which are fully-exposed to the roadway - not behind walls other intervening barriers.

2 The Existing Scenario consists of traffic volumes for 1990.

3 Scenario 1 consists of the Existing 1990 scenario plus traffic volumes associated with ABAG year 2005 projections.

4 Scenario 2 consists of Scenario 1 plus traffic volumes associated with 2,640 dwelling units for the year 2005.

5 Scenario 3 consists of Scenario 1 plus traffic volumes associated with 7,560 dwelling units.

Action 43e: Continue to work with Moffett Field and local airport officials to reduce aircraft noise further.

Action 43f: Seek to reduce the effects of the noise from commuter and freight trains that travel through Mountain View.

Policy 44: Control the path of noise from source to receiver.

Action 44a: Use noise barriers such as sound walls, berms, and garages to interrupt the path of noise from roadways and other sources.

Action 44b: Use the development review process to place new buildings in a way that reduces noise levels.

Action 44c: Allow Planned Unit Developments where buildings are clustered and the resulting open space is used to distance residences from the noise sources.

Action 44d: Continue to enforce Title 24 of the ~~Uniform Building~~ California Administrative Code noise insulation requirements for new or significantly remodeled structures.

Additional policies and action programs contained in the Environmental Management Chapter would ensure that noise levels from stationary sources do not significantly affect sensitive receptors.

Policy 42: Restrict noise levels coming from stationary sources.

Action 42a: Maintain noise thresholds for each land use category.

Action 42b: Use CEQA and the development review process to restrict new development from exceeding its noise threshold.

Action 42c: Enforce the City's Stationary Equipment Noise Ordinance.

Action 42d: Encourage ~~Continue to cooperate with~~ NASA/Ames Research Center to reduce and control noise produced by wind tunnels.

Policy 45: Reduce the harmful effects of noise who hear it.

Action 45a: Identify sensitive noise receptors in the community.

Action 45b: Use zoning to separate noise sensitive land uses from noise sources.

Action 45c: Respond to noise complaints by monitoring the source, suggesting noise mitigation measures, and using code enforcement options when necessary.

Implementation of the identified General Plan Environmental Management Chapter policies and action programs would reduce significant construction noise impacts to a non-

significant level. However, despite the implementation of these measures, significant unavoidable long-term noise impacts would remain.

The following additional measures ~~would be implemented at the time any of~~ should be considered as possible conditions of approval for the seven future residential rezonings ~~are implemented~~.

- Future contractors ~~would~~ could use "new technology" power construction equipment with state-of-the-art noise shielding and muffling devices. All internal combustion engines ~~would~~ could be equipped with adequate muffling devices. All equipment ~~would~~ could be in good mechanical condition, to minimize noise created by faulty or poorly maintained engine, drive-train and other components.

- Future contracts ~~would~~ could schedule construction activities in shifts to avoid high noise levels caused by simultaneously operating several pieces of noise-generating equipment. Construction work ~~would~~ could be scheduled during the hours of 7:00 a.m. to 7:00 p.m.

E. GEOLOGY, SOILS AND SEISMICITY

1. Setting

Mountain View's topography slopes gently downward at an even rate of one to two percent from approximately 185 feet above sea level near the Los Altos border, to sea level at the Bay. The soil is of recent geologic formation, deposited by erosion of the Santa Cruz Mountains during the Pleistocene Epoch 11,000 to two million years ago. The alluvial and sedimentary deposits consist of alternating layers of clay, loam, gravel and sand, and various mixtures of each.

Geologic Setting[1]

Alluvial fans and low bedrock hills protruding from the alluvium are the principal landforms of the Santa Clara Valley. The alluvial fans were successively deposited at the mouths of streams and rivers where they poured out onto the valley from narrow, deep mountain canyons. These fan deposits consist of interbedded and lens-shaped layers of gravels, sands, silts, clays, and organic matter. Mountain View is situated on layers of Quaternary alluvium. These layers consist of unconsolidated to weakly consolidated silt, sand, and gravel of the Holocene and late Pleistocene eras. The formation of these layers is described below.

The Santa Clara Valley is situated on a structural trough formed in the Late Pleistocene and Early Pleistocene Epochs (two to three million years ago) by downwarping and faulting along many northwest-trending faults, and by continual uplifting of the Santa Cruz Mountains and the Diablo Range. At the time, these mountains were actively eroding, and deposited their sediment into the trough. By the Mid- or Late Pleistocene Epoch, the trough was almost filled with sediments.

The bay muds were formed during the Pre-Wisconsin interglacial stage (approximately 35,000 years ago). During this stage, the partially filled San Francisco Bay trough was flooded by a global rise in sea level that resulted from the melting of continental glaciers. Meltwater from the Sierran Glaciers carried silt and clay into the Bay via the Sacramento River. The silt and clay particles flocculated (settled out) upon contact with the brackish bay waters, thereby creating substantial layers of weak, compressible bluish-gray deposits (older bay muds). The bay muds are interbedded with alluvium from the Santa Cruz Mountains and Diablo Range. Then, a global lowering of sea level drained the San Francisco Bay trough at the onset of the Wisconsin Glacial Stage. During this period, erosion of the trough cut deep channels in the surface of the old bay mud deposits. The uppermost, younger bay muds formed during and after the melting of the Wisconsin Glaciers (about 10,000 years ago).

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[1] Based upon information contained in the Technical Report Geotechnical Investigation of the City of San Jose's Sphere of Influence, Cooper-Clark & Associates, 1974.

Soils

Mountain View is generally underlain by soils of the Sunnyvale-Castro-Clear Lake association. These soils are poorly drained, developed in mottled alluvium. This association consists of 40 percent of Sunnyvale soils, 25 percent of Castro soils, 20 percent of Clear Lake soils, five percent of Bayshore soils, and 10 percent of Willows soils. Sunnyvale soils consists of dark grey, slightly calcareous silty clay surface soils, and light grey, strongly calcareous subsoils. Castro soils have very dark grey, slightly calcareous clay surface soils, and grayish brown clay subsoils. A mottled, variable textured substrata is located beneath these surface soils.

These soils tend to exhibit a high shrink-swell behavior. The U.S. Department of Agriculture-Soil Conservation Service defines shrink-swell potential to describe the relative amount of volume change in a soil due to clay which swells when wet and shrinks when dry. Drying and shrinking of clay soils generally causes cracks in the soil, and damage to buildings, building foundations, roads, and other infrastructure.

Seismic Setting

Mountain View is situated between two major earthquake faults, the San Andreas Fault and the Hayward Fault[2]. Earthquakes occurring on the San Andreas Fault, six miles to the west of the City, and on the Hayward Fault, 10 miles east of the City, could potentially result in severe ground shaking and ground settling in Mountain View (see Figure 15). Inundation from dam failure at the Stevens Creek Reservoir could also occur as a result of seismic activity.

The Uniform Building Code designates Mountain View and the entire South Bay in Seismic Activity Zone 4, the most seismically active area in the United States. Zone 4 extends from the California coast, east for 200 to 300 miles, and from Redding, south to San Diego.[3] Although Mountain View is located in a seismically sensitive area, there are no designated Alquist-Priolo Special Studies Zones. The Alquist-Priolo Geologic Hazard Zones Act, establishes Seismic Hazard Zones that are designated by the State of California, within which specialized geologic investigations must be prepared prior to approval of certain new development.[4]

Magnitude is the measure of the earthquake strength or energy release, as determined by instrument (seismograph) readings. Theoretically, there is only one magnitude for any given earthquake, and the measurement is not affected by distance, structural design, or local soil or groundwater conditions. The Richter Magnitude scale measures magnitude on a logarithmic scale, with an increase of one whole number representing an increase in released energy of about 31.5 times. Although there is no upper limit to the magnitude of an earthquake, the strength of the earth materials actually supports less than a 9.0 magnitude. An earthquake of Magnitude 2

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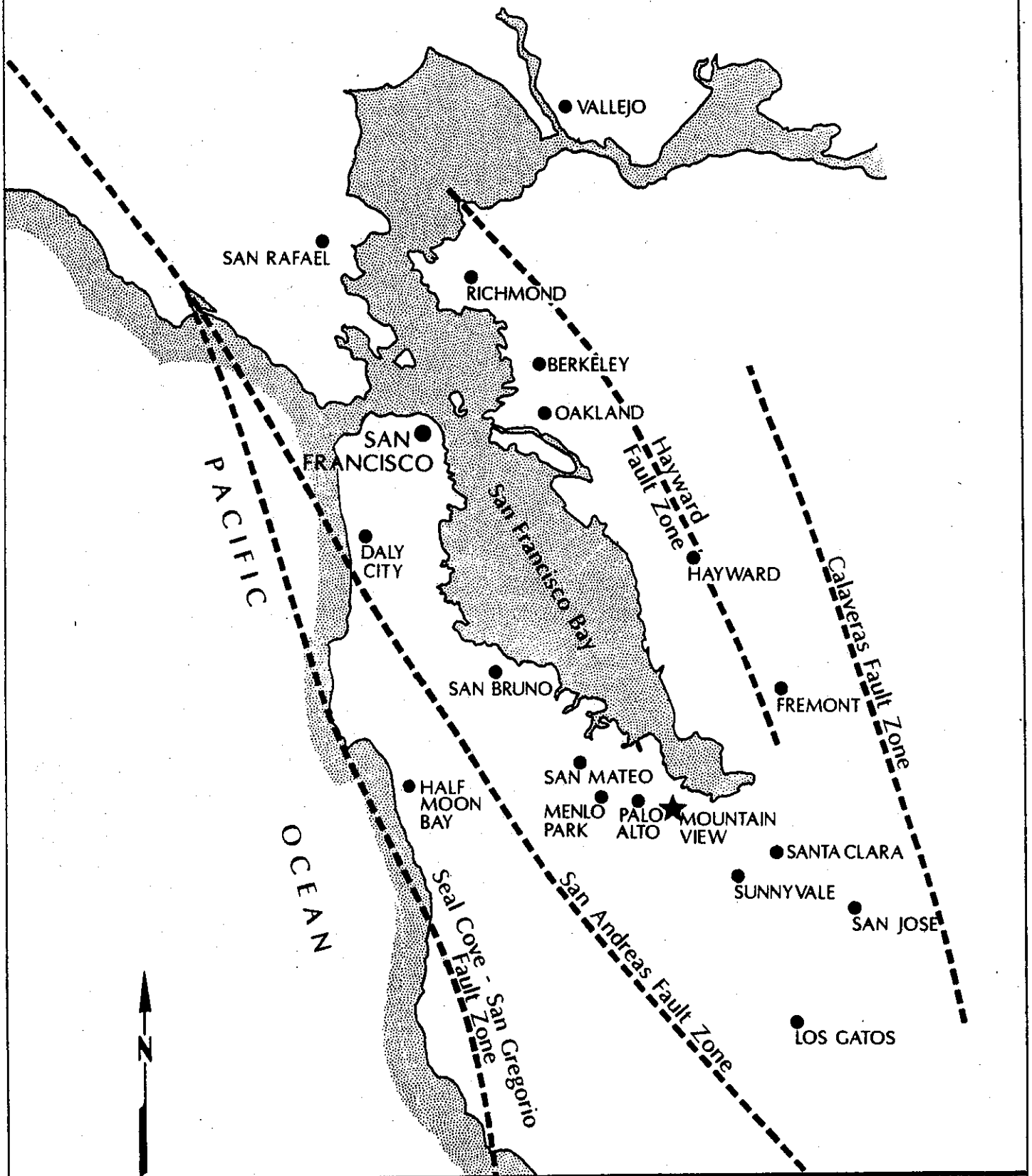
[2] Cooper-Clark & Associates, Technical Report Geotechnical Investigation San Jose Sphere of Influence, page 37.

[3] Ron Geary, City of Mountain View Building Official, communications November, 1990.

[4] The California General Plan Glossary, page 2.



Source: California Division of Mining and Geology

ACTIVE FAULT ZONES IN THE SAN FRANCISCO BAY AREA FIGURE 15

is the smallest earthquake that is humanly perceptible, while a Magnitude 4 is generally the smallest causing architectural damage.

The Geotechnical Hazards Investigation Chart and Map outline the hazards of ground failure and the types of site investigations necessary for development within each zone (See Figure 16 and Table 21). The 1982 Chart and Map identified three general hazard zones in the City: Zones D, E, and F according to the potential for liquefaction, differential settlement, seismic flooding, and groundshaking. These general zones have not changed and continue to provide a guide to address seismic hazards in the City[5].

Zone D consists of soils containing bay mud, old bay mud, artificial fill, and the youngest alluvium. Although this area has a moderately low potential for liquefaction, the presence of a high water table increases the area's susceptibility to liquefaction. This area is subject to a potential for moderate to substantial differential settlement. Substantial ground failure could occur near the landfill or other portions that provide an opportunity for lateral spreading. Portions of this area could be subject to inundation from dike failure during a seismic event.

Zone E consists of the two youngest types of the younger alluvium. This zone has a moderately low potential for seasonal liquefaction, occurring when the normally lower water table increases to within 10 feet of the surface. Deep liquefaction and significant differential settlement is possible, but not to the extent of soils in Zone D.

Zone F contains older alluvium and has a moderately low potential for liquefaction. There is also a low potential for significant differential settlement and ground failure.

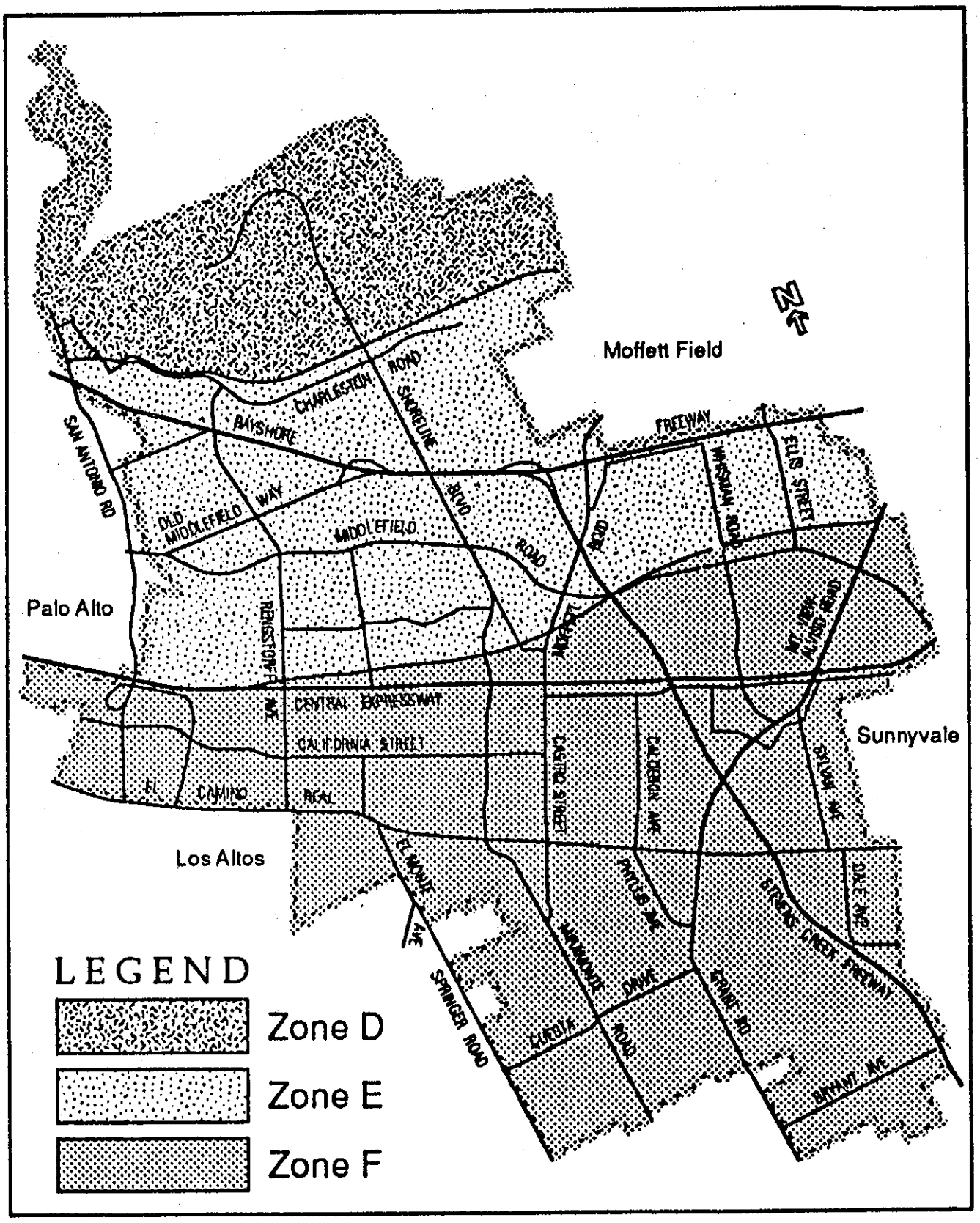
Groundshaking

Mountain View is situated in an area of unconsolidated soils where groundshaking is increased, especially if the soils are thick and water saturated.[6] Groundshaking is the most hazardous phenomenon in most areas of the County because geographically, it is the most widespread, and is generally present in most earthquakes. ~~Groundshaking is affected by~~ Earthquake damage is determined by the magnitude of an earthquake, depth of focus, distance from the fault, intensity and duration of shaking, local groundwater and soil conditions, the relationship between the fundamental period of a structure and the predominant period of ground vibration, structural design, and the quality of workmanship and materials used in building construction.

Previous studies of the 1906 earthquake were used to determine potential groundshaking levels throughout the San Francisco Bay Area. Based on the San Francisco Intensity Scale for the 1906 earthquake, it was estimated that very strong groundshaking would occur in Mountain

[5] Ron Geary, City of Mountain View Building Official, communications November, 1990.

[6] *The Effect of Soil Type on Earthquake Risk* from U.S.G.S., The Next Big Earthquake in the Bay Area May Come Sooner Than You Think, 1990.



GEOLOGIC HAZARD ZONES

FIGURE 16

TABLE 21

GEOTECHNICAL HAZARDS INVESTIGATION CHART

Zone	Characteristics	Hazards	Site Investigation
D	Compressible bay mud thicker than 5 feet. Below 10 foot elevation (considering subsidence elevation factor).	Areas of high potential for liquefaction and differential settlement. Areas subject to flooding by San Francisco Bay water in the event of dike failure. Very strong groundshaking.	Mandatory for all groups unless detailed information permits
E	Water table ranges from 0-50 feet below ground surface. May contain areas of loose, water-saturated, non-clayey silt and sand.	Areas of moderate potential for liquefaction or differential settlement. Lurching and lateral spreading potential is highest within 300 feet of stream channels. Potential for strong groundshaking.	Mandatory for Group 1 and Group 2 unless detailed information permits waiver.
F	Valley areas where the water table is deeper than 50 feet below ground surface. Older alluvium.	Areas of low potential for liquefaction, lurching and lateral spreading. High susceptibility to groundshaking.	Not automatically required; may be required by the Chief Building Inspector based on specific site characteristics.

Group 1	Facilities which must survive a seismic disaster in order to provide response capability (i.e., fire and police facilities, hospitals, and critical water and power facilities).
Group 2	Facilities which would imperil many people, cause significant property loss, or major societal disruption (i.e., large commercial complexes, public assembly facilities, large industrial/office complexes, large apartment complexes, and schools).
Group 3	Facilities which would imperil only a few persons, cause minor property loss or cause minor societal disruption (i.e., small public, commercial, industrial or office buildings, warehouses, marinas, and open space).

View during a seismic event on either the San Andreas Fault or the Hayward Fault.[7] ABAG estimated in 1987 that the maximum groundshaking intensity experienced in Mountain View would range from strong in the northern parts of the city to very strong in the North Bayshore area. Generally, Mountain View has a high to very high susceptibility for groundshaking during a seismic event.[8]

It is estimated that wood frame dwellings in the southern portions of Mountain View will have a low risk of ground shaking damage, and a moderately low potential in the North Bayshore area. Wood frame dwellings in the remainder of the city ~~are not expected to~~ would also encounter risks of groundshaking. There is a low potential for groundshaking damage of concrete and steel buildings in the North Bayshore area and portions of the City between Shoreline Boulevard and Route 85, from El Camino to the Bay. The risk of groundshaking damage for tilt-up concrete buildings located in any part of Mountain View ranges between low in the southern portions of the city to moderate in the North Bayshore Area.

The most recent significant seismic activity in the San Francisco Bay Area occurred on October 17, 1989. The 1989 Loma Prieta earthquake was centered on the San Andreas Fault located nine miles northeast of Santa Cruz, and approximately 18 miles south of Mountain View. This earthquake registered a Richter magnitude of 7.1. Data published by the U.S. Geological Survey (U.S.G.S. Circular 1043) on the Loma Prieta earthquake indicated that secondary movement may have occurred on faults previously identified as inactive.

The City of Mountain View conducted a damage assessment following the Loma Prieta earthquake. The results of this assessment are contained in the *City of Mountain View Preliminary Damage Assessment, Loma Prieta Earthquake of October 17, 1989, Update as of November 6, 1989*. Total structural damage sustained during the Loma Prieta earthquake was estimated at $6,935,000 in Mountain View. A total of 52 homes and duplexes reported exterior damage. Single-family residential structures in the Downtown and Farley-Burgoyne areas appeared to sustain the most damage. In addition, 43 multi-family complexes in the city, and 12 mobile homes in the Santiago Village (North Bayshore Area) sustained structural damage.

Commercial structures in Mountain View also experienced damage. Approximately 40 structures reported some level of damage, including a group of buildings on Castro Street, a department store at the San Antonio Shopping Center, and an office building on El Camino. In addition, El Camino Hospital experienced superficial damage. Four industrial buildings reported minor damage.

Public facilities that incurred some damage during the earthquake include the San Antonio Road overpass over Central Expressway, several water mains and the Bryant Avenue water tower, the City's Senior Center, the Library, Eagle Park pool, the historic Adobe Building, and the

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[7] Roger Boroherdt, James F. Gibbs, and Kenneth R. Lajoie, U.S.G.S., *Prediction of Maximum Earthquake Intensity in the San Francisco Bay Region, California, for Large Earthquakes on the San Andreas and Hayward Faults*, 1975.

[8] ABAG, *The San Francisco Bay Area On Shaky Ground*, Santa Clara County Map Set, August, 1987.

Police/Fire administration building. In addition, the wind tunnels at NASA/Ames experienced minor structural damage.

Ground Failure

Ground failure refers to seismically induced ground movements which are significant enough to cause severe distress or infrastructure failure. Ground failure includes surface rupture along fault traces; vertically and laterally oriented failures due to soil liquefaction; seismically induced landslides; earth lurches; lateral spreading; differential settlements; and dike or dam failure.[9]

Liquefaction

The northernmost portion of Mountain View is located in an area susceptible to liquefaction. Liquefaction is the transformation of loose water-saturated granular materials (such as sand or silt) from a solid into a liquid state. This type of ground failure can occur during an earthquake.[10]

The soils in the North Bayshore area contain a mix of artificial fills, bay mud, and younger, thicker alluvium soils. These soils have a higher potential for liquefaction than the soils in other areas of the City, particularly, given the high water table. Portions of the North Bayshore area, such as the L'Avenida area, are slightly less susceptible to liquefaction, since the soils consist of only younger alluvium. The North Bayshore area is located in Zone D depicted on the Geotechnical Hazards Map.

The Thompson-Rengstorff area, just south of U.S. 101, is also subject to liquefaction. This area is characterized by young, weak alluvial soils and a high water table. The Stierlin area also has young, weak alluvial soils. Although the Whisman, San Antonio and Central areas contain alluvial soils, these soils are not the youngest or weakest alluvium, and are, therefore, less susceptible to liquefaction. However, the presence of a high water table can increase the likelihood of liquefaction. These areas have a moderate potential for liquefaction.

Lurching

Ground lurching, also referred to as ground fissuring or ground cracking, results in fracturing and displacement of the ground surface. Muddy or sandy water tends to erupt from surface cracks as fountains or sheets. Although ground lurching occurs as result of a seismic event, it can further result in local subsidence and additional ground fracturing.

Lateral Spreading

Lateral spreading results in a dominantly horizontal displacement of flat-lying alluvial material

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[9] Cooper-Clark & Associates, Technical Report Geotechnical Investigation City of San Jose Sphere of Influence, page 71.

[10] The California General Plan Glossary, page 14.

toward an open area, such as a steep bank of a stream channel. There is a high potential for ground lurching and lateral spreading along stream channels in Zone E. Lateral spreading can occur in soft saturated clays, such as the soft bay muds in the northernmost portions of the North Bayshore area. During groundshaking, these bay muds can flow, form wave-shaped masses, or squeeze laterally. This type of ground failure can also occur beneath landfills. Zone D also has a high potential for lateral spreading near the operative landfill at Shoreline.

Differential Settlement

Differential settlement results in an uneven settling of the ground surface. Loose-to-medium dense granular soils tend to compact during ground shaking, resulting in settlement. Damage is minimal if this settlement is uniform beneath a structure. However, density variations, confining subsurface conditions, and irregular ground shaking often result in irregular settlement, producing significant damage. Differential settlement can occur in dry and partially saturated granular soils, as well as in fully saturated granular soils. Differential settlement can also result from seismic induced ground failure.

There is a high potential for differential settlement in Zone D, and a moderate potential in Zone E. Significant differential settlement is not anticipated in Zone F.

Dike Failure

A local major earthquake could result in dike failure which could inundate portions of Mountain View. Earthquakes could result in flooding from tsunamis, seiches and dam failure (see Flooding Section of this report). Portions of the City, such as the Baylands, are more susceptible to flooding from the collapse of levees and dikes along the Bay. The existing dike and levee infrastructure along the Bay prevents flooding in the low-lying, northerly portions during tidal action. The previous landfill operations at Shoreline also act as a giant levee from the Bay. If the levees failed, Shoreline would block flooding of the inland portions of the City. Previous estimates of possible salt water flooding resulting from dike failure indicate that under the worst case conditions, the maximum water elevation would be approximately 10 feet above mean sea level.[11]

Seismic Seiche

Seismic seiches are earthquake generated standing waves within lakes and ponds. The risk of a seismic seiche in the southern portion of the San Francisco Bay is unknown. However, severe damage and collapse of the City's two drinking water reservoirs: the six million gallon Whisman Reservoir and the one million gallon Miramonte Reservoir, could occur. In addition, other

[11] Based upon estimates contained in Tudor Engineering (1973) and Bonilla and Gates (1961) reports used in the Santa Clara County Seismic Safety Element. The maximum water height is approximately 10 feet above mean sea level. Of this 10 feet, 4.5 feet is attributed to the maximum diurnal range in the tide, 2 feet to low barometric pressure and storm surge, 3 feet to storm waves, and 0.5 feet to tsunami. The water height could also be raised an unknown additional quantity if fresh water flooding occurred. However, since there is a very small probability of all of these phenomena occurring simultaneously with dike failure, 5 feet is a more realistic amount.

elevated water tanks or ground level water tanks could also experience structural failure during a seismic event.

2. Impacts

Under the existing General Plan, the majority of the land uses located in the Geologic Hazards Zone D consist of public park and open space uses. The proposed Land Use Map and text amendments to the General Plan would result in the possible future development of new residential uses in Zones E and F, the two least seismically sensitive areas of Mountain View. Potential geotechnical hazards in these zones would include liquefaction, differential settlement, lurching and lateral spreading, and groundshaking as a result of a major seismic event.

Residential Redevelopment Sites

The General Plan amendments for the Evelyn Avenue Corridor Study Area ("Site 6") and the Old Mill Site ("Site 7") would be located in Zone F. Of the seven future residential redevelopment sites requiring rezonings, six sites would be located in Zone F:

- Evelyn Avenue Corridor Study Area ("Site 8"),
- Old Mill Site ("Site 3"),
- Del Medio Court ("Site 1"),
- Downtown Precise Plan Area ("Site 9"),
- El Camino and El Monte Site ("Site 11"), and
- El Camino Shopping District Site ("Site 10").

Future residential development of these six sites would result in the development of up to 2,527 dwelling units in areas subject to a low potential for liquefaction, lurching, and lateral spreading, with a high susceptibility to groundshaking. Although geotechnical investigations would not automatically be required for these six sites, specific site characteristics may demonstrate the necessity for geotechnical investigations at the time of project specific development.

The seventh site, Shoreline Boulevard/Middlefield Road site ("Site 5"), would be located in Zone E and would result in the exposure of approximately 60 dwelling units to potential geotechnical hazards.

3. Mitigation

The following Environmental Management Chapter policies and action programs would mitigate potential geologic, soils, and seismic impacts to a non-significant level.

Policy 32: Prepare for destructive force of earthquakes and attempt to lessen their effects.

Action 32a: Continue programs to educate residents about seismic hazards and about what to do when earthquakes occur.

Action 32b: Develop an ordinance to upgrade unreinforced masonry buildings.

Action 32c: Adopt promptly, modify where necessary, and enforce the latest Uniform Building Code, Uniform Code for Building Conservation, and Historic Building Code.

Action 32d: Continue to update the City's Emergency Preparedness Plan.

Implementation of the following program mitigation measures would further ensure that potential geologic, soils, and seismic hazards are reduced to a non-significant level

- At the time of specific residential rezoning applications, detailed geotechnical investigations would be performed to develop foundation and design recommendations.
- All future residential development would conform to the requirements of the Uniform Building Code.

Implementation of the identified mitigation measures would reduce potential impacts to a non-significant level.

F. DRAINAGE AND FLOODING

1. Setting

Flood Hazards

The 1988 Flood Insurance Rate Map (FIRM) indicates that during the 100 Year Flood event, sections of Mountain View would be subject to flooding from either creek overbanking or inundation from the Bay (see Figure 17). The 100 Year Flood is the magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a one percent, chance of occurring in any given year.[12] Extensive flooding would occur along the low-lying lands of the Bay, in the northern portion of the City. The lands north of Bayshore Freeway range from below mean sea level to eight feet in elevation. Flooding in these areas would occur at a depth of one to three feet, usually as sheet flow on sloping terrain. Levees located along Charleston Slough would be inundated during the 100-Year Flood. Coastal floods with associated velocity hazards (wave action) would occur in Charleston Slough and in the Bay.

Although annual rainfall in the City averages about 13 inches, precipitation in some years has been recorded in excess of 25 inches. Ninety percent of the annual precipitation occurs from November through April (FEMA, 1988).

Flooding of Adobe Creek may result in inundation at depths of one to three feet, usually as areas of ponding. However, this flooding occurs in an extremely limited area near Del Medio Court and Monroe Drive. Flooding from Hale Creek could also occur in the vicinity of Mountain View Avenue, south of El Camino, Miramonte Avenue, and Isabel Avenue. High flows in Stevens Creek and Permanente Creek are primarily contained within the channels. In addition, high flows also occur in the North Bayshore Area in Zone AE, due to flooding of Permanente Creek. However, FEMA has identified portions of the surrounding neighborhoods as being exposed to flooding of depths between one to three feet, because the Agency believes the levees along the Stevens Creek Permanente Creek Cross Channel are inadequate to contain flooding. The adequacy of the levees remains a point of contention between FEMA and the SCVWD.

The remaining areas of the City are located outside of the 100-Year Flood. The Flood Insurance Rate Maps designate some areas within the 500-Year Flood zone (the area with a 0.2 percent chance of flooding in any year), and others outside of the zone. Those areas located in the 500-Year Flood zone would be exposed to flooding at depths of less than one foot during a 100-Year Flood. Several of these areas are protected by levees.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a federal program designed to reduce federal disaster spending resulting from flooding. Subsidized flood insurance is conditioned upon strict land use regulations, to promote safe development in flood-prone areas. The NFIP covers land

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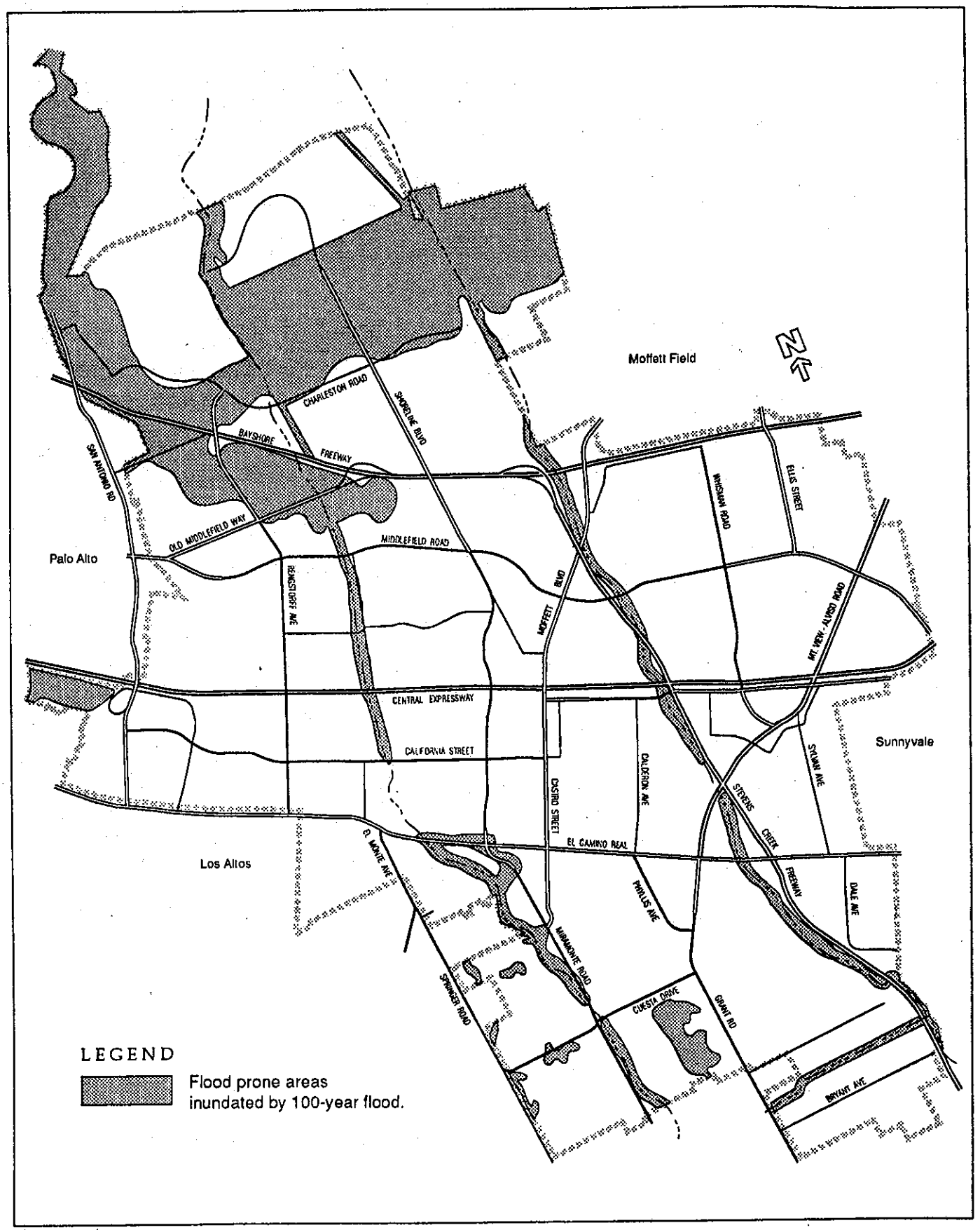
[12] The California General Plan Glossary, page 9.



FLOOD PLAINS

FIGURE 17

affected by flooding due to the 100-Year Flood. These areas are designated by the Federal Emergency Management Agency (FEMA) in Figure 17.

Mountain View has participated in the program since 1973. The City has implemented flood plain management regulations and strict land use development in conformance with the NFIP requirements. For instance, land uses in areas subject to the greatest flooding are restricted to open space or other uses that do not create a life safety hazard. In addition, the City requires "flood proofing" techniques, such as raising the floor elevation of new buildings in flood hazard areas above the flood level. Areas in the City that are subject to damage from floods are eligible for low-cost flood insurance through this program.

Storm Drainage System[13]

The City's storm drainage system conveys storm runoff from the Santa Cruz Mountains, south to the San Francisco Bay. Storm runoff in the City is first discharged into Permanente, Stevens, Hale, or Adobe Creeks, or Coast Casey Canal. These water courses convey the runoff north, to discharge into the Bay.

In general, the existing storm drainage system adequately conveys storm runoff through the City.[14] The storm drainage network varies in age with very old lines in the Downtown to recent lines in portions of the North Bayshore area. The lines generally range in size from a minimum of 12 inch lines to a maximum of 80 inch trunk lines. Some portions of the city have undersized storm drain lines, about eight to 10 inches in size. These lines may need to be replaced with additional or larger lines in the future, as development and densification occur.

Stormwater Quality

In June, 1990, Mountain View and 14 other public agencies in the South Bay were issued a group NPDES Permit for discharges of stormwater runoff. In Mountain View, this NPDES permit applies to the discharge of all sources of runoff not covered by individual NPDES permits. Citywide sources of stormwater pollution include non-point sources, such as runoff from streets, construction sites, roofs, and parking lots. The City must meet 41 established criteria as a condition of the permit. These include water quality monitoring, identification and correction of illicit connections to the storm drainage system, increased municipal efforts to clean streets and prevent pollutants from entering the storm drainage system, public information programs, and possible modifications to local ordinances, as well as the establishment of more stringent standards for land uses. The City and the other 14 public agencies have formed the Santa Clara Valley Nonpoint Source Pollution Control Program to meet the requirements of the municipal permit.

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[13] Based upon information provided by Genevieve Fire, City of Mountain View Utilities Department, communications November, 1990.

[14] Genevieve Fire, City of Mountain View Utilities Department, communications 1990.

In January, 1992, the State issued a general permit for regulating industrial stormwater discharges. This permit is site specific and applies to many manufacturing, transportation, and chemical storage facilities. A similar permit for construction activities which disturb more than five acres will be issued by the State in the spring of 1992.

2. Impacts

Generally, five sources of flooding present potential hazards to Mountain View. In addition, water quality impacts related to storm runoff may also occur. A discussion of the five flooding and drainage impacts is provided below, while a description of the potential water quality impacts and mitigation measures associated with storm runoff are addressed in Section III.,K. of this EIR.

- Excessive accumulation of precipitation and surface runoff,
- Tidal action - Coastal velocity hazards,
- Dam and levee failure,
- Tsunamis resulting from seismic activity,
- Flooding as a result of subsidence.

Inundation along the low-lying portions of the City and creek overbanking presents the biggest flooding problems in the City, particularly where flood protection was designed for the 50-year flood. The existing dike and levee infrastructure along the Bay prevents flooding in the low-lying, northerly portions during tidal action. In addition, the previous landfill operations at Shoreline now act as a giant levee protecting this area from the Bay. If the levees were overtopped, breached or failed, Shoreline topography would block flooding of the inland portions of the City. Flooding risks are, therefore, located adjacent the creeks that cross Shoreline-at-Mountain View. Problems along Permanente Creek could result in flooding in the area south of Shoreline and north of the Bayshore Freeway.

Prior to the 1970s, the amount of water withdrawn from aquifers in the Santa Clara Valley exceeded the level which could be replenished by ground water recharge. As a result, subsidence occurred throughout the Valley. Subsidence in Mountain View and surrounding jurisdictions resulted in the sinking of the baylands and greater susceptibility to flooding. Some areas north of the Bayshore Freeway, for instance, lie below mean sea level. As a result, these areas are prone to local flooding during periods of heavy rainfall or high tides. The SCVWD flood control levees along Stevens Creek and the Leslie Salt evaporator levees provide minimal protection from tidal inundation. Shoreline, however, protects the inland areas from flooding.

Residential Redevelopment Sites

Future development projected by the year 2005 is not anticipated to significantly affect the amount of impervious surfaces in the city, since Mountain View is almost completely developed. The future development of residential uses may, in fact, result in a net decrease in impervious surfaces, since the City requires more landscaping and open space areas for residential uses than for commercial/industrial development. In addition, future residential development may include parks and recreational areas that would further contribute to the reduction in impervious surfaces.

The City is considering rezoning seven vacant and under-utilized commercial and industrial areas to residential uses. Residential redevelopment of these sites would primarily occur in areas that are already developed and have adequate storm drainage facilities. However, several of the sites could require storm drain extensions, if significant grading is proposed. Redevelopment of one of the seven potential rezoning sites, the Old Mill Site, could present specific storm drainage concerns[15]. Future developers of the Old Mill Site would need to maintain the easement for the 80 inch storm trunk line or relocate the line.

3. Mitigation

The following Environmental Management Chapter policies and action programs would reduce potential flooding and drainage impacts to a non-significant level.

Policy 11: Protect designated public open spaces from redevelopment.

Action 11c: Use the Flood Plain district to preserve open space lands and protect people and buildings from flood hazards.

Policy 33: Protect residents and their property from flood hazards.

Action 33a: Work with the Federal Emergency Management Agency and the Santa Clara Valley Water District to update the City's Flood Insurance Rate Maps.

Action 33b: Distribute flood maps to educate citizens and developers of flood hazards in the community.

Action 33c: Enforce the City's Drainage and Flood Control Ordinance.

Action 33d: Coordinate with the Santa Clara Valley Water District to maintain and improve flood control programs and facilities.

Action 33e: Analyze the City's storm drain system for possible inadequacies and, if necessary, develop Capital Improvement Programs to improve the system.

Implementation of the identified policies and action programs included in the project would mitigate potential flooding and drainage impacts to a non-significant level.

[15] Genevieve Fire, City of Mountain View Utilities Department, 1990.

G. VEGETATION AND WILDLIFE

1. Setting

Wildlife habitats in Mountain View were identified based upon the California Wildlife-Habitat Relationships System (Mayer and Laudenslayer, 1988). Classification of estuarine habitats in Mountain View along creeks and adjacent to the San Francisco Bay was based upon the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps. The wildlife habitats are depicted in Figure 18.

Approximately 90 percent of Mountain View is developed. Most of the habitat in Mountain View occupies the remaining 10 percent of the city and is classified as urban developed habitat. Significant biological resources in the city exist in the North Bayshore area, Shoreline, and along several channels that extend through the city. Shoreline at Mountain View in the North Bayshore Area contains the greatest expanse of open space, and is rich in biological resources. Shoreline lies between the Palo Alto Baylands Nature Preserve to the west and San Francisco Bay National Wildlife Refuge, Crittenden Marsh, and NASA/Ames to the east. Leslie Salt Company owns two salt evaporation ponds between the northern Shoreline boundary and the Bay.

Stevens Creek, an intermittent waterway, flows from Stevens Creek Reservoir in the foothills, north to San Francisco Bay. The channel is lined with remnants of riparian vegetation, including some native trees of heritage size. Stevens Creek serves as an important migration corridor for wildlife and provides water, food sources, shelter and nesting sites for birds and mammals. Other important corridors extend along parts of Permanente Creek and Adobe Creek (outside of Mountain View's jurisdiction).

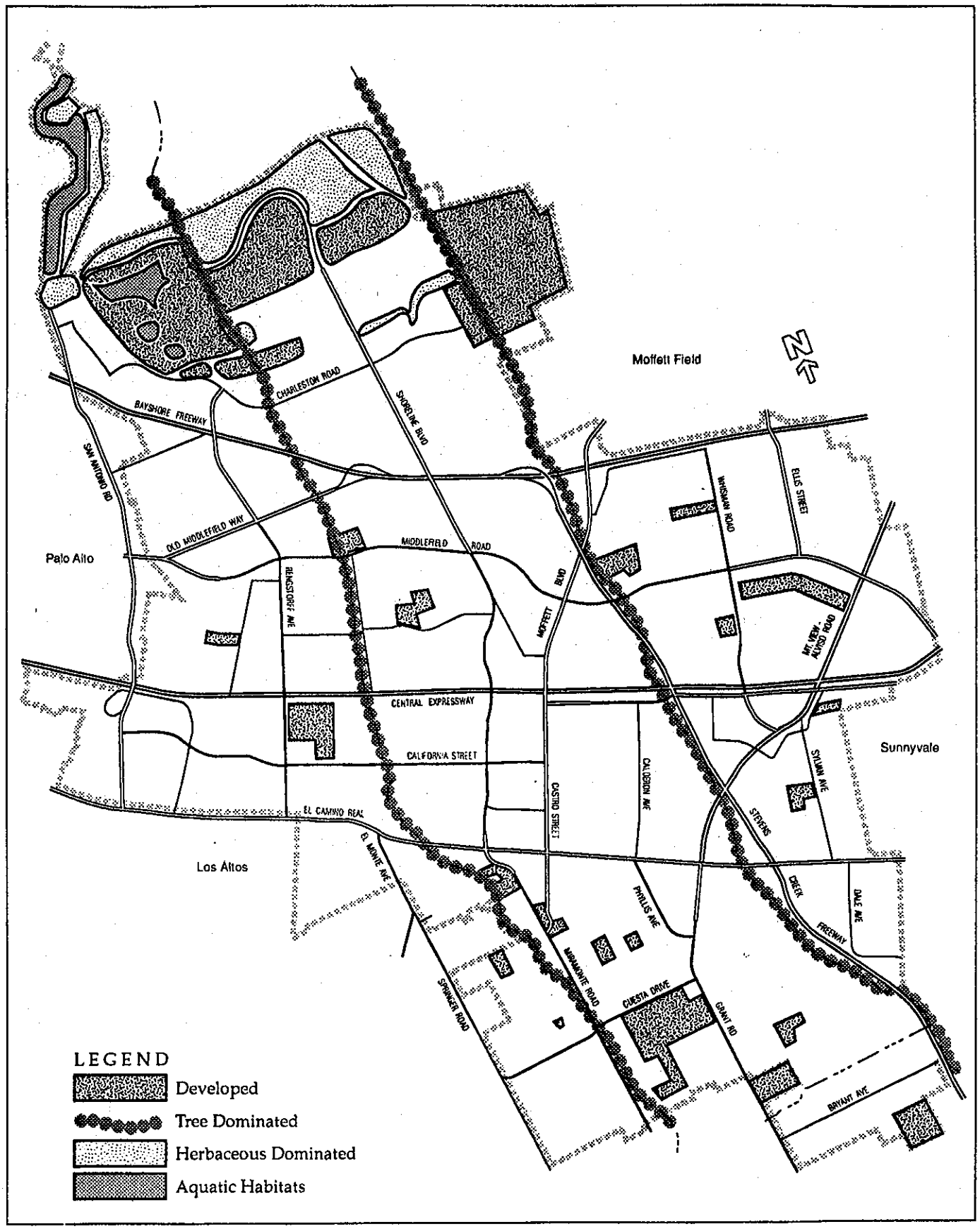
Developed Habitats

Urban

Over 90 percent of the city is developed and is classified as urban habitat. The structure and species composition of vegetation in urban habitats vary. Structure defines vegetation height, spacing, and type of cover (tree, shrub, herbaceous). Herbaceous cover refers to the vegetative layer of a plant community that is composed of annual or perennial plants that do not develop woody tissue, but die at the end of the growing season.

A distinguishing feature of urban wildlife habitat is the mixture of native and exotic species. The variety of urban vegetation within cities produces a rich mosaic with considerable edge area. (The edge area is a border or interface area between vegetation types, characteristically rich in wildlife.) The overall mosaic may be more valuable as wildlife habitat than the individual units in that mosaic.

Habitat in urban areas can be described by four general categories relevant to wildlife: *commercial*, *urban residential*, *urban park*, and *industrial areas*. Heavily developed *commercial areas* in Mountain View are extremely low in species diversity. Examples of commercial developed habitat include El Camino Real, San Antonio Center, and Downtown Castro Street.



EXISTING WILDLIFE HABITATS IN MOUNTAIN VIEW FIGURE 18

Species utilizing this habitat are predominantly urban adapted birds, such as rock dove, house sparrow, and starling.

Urban residential areas are characterized by a denser and more varied mosaic of vegetation, including shade trees, lawns, hedges, and planted gardens. Approximately 40 percent of the land surface is typically covered by impervious material, depending on the density of existing residential development. Urban residential habitat extends throughout Mountain View and is the most predominant developed habitat in the city. Additional bird species that use this habitat include the scrub jay, mockingbird, and house finch. Raccoon, opossum, fox squirrel, pocket gopher, and a variety of butterflies, moths, and garden insects are wildlife species typically found in this habitat.

Urban park habitat is similar to *urban residential habitat*, except a greater percentage of the area is covered with vegetation. Urban park habitat is found throughout Mountain View and includes Rengstorff Park, Eagle Park, and Cuesta Park. Playing fields and public and private schools in the city also fall in this category. Large heritage-size oak trees are found at some of these urban parks, including Rengstorff, Pioneer Memorial, Cuesta, Bubb, and Landels Parks. These large native trees are important sources of food, cover, and perching space for wildlife. These trees could provide potential sources of locally adapted native tree seed for any future restoration projects.

Other urban park habitat areas include the levees adjacent to Charleston Slough and the Leslie Salt ponds. Although the levees do not support turf or trees, they do support upland, of mostly ruderal vegetation (plants that typically grow where vegetation has been disturbed by man, such as along roadways and ditches).

Habitat in *urban industrial areas* range from landscaped areas around buildings to areas completely covered by buildings and pavement. In general, urban industrial habitat values are low. However, habitat values can be similar to those for *urban parks* or *urban residential* in industrial areas with significant landscaping. For example, the campus-like setting in the North Bayshore Area provides landscaping to create a valuable urban industrial habitat. *Urban industrial habitat* is primarily concentrated in the North Bayshore area, in the Whisman Road/Middlefield Road area, and at NASA Ames/Moffett Field.

Cropland

Vegetation in *cropland habitat* consists of cultivated plants that are primarily annuals planted in spring and harvested in the summer or fall. Today, minimal *cropland habitat* exists in Mountain View. Cropland habitat of notable size are found north of the Bayshore Freeway near the NASA Ames facility; off of Charleston Road, to the east of Whisman Road; and in two locations south of El Camino. Two nurseries (including greenhouses) are included in this category. The croplands at Moffett Naval Air Station near San Francisco Bay include areas that support seasonal wetland vegetation.

Croplands support reduced wildlife diversity in California. However, many species of rodents and birds have adapted to croplands. These include the California ground squirrel, mourning dove and Brewer's blackbird. Fallow areas are often utilized by burrowing owls. The

burrowing owl, a California Species of Special Concern[16], is found in a variety of habitats ranging from grasslands to agricultural lands and other human-altered environments. Burrowing owls require open habitat, short vegetation, and burrows provided by burrowing mammals, such as ground squirrels.

Orchard/Vineyard

Orchards are typically single-species tree-dominated habitats. As a result of the extensive urban development which has occurred over the past several decades, few orchards remain in Mountain View. Orchards of notable size in the city are located off of Charleston Road, Whisman, Route 237, and adjacent to Cuesta Park. A small vineyard is located at the corner of Moorpark and Evelyn.

Spacing between trees in orchards is uniform, and depends on the desired spread of mature trees. The understory, the underlying vegetation layer usually composed of low growing grasses and other herbaceous plants, is often disked for weed control. The City is proposing a new weed control ordinance that would restrict the amount of property disked in Mountain View. Larger and more diverse populations of wildlife are supported in native tree-dominated habitats.

Tree-Dominated Habitats

Coastal Oak Woodland

The overstory (the tree layer in a forest) in *coastal oak woodland* consists of deciduous and evergreen hardwood, including coast live oak and valley oak. In wetter areas, such as along creek channels, trees are dense and form a closed canopy. The understory may include shade tolerant shrubs or a thick carpet of plant litter (the uppermost layer of organic matter on the forest floor made of dropped leaves, stems, and branches). Remnants of *coastal oak woodland* vegetation are found in parks and adjacent to residences near Permanente and Adobe Creeks. The most representative area of this habitat in Mountain View occurs as a narrow band of *coastal oak woodland*, along an unchannelized section of Permanente Creek, near Cuesta Road and the Los Altos border. Introduced landscape trees and shrubs are in the remnant coastal oak woodland.

Valley Foothill Riparian

Valley foothill riparian habitats are found in valleys bordered by sloping alluvial fans and lower foothills. These habitat areas are generally associated with low velocity flows, flood plains and gentle topography. Valley foothill riparian habitats provide food, water, migration and dispersal corridors, escape nesting, and thermal cover for an abundance of wildlife. Dominant tree species include cottonwood, California sycamore, valley oak, box elder, and willow. Understory plants include wild rose, California blackberry, blue elderberry, poison oak, sedges, and grasses.

[16] The California Department of Fish and Game maintains a list of species that are of special concern because their populations are declining. Species on this list are being monitored to determine if they warrant future protection under State law.

Vegetation along portions of Stevens Creek consists of plants typical of valley foothill riparian habitat, interspersed with introduced plants (i.e., eucalyptus) along the banks. The channel has been subjected to clearing, culverting under Route 85, and construction of access roads. Habitat along Stevens Creek is a mosaic of valley foothill riparian plants, eucalyptus woodland, annual grassland, and bare ground. Along most of Stevens Creek, the channel banks are considered to be *valley foothill riparian-eucalyptus complex.*

Eucalyptus

Eucalyptus habitats range from single-species plantings with little or no understory, to scattered trees over a well-developed understory. Few native overstory species are present within eucalyptus planted areas. The understory generally consists of non-native annual grasses and other weedy species, including mustard, thistle, and cheeseweed. The allelopathic nature of eucalyptus (the suppression of growth of one plant species by another, due to the release of toxic substances) and heavy deposits of plant litter often prevent the establishment of a significant shrub understory. Eucalyptus provides important roosting, perching, and nesting sites for a variety of bird species. Raptors, such as barn owl and red-tailed hawk, are characteristic species of this habitat.

Herbaceous-Dominated Habitats

Annual Grassland

Annual grassland habitat occurs in Shoreline Park and along portions of Stevens Creek. Annual grassland habitat is an open grassland composed primarily of introduced (non-native) annual plants. Plants common to annual grassland include wild oat, ripgut brome, wild barley, filaree, and a variety of thistles. Many wildlife species forage in annual grasslands. Such species include alligator lizard, California ground squirrel, Botta's pocket gopher, western harvest mouse, and California vole. This habitat also provides important foraging habitat for the turkey vulture, northern harrier, and American kestrel. Burrowing owl, typically breed in annual grasslands.

Saline Emergent Wetland (Salt Marsh and Brackish Marsh)

Saline emergent wetlands occur along the margins of bays and estuaries sheltered from excessive wave action. Soil salinity varies from that of seawater to brackish levels at sites that receive freshwater run-off. Saline emergent wetland habitat includes salt marsh and brackish marsh. These wetlands support mostly perennial grass and herbaceous plants that are adapted to saline conditions. Characteristic plant species in salt marshes include cordgrass, pickleweed, alkali heath, brass buttons, and salt marsh dodder. Tule, California bulrush, cattail, and carex are common in brackish marshes.

Saline emergent wetlands provide food, cover, nesting, and roosting habitat for a variety of birds, mammals, reptiles and amphibians. Species limited to this habitat include the rare or endangered California clapper rail, least tern, black rail, and salt marsh yellowthroat. Although the endangered salt marsh harvest mouse has not been reported in the wetlands in Mountain View, this species may also be present. Other bird species that feed or roost in these wetlands include herons, egrets, ducks, hawks, ringed pheasant, American coot, shorebirds, and swallows.

Characteristic mammals include shrews, bats, mice, raccoon, red fox, jack rabbits, and harbor seal.

Most of this habitat occurs within Shoreline Park, although some seasonal wetland may exist at Moffett. Charleston Slough historically supported saline emergent wetland habitat, but is mostly ponded now[17]. Two salt marsh restoration areas and a water retention basin are also mapped as saline emergent wetlands. The vegetation within the water retention basin ranges from brackish species near the inflow to salt marsh species (such as pickleweed) at the north end of the basin. This area is heavily used by birds, and is managed as a multi-use area with water management and wildlife and vector control. Birds that are commonly found in the water retention basin include black-crowned night heron, cinnamon teal, gadwall, mallard, avocet, black necked stilt, and Caspian tern.

Fresh Emergent Wetland (Freshwater Marsh)

Fresh emergent wetland habitat occurs where a basin or depression is saturated or periodically flooded. Saturated or periodically flooded soils support water-loving plants, including sedge, baltic rush, cattail, tule, and bulrush. Fresh emergent wetlands are among the most productive wildlife habitats in California, and they provide food, cover, and water for numerous mammals, reptiles, and amphibians. Within Mountain View, fresh emergent wetlands occur north of Highway 101. A narrow band of freshwater marsh vegetation may be found adjacent to several ponds in the Shoreline Golf Course. A second larger area of fresh emergent wetland habitat is located north of Charleston Road. This basin is adjacent to Stevens Creek, and is used for flood control purposes.

Aquatic Habitats

Riverine

Intermittent or continually running water distinguishes rivers and streams. Streams originate as outlets of ponds or lakes, or from springs, seepage, or seasonal runoff. Wildlife that inhabit streams include nymphs of caddisflies and stoneflies, diving beetles, water boatmen, insectivorous birds, waterfowl, herons, and kingfisher.

Urban development and flood control projects altered the natural water regime of creeks within Mountain View. Adobe, Hale, and Permanente Creeks flow intermittently and are channelized or culverted underground for a majority of their length. Stevens Creek receives additional water from the Stevens Creek-Permanente Creek Cross Canal. Steelhead have been reportedly observed along portions of Stevens Creek, north of U.S. 101. Stevens Creek supports some

[17] Charleston Slough was originally part of the Leslie Salt evaporation ponds, but fell into disuse. Although levees cut this area off from the bay, limited tidal action through a culvert resulted in tidal wetland habitat. In 1982, Leslie Salt elevated the culvert which prevented water from draining out of the area during low tide. As a result, Charleston Slough changed from a marsh into a pond.

resident (not anadromous - or ocean going) rainbow trout which may have been stocked. A steelhead run previously occupied the creek. In addition, a few rainbow/steelhead trout have been collected during the past 10 years. However, there doesn't appear to be much of a salmonid fishery in Stevens Creek at the present time. Due to the lack of water during the period of May through November, the establishment of a viable steel head run or resident rainbow trout population has been prevented. (A.A. Rich and Associates, *Preliminary Fishery Resources Analaysis of Stevens Creek for the State Route 85 Freeway Project*, May 10, 1991.)

Steelhead and chinook (aka king) salmon may have been observed in the creek. It is also important to note that two fish ladders are located along Stevens Creek near Route 85 and downstream of U.S. 101 (Jerry Smith, San Jose State University communication to A.A. Rich and Associates, May, 1991). However, as in the case of other creeks located downstream of dams, the lack of water in the spring and early summer would limit the smolts (offspring) from moving out of the creek to the Bay.

The habitat along creeks in Mountain View is more representative of terrestrial than of aquatic habitats, with the exception of the estuarine habitat along Stevens Creek and Permanente Creek, both near San Francisco Bay, and the habitat south of Marilyn Drive. The extent of the riverine habitat is limited to the narrow open portions of the creek channel with less than 10 percent canopy cover. These areas are so small that specific areas of riverine habitat are not designated on the Habitat Map.

Lacustrine (Lakes and Ponds)

Lacustrine habitats are inland depressions or dammed channels containing standing water. Typical lacustrine habitats include permanently flooded lakes and reservoirs. Lacustrine habitats in Mountain View include artificial freshwater lakes at the Shoreline Golf Course, a 50 acre artificial saline lake in Shoreline Park, and a high level ditch and Shoreline Pump Station retention basin in the North Bayshore Area. Fish have been introduced to the freshwater lakes. Although the saline lake does not contain emergent vegetation, it does support a rich benthic (bottom or sediment dwelling) community, including oysters, mussels, clams, and isopods. These animals are a food source for a variety of ducks.

Suspended organisms, such as plankton, are found in the open water of this habitat. Plants and animals in lakes and ponds vary with depth. Upper surface species include duckweed, diatoms, protozoans, small crustaceans, and snails. Submerged plants, such as algae and pondweeds serve as cover for small aquatic animals. Permanent lacustrine systems also support fish life. A variety of mammals, birds, reptiles, and amphibians also use lacustrine habitats for reproduction, food, water, and cover.

Estuarine

Estuarine habitats occur where tidal seawater is diluted by flowing fresh water. Estuarine habitats differ greatly in size, shape, and volume of water flow, depending upon the local topography. Estuarine habitat occurs along Charleston Slough (Adobe Creek), Mountain View Slough (Permanente Creek), and portions of Stevens Creek. This habitat provides for reproduction, feeding, resting, and cover for many mammal and bird species. The largest

number of estuarine organisms live in sediment and include hydrozoans, anthozoans, and annelid worms. Mollusks, including snails, mussels, and clams, also are found in this habitat.

NAS Moffett Field

NAS Moffett Field is located on the southwest side of San Francisco Bay, with portions in the city limits of Mountain View and Sunnyvale. Half of Moffett Field is located in Mountain View Sphere of Influence and the other half is located in Sunnyvale's Sphere of Influence. Approximately 1,500 acres of land within the boundaries of Moffett Field are used for air operations, training, ordnance storage, personnel housing, supply maintenance and personnel support facilities. Two parallel runways run north-to- south across the middle of the station.

Habitats occurring at Moffett Field include: **Terrestrial Habitats** and **Aquatic Habitats.**[18] **Terrestrial Habitats** consist of *urban*, *cropland*, *wetland*, and *grassland* habitats. *Urban* habitat includes buildings, landscaped areas, flight line areas, and a golf course. At Moffett, *cropland* habitat consists of irrigated small grain and alfalfa crops.

Wetland and remnant *grassland* habitats are the predominant natural habitats found on the station. Wetlands are contiguous with the broad belt of regional wetlands in the South Bay. *Wetland* habitats include tidal and non-tidal salt marsh, brackish marsh, and freshwater marsh vegetation. Approximately 100 acres of wetland habitat are found at the northern end of the runways. This area was formerly a tidal wetland. Salt marsh habitat is also present in a 100-foot corridor along Jagel Slough, the salt brine canal, and the bayside margin of Moffett Channel. At the margin of tidal areas, freshwater runoff creates low salinity conditions that support freshwater marsh vegetation. Freshwater marsh vegetation is present at the western end of Moffett Channel.

Levees and roads around the perimeter of tidal areas support ruderal (or weedy) vegetation such as sweet clover, vetch, mustard, and fennel. Ruderal vegetation is also found in upland sites along Moffett Channel and Stevens Creek. Scattered remnants of *grasslands* are located adjacent to the main runway and on areas that have not been cultivated. *Grassland* areas near the runway are mowed as part of a bird air-strike hazard-reduction effort.

Aquatic habitats found at NAS Moffett Field include *estuarine* habitat and a limited amount of *freshwater habitat in ponds* at the golf course. Tidal areas are critical to many species of marine organisms. Diked marshes north of the runway no longer support salt water fish, since levees have separated the marshes from the Bay.

The terrestrial and aquatic habitats on the NAS support a variety of migratory and wintering birds, and resident species of birds and small mammals. Urban and developed areas are used by wildlife that are adapted to human presence. Remnant grasslands provide habitat for burrowing owls and California ground squirrels.

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[18] Based upon information included in the Draft Environmental Impact Statement Candidate Base Closures/Realignment San Francisco Bay Area, Moffett Field Section, August, 1990.

Nesting waterfowl and other wildlife are threatened by the presence of red fox and feral cat. The red fox is an introduced species that is known to prey on nesting waterfowl. Several red fox have been reported in the vicinity of the station's golf course. The City also implements a red fox trapping program, and has trapped a mother fox and her pups.

Overall, the natural areas at NAS Moffett Field provide diverse and productive wildlife habitat values. A major factor contributing to the diversity of wildlife species on the station is the presence of several types of wetland habitats interspersed with grassland vegetation.

Threatened and endangered species that are known to inhabit the South Bay region that could be present on the station or in Mountain View include:

Salt marsh harvest mouse	*Reithrodontonys raviventris raviventris*	Federally-listed endangered
California least tern	*Sterna antillarum browni*	Federally-listed endangered
California clapper rail	~~*Laterallus jamaicensis coturniculus*~~ *Rallus longirostris obsoletus*	Federally-listed endangered
California black rail	*Laterallus jamaicensis coturniculus*	State-listed rare
California brown pelican	*Pelecanus occidentalis californicus*	Federally-listed endangered
Mimic Tryonia	*Tryonia imitator*	Federal Category 2
California Tiger Salamander	*Ambystoma tigrinum californiense*	Federal Catagory 2
Saltmarsh common yellowthroat	*Geothylpis trichas sinuosa*	Federal Category 2
Bank swallow	*Riparia*	State Threatened
Saltmarsh wandering shrew	*Sorex vagrans halicoetes*	Federal Category 1
Pt. Reyes Bird's beak	*Cordylanthus maritimus ssp. palustris*	Federal Category 2

California Clapper rail and black rail may choose not to use the station because of the fragmented and isolated nature of salt marsh vegetation. California least tern and California brown pelicans have been observed using the Station. The fragmentary salt marsh habitat was determined to be suitable for salt marsh harvest mouse.

Marsh gum plant (*Grindelia humilis*) is listed in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (1988). This plant has no State or federal Threatened or Endangered status. Marsh gum plant is located on the Stevens Creek levee bordering a brackish marsh.

2. Impacts

The City currently requires property owners to disk vacant lots for weed control and fire prevention. Disking can potentially destroy habitat for ground squirrels, shrews, mice and other wildlife, as well as disrupt burrows used for nesting by burrowing owls. Vacant lots and open space areas north of Bayshore provide sufficient habitat to support burrowing owls and other wildlife species. South of Bayshore, vacant lots are often smaller and surrounded by urban development. (Examples include portions of the Hetchy-Hetchy aqueduct corridor near California and Rengstorff that may, in themselves, provide appropriate habitat values, but are islands surrounded by urban development.) Burrowing owls and other species that would choose to nest in such sites would be threatened by human and vehicular intrusion and domestic pets. The Ellis-Whisman area contains larger open areas, but the potential soil and groundwater contamination with hazardous materials lowers the habitat value for species that burrow.

Disking in these areas south of Bayshore would not substantially reduce habitat for these species. The area north of Bayshore, however, consists of potentially suitable wildlife habitat. Disking for weed control should be evaluated on a site-by-site basis to determine whether potential burrowing owl sites and other wildlife are negatively impacted, and the effects on fire hazards.

The 1992 General Plan Environmental Management Chapter contains goals, policies, and action programs encouraging the provision of open space areas and recreational facilities in the city. For example, Policy #3 provides for the development of an urban trail system that could include a regional trail along Stevens Creek and within the Shoreline at Mountain View Park. The development of urban trails within or near the Stevens Creek riparian corridor and near the wildlife habitat areas located at Shoreline would result in potentially significant impacts to the existing wildlife habitat. Human and domestic animal intrusion into these sensitive habitat areas would result in the disturbance of the habitat quality. Such disturbance would correspond to the type of activities permitted on these trails (i.e., pedestrian and bicycle activity). The development of trails in these areas would further introduce light, noise, trash and glare that could potentially disturb any migratory feeding and nesting behavior in these areas.

Residential Redevelopment Sites

The Evelyn Avenue Corridor Site ("Site 8") and the Old Mill Site ("Site 3") are presently occupied by limited urban developed habitat. Future residential redevelopment permitted by the proposed General Plan Land Use Map change for the Evelyn Avenue site may result in the partial or complete removal of the existing landscaping and mature trees. The approved Old Mill Site General Plan Land Use Map amendment would also result in the removal of existing mature trees. However, it is anticipated that the future development would be required to install landscaping and open space areas in accordance with the City's requirements. These impacts would therefore, not be considered significant.

The seven residential redevelopment sites (including Sites 3 and 8) are presently occupied by urban developed habitat. The future rezonings of the Evelyn Avenue Corridor Site ("Site 8"), Old Mill Site ("Site 3"), Del Medio Site ("Site 1"), and Shoreline Blvd. Site ("Site 5") would result in minimal disturbance to the very limited landscaping present on these sites. The Zoning Ordinance, Precise Plan and Policy changes on the Downtown Site ("Site 9"), El Camino and El Monte Site ("Site 11") and El Camino Shopping District Site ("Site 10") would also result in minimal disturbance of limited landscaping and habitat. As a result, these future rezonings are not anticipated to significantly affect vegetation and wildlife resources.

3. Mitigation

The following Environmental Management Chapter policies and action programs would ensure protection of the existing natural vegetation and wildlife resources in the city. Implementation of these policies and action programs would also ensure that future development provided by the proposed General Plan Land Use Map and text changes would not significantly impact these natural resources.

Policy 10: Encourage compatible uses in the City's open spaces.

Policy 12: Protect and restore plant and wildlife habitats.

Action 12a: Prepare and adopt a master plan to limit development and promote natural habitats in and around Shoreline.

Action 12b: Use open space zoning districts and capital projects to preserve and enhance creek side habitats.

Action 12c: Use the City's Landscape Guidelines to require native plants in commercial, industrial, and multiple-family developments.

Action 12d: Prepare and adopt an ordinance limiting plowing under open fields as a way to control weeds and prevent fire.

Policy 13: Protect wildlife from the hazards of urbanization.

Action 13a: Preserve Shoreline's burrowing owl habitat by passing an ordinance designating Shoreline as a burrowing owl preserve.

Action 13b: Require that public and private land owners compensate for the destruction of habitat used by sensitive species.

Action 13c: Prepare and adopt an ordinance requiring wildlife surveys of open lands before they are developed, managed for fire prevention, or disturbed in another way.

Action 13d: Continue to fund organizations that rehabilitate injured animals and return them to the wild.

Action 13e: Reduce the use of herbicides and pesticides on City-owned properties to the extent possible.

Action 13f: Educate residents and businesses on ways to reduce the use of herbicides on their properties.

Action 13g: Avoid using balloons, especially Mylar balloons, at City-sponsored events, because they pose a safety hazard and pose a danger to wildlife.

Action 13h: Consult with Leslie Salt and local duck hunting clubs to develop strategies that reduce the negative effects that duck hunting has on the public.

Action 14f: Publicize and enforce the Heritage Tree Ordinance.

Action 22a: Protect and preserve ~~native~~ existing plant communities next to creeks that help prevent erosion.

Action 26b: Require that public and private land owners mitigate for the destruction of habitat used by sensitive species.

Additional measures to reduce potential impacts associated with urban trails along riparian corridors and near sensitive wildlife habitat areas include:

- Coordinate with the Santa Clara Valley Water District to ensure that creek beds are maintained in a natural state.

- Design the Urban Trail system to minimize impacts on plant and wildlife communities, and restrict human access to developed trail areas. Urban trails should be located outside of any identified wildlife habitat mitigation areas.

- Restrict trail lighting to locations at the top of bank or within a buffer zone, adjacent to the top of bank. Since trails in Shoreline Park are for day use only, no lighting is anticipated in this areas. Lighting should not be permitted within the channels. Lighting impacts on wildlife habitat can also be reduced by installing lighting that shields and directs light away from the riparian habitat, thereby minimizing impacts upon nocturnal species.

Implementation of these measures would reduce potentially significant impacts to a non-significant level.

H. VISUAL AND AESTHETIC QUALITY

1. Setting

Mountain View is situated between the Santa Cruz Mountains to the south, and the Diablo Mountain range to the north. The northern boundary is occupied by a large open space of the San Francisco Bay, and the Stevens Creek is located on the eastern boundary.

Mountain View is suburban in character. The buildings consist primarily of single story and two story structures, separated by landscaping or parking lots. The building form is low, horizontal and dispersed. Some portions of the City are more urban in nature, such as the Downtown and portions of El Camino Real. In these locations the buildings are taller, there is more pavement, and higher density. There are five buildings in Mountain View that are over five stories in height; the Bay Plaza, San Antonio Financial Center, ASK, El Camino Hospital, and Eagle Square.

Mountain View has implemented programs which contribute to the City's visual character. For example, the City converted a previous landfill into Shoreline Park and Amphitheater. The closed landfill protects the city from flood hazards and will afford views of the park, the Bay, and the Diablo Mountain Range.

In the summer of 1990, the City completed a joint public and private revitalization program for the Downtown Castro Street area. Downtown Mountain View consists of six blocks on either side of Castro Street between Evelyn Avenue and Mercy Street, that comprise the historic retail district of the City. The revitalization program for this area included new street lamps, special pavement, landscape medians, wide sidewalks, and street furniture. Sidewalk extensions provide areas for vendor carts and outdoor cafes, to create a boulevard effect. The City Hall and the Center for the Performing Arts are located at the corner of Mercy and Castro Streets. These facilities incorporate innovative architectural design features, which add to the Downtown's character. The Civic Center is anticipated to eventually become a symbol for Mountain View, because it is designed to re-emphasize the meaning of the Downtown as a center for business, cultural, and social activities. This building also sets the standard for the other private development in the Downtown.

Mountain View has 32 Precise Plans that are used as urban design tools for development. This allows Mountain View to tailor development standards to unique characteristics of specific sites, thus every facet of a particular area is connected to its surroundings. Not only does the Precise Plan control the type of environment in a given area, but so does the Site Plan and Architectural Review (SPAR). SPAR focusses on the quality of development on individual sites, whereas the Precise Plan resembles a "mini-Zoning Ordinance" in that it describes allowable land uses and building envelopes. Since 1962, (SPAR) has been an integral step in the approval process for most new development in the City. The SPAR process ensures that new private development reflects good basic design and is visually and aesthetically compatible with the surrounding land uses and natural resources.

Public projects, parks, streets, and buildings are also subject to the design review process. Two studies were initiated to address the quality of residential neighborhoods. The R-1 Study which

was adopted in November, 1991, evaluates how the size and scale of building additions and infill development affect neighborhoods. The Downtown Neighborhood Preservation and Improvement Plan was developed to establish guidelines to preserve the historic neighborhood of the downtown.

Viewsheds

A viewshed is "the area that can be seen from a defined observation point."[19] The two most prominent visual resources are the Santa Cruz Mountains to the south and San Francisco Bay to the north. Both the Santa Cruz Mountains and the Bay are visible from a number of vantage points, such as Shoreline Park, Highway 101, and research and development campuses near Shoreline. The Mountains remain visually prominent from southern areas of the city, although views of the Bay are obstructed by urban development. In addition, the Diablo Range is visible from the Downtown, El Camino Real, and many other vantage points in the City.

Viewsheds in Mountain View sometimes encompass other natural resources, such as Heritage Trees, Stevens Creek, and Permanente Creek south of El Camino Real. These and other visual resources are preserved and enhanced through the design and placement of streets, buildings, and open spaces. The Site Plan and Architectural Review process encourages development that is visually and aesthetically sensitive to these resources, preserving them and limiting obstructions that would block the views.

Scenic Highways

State Scenic Highway System

The State Scenic Highway System was established in 1963 by the State Legislature. The system consists of highways that are officially designated scenic roads. All state scenic routes must be numbered state highways listed in the *California Master Plan of State Highways Eligible for Official Scenic Highway Designation* (State Master Plan). These routes are safe for rapidly moving traffic, designed to blend in with the surrounding landscape, and provide vista points, turnouts, and rest facilities.

Roads listed in the State Master Plan are officially designated as scenic routes, after the State determines that the road and the right of way meet the State's scenic highway standards. In addition, the scenic corridor along the roadway must provide adequate protection for the preservation of surrounding resources. The State is responsible for ensuring that the roads meet scenic highway standards, while local governments provide corridor protection.

There are six officially designated Scenic Highways in Santa Clara County, primarily located south of Mountain View. These routes include: Route 35 (Skyline Boulevard), Route 9 (Congress Springs Road and Los Gatos-Saratoga Road), Route 17, Route 152 (Pacheco Pass), Route 156, and Interstate 280. No Scenic Highways are located in Mountain View.

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[19] The California General Plan Glossary, page 24.

PHOTOGRAPHS OF

POTENTIAL HOUSING SITES

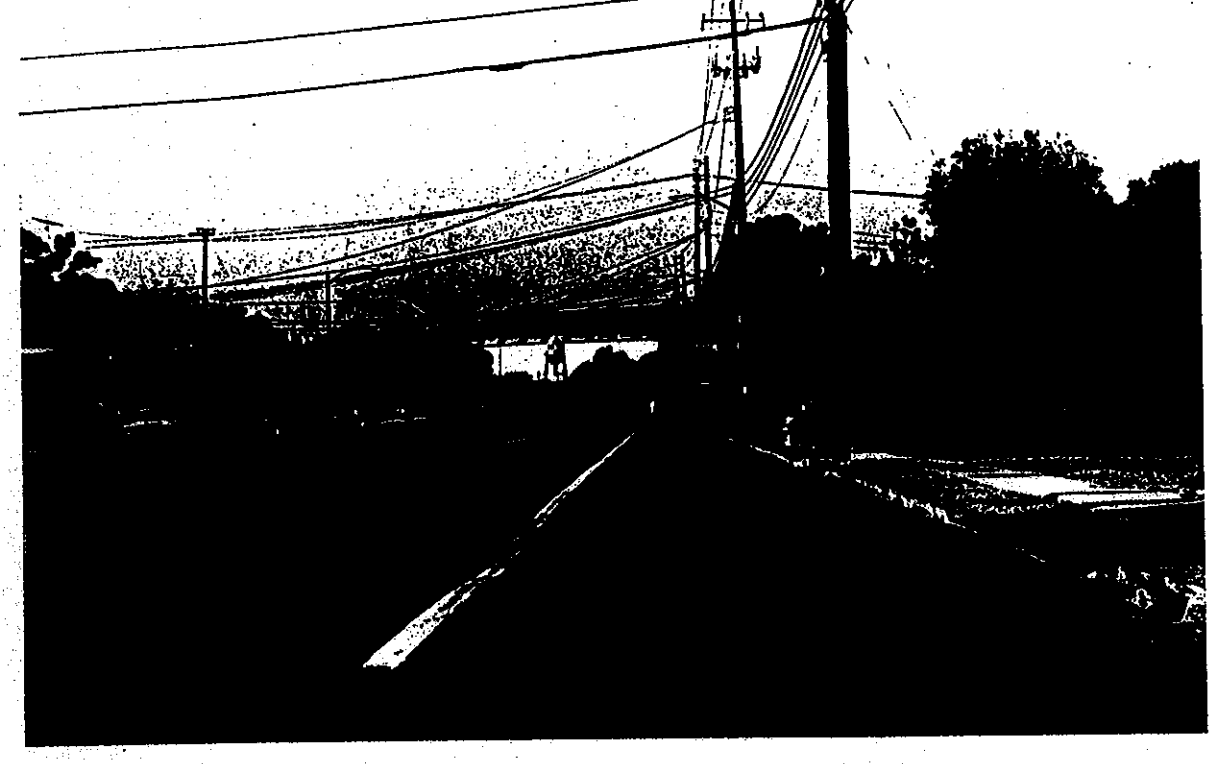

Photo 1: View of Moffet Field from "Site 6" (Fairchild Drive and Ellis Street) on Whisman Road, facing north. This site is a land use alternative site for which further studies will be conducted for possible mixed use, housing, and industrial development.

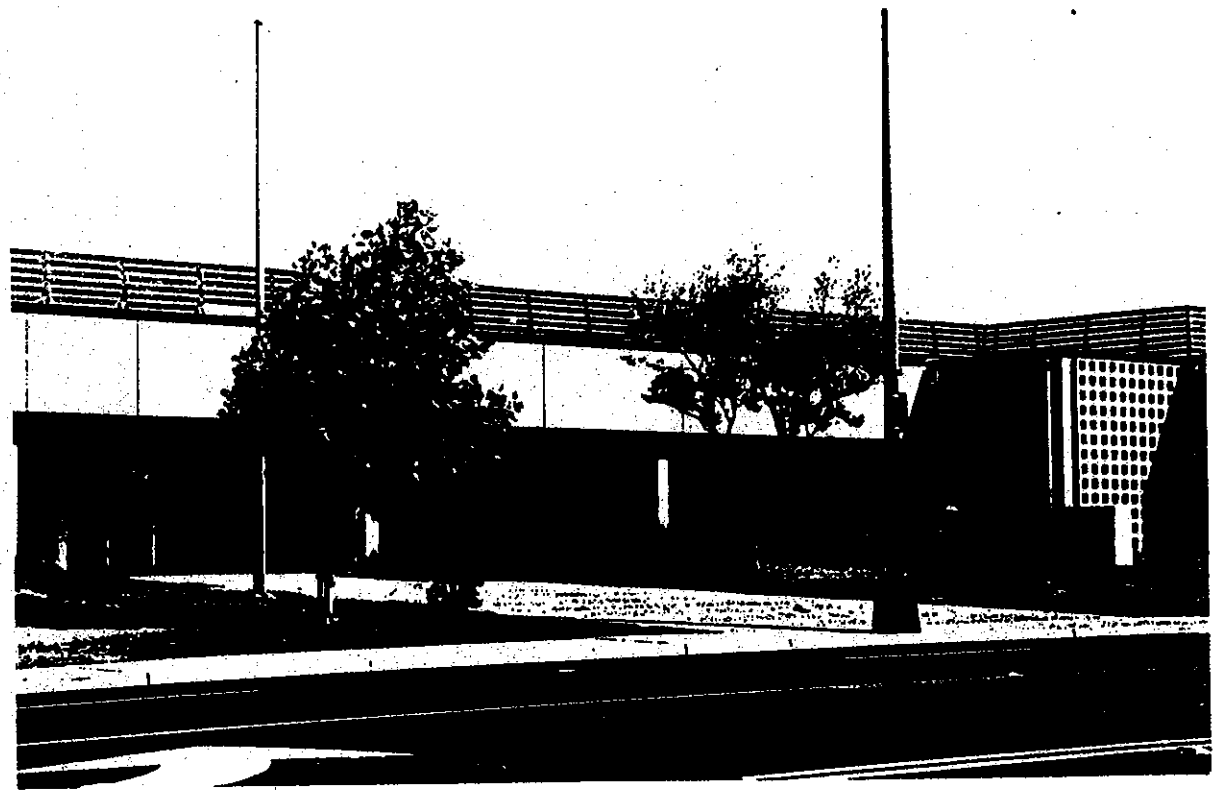

Photo 2: View of a typical low scale R & D/office use on Ellis. This southeasterly view is from "Site 6." This site is a land use alternative.

PHOTOS 1 AND 2

Photo 3: View of a Mini Storage facility located in "Site 7" (Evelyn Avenue and Moorpark Way), on East Evelyn facing easterly. This site is a land use alternative site. Further studies will be conducted to assess the feasibility of a General Plan amendment and rezoning to residential uses.

Photo 4: View of a stucco home on Calderon facing westerly in the Evelyn Avenue Corridor Study Area ("Site 8"). This home is in the Central planning area of Evelyn Avenue and Villa Street.

PHOTOS 3 AND 4

Photo 5: View of Villa Street facing southerly in "Site 8". A lumber supply store is located in the background with a vacant building in the foreground.

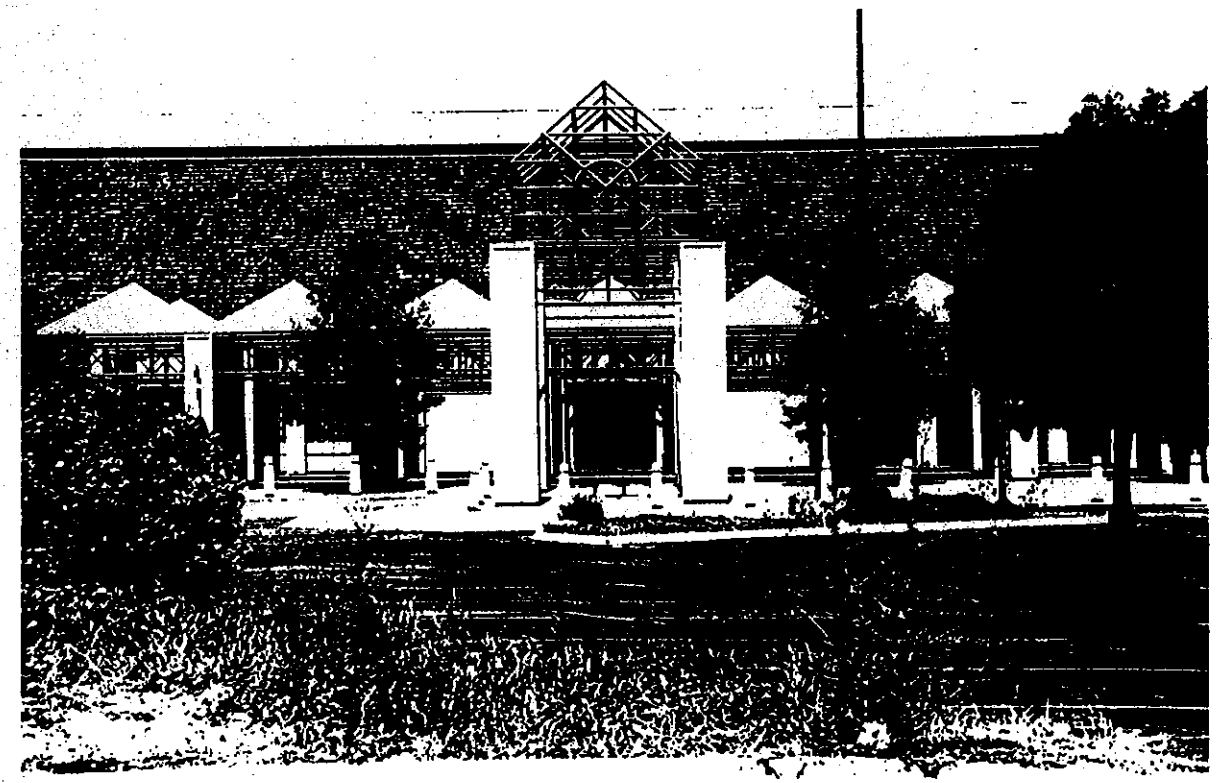

Photo 6: View of the Old Mill Site located in the San Antonio planning area of Showers and California ("Site 3"). This picture is taken on California Street facing southeasterly. A General Plan amendment and Planned Development zoning were approved for this site in October, 1991 as a potential residential redevelopment area in "Site 3."

PHOTOS 5 AND 6

Photo 7: Easterly view of the existing Old Mill "Site 3". This area is classified as a potential residential redevelopment site.

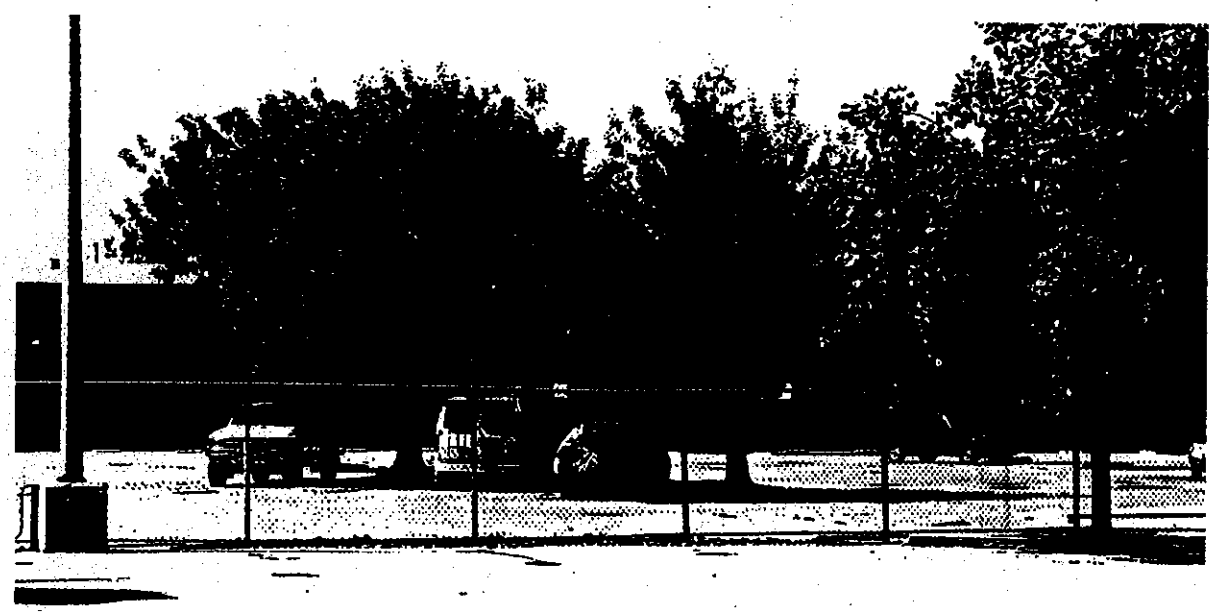

Photo 8: View of a parking lot facing easterly on Del Medio Court. This photograph is taken in "Site 1" of the San Antonio planning area, and it is classified as a potential residential redevelopment site requiring future rezoning.

PHOTOS 7 AND 8

Photo 9: Easterly view of a typical industrial use in "Site 5." This site is located on Shoreline Boulevard, south of Middlefield Road. "Site 5" is a potential residential redevelopment site requiring rezoning to allow residential development which would be consistent with the existing General Plan designation.

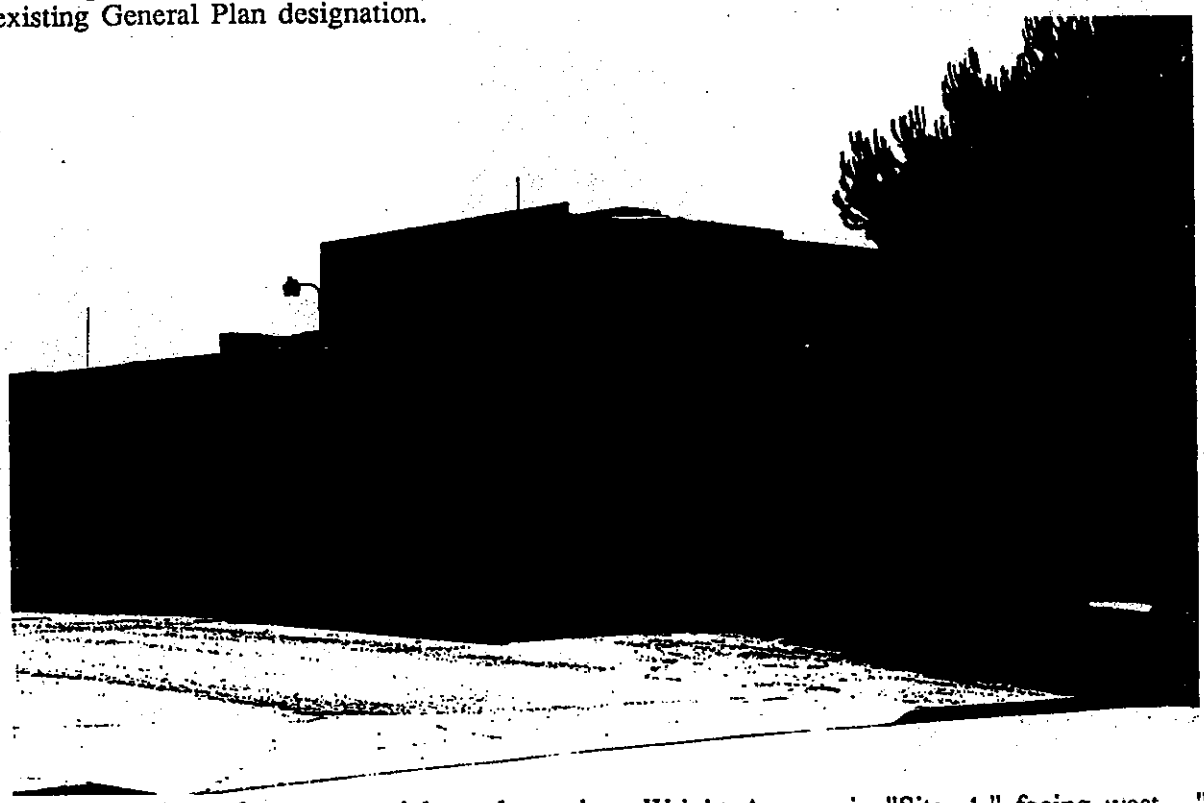

Photo 10: View of a commercial use located on Wright Avenue in "Site 4" facing west. "Site 13" is a land use alternative site. "Site 4" is located in the Stierlin planning area between Polaris and Gemini Avenues. Further studies will be conducted to assess the feasibility of a General Plan amendment and rezoning to residential uses.

PHOTOS 9 AND 10

Photo 11: View of the recent improvements in Downtown Mountain View, facing north. Facade improvements to several historic structures are visible on the easterly side of Castro Street. The Downtown area is included in "Site 9" of the Central planning area and is identified as a potential residential redevelopment site.

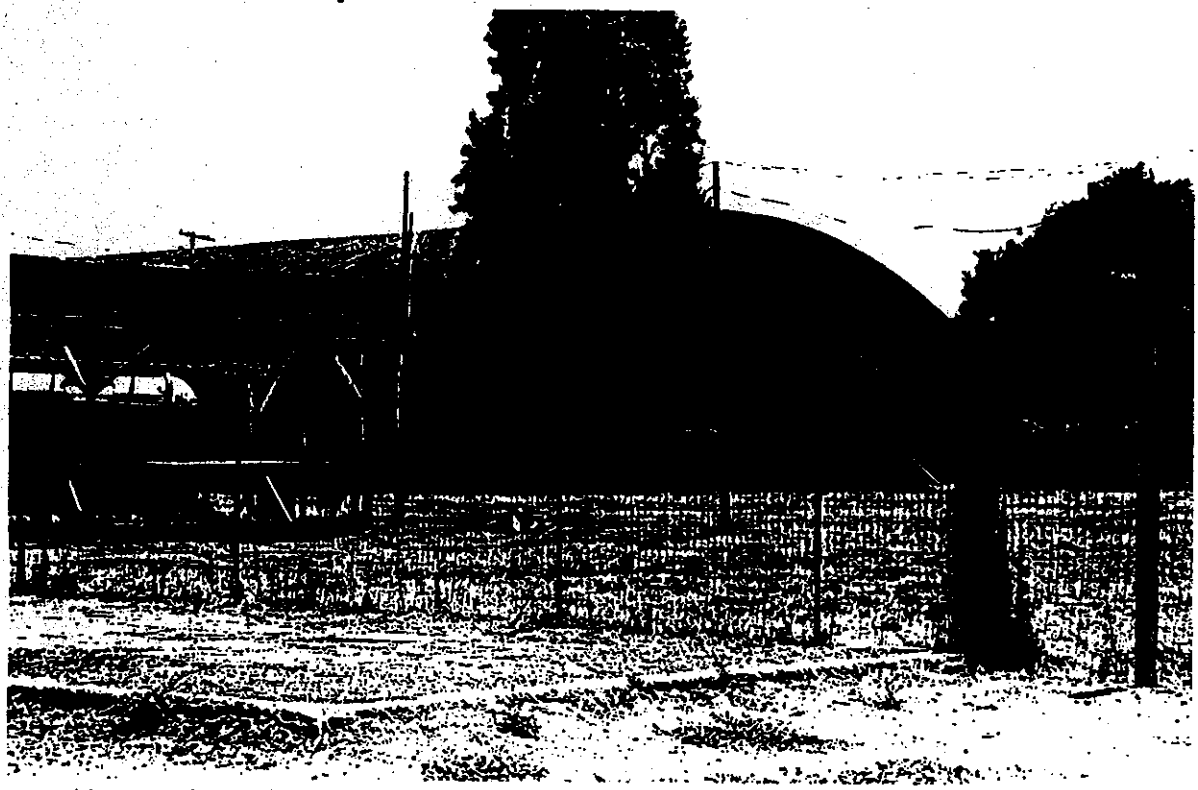

Photo 12: A view of a vacant lot facing northeasterly on the southeastern corner of El Camino and El Monte located in "Site 11". This site is in the Miramonte planning area and is typically occupied by seasonal uses. "Site 11" is a potential residential redevelopment site that would require a policy change to allow mixed use as a permitted land use.

PHOTOS 11 AND 12

PHOTOGRAPHS OF

MOUNTAIN VIEW VISUAL CHARACTER

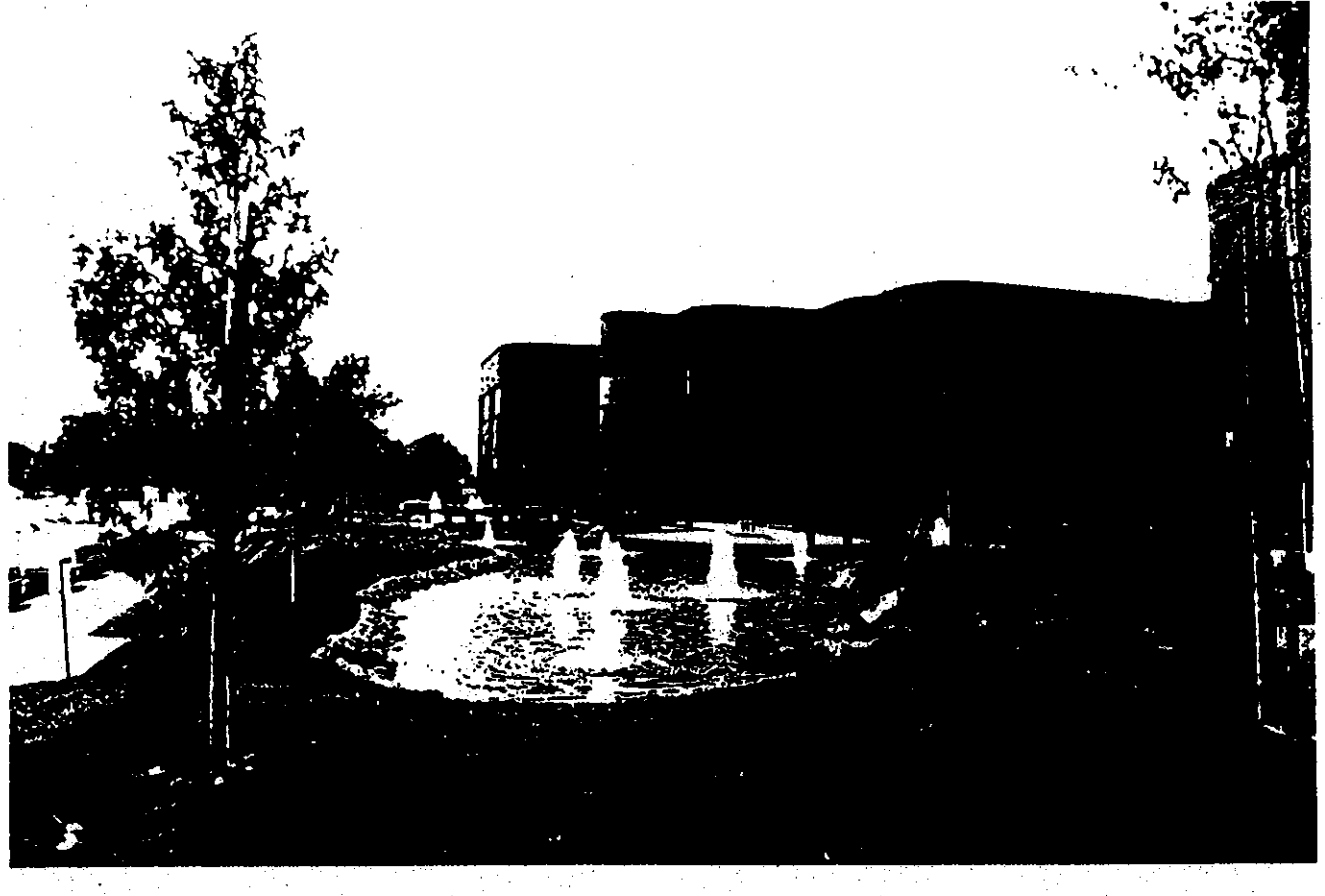

Photo 13: View of a campus R&D facility fronting Plymouth Street in the North Bayshore area. This complex illustrates one of the new R&D facilities in Mountain View.

Photo 14: View of the Park Plaza condominiums located at 650 Castro Street. These single family dwelling units are centrally located within the City. This residential complex includes public amenities such as a swimming pool and park. In addition, the Mountain View Public Library is located less than a block away.

PHOTOS 13 AND 14

Photo 15: Example of a single family residential neighborhood located south of El Camino Real. Mature landscaping lines the local street.

PHOTO 15

Photo 16: View of the newly completed Civic Center complex located on Castro Street. This complex houses the Mountain View City Hall and the Center for Performing Arts.

PHOTO 16

Two freeways, Route 85 and Highway 101, pass through Mountain View. Although these facilities traverse developed urban areas, important natural and scenic resources are located along their corridors. Highway 101 (Bayshore Freeway) extends east from the Palo Alto Baylands along the northern area of Mountain View. The Shoreline area is partially visible from the roadway. Route 85 (Stevens Creek Freeway) connects with Highway 101 and Interstate 280, about three miles south of Mountain View, along Stevens Creek.

County Scenic Road System

The Scenic Road System of Santa Clara County includes all present and proposed State scenic routes in the county and County scenic routes. County scenic routes include scenic freeways and expressways, scenic arterial routes, scenic rural roads, and local roads that require scenic protection. The County Scenic Road System also includes freeways and expressways which demonstrate excellence in urban road design. The Scenic Road System promotes the protection of scenic surroundings of urban and rural routes situated in scenic areas, enhanced with landscaping, or combined with existing or planned linear parks.

The County Scenic Road System includes one Mountain View freeway, Route 85 (Stevens Creek Freeway). Route 85 is designated a County Scenic Freeway because it is combined with the planned Stevens Creek Park Chain. The park chain may one day provide a future continuous trails system from Shoreline at Mountain View to Mountain View High School at the Los Altos City Border. Designating Route 85 as a County Scenic Freeway recognizes the scenic portions of Stevens Creek, and encourages sensitive aesthetic treatment of the freeway to ensure visual compatibility with the future park chain.

Visual Character of the Potential Housing Sites

The variety of land uses in Mountain View create an interesting and unique visual context. Photos 1 through 12 provide examples of the variety land uses within the City, and specifically within areas containing potential housing sites. Photos of the potential housing sites depict several locations that are underutilized or occupied by industrial facilities.

In the residential areas several neighborhoods have a mixture of multiple family and single family housing (i.e., west of North Whisman Avenue), that are characterized by single family units, duplexes, apartments, and townhomes. Other neighborhoods in the southern part of Mountain View continue to exhibit traditional, homogeneous characteristics (i.e., Farley/ Burgoyne, Monta Loma). Sometimes the scale or architecture of additions and new infill development is not compatible with the predominant character of the surrounding neighborhood. As a result the City has adopted floor area ratio limitations for residential districts.

Mountain View also contains several large industrial tracts such as North Bayshore, Ellis and Middlefield, the Leghorn Area, as well as a few small industrial pockets. Some of the small industrial pockets are in locations that disrupt the natural boundaries and cohesiveness of the neighborhoods.

There are many commercial districts including neighborhood centers, regional shopping centers, the Downtown, the El Camino Real, and several commercial/service districts, throughout

Mountain View (see Photo 11). Some of these commercial uses are compatible within their surrounding areas, while others are not.

2. Impacts

Few significant changes in the city's form and image are anticipated to result from the 1992 General Plan Update. Since most of the city's infrastructure is already in place, the greatest impacts to visual and aesthetic quality would result from any future in-fill development.

General Plan Amendments

Mountain View is considering redeveloping some industrial areas with residential uses. The two sites requiring General Plan Land Use Map amendments, the Evelyn Avenue Corridor Study Area ("Site 8") and the Old Mill Site ("Site 3") would result in the redevelopment of underutilized properties (see Photos 4 through 6). These properties are generally occupied by buildings that are in fair to poor condition with limited landscaping. Development of these sites would significantly alter the existing visual character. The construction of buildings over most of the entire site would substantially increase the development density on the sites.

The development of the Old Mill Site will affect the views for surrounding land uses, such as the Old Mill Townhouse and the Condominium development. The buildings on the Old Mill Site will create foreground views of three and four story buildings (where parking is now located) and obstruct existing distant views of the Santa Cruz Mountains. The buildings will also affect views of the site from the north side of Central Expressway.

Residential Redevelopment Sites

The City has identified seven commercial and industrial areas that could be developed with residential uses. Residential redevelopment of these seven sites would result in a theoretical maximum of approximately 2,587 medium-density dwelling units, that would potentially change the character and land use intensity in some areas. In order to accommodate the residential densities contained in the General Plan Community Development Chapter action programs, this new housing could potentially involve the construction of low to medium density development in isolated locations. Construction of multiple-story buildings may partially alter views from surrounding areas, and would alter the low-scale nature of the suburban pattern in the City. Specifically, views from the residential neighborhoods surrounding Sites 6, 7, 12, and 17 may be directly affected by redevelopment of these four sites. The remaining Sites 8, 15, and 18 are located in areas that are primarily occupied by higher intensity commercial and office development, that would be less sensitive to changes in the visual character of these areas.

Residential redevelopment of these seven sites would, however, provide an opportunity for the revitalization of existing under-utilized industrial and commercial areas. This revitalization could improve the appearance of areas that may now exhibit evidence of deterioration and visual blight. Sensitive architectural and landscape treatment of these areas will be critical to their redevelopment.

3. Mitigation

The following Community Development Chapter policies and action programs would preserve and enhance the visual and aesthetic environment of the city.

Policy 3: Emphasize entries to the city and special districts with features that create an original and positive impression.

Action 3a: Enhance city gateways through public and private improvements and appropriate Zoning Ordinance amendments.

Action 3b: Include a public participation process when developing a gateway program.

Action 3c: Develop a sign program and install City identification signs at specified gateways.

Action 3d: Include gateway improvements in precise plans, specific plans, or area plans for special districts. Revise plans that do not address entry design.

Policy 4: Protect significant landmark buildings and features and encourage new ones.

Action 4a: Pursue a landmark quality project in the North Bayshore Study Area.

Action 4b: Encourage new landmark structures that enhance the character of the surrounding district neighborhood.

Action 4c: Protect landmark structures through the development review process.

Policy 5: Encourage well designed private development that is compatible with surrounding districts and neighborhoods.

Action 5a: Retain the Site Plan and Architectural Review Committee.

Action 5b: Ensure quality development by using design guidelines, specific plans, and precise plans.

Policy 6: Strengthen the identity and quality of the city's neighborhoods and districts.

Action 6a: Prepare design guidelines, precise plans, or specific plans when initiated by neighborhood and district organizations, if possible.

Action 6b: Incorporate public input into any new design standards and regulations through surveys, neighborhood meetings, public hearings, and similar methods.

Action 6c: Educate the public and enforce regulations on zoning requirements for neighborhoods and districts.

Policy 8: Promote the visibility of and safe physical access to San Francisco Bay, the baylands, Stevens Creek, and other natural resources in the city.

Action 8.a: Orient new streets and development so that people can see and get to scenic features.

Policy 9: Ensure compatible land uses next to the city's natural resources.

Action 9.a: Use the planning approval process to require mounds, landscaping, and other buffers in private development to protect natural resources from adjacent development.

Policy 10: Preserve scenic views of the natural landscape.

Action 10.a: Use the development review process to ensure that the design, location, and size of new projects, whenever possible, preserve significant views of the mountains, Bay, wetlands, streams, and other natural resources in the city.

Action 10.b: Require developers to run utility lines underground.

Action 10.c: Regulate the design and location of antenna towers.

Action 10.d: Prevent advertising signs from facing freeways and Central Expressway.

Action 10.e: Prohibit the construction of any new billboards or other off-site advertising signs.

Policy 11: Encourage building and site design that is compatible with the natural environment and features of the site.

Action 11.a: Ensure that building and site design keep the destruction of mature trees and vegetation on the site to a minimum.

Action 11.b: Require well-designed outdoor areas for eating, relaxing, or recreation for new projects, and if feasible, when buildings are remodeled or expanded.

Action 11.c: Place buildings and outdoor areas so that they take advantage of solar opportunities and are shielded from wind, noise, and other adverse factors.

Action 11.d: Ensure that common or public outdoor areas are designed to be next to adjoining natural features.

The 1992 General Plan is not anticipated to result in significant visual impacts, since Mountain View is almost completely developed. Implementation of the identified policies and action programs would further ensure that important visual resources are protected.

I. CULTURAL RESOURCES

The following summary evaluation of the historic, prehistoric, and cultural resources in Mountain View is based upon a Cultural Resources Assessment prepared by Basin Research Associates in August, 1990. The Cultural Resources Assessment did not include formal architectural surveys, evaluation, or historic research on the specific properties identified in this study. Listings of architectural properties previously inventoried are presented in Appendix II of the assessment. A formal arboricultural assessment has not previously occurred in the City, nor was it included in this analysis. This Cultural Resource Assessment is included as a technical appendix to the Cultural Resources Background Report for the Environmental Management Chapter.

1. Setting

The pattern of development in the Santa Clara Valley reflects the growth of the Hispanic Pueblo de San Jose and its relationship with Mission Santa Clara. Development of the Valley also reflects the relationship between the core of the City of San Jose and surrounding urban farmsteads and outlying towns. Development of the City of Mountain View reflects reliance upon and expansion of Hispanic *caminos* and other early roads. Although water transportation played an important role in the development of the city, the landings around the bay and water transport through the sloughs, and their roles in early development, are now almost forgotten. Technological advances, such as the railroad, auto and air transport, and even space transport, have affected the Valley, and particularly the growth and development of Mountain View.

Prehistoric

The City of Mountain View may lie within the *Tamyen* and *Ramaytush* areas of the Costanoan territory. Alternatively, the City could be located within the *Puichon* territory of the Costanoan Indians, who controlled part of the San Francisquito Creek drainage. The locations of many Costanoan triblets and settlements are inexact and remain a subject of anthropological debate, because of incomplete historical records. No known ethnographic villages have been reported or located within Mountain View. The agricultural land-use pattern associated with the Hispanic and American Periods supplanted these indigenous people. Since the late 19th century, the formerly agricultural portions of the city have been subjected to extensive residential and industrial development, which may have destroyed or obscured subsurface cultural resources in the city. Today, most of the city is developed. The remaining vacant lands are either under development, slated for development, or are designated open space.

Six formally recorded prehistoric archaeological sites and three unconfirmed shellmound sites have been reported within the boundaries of Mountain View. These sites include CA-SCl-1, SCl-22, SCl-23, SCl-413, SCl-439, and possibly CA-SCl-1. CA-SCl-600 is primarily situated on the Palo Alto side of Adobe Creek, but portions could extend across the creek into Mountain View. This site contains chipped lithics, groundstone (bowl mortar fragments), shell fragments, and fire cracked rock. The commercial use of the CA-SCl-1 mound for top soil, and probably fill, suggests that midden constituents, artifacts, etc., from this site may exist throughout the city and beyond. A number of prehistoric sites are also recorded northeast of Mountain View at the NAS Moffett Field Naval Air Station.

No known ethnographic or contemporary Native American resources, including sacred places and traditional use areas, exist in the City of Mountain View.

Historic - Hispanic Period

Spanish explorers in the late 1760s and 1770s were the first Europeans to traverse the Santa Clara Valley. In 1777, the Mission Santa Clara and the Pueblo San Jose de Guadalupe were established and became the first Hispanic settlements in the Valley. During the Mexican Period, vast tracts of land were granted to individuals, including former mission lands which had reverted to public domain.

The City of Mountain View was situated within the Rancho Pastoria de las Borregas, and on "open" ungranted lands. Old Mountain View began as a stage stop located along El Camino Real, between about Calderon Avenue east, past the Mountain View-Alviso Road to Yuba Drive. Old Mountain View deteriorated as a commercial center upon the arrival of the San Francisco-San Jose Railroad.

Hispanic Period dwellings or features within the city included several adobe dwellings: the First Estrada Adobe dwelling site (ca. 1840), the Estrada-Castro Adobe Dwelling Site (ca. 1850) (located on northwest corner of Central Expwy./Rengstorff), and a Mexican land grant associated with the *Rancho Pastoria de las Borregas*. El Camino Real (State Route 82), part of a Hispanic Period road, passes through Mountain View in a generally east-west direction. *Rancho Posolmi*, a Mexican land grant, is located along the northeastern boundary of the City. This ranch was granted to the Native Americans who occupied the land as early as 1834 through 1864.

Historic - American Period

The agricultural land use pattern within Mountain View and the surrounding area, established during the Hispanic Period, was reinforced in the American Period, and has persisted until the recent post World War II urban development. The Santa Clara Valley population expanded as a result of the Gold Rush (1848), construction of the railroad to San Francisco (1864), and completion of the transcontinental railroad (1869). As a result of experiments in horticulture and other crops during this same period, the Valley became a major horticulture and fruit production center. In turn, this created a wider economic boom which attracted new residents to the Valley.

Throughout the 19th and mid-20th century, Mountain View, Santa Clara, and Sunnyvale were small dense settlements amid acres of agricultural lands. The predominance of fruit production and processing thrived until after World War II. In the 1940s, this agrarian land use pattern was displaced by dense urban housing, commercial centers, and the electronics industry as part of the "Silicon Valley." Although several subdivision tracts were laid out in the early 1940s, the majority of residential development did not occur until after World War II. The post-World War II population and development pressures in the vicinity of Mountain View resulted in annexation battles for productive agricultural land that could be converted to urban development. During the 1940s and '50s, Mountain View also attracted the military and industry, such as Moffett Field, the Ames Research Center and the Lockheed Missile and Space Company. Since 1960, urban residential construction and business/industrial development associated with Silicon Valley occupied the remaining agricultural open space.

Notable historic resources dating to the American Period remain in the city, including remnants of *Old Mountain View* (El Camino between Calderon, Center Street, Oak Street to Yuba Drive) and *New Mountain View* (Evelyn Avenue, Dana, Franklin, and Hope Streets in 1888). Historic maps of the City suggest the potential for pre-1880 historical archaeological resources (US/BLM 1852-1865, 1876; Thompson and West 1876; Tracy and Minto 1881). These potential resources include Rengstorff's and Guth's Landings and associated warehouses, as well as a number of residential buildings pre-dating 1880. The Henry A. Rengstorff House, CA-SCl-381H, is the only historic era site recorded in the City of Mountain View. Furthermore, it is the only National Register of Historic Places site and State of California Point of Historical Interest property in the city. Although a number of other buildings in the city were inventoried, these structures did not merit formal national, State, or local recognition.

Thirteen bridges in Mountain View were previously evaluated by Caltrans to determine their historical significance. These bridges were evaluated as having a Level 5 (low) significance rating, and are therefore, not eligible for inclusion in the National Register of Historic Places.

2. Impacts

The City of Mountain View does not currently implement historic property preservation or cultural resources policies. However, the City addresses potential impacts to prehistoric or historic resources as part of the California Environmental Quality Act environmental checklist for proposed projects that require environmental review and as part of the SPAR process. The City has also published a survey of the Mountain View's historic buildings, "Then and Now, Exploring Mountain View's Architectural Heritage."

The City implements a Heritage tree ordinance. A *Heritage tree* is defined as any tree with a circumference of 50 inches (ca. 16 inches in diameter) measured at 24 inches above natural grade, or a "...tree or grove of trees designated by resolution of the City Council to be of special historical value or of significant community benefit." A permit is required in order to "...cut down, destroy, move or remove one or more heritage trees on any private or City-owned property."

The Department of Planning and Community Development imposes standard conditions related to heritage trees and architectural artifacts, as part of the environmental review process. The Planning Department requires review of the conditions involving Heritage tree removal and certification of tree health after construction, prior to occupancy. Another condition requires that construction cease and the City be notified if architectural artifacts are encountered during construction. The significance of these artifacts must then be evaluated, and appropriate measures implemented, as approved by the City of Mountain View. Design review is also required for building color scheme and materials, intrusive visual elements, and landscaping.

Conservation of Resources

The City of Mountain View has several important historic and cultural resources. Since Mountain View is almost completely developed, protection of the remaining structures is a priority. The available archival data suggests that subsurface archaeological deposits, architectural and arboricultural resources exist in the City. The lack of a well-defined program

that ensures the preservation of the remaining historic resources in the City could result in the loss of potentially significant cultural resources. These resources provide an important contribution to the awareness, and understanding of Mountain View's history, and contribute to the visual character of the city. These resources serve as physical reminders of the historical land use patterns that characterized Mountain View from prehistoric periods to the Historic and American Periods.

The potential for the future destruction of subsurface deposits, however, is limited, given that extensive urbanization of the City has already occurred. If remaining deposits exist, subsurface activity associated with industrial, commercial, and residential development could potentially affect these resources. Demolition procedures of existing structures could also affect these resources. Other activities, including borings for geotechnical and hazardous waste assessments which are required as part of building permit applications, could also disturb possible deposits. Building additions and conversions also compromise the integrity of historic surface resources.

Mountain View's primary responsibility is to protect the remaining valuable archaeological, historical, arboricultural, and cultural resources. Although Mountain View is almost completely developed, a proactive program for identifying and mitigating potential cultural resource impacts would ensure the future preservation of these resources in the city.

3. Mitigation

Implementation of the following Environmental Management Chapter policies and action programs would reduce the potential for significant impacts to prehistoric and historic resources to a non-significant level.

Policy 22: Improve awareness of the City's archaeological resources.

Action 22a: Maintain lists, descriptions, and photographic records of significant archaeological and historical sites.

Action 22b: Develop standard practices or contingency plans for archaeological materials that are unearthed during construction.

Action 27b: Develop standard practices or contingency plans for preserving archaeological materials that are unearthed during construction.

Implementation of the following Community Development Chapter policies and action programs would also reduce the potential impacts to historic resources to a non-significant level.

Policy 17: Support preservation of the City's historic buildings and structures.

Action 17a: Provide "Now and Then, Exploring Mountain View's Architectural Heritage" a readily available publication.

Action 17b: Identify and inventory historic local buildings, structures, and districts, including buildings or sites that commemorate the city's early high technology industries.

Action 17c: Pursue ways to preserve the historic buildings and hangars at Moffett Field.

Action 17d: Commemorate historic buildings or sites with plaques and events.

Action 17e: Create a list of sources for public and private funding to preserve historic resources.

Action 17f: Encourage retention of historic buildings through the development review process.

Action 17g: Use the State Historic Building Code when reviewing building permit applications for historic structures.

Action 17h: Consider forming a Heritage Preservation Board.

Action 17i: Continue to restore the Rengstorff House and improve public awareness of the history associated with its era.

Action 17j: Build a pier at Shoreline to represent Rengstorff Landing.

Action 27b: Develop standard practices or for preserving archaeological materials that are unearthed during construction.

Implementation of the identified policies and action programs that are included in the project as mitigation measures would reduce or avoid potentially significant impacts to cultural resources to a non-significant level.

J. HAZARDOUS MATERIALS

1. Setting

Industrial Uses

A hazardous material is any substance, that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released.[1] Over 10 million tons of hazardous waste are generated in California each year by industrial uses, leaking underground tanks, and contaminated sites.

Over 40% of the hazardous waste generated in Santa Clara County is attributed to the electronics and semi-conductor industries, which typically generate solvents, organic liquids, metals in liquid solutions, and organic sludges and solids. Most large industrial firms treat hazardous waste at the same location it is generated. Approximately 87 percent of all industrial hazardous waste is treated on-site, while 13 percent is transported off-site for treatment and disposal.

In 1988, five of the top 50 hazardous waste generators in Santa Clara County were located in Mountain View, and generated a total of 2,595.69 tons of hazardous waste (about three percent of the County total). About 465 facilities are permitted under the City's Hazardous Materials Storage Permit Code (see Section II of this EIR). Of these, 19 facilities currently store or use materials regulated by the City's Toxic Gas Ordinance (see Section II of this EIR).

Hazardous Materials Contamination

Significant industrial growth in the Santa Clara Valley over the past 40 years, including Mountain View, is responsible for soil and groundwater contamination in this area. In addition, significant DDT contamination is present in the soil due to past agricultural uses. There are a total of 122 contaminated soil and groundwater sites in Mountain View. Of these, 103 sites were reported by the Water Resources Control Board (WRCB) and the Department of Health Services (DHS). About 85 of the 103 sites are also listed by the Santa Clara Valley Water District. The Regional Water Quality Control Board listed 16 soil and groundwater contamination sites, including three sites listed by the WRCB and DHS. Eight of the 16 sites listed by the RWQCB were cases of confirmed soil contamination. Six cases of unconfirmed soil contamination were also identified.

Groundwater Contamination

As of April 1, 1990, the Santa Clara Valley Water District (SCVWD) listed 44 confirmed cases of groundwater contamination, and 39 suspected cases of groundwater pollution due to fuel leaks in Mountain View. In addition, the Regional Water Quality Control Board identified seven sites in the City with extensive groundwater contamination. These sites were placed on the National

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[1] The California General Plan Glossary, page 11.

TABLE 22

REGIONAL WATER QUALITY CONTROL BOARD
SOUTH BAY SITE MANAGEMENT SYSTEM SITES
Mountain View Sites

Name of Company	Address	Type of Contamination
CTS Printex Inc.	1950 Colony Ave	Groundwater
Fairchild Semiconductor Corp.	464 Ellis St.	Groundwater
Jasco Chemical Corporation	1710 Villa St.	Groundwater
Raytheon Company	350 Ellis St	Groundwater
Spectra-Physics	1250 West Middlefield Rd.	Groundwater
Teledyne Semiconductor	1300 Terra Bella Ave.	Groundwater
Charleston Business Park	2400-2460 Charleston Road	Groundwater
Hewlett-Packard	Logue Ave	Groundwater
Landbank Investments Inter.	303 Ravendale Drive	Groundwater
NEC Electronics	501 Ellis St.	Groundwater
Plessey Micro Science	2274-2296 Mora Dr.	Groundwater
Union Bank	327 Moffett Blvd.	Groundwater
Montwood	1615 Plymouth St	Groundwater and Soil
Siltec	405 National Ave.	Groundwater
Jasco	1090 Terra Bella Ave	No Action
Intel Corp	365 East Middlefield	Groundwater
Moffett Naval Air Station	Moffett Field	Groundwater
93 Gas leaks		

Priority List (NPL). The primary source of groundwater contamination is attributed to leaking underground storage tanks that store solvents.

Table 22 identifies 17 sites within the Mountain View Sphere of Influence with documented soil and/or groundwater contamination. Of the 17 sites, three of the sites are located on the Fairchild and Ellis Drive Site, ("Site 6"), which is a land use alternative site for potential residential redevelopment.

In another case, an electronics and gas laser manufacturer stored rusting and leaking barrels in an area where over 200 private drinking wells were drilled. Groundwater contamination resulted in the closure of many of the private wells in the one-square-mile plume. Several electronics and semiconductor companies have also pumped and released untreated and treated contaminated groundwater into the sanitary sewer. The City carefully monitors the six public wells that provide drinking water. These six wells draw from a deeper aquifer and have never experienced contamination.

Underground Storage Tanks

Underground storage tanks (USTs) are used to store petroleum and solvent products because it is safer to store these flammable and explosive substances underground than above ground. Leaking USTs are a major source of groundwater contamination in Mountain View, however, they are not unique to Mountain View. Research indicates that there may be an estimated three to five million underground tanks in the United States, of which two million are officially accounted for. Approximately 90 percent of USTs are used to store petroleum products. Over fifty percent of these tanks are located under gasoline stations.[2] The SCVWD listed 85 cases of reported soil and groundwater contamination in Mountain View, due to leaking underground storage tanks.[3]

Moffett-Ellis-Whisman Area

History

Soil and groundwater contamination was first identified in the Moffett-Ellis-Whisman (MEW) area in 1981. Various industrial and military facilities located in the MEW area are currently or were previously involved in the storage, handling and use of a variety of hazardous substances. Some contamination at Moffett is a result of the downslope migration of contaminants from the industrial uses in the Ellis-Whisman area located upgradient of NAS Moffett Field. The toxic plumes (contaminated groundwater) from the Ellis-Whisman area merged with the plume from Moffett Field.

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[2] Bruce E. Ehleringer, Principal Hydrogeologist, McLaren Environmental Engineering, *USTs are Largest Source of Contamination in South Bay*, The Business Journal, Week of April 30, 1990, p. 12.

[3] Santa Clara Valley Water District, Fuel Leak Site Activity Report First Quarter 1990, April 1, 1990.

In 1982, the RWQCB initiated a leak detection program to define the extent of leakage from underground storage tanks and pipes. In 1984, the EPA proposed the inclusion of Fairchild, Intel, and Raytheon on the National Priorities List. At the same time, Intel excavated and treated 4,000 cubic yards of contaminated soil at its site.

From 1985 through 1987, Fairchild, Intel and Raytheon initiated interim remediation of the groundwater. In 1988, the MEW Potential Conduits Evaluation Report was completed. In 1989, the EPA, Navy, RWQCB, and DHS entered an interagency agreement to initiate cleanup of NAS Moffett Field under the Superfund program. The three companies recently completed a Remedial Investigation/Feasibility Study (based upon data acquired as of June 1987) required by the EPA in accordance with SARA (Superfund Amendments and Reauthorization Act of 1986). This study evaluated the contamination attributed to the three sources, and identified NAS Moffett Field as having 19 potential contaminant sources contributing to the MEW plume.

In December 1991, the U.S. EPA, the Department of Toxic Substances Control, the RWQCB, and the Naval Air Station formally agreed to establish six operable units at Moffett Field and to an accelerated investigation and remediation schedule. The establishment of the six operable units (OU) organize the existing 19 Installation Restoration Program (IRP) sites into independent groups with different cleanup schedules. Each OU proceeds through the Remedial Investigation and Feasibility Study stages to a Record of Decision (ROD) specific to that OU. A station-wide Record of Decision will be prepared after completion of each ROD for each OU. The first Record of Decision will be issued on September 13, 1993, which allows cleanup to begin on the station more than three years earlier than the previous schedules. The final station-wide ROD will be issued on August 15, 1996.

Soil Contamination

Slurry walls were constructed to contain soils and groundwater, to prevent the migration of contamination inside the slurry walls to aquifers outside of the slurry walls. Although a soil cleanup program has not been confirmed, the Responsible Parties propose to extract contaminants within the soil (inside and outside of the slurry walls) using vapor extraction wells[4]. The vapor will be treated with carbon, if necessary.

Preliminary reports estimate that complete remediation of the soil outside the slurry walls to EPA established levels for TCE (0.5 parts per million) could take between one to six years. Cleanup of the soil inside the slurry walls to accepted standards could take three to six years.

Groundwater Contamination

Shallow aquifers in the MEW area are located outside of the slurry walls. These layers are separated from the deep aquifer layers by a clay layer (aquitard) which extends across the MEW area. All City drinking water wells are is pumped from the deep aquifers. (Some private wells are shallow aquifer wells. These wells are being closed as contamination is identified.)

[4] Soil vapor extraction involves removing the volatile soil contaminants without actually excavating the soil. The air containing VOCs is pumped from the soil and filtered through a carbon treatment system (if necessary).

Contamination in the shallow aquifers could potentially migrate into the deep aquifers through abandoned wells and other openings into the deep aquifer. In fact, some deep aquifer contamination occurred in the MEW area. As a result, most of the potential conduits into this layer were closed to prevent further migration.

Groundwater treatment by the Responsible Parties for both the shallow and deep aquifer system is proposed. Contaminated groundwater will be extracted through existing wells and additional wells installed on and adjacent to the MEW area. All contaminated groundwater will be treated by air stripping, and if necessary with a carbon treatment system.[5]

Preliminary estimates suggest that cleanup of the shallow aquifers to acceptable standards (5 parts per billion of TCE) will take between 46 to over 300 years. Remediation of contamination in the deep aquifers to levels of 0.8 parts per billion of TCE will take between two to 45 years.

NAS Moffett Field[6]

Hazardous Materials Contamination

In 1988, NAS Moffett Field generated a total of 499.18 tons of hazardous waste. The Navy identified a total of 80 known hazardous materials sites. These sites consist of 64 underground fuel or hazardous material storage tanks, nine sumps, two holding ponds, and four aboveground storage tanks at NAS Moffett Field. The 64 USTs consist of tanks which have been removed, scheduled for removal or closure, tanks that passed the tank integrity test, tanks requiring further analysis, and those with reported contamination. Three of the nine sumps remain active as oil/water or paint/water separators. The remaining sumps are closed or removed. The two ponds contain runoff from washracks and were not found to be contaminated.

The Navy implemented an Installation Restoration Program to ensure the remediation of contaminated sites. A Preliminary Assessment/Site Investigation conducted in 1983/1984 identified 19 sites with potential contamination. Of these 19 sites, eight were further investigated in 1985, and a Remedial Investigation Feasibility Study work plan was developed in 1989.

The Navy also identified additional sources of groundwater contamination at Moffett Field. Recently, the Navy installed over 80 groundwater monitoring wells to assess groundwater quality. In accordance with the RWQCB Order 87-125, the Navy investigated the potential for

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[5] The air stripping process transfers the contaminants dissolved in the water into the air. The contaminant transfer from water to air occurs in the air stripper, which consists of a tower containing a plastic packing media. The groundwater is pumped out of the ground and up to the top of the air stripper tower. The water flows back down through the packing, by gravity. At the same time, an air blower supplies a countercurrent stream of air through the packing, thereby allowing the volatile elements in the water to transfer to the air. With a carbon treatment system, the air passes through a granulated carbon filter, where the residual contaminants are adsorbed onto the carbon filter and trapped. The released air is clean of all contaminants.

[6] Based upon information contained in the U.S. Department of the Navy, Draft Environmental Impact Statement Candidate Base Closures/Realignment San Francisco Bay Area, August, 1990.

leakage from existing, abandoned, or suspected wells that could contaminate clean aquifers or serve as a point source. The Navy identified 32 suspect wells at Moffett Field. Suspect leakage could result in the potential contamination of aquifers which provide public and private sources of water.

Asbestos

The Navy also estimates that over 90 percent of the buildings at the station contain asbestos. A limited investigation of the station identified approximately 900 buildings that contained some form of asbestos. The Navy implemented an asbestos abatement program at buildings in which friable asbestos (asbestos that can be released into the air) was identified and accessible. Other buildings with asbestos that is not accessible have not yet been remediated.

Polychlorinated Biphenyls

The EPA identified 177 active polychlorinated biphenyl (PCBs) transformers and 26 removed or stored transformers at the station, during a previous investigation in 1989. As a result, the Navy will remove and properly dispose of the transformers according to PCB regulations stated in the Toxic Substances Control Act, by the end of 1990.

Transport of Hazardous Materials

Mountain View is traversed by major roadway facilities which carry heavy truck traffic, including trucks that transport chemicals and hazardous substances. In addition, military and civilian aircraft transporting fuel and toxic and/or flammable materials frequently travel over the city. Most of the hazardous waste hauled out of the County is by truck or railroad. The use of the rail system for transport is primarily limited to large bulk shipments (i.e., wastewater) and waste that is shipped long distances. Two statewide railway lines, the Southern Pacific and Union Pacific, link the County to other areas of California. The Southern Pacific Railroad line bisects Mountain View as it runs parallel to Central Expressway. These railroad companies are required by law to develop hazardous materials management and emergency response plans to cover those hazardous materials used on-site by the railroad company. These plans, however, do not apply to the hazardous materials they transport. As a result, the Department of Transportation prohibits rail carriers from storing "in-transit" railcars on-site for more than 48 hours (excluding weekends and holidays).

U.S. 101 is the most heavily traveled highway in the County and is a significant corridor for the transport of hazardous materials. As a result, Mountain View, specifically the North Bayshore area, is exposed to safety hazards. The Department of Transportation and California Highway Patrol currently regulate the transport of hazardous materials.

2. Impacts

Mountain View residents could potentially be exposed to safety hazards associated with the release of hazardous substances. Future development could result in exposure of additional people to potential risks associated with hazardous substances hazards.

Evelyn Avenue Corridor Study Area ("Site 6")

Several facilities have been issued toxic permits within the Evelyn Corridor area. There are three documented fuel leak sites on Site 6: 365 Villa Street, 191 W. Evelyn Avenue, and 599 Evelyn Avenue. Additional soil and/or groundwater contamination that is unreported may also be present in this study area. Although there are no high-hazard uses of hazardous chemicals, the co-existence of service commercial activities with new residential development may result in the exposure of future residents to hazardous materials and the potential for contamination due to the use, storage, and handling of hazardous chemicals.

Off-site sources of groundwater contamination may also potentially impact this site. Documented and reported locations of soil and groundwater contamination are located in the vicinity of this site. Depending upon the direction of groundwater flow, properties within the Evelyn Avenue Corridor Study Area could be affected.

Old Mill Site ("Site 7")

Information provided by a hazardous materials site assessment prepared by Harding Lawson Associates and contained in the Draft EIR for the Old Mill Area Precise Plan Project On-site and off-site sources of contamination were identified on the Old Mill Site ("Site 7")[7].

One on-site source of contamination was an aggregate or asphalt mixing plant with potential underground storage tank locations, maintenance areas, a potential drum storage area, and settling ponds or borrow pits. A second on-site contamination source was a manufacturing and plumbing supply business with a truck maintenance facility. A dry cleaners has been located on the site since at least 1968. Perchloroethane and other cleaning solvents associated with the dry cleaners were previously observed on the site. A former gas station also previously occupied the site until the mid-1980s.

Off-site sources of potential contamination include documented underground storage tank leaks, registered and unregistered underground storage tanks, and hazardous waste generators located south of the Old Mill Site. The likeliest upgradient source area is a former service station, located south of the intersection of California and Showers.

Soils investigations of the site in 1990 confirmed the presence of soil and groundwater contamination. Two significant on-site source areas of contamination were identified: a dry cleaners with halogenated volatile organic compounds present in the soil and groundwater, and the former aggregate mixing plant with petroleum hydrocarbons present in the soil and groundwater. Xylene and trichloroethene concentrations detected in groundwater samples from monitoring wells on the site were determined to be below the maximum contaminant levels for those chemicals. Tetrachloroethene concentrations detected in groundwater from the monitoring

[7] Harding Lawson Associates, Phase I and Phase II Preliminary Hazardous Materials Site Assessment Proposed Residential Development Mountain View Center, December 10, 1990.

well closest to the location of the dry cleaners exceeded the maximum contaminant level for tetrachloroethene. Maximum contaminant levels were not established for gasoline and diesel, which were the other chemicals detected on the site.

Prior to the development of any residential uses on "Site 7," soil and groundwater remediation will be required. The contaminated soil and groundwater on the site must be removed or treated to a level of insignificance. Groundwater remediation, in accordance with Santa Clara Valley Water District, Regional Water Quality Control Board, and the Department of Health Services guidelines will be required.

Residential Redevelopment Sites

Future residential redevelopment of seven commercial and industrial areas could result in exposure to soil and groundwater contamination. In addition, the development of residential uses on some of these sites could result in the exposure of residents to possible nuisances and safety hazards attributed to industrial uses. Industrial uses are generally separated from residential uses to reduce their effects on the health, safety, environment, or welfare of the community. Industrial facilities that use, store, or handle hazardous materials would present a risk to residences in the area. Accidental explosion or release of hazardous materials could cause safety hazards.

Most of the seven sites are in areas with confirmed soil and groundwater contamination (see Section on Water Quality). Of the total 18 sites previously considered for residential redevelopment, 16 parcels in these 18 areas contained reported soil and groundwater contamination that is primarily attributed to underground fuel storage tank leaks[8].

Eight of the original 18 potential redevelopment sites are listed in the SCVWD Fuel Leak Activity Report. Eighteen addresses on these eight sites have reported soil and/or groundwater contamination that resulted from leaking underground fuel storage tanks. The listed facilities include gas stations, auto body/service shops, construction companies, and industrial and electronics facilities. The California Department of Health Services (DHS) or the EPA would need to certify the complete remediation of the site, prior to any residential development.

Del Medio Court ("Site 1")

Although no known toxic contamination has been reported for this site, potential soil and/or groundwater contamination could exist, since toxic permits have been issued to the present occupant of the site. However, there are no high hazard users. Therefore, potential hazardous materials impacts could result during excavation and construction activities for future residential development.

[8] The presence of extensive contamination on or near several of these 18 sites was one of several factors in eliminating six of the total 18 sites from further consideration as residential redevelopment sites.

Shoreline Boulevard south of Middlefield ("Site 5")

The rezoning of this site to residential development would eliminate present land use compatibility impacts associated with the presence of the existing industrial uses on the site. A low level toxic user occupies the project area. Minor levels of subsurface contamination were reported on this site. Therefore, potential impacts could result during excavation and construction activities for future residential development.

Downtown Area ("Site 9")

No known soil or groundwater contamination has been reported in this area. However, the presence of land uses such as gas stations, dry cleaners, and other users of hazardous chemicals could result in the possible presence of soil and/or groundwater contamination.

El Camino and El Monte Avenue ("Site 11")

Although no known toxic contamination has been reported for this site, potential soil and/or groundwater contamination could exist, since toxic permits have been issued to the present occupant of the site. However, there are no high hazard users. Therefore, potential hazardous materials impacts could result during excavation and construction activities for future residential development.

El Camino Real Commercial District ("Site 18")

No known soil or groundwater contamination has been reported in this area. However, the presence of land uses such as gas stations, dry cleaners, automotive repair shops, and other users of hazardous chemicals could result in the possible presence of soil and/or groundwater contamination.

3. Mitigation

The following Community Development Chapter policies and action statements would reduce potential hazards to the existing residential community and to future residential development at the identified Residential Redevelopment Sites that are located in hazardous locations. These mitigation measures are included in the project.

Policy 1: Ensure that new development is built and located to minimize the dangers of flooding, airfield effects, earthquake hazards, and hazardous materials.

Policy 2: Minimize the risks from the use of hazardous materials.

Action 2a: Establish standards and regulations for locating hazardous-materials users.

Action 2b: Assess the risk from hazardous materials when new residential development, schools, and other sensitive uses are considered near industrial areas.

Action 2c: Establish a system to notify adjoining property owners when new hazardous materials permits are issued.

Policy 23: Support NASA/Ames as the future federal operator of Moffett Field.

Action 23a: Ensure that the reuse of Moffett is compatible with City goals, policies, and concerns through coordinating with the new federal operator.

Action 23b: Monitor the Navy's short-term and long-term transition and clean-up of Moffett Field.

Implementation of the following Environmental Management Chapter policies and action programs would reduce significant hazardous materials impacts to a non-significant level. These measures are included in the project.

Action 23a: Continue to enforce the City's Hazardous Materials Storage Ordinance.

Action 23b: Continue to enforce the City's Toxic Gas Ordinance.

Action 23c: Reduce the use of herbicides and pesticides on City-owned property to the extent possible.

Action 23d: Educate residents and businesses on ways to reduce the use of herbicides and pesticides on their property.

Policy 38: Prevent injuries and environmental contamination due to the uncontrolled release of hazardous materials.

Action 38a: Support Santa Clara County in carrying out and enforcing the Hazardous Waste Management Plan.

Action 38b: Revise the Zoning Ordinance as required to comply with the Hazardous Waste Management Plan.

Action 38c: Continue to update and enforce local ordinances regulating the permitted use and storage of hazardous gases, liquids, and solids.

Action 38d: Strengthen construction requirements where hazardous materials are stored or used.

Action 38e: Continue to make sure that underground storage tanks containing hazardous materials are properly installed, used, and removed.

Action 38f: Provide training for hazardous materials enforcement and response personnel.

Action 38g: Conduct ~~annual~~ inspections of all industrial facilities using or storing hazardous materials.

Although the EPA, RWQCB, and Department of Health Services are responsible for ensuring that industrial uses comply with appropriate standards and regulations, the City is responsible for permitting construction associated with those activities. The City is also responsible for permitting facilities which use, store, or handle hazardous substances under the Hazardous Materials Storage Permit Code. The HMCED is considering the future implementation of a program to educate the community and various facilities permitted under the City's Code which use hazardous substances, of the hazards associated with hazardous materials. However, the

department does not have staff available to implement this program at this time.[9]

Implementation of the identified policies and action programs would mitigate future impacts associated with hazardous materials to a non-significant level.

[9] Gary Leinweber, Hazardous Materials Division, 1990.

K. WATER QUALITY

1. Setting

Drinking Water Quality

Approximately 75 percent of Mountain View's drinking water supply originates in a remote, protected region of Yosemite National Park. The water is stored in a granite reservoir (Hetch-Hetchy), and is pure enough that it can be delivered unfiltered.[10] The Hetch Hetchy water is only treated with chlorine and lime to prevent contamination and corrosion. However, the San Francisco Water Department mixes the Hetch Hetchy water with up to 160 mgd of water from the Calaveras and San Antonio reservoirs. The water from these reservoirs contains some sediment and more minerals than Hetch Hetchy water. This water is filtered before being added to the Hetch Hetchy water.

Approximately 10 percent of Mountain Views's water is delivered by the Santa Clara Valley Water District from the Rinconada Treatment Plant. This water is not mixed with Hetch Hetchy water, to avoid possible taste and odor problems that could occur when chlorinated Hetch Hetchy water is mixed with chloraminated Rinconda water. Delivery of the Rinconada water is confined to the City's pressure zone #3 in the southern part of Mountain View.

The remainder of Mountain View's water is supplied by groundwater wells drawn from the deep-level aquifer (500-800 feet underground) and from California Water Service Company. The well water is naturally pure and filtered, and does not now require treatment. The municipal wells have never been contaminated, and the Utilities Department tests the water weekly. The City uses a water telemetry system to monitor storm water and sewage water quality, through a transmission and measurement process. This system will soon be able to test the quality of the well water on a continual basis. Continuous well water testing indicates that the City's water continues to meet stringent State and federal drinking water quality standards.

The California Water Service Company, which serves 680 Mountain View customers, regularly monitors the water quality of its drinking water supply, to ensure compliance with all Federal and State drinking water standards.

Wastewater Treatment

The Palo Alto Regional Water Quality Control Plant in Palo Alto treats wastewater from Mountain View, Palo Alto, Los Altos, Los Altos Hills, Stanford University, and East Palo Alto. Although the Water Quality Control Plant (PARWQCP) historically achieved the requirements and standards established by the Regional Water Quality Control Board (RWQCB) for the treatment of wastewater, recently high levels of silver and other metals were found in the

[10] It is important to note that effective June 5, 1991, the California Surface Water Filtration and Disinfection Treatment Regulations (Title 22, Chapter 17) require filtration for all surface water. The San Francisco Water Department is not anticipated to implement filtration until 1998.

discharged water. Over 97 percent of the contaminants in the regional wastewater are generally removed by the end of the tertiary treatment process. Reclaimed wastewater is provided after wastewater treatment at the PARWQCP. Although reclaimed water is not a potable water source, it does provide a source for landscape irrigation and construction watering.

Surface Water Quality

The quality of water in streams, creeks, ponds, and other surface water bodies can be affected by erosion, sedimentation, and the same sources which pollute groundwater. Naturally occurring processes, such as erosion, can be accelerated by human actions. Excessive grading, removal of vegetation, and building construction adjacent to stream banks can hasten the natural erosion process, resulting in the rapid loss of soil from the land and high levels of sediment in surface water bodies. The sediment in rapidly moving water can undercut stream banks, while slower moving waters deposit silt. The potential for erosion occurs primarily along natural channel banks that have not been altered by flood control projects. Unlined portions of Stevens Creek and Permanente Creek could potentially be subject to erosion. Physical alterations of these channels could further accelerate any incidence of erosion.

Major water pollutants include oxygen-demanding wastes (domestic sewage), disease-causing agents, inorganic chemicals and minerals (acids, salts, toxic metals), synthetic organic chemicals (plastics, detergents), plant nutrients, sediments, radioactive substances, and heat. Examples of common household toxic substances which affect water quality are pesticides and herbicides, motor oil, detergents, and plastics. Heavy metals include zinc, copper, nickel, lead, and mercury.

Another source of surface water pollution and non-point source pollution is attributed to contaminated surface runoff. Non-point source pollution enters the City storm drains from rain, irrigation, and other runoff and eventually washes into the Bay. The surface runoff typically contains contaminants such as oil and grease from driveways, parking lots, and streets, sediment from construction sites, litter, animal waste, pesticides, lead from auto exhausts, and yard waste. The Santa Clara Valley Non-point Source Pollution Control Program, of which the City is a sponsor, is analyzing storm water pollution in the South Bay as part of the area-wide National Pollutant Discharge Elimination System Permit for municipal storm water discharges.

In response to the problems with groundwater contamination, the City has implemented programs to more aggressively monitor the quality of groundwater used for drinking water purposes. Groundwater monitoring indicates that the City's well water continues to meet the most stringent State and Federal standards for drinking water quality.

The County implements a comprehensive recycling program which includes the collection of used motor oil, that would otherwise contribute to the pollution of surface runoff. This program allows residents the opportunity to recycle motor oil instead of dumping the substance into storm drains or mixing it with surface runoff. In addition, as part of the municipal storm water NPDES permit, a regional public relations campaign was developed to educate the public about the need to properly dispose of waste oil.

2. Impacts

General Plan Amendments

The proposed project includes General Plan Land Use Map changes on the Evelyn Avenue Corridor site ("Site 6") and the Old Mill Site ("Site 7") to allow residential development.

Several facilities have toxic permits within the Evelyn Corridor area ("Site 6"). Although there are no high-hazard uses of hazardous chemicals, potential groundwater contamination may be present on the site, given the nature of the previous and existing land uses in this area. The existing land uses in the project area may presently result in surface runoff contamination associated with the presence of parking lots, paved surfaces, and activities involving the use of motor oil, chemicals, solvents, etc. Off-site sources of groundwater contamination may also potentially impact this site. Documented and reported locations of soil and groundwater contamination are located in the vicinity of this site. Depending upon the direction of groundwater flow, properties within the Evelyn Avenue Corridor Study Area could be affected.

As previously stated in SECTION III., J. HAZARDOUS MATERIALS, the Old Mill Site ("Site 7") contains groundwater contamination characterized by xylene, trichloroethene, tetrachloroethene, and petroleum product concentrations. Groundwater remediation will occur on this site prior to the development of approved residential uses.

Residential Redevelopment Sites

Presently, the City is considering rezoning seven vacant and under-utilized commercial and industrial areas to residential uses. Several of these seven sites are located in areas with confirmed soil and groundwater contamination. In addition, several of the areas are located within a one mile radius of reported soils and groundwater contamination, and are, therefore, subject to potential contamination from groundwater migration.

Groundwater remediation (cleanup) would be the responsibility of the identified Responsible Parties (previous tenants confirmed as causing the contamination). Remediation would be necessary prior to occupancy of future dwelling units. Future development could not interfere with the on-site cleanup of contaminated groundwater in these areas. During remediation, any new construction would need to be located outside of the areas designated for the on-site cleanup of contaminated groundwater and soils to minimize the possibility of exposure to hazards. Estimates for the amount of time necessary to remediate groundwater to satisfactory levels is not available. Depending upon the vertical and horizontal extent of contamination, remediation may take several decades.

Residential rezoning of these seven sites, however, could have two beneficial effects. Redevelopment would result in the closure of several industrial facilities which potentially use hazardous materials. Closing these facilities would also facilitate investigations and remediation of these areas.

Grading and construction activities associated with future residential development of the identified sites may slightly affect the water quality of stormwater surface runoff. Most of the

sites are presently fully developed and paved under existing conditions. Construction activities which disturb the underlying soils at these sites, however, may promote slight sediment erosion. As part of the City's NPS NPDES permit, the City will coordinate with developers/contractors to make sure that they implement best management practices to control erosion. Long-term effects on the water quality of the surface runoff from the sites would likely occur. In the long-term, petroleum derivatives from parked automobiles and asphalt would potentially contaminate storm water runoff. These conditions occur under existing conditions.

The State Water Resources Control Board is currently preparing a NPDES General Permit for stormwater discharge for construction activity. Any construction activity larger than five acres will be required to obtain this permit at the time of construction. This permit is anticipated to be adopted by October 1, 1992, and will require dischargers associated with construction activities to do the following:

- Eliminate non-stormwater discharges to stormwater systems.
- Develop and implement a stormwater pollution prevention plan.
- Perform monitoring of discharges to stormwater systems.

The draft version of the NPDES General Permit indicates that post-construction stormwater management will also be required. Each of the potential residential redevelopment sites ranges in total size from three to 150 acres. Construction activities larger than five acres will be required to utilize a full range of structural and non-structural control measures and management practices to control pollutants discharged to the stormwater system. Future construction activities that require a permit will need to evaluate the best management practices including but not limited to the following:

- infiltration of runoff on site and first flush diversion;
- flow attenuation by use of open vegetated swales and natural depressions;
- stormwater retention or detention structures;
- the use of oil/water separators; and/or
- porous pavement.

3. Mitigation

The following Community Development Chapter policies and action programs would reduce potential hazards to the existing residences and to future residential development at the identified Residential Redevelopment Sites that are located in hazardous areas. These measures are included in the project.

Policy 1: Ensure that new development is built and located to minimize the dangers of flooding, airfield effects, earthquake hazards, and hazardous materials.

Policy 2: Minimize the risks from the use of hazardous materials.

Action 2a: Establish standards and regulations for locating hazardous- materials users.

Action 2b: Assess the risk from hazardous materials when new residential development, schools, and other sensitive uses are considered near industrial areas.

Implementation of the following Environmental Management Chapter policies and action programs would ensure the protection of groundwater and surface water quality. Potential impacts would be reduced to a non-significant level with the measures included in the project.

Policy 14: Encourage activities that maintain and improve drinking water quality.

Action 14a: Continue to monitor drinking water quality ~~in a way that~~ and ensure that it meets or exceeds State and federal requirements.

Action 14b: Continue to enforce local, State, and federal codes to prevent contamination of groundwater resources.

Action 14c: Coordinate cleanup of ground water contamination through the Fire Department with assistance from other City departments and local, State, and federal agencies.

Action 14d: Assist the Santa Clara Valley Water District to l~~L~~ocate abandoned wells and seal them to prevent the spread of contaminants to deeper-level aquifers which supply drinking water.

Action 14e: Maintain a list of drought-tolerant plants for public distribution.

Policy 15: Establish pollution control measures that keep pollutants from entering Mountain View's storm drain system to protect the City's surface water resources.

Action 15a: Carry out the Santa Clara Valley Non-Point Source Pollution Control Program.

Action 15b: Use "best management practices" in new projects to prevent storm water from becoming contaminated.

Action 15c: Look into technologies to separate and remove pollutants from the storm sewer system and use them if appropriate.

Action 15d: Revise local ordinances and, if necessary, develop new ordinances to limit non-point source pollution.

Policy 30: Ensure proper use, storage, and disposal of toxic chemicals to prevent soil contamination.

Action 30a: Require that soils are analyzed for all new residential developments where there is a history of industrial or agricultural land use.

Implementation of these measures would reduce potential water quality impacts to a non-significant level.

L. WATER SUPPLY

1. Setting

Water Supply

In normal years, Mountain View purchases approximately 75 percent of its water supply from the San Francisco Water Department's Hetch-Hetchy System - about 12 million gallons per day (mgd). Other water supply sources include: 1.2 mgd treated surface water from the Santa Clara Valley Water District's (SCVWD) Rinconada Treatment Plant, well water from underground aquifers (up to 3.0 mgd), the California Water Service Company, and reclaimed tertiary treated wastewater (0.5 mgd) from the regional wastewater treatment plant in Palo Alto. The chlorinated soft water (water with little dissolved mineral content) from Hetch-Hetchy is blended with the harder well water (water with a high mineral content, particularly salts) to create a uniform water source. Chloraminated SCVWD Rinconada water is not blended with Hetch-Hetchy water to avoid possible taste and odor problems as described in the preceding section. The tertiary water is not potable (drinkable), and is only used for irrigation and construction.

The water from Hetch-Hetchy and the well water serve 15,300 accounts, according to the City's Utilities Department. In addition, approximately 680 Mountain View accounts are served by the California Water Service Company[11]. About 60 percent of the Water Service Company's water supply is purchased from the Santa Clara Valley Water District and 40 percent is supplied by company-owned wells.

In 1990, Hetch-Hetchy Reservoir received 60 percent of its normal supply, and the overall San Francisco Water Department received only 40 percent of its average supply. Because of this water shortage, the San Francisco Water Department imposed a 25 percent reduction in water use on Mountain View and its other customers for the second consecutive year. Currently, the San Francisco Water Department maintains less than two years worth of storage. If the drought continues, further reductions may be necessary.

The City's water distribution system contains approximately 160 miles of water mains, mostly 6-, 8-, and 12-inch diameter pipes and larger mains, 16- to 27- inches in diameter. The larger mains are dispersed throughout the City. Any mains with higher than average failure rates are monitored by the Water Division in the Utilities Department[12]. If necessary, these mains are replaced through the Capital Improvement Projects process.

Mountain View's water supply network extends through four water pressure zones to service the 185 foot difference in elevation from one end of Mountain View to the other. The average water pressure in Mountain View is 60 pounds per square inch. Low water pressures are at times experienced in the Dale Avenue/Heatherstone/ Village Court area. New high-rise

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[11] City of Mountain View, Urban Water Management Plan, January, 1991, page 5.

[12] Urban Water Management Plan, January, 1991, page 11.

buildings in these areas may need to install special pumps to ensure adequate water pressure, especially for fire sprinkler systems.

The City has six emergency connections with water purveyors. Palo Alto has two six inch connections, and Sunnyvale has four eight inch connections. Both Palo Alto and Sunnyvale receive some of their water from SFWD. Sunnyvale also receives water from SCVWD and from wells[13]. Palo Alto uses well water only when necessary.

The City has three drinking water storage reservoirs with a total capacity of 7.125 million gallons. Whisman Reservoir is the largest of the three with a capacity of six million gallons, and is used during periods of high consumption. Miramonte Reservoir is used for storage as well as a standpipe for the City's connection to the Hetch Hetchy pipeline at Escuela and Crisanto Avenues. This reservoir can hold one million gallons. The Bryant elevated tank has a capacity of only 125,000 gallons, and is primarily used to provide fire flows[14].

Groundwater

Mountain View also receives drinking water from groundwater wells which draw from the deep-level aquifer (500-800 feet underground). The aquifer is a permeable layer of rock that contains significant quantities of water. At this depth, the City's well water is naturally pure and filtered, making it suitable for drinking.

Mountain View's use of well water is affected by two constraints: ground subsidence and contamination (see SECTION III., K. WATER QUALITY). The City owns five active wells and one standby well. The five active wells when running simultaneously are capable of producing 2.5 mgd on a sustained basis. The five wells provide up to 15 percent of the demand. The water from these wells meets all drinking water standards and does not require treatment. Plans are in progress to retrofit the standby well (#9) with a waste cycle, so it too can be used as an active well.

Mountain View is located in an area with a very slow water infiltration rate. Because of the prolonged drought, the dry soil absorbs most of the rainfall, and little, if any, filters into the groundwater table (the upper surface of a zone of water saturation within the ground) or discharges into the storm drainage system. Since the natural recharge of the groundwater supply is limited in Mountain View and other areas of the county, the Santa Clara Valley Water District (SCVWD) augments groundwater recharge. The SCVWD recharge program releases water from the Stevens Creek Reservoir into gravel deposits which percolate water into the ground. The Water District also regulates the pumping of groundwater from wells. Recent analyses of the groundwater conditions in the City indicate that groundwater is at a high water level.

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[13] Urban Water Management Plan, page 11.

[14] City of Mountain View, Urban Water Management Plan, January, 1991, page 11.

Reclaimed Water

Reclaimed water is primarily used in the North Bayshore Area, at the City's Shoreline facilities, the Golf Links, and the Shoreline Amphitheatre. The City is now exploring the use of reclaimed water for private irrigation. In addition, the City is participating in a Reclaimed Water Master Plan study with the other partners of the Palo Alto Regional Water Quality Control Plan. This study investigates expanding the use of reclaimed water to supply public and private users throughout the PARWQCP service area.

Subsidence

Prior to the 1970s, the amount of water withdrawn from aquifers in the Santa Clara Valley exceeded the level which could be replenished by recharging the aquifer. As a result, subsidence occurred throughout the Valley. (Subsidence is the gradual sinking of the ground as groundwater is withdrawn.) As the water table fell, the ground in the North Bayshore area subsided as much as four feet over a period of 33 years. In areas southeast of Mountain View (notably Alviso), the ground subsided to depths of up to 10 feet below the original ground surface. The Santa Clara Valley Water District's extensive groundwater recharge project in 1971 arrested subsidence in the Valley.

Water Availability/Demand

Urban water use in California is comprised of residential, industrial, commercial, and public uses. Interior and exterior water use in California is comprised of homes and apartments, and this accounts for approximately 65 percent of urban water use during non-drought periods. Mountain View's residential water use represents approximately 53 percent of the total City's water use. Industrial water use accounts for about 14 percent of urban water use and 22 percent of the total city use[15]. Water use that is unaccounted for (i.e. a system leakage or meter errors) represents approximately five percent of the total annual production.

Historical Water Use

Table 23 provides an historical perspective of 1984 and 1989 water use. The drought conditions and the population growth affect water use[16].

The City of Mountain View Utilities Department estimated the future water consumption rates shown in Table 24 based upon the population estimates provided by ABAG in Projections '90.

These figures were updated to reflect the Association of Bay Area Government's population projections and Santa Clara Valley Water District data (Genevieve Fire, 1992).

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[15] Urban Water Management Plan, page 12.

[16] Urban Water Management Plan, pages 12-13.

TABLE 23

Breakdown of Urban Water Use
City of Mountain View

Year	Residential	Industrial	Commercial	Public
1984	40 percent	27 percent	25 percent	8 percent
1989	53 percent	22 percent	17 percent	8 percent

TABLE 24

Future Water Requirements
City of Mountain View

Year	Population Serviced by City Water	Per Capita Demand (gpd)*	Total Production (KCCF)
1990	63,900	195	6,100
1995	67,400	215	7,100
2000	69,900	215	7,300
2005	70,500	215	7,400
2010	72,300	215	7,600

gpd = gallons per day
KCCF = thousands of cubic feet (1 unit = 748 gallons)

Urban Water Management Plan Update 1991-1995

The goal of the Urban Water Management Plan (UWMP) is to make provisions for how the city will meet future water supply and demand requirements. This goal will be achieved by refining the City's water delivery operations to make the most efficient use of its supply and by educating and informing residents and businesses about their water supply and encouraging them to continue to improve their water conserving practices. The Urban Water Management Plan Update gives estimates of the water supply and demand for Mountain View over the next 20 years. This plan strategizes the City's methods to meet future water supply and demand requirements. The emphasis of the UWMP is on water use efficiency, instead of on the development of a new supply.

Water Conservation

The City of Mountain View has an active water conservation program. Reclaimed waste water is used for some landscape irrigation, for construction, and to flush sewers. The City also monitors water use in all of its parks. The water conservation program is implemented through a Water Conservation Ordinance, which prohibits:

- Wasting water, including runoff on sidewalks, streets, or gutters.
- Cleaning repaved or hard-surface areas with water.
- Using a hose without an automatic shutdown valve while washing vehicles.
- Using potable water for construction, unless reclaimed water is not available.
- Wasting water as a result of broken or defective plumbing or irrigation systems.
- Landscape watering from 9:00 a.m. to 6:00 p.m.
- Restaurant water service, except upon request.
- Hydrant flushing, except for public health or safety.
- Single pass cooling systems on new construction.

The program is also implemented through an increasing rate block, which makes it very expensive to use excessive amounts of water.

The City has adopted water-conserving landscape guidelines for new and renovated landscapes. The Department of Planning and Community Development reviews landscape plans for multiple-family projects over two dwelling units and all commercial and industrial projects. The guidelines encourage the use of plants that need less water, are, drought tolerant, and can adapt to Mountain View's microclimates. High water use areas, such as turf, are generally limited to less than one-third of the total landscape area on-site, unless an overriding area plan or land use designation allows more landscaping. Additional guidelines include maintaining water-intensive landscaping only in areas of high visibility and pedestrian use, minimizing irrigation, and terracing slopes greater than 33 percent.

2. Impacts

While the 1991 General Plan provides for population growth within the city, it also includes policies and action programs to encourage reduction in water consumption and implementation of water conservation practices. However, continued drought and a requirement to increase Delta flows could result in reductions in the City's water supply. Presently, the City's water supply is 15.7 million gallons per day. It is estimated that by the year 2005, the estimated demand for water may increase to 15.2 million gallons per day. It is anticipated that the City will be able to meet the worst case projected demand for water, given the existing contractual obligations and well capacities. This estimate is based upon an adjustment to the ABAG residential population projections for Mountain View for 2005 and an estimated usage rate of 215 gallons per day per person, without water conservation measures.

General Plan Amendments

The proposed General Plan amendment on the Evelyn Avenue Corridor Study Area site ("Site 8") is estimated to generate a water usage rate of approximately 0.167 million gallons of water per day. This estimate is not anticipated to significantly exceed the estimated water usage of the existing land uses in the project area.

The approved residential development of the Old Mill Site ("Site 3") is estimated to generate a demand for approximately 0.33 million gallons of water per day (mgd). When fully occupied, the Old Mill Specialty Center consumed about 50,000 gallons per day, or approximately one-third of the approved residential use's estimated water demand.

Residential Redevelopment Sites

The City is considering rezoning seven vacant and under-utilized commercial and industrial areas to residential uses. Residential redevelopment of these seven sites would slightly increase water use in the City, particularly in areas where water usage is presently minimal (i.e., vacant parcels). As described above, the two General Plan amendment sites would generate 0.167 mgd and 0.33 mgd, respectively, for a total of 0.497 mgd. In addition, Sites 1, 5, 9, 10, and 11 would generate a total demand for 0.683 mgd. Residential development of the 5,511 additional residents would generate a total estimated demand for 1.18 million gallons per day of water (assuming a rate of 215 gallons per person per day for high density residential uses).

The water demand may slightly increase with potential redevelopment. At the same time, the future water supply could be reduced, especially if present drought conditions continue, or if the State determines through the Bay-Delta hearings, that the SFWD must allow more water to flow naturally down the Tuolumne River to the Delta. This would reduce the water supply available to the suburban water users in the Bay Area (Urban Water Management Plan, 1991). If this occurs, without significant long-term conservation, adequate water may not be available to meet the needs of future residential development that is in addition to the growth projected for 2005.

3. Mitigation

Implementation of the following Environmental Management Chapter policies and action programs would reduce the potential for impacts to the City's water supply. These measures, which are included in the project, will further ensure reductions in water use and will encourage water conservation practices.

Action 14e: Maintain a list of drought-tolerant plants for public distribution.

Policy 16: Maintain the City's ability to meet its water supply requirements.

Action 16a: Work with other local agencies and water wholesalers to develop new water sources and add existing sources.

Action 16b: Continue to update and comply with provisions of the City's Urban Water Management Plan.

Policy 17: Recognize that water is a limited resource and encourage water conservation measures where possible.

Action 17a: Use reclaimed water, efficient irrigation, and drought-tolerant landscaping on City lands, and encourage people to use them on private properties.

Action 17b: Prepare and distribute pamphlets, and use local publications, to educate people on water conservation techniques.

Action 17c: Adopt and carry out "best management practices" for water conservation as outlined in the 1991 League of California Cities Memorandum of Understanding on urban water conservation in California.

Implementation of the identified policies and action programs would mitigate impacts on water supply services to a non-significant level.

M. ELECTRICITY, GAS, ENERGY, AND TELEPHONE

1. Setting

Mountain View is located within Pacific Gas and Electric's (PG&E) 350-square-mile De Anza Division of the Mission Trails Region. PG&E provides electric and natural gas service for a total service area of 94,000 square miles consisting of 48 counties. In 1990, PG&E supplied approximately 70,438 billion kilowatt-hours (kWh) of electricity to approximately 4,196,766 customers located in northern and central California. The present demand for electricity in Mountain View can only be approximated since the Mountain View, Los Altos and Los Altos Hills areas are figured together from the De Anza Division. According to the De Anza Division these cities combined use approximately 175 megawatts. Projections to the year 2005 are unavailable. The Northwest De Anza Division has a projected 1995 demand of 195 megawatts. PG&E estimates that the 1990 demand for electricity in Mountain View was approximately 59,376,413 kilowatt hours (Gist, 1991).

PG&E produces most of its power by burning fossil fuels (about 20%) and hydroelectric facilities (20%). Nuclear power plants provide approximately 16 percent of the electricity and geothermal power provides 12 percent. Ten percent of the electricity is produced by solar, wind, and biomass conversion sources. PG&E recently added capacity from the Helms Pump Storage Project, the Diablo Canyon Nuclear Power Plant, and small, independent "alternative" energy projects. PG&E projections are that various cogeneration, geothermal, small hydroelectric, and wind energy projects will add about 8.0 million kilowatts of new capacity. Additional projects anticipated by 1995 include 335,000 kilowatts of power from three new geothermal units at *The Geysers*, 166,000 kW of additional hydroelectric power, and a possible 326,000 kilowatts of purchased power from the construction of a 1.6 million kilowatt transmission line from the Pacific Northwest to California.

Power is transmitted to Mountain View via high-voltage electric cables running parallel to Stevens Creek. Several large transformers at the Whisman and Mountain View substations then step the electricity down to 120 and 240 volts for each of the City's 33,000 customers.

PG&E has a continuous maintenance program and does improvements to the network in Mountain View as needed, but there are no major improvements scheduled in the Mountain View area within the next 3-5 years. The existing electrical system infrastructure in Mountain View varies from 30 years old to new and the PG&E equipment is in good condition (Gist, 1991).

Natural Gas

Recent available figures indicate that PG&E supplied approximately 406 billion cubic feet of natural gas to its customers in 1986.[17] Statewide, approximately 47 percent of this supply was consumed by residential customers, 19 percent by commercial customers, 32 percent by

[17] Pacific Gas & Electric Annual Report for 1986 as stated in the Santa Clara County Hazardous Waste Management Plan EIR, 1988.

industries, and two percent was sold to other utilities. In 1986, Canadian sources provided about 42 percent of PG&E's gas requirements, southwestern U.S. sources supplied 34 percent, and California sources provided 24 percent. Mountain View also provides natural gas from the methane gas recovery system at Shoreline at Mountain View. PG&E, under contract with the City of Mountain View, separates methane from the recovered landfill gas and sells it to their natural gas customers.

Natural gas accounts for 23 percent of the energy PG&E provides in the De Anza Division. PG&E estimates that the 1989 demand for natural gas in Mountain View was about 339,687.6 million cubic feet. Almost 62 percent of this local demand is attributed to residential customers, while 34 percent was consumed by commercial development and four percent by industrial users.

In 1985, the City constructed a methane recovery plant at the former site of the 544-acre Shoreline landfill to extract methane gas naturally produced by decomposing waste. Shoreline at Mountain View has over 200 landfill gas extraction wells, connected by miles of pipeline atop specially designed landfill cells. The landfill gas is processed at one of three energy recovery facilities, designed for maximum air quality protection. PG&E, under contract with the City of Mountain View, separates methane from the recovered landfill gas and sells it to their natural gas customers. The City also contracts with another firm to burn landfill gas in two large reciprocating engines, which drive electrical generators and produce over 3,000 kilowatts of energy. In total, the landfill gas recovery system produces enough energy to satisfy all the electrical and natural gas needs of over 2,000 average homes. The gas is estimated to have a 30 year capacity.

Conservation Programs

Some of the energy conservation programs that PG&E offers to its Commercial and Industrial customers are:

- Direct Rebate Program
- Customized Electric Program/Customized Gas Program
- Financial Incentives for Energy Management Projects
- New Construction Rebates
- Energy Site Surveys
- Clean Air Vehicle Program

Some of the programs that PG&E offers to its residential customers are:

- Central Air Conditioning Rebate
- Ceiling Insulation Rebate
- Refrigerator Rebates
- Shade Tree Program
- Multi-Unit Dwelling Energy Survey
- Energy Savings Plan - Home Energy Survey
- Free Gas Furnaces, Water Heaters, and Refrigerators to Low Income Qualifying Customers

- School Program - Energy Education for Students
- Coupons (Gist, 1991).

2. Impacts

Future population growth could create significant increases in the demand for energy. It is estimated that by 2005, the demand for energy will increase from 176.1 million kilowatt hours to 191.1 million kilowatt hours. The City is considering rezoning 18 vacant and under-utilized commercial and industrial areas to residential uses. Redevelopment of these 18 sites would further increase the demand for energy in the City, particularly in presently vacant areas. The estimated 7,000 additional households could create an annual demand of up to 41.7 million kilowatt hours -an increase of 24 percent over the 1990 residential demand for 176.1 million kilowatt hours and 22 percent over the projected 2005 demand.

Development of only the 2,587 housing units associated with the future rezonings would result in an estimated increase of approximately 15 million kilowatt hours over the 1990 residential demand (about a nine percent increase) and about an eight percent increase over the year 2005 demand for electricity. Despite this increase in residential energy consumption, the replacement of industrial uses with residential development is anticipated to partially reduce the amount of the overall energy consumption, since industrial development uses more energy than residential uses.

No impacts to telephone services are anticipated.

3. Mitigation

Implementation of the following General Plan Environmental Management Chapter Policies would encourage optimal use of available energy resources, while reducing consumption of energy under existing and future conditions.

Policy 26: Promote energy conservation.

Action 26a: Carry out actions in the Circulation Chapter aimed at reducing automobile use and improving the efficiency of the transportation network.

Action 26b: Continue to use Title 24 of the Uniform Building Code to require proper energy conservation for all approved projects.

Action 26c: Recycle paper, plastics, glass, aluminum and other metals.

Action 26d: Develop a plan to manage and conserve energy for all City structures.

Action 26e: Distribute PG&E literature on energy conservation.

Policy 27: Encourage active and passive solar energy design in building and site development.

Action 27a: Consider preparing and adopting a solar access ordinance.

Action 27b: Incorporate solar designs into new City facilities.

Action 27c: Use the development review process to inform developers of the advantage of planning for solar access.

Policy 28: Encourage the development and use of alternative energy sources.

Action 28a: Continue to extract methane gas from the landfill.

Action 28b: Promote energy cogeneration through an awareness program aimed at large companies and institutions.

Implementation of the identified policies and action programs included in the General Plan Update would reduce significant energy impacts to a non-significant level.

N. SANITARY SEWER

1. Setting

The information contained in this section is primarily based upon data collected by CH2M Hill for the City of Mountain View Sanitary Sewer Master Plan, July, 1990.

The City of Mountain View discharges sanitary wastewater at the Palo Alto Regional Water Quality Control Plant (PARWQCP). The PARWQCP services Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University, and East Menlo Park. Mountain View uses 55 percent of its flow entitlement of 14.4 MGD of dry weather flow. The main sewage pump station is located in the Shoreline area. This pump station was constructed in 1961. In 1970, the pump station and pipes were upgraded to transport raw sewage from Mountain View to the PARWQCP. At the Water Quality Control Plant, Mountain View's sanitary sewage receives tertiary treatment. Since the pump station has a large storage capacity, the PARWQCP occasionally requests that Mountain View refrain from discharging sewage to the treatment plant during emergency situations.

Historical flow records at the PARWQCP indicate that on a per capita basis, Mountain View's sewage generation has declined for the last five years. This reflects the City's active water conservation program, and the relocation of chip manufacturing industries (high water users and high wastewater generators) out of Silicon Valley.

The average dry weather flow during November 1989 was 7.7 million gallons per day (mgd). By the year 2010, the projected average dry weather flow is estimated to be 8.8 mgd. Average per capita generation factors for residential, industrial, and commercial land uses are provided below.

-	Single-family homes	75 gallons per capita per day
-	Multi-family homes	65 gallons per capita per day
-	Industrial/Commercial	15 gallons per employee per day

There are several industries discharging high volumes of toxic chemicals to the sanitary sewer. Most of the industries are located north of Middlefield Road. These industries are required to have Liquid Waste Permits from the City, to monitor both volume and constituents. The City's Liquid Waste Division actively regulates industries to control the discharge of regulated pollutants, including heavy metals and grease, to the PARWQCP.

2. Impacts

General Plan Amendments

Residential development on the Evelyn Avenue Corridor Study Area site ("Site 6") is anticipated to generate 50,505 gallons per day for a resident population of 777 persons (assuming 65 gallons per person per day for multi-family units). Approved residential development of 630 to 720 dwelling units (1,534 persons) on the Old Mill Site ("Site 7") is estimated to generate approximately 99,710 gallons per day of wastewater. Although adequate sewer capacity is anticipated for Site 6, system upgrading for the local sanitary sewer mains will be necessary to accommodate development of Site 7. Adequate wastewater treatment capacity for residential development of the Old Mill site is available at the PARWQCP.

Residential Redevelopment Sites

Residential redevelopment of the seven sites may slightly increase wastewater generation in the city, particularly in areas where minimal waste is presently generated (i.e., vacant parcels). However, on those sites where residential uses would replace industrial uses, the actual future quantities of wastewater may actually decrease. It is estimated that the maximum 5,511 additional residents would generate 358,215 gallons of wastewater per day. The net increase in wastewater generation is probably overestimated, since it assumes that no wastewater is now generated from these sites.

The potential residential redevelopment would result in a higher utilization of the existing sanitary sewer lines. Some of these lines will require replacement because of corrosion and/or capacity inadequacies. During year 2010 estimated wet weather conditions, 10 pipeline segments surcharge as shown in Table 25. These pipeline segments are not anticipated to be directly affected by development of the seven potential residential redevelopment sites.

3. Mitigation

Implementation of the following Environmental Management Chapter policy and action programs would ensure the adequate provision of sanitary sewer services.

Policy 18: Provide adequate ~~sewer~~ sewage treatment and capacity to serve the city's anticipated growth.

Action 18a: Expand efforts to promote conservation of water and reduction of sewer outflow, especially among large industrial users.

Action 18b: Continue to require pretreatment of industrial waste water.

Action 18c: Monitor the condition of sewer lines and improve lines, as necessary.

Implementation of these action programs will further ensure that future development does not significantly impact the City's sanitary sewer system.

TABLE 25

PEAK WET WEATHER FLOW DEFICIENCIES (>110%)

						Capacity Enhancement	
Pipe Number	Downsteam MH Number	Street	Length, feet	Pipe Size, inches	Percent Capacity	Parallel Size, in.	Replacement Size, in.
1140020	1140010	Grant Rd. between Martens Ave. & Bently Sq.	270	15	128	10	18
660240	660250	Fairchild Dr. between National Ave. & Whisman Rd.	330	18	131	12	21
660280	660290	Fairchild Dr. between Whisman Rd. & Tyrella Ave.	189	24	169	21	30
440240	440230	Old Middlefield Way at Camp Ave.	490	18	170	18	24
440141	440140	NW of Stierlin Rd. just N of Bayshore Freeway	15	18	117	10	21
630560	630550	Sierra Vista Ave. at Hachett Ave.	286	21	122	12	24
650340	650350	Leong Dr. between Evandale Ave. & Winston Pl.	25	15	118	8	18
Total			1,605				

O. SOLID WASTE

1. Setting

In Mountain View, solid waste is generated by municipal and industrial uses. The Utilities Department estimates that industrial and commercial sources generate 67 percent of the waste and residential uses generate 33 percent.

Solid Waste Generation

Mountain View residents generate an estimated generation of 2.9 pounds of solid waste per resident (Woodhouse, 1991). Currently, Mountain View residents generate an average of 100 tons of solid waste per day. The 1990 per capita generation for residential, commercial and industrial waste is approximately 1.4 tons/year or approximately seven pounds per day.

In 1990, Mountain View generated 100,108 tons of solid waste. Of this amount, 89,200 tons were disposed of in landfills and 10,899 tons were diverted through source reduction and recycling.[18] This diverted refuse consisted of 32,108 tons of residential refuse, 26,292 tons of commercial, 21,600 tons industrial, and 9,000 tons self-haul. Estimated tonnage disposed of other than the Mountain View landfill and the Newby Island landfill was 210.7 tons in 1990. This includes estimated transformation of 76.5 tons of tires in the Oxford Energy tire combustion plant, litter collected by CALTRANS and disposed at Zanker Road Landfill, and asbestos disposed at permitted landfills.[17]

Integrated Waste Management Act (AB 939)

According to the Integrated Waste Management Act of 1989 (AB 939) Santa Clara County is required to prepare solid waste management plans. AB 939 also requires all municipalities to divert 25 percent of their solid waste from landfill disposal through implementation of the Source Reduction and Recycling Element (SRRE) by January 1, 1995. Fifty percent of the waste stream must be diverted by the year 2000.

By the year 2005, it is estimated that the generation of solid waste would be approximately 113,936 tons without source reduction and recycling programs. Of this amount 101,532 tons will be landfilled and 12,404 tons will be diverted. With the implementation of the source reduction and recycling programs, Mountain View is anticipated to generate 113,950 tons of refuse. Of this amount, 59,465 tons would be landfilled and 54,485 tons will be diverted from landfilling through recycling or re-use.[18]

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[18] As stated in Source Reduction and Recycling Element, January 1992, page I-1.

[17] As stated in Source Reduction and Recycling Element, January 1992, page I-2.

[18] As stated in the Source Reduction and Recycling Element Tables I-6 and I-7.

Refuse Collection

The City of Mountain View's existing provider of solid waste collection services is the Foothill Disposal Company. Foothill Disposal collects the refuse and then transports to Newby Island Landfill in San Jose for disposal. Foothill Disposal is contracted to provide the City services: refuse collection and disposal, and residential recycling collection. Self-haul waste is disposed of at the Vista Site at the Mountain View Landfill (the public landfill). The City has a mandatory refuse collection and disposal policy. In addition to regular residential refuse collection and recycling, the City contracts with the County for household hazardous waste drop-off days, free spring and fall cleanups, and a free "dump day" in the spring and fall. Materials such as concrete, rocks, hazardous materials (including paint, oil, solvents, and pesticides) are prohibited from regular curbside refuse disposal. In 1990, 48.6 tons of household hazardous waste was diverted from disposal in Mountain View through city-sponsored household hazardous waste collection programs and curbside oil collection service.[19]

Landfill Operations

Landfill operations in Mountain View occupied three parcels covering 750 acres in the North Bayshore Area. Shoreline at Mountain View was developed over a 544 acre parcel, which served as a landfill since the 1930s. The City purchased the parcel in the late 1960s and began operating a permitted sanitary landfill in 1970. The landfill was then closed and developed into the recreation and nature preserve area.

In the 1970s, the City obtained the 150-acre parcel to the south and east of Shoreline at Mountain View and commenced landfill operations in 1980 under contract to Genstar Laidlaw Wastech, Inc.

In 1968, Ferma or SRDC (owned by the Ferrari Brothers) began landfill operations at a 70-acre parcel, south of Shoreline at Mountain View Park. This landfill accepted both demolition debris and public refuse. The 70- acre parcel consists of 50 acres occupied by an inactive, but unclosed landfill, and a 20-acre extension used for concrete recycling and dirt stockpile. The City acquired the 70 acre parcel in 1984 in order to provide landfill capacity for Mountain View, Los Altos, Los Altos Hills, Cupertino, and Sunnyvale. Landfill operations occurred briefly in 1987, and again in 1988. However, in 1988, operations moved back to the 150-acre parcel in response to the California Waste Management Board's determination that the landfilling operations at the 70 acre parcel were illegal because a new permit was not filed to reflect the change in ownership. The City is currently proposing the proper closure of the landfill operations at the 70-acre parcel, and is exploring possible future uses for the site. The facility currently accepts 25 tons of self-hauled waste and demolition material per day on a seven day basis generated in Mountain View. The site has 15,000 cubic yards of remaining disposal capacity and two years capacity remaining.[20]

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[19] As stated in the Household Hazardous Waste Element, page 14-15.

[20] As stated in Source Reduction and Recycling Element, January 1992, page VII-2.

The City deposits household and commercial refuse at Newby Island in San Jose, which will operate into late 1993. To meet landfill needs after 1993, Mountain View, Sunnyvale, and Palo Alto have negotiated with Waste Management, Inc. for 30-40 years of landfill capacity at the Kirby Canyon Landfill in South San Jose. To accommodate the city's solid waste over 40 years, a materials recovery facility (MRF) and transfer station will be needed to remove recyclable materials from the waste stream, thereby limiting the refuse at Kirby Canyon to only non-recyclable materials. The Sunnyvale Materials Recovery and Transfer (SMaRT) Station, currently in the planning and development stages, will be the intermediary station between collection and deposition at the landfill for the three cities.

If constructed, the SMaRT Station will be located adjacent to the Sunnyvale Landfill. The Station will provide for sorting recyclable materials from incoming refuse, processing of loads from curbside recycling, and processing of wood waste. Non-processible materials will be compacted and transported to the Kirby Canyon landfill. Resource recovery at the SMaRT Station is expected to reduce the waste stream to the landfill by approximately 20-25 percent. Recovered and processed materials will include aluminum, cardboard, ferrous metals, high grade paper, mixed waste paper, newsprint, glass, wood, yard waste, plastic, and large appliances. These resources will be shipped to markets in the Bay Area, northern California, southern California, and Oregon. The wood waste would be chipped and possibly sold for fuel.

The Kirby Canyon Sanitary Landfill is designed to accommodate 37.4 million cubic yards of waste (24.3 million tons). The landfill is currently permitted to receive an annual average of 1,500 tons of waste per day. In 1990, the landfill receives an average of 633 tons per day. By December, 1989, the landfill had accepted 0.477 million cubic yards of material (approximately 310,000 tons). The existing capacity of the landfill is therefore, estimated at 24 million tons.[21]

Recycling

Mountain View's Residential Recycling Program was initiated in October, 1987. Participation in the program has consistently increased, and services for large multi-unit complexes began in 1991. The City is currently recycling about 9,246 tons (10 percent of the total waste generated in the City) of material per year.[22]

In 1985, the City constructed a methane recovery plant at the former site of the Shoreline landfill to extract methane gas naturally produced by decomposing waste. Shoreline at Mountain View has over 200 landfill gas extraction wells, connected by miles of pipeline atop specially designed landfill cells. The landfill gas is processed at one of three energy recovery facilities.

2. Impacts

Future growth could create significant increases in the amount of solid waste generated, if reductions in solid waste do not occur through the implementation of the Source Reduction and

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[21] As stated in the Sunnyvale SMaRT Station Draft EIR, page II-10.

[22] As stated in Source Reduction and Recycling Element, January 1992, page III-5.

Recycling Element. By the year 2005, without SRRE, an additional 42,067 tons of solid waste would be placed in landfill.[23]

General Plan Amendments

Residential development on the Evelyn Avenue Corridor Study Area site ("Site 8") is anticipated to generate 1.13 tons per day of solid waste for a resident population of 777 persons. The Old Mill Site ("Site 3") residential development is anticipated to generate approximately 2.2 tons of solid waste per day (assuming 720 dwelling units).

Residential Redevelopment Sites

The City is considering rezoning seven commercial and industrial areas to residential uses. Residential redevelopment of these seven sites may slightly increase solid waste generation in the City, particularly in areas where minimal waste is presently generated (i.e., vacant parcels). However, on those sites where residential uses would replace industrial uses, the actual future quantities of solid waste may decrease.

It is estimated that the maximum 5,511 additional residents would generate approximately 7.9 tons of solid waste per day (see Table 26). This amount is equivalent to seven and one-half percent of the 104.4 tons per day projected for the year 2005. However, this projection is probably overestimated since it assumes that no solid waste is now generated from these sites and that all land uses generate the same average amount of solid waste per day. In actuality, the potential residential uses would replace some industrial uses which generate more refuse than do the residential uses.

Solid waste from existing development in the City can be accommodated by the future recovery and transfer station and the Kirby Canyon Landfill. Anticipated growth in the waste stream (1.1 percent per year) for Mountain View, Palo Alto, and Sunnyvale was considered in estimating the capacity of the SMaRT Station and Kirby Canyon. If source reduction of the waste stream is not successful, Kirby Canyon would only be able to provide capacity for the service area for 35 years.[24] However, the landfill would have adequate capacity to accommodate the waste stream from the service area for 40 years if recycling efforts result in a 25 percent source reduction in the service area. The landfill will provide more than enough capacity for the waste stream if there is a 25 percent source reduction from 1991-2000 and a 50 percent reduction from 2001-2031. In order to accommodate the additional growth associated with the 18 potential redevelopment areas, Mountain View must achieve its source reduction goals.

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[23] As tables I-6 and I-7 state in the Source Reduction and Recycling Element, January 1992.

[24] According to the Sunnyvale SMaRT Station Draft EIR, this estimate is provided for waste generated by the service area of Mountain View, Sunnyvale, and Palo Alto, and for limited waste in the possible extended service area of Stanford, Cupertino, Los Altos, Los Altos Hills, and Santa Clara.

TABLE 26

ESTIMATED SOLID WASTE GENERATION BY PLANNING AREA
RESIDENTIAL USES[1,2]
(tons per day)

Planning Area	Year 1990 Population	Year 1990 Generation	Year 2005 Population	Year 2005 Generation	Sites[3] Residential Redevelopment Population[5]	Sites[3] Residential Redevelopment Generation
North Bayshore	2,418	3.5	2,657	3.8	0	0
Rengstorff	6,188	9.0	6,684	9.7		
Stierlin	3,033	4.4	3,052	4.4	128	.18
Whisman	8,183	11.9	9,109	13.2		
Sylvan-Dale	7,233	10.5	7,757	11.2		
Central	9,692	14.0	10,114	14.7	2,311	3.4
San Antonio	9,311	13.5	11,011	16.0	1,687	2.4
Miramonte	4,695	6.8	5,179	7.5	320	.46
Thompson	10,325	15.0	10,499	15.2		
Grant	5,326	7.7	6,045	8.8		
El Camino[4]	----	----	----	----	1,065	1.5
Total	**66,404**	**96.2**	**72,017**	**104.4**	5,511	7.9

1 This estimate does not include solid waste generation by non-residential uses in the City of Mountain View. The estimates are based on a solid waste generation factor of 2.9 pounds per person per day.

2 Estimates for solid waste generation do not account for recycling and source reduction efforts.

3 The estimated solid waste generation for the potential residential redevelopment sites is not included in the year 2005 projections. These estimates do not account for the generation of the existing land uses on the sites.

4 Potential residential redevelopment sites along El Camino are not included in any of the nine planning areas, since the El Camino strip extends through five of the nine areas. These sites are separated from the planning area estimates only for the estimates for the residential redevelopment sites.

5 Assumes an average of 2.13 persons per household.

3. Mitigation

Implementation of the following Environmental Management Chapter policies and action programs would ensure a reduction in solid waste and would reduce landfill disposal.

Policy 24: Promote waste reduction methods throughout the City.

Action 24a: Carry out the City's Source Reduction and Recycling Plan.

Action 24b: Prepare and distribute pamphlets to educate Mountain View residents about reducing household waste.

Action 24c: Give preference, for City purchases, to buying products that minimize packaging and can be reused.

Action 24d: Assist local businesses in developing strategies to manufacture, package, and consume commercial products more efficiently.

Policy 25: Promote recycling and resource conservation.

Action 25a: Provide convenient, accessible drop off and redemption sites for recycling.

Action 25b: Institute a yard waste collection and composting program.

Action 25c: Give preference made from recycled material for City purchases.

Action 25d: Provide local businesses with technical assistance, information on State tax credits, and other incentives to use recycled materials in their manufacturing processes.

Action 25e: Amend the Zoning Ordinance to require suitable space for separating, storing, and collecting of recyclables in new or substantially remodeled commercial and multi-family structures.

Action 25f: Consider charging a variable garbage rate based on the amount of garbage generated.

Action 25g: Develop a program to reward innovative recycling and resource-conservation ideas.

Although the 1991 General Plan would not result in a significant impact to solid waste, implementation of the policies and action programs included in the project will further ensure that significant impacts do not result in the long-term.

P. POLICE PROTECTION

1. Setting

Crime Prevention and Response

The Mountain View Police Department (MVPD), located at 1000 Villa Street, responds to criminal and traffic calls within the City limits. The MVPD maintains concurrent jurisdiction with the Naval Investigative Services at Moffett Field, while the California Highway Patrol patrols State Highway 101, State Route 85 (the Stevens Creek Freeway), and portions of State Route 82 (El Camino Real).

Mountain View's police force consists of three divisions including Field Services, Investigative Services and Administrative Support. The Field Services Division responds to criminal behavior, answers service calls, and deploys personnel for crime prevention and suppression activities. The Investigative Services Division researches unsolved crimes referred by Field Services, by maintaining known-offender files, processing physical evidence, conducting field interviews, initiating suspect surveillance, and undertaking covert operations. The Administrative Support Division provides necessary administrative and clerical services for the Department.

In 1989-1990, the Police Department responded to a total of 26,166 calls, and made 4,458 total arrests[25]. Although the Department's policy is to respond to high priority calls within 10 minutes, the MVPD generally responds within four minutes.[26] The Department maintains a staff of 84 sworn officers, and 31 non-sworn individuals (seven community officers and 14 clerical) to ensure the adequate response times. The 84 sworn officers include patrol officers, agents, sergeants, and lieutenants. The MVPD has 35 patrol cars, six motorcycles, 21 unmarked vehicles, three special SWAT vehicles, and three canine units.

On-going crime prevention programs in Mountain View include Neighborhood Watch, educational outreach for drug and alcohol prevention, juvenile counseling services, referral services, and mediation for troubled youths.

NAS Moffett Field

The NAS Moffett Field police protection staff consists of 100 security personnel, of whom, three are civilians. The station maintains a Memorandum of Understanding with the Santa Clara County Sheriff's Department through which it may request assistance. In the event that the sheriff could not respond, the Mountain View and Sunnyvale Police Departments would provide assistance. NAS Moffett Field also assists the Santa Clara County Sheriff's Department, upon request, with ordnance identification and defusing.

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[25] The number of arrests includes both adults and juveniles.

[26] According to Patty Wilhelm, Mountain View Police Department, 1990, as stated in the Ferrari Landfill Draft Environmental Impact Report, June, 1990, page IV-113.

The department recently added a computerized dispatch system (CAD) which will help the Police Department to better serve the people in Mountain View. Terminals were recently installed in the police vehicles at the police department. This will allow the police officers to access records from their car and it will increase their response times (Brown, 1991).

Accidents

During the 1990 calendar year there was a total of 12,746 traffic accidents. Out of this number 12,062 were non-injury accidents, 452 were injury accidents, 226 were hit and run, and 6 were fatalities (Brown, 1991).

2. Impacts

Future growth in excess of the growth projected by the year 2005 could create a need for additional police protection services. The proposed General Plan Land Use Map changes are not anticipated to generate a significant demand for police services in the area of Evelyn Avenue and the Old Mill Site. In accordance with the proposed amendments to the text of the General Plan, the City is considering rezoning four commercial and industrial areas to residential uses, and promoting housing on three additional sites. Residential redevelopment of these seven sites could result in a greater number of police calls. As a result, additional sworn officers may be necessary to maintain an acceptable response time. However, this is not considered to be a significant impact.

3. Mitigation

Implementation of the following General Plan Environmental Management Chapter policies and action programs would ensure the provision of adequate police protection services for future development.

Policy 40: Provide superior community-oriented services.

Action 40a: Develop a customer orientation in providing services to the community.

Action 40b: Continue programs such as Neighborhood Watch and Ride Along, which reflect community values, and increase residents' involvement in and ownership of police operations.

Action 40c: Direct services and outreach programs toward youths in the community.

Action 40d: Act as liaison to social service agencies that give support to physically or mentally disadvantaged persons.

Action 40e: Assist in preparing and carrying out Emergency Preparedness Plans.

Policy 41: Provide services and personnel necessary to maintain community order and public safety.

Action 41a: Maintain a force sufficiently staffed and deployed to sustain a four-minute maximum emergency response 70 percent of the time.

Action 41b: Continue programs such as Neighborhood Watch and Merchant Alert, which improve communication with neighborhood organizations and community merchants.

Action 41c: Identify changes to current laws and ordinances or create new ones to help carry out crime prevention strategies.

Action 41d: Identify changes to current laws and ordinances or create new ones to help carry out crime prevention strategies.

Action 41e: Require approaches to crime prevention to be designed into new buildings.

Implementation of the identified policies and action programs would ensure the adequate provision of police services to avoid significant impacts.

Q. FIRE

1. Setting

Fire Hazards

During the 1989-1990 fiscal year, the Mountain View Fire Department responded to 4,170 total calls. The 4,170 calls consisted of 177 hazardous materials emergencies, 198 hazardous conditions (i.e., down electric lines, gas leaks, etc.), 295 fire calls, 1,142 non-emergency calls (i.e., trapped pet, domestic assistance, etc.) and 2,358 rescue calls. Fifty-seven of the 295 fire calls were residential fires. On an average the City responds to approximately 4,300 calls per year with approximately five percent of the calls being fire related.

RESIDENTIAL FIRES IN MOUNTAIN VIEW

1989-1990 Fiscal Year

Structure	Number of Fires	Estimated Property Damage
Single-Family Residence	20	$ 53,320
Duplex Fires	2	241,000
3-6 Unit Dwellings	2	500
6 Unit Dwellings	1	3,050
7-20 Unit Dwellings	15	238,225
Over 20 Unit Dwellings	17	102,750
Total	**57**	**$638,845**

Source: Mountain View Fire Department, 1990.

The demand for Fire Department services, as characterized by fire and rescue calls, often reflects neighborhood demographics. During the 1989-1990 fiscal season, 60 percent of service calls were medical related. This type of call tends to occur in neighborhoods with a higher senior citizen population.

Fire Prevention

Mountain View's Fire Department consists of approximately 100 people in various divisions, including Administration, Emergency Services, Communications, Hazardous Materials, Fire Prevention and Fire Suppression. Since 1972, the Department has maintained an adequate force

of 60 firefighters with 19 firefighters per shift. Generally, the City provides one fire fighter for every one thousand residences. There are presently 60 firefighters to serve a population of 67,000 persons.

The staff number should reflect the area need. For example, areas with a greater concentration of buildings under 5,000 square feet require fewer firefighters than those areas with a large number of buildings over 5,000 square feet. Staffing needs can be affected by land use. Although it is not typically a determining factor, commercial and industrial areas tend to have a higher fire load than do residential areas. If the residential uses are concentrated in mid-and high-rise buildings, the fire problem is increased and additional equipment and staff may become necessary. Other fire prevention devices incorporated into buildings also reduce the number of firefighters needed to suppress a fire (i.e., fire retardant roof, fire retardant walls and floors, sprinklers, etc.) (Martin, 1991).

The Uniform Fire Code establishes maximum levels of risk and identifies resources needed to address fire hazards. Acceptable risk is defined by Mountain View in the Fire Protection Master Plan. The Fire Code emphasizes fire prevention, including the use of nonflammable construction materials, automatic alarms and sprinkler systems, and a diligent building inspection program. The Fire Department also reviews building plans, as part of the Site Plan and Architectural Review (SPAR) process. This emphasis on improving fire safety through building design and construction reduces risks of personal and property damage, and shifts a good deal of the burden to private developers.

Mountain View provides fire protection from four fire stations. The Fire Department maintains an average response time of less than four minutes. The recent addition of a new Computer Aided Dispatch System in the Police/Fire Building has reduced response times and increased efficiency by electronically monitoring the status and location of emergency personnel on a 24-hour basis. In addition, the City is aligned with County-wide and State-wide Mutual Aid and with Palo Alto for Automatic Aid, during disasters which exceed local response capability.

The first unit will respond to the scene within 4 minutes of alarm 80 percent of the time, and all units will be on the scene within 5.5 minutes. For medical emergencies, response-time goal is three minutes 90 percent of the time. For the north of Bayshore area, response time for fires is six minutes 80 percent of the time and eight minutes for all units. For medical calls north of Bayshore, the response time is three minutes 90 percent of the time, and a response within five minutes 100 percent of the time.

The location, address and equipment at each of the stations is presented in Table 27. The City is considering adding a fifth fire station in the North Bayshore area.

All six fire engines were replaced in 1990. In addition, a new tiller truck (ladder truck) was added to the vehicle inventory for a total of two tiller trucks. Mountain View is also adopting changes to the 1991 Uniform Fire Code. A new fire station is planned to be constructed in the next fiscal year. Some of the programs in progress include portable difibrilators and a new Records Management System (Martin, 1991).

TABLE 27

STATION NUMBER	ADDRESS	STATION EQUIPMENT
Station No. 1	997 Villa Street	One Engine One Rescue One Battalion Chief
Station No. 2	160 Cuesta Drive	One Engine
Station No. 3	301 North Rengstorff	One Engine
Station No. 4	229 North Whisman	One Engine One Truck One Reserve Engine One Hazardous Materials Unit

NAS Moffett Field

NAS Moffett Field has a fire protection system consisting of 58 staff, three engines, three crash trucks, and one rescue unit. The City's Fire Department also provides fire services to the base and to the NASA Ames Research Center in the event that an incident exceeds Moffett's capabilities. NAS Moffett Field also participates in the Santa Clara County Local Mutual Aid Plan, providing special assistance for airplane crashes, flammable liquid fires, and brush fires.

Lifelines

Mountain View's lifelines (emergency facilities) include most public buildings, especially the Municipal Operations Center, El Camino Hospital, all Fire Stations, Police/Fire Administration, and the Emergency Operations Center. Many other buildings are included because they are used as disaster shelters.

2. Impacts

The proposed General Plan Land Use Map changes are not anticipated to generate a significant demand for fire protection services in the area of Evelyn Avenue and the Old Mill Site. In accordance with the proposed amendments to the text of the General Plan, the City is considering rezoning four commercial and industrial areas to residential uses, and promoting housing on three additional sites. Residential redevelopment of these seven sites could result in a greater number of fire calls, particularly, for high density residential development.

Residential redevelopment of these seven sites would further increase water usage in the City, particularly in areas where water usage is presently minimal (i.e., vacant parcels). Not only is an adequate domestic water supply and pressure necessary, but the ability to suppress fires relies

on adequate fire flows. Future reductions in the water supply could potentially affect the City's ability to provide adequate fire flows for all new development.

Development of new residences could impact the provision of fire protection services, particularly in the Whisman planning area. Fires in high density residential complexes accounted for most of the damage and expense resulting from residential fires in 1988-1989. As a result, additional services may be necessary in residential areas at greater risks. Some resources from Fire Stations #1-3 may need to be relocated to Fire Station #4 in the Whisman area in order to protect a maximum of over 2,500 new dwelling units.

More firefighters may be needed if the development of medium- and high-density residential uses in Mountain View will result in an increased demand for service, especially in the area of emergency medical services and fire service areas. The use of built-in protection required by City Code will reduce the fire hazard, but a significant increase in emergency medical demand could create a need for additional staffing.

The General Plan Land Use Map changes and future rezonings are anticipated to result in significant impacts to fire protection services.

3. Mitigation

Implementation of the following Environmental Management Chapter policies and action programs would reduce significant impacts to fire protection services in Mountain View.

Policy 35: Minimize property damage, injuries, and loss of life due to fire.

Action 35a: Maintain a continuing program of inspections and site plan review.

Action 35b: Improve the effectiveness of fire prevention programs through continued public education and code enforcement.

Action 35c: Use educational outreach programs to create a community consciousness of the need to improve fire safety.

Action 35d: Emphasize private responsibilities for fire prevention and protection in community awareness programs.

Action 35e: Adopt and enforce ~~innovative~~ proactive fire and life-safety codes that require property owners to share in the responsibility for fire protection services.

Action 35f: Review development plans to ensure there is adequate access for emergency vehicles.

Action 35g: Develop weed abatement programs that reduce the risk of fire, while maintaining habitat value for native plants and animals.

Policy 36: Maintain personnel and equipment necessary to extinguish fires.

Action 36a: Continue to evaluate and update the Fire Protection Master plan. That Plan establishes publicly defined acceptable risks.

Action 36b: Require that buildings in the city provide specialized fire protection systems that reduce the risk of fire to acceptable standards.

Action 36c: Maintain enough firefighters per shift to meet publicly accepted levels of risk and response expectations.

Action 36d: Continue to participate in countywide and Statewide mutual aid and automatic aid programs with neighboring cities.

Action 36e: Continue to cooperate with neighboring cities to improve efficiency and cost savings in support services.

Action 36f: Maintain a water supply and water pressure than can meet potential firefighting demands.

Implementation of the identified policies and action programs would reduce potentially significant fire protection impacts to a non-significant level.

R. SCHOOLS

1. Setting

Fourteen public schools occupy roughly 150 acres in Mountain View. The City has contributed funds to develop many of these school sites as neighborhood playgrounds with baseball fields, tot lots, and tennis and volleyball courts. The Mountain View School District, located to the south, has a total of four K-5 elementary schools (see Table 28): Bubb, Castro, Landels, and Slater. The Whisman School District, located to the north, has a total of three K-4 elementary schools: Monta Loma, Theuerkauf, and Whisman. The Springer Elementary School, which is located within the Los Altos Elementary School District, serves approximately 200 to 250 Mountain View students from the southwest corner of Mountain View. An additional 100 to 150 students from the extreme westerly edge of the City, between El Camino Real and Central Expressway also attend Los Altos School District schools.

The Mountain View School District has one Middle School for the area, Graham. The Whisman School District has one Middle School, Crittenden, in the area as well. The Mountain View-Los Altos School District has two High Schools for the area: Mountain View High School and Los Altos High School. Foothill and De Anza College are also nearby the Mountain View area to serve the Mountain View community.

There are 29 private and parochial schools in or close to Mountain View.

Mountain View School District Enrollment Forecasts

The Mountain View School District's overall enrollment forecasts are anticipated to steadily increase from 2,522 students in 1988-1989 to between 3,014 and 4,498 students by the year 2003-2004. Each school within the district has a slightly different forecast. For instance, Bubb had an enrollment of 461 students during the 1988-1989 academic year, and is expected to increase its enrollment to 630 students in 1997-1998. A decline in enrollment is expected to 520 students in the year 2003-2004.

Castro had an enrollment of 516 students in the 1988-1989 academic year, and according to forecasts is expected to increase steadily to 680 students by the year 2003-2004. Landels had a reported enrollment of 385 students during the 1988-1989 academic year. According to forecasts, Landels is expected to increase to 450 students in 1997-1998, with a decline in enrollment to 420 students by the year 2003-2004.

Slater had an enrollment of 400 students during the 1988-1989 academic year. In 1991-1992, Slater is expected to have a slight increase in students to 460. During 2003-2004, a decline to 320 students is expected. In 1988-1989, Graham had an enrollment of 626 students. By 2000-2001, Graham is anticipated to have a significant increase to 970 students, with minimal enrollment changes anticipated by the year 2004-2004.

TABLE 28

MOUNTAIN VIEW PUBLIC SCHOOLS

Name of School	School District	Grade Level	Address of the School
Bubb Benjamin	Mountain View	K-5	525 Hans Avenue
Castro Mariano	Mountain View	K-5	505 Escuela Avenue
Landels Edith	Mountain View	K-5	115 West Dana Street
Slater Kenneth N	Mountain View	K-5	325 Gladys Avenue
Monta Loma	Whisman	K-5	460 Thompson Avenue
Theurekauf	Whisman	K-5	1625 San Luis Avenue
Whisman	Whisman	K-5	310 Easy Street
Springer	Los Altos	K-6	1120 Rose Avenue
Graham	Mountain View	6-8	1175 Castro Street
Crittenden	Whisman	6-8	1701 Rock Street
Mountain View	Mountain View Los Altos	9-12	3535 Truman Avenue
Los Altos	Mountain View Los Altos	9-12	201 Almond Avenue
Shoreline	Mountain View Los Altos	9-12	1299 Bryant Avenue
Adult Education	Mountain View Los Altos		415 E. Middlefield Road
Foothill	Foothill-De Anza	College	12345 E. Monte Road LAH
De Anza	Foothill-De Anza	College	21250 Stevens Creek Blvd.

Whisman School District Enrollment Forecasts

The Whisman School District's overall enrollment forecasts are anticipated to steadily increase from its 1,875 students in 1988-1989 to a approximately 2,387 students by the year 2003-2004. Enrollment forecasts for each school within the Whisman School District are provided below.

Monta Loma is expected to have an enrollment of 427 students during the 1991-1992 academic year. According to forecasts, Monta Loma's enrollment will increase to 445 students in 1994-1995. If Moffett Field is closed, a decline of 105 students is expected by 1993-1994. During 1994-1995, an increase of two students is likely to occur.

Theurekauf is forecasted to have an enrollment of 380 students during the 1991-1992 academic year, with an anticipated increase to 460 students in 1994-1995. If Moffett Field is closed, a decline of 44 students is forecasted by 1993-1994. Whisman is expected to have an enrollment of 368 students in 1991-1992, with a forecasted increase in enrollment to 460 students in 1994-1995. If Moffett Field is closed, there will be a decline of 44 students by 1993-1994. Crittenden is forecasted to have an enrollment of 628 students in 1991-1992, and is expected to increase to 746 students in 1994-1995. If Moffett Field is closed, enrollment will decrease by 149 students by 1993-1994.

Mountain View-Los Altos High School District's and Los Altos Elementary School District Enrollment Forecasts[27]

The Mountain View Los-Altos High School District has 27.8 students per classroom at both of the schools in the district. The Los Altos High School is presently operating below capacity. Los Altos High School enrollment was anticipated to increase to 1,800 students over the last 10 years. However, current enrollment is only 1,412 students. Due to the fairly stable population estimates in the area, the District does not anticipate the construction of any additional schools, nor does it plan to close existing schools. The District is presently repairing the older school facilities. In May, 1991, the Board of Trustees awarded a contract for the completion of an Educational Facilities Master Plan to develop provisions to improve school facilities.

The Los Altos Elementary School District consists of six elementary schools and two junior high schools. According to the Los Altos Elementary School District, the Almond Elementary School is presently at capacity. However, the School District superintendent has indicated that approximately 30 additional students could be accommodated at present within the school district, if attendance area boundaries were revised. Projected enrollment for the entire Los Altos Elementary School District for the 1990-1995 period indicates that attendance will increase by approximately 400 students, without any major new residential projects. All other schools within the district are also close to capacity. No buses are provided for this district.

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[27] The information provided in this section is based upon school information contained in the Final Environmental Impact Report for the Old Mill Area Precise Plan, August, 1991.

One of the two junior high schools is the Egan Junior High School. Egan Junior High has a current enrollment of 400 students, and a capacity for 450 to 500 students. Based upon long-term enrollment projections, the enrollment at Egan Junior High is not anticipated to exceed 450 students. The second junior high school, Block Junior High, also currently operates under capacity. This facility has an enrollment of 300 students and capacity for 400 students.

The District is also in the process of building a New Adult Education Facility. This school and the schools from the Foothill-De Anza District provide adults additional educational opportunities.

Student Generation Rates

Student generation rates have declined since the 1970s. The generation ratios in the Whisman School District are calculated as 19.8 students per one hundred single family homes, and 7.3 students per one hundred multi-family dwellings. When new commercial and industrial development occurs, this also affects the school districts. According to the Whisman School District Technical Report, two million square feet of new commercial and industrial development is anticipated to be added to the District's area during the next 10 years. This growth will generate over 2,500 new jobs. Five percent of the employees (125 employees) are likely to live within the District[28].

In the Mountain View School District, the ratios are approximately 26 students per one hundred single family homes and five students per one hundred multi-family dwellings. According to the Mountain View School District Technical Report, over 1.2 million square feet of new commercial and industrial construction is expected to be added within the District over the next 15 years. According to the School District demographic reports, this growth will create 2,500 new jobs, and 17% of these employees will likely live within the District.

Births

The number of births affects future kindergarten enrollments. In 1987, the Bubb, Castro, Landels, Slater, and Graham areas had 139, 252, 156, 121 births respectively. Although 630 children were born in the Mountain View School District in 1987, birth rates in this area are expected to decline to 520 students by the year 2004-2005. Monta Loma, Theuerkauf and Whisman attendance areas had 117, 172, and 122 births respectively, during the 1989 year.

Children per Household

There are three primary factors that determine the number of children per household. Since the cost of housing has increased some families share places to live with other families to save money, thereby generating more children in each residence. Secondly, apartment complexes and the people who live in apartments tend to have fewer children than do single family residences. Finally, Moffett Field personnel are usually stationed at Moffett Field for a few years, and are

[28] Based upon data gathered by the Metropolitan Transportation Commission to determine the number of local employees generated by new non-residential construction within the same area as a given school district.

then transferred to other bases, creating a fluctuating student population in Mountain View area. The closure of Moffett Field is anticipated to increase the number of students attending Mountain View schools, because the influx from students moving to and away from Moffett Field will not occur.

A trend in the construction of multi-family residences rather than single family residences also affects student enrollment. In the past, one-third of the new residential development in Mountain View were single family households. Today single family residences constitute 10 to 15 percent. Single-family dwellings in Whisman are less than 10 percent of the residential development.

Student Generation Rates per Household

The multiple family dwellings (low rise duplexes, townhouses, condominiums, and apartments) have fewer children per residence than single family residences as described below:

Type of Dwelling Unit	K-8 Students/New Dwelling Units
- Single Family Units	.198
- Multi-Family	.073
Owner-Occupied	.056
Rental	.117

2. Impacts

Mountain View has adequate school facilities within the City boundaries. While the 1991 General Plan *Community Development Chapter* and *Residential Neighborhoods Chapter* include goals, policies, and action programs to promote housing opportunities, it also recognizes the need to provide adequate school facilities for the existing and future Mountain View population.

General Plan Amendments

The proposed General Plan Land Use Map change to allow residential development of the Evelyn Avenue Corridor Study Area ("Site 8") would result in approximately 365 units with a maximum population of 777 persons. Assuming these 365 units are multi-family dwellings, this General Plan amendment would generate a student population of about 27 students. These students would affect elementary, junior high, and high schools within the Mountain View School District. The slight increase in student enrollment as a result of this General Plan amendment is not anticipated to be significant, since many of the schools anticipate a decline in student enrollment by the year 2003 and 2004.

The approved General Plan Land Use Map change would allow the development of 720 dwelling units on the Old Mill Site ("Site 3"). These units would generate an estimated maximum population of 1,534 residents. It was previously estimated that this project would generate between 21 and 26 new high school students for the Mountain View-Los Altos High School District (assuming 0.033 high school students per multi-family dwelling unit). This project was anticipated to generate 65 to 78 new elementary school students (assuming a rate of 0.1 students

per household). The additional elementary students generated by the Old Mill project would exacerbate an existing need for elementary school facilities.

There are potential safety issues for elementary school students attending schools within the Los Altos School District, since the district does not provide busing. Students that walk or ride bicycles to schools in this district would need to cross San Antonio Road and El Camino Real from the Old Mill Site. Potential pedestrian/vehicular conflicts could, therefore, occur. Possible measures to reduce these conflicts may include parents driving their children to and from school and children taking a public bus to school. Future development (including the Old Mill Project) could provide crossing guards or shuttle service from the project to and from elementary schools in this district.

Residential Redevelopment Sites

Future rezonings and policy changes to promote residential development on the Evelyn Avenue Site ("Site 8"), Old Mill Site ("Site 3"), Del Medio Site ("Site 1"), Shoreline Site ("Site 5"), the Downtown ("Site 9"), the El Camino/El Monte Site ("Site 11"), and El Camino Strip Site ("Site 10") would result in an estimated maximum population of 5,511 residents. Future rezonings of these potential residential redevelopment sites would result in a total of 2,587 future housing units. Assuming that these units are multi-family dwellings, it is estimated that approximately 189 new students would attend Mountain View schools. This increase in student enrollment is potentially significant, if anticipated declines in student enrollment do not otherwise occur, and if the schools operate at or above capacity.

3. Mitigation

The following Community Development Chapter policies and action programs would ensure the adequate provision of public facilities and services.

Policy 18: Ensure that Mountain View's public facilities are easily accessible and provide friendly, efficient services to city residents.

Action 18a: Continue to locate major public facilities in a central location Downtown near transit and adequate parking.

Action 18b: Conduct public survey before building major new public facilities.

The following Community Development Chapter policies and action programs would ensure adequate school facilities in Mountain View.

Policy 19: Work with the school districts to retain public school sites.

Action 19a: Maintain Zoning that supports the reuse of closed school sites for similar types of educational and quasi-public uses.

Action 19b: Cooperate with the school districts in providing information on demographic changes that may lead to new school closures or the need for new schools.

Action 19c: Continue to find innovative ways for the City to use school facilities and grounds with the school districts.

Policy 21: Encourage the elementary school districts to provide busing for their students.

Action 21a: Monitor elementary school district busing plans.

Action 21b: Communicate the City's policy (Policy 21) to the elementary school districts when decisions on busing are under consideration.

Additional mitigation measures to reduce significant impacts on schools include the following.

- California Government Code Section 65996 specifies the acceptable method of mitigating impacts related to the adequacy of school facilities. These specific methods are initiated and implemented by the affected school districts. Future developers will be required to pay $1.62 per square foot of habitable space and $0.40 per square foot of commercial space (or the rate at the time of development), as required by law, to offset the costs of new school facilities.

- On-going school operational costs are paid for by property taxes. A portion of the annual property taxes received from all of the properties within each school district, including the seven future rezoning sites, are distributed back to the school districts, after being supplemented (as needed) to meet the state guaranteed per student revenue allocation.

- The City has the authority to deny an application for the seven future rezonings that would allow high density residential use, on the basis of inadequate school facilities (Mira Development Corporation v. San Diego, Fourth District, 1988).

Implementation of these policies and action programs would further ensure that future development does not impact schools in Mountain View.

S. PARKS & RECREATIONAL FACILITIES

1. Setting

Recreational and Social Programs

The City's recreation facilities provide an opportunity for residents to meet a portion of their exercise and social needs. The City offers activities and classes at Cuesta and Rengstorff Community Parks, Crittenden and McKelvey athletic fields, Deer Hollow Farm, the Mountain View Sports Pavilion, the Senior Center, and the Mountain View Community Center. Activities offered at these facilities include youth and adult sports; preschool, elementary, and teen classes; senior citizen classes and special events, and environmental education activities for youths and their families. Two of the most popular facilities are Deer Hollow Farm and the Mountain View Sports Pavilion. Deer Hollow Farm is a 10 acre facility located within the Rancho San Antonio Open Space Preserve, in the hillsides south of Los Altos Hills. The farm serves as an environmental education center, working farm, and nature preserve for Northern Santa Clara County residents. The Mountain View Sports Pavilion is a gymnasium located at the corner of Miramonte Avenue and Castro Street. The Parks and Recreation Department sponsors a variety of recreational programs and classes for children and adults at the Pavilion.

Two theaters are located in Mountain View. Mountain View's new Center for Performing Arts, constructed as part of the new Civic Center complex, opened in 1991. Shoreline Amphitheater attracts concerts and other large-scale entertainment events from around the world. The Amphitheater is located on Shoreline Boulevard in the North Bayshore planning area. The Amphitheater seats 15,000 to 20,000 concert-goers and is managed as a regional concert facility.

Other important cultural arts programs in Mountain View include the Arts/Music in Action Programs and special events. The City subsidizes the Arts/Music in Action Programs, which are administered by the Community School of Music and Art. The Arts in Action Program places art instructors in Mountain View schools to teach students ethnic art and techniques of the Masters. Similarly, the Music in Action Program teaches music appreciation courses. Special events are planned and coordinated through the Recreation Division of Community Services Department to reflect a variety of cultural interests.

Urban Trail System

Stevens Creek flows from the Santa Cruz Mountains, through the Santa Clara Valley to San Francisco Bay. For seven miles the Creek passes through Mountain View and eventually becomes the eastern boundary of Shoreline. Portions of the creek are narrow and traverse developed areas, while other portions of the creek create a wide wildlife and visual corridor. Mountain View owns approximately 50 acres along the creek. PG&E and the Santa Clara Valley Water District own other portions of the property and maintain easements over the remainder. Right now, public access is limited.

The City is developing plans for a continuous trail system beginning at Shoreline and eventually linking with trails in the hillsides of Santa Clara County and the Bay Trail. The segment north of the Bayshore Freeway is being constructed in 1990-1991. The City is currently studying trail

alignments and methods to overcome obstacles (flood control features, surface streets) for the remainder. The City is also looking for outside funding sources.

Existing Parks and Recreational Facilities

The National Recreation and Parks Association establishes open space standards which many jurisdictions use as guidelines to quantify and evaluate local open space needs. A description of these standards is included in the *Conservation of Resources Background Report* for the 1991 General Plan.

The inventory of City-owned open space includes one community garden, seven mini parks, ten neighborhood parks, two community parks, and one regional park (see Table 29 and Figure 19). There are approximately 95.2 acres of local serving parks in the City. The regional park, *Shoreline at Mountain View*, provides over 654 acres of open space and passive recreational uses in the City. Another regional park is planned along Stevens Creek. In total, the City provides 749.2 acres of open space for a population of 66,400 residents, or 11.28 acres per one thousand residents.

1. North Bayshore Area

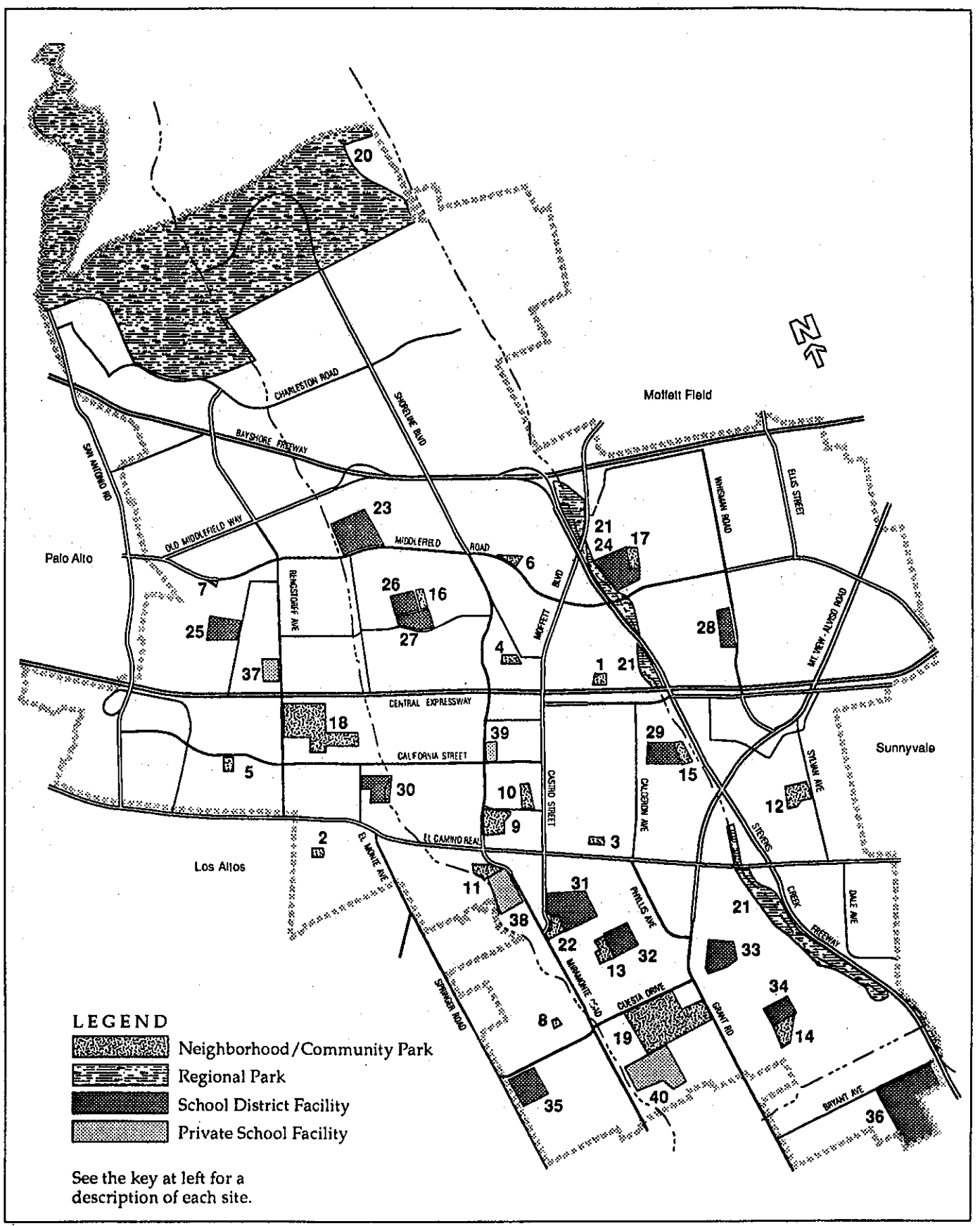
The North Bayshore Area is located north of U.S. Highway 101, bounded by the Palo Alto Baylands to the west, Moffett Field on the east, and two Leslie Salt evaporation ponds to the north. Based upon National Recreation and Parks Association standards (NRPA), the North Bayshore Area provides sufficient open space and recreational opportunities to serve the residents, employees and visitors to this area.

The Bay, Salt Ponds, and Marshlands

Shoreline is surrounded by other open space areas: the salt evaporation ponds, Crittenden Marsh on the east, Moffett Field to the southeast, and the Palo Alto Flood Basin to the west.

Leslie Salt Company's two salt evaporation ponds (over 1,000 acres) are important ecological resources. They are surrounded by sloughs, tidal marshes and dikes, which together provide resting, feeding, and nesting areas for a variety of species. The salt ponds have been identified for acquisition by the U.S. Fish and Wildlife Service as part of the proposed 20,000 acre expansion of the San Francisco Bay National Wildlife Refuge. The Wildlife Service has acquired or otherwise controls 18,219 acres of refuge lands in south San Francisco Bay within an approved 23,000-acre Wildlife Refuge boundary. The Wildlife Refuge consists of wetlands, salt ponds, and mudflats along the south end of the Bay, including 3,700 acres in Santa Clara County. The Refuge is managed by the U.S. Fish and Wildlife Service to protect the native plant and animal species in this estuarine habitat, and to provide recreational and educational opportunities. Santa Clara County has endorsed the completion of the Wildlife Refuge and city and County efforts to enhance and enlarge the wetlands acreage. The City of Mountain View supports the U.S. Fish and Wildlife service in expanding the San Francisco Wildlife Refuge.

Marshlands within the City's limits adjacent to the salt evaporation ponds, also contribute to the wildlife habitat in the North Bayshore Area.



PARKS, SCHOOLS, AND RECREATIONAL FACILITIES FIGURE 19

KEY

Community Garden
1 Willowgate Garden

Mini-Parks
2 Blackfield Park
3 Fairmont Mini Park
4 Jackson Park
5 Klein Park
6 San Vernon Mini Park
7 Thaddeus Mini Park
8 Varsity Park

Neighborhood Parks
9 Eagle Park
10 Pioneer Park
11 McKelvey Park
12 Sylvan Park
13 Bubb Park
14 Cooper Park
15 Landels Park
16 Stevenson Park
17 Whisman Park

District Parks
18 Rengstorff Park
19 Cuesta Park

Regional Parks
20 Shoreline at Mountain View
21 Stevens Creek Trail (proposed)

City-Owned Recreation Facilities
22 Mountain View Sports Center

Public School Facilities
23 Crittenden Junior High School
24 Whisman School
25 Monta Loma School
26 Theuerkauf School
27 Stevenson School
28 Slater School
29 Landels School
30 Castro School
31 Graham Junior High School
32 Bubb School
33 Huff School
34 Cooper School
35 Springer School
36 Mountain View High School

Private School Facilities
37 St. Athanasius School
38 St. Joseph School/South Bay Christian Center
39 Seventh Day Adventists School
40 St. Francis High School

PARKS, SCHOOLS, AND RECREATIONAL FACILITIES TABLE 29

The City Council adopted a set of land use goals for 220 acres of Shoreline in March, 1990. The City is now considering alternative land uses for this acreage, including minimal to moderate landscape treatment, a formal arboretum, Air and Space Center, model farm, and other active sports and recreational facilities.

Landfill Areas

Two major landfills which are potential expansion areas for Shoreline are expected to be closed by 1993. One area (100 acres) is south of Shoreline, between Permanente Creek (west), Amphitheater Parkway (south) and Shoreline Amphitheater (east). The second area includes a portion of the 70-acre Ferrari landfill, east of Shoreline near Crittenden Lane. Previous landfill area cannot be used for much other than open space.

2. Whisman Area

The Whisman area is located in the northeast portion of Mountain View, bounded by Highway 101, Route 85 and Route 237. Currently, the only parks and open space in this planning area are provided at Whisman Park, and the Whisman and Slater Schools. These sites provide recreational opportunities for the general community, and also accommodate youth and adult soccer, baseball, softball, tennis, and summer recreation playground programs. Mini parks totaling 1.75 to 3.5 acres are needed in this area to meet the NRPA standards.

3. Sylvan-Dale Area

The Sylvan-Dale area covers the southeast sector of the city, bounded by Route 237, Route 85, and Sunnyvale. Sylvan Park is located on the north side of El Camino, and serves as the major open space/recreation facility in the area. The park is widely used for summer recreation programs and by the neighborhood. Although Sylvan Park adequately serves the north side of El Camino, Route 85 and El Camino restrict access to the facilities for residents on the south. Residents on the southern side of El Camino have limited access to portions of Stevens Creek, and lack adequate public open space areas.

Most of the area south of El Camino Real is developed with large condominium and apartment projects which provide their own private open space facilities. These provisions reduce the need for public open space to some extent. For instance, about five years ago, the City required the developer of the 171-unit Cuernavaca subdivision (formerly the Cherry Chase Golf Course) to provide 2.3 acres of private on-site open space as a condition of subdivision approval.

An additional mini park to the south of El Camino, or improved access to the future Stevens Creek park chain, would improve the supply of public open space and the identity of the neighborhood.

4. Stierlin Area

The Stierlin area is located in the north central portion of the city, bounded by the Bayshore Freeway, Route 85, Central Expressway, and Permanente Creek. This area contains adequate parks and recreational facilities. Existing open space and recreation facilities in this area include

Rex Manor (which is built on Hetch Hetchy property leased to the City), San Veron, and Jackson Mini parks, Stevenson School Park, and Crittenden Athletic Field. These sites typically accommodate general public use, as well as softball, football, soccer, tennis lessons, and summer recreation programs.

5. Rengstorff Area

The Rengstorff area is located on the west side of the city, bounded by the Bayshore Freeway, Permanente Creek, Central Expressway, Middlefield Road, and Palo Alto. No public parks or open space are provided within this high density residential area, nor does the City own any vacant land suitable for park development. There are no potential sites for a neighborhood park of six to 10 acres. However, locations exist for potential mini parks of 1.5 to 2.5 acres.

6. Thompson Area

The Thompson area is bounded by Central Expressway, San Antonio Road, Middlefield Road, and Rengstorff Avenue. This neighborhood is served by Monta Loma School Park and Thaddeus Mini park, both of which are used extensively by local residents. Monta Loma Park also provides a summer recreation program and facilities for Little League baseball games. In the Thompson area, an additional mini park is necessary to meet the goals established by the National Recreation and Parks Association.

7. San Antonio Area

The San Antonio area is located in the southwest portion of the city, bounded by Central Expressway, Palo Alto, El Camino Real, and Escuela Avenue. Klein Mini Park and Rengstorff District Park are located in this area. Rengstorff Park serves the entire city, as well as the immediate neighborhood. Klein Park is a neighborhood facility. Although the overall neighborhood is adequately served by existing parks, the residential area, west of San Antonio Road does not have any park or open space facilities (except for Monroe Mini Park in Palo Alto). Access to other city facilities is limited by major arterials and commercial development. At the same time, development intensity is increasing in the area, particularly at the San Antonio Center and the Old Mill.

Two acres of additional mini parks and an additional neighborhood park would be necessary to serve this area in conformance with the NRPA standards.

8. Central Area

The Central area includes the Downtown and original Mountain View historic area. This area encompasses the land from Rengstorff to Route 85. A variety of parks serve this area, including: Castro, Pioneer, Eagle, Landels, and Fairmont Parks. Activities at these facilities include swimming, teen activity clubs, soccer, softball, outdoor basketball, community celebrations, and summer recreation programs.

Many of the Central City facilities, such as Eagle and Pioneer Parks also serve the entire community. Castro and Landels Schools, at the western and eastern edges of the area, provide

neighborhood parks. Vacant City-owned parcels (remnants from the widening of Shoreline Boulevard) could be developed with urban-oriented facilities, such as a rose garden, Sister City garden, or other special amenities.

Although several city-wide park and open space facilities are located in the Central area, additional special amenities for neighborhood residents should be considered.

9. Miramonte Area

The Miramonte area comprises several neighborhoods generally located south of El Camino and west of Grant Road. This area is served by the Bubb, McKelvey, Graham, Blackfield, and Springer Neighborhood Parks, and Varsity Mini Park. Although Cuesta Park is a district facility, it also serves the neighborhoods in the Miramonte Area. St. Joseph's School and St. Francis High School are located in this area and provide for limited open space needs. Public access to these schools is restricted since they are private institutions.

Although the Miramonte area has several parks and recreation facilities, mini parks totalling up to four acres and a neighborhood park of five acres are necessary to serve the extreme southwest portion of the area.

10. Grant Area

The Grant area is generally located in the southeast portion of the city, between Route 85 and El Camino Real, and Grant Road. Parks and open space in this area include Cooper and Huff Schools, and Mountain View High School. In addition, Cuesta Park serves the neighborhoods in this area.

Generally, the park and open space facilities in this area are sufficient, provided the open space at Huff and Cooper Schools and Mountain View High School continues to be available. However, the most southerly portion of this area, near Mountain View High School, is not currently served by a neighborhood park or mini park. Development of the Stevens Creek trail system would help meet open space needs in this areas. Sleeper Park was purchased by the Water District for flood control purposes, but not developed as such. Today, it is just a grassy area between 2 houses, next to Stevens Creek. This could become the park and meet the demands of the area.

An additional mini park is necessary to serve residents in the most southerly portion of the Grant Area.

Table 30 summarizes the existing public park deficiencies for each planning area, in terms of acreage.

TABLE 30

DEFICIENCIES IN PUBLIC PARKS AND RECREATIONAL FACILITIES IN MOUNTAIN VIEW PLANNING AREAS

Based on National Parks and Recreation Association Standards[1]

Planning Area	Estimated Deficiency (acres)
North Bayshore Area	0
Rengstorff	1.5 - 2.5
Stierlin	0
Whisman	1.75 - 3.5
Sylvan-Dale	0.5
Central	0
San Antonio	4.0
Miramonte[2]	9.0
Thompson	0.5
Grant	0.5
Total	**17.75 - 20.5**

1 National Recreation and Parks Association Standards recommend a total of 6.25 to 10.5 acres of parks and recreational facilities per 1,000 residents.

2 Although sufficient park facilities exist in the planning area, a portion of the planning area is underserved.

2. Impacts

Mountain View has considerable open space and recreational facilities, yet several areas remain underserved. Although there are few undeveloped parcels, the City may be able to acquire vacant or under utilized parcels through purchase or dedication under the Park Lands Dedication Ordinance. Another consideration is that the demographic conditions of the City are fluctuating with projected population decreases in the Miramonte and Grant areas, and significant population increases in the Central areas. While the 1991 General Plan *Community Development Chapter* and *Residential Neighborhoods Chapter* include goals, policies, and action programs to increase high density residential development, it also recognizes the need to provide adequate open space resources and recreational facilities for the existing and future Mountain View population. In addition, the General Plan contains goals, policies, and action programs for the provision of safe and convenient pedestrian and bicycle access to existing open space areas.

General Plan Amendments

The proposed General Plan Land Use Map change to allow residential development of the Evelyn Avenue Corridor Study Area ("Site 8") would result in a maximum population of 777 persons. These 777 persons would generate a demand for approximately 4.8 acres of open space (assuming a rate of 6.25 acres per 1,000 residents).

The approved General Plan Land Use Map change would allow the development of 720 dwelling units on the Old Mill Site ("Site 3"). These units would generate an estimated maximum population of 1,534 residents. The City previously determined that a new local park would be needed to serve these residents.

Residential Redevelopment Sites

Future rezonings and policy changes to allow residential development on the Evelyn Avenue Site ("Site 6"), Old Mill Site ("Site 7"), Del Medio Site ("Site 8"), Shoreline Site ("Site 12"), the Downtown ("Site 15"), the El Camino/El Monte Site ("Site 17"), and El Camino Strip Site ("Site 18") would result in an estimated maximum population of 5,511 residents. These residents would generate a demand for approximately 34 acres of new open space resources.

3. Mitigation

The following Community Development Chapter policies and action programs would ensure the adequate provision of public facilities and services.

Policy 1: Establish a priority system for acquiring open space.

Action 1.a: Encourage comprehensive public participation in open space plans.

Action 1.b: Monitor demographic trends and analyze their effect on open space needs.

Action 1.c: Continue to use the National Recreation and Parks Association standards for evaluating open space demand at the neighborhood level.

Action 1.d: Use the Parks and Open Space Plan to identify neighborhoods with open space needs.

Action 1.e: Update the Parks and Open Space Plan every year to consider new residential opportunities.

Action 1.f: Maintain an inventory of vacant properties that could possibly be purchased and developed as public open space.

Policy 2: Acquire property for the establishment of open space resources as opportunities arise and funding sources permit.

Action 2.a: Explore the use of open space easements, long-term leases, cooperative agreements, and other cost-effective means of acquiring open space.

Action 2.b: Use Precise Plans and the design review process to require open space and recreational facilities in private developments.

Action 2.c: Review surplus school sites for purchase as open space.

Action 2.d: Use the park land dedication provisions of the City's subdivision ordinance to require that developers dedicate land or pay open space fees to the City for park and recreational purposes.

Action 2.e: ~~Review the required~~ Apply the Park Land Dedications or Fees Ordinance, ~~and pursue applying them~~ to all forms of residential development.

Policy 3: Develop a system of urban trails in Mountain View.

Action 3.a: Develop a trail along the banks of Stevens Creek.

Action 3.b: Encourage Sunnyvale, Los Altos, and Cupertino to develop a regional trail along their banks of Stevens Creek.

Action 3.c: Consider developing urban trails along the Hetch Hetchy rights of way and the old Southern Pacific rail line.

Action 3.d: Act as catalyst to encourage other South Bay jurisdictions to complete their sections of the Bay Trail.

Action 3.e: Build entry points, pathways, and bridges to link the urban trail system, and connect it with Shoreline at Mountain View.

Policy 4: Improve and expand wildlife habitats next to Shoreline.

Action 4.a: Ensure that any use on the completed landfill site south of Shoreline provides unobstructed views of the Bay.

Action 4.b: Support the U.S. Fish and Wildlife Service in expanding the San Francisco Bay Wildlife Refuge.

Action 4.c: Restore completed landfill areas in the North Bayshore for open space uses including upland habitat necessary to support adjacent salt marsh habitats.

Action 4.d: Develop a circulation plan to improve pedestrian and bicycle access to Shoreline.

Policy 5: Develop cooperative arrangements with school districts to enhance property in and around local schools for use as neighborhood parks and playgrounds.

Action 5.a: Plan and develop athletic facilities and playfields at Graham Middle School in cooperation with the Mountain View School District.

Action 5.b: Develop park and playground amenities at Slater School, in cooperation with the Mountain View School District.

Action 5.c: Pursue shared funding from the City of Los Altos and the Los Altos School District to upgrade Springer School grounds to a neighborhood park.

Action 5.d: Explore the joint use of St. Joseph School, for both public and private parking, playground, and athletic facilities.

Policy 6: Be sensitive to the need for privacy and security of neighboring residents when developing trails and other open spaces.

Action 6.a: Notify all residents within 300 feet of any proposed open space enhancement and involve them in the design and development of open space resources.

Action 6.b: Place signs at open space areas to show hours of use.

Policy 7: Continue to offer a range of recreational programs at the City's parks and recreational facilities.

Action 7.a: Conduct public opinion surveys to find the types of activities most residents prefer.

Action 7.b: Hold public hearings to gauge the open space needs and desires of neighboring residents.

Action 7.c: Draft a Recreation Element for the General Plan in coordination with the Parks and Recreation Commission.

Action 7.d: Facilitate adult and youth sports leagues and programs.

Action 7.e: Continue to conduct recreational and athletic programs tailored to the needs of specific user groups, such as aquatics, day camps, environmental education, and special-interest classes.

Policy 8: Use parks and recreation facilities to improve awareness and understanding of Mountain View's culture.

Action 8.a: Include cultural features such as Sister City gardens and historical markers in the design and development of City parks.

Action 8.b: Recruit individuals from all backgrounds to serve on the City's boards and commissions.

Action 8.c: Use the Performing Arts Center to present a diversity of cultural programs.

Policy 9: Provide opportunities for residents to participate in cultural arts events and programs.

Action 9.a: Use local publications and other media to survey the community's interests in cultural arts.

Action 9.b: Continue to organize junior theater productions.

Action 9.c: Sponsor and organize concert series and other performance events as opportunities arise.

Action 9.d: Use Arts-in-Action and Music-in-Action classes to offer art and music appreciation opportunities for youths.

Action 9.e: Establish a corps of volunteers to serve as docents at various cultural arts programs and facilities.

Policy 10: Encourage compatible uses in the City's open spaces.

Action 10.a: Develop natural areas, creeks, and Shoreline for low-intensity uses such as walking, jogging, and environmental education.

Action 10.b: Direct group activities, sport facilities, and appropriate ornamental landscaping to the City's urban parks system.

Policy 11: Protect designated public open spaces from redevelopment.

Action 11.a: Evaluate the potential of designating certain Shoreline Boulevard properties near Downtown for open space.

Action 11.b: Use the Public Facilities zoning district to preserve school district playgrounds in open space and work with other jurisdictions to achieve this objective.

In order to ensure the adequate provision of open space resources in the City, Mountain View could continue to acquire open space through the Quimby Act provisions. The Quimby Act allows cities and counties with park and recreation elements in their General Plans to require residential subdividers to dedicate land, or pay in-lieu fees for park or recreational purposes, as a condition of approval of final subdivision maps. The City's subdivision ordinance requires the dedication of three acres of park space per 1,000 residents of the new subdivision. The subdivider is required to make a cash payment equal to the value of the land,if a park or recreation facility is not located within the proposed subdivision, and the subdivision is within a one-mile radius of a park or recreation facility. In addition, single lot residential developers are also required to dedicate land, and/or pay a fee at the opetion of the City, for park or recreational opportunities.

Implementation of these policies and action programs would further ensure that future development does not significantly impact parks in Mountain View.

T. AIRCRAFT SAFETY

1. Setting

Federal Aviation Administration Part 77 Regulations

The Federal Aviation Administration (FAA) regulates development around civil and military airports through Part 77 Regulations, Objects Affecting Navigable Airspace. Part 77 Regulations establish standards for identifying obstructions (buildings, equipment, and vegetation) in navigable airspace and requirements for notice to FAA of land uses after these obstructions are identified. Both the FAA and the Navy review development adjacent to NAS Moffett Field.

Airport Land Use Commission

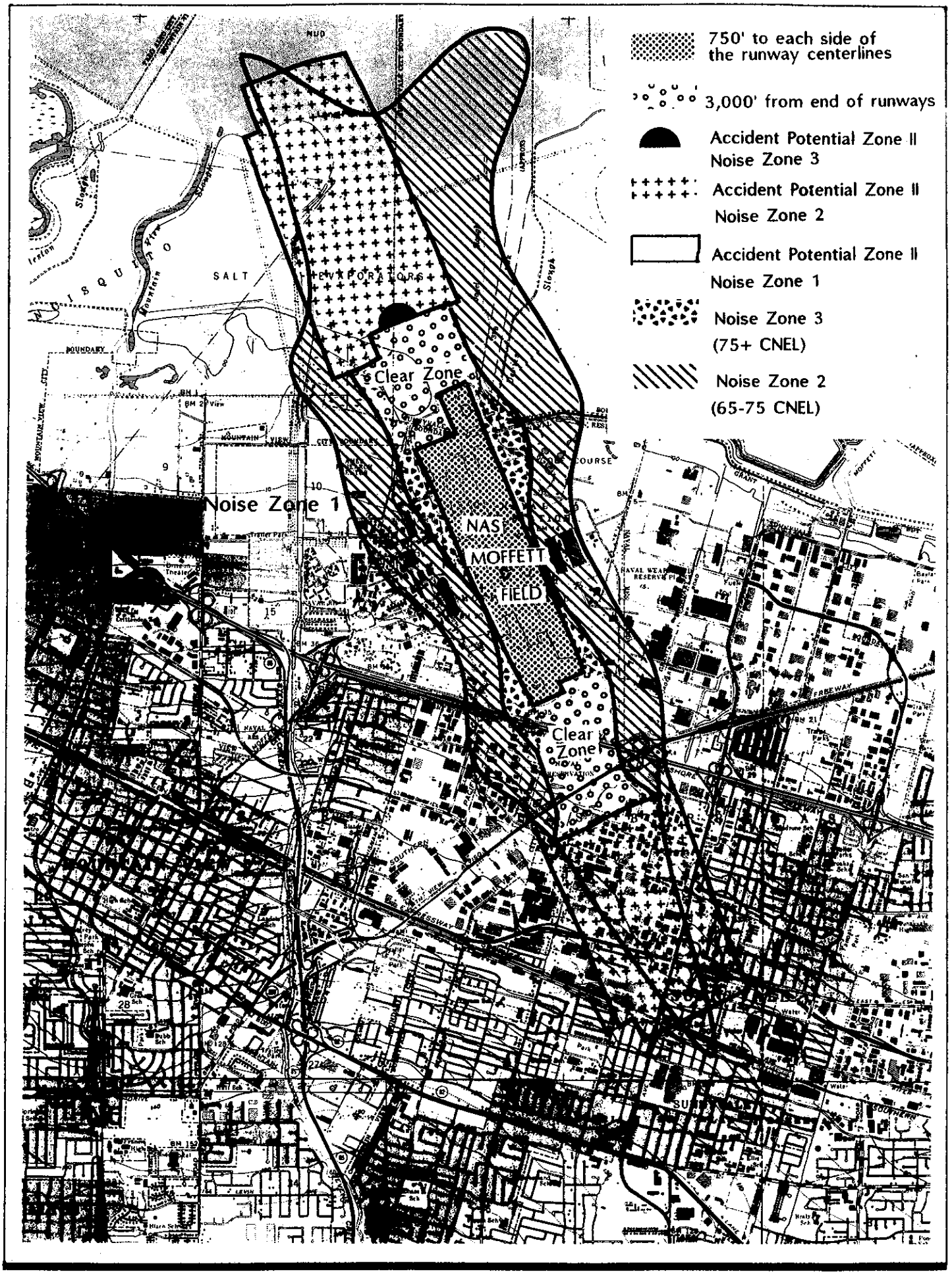
An airport land use commission (ALUC) is required in each county with a public airport. The ALUC formulates a comprehensive plan to provide for the orderly growth of each public airport and the area surrounding the airport. The plan typically designates large areas of land around the airport for light industrial and commercial uses, since these land uses are more compatible with an airport than are residential uses. Conformance with the ALUC plan takes precedence over city and county General Plans. However, the local legislative body may override the provisions of the ALUC plan, if it makes specific findings to justify such actions, and does so with a two thirds majority vote.

The ALUC for the Palo Alto Airport affects a very small portion of land within Mountain View's city boundary. The ALUC land use restrictions apply to the northernmost portion of Charleston Slough along the border between Palo Alto and Mountain View. Based upon the existing General Plan Land Use Map designations for this area, no new development at this location is anticipated to be affected by the Palo Alto Airport operations.

Air Installation Compatible Use Zone (AICUZ)

The Federal Aviation Administration (FAA) has regulatory authority over military air traffic. The ALUC Plan, is therefore, not applicable to NAS Moffett Field. The FAA guidelines are established in the form of the Air Installation Compatibility Use Zone. The Department of Defense prepared a study for NAS Moffett Field in 1976 to analyze land use compatibility around Moffett Field. This study was updated in 1982 with new noise contours. The study designated zones based upon noise levels and accident potential to limit development around Moffett Field. Additional purposes of the study included establishing or continuing liaison with adjacent communities to encourage compatible land uses, informing the public of the AICUZ program, and protecting the air installation's operational capabilities.

The AICUZ Program defines boundaries wherein certain land uses are restricted. For example, land uses must be setback 750 feet in each direction from the runway centerline and 3,000 feet from the end of the runway. The AICUZ also establishes Accident Potential Zones and Noise Zones (see Figures 20 and 21). The AICUZ applies land use restrictions on a small percentage of Mountain View. This area is primarily located at the intersection of Route 237 and US 101.



NAS MOFFETT FIELD AICUZ MAP

FIGURE 20

LAND USE OBJECTIVES MATRIX

LAND USE OBJECTIVES MATRIX

The Land Use Objectives Matrix shown is a combination of the recommended compatible land uses for noise and accident potential zones. The resulting composite land use recommendations represent guidelines for each of the AICUZ impact zones. The areas within the highest noise and accident potential zones have the most restrictive land use guidelines.

LAND USE CATEGORY		AICUZ ZONES					
		Clear Zone	II-3	II-2	II-1		2
RESIDENTIAL	Single-Family Dwelling						
	Multiple-Family Dwelling						
	Mobile Homes						
	Transient Lodging						
COMMERCIAL	Wholesale Trade						
	Retail Trade						
	Eating & Drinking Places. Theaters						
	Personal and Business Services						
INDUSTRIAL	Food. Processing. Textile Mill Prod.						
	Research. Electronics. Plastic Prod.						
	Other Indus.. Manufacturing Prod.						
	Chemicals. Petroleum Refining						
	Salt Ponds						
PUBLIC SERVICES	Government Services						
	Educational. Health Services						
	Cultural Activities. Churches						
TRANSPORTATION	Roadways. Rail Lines						
	Port Facilities						
UTILITIES	Gas. Electric. Telephone. etc.						
OUTDOOR RECREATION	Playgrounds. Neighborhood. Parks						
	Community. Regional Parks						
	Sporting. Entertainment Assembly						
	Water-Related Activities						
	Open Space/Trails						

LEGEND:

- Clearly Acceptable
- Normally Acceptable
- Normally Unacceptable
- Clearly Unacceptable

FIGURE 21

NAS Moffett Field[29]

NAS Moffett Field is the primary source of air traffic over Mountain View. NAS Moffett Field is the center of antisubmarine patrol operations in the Pacific and is the largest P-3 Orion base in the world with 103 aircraft. The mission of NAS Moffett Field is to operate facilities and provide logistics support to Navy aviation activities, and to other units.[30]

2. Impacts

Existing operations at NAS Moffett Field average about 200 flights per day.[31] Navy aircraft account for half of the operations. The remaining aircraft traffic consists of Army, Air National Guard, NASA, miscellaneous military transient aircraft, and local base aeroclub traffic. The NAS Moffett Field facilities have a completely equipped airfield with parallel runways capable of supporting operations with the largest transport aircraft. Airfield facilities include taxiways, parking aprons, and hangar complexes. Three of the hangars, constructed in the 1930s and 1940s for the Navy's dirigible program, are now used for aircraft maintenance and office space.

The P-3 squadrons from Moffett are deployed to other locations for aircraft patrol operations. As a result, the number of aircraft at the station varies depending on the squadron rotation. NASA keeps 25 permanent aircraft at Moffett. Another 100 additional non-Navy or base aeroclub aircraft are also kept at the station.

The San Jose International Airport, to the south, and the San Francisco International Airport, to the north, are far enough away from Mountain View that their air traffic does not affect land use development in the city. However, the air traffic near NAS Moffett Field consists of high density traffic from these two airports. A sophisticated control system with complex aerospace restrictions and tower/air route controllers coordinates the air traffic from these facilities. Occasionally, NAS Moffett Field air traffic creates minor delays for operations at the San Jose Airport.

When Moffett Field was established in 1931, there was little surrounding development. Since that time, rapid population growth in the Santa Clara Valley has resulted in the development of the entire area surrounding the station. As a result, conflicts between incompatible land uses related to noise and safety increased.

The proposed changes to the General Plan Land Use Map would not result in the location of any residential development or other sensitive receptors within the Moffett Field Naval Air Station AICUZ. The residential redevelopment sites proposed for future rezoning as part of the

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[29] Information on NAS Moffett Field aircraft operations is based upon the information contained in the Draft Environmental Impact Statement Candidate Base Closures/Realignment San Francisco Bay Area, August, 1990.

[30] Air Installation Compatible Use Zone Study, Naval Air Station Moffett Field, 1976, 1982.

[31] Lieutenant Commander Carl Honaker, NAS Moffett Field, as noted in the Draft Environmental Impact Statement Candidate Base Closures/Realignment San Francisco Bay Area, August 1990, page E-43.

amendments to the text of the General Plan would not be located near Moffett Field. However, future residential rezoning of one land use alternative site ("Site 4") located to the south of the Bayshore Freeway, and to the southwest of the Moffett Field could be exposed to unacceptable noise levels and aircraft safety issues associated with aircraft operations.

3. Mitigation

The following Community Development Chapter policies and action statements would reduce potential hazards to the existing residential community and to future residential development at the identified land use alternative site that is located near Moffett Field. Mitigation measures are included in the project.

Policy 1: Ensure that new development is built and located to minimize the dangers of flooding, air field effects, earthquake hazards, and hazardous materials.

Action 1a: Review development applications for consistency with guidelines established in the Moffett Field Air Installation and Compatible Use Zone guidelines.

Policy 23: Support NASA/Ames as the future federal operator of Moffett Field.

Action 23a: Ensure that the reuse of Moffett is compatible with City goals, policies, and concerns through coordination with the new federal operator.

Action 23b: Monitor the Navy's short-term and long-term transition and clean-up of Moffett Field.

Implementation of the identified policies would reduce the potential for aircraft related hazards. The proposed General Plan Update would not result in a significant impact.

SECTION IV

ALTERNATIVES TO THE PROPOSED PROJECT

A. NO PROJECT ALTERNATIVE - 1982 GENERAL PLAN

The No Project Alternative consists of continuing the goals, policies, and action programs included in the 1982 General Plan. This alternative does not contain text amendments to the General Plan, nor does it include any changes to the General Plan Land Use Map. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 7"), since it was already approved in September, 1991.

The No Project Alternative would not plan for, nor facilitate the transition from the existing underutilized industrial, commercial, and vacant properties to more intensive residential land uses. As a result, Mountain View would not achieve the levels established by ABAG's *Housing Needs Determination*, as described in the adopted 1990 Mountain View Housing Element.

Land Use/Visual Quality

Under this alternative, both the adverse and the beneficial effects of the General Plan Update would be avoided. This alternative would avoid significant changes to the land use development and intensity within the underdeveloped areas. This alternative would also avoid the potential land use compatibility impacts to the future residential development occurring in predominantly industrial areas. Views within the project area would be maintained under this alternative, since the proposed new development would not occur at vacant sites, thereby eliminating potential obstructions to the views for the surrounding neighborhoods. This alternative would also avoid land use compatibility impacts and potential hazards associated with the co-existence of industrial activities with new residential development.

This alternative would further prevent the City from bringing its General Plan into conformance with the adopted Zoning Ordinance, since it would not allow the approval of the 95 Land Use Map changes. In addition, this alternative would not result in the removal of existing industrial uses in the middle of residential areas. The No Project Alternative would not meet the requirements of the California Government Code which requires General Plans to establish floor area ratios and population estimates.

Traffic

Traffic generated under this alternative would correspond to the level of development accounted for in the ABAG Projections '90 estimates. In Mountain View, approximately 2,860 households, 5,800 persons, and 11,300 jobs would be added between 1990 and 2005. This accounts for about three percent of projected growth in households, population, and employment in the County. Relative to Mountain View's 1990 estimated totals, these projections represent a nine

percent increase in both households and population, and a 17 percent increase in employment. While Mountain View will add, 5,800 residents, the City will add 11,300 new jobs.

Projected future travel demand in the context of the assumed year 2005 transportation network improvements and growth in employment and population reveals several important roadway segments that would experience significant congestion during peak commute periods. The following specific route segments are most likely to be congested during peak periods under year 2005 conditions:

• Grant Road	North of Cuesta Drive
• State Route 237	
• State Route 85	South of El Camino Real
• U.S. 101	San Antonio Road to State Route 85

These congested conditions will occur in the mixed-flow[1] lanes, rather than in commute lanes. As the above list indicates, most of the severe congestion will occur on state and county facilities carrying regional traffic, rather than on major city streets. The exception is Grant Road, a major north/south residential arterial roadway which provides direct access to State Route 237. Other major surface arterial roadways within the City, such as El Camino Real, San Antonio Road, and Shoreline Boulevard, will still operate at acceptable levels of service, despite overall growth in travel demand.

Air Quality

Carbon monoxide concentrations under this alternative would not exceed State and Federal standards. However, significant future emissions associated with this alternative would result in exceedances of accepted standards for hydrocarbons, oxides of nitrogen, and particulates. As a result, regional air quality impacts would occur. This alternative would not include the adoption of the Environmental Management Chapter and Circulation Chapter policies and action programs encouraging reduction in traffic volumes and corresponding air pollutant emissions.

Noise

The No Project Alternative would avoid potentially significant impacts associated with the exposure of additional residences to significant noise levels. However, this alternative would continue to result in noise levels exceeding acceptable exterior levels throughout the city. This alternative would not include the adoption of the General Plan policies and action programs designed to reduce potential noise hazards.

Geology

This alternative would reduce the potential for additional residents to be exposed to geologic and seismic impacts which could occur with the future development at locations in Zone E. Although this alternative would not provide for future residential development in areas with moderate to high potential for expansive soils, settlements, liquefaction, and groundshaking, existing development in such areas would continue to exist. In addition, stringent policies and

[1] "Mixed-flow" lane refers to a conventional (non-carpool) lane.

action programs which are being proposed to reduce potential geologic and seismic hazards would not be implemented.

Vegetation and Wildlife

Although the No Project Alternative would not result in significant impacts to vegetation and wildlife resources associated with new development, it would not ensure the protection of these resources. This alternative does not include the Conservation of Resources policies and action programs contained in the Environmental Management Chapter which protect and enhance the natural resources in the City.

Cultural Resources

Potential impacts to possible subsurface cultural resources, as well as any historic structures would be avoided. However, opportunities for preserving potential historic structures may be reduced, since this alternative would not include the adoption of the cultural resources policies and action programs included in the proposed project.

Hazardous Materials

While this alternative would avoid the potential exposure of new residences to hazardous materials, it would reduce the potential for remediating the suspect and existing soil and groundwater contamination at the seven residential redevelopment sites. This alternative would not include the adoption of policies and action programs to protect against hazardous incidents.

Utilities and Urban Services

The No Project Alternative would not require the provision of additional infrastructure and services to serve future residential development in areas. This alternative would not increase the resident population, thereby avoiding the increased demand for parks, schools, and fire and police protection. This alternative would not include the adoption of policies and action programs to ensure the adequate provision of services and utilities in Mountain View.

This alternative would not meet the objectives of the project, nor would it be the environmentally preferable alternative, since it would not include policies and action programs which would avoid the existing and future significant impacts.

B. NO PROJECT ALTERNATIVE - 1992 GENERAL PLAN UPDATE WITHOUT 11 POTENTIAL HOUSING SITES

This No Project Alternative consists of adopting the 1992 General Plan goals, policies, and action programs that would replace those included the 1982 General Plan. This alternative contains text amendments to the General Plan, and includes the 95 changes to the General Plan Land Use Map that would bring the General Plan into conformance with the Zoning Ordinance. However, this alternative does not include the adoption of those policies and action programs permitting future housing opportunities at 11 sites, nor does it include the changes to the General Plan Land Use Map resulting in residential land use designations on two of the 11 potential housing sites. It is anticipated that future development in Mountain View would achieve the levels projected in ABAG Projections '90, since these projections are based upon implementation

of the existing General Plan goals, policies, and action programs. Although this alternative does not include the proposed General Plan Land Use Map changes for potential housing opportunities, it would include the General Plan amendment for development of up to 720 dwelling units on the Old Mill Site ("Site 3"), since it was already approved in September, 1991.

This alternative would not plan for, nor facilitate the transition from the existing underutilized industrial, commercial, and vacant properties to more intensive residential land uses. As a result, Mountain View would not achieve the levels established by ABAG's *Housing Needs Determination*, as described in the adopted 1990 Mountain View Housing Element.

The same impacts described above for the first No Project Alternative would also result under this alternative, with the following exception. Since this alternative includes the adoption of the 1991 General Plan goals, policies, and action programs (except for those pertaining to the residential redevelopment sites), this alternative would include measures in the project that would reduce or avoid potentially significant impacts associated with year 2005 development. This alternative would also allow the General Plan to be consistent with the Zoning Ordinance.

Although this alternative results in some of the beneficial effects of the proposed project, it would still not meet all of the objectives of the proposed project. Specifically, this alternative would not encourage future opportunities for housing development and would, therefore, not be consistent with the adopted Housing Element goals, policies, and action programs. This alternative would not be the environmentally preferable alternative.

C. LAND USE ALTERNATIVE SITES FOR RESIDENTIAL REDEVELOPMENT

The City of Mountain View initiated the General Plan Update process in January, 1990. At the time this process was initiated with the preparation of the updated Housing Element, the City had identified a total of 18 sites with the potential for future redevelopment with residential uses (see Table 7 and Figure 5). These sites primarily involved the conversion of industrial zoning designations to residential zoning designations. Eight sites were identified as *land use alternatives* for future analysis to determine their potential as residential redevelopment sites, and the remaining 10 sites were maintained as residential redevelopment sites, early in the process.

During the preparation of various environmental analyses and land use studies for these 18 sites, as well as during the public hearing process on the General Plan Update, various issues regarding these sites were identified. In September, 1991, the Environmental Planning Commission directed the Planning Department Staff to further revise these sites. As a result, there are now a total of 11 possible housing sites of which seven are *residential redevelopment* sites and four are *land use alternative* sites (sites for future study).

Sections I through III of this EIR evaluate the environmental impacts associated with the seven residential redevelopment sites. This section, Section IV., C., evaluates the impacts associated with the alternative of developing the four *land use alternative sites*, in addition to the seven *residential rezoning sites*. The purpose of the alternatives analysis contained in this section is to evaluate the potential impacts associated with developing the four sites that were originally selected as having the potential for residential redevelopment, but were not selected as part of the seven *residential redevelopment sites*. The impacts of these four *land use alternative sites* are then considered within the context of the impacts associated with the seven *residential redevelopment sites*.

The General Plan Update calls for further studies for the four *land use alternative sites* prior to pursuing any rezoning of these properties. These four sites include:

- Fairchild/Ellis Street industrial area ("Site 6" on Table 8). This site will be studied for a range of possible uses including mixed use, housing, and industrial uses that support light rail and revitalize the area. If the City were to rezone this site to residential uses only, the rezoning would involve a change from Light Industrial (ML) to Residential (R3-2). This rezoning could allow a maximum of 2,520 dwelling units.

- Evelyn/Moorpark industrial service area ("Site 7" on Table 8). This site will be studied to determine the potential for private residential redevelopment and rezoning from PC-Industrial to Residential (R3-1.5). This rezoning could allow up to 425 dwelling units.

- Polaris/Gemini Avenue industrial area ("Site 4" on Table 8). This site will be studied to determine the potential for private redevelopment and rezoning from Light Industrial (ML) to Residential (R3-2). This rezoning could allow up to 147 units.

- Mayfield Avenue/Central Expressway commercial/office area ("Site 2" on Table 8). This site will be studied to determine the potential for private redevelopment and rezoning from PC-Office/Commercial to Residential (R3-3). This rezoning could allow up to 48 units.

These four land use alternative sites represent a total of 3,140 potential dwelling units. An evaluation of the impacts associated with these four *land use alternatives* sites in addition to the four residential rezoning sites and the three policy change sites is provided below.

Land Use/Visual Quality

The land use impacts described for the proposed project would also occur under this alternative. Changes to the visual character and levels of development intensity would occur at the additional locations and would affect surrounding land uses. In addition, new and more extensive land use impacts would occur with residential development at the four land use alternative sites. Specifically, Site 6 presents the greatest land use incompatibility and hazards, if residential redevelopment were to occur at this site. Similar land use impacts described for the proposed project would result on Site 7, the Evelyn Avenue/Moorpark site, Site 13, the Polaris Site, and Site 2, the Mayfield Site.

The Fairchild site ("Site 6") is the largest site (126 acres) being considered for residential redevelopment. This site is also located in the area with the highest concentration of hazardous materials contamination and heavy industrial activities that use, store, or handle hazardous chemicals. Although extensive remediation is occurring in the area, parcels within the Site 6 boundaries contain reported contamination. The status of remediation on these parcels is unknown. In addition, the northeast corner of Site 6 is located in the Federal "noise impact zone" due to Moffett Field aircraft operations and near the NASA Ames wind tunnel. The AICUZ designation is generally unacceptable for residential land uses.

Traffic

Scenarios 2 and 3 discussed in Section III., B. reflect the distinction between "redeveloped for residential" sites (RR), and "land use alternative" sites (LUA) as defined in the Draft Housing Element of June 20, 1990. The RR sites could be defined as the most obvious candidates for residential redevelopment, as they tend to lie within or near existing residential areas. The LUA sites are less certain candidates. They tend to be larger commercial or industrial sites, and may have unique problems or obstacles which must be identified and overcome. Redevelopment of these LUA sites would require further detailed evaluation prior to implementation.

This alternative assumes that both the RR and LUA sites would be redeveloped, representing some 7,375 new dwelling units above the ABAG projections. The eight LUA parcels account for just over 50 percent of the total potential redevelopment acreage, and 65 percent of the dwelling units that could potentially be added to the City's supply of housing, beyond ABAG projections for the year 2005.

Scenario 3 involves residential development of the original 18 housing sites for a total of 7,375 dwelling units. Although the project has been modified to include only Sites 1, 3, 5, 8, 9, 10, and 11, and the land use alternative sites only include Sites 2, 4, 6, and 7, the difference between the number of dwelling units associated with Scenario 3 (7,375 units) and the number of new units associated with this alternative (5,727 units) is not substantial. The modified alternative consist of 1,648 fewer residential units, thereby resulting in lower traffic volumes. Despite the reduced number of units included in the modified alternative, the geographic distribution of anticipated redevelopment sites has not changed dramatically.

The combined Residential Redevelopment and Land Use Alternative sites would not result in dramatic changes in level of service on most regional highways. However, certain improvements are noted. The cluster of LUA sites near Rengstorff Avenue appears to improve service levels on adjacent portions of Rengstorff and U.S. 101. Conditions on the northern portion of Stevens Creek Freeway would also improve slightly. A high proportion of the LUA dwelling units would be located adjacent to U.S. 101, and thus their effect in reducing traffic circulation in Mountain View is somewhat attenuated. While they may result in a reduction in commute trips which otherwise would come from outside of the City, they still generate work trips which must travel on the local network to reach local employment. For example, residents of the large LUA site near Fairchild Drive (Site #4, Figure 6) have no direct means to travelling to the North Bayshore area. More direct connections, such as the Stevens Creek trail, between these larger LUA sites and the employment areas north of U.S. 101 might result in a more significant reduction in commute traffic.

Air Quality

Carbon monoxide concentrations under this alternative would not exceed State and Federal standards. However, significant future emissions associated with this alternative would result in exceedances of accepted standards for hydrocarbons, oxides of nitrogen, and particulates. As a result, regional air quality impacts would occur.

Noise

This alternative would result in increased significant impacts associated with the exposure of additional residences to significant noise levels. This alternative would also continue to result in noise levels exceeding acceptable exterior levels throughout the city. Significant traffic noise levels would affect residential development of most of the residential redevelopment and land use alternative sites. It is important to note that several of the Land Use Alternative sites are not being considered for potential housing sites at this time, because these areas are exposed to the severe noise levels.

Hazardous Materials/Water Quality

In addition to the impacts described for the residential redevelopment sites, four parcels associated with the land use alternative sites, are located in the MEW area and could be exposed to contamination from VOCs associated with Fairchild, NEC Electronics, Siltec, and Raytheon Companies. In addition, several of the areas are located within a one mile radius of reported soils and groundwater contamination, and are, therefore, subject to potential contamination from groundwater migration.

Geology

This alternative would increase the potential for additional residents to be exposed to geologic and seismic impacts which could occur with the future development at locations in Zone E. This alternative would increase the number of residences constructed within Zone E in areas with moderate to high potential for expansive soils, settlements, liquefaction, and groundshaking.

Vegetation and Wildlife

Future redevelopment of the seven residential redevelopment sites would not significantly affect vegetation and wildlife resources. Similarly, this alternative would also not result in significant impacts to natural resources.

Cultural Resources

Potential impacts to possible subsurface cultural resources, as well as any historic structures may occur at the residential redevelopment and land use alternative sites.

Utilities and Urban Services

This alternative would require the provision of additional infrastructure and services to serve future residential development. This alternative would increase the resident population, thereby increasing the demand for parks, schools, and fire and police protection.

This alternative would meet the objectives of the project, to provide additional housing and to adopt the 1991 General Plan goals, policies, and action programs. However, it would not be the environmentally preferable alternative, since it would result in additional impacts associated with residential development in areas that may not be suitable for such land uses.

SECTION V

SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

The proposed 1992 General Plan result in two significant unavoidable impacts, 10 significant impacts that will be mitigated to an acceptable level, and one potentially significant impact. Although mitigation is included in the project to reduce the following impacts, these two impacts would remain significant unavoidable as follows:

1. Cumulative impacts to regional air quality in the Bay Area.

2. Exposure to noise levels that exceed acceptable standards under existing conditions.

The seven significant impacts will be mitigated by the incorporation of the General Plan Policies identified as mitigation measures. These impacts are:

1. Land use compatibility impacts due to the placement of residential uses in industrial areas.

2. Increases in project and cumulative traffic volumes associated with the 1992 General Plan Update.

3. Exposure to potential hazards associated with toxic air contaminants.

4. Temporary air quality and noise impacts occurring during construction.

5. Future development in areas with moderate to high potential for expansive soils, settlement, and/or consolidation, as well as liquefaction and groundshaking during a seismic event.

6. Exposure to potential flooding hazards.

7. Increases in stormwater runoff and potential effects on the water quality of stormwater runoff.

8. Development of open space and recreational uses within or near wildlife habitat areas.

9. The potential exposure to hazardous materials during demolition and excavation activities, due to the presence of previous and existing land uses that may involve the use, storage, or handling of hazardous materials.

10. An increase in the demand for utilities and urban services.

The potentially significant impact consists of the potential disturbance of possible subsurface prehistoric and historic resources.

SECTION VI

CUMULATIVE IMPACTS

The discussion of cumulative impacts in this section includes those impacts determined to be significant as required by Section 15130 of the CEQA Guidelines. This section of the Program EIR describes the significant cumulative impacts of the proposed project, other existing uses, approved projects, and future projects which are reasonably anticipated.

The 1992 General Plan includes revisions to the four General Plan chapters which include: the Community Development Chapter, the Circulation Chapter, the Residential Neighborhoods Chapter (with the previously adopted Housing Element), and the Environmental Management Chapter. These chapters contain new and revised goals, policies, and action programs.

The General Plan Update also involves changes to the General Plan Land Use Map. The General Plan Update involves text amendments to establish new Land Use Map designations and to revise the existing land use designations. There are six types of changes between the existing 1982 General Plan Land Use Map and the proposed 1992 General Plan Update Land Use Map. These categories of change result in approximately 95 specific amendments to the existing 1982 Land Use Map (see Figure 4 and Table 5). These 95 changes consist of the five categories of change described in Section I of this EIR.

The City of Mountain View is almost completely developed. As a result, the 1992 General Plan primarily addresses the preservation of the existing land uses and the potential for residential development of underutilized and vacant parcels as infill sites. All of the General Plan changes, including those that result in potential housing opportunities have been addressed in this EIR in terms of: 1) the incremental impacts associated with these changes, and 2) the cumulative impacts associated with the proposed General Plan changes plus the existing conditions, and the level of development anticipated by the year 2005. A summary of the significant cumulative impacts is provided below.

LAND USE

Between 1990 and 2005, both the number of households and the total population in Mountain View will increase nine percent, according to Association of Bay Area Governments (ABAG) projections. It is estimated that the total population will be 72,200 in the year 2005, with 33,080 total households. By contrast, the projected rate of employment growth in Mountain View is 17 percent for the same 15 year period. According to policies currently in effect, the City will add about 11,300 jobs for a total of 79,340 jobs. The percentage of employed residents in Mountain View will remain unchanged at about 65 percent of total population, resulting in the addition of 7,500 more jobs than employed residents. Santa Clara County will add about 94,000 more jobs than employed residents over this same period.

The proposed General Plan amendment on the Evelyn Avenue Corridor site ("Site 8") would result in a total of 365 dwelling units and roughly 777 residents. The approved General Plan amendment on the Old Mill Site would result in 630 to 720 dwelling units, with up to 1,534 residents. The seven sites with the potential for future residential redevelopment would result in a total of 2,587 dwelling units and 5,511 future residents. As a result, the total population of Mountain View would be a maximum of

77,478 residents. The replacement of existing employment generating uses with these future residents would result in a corresponding decrease in employment, thereby, improving the jobs/housing ratio.

TRAFFIC

An extensive discussion of the future cumulative traffic impacts is included in SECTION III., B. of this EIR. In summary, added travel demand in the City, due both to local growth and to development in the region, would cause several key highways and streets to experience significant peak hour congestion. These include:

- Grant Road, north of Cuesta Drive
- State Route 237,
- State Route 85, south of El Camino Real
- U.S. 101, from San Antonio Road to State Route 237

Most of the severe congestion will occur on state and county facilities, rather than on city streets. This is due to the nearly fully developed region. Most of the growth in travel will result from development outside of the City. It also reflects the positive impacts of improvements to the regional highway network, particularly the provision of commuter lanes over much of the regional system. While the regular "mixed-flow" traffic lanes will be congested on these key regional facilities, commuter lanes will continue to operate well, and will provide significant travel time savings to those who use them.

Comparison of alternative land use strategies indicated that increasing the number of housing units within the City will be beneficial, but will not have a large impact on regional transportation conditions. In addition to simply supplying housing, special actions must be implemented to make the addition of housing, and the corresponding reduction of projected employment, more beneficial. These actions could include policies or programs to increase the proportion of locally employed residents. Prioritization of redevelopment sites to favor those with the greatest impact on traffic congestion is possible.

The 1992 General Plan Circulation Chapter policies and action programs would partially mitigate potential cumulative impact.

AIR QUALITY

The localized carbon monoxide impacts are described in SECTION III., C. of this EIR. The air quality analysis evaluates four different land use scenarios: 1) the existing 1990 conditions, 2) base case 2005 conditions based upon ABAG Projections '90 data, 3) residential redevelopment of 2,640 dwelling units for the year 2005, and 4) residential redevelopment and land use alternative development for 7,375 dwelling units for the year 2005 (assuming the maximum potential development of 18 sites). By the year 2005, concentrations would be below current concentrations for all three future land use scenarios, given the anticipated reduction in vehicular emission rates.

Future development within Mountain View would affect driving patterns in the region, and would therefore affect regional air quality. Vehicle trips to and from Mountain View, therefore result in automobile emissions affecting the entire Bay Area.

Regional impacts associated with cumulative development are also described in SECTION III., C. of this EIR. Guidelines for the evaluation of projects and plans issued by the Bay Area Air Quality Management District consider emission increases of PM-10 or ozone precursors to be significant if they exceed 150 pounds per day. Based upon this criterion, the Base Case scenario (Case 1), Residential Redevelopment (Case 2), and Residential Redevelopment and Land Use Alternatives scenario (Case 3) would all result in significant regional emissions. Projections for the year 2005 indicate that the "threshold of significance" would be exceeded for two of three criteria pollutants: hydrocarbons and oxides of nitrogen.

In the case of Residential Redevelopment and Residential Redevelopment (Case 1) and Land Use Designation (Case 2) scenarios, shifts in the jobs/housing balance would occur within Mountain View and the South Bay that would influence travel patterns. Increasing housing availability is an air quality strategy for the South Bay. Presumably, new housing in Mountain View would absorb some population growth that would occur elsewhere in the Bay Area, and because of its proximity to employment, would ultimately reduce long distance commuting (and regional air emissions). The regional impacts of the Residential Redevelopment scenario, and the Residential Redevelopment and Land Use Alternatives scenario would, therefore, be partially offset by reductions in emissions elsewhere in the Bay Area.

Development under either the Case 1 or the Case 2 scenarios would not result in problems with criteria pollutants. While the regional emissions associated with traffic generated by the Residential Redevelopment and Land Use Alternative scenario exceeds the "threshold of significance," the development of housing within Mountain View is part of a larger, overall regional strategy for improving air quality. This scenario would be consistent with regional programs and strategies for attaining the air quality standards in the region.

Although implementation of the 1992 General Plan Circulation Chapter and Environmental Management Chapter policies and action programs would partially mitigate significant cumulative regional impacts, these impacts would continue to be significant and unavoidable.

NOISE

Cumulative noise impacts are described in detail in SECTION III., D. of this EIR. Projected traffic associated with the year 2005 conditions, the proposed General Plan amendments, and the future rezoning sites would result in a minimal impact on future noise levels. If the noise intensity increases by ten decibels, it sounds twice as loud. It takes a 26 percent increase in traffic to generate a one-decibel increase in the time averaged roadside noise level (L_{dn}). Such a small increase in the overall intensity of the always-fluctuating traffic noise is barely perceptible. A three-decibel increase is discernible to most people, but would seem to amount to a slight increase in loudness. Future increases along major roadways would amount to a maximum of three decibels from 1990 to the 2005 base case (scenario 1). The additional residential redevelopment scenarios (scenarios 2 and 3) would add a one decibel to the base case and three decibels to the existing levels.

The implementation of the Environmental Management Chapter policies and action programs would partially mitigate significant impacts associated with new development.

HAZARDOUS MATERIALS

Future residential redevelopment of seven commercial and industrial areas, in addition to the development of other land uses could result in exposure of people to soil and groundwater contamination. In addition, the development of residential uses on some of these sites could result in the exposure of residents to possible nuisances and safety hazards attributed to industrial uses. Industrial uses are generally separated from residential uses to reduce their effects on the health, safety, environment, or welfare of the community. Industrial facilities that use, store, or handle hazardous materials would present a risk to residences in the area. Accidental explosion or release of hazardous materials could cause safety hazards. The development of residential uses in predominantly industrial areas will contribute to the overall number of residents to the potential exposure to hazardous incidents.

Implementation of the Environmental Management Chapter and Community Development Chapter policies and action programs pertaining to hazardous conditions would mitigate potential impacts to a non-significant level.

UTILITIES AND URBAN SERVICES

Future development resulting from the implementation of the 1992 General Plan would result in a cumulative increase in the demand for utilities and urban services provided by the City of Mountain View. Impacts to City services including police protection, fire protection, sanitary sewers and wastewater treatment, water, and parks would be mitigated by the General Plan Environmental Management Chapter policies. The cumulative increase in the generation of solid waste would be mitigated by conformance to AB 939 legislation and the relevant Environmental Management Chapter policies and action programs.

SCHOOLS

Future rezonings and policy changes to allow residential development on the Evelyn Avenue Site ("Site 8"), Old Mill Site ("Site 3"), Del Medio Site ("Site 1"), Shoreline Site ("Site 5"), the Downtown ("Site 9"), the El Camino/El Monte Site ("Site 11"), and El Camino Strip Site ("Site 10") would result in an estimated maximum population of 5,277 residents. Future development of these potential housing sites would result in a total of 2,387 future housing units. Assuming that these units are multi-family dwellings, it is estimated that approximately 189 new students would attend Mountain View schools, in addition to the students generated by the 2,860 new households projected to occur between 1990 and 2005. This increase in student enrollment is significant, if anticipated declines in student enrollment do not otherwise occur, and if the schools operate at or above capacity.

Mitigation will include the implementation of Environmental Management Chapter and Community Development policies and action programs which addresses the provision of adequate school facilities. In addition, Government Code Section 65996 specifies the acceptable method of mitigating effects regarding the adequacy of school facilities. A school impact fee of $1.58 per square foot for residential development would be required, prior to issuance of a building permit. The school district would be responsible for implementing the specified methods for mitigating school impacts under the Government Code. The school impact fees and the school district's methods of implementing measures specified by Government Code Section 65996 would mitigate cumulative impacts upon the school facilities.

SECTION VII

GROWTH INDUCING IMPACTS

Between 1990 and 2005, both the number of households and the total population in Mountain View will increase nine percent, according to Association of Bay Area Governments (ABAG) projections. It is estimated that the total population will be 72,200 in the year 2005, with 33,080 total households. By contrast, the projected rate of employment growth in Mountain View is 17 percent for the same 15 year period. According to policies currently in effect, the City will add about 11,300 jobs for a total of 79,340 jobs. The percentage of employed residents in Mountain View will remain unchanged at about 65 percent of total population, resulting in the addition of 7,500 more jobs than employed residents. Santa Clara County will add about 94,000 more jobs than employed residents over this same period.

Residential development is generally considered to be a product of growth, rather than a cause of growth. The only exception is during the construction phase, when temporary construction jobs are created and materials are purchased, which may draw from local sources. Implementation of the 1991 General Plan policies encouraging residential development would therefore, result in a secondary impact on economic growth resulting from the demand for goods and services by future residents of the project.

The proposed General Plan amendment on the Evelyn Avenue Corridor site ("Site 8") would result in a total of 365 dwelling units and 777 residents. The approved General Plan amendment on the Old Mill Site would result in 630 to 720 dwelling units, with up to 1,534 residents. The seven sites with the potential for future residential redevelopment would result in a total of 2,587 dwelling units and 5,510 future residents. As a result, the total population of Mountain View would be a maximum of 77,710 residents. The 5,510 future residents represents a seven percent increase in population. The replacement of existing employment generating uses with these future residents would result in a corresponding decrease in employment, thereby, improving the jobs/housing ratio.

The 1992 General Plan would result in a direct economic growth inducing impact, since it would continue to provide primary and secondary jobs in the project area. These new jobs would thereby expand employment opportunities within the region. It is anticipated that the creation of these jobs would not be a significant growth inducing impact, since they would represent a continuation of existing jobs in the project area. The future replacement of some employment generating uses with residential development could, however, have a counter-effect by resulting in the elimination of jobs within the local and regional community.

The 1992 General Plan would not result in the provision of utilities or urban services to areas previously unserved. The City is almost completely developed, and vacant parcels within the City are infill sites which would not require the provision of new services.

SECTION VIII

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between the local short-term uses of the environment and the maintenance and enhancement of long-term productivity sometimes involves trade-offs or a balancing of social, economic, and environmental impacts over time. In some cases, a relatively short-term benefit may have adverse long-term effects. The opposite situation in which long-term benefits occur at the expense of short-term impacts is also possible.

The long term effect of the proposed 1992 General Plan is to provide direction for the existing and future development that occurs within Mountain View's Sphere of Influence. Implementation of the 1992 General Plan policies and action programs would potentially result in a transition to residential uses on underdeveloped properties. Development permitted by the 1992 General Plan would result in alterations to the traffic patterns of the project area, regional air quality impacts, land use compatibility issues, potential disturbance of cultural resources, exposure to potential soil and groundwater contamination, and changes to the visual character of the project area.

While alterations to the present travel patterns are predicted, the overall land use changes are anticipated to result in a reduction in traffic congestion and a decrease in average trip lengths. In addition, the 1992 General Plan includes policies and action programs to reduce potential traffic impacts, impacts to cultural resources, soil and groundwater impacts, and other impacts identified in this EIR.

Notwithstanding the long-term impacts described above, the project is being proposed at this time because of the housing opportunities that would be derived from this action, and because of the beneficial effects of updating the General Plan's goals, policies and action programs.

SECTION IX

IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Mountain View is almost completely developed. As a result, implementation of the majority of the 1991 General Plan goals, policies, and action programs are not anticipated to result in new significant irreversible environmental changes. However, the transition of the existing industrial uses on seven of the future residential rezoning sites to residential uses would result in a commitment of these areas to higher intensity land uses for the foreseeable future. While the uses permitted under the 1992 General Plan would be physically reversible, the residential uses are anticipated to remain viable and important land uses to provide local and regional housing opportunities.

Irreversible changes are also likely to occur due to future excavation, grading, and construction activities associated with the seven residential rezoning sites (including the two General Plan amendment sites) that may potentially impact subsurface cultural resources or result in exposure to hazardous materials. Although these impacts can be avoided by mitigation measures, the potential for disturbance would represent an irreversible change. The project would also result in an irreversible change to the existing low intensity industrial and vacant character of the seven sites and would introduce higher intensity land uses in areas generally surrounded by low density development. However, although these changes are irreversible, they are not considered significant.

Development permitted by the 1992 General Plan would result in changes to the traffic flow patterns and air pollution in the project vicinity. The demolition of existing industrial land uses in the area and the construction of future land uses would result in a minimal consumption of non-renewable energy resources. Other irreversible changes associated the project are the future use of nonrenewable resources during construction, including concrete, glass, plastic and petroleum products. During the operational phase of the future uses in the area, natural gas and electric energy will be used for lighting, space, and water heating.

The 95 General Plan Land Use Map changes that are proposed to bring the General Plan Land Use Map into conformance with the Zoning Ordinance and to reflect the existing land uses are not anticipated to result in irreversible environmental changes.

SECTION X

DRAFT EIR DISTRIBUTION LIST

Copies of the Draft EIR were sent to the following agencies and individuals:

County of Santa Clara

- Planning Department
- Supervisor Dianne McKenna - 5th District
- Santa Clara County Transportation Agency
- Santa Clara County Traffic Authority

Other Cities

- City of Los Altos Planning Department
- City of Palo Alto Planning Department
- City of Sunnyvale Planning Department
- City of Fremont Planning Department

Regional Agencies

- Bay Area Air Quality Management District
- Association of Bay Area Governments
- Santa Clara County Congestion Management Agency
- Metropolitan Transportation Commission

State Agencies

- State Clearinghouse (10 copies)

Federal Agencies

- U.S. Army Corps of Engineers

School Districts

- Mountain View Elementary School District
- Mountain View - Los Altos Union High School District
- Los Altos Elementary School District
- Whisman School District
- Foothill-DeAnza Community College District

SECTION X

DRAFT EIR DISTRIBUTION LIST (continued)

Utilities/Special Districts

- San Francisco Water Department (Hetch Hetchy)
- Santa Clara Valley Water District
- Pacific Gas & Electric Company
- California Water Service

Institutions

- Naval Air Station Moffett Field
- NASA/Ames Research Center

Special Organizations

- Toxics Coalition
- Midpeninsula Citizens for Fair Housing
- Midpeninsula Housing Coalition
- Sierra Club - Loma Prieta Chapter
- Midpeninsula Regional Open Space District
- Save Our South Bay Wetlands
- Greenbelt Alliance

Business Organizations

- Santa Clara County Manufacturing Group
- Mountain View Chamber of Commerce
- Central Business Association
- Mountain View Board of Realtors
- Bay Area Council

Other

- City of Mountain View Public Library (5 copies)
- Distribution at General Plan Update and EIR public hearings

SECTION XI

LIST OF AGENCIES AND INDIVIDUALS COMMENTING ON THE DRAFT EIR

Comments Received From		Response Required	Date Comment Received
A.	Department of Fish and Game	Yes	May 29, 1992
B.	Department of Conservation	Yes	June 1, 1992
C.	Metropolitan Transportation Commission	Yes	June 5, 1992
D.	Los Altos School District	Yes	June 8, 1992
E.	Ames Research Center, National Aeronautics and Space Administration	Yes	June 15, 1992
F.	Santa Clara County Transportation Agency	Yes	June 16, 1992
G.	Office of Planning and Research	No	June 8, 1992
	Comments from the Environmental Planning Commission Study Session	Yes	April 22, 1992
	Comments from the Environmental Planning Commission Public Hearings	Yes	May 6, 1992
H.	Santa Clara Valley Water District	Yes	July 23, 1992

SECTION XII

RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR

A. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE DEPARTMENT OF FISH AND GAME RECEIVED JUNE 1, 1992

COMMENT #1: We have reviewed the subject DEIR for the City of Mountain View's 1992 General Plan Update. The General Plan shows a commendable concern for the protection of wildlife resources, and the mitigation measures outlined in the DEIR are well designed. However, we believe that the document would be strengthened by incorporation of the following items:

1. The infill development specified in the General Plan may affect burrowing owls. Relocation of owls from development sites has been the usual mitigation technique on Bay Area projects. However, to our knowledge, no long-term studies have been done to determine whether relocated owls are able to establish territory and successfully nest in their new range. While some local wildlife rehabilitators band relocated owls, subsequent sightings are few. This could be due to dispersal, lack of focused survey effort, or mortality. Ideally, relocated owls would be fitted with radio telemetry transmitters and tracked by a biologist retained for this purpose. This could be done by a graduate student from one of the local universities. The study should run for at least two years. The City of Mountain View's decision to fund such a study would be tremendously helpful in evaluating the effectiveness of relocation in protecting burrowing owl populations. It is important to determine this now, before further declines in burrowing owl populations and habitat necessitate the listing of the species.

RESPONSE #1: The Department of Fish and Game's request for the City of Mountain View to fund a burrowing owl relocation study is hereby noted. In 1989, the City of Mountain View developed a burrowing owl relocation plan and established an area to locate displaced burrowing owls at Shoreline at Mountain View Park. Since 1989, Shoreline biologists have observed burrowing owls in the new habitat, and continue to monitor the area.

COMMENT #2: 2. In addition to the burrowing owl and the threatened and endangered species listed on page 149, several other species which are considered sensitive by State and Federal agencies occur in the area and should be cited in the General Plan for planning consideration. These include: Mimic tryonia - Federal Category 2 (Tryonia imitator), California tiger salamander - Federal Category 2 (Ambystoma tigrinum californiense), Saltmarsh common yellowthroat - Federal Category 2 (Geothylpis trichas sinuosa), Bank swallow - State Threatened (Riparia), Saltmarsh wandering shrew - Federal Category 1 (Sorex vagrans halicoetes), Pt. Reyes bird's beak - Federal Category 2 (Cordylanthus maritimus ssp. palustris). In addition, the scientific name of the California clapper rail is given incorrectly on page 149. The correct name is Rallus longirostris obsoletus.

RESPONSE #2: The additional special status species that occur within the area are noted and are included in the revisions to the text of the Draft EIR. The list of threatened and endangered

species identified on page 149 of the Draft EIR refers to those species that are known to inhabit the South Bay region that could be present on the NAS Moffett Field Station. The Draft EIR also identifies special status species that may occur in various habitat types in Mountain View. For example, the Draft EIR states on page 146 that species occurring in the saline emergent wetlands in the city include the rare or endangered California clapper rail, least tern, black rail, salt marsh yellowthroat, and salt marsh harvest mouse.

The Department of Fish and Games' comments regarding the nomenclature for the California clapper rail are noted. The text of the EIR is revised accordingly.

COMMENT #3: In reference to Action 13h on page 152, part of the Department's role is the regulation of hunting as a wildlife management tool and a traditional form of public recreation still enjoyed by many people.

RESPONSE #3: The Department's comments are hereby acknowledged.

B. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE DEPARTMENT OF CONSERVATION RECEIVED JUNE 1, 1992

COMMENT #1: The Department of Conservation's Division of Mines and Geology (DMG) has reviewed the DEIR for the 1992 General Plan Update for the City of Mountain View. For background information we have also re-examined the City's 1982 General Plan, and the draft of the current Safety Element that we reviewed June 27, 1991 pursuant to Section 65302 (g) of the California Government Code. We offer the following comments on these documents:

Comments addressing the DEIR:

The most recent technical study referenced in the Draft EIR is the ABAG Santa Clara County Map Set of 1987. More recent information such as the effects of the recent Loma Prieta earthquake in Mountain View and surrounding area would be very useful in the EIR and the Safety Element.

RESPONSE #1: The 1989 Loma Prieta earthquake (Richter magnitude 7.1) was centered on the San Andreas Fault located nine miles northeast of Santa Cruz, and approximately 18 miles south of Mountain View. As a result of the earthquake, residential, commercial, industrial, and roadway and utility infrastructure sustained structural damage. Total structural damage incurred during the Loma Prieta earthquake was estimated at $6,935,000 in Mountain View. In response to the Division of Mines and Geology's comments, information on the 1989 Loma Prieta earthquake is added to the text of the EIR.

COMMENT #2: The present geologic hazards map (EIR figure 16) is very general and is virtually the same as that in the old 1982 Safety Element.

RESPONSE #2: The Draft EIR states on page 130 that the 1982 Geotechnical Hazards Investigation Chart and Map identified three general hazards zones in the City of Mountain View according to the potential for liquefaction, differential settlement, seismic flooding and

groundshaking. According to the City of Mountain View Building Official, geotechnical investigations performed in each of these zones, since 1982, confirm that the locations of these general zones have not changed. These three zones are intended to continue to provide a guide to address seismic hazards in the city. Given the fact that the prevailing geologic conditions have evolved over a long period of geologic history (millions of years), it is not surprising that these general geologic zones would not have changed during the last decade.

COMMENT #3: DMG encourages the City Engineer to accumulate geotechnical data during development of the community and apply it to refine and update the city's geologic hazards map; thus, areas of known liquefaction potential or seismic amplification potential would eventually be delineated.

RESPONSE #3: The City of Mountain View mandates the preparation of site specific geotechnical investigations for all development located in Zone D (the area of highest potential for hazards) and for emergency facilities and facilities which would imperil many people that are located in Zone E. In addition, geotechnical investigations are also conducted on a discretionary basis for projects located in Zone F. During the preparation of the General Plan Update EIR, the City Building Official was contacted and information was collected from numerous geologic reports that were on file with the Building Department. The information provided by the City Building Official and contained in the geologic reports that were consulted, confirmed the location of the general geologic hazards zones.

COMMENT #4: The paragraph on *groundshaking*, page 130, is inaccurate. We suggest replacing the term "Groundshaking" with "Earthquake damage is determined by the magnitude of an earthquake, depth of focus, distance from the fault, intensity and duration of shaking..."

RESPONSE #4: The Division's comments are acknowledged and the text of the EIR is revised accordingly.

COMMENT #5: The *mitigation* actions (page 136) call for detailed geotechnical investigations only at the time of rezoning applications. Conditions for the three facility groups of Table 21, ranging from hospitals (critical) to warehouses (non-critical), are not included in the mitigation section, nor are the criteria identified (i.e. the geologic hazard areas of the city) under which geotechnical investigations would be required.

RESPONSE #5: The mitigation measure identified in the above-mentioned comment refers to future *specific residential rezoning applications*, and not to any future development in Mountain View. It is acknowledged that future development in Mountain View may be subject to site investigations as identified in Table 21. The future residential rezonings will go through the environmental review process. At such time, these rezonings, including those that are located in Zones D and E ~~are provided for by the proposed General Plan Update policies, should~~ would be required to perform site specific geotechnical and/or foundation investigations at the time of those rezonings, regardless of their location.

COMMENT #6: Comments Regarding the Safety Element

The draft Safety Element reviewed by DMG in June, 1991, is brief and far less comprehensive and accurate than the City's 1982 Safety Element or the current Draft EIR. Is it merely the goals, policy and action portion of a larger General Plan?

RESPONSE #6: The Division's comments regarding the adequacy of the 1992 General Plan Update Safety Element are acknowledged. It is our understanding that the Department of Conservation's comments pertain to a preliminary version of the Safety Element. Subsequent to the Department's review, a copy of the revised version of the Safety Element was provided to the Department. No comments have been received on the updated version.

COMMENT #7: If the new Safety Element is *intended* to be so abbreviated, and the EIR material is to be adopted as part of the Safety Element, we suggest that the two documents be physically combined; or that each of the safety element issues in the EIR be clearly referenced in the Safety Element document, as described in the 1990 *General Plan Guidelines, page 157.*

RESPONSE #7: The Division's comments regarding the adequacy of the 1992 General Plan Update Safety Element are acknowledged. It is our understanding that the Department of Conservation's comments pertain to a preliminary version of the Safety Element. Subsequent to the Department's review, a copy of the revised version of the Safety Element was provided to the Department. This revised version includes a more comprehensive discussion of the geologic, soils, and seismic conditions in Mountain View.

C. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE METROPOLITAN TRANSPORTATION COMMISSION RECEIVED JUNE 5, 1992

COMMENT #1: This letter contains Metropolitan Transportation Commission (MTC) staff comments on the DEIR for the 1992 General Plan Update. This project entails 95 specific amendments to the 1982 Land Use Map, including a new mobile home park designation, the addition of the City's Sphere of Influence boundary, and specified population and building densities for the General Plan's land uses. It also provides policies and action programs to encourage and study the potential for residential redevelopment on 11 identified sites. The EIR considers two alternatives to the Project--a No Project alternative and alternative consisting of the 1992 General Plan without the 11 new residential redevelopment sites.

1. Transportation System Impacts The DEIR provides forecasts of expected level of service on local roads and freeways under the different alternatives for the year 2005. It should provide more detail about the assumptions underlying these forecasts and about the forecasts. What trip generation, trip distribution, mode shift, and network assignment assumptions were used? The DEIR should show the volumes and capacities for all transportation links studied. It should also indicate whether the DEIR's traffic analysis assumes changes in commute mode choice due to the City's Transportation Demand Management program.

RESPONSE #1: Future travel demand forecasts for the year 2005 were provided by the Santa Clara County Center for Urban Analysis. That agency developed and maintains a travel forecasting model for the County, sometimes referred to as the "T2000 Model." This sophisticated model is capable of forecasting both highway and public transit trips, using socioeconomic projections developed by the Association of Bay Area Governments (ABAG).

The model focuses on the journey to work, using the AM peak hour travel forecast as the basis to evaluate network conditions. The model uses a relatively fine-grain zone and network depiction of Santa Clara County, and a less fine-grain characterization of adjacent counties in the Bay Area. The T2000 model was calibrated for the Bay Area by MTC for the 1980 base year, using the U.S. Census data, as well as data from the 1981 MTC Travel Survey. The MTC computed special adjustment factors so that the model would more closely approximate the observed behavior of Santa Clara County commuters. Future forecasts are based upon the ABAG "Projections '90" series.

Trip generation is based upon multivariate, non-linear equations which define the relationship between travel demand and basic socioeconomic data, including household population, household income, number of households, number of employed residents, auto ownership, and employment for each travel zone.

Trip distribution is also based upon equations within the computer model, and is a function of the distance between zones of origin and destination, adjusted for trip "cost," which can in turn, be a multivariate function of distance, time, or actual dollar cost (for example, in the case of transit fares or parking charges).

Transit mode share is determined by the mode choice component of the model. This is a complex sub-model which estimates the probability of a person using a given mode of travel for a particular trip, based upon variables such as travel time, cost, "wait time," and more.

Evaluation of the Mountain View 1992 General Plan Update assumed two alternative networks: one with the extension of the Tasman Light Rail Transit service to Mountain View, and one without. Other than this option, the network is comparable to the Santa Clara County "T2000" network, in terms of freeway and arterial street improvements assumed for the future forecast year. This network assumes completion of the High Occupancy Vehicle lane system on the County's expressways and freeways.

Complete details of the T2000 and subsequent T2010 models are available directly from the Center for Urban Analysis. It is quite possible that MTC already has the model documentation on file, as MTC Staff have been involved in the refinement and calibration of the Santa Clara County model.

Forecast volumes and volume/capacity ratios for the links studied in the General Plan are shown in the General Plan Circulation Chapter "Future Conditions Report" dated September, 1990. The actual detailed model volume plots are available for review at the City of Mountain View Planning and Community Development Department.

COMMENT #2: Effect of Increasing Residential Development The DEIR notes that increasing housing development and decreasing employment within the City has a very modest impact on the local transportation system. The stated reason is that the mere addition of housing does not guarantee that any significant portion of new residents would take jobs in Mountain View. The disparity between the cost of the new housing and income levels afforded by the projected job growth may be too great.

We see jobs/housing balance as a potentially effective way to reduce the traffic impacts of growth, so we encourage the City to adopt the 11 residential redevelopment sites. However, this should be done in conjunction with policies to assure affordable housing and to provide proximity between jobs and housing. Furthermore, we support an increase in residential development in Mountain View as a way to reduce long-distance commuting to Santa Clara County, a job-rich subregion.

RESPONSE #2: MTC's comments are hereby acknowledged. The City concurs with MTC that balancing jobs and housing units is a potentially effective way to reduce traffic impacts associated with growth. As a result, the City's adopted Housing Element, which is incorporated into the 1992 City of Mountain View General Plan Update, addresses the goal of providing increased housing opportunities within proximity to employment centers and transit corridors. In addition, the Housing Element includes goals, policies, and action statements to ensure housing opportunities for all income levels.

D. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE LOS ALTOS SCHOOL DISTRICT RECEIVED JUNE 8, 1992

COMMENT #1: Any new or redeveloped residential areas within the Los Altos School District boundaries would have a significant impact on our schools.

Our history shows that our student yield for the district is approximately .6 students per new single family residence. We have no history of yield from multi-family residences, but see no reason to expect that it would be lower than .6 for multi-bedroom units. We have also determined that the cost of additional instructional space per new student is approximately $9500.

RESPONSE #1: Student generation rates for residential development vary according to the type of dwelling unit and the location and residential character of the school district attendance area. The technical analyses for several Mountain View School Districts indicate that there is a lower student generation factor for multi-family residential units than for single-family units, as shown on page 210 of the Draft EIR. The City of Los Altos has a very limited supply of multi-family housing. As a result, the Los Altos School District does not have a generation factor for multi-family housing. Instead, the Los Altos School District applies a generation rate of 0.6 students per single-family dwelling unit to multi-family units. It is important to note, that school districts typically estimate that there are more students per single-family dwelling unit than per multi-family unit.

The Draft EIR states that the Old Mill project (which is located in the Los Altos School District) was previously determined to generate 65 to 78 new elementary school students within the Los Altos School District (assuming a rate of 0.1 students per household). Of the seven potential Residential Redevelopment Sites, one additional site (the Del Medio Court Site), is anticipated to generate approximately seven students that would also attend the Los Altos School District schools.

It is our understanding that the Los Altos School District is already planning to re-open the Covington School to obtain capacity for the 400 future students that are projected to attend during the 1990-1995 period, without any major new residential development. The Covington School is presently being leased, and upon re-opening, will require relocation of the existing tenants. The School District has indicated that this school could accept up to 450 elementary school students, including the 400 future projected students and approximately two-thirds of the Old Mill Project students. Additional capacity for the remaining students generated by the Old Mill Project and future students generated by housing on the Del Medio Court Site could be provided by conditioning future specific rezonings to the construction of additional classrooms or the installation of portables.

The General Plan Update includes action programs to ensure that adequate school facilities are available. In addition, a list of potential mitigation measures are identified on page 212 of the Draft EIR that would offset increases in future student enrollment that are a result of the construction of multi-family residential development encouraged by this General Plan Update.

COMMENT #2: Additional concerns if new housing is added on the east side of El Camino Real are student safety and traffic issues. All of our schools are on the west side of El Camino, and we have no busses.

RESPONSE #2: The Draft EIR states on page 211 that there are potential safety issues for elementary school students attending schools within the Los Altos School District, since the district does not provide busing. The Draft EIR also states that students that walk or ride bicycles to schools in this district would need to cross San Antonio Road and El Camino Real from the Old Mill Site, which is located within the Los Altos School District. In addition, the Draft EIR recommends that future residential development (including the Old Mill project) could provide crossing guards or shuttle service from the projects to and from elementary schools in this district.

E. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE AMES RESEARCH CENTER RECEIVED JUNE 15, 1992

COMMENT #1: NASA/Ames Research Center has reviewed the Draft Environmental Impact Report of the Mountain View 1992 General Plan Update. We have no comments concerning most of the changes proposed, and in fact we appreciate the changes in designation made for most of the properties bounding Ames and Moffett Field.

However, we are concerned about potential residential development on the industrial site bordering Ellis Street, near Moffett Field. We believe that residential uses at the Fairchild/Ellis site would be negatively impacted by noise produced by Moffett Field aircraft and NASA wind tunnel operations. The General Plan Update acknowledges that a portion of the Fairchild/Ellis site is located in a designated Federal "noise impact zone," and that "the AICUZ designation is generally unacceptable for residential land uses."

Examples abound showing the potential interference this kind of development might have to future flight operations and wind tunnel testing activities at Moffett Field. We urge against consciously creating a situation that will challenge our long standing good neighbor status with the City of Mountain View. Other uses being studied for the Fairchild/Ellis site, including industrial and commercial uses, appear to be more compatible with Moffett Field operations.

We appreciate the opportunity to comment on the City of Mountain View 1992 General Plan Update, and look forward to your review and consideration of our concern. We would also welcome the opportunity to participate further in this process, particularly in studies relating to future Fairchild/Ellis zoning.

RESPONSE #1: NASA/Ames Research Center's comments are acknowledged. The Draft General Plan Update EIR identifies the hazards associated with the placement of residential uses on the Fairchild/Ellis site, including the proximity to Moffett Field aircraft operations and the NASA/Ames wind tunnel. Given the potential land use compatibility issues and exposure to various hazards, the Fairchild Ellis site is being considered for a variety of other uses. However, this EIR addresses the potential impacts that would occur, if this site were considered for residential development opportunities.

F. RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR FROM THE SANTA CLARA COUNTY TRANSPORTATION AGENCY

COMMENT #1: We have reviewed the subject project DEIR dated April 1992 and have the following comments:

We have observed that a copy of our letter dated September 12, 1991, to Mr. Michael Percy of your office, regarding the Notice of Preparation (NOP) of the subject project is included in your DEIR.

Our comments in that letter are still valid.

RESPONSE #1: The comments raised in the NOP were addressed in the Draft EIR for the General Plan Update. The City of Mountain View General Plan Update includes goals, policies, and action programs to improve rail transit serving Mountain View and to encourage the development of high density residential uses adjacent to transit facilities. These goals, policies, and action programs are reiterated throughout the Draft EIR. Policies pertaining to improvements in rail transit facilities are highlighted on pages 93, 96, 97, and 98. Specifically, the General Plan Update includes Policy #15 which provides for the improvement in design and

function of Mountain View's CalTrain stations, and Actions 15a-15c. In addition, the General Plan Update contains policies and action programs to coordinate with the County Transportation Agency in planning and implementing the Light Rail Transit extension (Tasman Corridor).

The Draft EIR traffic analysis evaluates the future conditions for the General Plan Update for scenarios with and without the extension of the Tasman Corridor Light Rail Transit facilities. In addition, the traffic analysis contained in the Draft EIR is based upon the improvements identified in the Transportation 2010 Plan. Important improvements are highlighted on pages 85 and 86 of the Draft EIR.

COMMENT #2: Subsequently, we would like to re-emphasize that where possible, more of the residential sites in close proximity to rail transit be considered for change to the high density residential designation.

The Transportation Agency's comments are acknowledged. The City of Mountain View recognizes the importance of locating housing near light rail and other transit facilities. The Draft EIR discusses the effects of providing moderate and high density housing near light rail transit on pages 90 and 91. The Draft EIR concludes that large-scale rezoning for residential development, particularly at a moderate to high density, will contribute to a greater proportion of trips on regional transit rather than auto.

G. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE CITY OF MOUNTAIN VIEW ENVIRONMENTAL PLANNING COMMISSION APRIL 22, 1992

Oral comments on the Draft EIR were presented by the City of Mountain View Environmental Planning Commission during a study session on April 22, 1992. The purpose of this study session was to allow the Environmental Planning Commission to become familiar with the format, discussion, and general conclusions of the Draft EIR. The comments stated at this study session are summarized below with corresponding responses.

COMMENT #1 FROM COMMISSIONER SCHERBER: Commissioner Scherber requested clarification of the various alternatives dealing with the changes in residential designations to accompany the discussion on page 18 of the Draft EIR.

RESPONSE #1: Table 8 on page 23 and Figure 6 on page 21 of the Draft EIR indicate the eleven Potential Housing Sites, including the proposed seven *Residential Redevelopment Sites* and the four *Land Use Alternative Sites*. The text of the Draft EIR is revised to include two additional tables that further clarify the proposed project and future actions involved in the development of the Potential Housing Sites.

COMMENT #2 FROM COMMISSIONER SCHERBER: Commissioner Scherber commented that the EIR seems to focus only on the negative impacts and does not discuss the positive impacts of the Plan.

RESPONSE #2: CEQA requires EIRs to present an analysis of the significant adverse environmental impacts associated with a proposed project. An EIR also identifies the mitigation measures that would reduce or avoid the significant impacts resulting from the proposed project.

COMMENT #3 FROM COMMISSIONER LENHARD: Commissioner Lenhard commented that the Executive Summary is very easy to read, very clear and very helpful. He noted several typographical errors or inconsistencies that should be corrected in the final draft.

RESPONSE #3: The text of the Draft EIR is revised to correct identified typographical errors and inconsistencies. Please see Section III of this Second Amendment.

COMMENT #4 FROM COMMISSIONER WRIGHT: Commissioner Wright asked how the EIR addresses the issue of incremental degradation of the environment.

RESPONSE #4: The Draft EIR for the General Plan Update evaluates the environmental impacts associated with the General Plan at a cumulative level. This EIR evaluates the entire envelope of development within the context of the General Plan and then evaluates the incremental effects associated with the potential development of the seven identified Residential Redevelopment Sites. For example, the EIR addresses the total amount of existing plus approved plus projected development within the General Plan context, and the effects of this development on traffic, air quality, noise, housing demand, and other environmental issues. In those cases where significant impacts are identified, mitigation measures to address this total development are proposed, such as transportation and transit improvements, policies to encourage increased housing opportunities, and policies for additional open space resources. The significant cumulative impacts are also summarized in Section VI, pages 238 through 241 of the Draft EIR.

COMMENT #5 FROM COMMISSIONER WRIGHT: Commissioner Wright asked if some of the mitigation measures are regional, but the projects are local, and what can the City do to implement the mitigation.

RESPONSE #5: The decision makers can choose to approve or deny a specific future project based upon the local and regional impacts that result from that project. In addition, the City of Mountain View can require future developers to participate in regional efforts. However, on occasion, locally-sponsored improvements are necessary to set the stage for regional improvements. For example, concentrated development may create localized, short-term traffic impacts, that then create the need for the development of regional transit systems.

COMMENT #6 FROM COMMISSIONER WRIGHT: The Draft EIR does not include enough information about the potential change in social livability of the city. The EIR should include a life-style factor.

RESPONSE #6: In accordance with CEQA Guidelines Section 15064, this EIR evaluates the physical effects on the environment. Economic and social changes resulting from a project are not treated as significant effects on the environment. Life-style issues are not considered to be physical effects on the environment, and are therefore, not typically addressed in an EIR.

COMMENT #7 FROM CHAIRMAN KLEITMAN: Chairman Kleitman commented that this was the best document that he has seen as a Commissioner. It provides a wealth of hard information and provides a good basis of comparison of the General Plan and other projects. He noted a few inconsistencies and places where clarifying the information would be useful,

especially in the discussion of drainage and water quality on page 28 and the discussion of traffic and the placement of the definition of LOS. He also noted that the information on page 147 should be checked because he felt that salmon and steelhead had been observed in Stevens Creek.

RESPONSE #7: Chairman Kleitman's comments are noted and appreciated. The text of the Draft EIR is revised to clarify the information on drainage and water quality on page 28 and to improve the discussion of LOS in the traffic section. Revisions to the text of the vegetation and wildlife section are also provided to address the salmon and steelhead issue.

COMMENT #8 FROM COMMISSIONER SCHURZ: Commissioner Schurz requested clarification of the noise increase due to the increase in CalTrain trips. He felt it did not make sense that a large increase in the number of trains would not result in a lot more noise complaints. There should be a direct reference to the increase in disturbance of trains, even if they did not significantly increase the average noise level during the day. He also suggested that noise from the NASA wind tunnels should be noted.

RESPONSE #8: Two phenomena are occurring: although there are more train trips, train noise is a small part of the total ambient noise environment that occurs over the 24 hour period; and the CalTrain passenger train cars generate less noise than the freight trains. Although there are more train trips, the frequency of the train trips is averaged out over the entire 24 hour period.

Appendix D of the Draft EIR contains a discussion of noise generated by activities at the NASA/Ames Research Center on pages D-21 and D-22. Over the past several years, the research center has been improving some of its wind tunnel systems and reconstructing a large tunnel which was "totaled" in a catastrophic event. Some of the improvements tend to reduce noise emissions. However, there is also an increase in the usage of the wind tunnels. Tests run in an open-ended manner (so that the flow will be vented into the atmosphere instead of re-circulated), or run with powered models, may produce complaints if they are run at night. However, the Research Center has indicated that they are willing to try to schedule tests in the daytime where possible.

COMMENT #9 FROM COMMISSIONER SCHURZ: Commissioner Schurz requested clarification of the purpose and source of the noise level references contained in Appendix D on page D-6, and how these levels relate to the General Plan noise guidelines.

RESPONSE #9: The noise levels indicated on page D-7 of Appendix D are intended to provide a comparison of various activities that generate different noise levels. For example, the interior of a quiet suburban residence would have noise levels of approximately 35 decibels, while a shotgun (at a shooter's ear) generates levels of approximately 140 decibels. Sounds as faint as zero decibels are just barely audible, while intense sounds of 120 to 140 decibels are so loud that they can cause hearing damage.

The noise guidelines contained in the City of Mountain View General Plan Update EIR are provided as indicators of appropriate noise levels for certain land uses. These noise level guidelines address the potential for noise to interfere with speech and to result in the risk of hearing damage. For example, for residential uses, it is recommended that outdoor noise levels

not exceed an Ldn of 55 decibels. This guideline reflects the findings on speech interference of the U.S. Environmental Protection Agency which conclude that a noise level of 55 decibels outdoors offers approximately 95 percent sentence intelligibility at a distance of 11 feet, and 99 percent intelligibility at a distance of three feet.

H. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE CITY OF MOUNTAIN VIEW ENVIRONMENTAL PLANNING COMMISSION PUBLIC HEARING MAY 6, 1992, MAY 22, 1992, AND JUNE 10, 1992

The City of Mountain View held four Environmental Planning Commission public hearings on the Draft EIR for the 1992 General Plan Update. These public hearings occurred on May 6, May 20, June 10, and June 17, 1992. Testimony on the Draft EIR was received at only of these hearings (May 6, 1992), from one member of the community who did not submit comments in writing. This section provides responses to those comments that were not received in writing nor were they previously addressed in the above comments.

COMMENT FROM SHARON SIEGEL #1: The Draft EIR does not adequately address the North Bayshore Area. Specifically, the Draft EIR does not address the toxic plume under the Farmer's Field site and effects on air quality due to the application of chemicals used to control odors. In order to protect the community, these issues should be addressed in the General Plan.

RESPONSE #1: The Draft EIR discusses the existing conditions of the North Bayshore Area in Section III., A., Land Use, page 47. In addition, the Draft EIR states that the City is presently evaluating the types of land uses that could be developed in this area. Given the uncertain nature of the land uses planned for the North Bayshore Area, the General Plan Update continues to treat this area as it exists under present conditions. Future development in this area, including the Farmer's Field site will be subject to further environmental review, during which time, appropriate analyses will be initiated.

COMMENT FROM SHARON SIEGEL #2: The Draft EIR does not address the lawn seating at Shoreline Amphitheatre and the hazards associated with the presence of the methane gas recovery system.

RESPONSE #2: The Draft EIR addresses the impacts associated with the proposed 1992 General Plan Update. This project consists of changes to the General Plan Land Use Map, as well as new and revised goals, policies, and action programs. The General Plan Update also involves text amendments to establish new Land Use Map designations and to revise the existing land use designations. The Draft EIR provides environmental review for these actions, as well as addresses the potential impacts associated with the possible zoning changes for the 11 Potential Housing Sites. The existing lawn seating at the Shoreline Amphitheatre is not considered a part of the proposed General Plan Update. The installation of the lawn seating on the closed landfill and in an area with a methane gas recovery system was addressed in the environmental document prepared for the existing Shoreline Amphitheatre.

H. RESPONSES TO COMMENTS ON THE DRAFT EIR FROM THE SANTA CLARA VALLEY WATER DISTRICT RECEIVED JULY 23, 1992

COMMENT #1: The District has reviewed the Draft Environmental Impact Report for the City of Mountain View's 1992 General Plan Update.

The proposed changes in land use designations would not adversely impact the District's design flow rates for the flood control facilities in Mountain View.

RESPONSE #1: The Santa Clara Valley Water District's comments are hereby acknowledged.

SECTION XIII

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SECTION XIV

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APPENDIX A

COMMENTS ON THE NOTICE OF PREPARATION

CITY OF MOUNTAIN VIEW

MOUNTAIN VIEW 1991 GENERAL PLAN
ENVIRONMENTAL IMPACT REPORT

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF TRANSPORTATION
BOX 7310
SAN FRANCISCO, CA 94120
(415) 923-4444

November 8, 1989

SCL082065
SCH#None
SCL-082-PM19.87

Brad Eckhardt
City of Mountain View
Department of Planning and Housing
P.O. Box 7540
Mountain View, CA 94039

Re: Notice of Preparation: City of Mountain View General Plan Update

Dear Mr. Eckhardt,

Thank you for including the California State Department of Transportation (Caltrans) in the early stages of the environmental review process. We have reviewed the above referenced document and have the following comments:

The General Plan, being a concept document, does not include the impacts of specific project or development generated traffic. It does define the extent of specific land uses within a community and can provide a framework through which the impacts of specific proposals are addressed. It also provides the opportunity to explore the relationships between development projects, resulting traffic generation, and the cost and timing of circulation improvements. The General Plan Update should examine the impacts and phasing of buildout on existing transportation facilities and determine how traffic demands might be accommodated.

The General Plan should be internally consistent. Land use policies should be consistent with the transportation element. The relationship between land use policy and transportation problems should be explored.

The City of Mountain View should plan future development in a manner that accommodates expected increased traffic demand. The General Plan should address the protection of right of way, provisions for sound attenuation near transportation corridors and the need for the development of future transportation corridors and transit systems.

The General Plan Update should examine the jobs/housing balance in Mountain View. This examination should not be a simple ratio of jobs to employed residents. An evaluation of the match between the income level of different jobs in the community and the cost and variety of housing units should also be included in the jobs/housing balance discussion. The provision of housing affordable to those who work in Mountain View can reduce the number of trips in and out of the community thus lessening congestion on State highway facilities.

As indicated in Caltrans' 1988 System Management Plan, State Route 101 through Mountain View is included in Stage 1 of a Traffic Operations System (TOS) for the Bay Area, and Routes 85 and 237 are in stage 2. Management techniques such as ramp metering may be used on these routes to relieve congestion. The transportation element should examine how local circulation can be coordinated with the future TOS-managed freeways.

The Public Transportation Element of the General Plan should include a discussion of Caltrain and the connections between that commuter rail system and current and/or future transit serving the City's residents.

In the past, support for ridesharing and/or flex hours was considered ample mitigation for traffic impacts resulting from development. Due to the current high level of congestion on local and regional transportation facilities the enactment of ordinances and statutes controlling the actual implementation of TSM measures should be considered.

Project proponents should be encouraged to participate in joint impact mitigation measures to fairly assess each project's responsibility in maintaining an efficient transportation system. Possible funding mechanisms include assessment districts, impact fees and right of way dedications.

We look forward to reviewing the Draft EIR. We expect to receive a copy from the State Clearinghouse. However, to expedite the review process you may send two copies in advance to the undersigned contact person for this agency at the following address:

WADE GREENE
District CEQA Coordinator
Caltrans District 4
P.O. Box 7310
San Francisco, CA 94120

Should you have any questions regarding these comments please contact Terry Grindall of my staff at (415) 557-9431.

Sincerely yours,

BURCH C. BACHTOLD
District Director

By Wade Greene

WADE GREENE
District CEQA Coordinator

cc: Loreen McMahon, State Clearinghouse
Susan Pultz, MTC
Sally Germain, ABAG

Santa Clara County Tra portation Agency

An Agency of the County of Santa Clara

P.O. Box 611900, San Jose, CA 95161-1900

September 12, 1991

RECEIVED
SEP 17 1991
PLANNING

Michael Percy
Principal Planner
City of Mountain View
Planning and Community Development
500 Castro Street, Post Office Box 7540
Mountain View, CA. 94039-7540

Subject: Response to Notice of Preparation (NOP) of an Environmental Impact Report for the Mountain View General Plan Update

Dear Mr. Percy:

The Santa Clara County Transportation Agency has reviewed proposed changes for the general plan update. We are highly supportive of changes which would effectively integrate land use with public transit, improve pedestrian access, and are consistent with the T2010 Plan highway recommendations. We are particularly concerned with areas that are located in close proximity to existing and proposed transit stations. Following are specific general plan changes which are supported by the Agency:

- Integration into the General Plan of transportation facilities at the Evelyn Corridor/CalTrain Station Area. Facilities include the new LRT station, possible relocation of the CalTrain Station, possible additional station parking, and a possible bus transfer facility.

- Integration of the relocated CalTrain Station and the nearby bus transit center at the Old Mill Site.

- Reflection of Tasman LRT Corridor planned stations and park & ride areas. Consideration of general policies for pedestrian access, densification, rezoning, etc., for the Tasman Corridor.

- Consistency with T2010 Plan highway recommendations (e.g., Central Expressway HOV lane, Rengstorff overcrossing of Central Expressway and railroad tracks).

- Coordination of traffic analysis with the Tasman Corridor Project FEIS/FEIR.

- Conversion of areas from industrial/commercial to residential; however, we are concerned about the range used for medium high designation (12-40 du/ac). While the high end would be very supportive of densification efforts around transit stations,

Board of Supervisors: Michael M. Honda, Zoe Lofgre ridon, Dianne McKenna

the low end would not represent much change from the current pattern. We suggest policies to encourage development at the upper end of the density range (25 du/ac) for areas well served by transit.

These changes to the General Plan will aid in achieving goals to reduce vehicle trips and increase transit usage. We recognize Mountain View's commitment to achieving these goals and appreciate the opportunity to give our input.

If you have any questions about these comments, please call Jim Lightbody, Manager of Advance Planning, at (408) 299-3141.

Sincerely,

James E. Pierson
Deputy Director
Planning and Property

cc: Supervisor McKenna
LR
RGH
JRL
SF
RVE

STATE OF CALIFORNIA—THE RESOURCES AGL

GEORGE DEUKMEJIAN, Governor

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

September 18, 1991

Mr. Brad Eskhardt
City of Mountain View
Planning Department
500 Castro Street
Mountain View, California 94039

RECEIVED
SEP 23 1991
PLANNING

Dear Mr. Eskhardt:

Notice of Preparation (NOP),
Mountain View General Plan Update;
City of Mountain View

Department of Fish and Game personnel have reviewed the subject project General Plan Revision, which would alter the General Plan to allow residential development on lands currently zoned for industrial and commercial use. Due to personnel and time limitations for project review, we are unable to identify specific concerns to be addressed in the Draft Environmental Impact Report (DEIR).

The DEIR should address potential impacts to biotic resources and mitigation measures, as well as alternatives which would avoid impacts. We request that subsequent documents related to this project be submitted for our review.

The Department recommends the following overall measures to lessen or minimize impacts.

1. Avoidance or minimization of impacts to important wildlife habitats; i.e., oak woodland, wetlands, streams, riparian corridors, and habitat for sensitive plant and animal species.

2. Revegetation using native species.

3. Conformance with the Department Wetland Policy which requires no net loss of either wetland acreage or habitat value for unavoidable impacts.

If you have any questions regarding our comments, please contact Ms. Jeannine DeWald, Associate Wildlife Biologist, at (408) 429-9252, or Mr. Carl Wilcox, Associate Wildlife Biologist, at (707) 944-5525.

Sincerely,

Ken Olsen
for
Brian Hunter
Regional Manager
Region 3

STATE OF CALIFORNIA

PETE WILSON, *Governor*

STATE LANDS COMMISSION

LEO T. McCARTHY, *Lieutenant Governor*
GRAY DAVIS, *Controller*
THOMAS W. HAYES, *Director of Finance*

EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, CA 95814

CHARLES WARREN
Executive Officer

September 19, 1991

RECEIVED
SEP 23 1991
PLANNING

Ms. Carol Whiteside
State Projects Director
The Resources Agency
1416 Ninth Street, Room 449
Sacramento, California 95814

Mr. Walter Cohen
Mountain View Planning Department
P.O. Box 7540
Mountain View, California 94039

Dear Ms. Whiteside and Mr. Cohen:

This letter is in response to your request for comments to the Mountain View Planning Department's Notice of Preparation of a draft Environmental Impact Report for the Mountain View General Plan Update (SCH 91093044). Under the California Environmental Quality Act, the Mountain View Planning Department is the Lead Agency and the State Lands Commission may be a Responsible Agency and is a Trustee Agency.

STATE LANDS COMMISSION JURISDICTION

The State acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all the people of the State for the statewide public trust purposes of waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The landward boundaries of the State's sovereign interests are generally based upon the ordinary high water marks of these waterways as they last naturally existed. Thus, such boundaries may not be readily apparent from present day site inspections. The State's sovereign interests are under the jurisdiction of the State Lands Commission.

SCOPE OF ENVIRONMENTAL ANALYSIS

The Commission has a legal responsibility for, and a strong interest in, protecting the ecological and public trust values associated with the State's sovereign lands, including the use of these lands for recreation and preservation in their natural state so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life.

The document should discuss the full range of environmental issues required under CEQA, including, but not limited to, water quality and hydrology, including runoff, sedimentation, degradation, erosion and drainage; biology, including native, rare, endangered, and threatened plant, animal, and aquatic species, and species of special concern; and the loss of wetland and upland habitats.

All studies which may be needed to evaluate the environmental effects of this project, including biotic studies and inventories of plants, animals, and aquatic resources, should be conducted as part of the preparation of the Draft EIR. Relevant impact analyses should be incorporated into the document. In addition, proposed project alternatives to reduce the significant effects to a level of insignificant or proposed mitigation measures which will be incorporated into the project should be included in the document. Maps, charts, or other graphics should also be included to illustrate the location of biotic species and their habitats in relation to the project site, and the proposals for their protection.

Moreover, the document should include specific information about the exact location of the mitigation site or sites; the exact acreages of the lost habitat/wetland and of the mitigation site or sites; whether the mitigation proposes to create, enhance or restore the habitat; and the details of how the mitigation will compensate for the loss of the wetlands and the habitat for the sensitive species. Similar detailed information should also be described concerning impacts to water quality.

The document should also address project consistency with federal, state and local plans, policies and ordinances for public trust resources including, but not limited to:

> The Water Quality Act of 1987, The Clean Water Act (Section 404) and related section in Title 33 (Sections 1151 through 1414).
>
> The Rivers and Harbors Act of 1899.
>
> The Migratory Bird Conservation Act (16 USC 715-715s).
>
> The Migratory Bird Treat Act (16 USC 703 et seq.).

The North American Wetlands Conservation Act (1989, 16 USC.

The Estuary Protection Act (16 USC 1221-1226).

Public Law 92-330, June 30, 1972
(San Francisco National Wildlife Refuge)

In addition, the specific terms and conditions of regulatory agencies which may be used to mitigate potential adverse effects for this specific project should be incorporated into the document, such as the State Department of Fish and Game, the U.S. Fish and Wildlife Service, etc. Citizens for Quality Growth v. City of Mount Shasta (198 Cal. App. 3d 433) held that it is not adequate to merely rely on future compliance with regulatory programs of other agencies when considering mitigation measures. In addition, Sundstrom v. County of Mendocino (202 Cal. App. 3d 296, 307) determined that future studies are insufficient mitigation. Instead, its findings require that detailed information about the project effects be provided to agencies and the public.

If you have any questions, please call Diane Jones at 916-327-2920.

Sincerely,

Dwight E. Sanders

DWIGHT E. SANDERS, Chief
Division of Environmental Planning
and Management

cc: OPR

File: SCH 91083044

APPENDIX B

TRAFFIC ANALYSIS
KORVE ENGINEERING, INC.

CITY OF MOUNTAIN VIEW

MOUNTAIN VIEW 1991 GENERAL PLAN
ENVIRONMENTAL IMPACT REPORT

Korve Engineering, Inc.

Mountain View General Plan Circulation Element Update

EXISTING CONDITIONS REPORT

Prepared for the City of Mountain View

by Korve Engineering, Inc.

Revised Draft

July 23, 1990

Mountain View General Plan Circulation Element Update

EXISTING CONDITIONS REPORT

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EXISTING CONDITIONS REPORT

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SUMMARY OVERVIEW

Since the 1982 General Plan Circulation Chapter was completed, there have been many changes in the City of Mountain View and the surrounding region. The overall transportation context has changed, in the sense that both problems and solutions are being more effectively addressed on a regional level. Financing for needed transit and roadway improvements is more certain than in 1982, particularly with the recent passage of gasoline tax and bond measures at the State level. On the other hand, the trend towards dispersed land development has continued, further increasing average commute distance and air quality impacts. This Existing Conditions Report has been prepared as a precursor to a revised Circulation Chapter, and provides information about the current status of several important elements of the transportation system.

Improvements to the Transportation System

A multitude of physical and operational improvements have been made to the transportation system since the 1982 General Plan update. These include additions to the system of regional freeways and expressways, local street capacity and safety improvements, and improved public transit service and linkages. Illustrative examples of both regional and local improvements include:

- Addition of "commuter" lanes on US 101 and State Route 85 to encourage higher average vehicle occupancy during periods of peak travel demand;
- Extensive reconstruction of Castro Street in the downtown area, to foster a pedestrian and transit-oriented environment;
- Application of traffic systems management techniques to improve safety and minimize conflicts at numerous intersections in the City, particularly along El Camino Real;

- Continuation and improvement of the Peninsula rail commute service under the sponsorship of Caltrans; and

- Implementation of shuttle service between North Bayshore employers and the CalTrain Castro station.

Consistent with the objectives of the 1982 General Plan, these improvements have been implemented to improve mobility by encouraging more efficient use of the highway network and by making public transit a viable alternative for a greater segment of the population. Almost all of the roadway and intersection improvements listed in the 1982 plan have been constructed.

The Current Transportation Environment

Travel characteristics and the overall context of transportation in the San Francisco Bay Area have changed significantly in the past eight years. Some of the concerns voiced in the 1982 Plan have continued or worsened, while others have not materialized. The decade of the 1980s could be characterized as a period during which transportation came to be more widely perceived as a regional problem of urgent concern. This is evidenced in the resurgence of state and county involvement in transportation improvement projects, willingness of the electorate to shoulder additional taxes and debt to fund such projects, and a widespread awareness of the significant impact of congestion upon the region's economic and social well-being.

Examples of some of these contextual changes include:

- Vehicle miles of travel (VMT), a standard measure of the quantity of travel demand on the highway system, has grown at a greater rate than either the population or the number of registered autos. This is due to several factors, including stable gasoline prices, longer home-to-work commute trips, and conversion to a service-oriented economy that places greater emphasis on personal contact.

- Continuation of the increase in land and housing prices in the region, which has extended the trend of sprawling suburban and exurban development, and therefore longer commute trips for many employees and residents of the South Bay.

Summary Overview

- Increase in the average number of employed persons per household, which has translated to higher income, auto ownership, and travel demand per household.

Corresponding responses to these changes include these examples:

- Development of coordinated regional travel demand management (TDM) responses, of which the pending *Golden Triangle Task Force* TDM Ordinance is the best example;

- Accelerated studies of regional infrastructure improvements, such as the Santa Clara County *Transportation 2000* comprehensive planning effort;

- Assumption of higher taxes and debt to provide funding for highway and transit improvements, first with the County's Measure A sales tax increase, and most recently, with the passage of a state-wide gasoline tax increase and bond issues.

- Increased attention to solving transportation problems through land use decisions, notably the provision for more housing, and more affordable housing, in many cities' General Plans throughout the Bay Area.

These responses recognize the regional nature of the transportation system and its problems, and the need for solutions to be coordinated on a regional level.

Deficiencies of the Transportation System

The City's transportation system deficiencies stem not from a lack of foresight or investment. Rather, the unprecedented economic growth within the Santa Clara valley and the San Francisco Bay Area as a whole has occurred at a pace that has outstripped improvements and additions to the system. Furthermore, the dispersed nature of land development has left commuters with few viable alternatives to the automobile for work-related travel. Some of the symptoms and causes of this situation include:

- Peak-period congestion exists at several major intersections, particularly those on El Camino Real and other heavily travelled arterials. Although the roadways themselves are operating at acceptable levels of service, a limited number of key intersections experience significant congestion.

- The City's grid street system permits and sometimes encourages commuter and other non-local traffic to use residential neighborhood streets to avoid congestion on arterial and collector roads.

Summary Overview

- At-grade rail crossings present additional capacity and safety problems at Rengstorff Avenue and Castro Street.

- The City's dispersed pattern of land development has, over time, separated residential and commercial areas by significant distance. This pattern discourages walking and cycling as viable travel modes for local trips, and makes it difficult to efficiently serve the City with public transit.

- Transit carries a very small percentage of work-related trips to and from Mountain View. An abundance of free parking contributes to the low use of transit and other alternative modes for both local and regional work trips.

- Missing links in the system of bike and pedestrian routes in the City discourage use of these modes. Travel arteries including Central Expressway, the Southern Pacific right-of-way, and U.S. 101 present significant obstacles to non-motorized travel.

- The region's freeways and expressways have not been able to accommodate the growth in VMT without significant congestion.

The current status of the transportation system serving the City of Mountain View is described in more detail below.

EXISTING CONDITIONS REPORT

1. THE CURRENT TRANSPORTATION NETWORK

The system of roadways, transit service, bicycle routes, and other physical elements which make up the transportation system serving the City of Mountain View is described below.

A. Roadways

Streets and highways in the City of Mountain View are classified according to function: freeway, expressway, arterial, residential arterial, collector and local street.

- **Freeways** are "grade-separated", limited-access roadways which primarily serve long distance trips. Access to a freeway is by interchange only, with the main freeway roadway at a different level (or grade) than the cross street.
- **Expressways** serve regional trips, as do freeways; however, expressways often have signalized intersections at-grade, in addition to grade-separated interchanges. Neither freeways nor expressways permit direct access to adjacent parcels.
- **Arterial** roadways provide connections between freeways and activity centers. Arterials also provide direct access to adjacent land uses, via driveways, as well as indirect access, via intersections with collector streets.
- **Residential Arterials** are arterials which pass through and immediately serve adjacent residential land uses. These roadways generally have more landscaping and other amenities than non-residential arterials. In the City of Mountain View, speed limits are lower on residential arterials than regular arterials.
- **Collector** streets provide direct access to adjacent land uses, collect traffic from several local streets and route traffic to arterials.
- **Local** streets serve only adjacent land uses and are designed to protect residents from through traffic.

Important components of the city's roadway network include the following:

Freeways and Expressways

Regional access to the City of Mountain View is provided by several state and county routes. State routes include US 101 (Bayshore Freeway), Interstate 280 (Junipero Serra Freeway), State Route 85 (Stevens Creek Freeway), State Route 82 (El Camino Real) and State Route 237 (Mountain View - Alviso Freeway). State highways and freeways are within the jurisdiction of the California State Department of Transportation (Caltrans.) The state controls the design, operation, and maintenance of these facilities, including traffic signals where state routes intersect county or local roads. Expressways are maintained by the County of Santa Clara. Two County expressways serve Mountain View, the Central Expressway (G6) and the Foothill Expressway (G5).

US 101 runs in an approximate north-south alignment on the Peninsula. However, as it passes through Mountain View, it runs nearly east-west, and this report refers to US 101 as an east-west facility. U. S. 101 was widened to 8 lanes in 1989 with the addition of commuter lanes through Mountain View from the Lawrence Expressway to the San Mateo County line in Menlo Park paid by Measure A sales tax funds. Previously (ca. 1986) two commuter lanes were added to U.S. 101 east of Mountain View between Guadalupe Parkway and the Lawrence Expressway. Commuter lanes are lanes on expressways or freeways reserved for use during peak commute periods by buses, motorcycles, and carpools with 2 or more occupants[1]. The term is synonymous with High Occupancy Vehicle or HOV lanes.

Interstate 280 is a six to eight lane freeway which runs south of the City of Mountain View. Access to I-280 from Mountain View is possible through interchanges at El Monte Avenue, Magdalena Avenue, the Foothill Expressway, and the Stevens Creek Freeway (SR 85.) None of these interchanges lie within the City. I-280 provides major access to the north and south along the length of the Peninsula, linking the South Bay to San Francisco. I-

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1 Hours of commuter lane operation vary. Typical hours are 5-10 am or 6-9 am, and 3-6 pm or 3-7 pm.

280 serves many of the same origins and destinations to and from the South Bay and San Francisco as does US 101.

Route 85 connects US 101 near Shoreline Boulevard to Interstate 280 southeast of Mountain View. Caltrans has widened this route to six lanes between 280 and Middlefield Road with the addition of two commuter lanes. Between Middlefield Road and Route 101, the freeway remains 4 lanes wide. Work is underway to extend the freeway to the south side of San Jose, parallel with Blossom Hill Road, providing an alternative to Route 101. This will serve travel demand between southern and northern Santa Clara County, as well as the Peninsula. This improvement is being funded by Measure A money.

Route 237 is a four-lane, grade-separated expressway through the City of Mountain View. It travels from El Camino Real at Grant Road to Interstate Routes 880 and 680 in the East Bay. At the point where Route 237 intersects with El Camino Real at grade, substantial congestion develops during peak periods. Future plans include upgrading Route 237 to full freeway status east of Mathilda Avenue.

Central Expressway is a divided four-lane, limited-access surface arterial which runs parallel to the Southern Pacific railroad tracks. This arterial provides connections to Palo Alto to the north and west, and Santa Clara and Sunnyvale to the south and east. Santa Clara County recently approved widening Central Expressway to six lanes east of Shoreline Boulevard, with the addition of commuter lanes. Caltrans, in cooperation with the County, is studying ways of more effectively using Central Expressway as an alternative route to the congested US 101. In Mountain View, the Central Expressway has both at-grade and grade-separated intersections and interchanges. There are no uncontrolled points of access, however, such as driveways or unsignalized intersections. At the northern city limit, the Central Expressway changes name to Alma Street, and becomes a four-lane arterial roadway, with numerous driveways and unsignalized intersections. During afternoon and evening commute periods, traffic congestion on this roadway can back up into Mountain View.

Foothill Expressway is also a divided, four-lane, limited-access surface arterial to the

south and west of Mountain View. Its termini are in the cities of Palo Alto and Cupertino, and intersections are located in Los Altos and Los Altos Hills as well. Although the expressway does not pass through Mountain View, it is accessible via numerous arterials which do pass through the City. Access to the Foothill Expressway is via at-grade, signal-controlled intersections.

Arterials

Mountain View has several major arterials which provide local and sub-regional access. There are four major east-west arterials: Middlefield Road, Evelyn Avenue, California Street, and El Camino Real; and six major north-south arterials: portions of Whisman Road, Moffett Boulevard, Shoreline Boulevard, Rengstorff Avenue, and San Antonio Road.

Middlefield Road is a four-lane arterial with landscaped median that runs east-west through the northern portion of Mountain View. This roadway extends west from the Central Expressway at Mary Avenue through Palo Alto, Menlo Park, and Redwood City.

Evelyn Avenue is an east-west frontage road that runs south of the Central Expressway. Evelyn is a two lane arterial which extends from Castro Street in downtown Mountain View to downtown Sunnyvale.

California Street is a four-lane arterial with a median in some locations which extends from Del Medio to Downtown Mountain View. California Street is the first through route south of the Southern Pacific railroad tracks, although it ceases to be an arterial at Bush Street downtown. Traffic continuing east must travel on Central Expressway or Evelyn Avenue.

El Camino Real is a six lane major arterial which runs the length of the Peninsula. This roadway carries both intermediate and long distance traffic along the Peninsula, and collects and distributes traffic to and from crossing roadways. It also serves as a major commercial street in Mountain View, with many driveways directly to the street.

Whisman Road is a four-lane north-south roadway which runs east of State Route 85 and west of State Route 237. South of Middlefield Road, Whisman is an arterial which provides access to Central Expressway and State Route 237. North of Middlefield, Whisman is a residential arterial (see below).

Moffett Boulevard runs north-south from the Central Expressway to north beyond the Bayshore Freeway, providing primary access to Moffett Field. Moffett is a four-lane arterial. South of Central Expressway, Moffett becomes Castro Street, the central spine of the downtown commercial and retail area. Castro Street is currently in the final construction phase of a major street improvement program designed to enhance pedestrian and transit access to and within downtown.

Shoreline Boulevard is a four to six lane arterial with a median and bike lanes. South of El Camino Real, Shoreline becomes Miramonte Avenue. Together Miramonte Avenue and Shoreline Boulevard form the longest north-south route in the City, extending from the southern city limits north to the Shoreline regional recreation facility. Shoreline Boulevard is the central north-south traffic spine of the City. The street was previously named Stierlin Road and Bailey Avenue.

Rengstorff Avenue is a four-lane arterial which runs north-south through the City of Mountain View, from north of the Bayshore Freeway to El Camino Real. Rengstorff provides access to single family and multi-family residential areas along much of the route. Although not aligned directly, Rengstorff Avenue also provides fairly easy access to El Monte Avenue which is a four lane residential arterial extending south from El Camino into Los Altos.

San Antonio Road is a four- to six-lane arterial which runs south from the Bay to the Foothill Expressway in Los Altos. The roadway north of Central Expressway is in the City of Palo Alto.

Residential Arterials

Mountain View also has five residential arterials: Cuesta Drive, parts of Whisman Road, Grant Road, Miramonte Avenue, and El Monte Avenue/Springer Road.

Cuesta Drive is a four-lane roadway with median that runs east-west from Grant Road past Springer Road into the City of Los Altos.

Grant Road is a four to six lane residential arterial with a median in some locations. The street runs north-south from the intersection of Route 237 and El Camino, to the Foothill Expressway to the south.

Miramonte Avenue is a four-lane residential arterial with a median in some locations. The roadway begins at El Camino Real and extends south to the Foothill Expressway in Los Altos. Miramonte becomes Shoreline Boulevard north of El Camino Real.

El Monte Avenue-Springer Road serves the southwest corner of Mountain View. This two-lane north-south arterial begins at El Camino Real and extends south to the City of Los Altos.

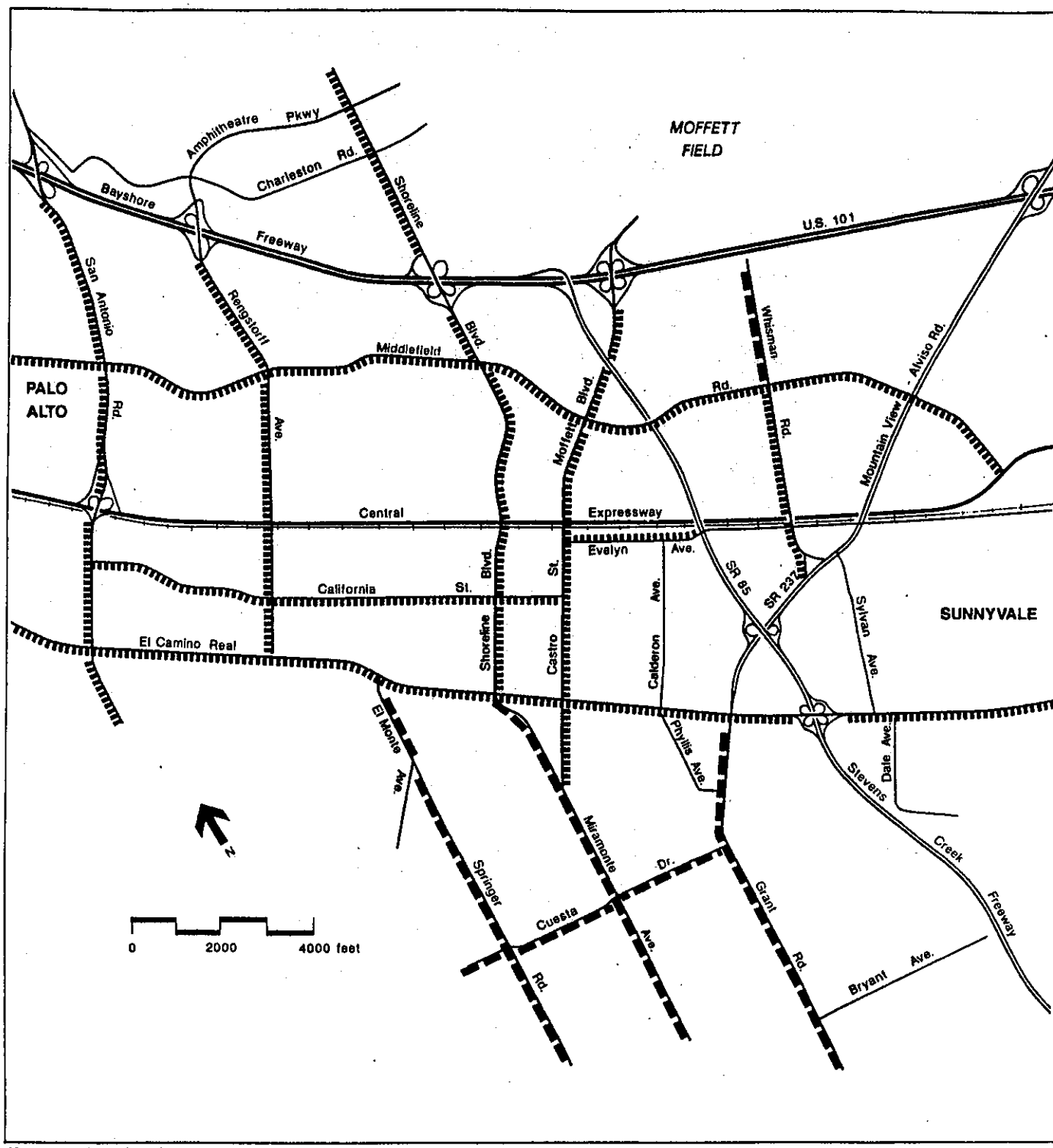
Arterial and residential arterial roadways in the City of Mountain View are listed in Table 1. Figure 1 illustrates the principal components of the regional and local roadway network.

Table 1

CLASSIFICATION OF PRIMARY ROADWAYS

Arterial	*Residential Arterial*
Middlefield Road	Cuesta Drive
Evelyn Avenue	Whisman Road (north of Middlefield Road)
California Street	Grant Road
El Camino Real	Miramonte Avenue
Whisman Road	El Monte Avenue
Moffett Boulevard/ Castro Street	Springer Road
Shoreline Boulevard	
Rengstorff Avenue	
San Antonio Road	

Revised Draft 7/23/90



Korve Engineering, Inc.

LEGEND

- Freeway
- Arterial
- Residential Arterial
- Collector

FIGURE 1

LOCAL AND REGIONAL ROADWAY NETWORK

Funded Near-Term Improvements

Transportation improvements proposed by the City in the North Bayshore Area include widening of Crittenden Lane near North Shoreline Boulevard and Amphitheater Parkway, to two lanes plus shoulders; extension of Charleston Road over Stevens Creek connecting to Moffett Field and potentially to the Moffett Boulevard interchange at US 101; and widening of the Shoreline Boulevard overcrossing of the Bayshore Freeway from 2 lanes to 4 lanes. Currently, the Rengstorff Avenue overcrossing, which includes a widened overpass (4 lanes) is being reconstructed. The freeway overcrossing widenings are joint ventures between the City of Mountain View and the Santa Clara County Transportation Authority.

Caltrans freeway improvement programs within the City of Mountain View include construction of a new eastbound on-ramp to US 101 at San Antonio Road, and closure of the existing on-ramp at the end of Charleston Road. This will improve the weaving problem under the Rengstorff overpass. The program also includes ramp metering at the San Antonio Road interchange. The freeway access ramp metering would control the number of vehicles entering the freeway eastbound during peak commute periods. Ramp metering consist of installing signals at designated locations. The effect of such ramp-metering is to divert short trips off the freeway to the arterial streets, prevent excessive congestion on the freeway mainline, and improve the freeway capacity. Construction of this freeway improvement program is estimated to begin in early 1991.

B. Transit

The Santa Clara County Transit District (SCCTD) provides transit service to the Mountain View area. The system has approximately 20 routes providing service to Mountain View, and 79 routes system-wide. Connections with BART and AC Transit in Fremont and Milpitas are provided, as well as to San Mateo County Transit (SamTrans) in Palo Alto and Menlo Park. The service also provides connections to Amtrak, Greyhound and Peerless Bus Services in San Jose.

Revised Draft 7/23/90

The county bus routes run on the major arterial roadways throughout the City. The Mountain View Transit Center, located along Showers Drive between San Antonio Road and California Street, serves as a terminal for approximately 10 bus lines. County Transit buses generally run on 10 to 30 minute headways during the weekdays and every 15 to 60 minutes during the evenings and on the weekends and holidays. The downtown train station is also a transfer station service for three routes. Table 2 and Figure 2 identify the major Santa Clara County Transit District bus routes which serve the City of Mountain View.

The SCCTD also provides two Bonus Bus Routes (Routes 300 and 304) to the City of Mountain View. The Bonus Bus operates similar to an Express Bus, which makes fewer stops, but has the same fare as the regular transit service. The routes provide service to offices, industrial areas, and colleges during peak periods.

Table 2

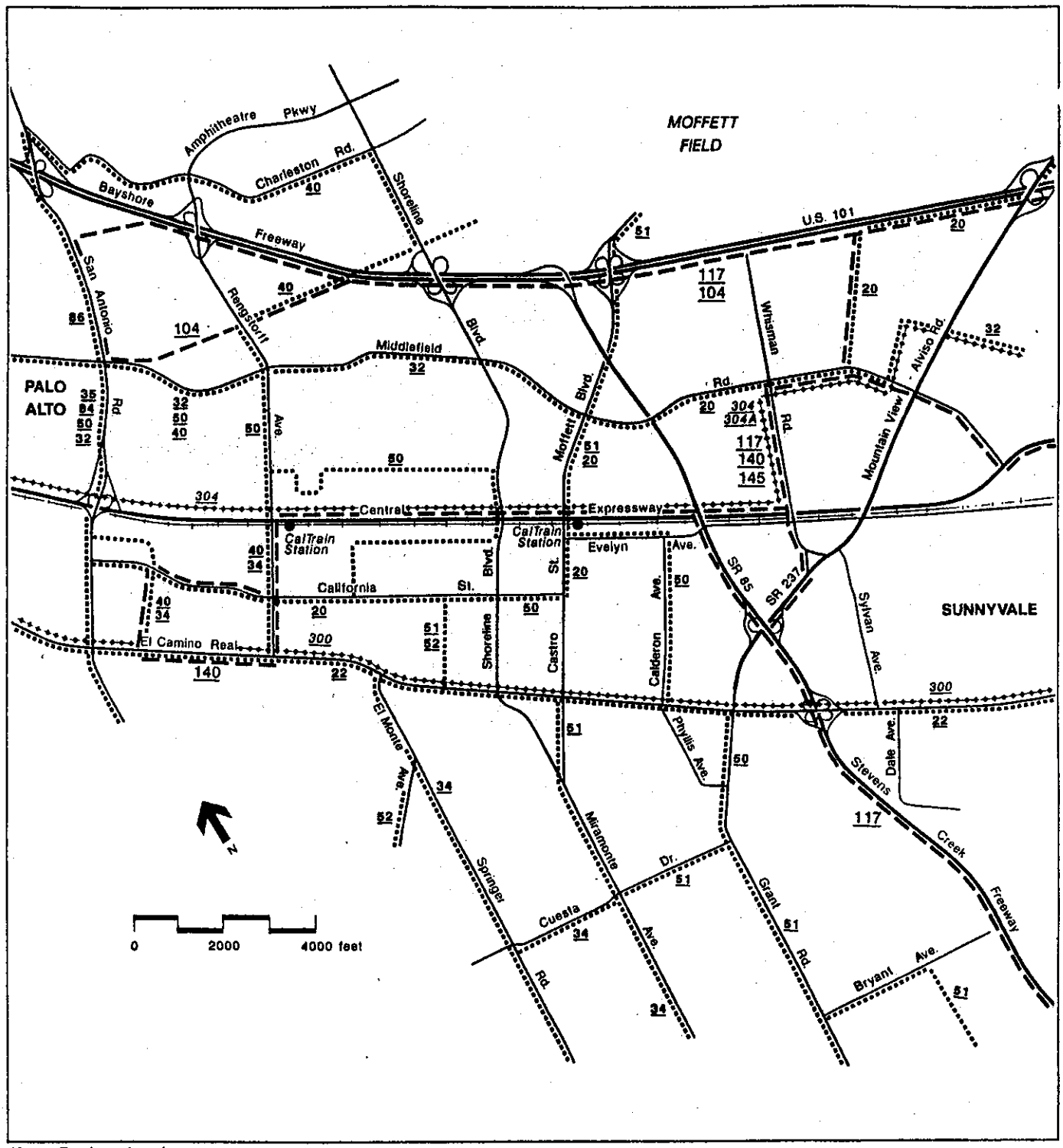
Santa Clara County Transit District Bus Routes

Within the City of Mountain View

	Bus Line	*Route Description*
Local Routes		
	20	Milpitas to Mountain View
	22	San Jose to Palo Alto/Menlo Park
	23	San Jose to San Antonio Center (MV)
	32	Santa Clara to San Antonio Center
	34	Santa Clara to San Antonio Center
	35	Stanford University to Foothill College (LA)
	40	L'Avenida to San Antonio Center
	50	El Camino Hospital (MV) to San Antonio Center
	51	Cupertino to Moffett (MV)
	84	Palo Alto to San Antonio Center
	86	Stanford Shopping Center (PA) to San Antonio Center
Express Routes		
	104	San Jose to Palo Alto
	117	San Jose to Moffett Field
	140	Fremont BART to Mountain View
	145	San Jose to Mountain View Industrial Area

*Note: MV - Mountain View
LA - Los Altos
PA - Palo Alto

Revised Draft 7/23/90



Korve Engineering, Inc.

Local Bus Routes (20)

Express Bus Routes (117)

Bonus Bus Routes (300)

FIGURE 2

EXISTING TRANSIT ROUTES

County Transit does not provide service exclusively for elderly and handicapped passengers. However, approximately 90% of the buses are lift-equipped, and a substantial fare discount is given to seniors and the handicapped.

The Community Service Agency provides paratransit service for cities of Mountain View, Los Altos and Los Altos Hills. The VANTRANS service runs from 8:30 a.m. until 5:00 p.m., Monday through Friday on a pre-scheduling and demand-sensitive basis. The service also operates on a first-come, space available basis. A typical fare for a passenger traveling from Mountain View to Los Altos Hills is $1.25 one-way. VANTRANS also has contracts with a local cab company and an ambulance service to provide demand-responsive transit. The current annual budget for the VANTRANS program is approximately $270,000, of which 70% is funded by MTC. The remaining 30% comes from local sources, including the City of Mountain View. The City's contribution in the coming fiscal year is expected to be approximately $17,500.

The "CalTrain" Peninsula commuter rail service, formerly the Southern Pacific, provides service in the Southern Pacific right-of-way from San Francisco to San Jose. CalTrain depots are located in Mountain View at Crisanto at Rengstorff, and downtown near Castro Street and West Evelyn Avenue (see Figure 2). Train service is provided from 4:50 am until 11:25 pm. Trains generally run on 30 to 60 minute headways during the weekdays, and every 8 - 15 minutes during the evening peak hour. Service is also provided on weekends between the hours of 6:00 am and 11:25 pm.

Shuttle bus service between the Castro CalTrain Station[2] and the North Bayshore area industrial and office park is operated through an agreement with the industrial park building management. This shuttle connects the Crisanto Street station with all of the larger businesses on Charleston Road between Amphitheater Parkway and Shorebird Way. The cost of the shuttle is shared evenly by Caltrans and the City. In turn, the City seeks partial reimbursement of its 50% share from those businesses served by the shuttle.

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2 The "Castro" station is located on Crisanto Avenue at Rengstorff Avenue. The "Downtown" Mountain View station is located on Evelyn Avenue near Castro Street.

C. Bicycle Circulation

The Caltrans Highway Design Manual designates three types of bikeways:

Class I - (Bike Path) Provides for bicycle travel on a right-of-way completely separated from any street of highway.

Class II - (Bike Lane) Provides a striped lane for one-way bike travel on a street or highway.

Class III - (Bike Route) Provides for shared use with pedestrian or motor vehicle traffic.

Class I Bikeways have a minimum width of 5 feet for one-way bike paths, and 8 feet for two-way. A minimum 2-foot wide graded area should be provided adjacent to the pavement. If possible, dual use by pedestrian traffic is undesired, and the two should be separated. The minimum design speed for Class I Bikeways should be 20 miles per hour; however, the most precise design speed should be based upon the terrain and the expected type of use.

Class II Bikeways are striped bike lanes that are intended to promote an orderly flow of traffic by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. The bike lanes are supported by bike lane signs and pavement markings. Bike lanes should be one-way facilities; two-way bike lanes are not permitted. The minimum bike lane width is 5 feet where parking is permitted. Where parking is prohibited, the minimum bike lane width is 4 feet.

Class III Bikeways, or bike routes, are shared facilities either with motor vehicles on the street, or with pedestrians on sidewalks, with the bicycle usage as secondary. Class III facilities are established by placing Bike Route signs along roadways. The designated use of sidewalks for bicycle travel is generally unsatisfactory.

The County has designated a Class II bike lane on Central Expressway throughout the City of Mountain View. The City of Los Altos has designated Class II bicycle lanes on Springer Road, which connect to El Monte Avenue in Mountain View and continues as

far north as El Camino Real.

Principal Bikeways within the city include the following:

Bicycle Lanes -

- Shoreline Boulevard north of Central Expressway to Charleston above US 101.
- Rengstorff Avenue from El Camino Real to Middlefield Road
- Middlefield Road from San Antonio Road to Route 237.
- California Street from San Antonio Road to Castro Street.
- Whisman Road, Calderon Avenue, Phyllis Avenue, Grant Road and Sylvan Avenue.

Bicycle Routes -

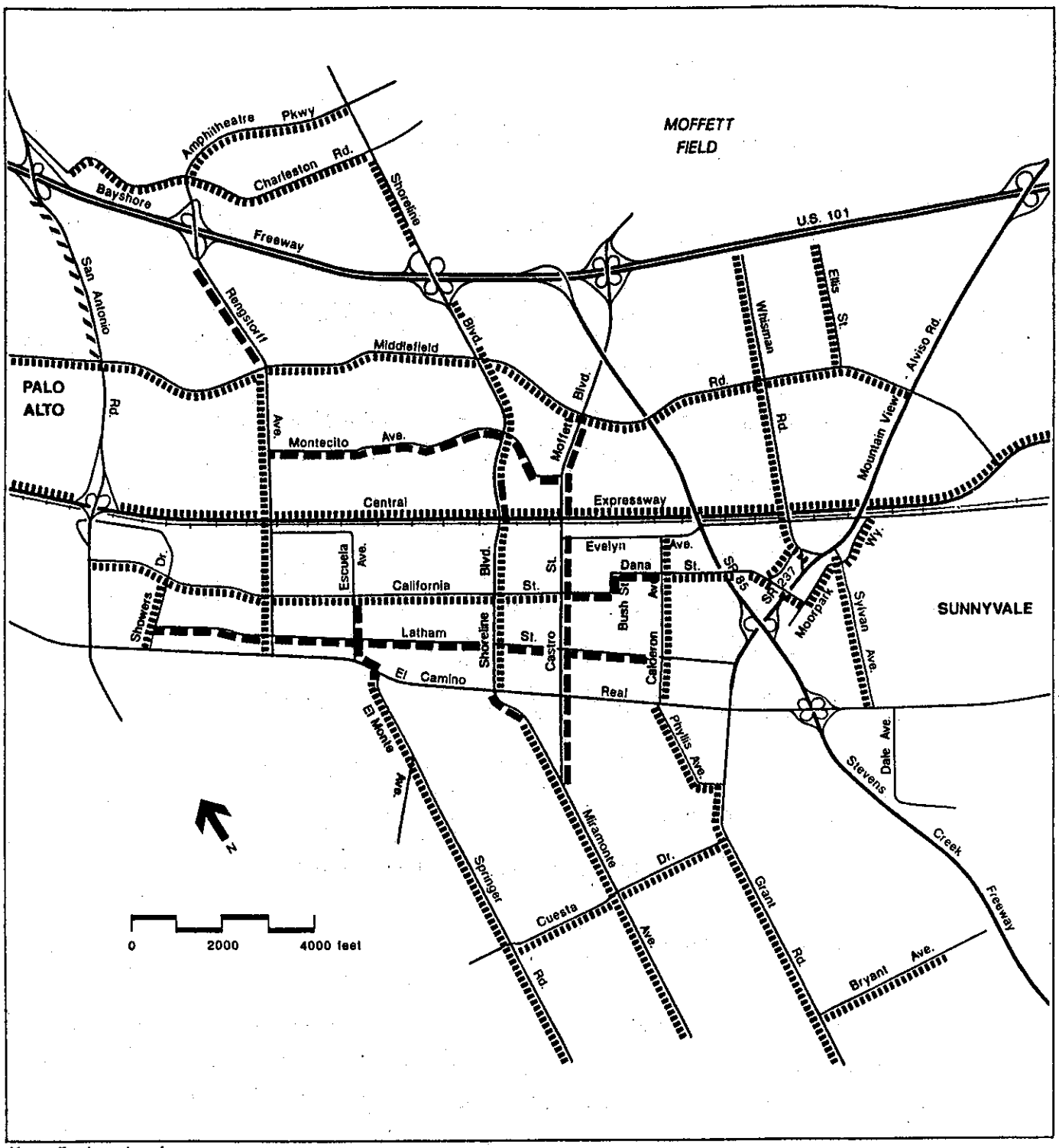
- Rengstorff Avenue from Middlefield Road to US 101 Interchange.
- Moffett Boulevard and Castro Street.
- Montecito Avenue from Rengstorff Avenue to Moffett Boulevard.
- Latham Street from Showers Drive to Calderon Avenue.

Bicycle lanes and routes are also located on other minor roadways throughout the city.

Figure 3 illustrates the existing bicycle system plan for the City.

D. Pedestrian Paths and Trails

Sidewalks are required on all roadways by the City's geometric standards. Sidewalks have been completed along all of the major arterial and primary roadways. An enhanced pedestrian walkway with greenbelts and landscaping is provided along Middlefield Road throughout parts of the City. Improvements on and adjacent to Castro Street in the downtown area, now underway, will improve pedestrian access and safety in that area, and have been designed to foster pedestrian activity in the downtown area.



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Class I Bike Path (Bicycles may use sidewalk)

Class II Bike Lane

Class III Bike Route

FIGURE 3

EXISTING BIKE FACILITIES

Shoreline Park, developed on landfill north of the Bayshore Freeway, provides a system of riding and hiking trails for recreational purposes. The Bay Trail, a 450-mile environmental and recreational pathway which covers the entire Bay Area shoreline, also runs through the City of Mountain View along Stevens Creek between Shoreline and Moffett Boulevard. The trail connects 90 parks along the shoreline and provides access to the San Pablo and San Francisco Bays. Approximately 270 miles of the trail have yet to be completed.

E. Aviation

Moffett Field Naval Air Station is located immediately northeast of the city limits. The airfield is split by a boundary which defines the legal spheres of influence between Mountain View and Sunnyvale. Moffett serves as a base for turboprop antisubmarine patrol aircraft. Moffett airfield is also used as a testing field for NASA aircraft, and occasional use by Lockheed and Okazuna Airforce Base. Primary access to Moffett Field is provided via Moffett Boulevard, and secondary access gates are provided at Ellis and Lockheed.

Two nearby peninsula cities, Palo Alto and San Carlos, provide general aviation facilities. The nearest commercial aviation airport is San Jose International, located on US 101 20 miles south of Mountain View. The San Francisco International Airport is approximately 25 miles northwest.

2. ROADWAY AND TRANSIT TRAVEL VOLUMES

The following section describes roadway volumes and transit ridership.

A. Roadway Volumes and Conditions

The ability of a highway or street network to carry traffic is determined by the number of traffic lanes, the width of the traffic lanes, geometric design, and the degree and frequency of interruption of flow due to cross-street traffic and driveways. Transportation

analyses frequently use intersection level of service as a measure of operating conditions. For this General Plan update, however, level of service and volume/capacity ratios of street segments ("links") are evaluated, instead of intersections. There are several reasons for this.

Intersection level of service is indicative of conditions during a given period of time, usually one hour during the morning or evening commute period. In contrast, link level of service is indicative of the total daily demand relative to roadway capacity at a desired level of performance. This 24-hour measure is suited to long-term network planning analysis. Furthermore, level of service or volume/capacity deficiencies at intersections can often be corrected through limited capital improvements such as approach widening, modernized traffic signal control, or elimination of parking. Link deficiencies, however, are indicative of a more significant imbalance between demand and supply, as it is typically more difficult and costly to add lanes to an existing roadway than to modify intersections. This is especially true in a mature community such as Mountain View. Because one of the important purposes of the Circulation Chapter update is to test the ability of the street system to accommodate future growth, it is more critical to identify any substantial link deficiencies which might be caused or exacerbated by this proposed growth.

The City Department of Public Works has recently begun development of a city-wide travel forecasting model which will provide intersection level of service estimates. It is anticipated that this model will be used to test future land use proposals in more detail and to identify specific intersection deficiencies and improvements.

The capacity of a street is the maximum amount of traffic a given street can carry in a specified period without resulting in extreme congestion. Hourly or daily (24-hour) capacities are most often used to define roadway operations. The "Level of Service" is a special criteria used to describe the quality of traffic flow on a roadway. Level of Service, or LOS, is related to traffic speed, and density of traffic flow (number of cars per unit of time.) Service levels are characterized in terms of letters A - F with A representing the best or most free-flowing traffic condition, and F as the worst condition where traffic

volumes have reached the roadway capacity, and travel is delayed for long periods of time.

For urban roadways the proportion of roadway capacity utilized during a defined period of time is the primary criterion used to define the level of service. This "Volume-to-Capacity Ratio", or V/C ratio, expresses the ratio of traffic volume to ideal capacity. Table 3 provides a description of the various levels of service and the corresponding V/C ratio.

Current traffic conditions were evaluated through analysis of available traffic data collected by the City. Volume/Capacity Ratios and Levels of Service were estimated for major roadways. Figure 4 shows the existing daily (24-hour) and peak hour traffic volumes within the City of Mountain View as measured during 1988 and 1989.

Heavy commute-period volumes reach or exceed the ideal capacity of several regional links in the roadway system. US 101 generally reaches capacity during the evening peak commute period, when congestion develops in both directions and the Highway 85/US 101 interchange impedes traffic flow. El Camino Real also operates at or near capacity through Mountain View, with heavy congestion developing at intersections with other major arterials such as San Antonio Road, Rengstorff Avenue, Shoreline Boulevard, and Grant Road. In years since the 1982 General Plan, the morning and evening commute periods have extended in duration. Significant congestion now frequently occurs on weekdays between the hours of about 6:30 a.m. to 9;30 a.m., and from 3:00 p.m. to 6:00 p.m. or later.

Certain routes in Mountain View have unused capacity, and could carry more traffic than at present without significant congestion. These include Middlefield Road and the Central Expressway, which, although congested during portions of the commute periods, are relatively uncongested during the rest of the 12-hour period of 6 am to 6 pm. Shoreline Boulevard is also relatively uncongested over much of its length throughout most of the day. In contrast, the Bayshore Freeway and El Camino Real carry such high volumes that they experience moderate to severe congestion throughout most of the 12-hour period of 6 am to 6 pm.

Table 3

Level of Service and Volume/Capacity Definitions

Level of Service	*V/C Ratio*	*Roadway Condition*
A	0 - .60	Free Flow; vehicles unaffected by other vehicles in traffic stream.
B	.61 - .70	Higher speed range of stable flow.
C	.71 - .80	Stable flows with volumes not exceeding 80 percent of capacity.
D	.81 - .90	Upper end of stable flow conditions. Volumes do not exceed 90 percent of capacity.
E	.91 - 1.00	Unstable flow at roadway capacity. Operating speeds 25 to 30 mph or less.
F	1.00 +	Stop-and-go with traffic operating speeds less than 30 mph.

Assumed Roadway Capacity in Vehicles Per Lane Per 24 Hours

Highway	18,500
Arterial	7,500
Collector	6,000

Source: Highway Capacity Manual, Transportation Research Board of National Research Council, 1980; City of Mountain View Roadway Capacity Standards.

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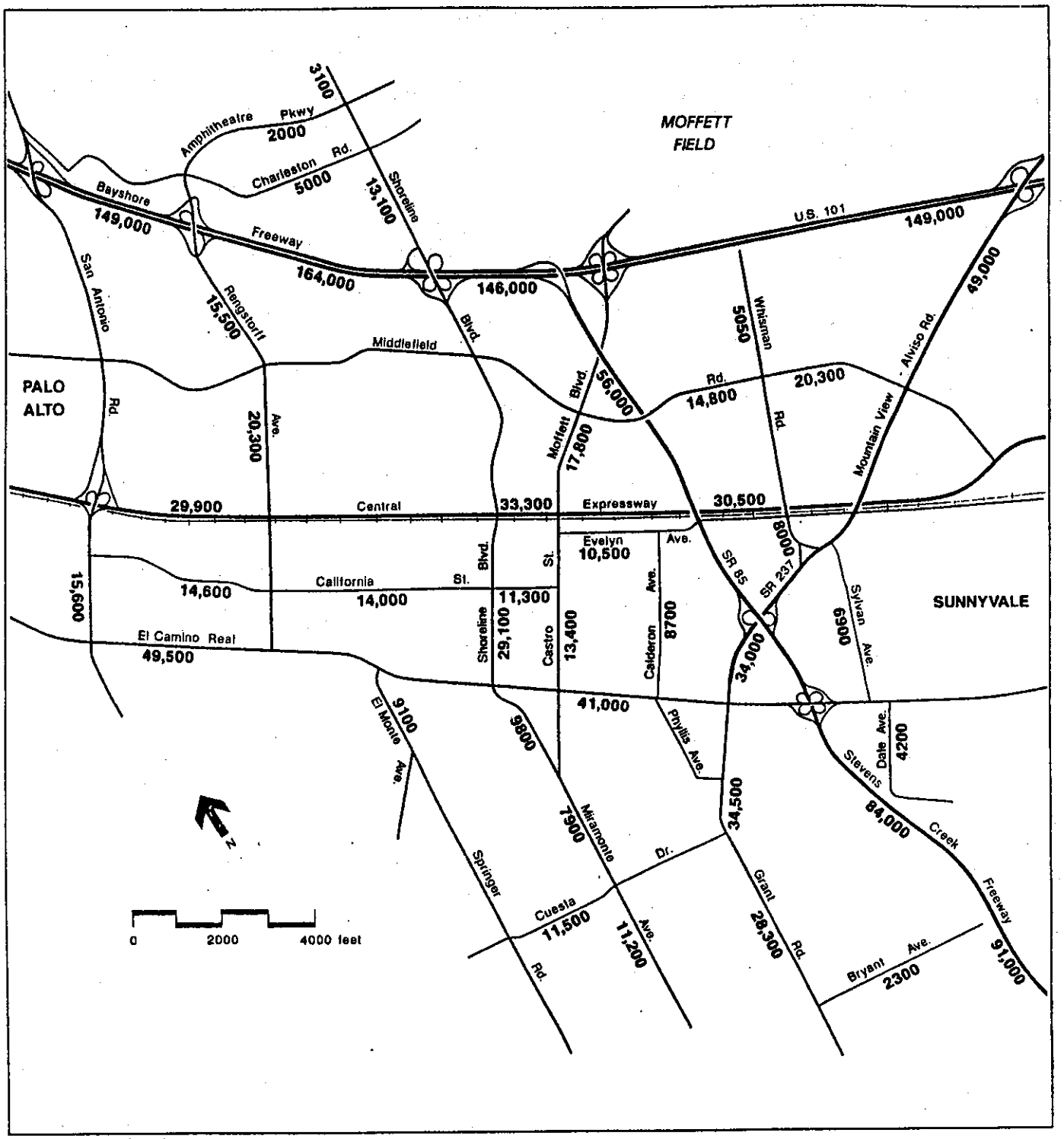

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FIGURE 4

RECENT DAILY TRAFFIC VOLUMES

Current traffic conditions were evaluated through analysis of available traffic data collected by the City. Volume/Capacity Ratios and Levels of Service were estimated for major roadways. Level of service for key roadway segments, based upon daily traffic volume is indicated in Figure 5.

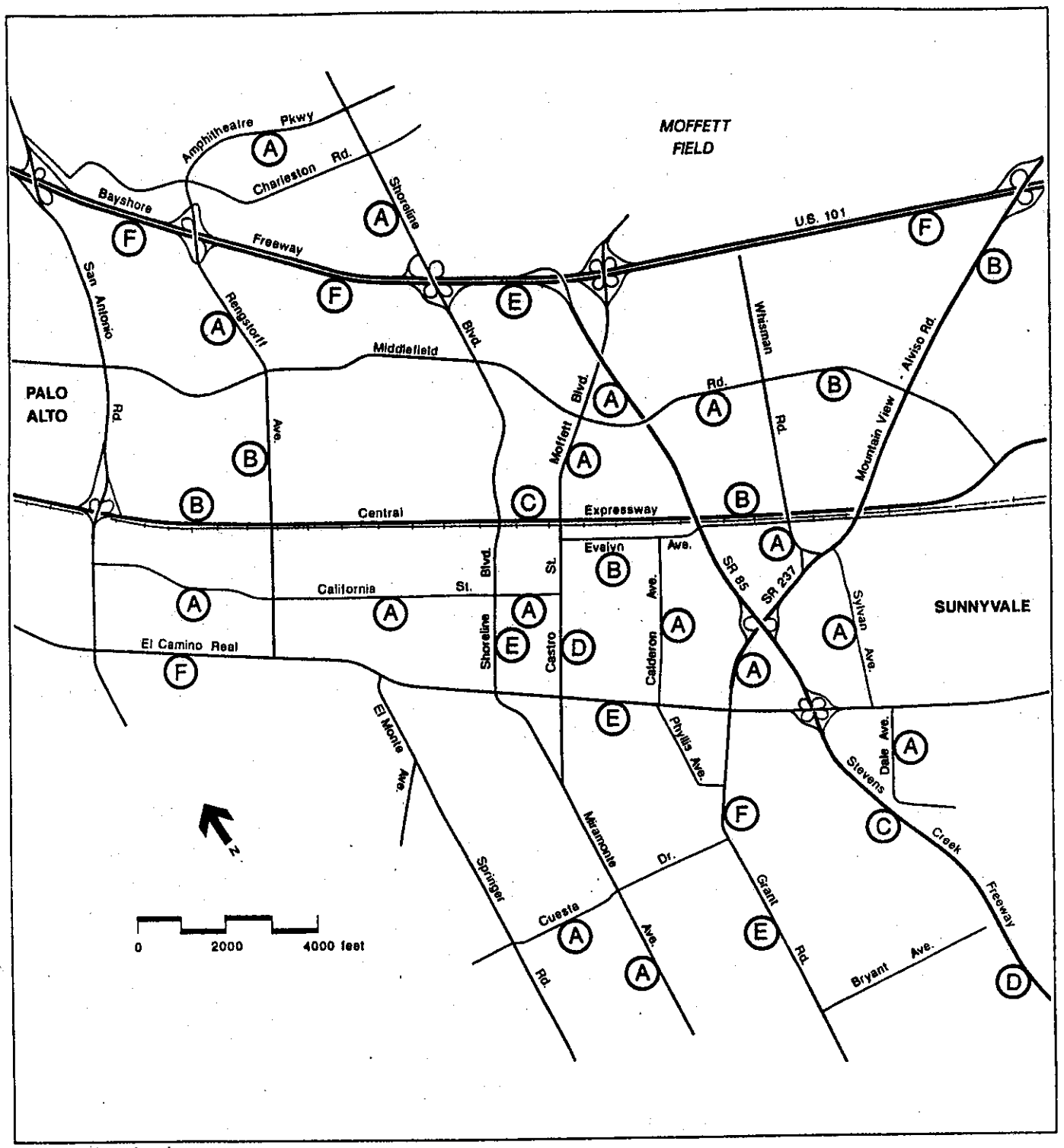

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FIGURE 5

CURRENT LINK LEVELS OF SERVICE

B. Transit Ridership

The level of service of the public transit system can be described in terms of service frequency (or headways) and the ratio of passengers to available seats (or "load factors.") In Mountain View, bus service operated by the Santa Clara County Transit Agency runs at frequencies that are typical of suburban systems, that is, headways of 10 minutes or more between buses, even during peak commute periods. In contrast, buses in dense urban areas with a high proportion of work-related trips made on transit often have headways of 5 to 6 minutes. The longer headways which characterize large systems covering areas of moderate density are an obstacle to higher ridership. Available data on transit use (1980 Journey to Work Census Data) indicates that less than 2% of those who commute to jobs in Mountain View take the bus. A comparable percentage of Mountain View residents take the bus to their jobs. More people walk to work than take the bus. Nonetheless, the County bus system is an important component of the overall transportation system serving Mountain View, as it provides a means of transportation for that segment of the population that does not have access to an automobile or prefers not to drive. It also has substantial capacity to add more passengers without proportional increases in capital or operating costs. As congestion worsens or the cost of automobile commuting increases, additional ridership on the system can be expected.

The CalTrain commuter rail service has long been a favorite of Peninsula residents who commute to San Francisco. Its role in meeting the travel demand of Mountain View residents and employees, however, is not as great as most people may perceive. Although the CalTrain serves nearly half of the work-trips made from Mountain View residences to San Francisco, the San Francisco commute represents only 2% of total work-bound trips generated in Mountain View. As a result, the train carries less than 1% of total work trips to or from Mountain View. Based on counts conducted in October 1989, the average daily ridership for CalTrain is approximately 18,700. Approximately 1,500 passengers board and disembark trains at the Mountain View stations on a daily basis. Passengers boarding at these locations thus comprise about 8% of the total daily CalTrain ridership. CalTrain provides a valuable secondary benefit to the Mountain View transportation system by serving other commuters who travel between the South Bay and

San Francisco. Without CalTrain, many of these commuters would be forced to drive, adding to the congestion of US 101 and Route 280.

3. TRAVEL MODE AND ORIGIN-DESTINATION CHARACTERISTICS

The most recent year for which comprehensive travel mode and origin-destination data is available is 1980, when the special Journey-to-Work data was compiled by the US Census Bureau. This data is updated periodically by the Metropolitan Transportation Commission (MTC) using Association of Bay Area Governments (ABAG) estimates of changes in population and employment since the census.[3]

Tables 4 and 5 show the percentage, by travel mode, of home-to-work trips made to and from the City of Mountain View. Trips originating in Mountain View (Table 4) include those also destined for places of work in Mountain View, as well as in the rest of the region. Similarly, work-trips destined to Mountain View (Table 5) include trips which originate at Mountain View residences.

As Tables 4 and 5 indicate, some three-quarters of the work-trips made to or from the City are made by drivers of single-occupant autos. Another 13 to 14% are made by persons as passengers in autos or vans. The remaining 10% of trips are made in various modes including bus, rail, walking, bicycle, and motorcycle. More work trips are made by walking or bicycling than by either bus or rail.

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[3]The information in Tables 4 and 5 is based upon data published by MTC in 1984. More recent data at this level of specificity, with respect to mode of travel and trip origin/destination is not available.

Table 4

Origin/Destination and Modal Split Summary of Home-to-Work Trips

Journey to work trips with Mountain View origin.

Destination	Total	Drive Alone	One Pass.	Two Pass.	Bus	Rail	Motor-Cycle	Bike	Walk	Work At Home	Other
Mountain View	33.6%	62.2%	9.6%	2.7%	2.7%	0.0%	1.9%	4.6%	10.7%	4.1%	1.5%
San Francisco/Peninsula	11.8%	70.5%	15.5%	4.5%	0.4%	7.2%	0.6%	0.7%	0.0%	0.0%	0.5%
Palo Alto/Stanford/Los Altos	26.7%	77.6%	12.1%	2.7%	2.3%	0.1%	0.8%	3.2%	0.3%	0.0%	0.9%
Golden Triangle	19.1%	78.6%	11.6%	1.8%	2.2%	0.2%	2.5%	2.0%	0.7%	0.0%	0.4%
Cupertino/Saratoga/Los Gatos	3.9%	87.0%	5.7%	4.3%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%
San Jose	3.4%	82.5%	8.6%	0.0%	4.2%	0.0%	1.1%	0.0%	3.6%	0.0%	0.0%
East Bay	1.5%	68.4%	21.5%	6.5%	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%
TOTAL	**100.0%**	**72.2%**	**11.4%**	**2.8%**	**2.2%**	**0.9%**	**1.4%**	**2.9%**	**3.9%**	**1.4%**	**0.9%**

Source: 1980 Census Journey-To-Work Information, Metropolitan Transportation Commission, 1984.

Table 5

Origin/Destination and Modal Split Summary of Home-to-Work Trips

Journey-to-work trips with Mountain View destinations.

Origin	Total	Drive Alone	One Pass.	Two Pass.	Bus	Rail	Motor-Cycle	Bike	Walk	Work At Home	Other
Mountain View	23.9%	65.2%	8.4%	0.8%	2.6%	0.0%	0.9%	3.3%	10.9%	6.7%	1.3%
San Francisco/Peninsula	11.8%	81.9%	5.9%	4.4%	1.8%	1.7%	1.1%	1.2%	0.5%	0.0%	1.3%
Palo Alto/Stanford/Los Altos	14.2%	81.0%	4.2%	1.0%	5.2%	0.0%	0.0%	7.2%	0.8%	0.0%	0.7%
Golden Triangle	21.7%	82.7%	12.6%	1.6%	1.2%	0.2%	0.6%	0.0%	0.6%	0.05	0.3%
Cupertino/Saratoga/Los Gatos	9.7%	84.5%	10.8%	1.4%	0.0%	0.0%	1.8%	1.6%	0.0%	0.05	0.0%
San Jose	8.5%	75.4%	20.6%	1.9%	0.0%	0.0%	2.1%	0.0.1%	0.0%	0.0%	0.0%
East Bay	10.35	70.3%	15.4%	10.6%	1.4%	0.0%	1.3%	0.0%	0.0%	0.0%	1.0%
TOTAL	**100.0%**	**76.5%**	**10.4%**	**2.6%**	**2.0%**	**0.3%**	**1.0%**	**2.1%**	**2.9%**	**1.6%**	**0.7%**

Source: 1980 Census Journey-To-Work Information, Metropolitan Transportation Commission, 1984.

As Table 4 indicates, about one-third of employed Mountain View residents work in Mountain View. This is slightly below average for Bay Area communities in general, but average for communities with total employment comparable to that of Mountain View. Another one-third work in Palo Alto or elsewhere on the Peninsula north of the city, and the remaining one-third work in Santa Clara County south of the city. This last component contributes most directly to regional congestion, as southbound (or eastbound, with respect to U.S. 101 in Mountain View) is the peak direction of travel in the morning commute period in this area.

As Table 5 indicates, Mountain View attracts most of its work force from within the County. Almost half of Mountain View jobs are filled by residents of cities to the south, and about one-quarter are filled by residents of the city. The final 25% originate on the Peninsula north of the city. As note above, the peak travel direction in the Mountain View area during the morning commute is southbound and eastbound. Vehicles travelling north from other Santa Clara County origins are not contributing directly to peak-direction congestion on a regional basis.

Due to changes in employment patterns, residential location, and commute travel behavior during the past 10 years, it is probable that the information contained in Tables 4 and 5 no longer precisely reflects travel conditions in 1990. The percentage of work trips made in high-occupancy vehicles (HOV) including car pools and van pools, is estimated to be significantly greater than it was in 1980, due to the time savings afforded by new commuter lanes on the regional network. The proportion of work trips with origin or destination in Mountain View that are made via public transit may have increased significantly on a relative basis since 1990, but it is unlikely that transit trips, overall, represent a significantly greater proportion of total work trips in 1990 than in 1980. Special studies conducted more recently shed additional light on the current transportation picture.

The Santa Clara County Commuter Lane project has increased the overall incidence of ridesharing by approximately 70% during the morning peak and 20% during the evening peak. The average occupancy rate increase from 1.18 persons per vehicle in 1981 to

1.22 in 1988. Peak hour time savings on the lanes ranged from two to seven minutes per vehicle. Ridership on express bus routes using commuter lanes also increased by 46% while ridership on other express bus routes decreased by 26%.

A special study of the commute patterns of employees in the Golden Triangle reveals that origins and destinations of Mountain View residents have not changed dramatically since the 1980 census[4]. The survey results concluded that of the Mountain View/Los Altos residents, 33% work in Mountain View, 31% work in Palo Alto or northward, 19% work in Sunnyvale, 8% work in Santa Clara, 3% work in Milpitas, and 6% work in northern San Jose.

The mode split for Golden Triangle employees includes 94% of auto usage where 83% are drive alone trips; 2% public transit trips, 3% bicycle, and 1% walk trips. In comparison to the 1980 Census sample population, Golden Triangle employees are more likely to drive alone and less likely to use alternative commute modes.

Further travel statistics reveal trends over the past 10 years since the 1980 Census data was collected, although at a lesser level of detail. In Santa Clara County, auto ownership grew nearly twice the rate (19%) of the County's population (10.5%) during the period 1980 - 1988. Over the same approximate period, the number of employed County residents grew 17%. The average commute trip length increased about 10%, from 6.8 miles to 7.5 miles. In summary, not only does the County have more employees than in 1980, but the growth in the number of autos and miles of travel have occurred at an even greater rate. It is within this context of auto ownership and use that the transportation system must be evaluated[5].

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[4] Communications Technologies, *Report on Commuting Behavior of Employees of Santa Clara County's Golden Triangle*, March 27, 1987. At the time of this survey, the Golden Triangle included the cities of Mountain View, Santa Clara, Sunnyvale, Milpitas, Palo Alto and the northern portion of San Jose. The methodology utilized for the report consisted of telephone surveys which were conducted November 5th - 23rd, 1986.

[5] MTC, *Bay Area Travel Forecasts, Technical Summary*, March 1990.

Revised Draft 7/23/90

4. TRANSPORTATION SYSTEM DEFICIENCIES

Evaluation of existing conditions reveals several areas in which the local and regional transportation system could be improved. Several of these needs are already addressed by planned improvements, while others remain to be addressed. The following summary indicates where the current system is deficient relative to demand, and illustrates the type of responses that have already been mounted or which are needed in the future. The subsequent evaluation of future conditions will address in more detail the range of improvements necessary to accommodate anticipated changes over the next fifteen years.

Capacity constraints exist at several major intersections, particularly those on El Camino Real and other heavily travelled arterials. In most cases, severe congestion is limited to peak commute periods. Some of the most impacted intersections in the City include:

- El Camino Real at San Antonio Road, Castro Street, and Grant Road;
- Central Expressway at Rengstorff Avenue and Moffett Boulevard/Castro Street;
- San Antonio Road at California Street and Bayshore Parkway;
- Southbound on-ramps at U.S. 101 and Charleston Road and Rengstorff Avenue.

These intersections of concern tend to be located at the junction of major arterials or expressways, where the proportion of left- and right-turning vehicles is relatively high. Although the roadways themselves are operating at acceptable levels of service, these few key intersections experience significant peak period congestion. The city, often working in cooperation with the County and the State, has improved many intersections and interchanges in the city, reducing delay and improving safety.

The City's grid street system lacks, in many areas, a clear hierarchy of collector routes. This permits and sometimes encourages commuter and other non-local traffic to use residential neighborhood streets to avoid congestion on arterial and collector roads. A good example of this is the use of Dana Street as a through east-west route in the

downtown area. The city's downtown neighborhood traffic protection study has identified a course of action to reduce the negative impacts of excess through traffic on local residential streets, including Dana and Church Streets.

At-grade rail crossings present additional capacity and safety problems at Rengstorff Avenue and Castro Street. Train activity during peak periods impedes traffic flow and can lead to, or worsen, the formation of queues which sometimes take over an hour to fully dissipate.

The City's pattern of land development has, over time, separated residential and commercial areas by significant distance. This pattern discourages walking and cycling as viable travel modes for local trips, and makes it difficult to efficiently serve the City with public transit. Recent development, particularly adjacent to downtown, attempt to reverse this trend. The updated General Plan will consider substantial new residential development, which will place housing within closer proximity to employment and shopping opportunities.

There is special potential for trip reduction through residential development along El Camino Real and other commercial streets in the City. However, concentrated employment centers such as the North Bayshore area present further challenges, as they are close to neither residential areas nor arterial transit routes. It will be important to consider alternative travel links between Mountain View's growing employment and residential centers.

Another feature of Mountain View's low density development is the abundance of free parking for employees. While this is often considered a vital element by employers, it undoubtedly contributes to the low use of transit and other alternative modes for both local and regional work trips. With free parking, the perceived cost of an automobile trips is generally lower than of a comparable trip on transit. Most commuters tend to discount the sunken costs of auto ownership and insurance, considering only the daily "out of pocket" expenses when making mode choices. Future economic incentives and disincentives will probably be required to significantly alter the use of autos to

employment sites in the City. Policies for management of both private and publicly-operated employee parking could encourage the use of HOVs for commute travel, through either time or cost savings.

There are missing links in the system of bike and pedestrian routes in the City. Travel arteries including Central Expressway, the Southern Pacific right-of-way, and U.S. 101 present significant obstacles to non-motorized travel. Improvement in the number of utility trips made by biking or walking will require additional connections between critical employment, retail, and residential areas. Recreational cycling and walking can also be enhanced through completion of missing links in the system. For example, the Shoreline Regional Wildlife Refuge could be better linked to residential areas south of U.S. 101 through construction of Class 1 bike paths and walking trails along Stevens Creek and Permanente Creek.

The region's freeways and expressways have not been able to accommodate the growth in VMT without significant congestion. Congestion on these regional facilities is of significantly longer duration than on city streets. However, the more recent trend towards management of travel demand is promising. For example, most new freeway and expressway capacity added in the past several years has come in the form of commuter lanes, which not only increase capacity, but more importantly, encourage efficient use of supply.

As noted previously, transit carries a very small percentage of work-related trips to and from Mountain View. The Downtown Improvement Program encourages a pedestrian- and transit-oriented environment on Castro Street and adjacent streets. Additional physical improvements are necessary to effectively link residents and employment in Mountain View to the regional transit system. Proposed improvements to both the Castro and Downtown Caltrain stations will encourage use of rail by commuters to jobs in Mountain View, as well as by Mountain View residents. Additional physical improvements and circulation policies which eliminate physical and economic obstacles are required to continue this trend towards a pedestrian and transit environment in downtown. Potential examples could include creation of an attractive pedestrian corridor between the

Downtown train station and the Castro Street central business and shopping district; increased use of privately-operated shuttles to connect transit stations with employment centers located outside of the downtown; and greater density of housing and employment adjacent to major transit routes and stations.

Extension of light rail transit into Mountain View may present opportunities to improve the share of inbound and outbound work trips made by transit. However, as Mountain View will be the northern terminus (for at least some time) it may also generate substantial auto traffic from the outside, as residents of adjacent cities drive to the Mountain View stations to use the system. Careful consideration must be given to the provision of station access by modes other than the auto to prevent or minimize this occurrence. Provisions of light rail stations specifically designed for commuter transfer, with good highway access and adequate parking, is another way of directing traffic away from congested areas.

CITY OF MOUNTAIN VIEW

General Plan 1990

Circulation Chapter

Future Conditions Report

City of Mountain View

General Plan 1990

Circulation Chapter

Future Conditions Report

Prepared by Korve Engineering, Inc.

September, 1990

transportation infrastructure, and general social or economic conditions are stated. Second, the essential findings of the analysis are presented, in terms of system deficiencies and alternative strategies for overcoming these deficiencies.

KEY FINDINGS AND ISSUES

Population and Employment

Between 1990 and 2005, both the number of households and the total population in Mountain View will increase 9 percent, according to projections made by the Association of Bay Area Governments (ABAG). In contrast, the projected rate of growth in employment for Mountain View over the same 15 years is 17 percent.

According to policies currently in effect, the City will add about 11,300 jobs, but only 5,800 residents. The percentage of employed residents in Mountain View will remain unchanged at about 65 percent of total population, meaning that the City is projected to add 7,500 more jobs than employed residents. Santa Clara County will add about 94,000 more jobs than employed residents over this same period.

These projections show that despite efforts to better balance the number of jobs and employees locally and at the County level, demographers predict that, in absence of any significant change in local land use policy, job formation will outstrip growth in the labor force.

Future Transportation Conditions

Added travel demand in the City, due both to local growth and to development in the region, would cause several key highways and streets to experience significant peak hour congestion. These include:

- Grant Road, north of Cuesta Drive
- State Route 237, north of El Camino Real
- State Route 85, south of El Camino Real

- US 101, from San Antonio Road to State Route 237

Most of the severe congestion will occur on state and county facilities rather than on city streets. This reflects the fact that Mountain View is a mature community that is nearly fully developed, and most of the growth in travel will result from development outside of the City. It also reflects the positive impacts of improvements to the regional highway network, particularly the provision of commuter lanes over much of the regional system. While the regular "mixed-flow" traffic lanes will be congested on these key regional facilities, commuter lanes will continue to operate well, and will provide significant travel time savings to those who use them.

Comparison of alternative land use strategies indicates that increasing the number of housing units within the City will be beneficial, but will not have a large impact on regional transportation conditions. In addition to simply supplying housing, special actions must be taken to make the addition of housing, and the corresponding reduction of projected employment, more beneficial. These actions could include policies or programs to increase the proportion of locally employed residents. Prioritization of redevelopment sites to favor those with the most impact on traffic congestion is possible. For example, a desirable strategy would be to concentrate development of relatively high-density housing along the CalTrain and light rail corridors, and near major employment centers. Highest priority for residential redevelopment should be given to such sites.

Highway System Improvements

It will be difficult to mitigate projected deficiencies in the regional highway system. Most economically feasible highway improvements have already been assumed in the County's T-2000 and T-2010 modelling process. Further widening of freeways and expressways would require costly acquisition of developed right of way. More specific "spot" improvements are more likely, such as the expansion of existing interchanges, or the replacement of at-grade intersections with partial or fully grade-separated interchanges.

Most local roads in Mountain View are also surrounded by development and are unlikely to be widened significantly. Local intersection improvements are more likely to be accomplished, for example, through addition of traffic signals at unsignalized intersections, addition of pedestrian

crossing signals, and provision of auxiliary turn lanes at intersections lacking them.

Rail Transportation

Extension of light rail transit in the Tasman Corridor to Downtown Mountain View will benefit the local area and the region, but will not have a large impact on peak hour highway congestion. Total daily travel by auto, and therefore auto emissions, would be reduced by the availability of light rail transit in Mountain View.

Gaining further benefit from the light rail investment depends upon concentration of relatively dense employment and residential opportunities along the rail corridor. Further extension of the system into residential portions of the City, and into neighboring communities, will further increase the benefits of the investment. The more intense residential development scenarios proposed by the City would complement the light rail system by increasing ridership and reducing the need for large commuter parking lots at rail stations.

Other Modes of Travel

Elimination of obstacles to pedestrian and cyclist travel is important to facilitate recreational travel as well as to increase use of these modes for commute trips. Critical obstacles to be surmounted include the Central Expressway, Stevens Creek Freeway, and the Bayshore Freeway. Particularly where one of these major highways separates an employment center from a residential area, pedestrian and bike bridges are desirable investments.

Transportation Demand Management

Reduction of peak period auto travel through specific infrastructure investments and policies or programs will play an important role in managing the transportation network. Criteria should be developed for making investment decisions regarding transportation facilities that favor alternatives to the single-occupant automobile. Facilities such as sidewalks, bicycle lockers, bus shelters, and preferential carpool parking at major activity centers are advised. Where possible, routes for several modes of travel should be established in existing corridors.

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Programs which support use of all alternative modes, and which promote carpooling, vanpooling, or subscription bus use, should be established. The City may wish to establish policies which require developers of residential projects to submit ridesharing promotional plans, shifting some of the burden of travel demand reduction from the place of employment to the home residence.

Impacts to Residential Neighborhoods

Growth in congestion on certain key arterial roadways in the City may lead to increased diversion of commute-period trips into residential neighborhoods. Examples of where this is most likely to occur include the area between Grant Road and Springer Road, and the area between Central Expressway and El Camino Real. Should future conditions in selected neighborhoods decline to undesirable levels due to diverted through traffic, there are numerous physical and programmatic actions that can mitigate the problem. Several such actions have been studied and proposed for implementation in the Old Mountain View neighborhoods surrounding downtown, where through traffic and excessive speed have been identified as a problem, both real and perceived.

PART ONE: IMPORTANT ASSUMPTIONS

Numerous explicit and implicit assumptions have been made in developing estimates of future transportation conditions in the City of Mountain View and the surrounding region. These include projected population and employment, assumed improvements to the physical transportation network, and certain other assumptions about the social and economic character of the San Francisco Bay Area in the coming fifteen years. The following section summarizes those assumptions which are most relevant to the projected year 2005 transportation conditions.

1. Alternative Land Use Scenarios

Three alternative future land use scenarios were considered in the transportation analysis to determine whether substantial conversion of commercial areas to housing would have a significant impact, beneficial or detrimental, on traffic conditions in the City. These three scenarios are Scenario 1, population and employment estimates prepared by ABAG, and Scenarios 2 and 3, variations on the ABAG projections related to residential rezoning and redevelopment within the City. These three alternative future land use scenarios are described below.

A. Scenario 1 - ABAG Projections

Forecasts of future regional transportation demand for the San Francisco Bay Area are based on demographic forecasts produced by ABAG. The ABAG forecasts are revised every two to three years to take into account new local land use policies and revised base year information. Local policy surveys are critical in apportioning projected regional growth in households, population, jobs, etc. to a detailed census tract and transportation analysis zone level.[1] The current series of demographic data, ABAG's "Projections '90" series, was issued in December 1989, and has undergone slight revision since then. Of the three alternative land use scenarios,

[1] The "Transportation Analysis Zone", or TAZ, is the fundamental geographical unit by which population and employment data is organized for the purpose of forecasting future transportation demand.

the ABAG projections most closely represent land use policies contained in the City's existing (1982) General Plan.[2]

Based on ABAG data, Santa Clara County will have a total of about 526,000 households by the end of 1990. Total population in 1990 is estimated to be 1,463,600. These figures will grow to 617,600 households (a 17 percent increase) and 1,658,100 persons (13 percent increase) in the County by the year 2005. Eighty percent of the County's housing growth is expected to occur in San Jose, Milpitas, Morgan Hill and Gilroy, with San Jose alone getting 65 percent of the total housing growth. The search for affordable housing has accelerated the trend for employees to work in Santa Clara County and reside in adjacent counties. This trend will continue, with the largest increases occurring in Alameda, San Mateo, San Joaquin, and Merced Counties.

In contrast, the projected rate of growth in employment for Santa Clara County over the same 15 years is 26 percent. The County is expected to add 228,500 jobs between 1990 and 2005. New employment will locate primarily in north Santa Clara, north San Jose, Milpitas, and southern Alameda County, essentially shifting the focus of employment eastward. The North County area (Santa Clara to Palo Alto) will continue to provide a majority of the County's employment until about 2005, after which the number of jobs in San Jose will surpass that of North County.

In Mountain View, approximately 2,860 households, 5,800 persons, and 11,300 jobs would be added between 1990 and 2005, according to ABAG.[3] This accounts for about 3 percent of projected growth in households, population, and employment in the County. Relative to Mountain View's 1990 estimated totals, these projections represent a 9 percent increase in both households and population, and a 17 percent increase in employment.

Another important aspect of the projections is the number of residents who are employed. While Mountain View will add 5,800 residents, the City will add 11,300 new jobs. The proportion of city

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[2] ABAG's "Projections 90: Forecasts for the San Francisco Bay Area to the Year 2005", December, 1989, were used to develop travel forecasts for the Mountain View General Plan Studies. These data have not yet undergone the same degree of formal local agency review as the older "Projections 87" data.

[3] ABAG "Projections 90", December, 1989.

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residents who work is not expected to change measurably. Therefore, only about 65% of these new residents, or 3,800 people, will work. This leaves a difference of 7,500 more new jobs than new employed residents. While the ABAG projections do not predict what proportion of new Mountain View jobs will be filled by local residents, it is clear from the above figures that a significant number of these new jobs are likely to be filled by persons living outside of the City.

Table 1 summarizes existing and projected year 2005 population and employment for Mountain View and Santa Clara County. These data do not reflect recommendations for lower employment growth and more residential development in the County which have been defined, but not yet adopted, as part of the "Golden Triangle" Task Force planning process.[4] One goal of the Golden Triangle effort is to provide 60,000 dwelling units more than is presently planned for the area. Participants have agreed to attempt to improve the local jobs and housing imbalance through several means, including reducing maximum commercial floor area ratios, converting commercial and industrial areas to housing, and allowing higher density residential development in existing residential areas. Although not part of the draft Golden Triangle Transportation Demand Management[5] (TDM) ordinance now circulating, participants would adopt such measures on a city-by-city basis. Future analysis of year 2010 transportation conditions in the County, to be conducted by County staff, will reflect these recommendations.

B. Scenarios 2 and 3 - Residential Redevelopment Alternatives

Availability of suitable sites to meet the current and future demand for housing in the City of Mountain View is an important concern. Scarcity of suitable vacant land to meet Golden Triangle goals for housing prompted the City to look at rezoning of commercially zoned parcels to stimulate housing development. Preparation of the City's General Plan Housing Element resulted in identification of 18 sites to be considered for rezoning and redevelopment. These include vacant or under-utilized residential sites, as well as vacant or underdeveloped commercial and

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[4] Participants in the Golden Triangle Task Force planning process include the cities of Mountain View, Milpitas, Palo Alto, San Jose, and Sunnyvale, and the County of Santa Clara.

[5] Transportation Demand Management, or TDM, refers to coordinated strategies to reduce the actual demand for travel, particularly auto trips made in peak periods.

TABLE 1

EXISTING AND PROJECTED POPULATION AND EMPLOYMENT

1990 and 2005

	1990	2005	ABSOLUTE GROWTH	PERCENT GROWTH
CITY OF MOUNTAIN VIEW				
Households	30,220	33,080	2,860	9%
Household Population	64,700	70,100	5,400	8%
Total Population	66,400	72,200	5,800	9%
Total Jobs	68,040	79,340	11,300	17%
Employed Residents	43,500	47,300	3,800	9%
SANTA CLARA COUNTY				
Households	526,013	617,565	91,552	17%
Household Population	1,432,004	1,620,547	188,543	13%
Total Population	1,463,605	1,658,097	194,492	13%
Total Jobs	868,486	1,097,029	228,543	26%
Employed Residents	815,904	950,693	134,789	17%

Source: ABAG, "Projections '90", December, 1989.

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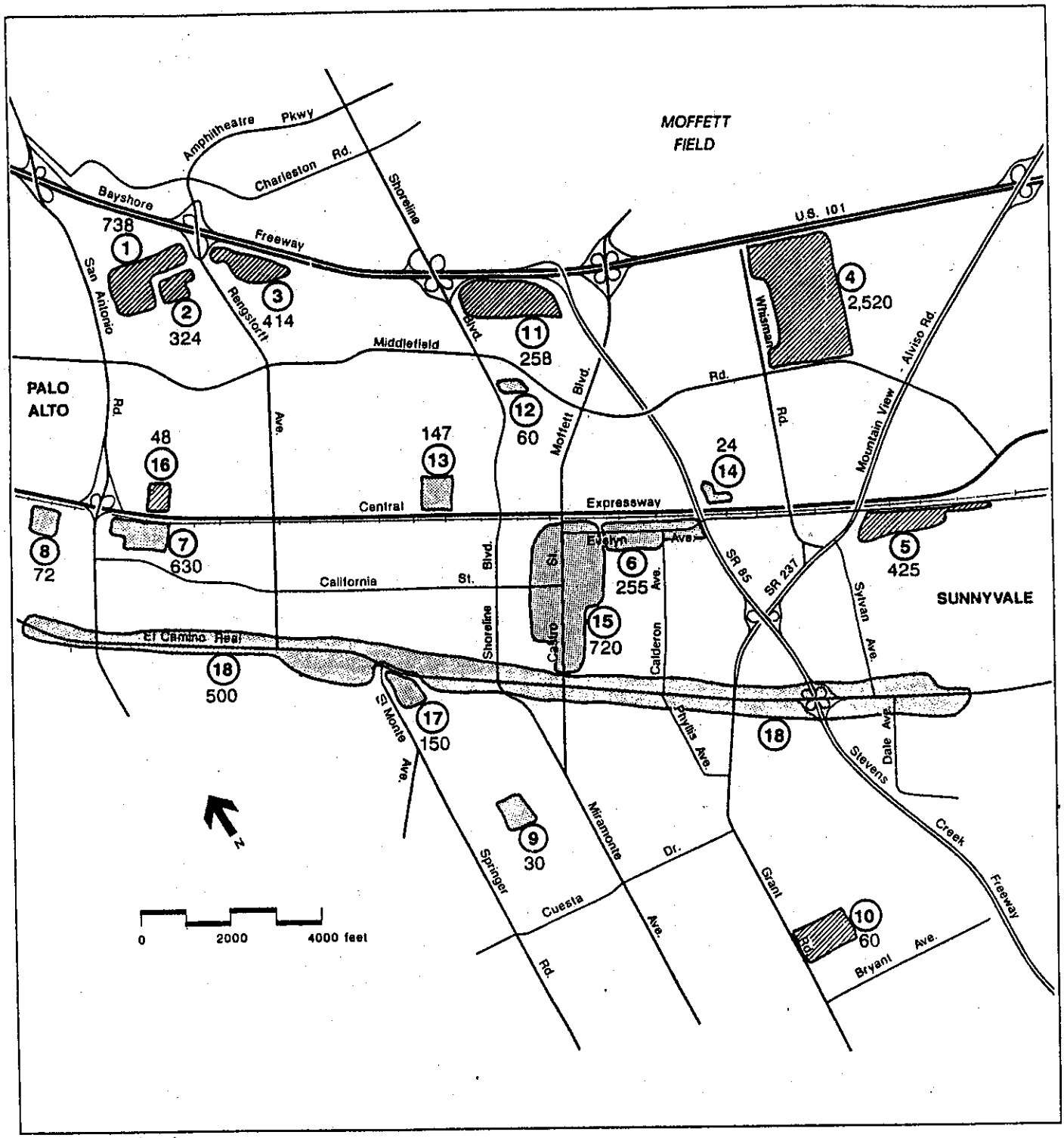
industrial lands.

A total of 18 sites comprising approximately 548 acres have been identified as potential residential redevelopment sites by the Environmental Planning Commission (EPC). Specific parcels or groups of parcels range from 2 acres to 126 acres in size. In addition to 17 specific sites, numerous parcels on or near El Camino Real, totalling about 150 acres, have also been identified for redevelopment potential. These proposed redevelopment areas have the potential to accommodate approximately 7,375 dwelling units, in a combination of single- and multiple-family configurations. The largest site could accommodate approximately 2,520 dwelling units, while some of the smaller infill sites could accommodate as few as 24 units.

Figure 1 illustrates the location of the potential residential sites. As this figure shows, the sites tend to be clustered along the Bayshore Freeway, Central Expressway, and El Camino Real. Table 2 describes the sites in terms of current zoning, potential zoning, size in acres, dwelling unit capacity, and an estimate of daily vehicle trip generation.

Scenarios 2 and 3 reflect the EPC's distinction between "redeveloped for residential" sites (RR), and "land use alternative" sites (LUA) as defined in the Draft Housing Element of June 20, 1990. The RR sites could be defined as the most obvious candidates for residential redevelopment, as they tend to lie within or near existing residential areas. The LUA sites are less certain candidates. They tend to be larger commercial or industrial sites, and may have unique problems or obstacles which must be identified and overcome. Redevelopment of these LUA sites would require further detailed evaluation prior to implementation.

This Future Conditions Report evaluates whether significant differences in transportation conditions would be achieved as a result of adoption of one of these alternative residential redevelopment scenarios. Scenario 2 assumes that the ten RR sites would be redeveloped, in addition to the residential growth assumed in Scenario 1 (the ABAG projections.) This would add some 2,590 dwelling units above the ABAG projections. Scenario 3 assumes that both the RR and LUA sites would be redeveloped, representing some 7,375 new dwelling units above the ABAG projections. The eight LUA parcels account for just over 50 percent of the total potential redevelopment acreage, and 65 percent of the dwelling units that could potentially be added to



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- Potential Residential Redevelopment Site ("RR")
- Land Use Alternative Site ("LUA")
- (1) Site Number
- 57 Number of Potential Units

FIGURE 1

POTENTIAL RESIDENTIAL REDEVELOPMENT SITES

TABLE 2
POTENTIAL RESIDENTIAL REDEVELOPMENT SITES IN MOUNTAIN VIEW

	Site No.	TAZ's	Planning Area	Area Description	EPC Rec	Current Zoning	Potential Zoning	Area (Acres)	Potential DU/Acre	Potential Units	ADT/ Unit	ADT
	1	261	Rengstorff	Leghorn/Independence West	LUA	MM-40	R3-2.2	41	18	738	6.1	4,502
	2	261	Rengstorff	Leghorn/Independence East	LUA	MM-40	R3-2.2	18	18	324	6.1	1,976
	3	258	Rengstorff	Plymouth/Sierra Vista	LUA	MM-40	R3-2.2	23	18	414	6.1	2,525
	4	255	Whisman	Fairchild Dr. and Ellis Street	LUA	ML	R3-2	126	20	2,520	6.1	15,372
✓	5	261	Sylvan/Dale	Evelyn Avenue and Moorpark Way	LUA	PC-Ind	R3-1.5	17	25	425	6.1	2,593
✓	6	265/266/267	Central	Evelyn Avenue and Villa Street	RR	CG	R3-2.5	17	15	255	5.9	1,494
✓	7	264	San Antonio	Old Mill Site (Showers/Calif.)	RR	PC-Com	PC-Res	18	35	630	6.1	3,843
✓	8	263	San Antonio	Del Medio Court (Sears WH)	RR	MM	R3-2.2	4	18	72	6.1	439
	9	268	Miramonte	Greenhouse at Marilyn Avenue	RR	A	R1	6	5	30	10.1	302
	10	271/272	Grant	SE Corner of Grant/Levin	LUA	Pre R1-8L	R1-8L	15	4	60	10.1	604
	11	259	Stierlin	Terra Bella/Linda Vista	LUA	MM	R1	43	6	258	10.1	2,596
✓	12	259	Stierlin	Shoreline Blvd. s/o Middlefield	RR	PC-Ind	R3-2	3	20	60	6.1	366
✓	13	260	Stierlin	Polaris and Gemini Avenues	RR	ML	R3-2	7	21	147	6.1	897
✓	14	250	Whisman	NE Corner of Easy St./Central Expy	RR	ML	R3-3	2	12	24	5.9	141
	15	265/266/267	Central	Downtown	RR	PC-Mixed Use	PC-Mixed Use	48	15	720	5.9	4,217
	16	262	Thompson	Mayfield Avenue/Central Expressway (HP)	LUA	PC-off/Comm	R3-3	4	12	48	5.9	281
	17	268/269	Miramonte	SE Corner of El Camino/El Monte	RR	PC-Mixed Use	PC-Mixed Use	6	25	150	6.1	915
	18	*	Partial	El Camino Commercial Strip	RR	C3	C3	150	40	500	6.1	3,052
SUBTOTAL				RR Sites				261		2,588		15,650
				LUA Sites				287		4,787		30,450
TOTAL								548		7,375		46,100

NOTES: LUA = Land Use Alternative; ADT = Average Daily Traffic; RR = Redevelop for Residential; DU = Dwelling Units; * = Combination of TAZs; EPC Rec = Environmental Planning Commission Recommendation; TAZ = Transportation Analysis Zone

September, 1990

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Source: City of Mountain View; Korve Engineering, Inc.

the City's supply of housing, beyond ABAG projections for the year 2005.

C. Resulting Changes in Population and Employment

Table 3 summarizes potential decrease in projected employment resulting from rezoning of commercial and industrial lands, as well as estimates of population and households for the year 2005 under these alternative land use scenarios. Scenario 1 represents the ABAG projections of employment, population, and number of households. This scenario most closely approximates the level of growth defined in the 1982 Mountain View General Plan. Scenario 2 reflects redevelopment of the City's ten RR sites, while Scenario 3 reflects redevelopment of both the RR sites and the eight LUA sites.[6] Land use outside of the City of Mountain View is the same in each of the scenarios. All three land use scenarios also assume that Moffett Field continues in use as a Naval Air Station, with insignificant change in level of activity or on-site population.[7]

As Table 3 indicates, residential redevelopment of these 18 sites would result in a reduction in employment and increase in resident population in Mountain View, relative to projections made by ABAG for the year 2005 (Scenario 1.) Relative to Scenario 1, development of the RR sites (Scenario 2) would result in a 2 percent reduction in employment (1,600 jobs) and an 8 percent increase in households (2,600 units). Scenario 3, the combined RR and LUA sites, (7,375 additional dwelling units) would result in a 16 percent reduction in employment (or 12,700 fewer jobs) and a 22 percent increase in households (7,375 units) relative to ABAG year 2005 projections. As these numbers show, redevelopment of the LUA sites (Scenario 3) would have a more significant effect on reduction in employment and increase in households than the RR sites. Scenarios 1 and 2 project growth in both housing and employment relative to 1990 levels. However, in Scenario 3, the conversion of currently developed commercial and industrial sites to housing could reduce citywide employment below estimated 1990 levels.

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[6] Scenario 4 assumes the same land use as Scenario 2, and differs only in the addition of light rail transit to downtown Mountain View.

[7] Moffett Field lies outside the City of Mountain View, but is included in regional land use data bases used for transportation modelling.

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TABLE 3

ALTERNATIVE LAND USE SCENARIOS

YEAR 2005 PROJECTIONS

	HOUSEHOLDS	TOTAL POPULATION	JOBS	EMPLOYED RESIDENTS
Scenario 1 - ABAG Projections	33,080	72,200	79,340	47,300
Scenario 2 - Residential Redevelopment (RR) Sites	35,670	77,400	77,710	50,310
Scenario 3 - Land Use Alternative (LUA) and Residential Redevelopment (RR) Sites	40,460	87,800	66,630	57,070
Scenario 4 - Light Rail Transit Plus Residential Redevelopment (RR) Sites	35,670	77,400	77,710	50,310

Source: City of Mountain View and ABAG "Projections 90", December, 1989.

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September 1990

Figure 2 illustrates the relative difference in these scenarios, in terms of number of households, population, jobs, and employed residents. As the figure clearly shows, Scenario 3 (redevelopment of both the RR and LUA sites) is most effective in attempting to balance the number of local jobs with employed residents. This balance is relevant to future transportation conditions, in that it improves the likelihood that new jobs in Mountain View may be filled by local residents rather than by residents of other cities or even other counties. The potential result is a reduction in the average length of work trips, and increased opportunity for use of modes such as bicycles and walking for travel from home to work.

2. The Future Transportation Network

Estimating future transportation conditions requires that a year 2005 baseline transportation network be defined. Major, regional transportation network improvements in Santa Clara County and adjoining counties have been proposed and in many cases programmed for implementation with County Measure A and other funds. The most comprehensive study to date of County-wide improvements, the Transportation-2000 Plan, identified "baseline" improvements assumed to be in place by the early 1990s, and recommended additional specific and generic improvements and strategies for implementation by 2000.[8] Many of these improvements have already been completed or are now under construction, such as commuter lanes[9] and interchange improvements.

Significant highway and transit system improvements assumed to be in place by the year 2005 are described below.

A. Highway System Improvements

Physical improvements to the highway system will focus on completion of the commuter lane network, specific interchange capacity improvements, and upgrading of certain expressway

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[8] Transportation 2000 Final Plan, Santa Clara County Transportation Agency, May, 1987

[9] Commuter lane, carpool lane, and High Occupancy Vehicle (HOV) lane all refer to lanes which are restricted to vehicles carrying 2 or more persons during defined commute periods.

City of Mountain View

Population & Employment Estimates

Year 2005 Projections

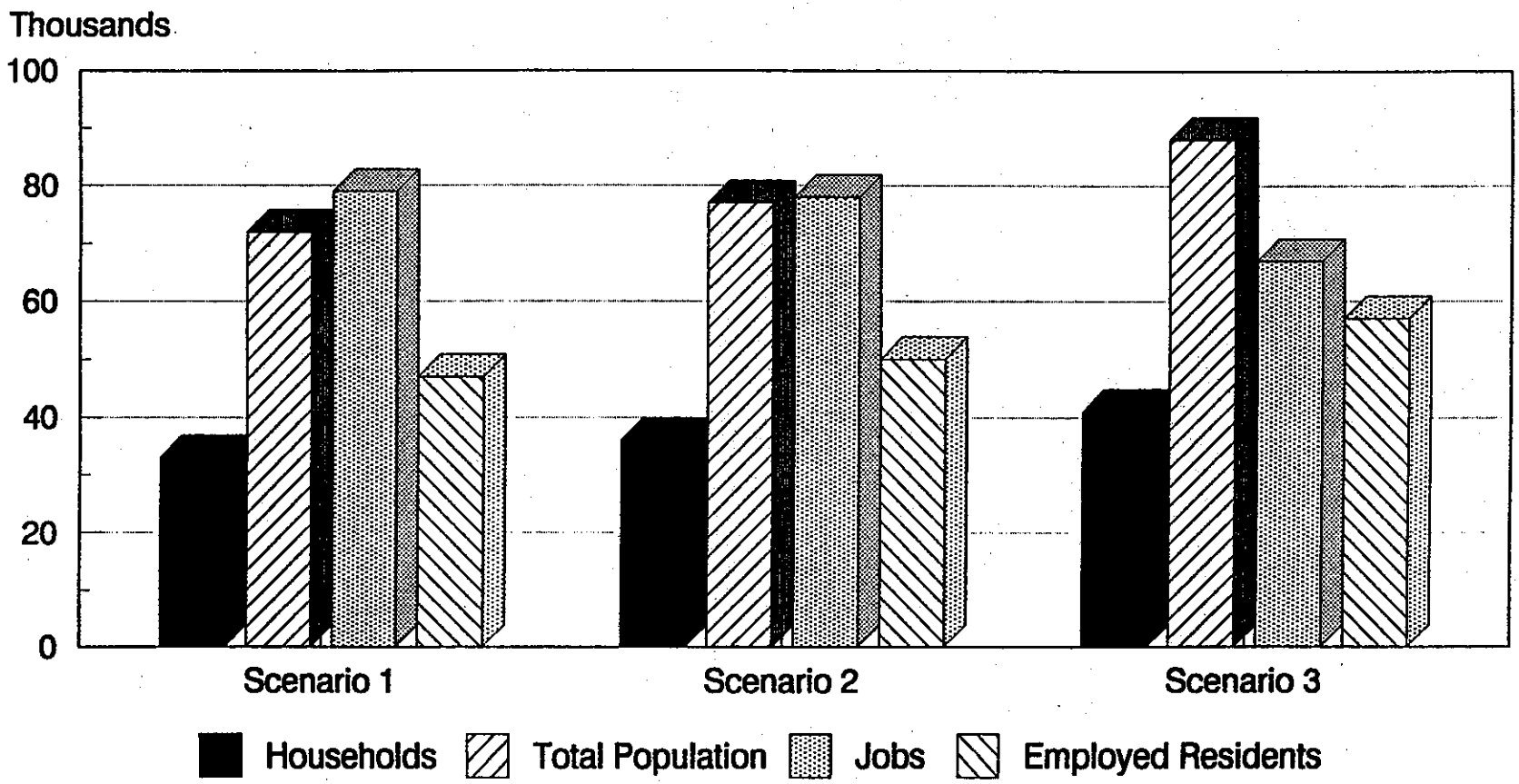

Figure 2

Source: City of Mountain View
ABAG, 1989

segments to freeway standards. Important improvements include:

- Extension of the Stevens Creek Freeway (State Route 85), with commuter lanes, from its present southerly terminus at Stevens Creek Boulevard to U.S. 101 in south San Jose.

- Completion of all Measure "A" program improvements for Routes 101, 85 and 237. These include interchange modifications, commuter lanes, and other capacity-increasing improvements. Specific projects include:

  - Route 237 will be upgraded to freeway standards over its entire length
  - The Shoreline Boulevard interchange at US 101 will be improved, and the existing overcrossing will be widened from 2 to 6 lanes with bike lanes and sidewalks
  - A new eastbound on-ramp to US 101 will be constructed at San Antonio Road, coupled with closure of the existing on-ramp at the end of Charleston Road

- Commuter lanes for all segments of US 101 and I-280 that are to be widened (the segments of US 101 in Mountain View have already been widened and commuter lanes added)

- Freeway ramp bypass lanes[10] to enhance the effectiveness of commuter lanes for carpools and buses.

- Operational improvements on numerous arterials, expressways, and freeways, including technological changes such as signal coordination and freeway surveillance.[11]

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[10] "Bypass lanes" on a freeway ramp allow buses and other high occupancy vehicles (HOV) to bypass ramp signals and non-HOVs and enter commuter lanes directly.

[11] Signal coordination may be used to improve the flow of traffic, and thus reduce the consumption of gas, on arterial streets or expressways with numerous traffic signals. Freeway surveillance, or "incident detection," is an evolving technology which uses video cameras or electronic detectors to monitor the flow of freeway traffic and provide motorists (and others) with current information about traffic conditions.

B. Transit System Improvements

Comparable improvements to the public transportation system are presumed to be in place by the year 2005. Important projects include:

- Upgraded CalTrain Peninsula service, and extension of commuter rail service to south Santa Clara County.

- Extension of BART south from Fremont to meet the extended Tasman light rail line. (Further extension of BART or other high-capacity rail to downtown San Jose was not assumed by 2005.)

- Expanded commuter express bus service, emphasizing use of commuter lanes by buses.

- A modified route structure which focuses capacity on commute lanes, primary arterial streets, and on "feeder" routes to rail stations. Primary bus transit destinations will include large employment centers and rail stations. This does not appear to directly improve local transit service within Mountain View, but should improve the utility of the system for longer work trips to or from destination outside the City.

- New park-and-ride lots at strategic locations to encourage carpooling and commuter lane utilization.

- Aggressive public/private programs to manage transportation demand with emphasis on ridesharing and transit usage, including adoption and implementation of the Golden Triangle TDM ordinance.

Extension of the County's light rail service in the Tasman Corridor from I-680 to Lockheed has been assumed in place by the year 2005. However, direct extension of a branch line to downtown Mountain View is still under evaluation. Scenario 4 tests this light rail extension to

downtown Mountain View in combination with the land use assumptions of Scenario 2.

3. Other Assumptions

Certain other assumptions are explicitly or implicitly incorporated into projections of future transportation network conditions.[12] The most relevant of these include:

- Automobiles will remain the principal mode of choice for personal transportation in the region, with or without major additional investment in the system of public transportation.

- Average gasoline prices at the pump will rise at an average of 5 percent per year, in current dollars, and will return to pre-1985 levels by about 1997. Due to continued improvement in automobile fuel economy, total auto operating costs (per mile) will not change significantly between 1990 and 2005, as measured in constant or "real" dollars.[13]

- Availability of gasoline is presumed to be stable, that is, not subject to profound, lengthy interruptions in supply.

- Other transportation costs -- transit fares, tolls, and most non-gasoline auto operating costs -- will not increase significantly, in constant dollars. Parking charges in San Francisco and San Jose central business districts, in contrast, will increase significantly.

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[12] These assumptions are documented by MTC in "Year 2005 and 2010 Bay Area Travel Forecast Input Assumptions, Technical Summary", February, 1990.

[13] The recent California state gasoline tax increase had not been explicitly factored into these estimates of future operating costs.

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PART TWO: FINDINGS AND ISSUES

4. Future Transportation System Conditions

Year 2005 transportation system conditions have been evaluated using travel demand forecasts provided by Santa Clara County, as well as upon both quantitative and qualitative evaluation of land use alternatives. While the County forecasts are useful in testing the regional impact of alterative land use and transportation scenarios, the model is not detailed enough to provide accurate evaluation of changes that might be expected at the local level. Assessment of local conditions is therefore based upon a variety of sources and professional judgement.

A. Regional Travel Demand Forecasts

Future year 2005 peak hour conditions on the regional network of freeways, expressways, and major arterial roadways are based upon travel model forecasts. Projected future travel demand in the context of the assumed year 2005 transportation network improvements and growth in employment and population reveals several important roadway segments that would experience significant congestion[14] during peak commute periods. The following specific route segments are most likely to be congested during peak periods under Scenario 1 year 2005 conditions:

- Grant Road — North of Cuesta Drive
- State Route 237 — North of El Camino Real
- State Route 85 — South of El Camino Real
- U. S. 101 — San Antonio Road to State Route 237

It is important to note that these congested conditions will occur in the mixed-flow[15] lanes, rather than in commute lanes. The commute lanes are projected to operate at very favorable

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[14] Level of Service E or F.

[15] "Mixed-flow" lane refers to a conventional (non-carpool) lane.

levels of congestion even during peak hours. As the above list indicates, most of the severe congestion will occur on state and county facilities carrying regional traffic, rather than on major city streets. The exception is Grant Road, a major north/south residential arterial roadway which provides direct access to State Route 237. Other major surface arterial roadways within the City, such as El Camino Real, San Antonio Road, and Shoreline Boulevard, will still operate at acceptable levels of service, despite overall growth in travel demand. The County model results indicate that due to the expansion of regional system capacity through projects such as the commuter lanes and completion of the Route 85 freeway, growth in congestion on surface arterials will not be proportionally as great as growth in population and employment. Much of the new travel demand will be accommodated on these improved regional routes.

In Scenario 2, redevelopment of Mountain View's Residential Redevelopment sites would result in only incremental changes to peak hour conditions on the regional network. Development of these sites would add 2,590 dwelling units, primarily along El Camino Real, Castro Street, and Evelyn Avenue. Potential job reduction would be only about 1,630 jobs. Apparent impacts of this Scenario, relative to Scenario 1, would be small changes in level of service on Central Expressway and on the Stevens Creek Freeway. Furthermore, changes in service level on Central Expressway are positive in some locations and negative in others, depending upon proximity to access to the RR sites. It appears that the Castro Street/Central Expressway/Moffett Boulevard intersection would be negatively impacted due to additional traffic associated with nearby residential development. On the other hand, conditions on Central Expressway east of Castro Street would improve slightly, as a result of redistribution of auto trips. Conditions would improve on Grant Avenue and the southern portion of Route 237 as well. Residential redevelopment along El Camino Real would contribute to a slight decrease in peak hour service level on Stevens Creek Freeway.

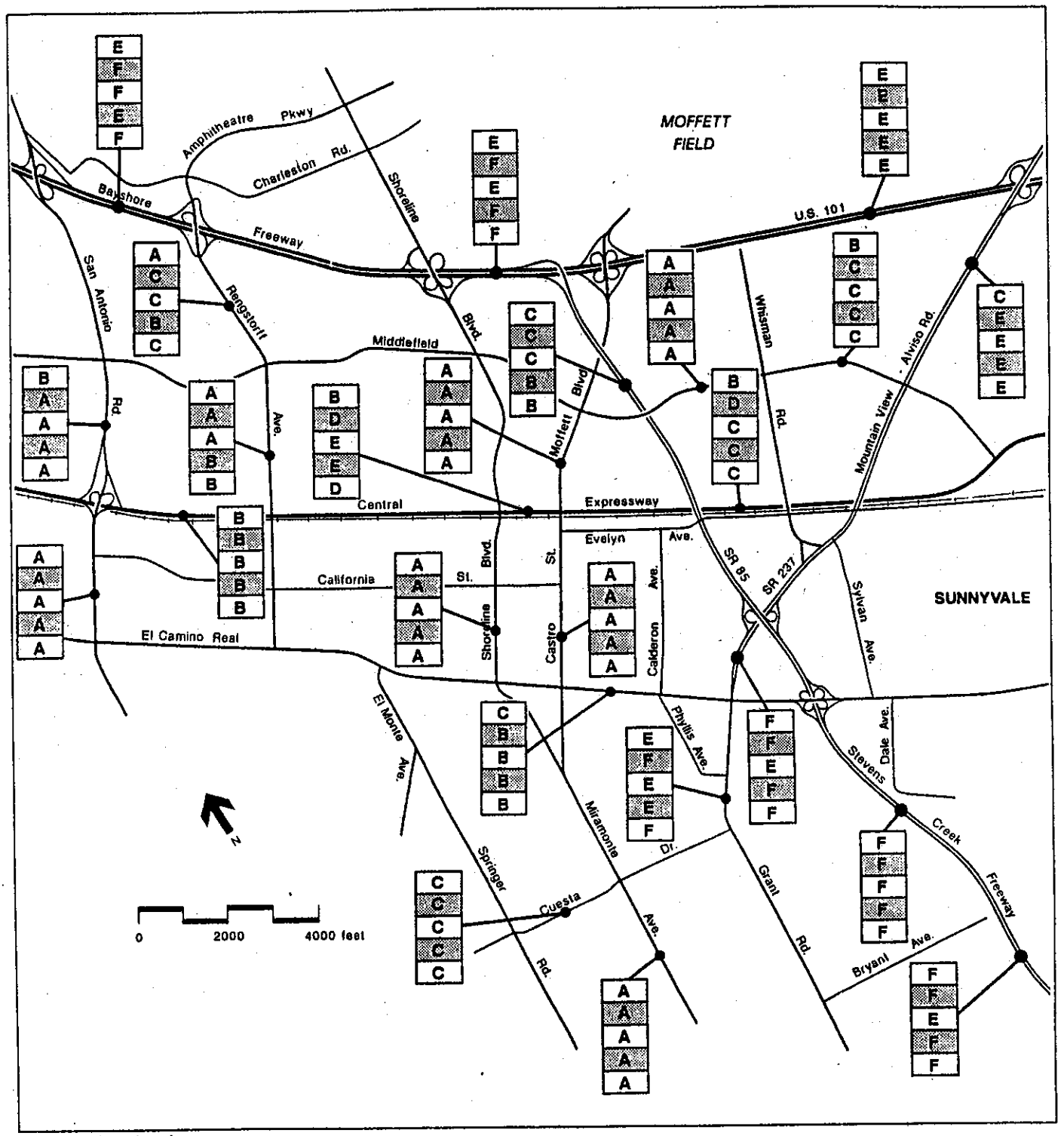
Scenario 3, the combined Residential Redevelopment and Land Use Alternative sites, again would not result in dramatic changes in level of service on most regional highways. However, certain improvements are noted. The cluster of LUA sites near Rengstorff Avenue appears to improve service levels on adjacent portions of Rengstorff and US 101. Conditions on the

northern portion of Stevens Creek Freeway would also improve slightly.

A high proportion of the LUA dwelling units would be located adjacent to US 101, and thus their effect in reducing traffic circulation in Mountain View is somewhat attenuated. While they may result in a reduction in commute trips which otherwise would come from outside of the City, they still generate work trips which must travel on the local network to reach local employment. For example, residents of the large LUA site near Fairchild Drive (site #4, Figure 1) have no direct means of travelling to the North Bayshore area. More direct connections between these larger LUA sites and the employment areas north of US 101 might result in a more significant reduction in commute traffic.

Scenario 4 tests the effect of adding light rail transit, in conjunction with land use Scenario 2. Rail stations would be located at Evelyn Street near Castro Street (this would be the terminal station,) Evelyn Street near Route 85, at GTE, at Middlefield Road near Ellis Street, and at Moffett Field. Travel modelling conducted specifically for the Mountain View General Plan, as well as the detailed impact analysis conducted for the Tasman Corridor Light Rail Transit project, reveal that peak hour conditions on freeways, expressways, and major arterial roadways will be changed only incrementally as a result of the light rail system extension into the Tasman Corridor and Mountain View. Total vehicle miles of travel (VMT) in the County would be reduced about 1 percent below conditions that would otherwise exist in the year 2005. In Mountain View, conditions on Central Expressway in the vicinity of the Castro Street station would improve slightly, assuming the land uses of Scenario 2.

Figure 3 summarizes a.m. peak hour level of service for existing and projected future conditions on selected segments of the regional network. These data are felt to be more accurate for regional facilities such as freeways and expressways, and less accurate for local facilities, including some of Mountain View's major arterials. The reason for this is that the scale and level of detail contained in the County's regional model does not provide as great a degree of accuracy on these more local facilities.



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LEGEND

Existing
Scenario 1
Scenario 2
Scenario 3
Scenario 4

FIGURE 3

AM PEAK HOUR CURRENT AND FUTURE LEVELS OF SERVICE

B. Comparison of Impacts of Alternative Land Use Scenarios

Comparison of Scenarios 1, 2, and 3 reveals that although rezoning to provide more intense residential redevelopment in the City will have certain benefits, it will not have dramatic impacts on peak hour congestion within the greater region. Scenarios 1 through 3 test the addition of about 2,900, 5,500 and 10,200 dwelling units, respectively, above estimated 1990 totals. Job growth would be greatest under Scenario 1, with about 11,300 new jobs added between 1990 and 2005. Job growth in Scenario 2 would be only slightly less, 9,700 new jobs, while Scenario 3 would add essentially no net new jobs, and could even result in an actual reduction in employment below current levels.

Although these changes are significant within the City, they alone are not sufficient to alter travel patterns at the regional level. It will require comparable change in land use policy in numerous neighboring cities in order to impact travel characteristics to a point that the regional network shows significant improvement. Such land use policies have been proposed through the Golden Triangle Task Force planning process. County-wide reduction in future employment, couples with an increase in affordable housing opportunities, will almost certainly produce significant positive impacts relative to conditions that will exist in 2005 if current land use policies (i.e., Scenario 1) continue in effect.

On a City-wide basis, significant rezoning for residential development will reduce the number of commute trips made to and from the City during peak periods. This is expected because Scenarios 2, 3, and 4 bring the number of employed residents[16] closer to the number of jobs within the City. As Figure 2 (above) indicates, Scenario 3 is most effective in balancing the number of jobs with the number of employed residents.

Relative to Scenario 1, Scenario 2 (RR sites) would result in modest changes to local traffic volumes and circulation patterns. The potential reduction in employment resulting from

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[16] The number of Mountain View residents who are employed. This is not the same as the number of Mountain View residents who are employed in the City of Mountain View.

conversion of these sites is relatively small, as noted above. On a per-acre basis, moderate density housing would generate about the same number of daily vehicle trips as uses such as industrial parks or light manufacturing. However, the clustering of these infill sites along major shopping streets such as El Camino Real and Castro Street increase the likelihood of certain trips being made by walking, bike, or local transit, rather than by auto. Also, the number of truck trips would be lower with residential conversion.

Scenario 3, which adds considerably more housing than Scenario 2, increases the likelihood that Mountain View residents would fill local jobs, by increasing the pool of employed residents. With the higher density of residential development proposed in Scenario 3, it is also more likely that the City could effectively support more intensive public transit services, including light rail and express buses. Therefore, large-scale rezoning for residential development, particularly at moderate to high density, will contribute to a greater proportion of trips on regional transit rather than auto.

Scenario 4 combines the land use assumptions of Scenario 2 with the extension of light rail transit into Downtown Mountain View. The primary benefits of light rail extension to Mountain View will be in terms of reduced travel time for those trips made in the light rail corridor. On a peak hour basis, the reduction in vehicle miles of travel is rather modest. The regional travel demand analysis did not test a rail extension to Mountain View in conjunction with the higher residential redevelopment proposed in Scenario 3. Analysis of such a combination of rezoning and transit improvement would very likely show that development of housing on those larger sites adjacent to the proposed rail extension (sites 4, 6, and 15 on Figure 1) would contribute to higher light rail ridership and reduced in-commuting to jobs in Mountain View.[17]

One reason for the modest impact of the rail system in peak hours is that although person trips are removed from the highway network and switched onto the rail line, the remaining demand for peak period highway travel is still very high. This "latent" demand for travel in the peak period

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[17] A combination of land uses in Scenario 3 and the Mountain View light rail extension will be tested at the regional level, and results provided when available.

is such that any spare capacity on the highway system that results from the rail line is quickly filled by motorists who would otherwise have to travel outside of the peak period. However, reduction in total daily vehicular travel, as opposed to peak hour vehicle miles, would be proportionally greater. This would contribute to shorter peak travel periods[18] than would otherwise exist in the future without the light rail system.

5. Refined Land Use Strategies

Comparison of the proposed alternative land use strategies indicates that simply increasing the number of housing units and decreasing projected employment within the City will not necessarily have significant benefit on the regional or local transportation system. Special actions must be taken to make the addition of housing, and the reduction of projected employment, more beneficial.

The apparently modest impact of residential rezoning is due to several factors. One appears to be a lack of connection between jobs and housing in the City. The mere addition of housing does not guarantee that any significant proportion of new residents would take jobs in Mountain View. In fact, it is possible that the disparity between the cost of this housing and the income level afforded by much of the projected job growth reduces the probability that new jobs will be filled by new residents. Potential solutions to this problem include affordable housing goals or quotas, programs to match residents to local job opportunities, and careful prioritization of site redevelopment to provide the best proximity between jobs and housing.

A second explanation is the regional nature of the jobs/housing situation. Addition of residential population, even when coupled with reduction in projected employment, does not assure a reduction in local traffic congestion. The regional forecasting model used to develop these estimates redistributes work (and other) trips on the basis of residential location, employment

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[18] That is, the duration of congested commute periods in the morning and afternoon would be shorter.

opportunity, and the effort required to travel from home to work. Income, auto ownership, and other factors are also considered. One result is that Mountain View residents are found to be just as likely to work in Sunnyvale, Palo Alto, or other surrounding communities with large quantities of high-income employment. Thus although increased housing opportunities may reduce long-distance trip making somewhat, and may reduce total daily miles of travel, the reduction in commute-period trips on the network in and around Mountain View is less certain.

Another alternative land use strategy would be to concentrate development of relatively high-density housing along the Caltrain corridor and the proposed light rail extension into Mountain View. Highest priority should be given to redevelopment of those RR and LUA sites which lie near either corridor, such as the large parcel east of Whisman Road or parcels on Evelyn Avenue and the Central Expressway. This strategy would result in a greater proportion of total future trips being made by rail, rather than by auto.

Finally, it may be desirable to focus redevelopment efforts on those sites which would otherwise be likely to develop at higher intensity, such as retail sites and business park or office sites. On a per-acre basis, these uses generate far more vehicle trips than residential development. This strategy would result in a greater reduction in traffic, on a per acre basis, than residential redevelopment of sites likely to develop as industrial parks, research centers, or other low-intensity commercial uses. As already noted, these latter uses generate about the same number of daily trips per acre as moderate density housing.

6. Additional Transportation System Improvements and Strategies

To accommodate projected future employment and population growth, additional transportation network improvements, beyond those assumed in the T-2000 model, are desirable. Potential examples of local and regional improvements are described below.

A. Highways and Streets

Most feasible highway improvements have already been assumed in the County's T-2000 and T-2010 modelling, upon which the evaluation of future conditions is partially based. Further widening of the area freeways and expressways, beyond that already assumed, is unlikely. Specific improvements to local problem spots are more likely to be pursued, such as the replacement of at-grade intersections on the Central Expressway with partial or fully grade-separated interchanges. These improvements are not inexpensive, but they could have a significant effect on local traffic congestion and air quality.

Most local roads in Mountain View are surrounded by development, and are unlikely to be widened significantly. Localized intersection improvements, for example, addition of traffic signals and/or pedestrian signals at locations presently unsignalized, and addition of auxiliary turn lanes at intersections, may be pursued to improve safety and help reduce local peak period traffic congestion. The City is now developing a city-wide traffic forecasting model which is expected to provide better evaluation of future local traffic conditions than the County's regional model. This model will be used to analyze the potential local impacts of specific developments, and to test the effectiveness of specific roadway system improvements.

B. Transit

Preliminary evaluation of the impact of extension of light rail transit into Downtown Mountain View suggest that the benefits, as measured in terms of relief of peak period highway congestion, will be modest. In addition to the land use strategies defined above, gaining further benefit from the light rail investment depends in some part upon further extension into residential portions of the City, and perhaps into other communities north of Mountain View. This would allow the system to be used by area residents to reach jobs in the San Jose area in greater numbers.

Continual expansion of the regional rail system should be pursued within the time frame of this General Plan. Ultimately, BART service (or comparable high-capacity rail service) is expected to

be extended to San Jose, connecting with the Caltrain Peninsula rail system.

The County's proposed bus system improvements will not improve local transit service in Mountain View, but should make the system more viable for commute trips to and from large employment centers. If the residential rezoning of Scenarios 2 and 3 is pursued, it will be desirable to further modify the County bus system to serve these larger moderate density housing sites. For example, feeder bus service should carry residents from housing sites to multi-modal transfer points, where they would board express busses or light rail vehicles. Such transfer points are anticipated to be developed at the Castro Street/Evelyn Avenue rail station and at the Old Mill Center. Because local feeder routes are easily implemented and modified (relative to rail lines) it is reasonable to expect that future bus service of this type will be provided at larger housing redevelopment sites.

C. Other Modes

Elimination of obstacles to pedestrian and cyclist travel is important to facilitate recreational travel, as well as to increase the proportion of commute period trips made by these modes. Census data from 1980 revealed that as many work trips in Mountain View were made by walking and cycling as by bus and rail transit. Critical obstacles to be surmounted include the Central Expressway, the CalTrain right-of-way, Stevens Creek Freeway, the Bayshore Freeway, and to a lesser extent, State Route 237. A pedestrian underpass was recently completed under the CalTrain rail line near the Old Mill center, and an undercrossing of US 101 at Stevens Creek is now being implemented. Recent reconstruction of the Rengstorff interchange at US 101 provided new sidewalks and bike lanes over the freeway, and the proposed Shoreline Boulevard interchange reconstruction will do the same at that location. Further pedestrian and bicycle links across these facilities should be added to the City's list of desirable capital improvements, particularly where these major highways separate an employment center from a residential area. Examples include the North Bayshore industrial/office park, the Downtown/Castro Street area, and the San Antonio Center/Old Mill areas.

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7. The Role of Transportation Demand Management

It is probably true that the single largest change in transportation to occur in the next 15 years will be greater average auto occupancy for work-related trips. In addition to land use strategies and further transportation network improvements described above, the City should consider more aggressive policies and implementation statements which promote Transportation Demand Management (TDM.) This approach will bring about further reduction in the proportion of single-occupant vehicles during the most congested periods through shift to alternative modes of travel, including high-occupancy vehicles.

The City of Mountain View is a participant in the Golden Triangle Task Force planning process, and as such, will likely soon adopt a TDM ordinance which embodies many typical strategies for travel reduction. The Golden Triangle Task Force TDM Ordinance establishes requirements for transportation demand management within the Golden Triangle area, which includes the cities of Mountain View, Palo Alto, Sunnyvale, Milpitas, San Jose and an unincorporated area within Santa Clara County located near Milpitas and Highway 101. The purpose of the ordinance is to promote the development of TDM programs at employer work sites. The program establishes certain reporting requirements to enable the City to evaluate the effectiveness of existing TDM Programs and note progress city-wide toward achieving average vehicle ridership goals.

The program also requires certain employers to designate specified individuals, a manager and commute coordinator, to ensure the proper coordination of reporting and implementation of TDM Programs. Managers are expected to manage the operation of any TDM program implemented at the work site, compile annual TDM reports for the City, and serve as management liaison with the City. The commute coordinator will administer any TDM program implemented by the employer. Managers and coordinators may be one in the same. Every employer would be required to file a baseline TDM report and an annual TDM report to the City.

Following are examples of specific physical improvements and policies the City could pursue to further this objective.

A. Facilities for Alternative Modes

Promotion of reduction in travel by auto might include the following strategies for physical facilities:

- Evaluate new investments in the transportation infrastructure to determine whether opportunities for alternatives to the automobile are being emphasized. Cyclists and pedestrians may be more likely to walk or bike to work if exclusive facilities are available, rather than bike lanes or sidewalks, which do not completely eliminate conflict with autos. For example, the cost and benefit of a separate pedestrian/bicycle overcrossing over obstacles such as US 101 or Central Expressway should be evaluated relative to the cost of providing sidewalks and bike lanes on regular freeway interchange overcrossings.

- Require pedestrian and cyclist-oriented facilities such as sidewalks, bicycle lockers, and bus shelters at major activity centers.

- Require major employment centers to provide changing rooms, showers, bike lockers, and other facilities to encourage commuting by foot or bike.

- Evaluate, and where beneficial, promote commuter lanes on arterial streets, in addition to the freeway and expressway commuter lane network. This is done in many major urban centers to give transit and HOV passengers additional time savings, and thus greater incentive to ride.

- Require preferential parking for HOVs close to building entrances and other destinations, such as transit stations. These policies should apply to municipal employment centers as well as private developments.

- Support preferential treatment for buses, vanpools, and carpools on existing freeways and expressways, through implementation of ramp metering with HOV bypass lanes.

B. Programs for Alternative Modes

The City should adopt policies and implement programs that reflect the built-out character of the City, and which are not in conflict with the proposed Golden Triangle Transportation Demand Management ordinance. Specific examples follow.

- Policies should aggressively attempt to reach existing employers as well as new ones, in recognition of the City's maturity.

- City policies should emphasize cooperation with other jurisdictions, including Caltrans and the County Transportation Agency, to minimize redundancy and expense.

- The City should promote management of travel demand at the place of residence, in addition to the work place. This is especially important if large scale residential rezoning is to take place. The City could establish policies which require developers of residential projects to submit transportation management plans. This could involve service contracts with existing Transportation Management Associations[19] (TMA) in to provide ridesharing registration and other typical TDM services to residents.

- Programs which support use of all alternative modes, in particular carpooling, vanpooling, or subscription bus use, should be established. These programs could be coordinated by a designated TDM manager employed by the City. Other Bay Area cities, including Pleasanton and Walnut Creek, have developed such umbrella programs and positions. Recommended programs include the following:

  - Coordinate an informational and promotional effort to increase citizen's knowledge of the new and increasing alternatives to the automobile.

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[19] Transportation Management Associations may be established at employment centers or residential developments to administer and monitor travel demand reduction (TDM) programs.

- Promote staggered work hours, carpooling vanpooling, commuter-oriented bus lines, and express bus use

- Support state and federal legislation that promotes more efficient vehicles

- Review residential plans to promote TDM. Mountain View could specifically require new residential developments to guarantee ridesharing plans as part of conditions of approval, and could issue a set of guidelines for all those who will implement plans.

C. Facilities and Programs for Public Transit

One of the target markets for TDM programs are commuters who are transit-dependent. Recommended programs for regional and local transit include the following:

- Foster and coordinate development of paratransit (jitney, van-shuttles, and privately-funded bus service) programs without jeopardizing the basic fixed route system. In light of proposed changes to the County bus system, these types of service may play a more important role in the future, by filling missing links in the system of local public transit.

- Develop additional transit programs meeting elderly/handicapped needs

- Promote enhanced passenger service on CalTrain, and promote rail transit tie-ins with local and regional bus service

8. Residential Neighborhood Protection

Growth in congestion on certain key arterial roadways in the City may lead to increased diversion of commute-period trips into residential neighborhoods. Examples of where this is most likely to occur include the area between Grant Road and Springer Road, and the areas between

Central Expressway and El Camino Real. Mountain View is fortunate, relative to many other Peninsula communities, in that it has a good system of both east/west and north/south arterial roadways which are able to accommodate most cross-town travel demand. The availability of these roadways, and their uniform distribution across the City, mean that there are relatively few locations where alternative routes through residential areas actually provide better travel time. This is in contrast, for example, to Palo Alto or Menlo Park, in which east/west[20] travel is hindered by a lack of through arterial roads. Such lack of through capacity lends to traffic intrusion into residential neighborhoods.

Should future conditions in selected neighborhoods decline to undesirable levels due to diverted through traffic, there are numerous physical and programmatic actions that can mitigate the problem. Several such actions have been studied and proposed for implementation in the Old Mountain View neighborhood surrounding downtown, where through traffic and excessive speed have been identified as a problem. Examples of available actions include:

- Physical obstacles or barriers to automobiles, intended to encourage or force motorists to avoid certain streets. Examples include traffic diverters[21] and/or traffic circles at residential intersections, creation of one-way street segments, and installation of stop signs.

- Retiming of traffic signals or re-striping of turn lanes on arterial roads to discourage or prohibit autos from entering residential areas at certain times of the day.

- Speed enforcement through use of "undulations"[22] and radar. Reduction in speed discourages through traffic, and may also reduce the number and severity of accidents.

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[20] That is, bay-to-foothills travel.

[21] A traffic diverter physically prevents an auto from entering a certain street.

[22] Undulations are a modified version of the "speed bump", and have been found effective in reducing speed to levels appropriate for residential areas, i.e., 15-25 mph.

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- Creation of "slow streets", a special residential environment in which the speed of traffic is constrained through a combination of methods applied in a concentrated manner.

Many of these actions have negative impacts as well as positive benefits. Examples include reduced access, longer response time for emergency vehicles, and increased maintenance costs. Before any of these type of actions are implemented, a thorough study of the problem, involving the participation of the potentially affected residents, is mandatory.

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CONCLUSIONS

A review of expected future conditions of the transportation network leads to the following conclusions:

- Peak period congestion on major regional transportation facilities will increase, but the local system of city streets will have sufficient capacity to carry expected future traffic without undue congestion.

- Mountain View is already well developed, limiting further local traffic-producing growth. This same fact also limits the City's ability to widen local streets or to build new interchanges to relieve congestion.

- Due to the limited ability to increase the size of the local and regional street and highway system, future efforts should concentrate on making more efficient use of the existing network. A cost-effective method is to increase the use of commuter lanes by carpools, buses, and other HOVs. Other TDM strategies should be pursued to encourage alternative modes of travel other than the auto, including public transit, bicycling, and walking.

- Analysis of alternative land use scenarios which would add housing in Mountain View reveals only limited benefit, in terms of reduced peak period congestion. However, the positive benefit could be substantially increased through policies and programs which link the cost of new housing to the prevailing wages for new jobs in the City, thereby increasing the proportion of locally-employed residents.

- Maximizing benefits obtained from investment in light rail transit requires coordinated land use policies, including prioritized development of selected sites at higher residential and commercial densities.

9/19/90

MEMORANDUM

To: Lynnie Melena, City of Mountain View

From: Steve Pickrell

Date: July 24, 1991

Subject: General Plan Circulation Analysis

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JUL 29 1991
PLANNING

190014X0

As described in the previous memorandum dated July 5, 1991, a slightly different network was used during the analysis of Scenario 5. The County Center for Urban Analysis has re-run the analysis using the identical transit and highway network used in Scenario 4. The attached tables and figure contain information on the revised Scenario 5.

Enclosed are two tables which include a revised summary analysis of "Scenario 5", the combination of RR/LUA land use with light rail transit to Mountain View. Also enclosed is a revised figure to supplement our "Future Conditions" report.

The only difference between Scenarios 4 and 5, as defined, is the addition of redevelopment of the LUA sites. The transportation network is the same. Scenarios 3 and 5 have identical land use (RR+LUA) but Scenario 5 assumes LRT while Scenario 3 does not. Therefore, comparison of LOS, link volumes, or approach volumes among these three scenarios helps to isolate the influence of LRT and/or LUA zoning changes.

In general, the difference in approach or link volume between any of these three scenarios is less than 10 percent. Although LRT does reduce traffic volume at some locations, it causes an increase at other locations. Increases are attributable to station access traffic volumes; see SR 85 LOS, for example.

Level of Service (LOS) is changed only marginally in most locations. On the Bayshore Freeway and State Route 85, the levels of service are shown on the attached figure for the mixed flow lanes. In the HOV lanes, there is level of service C or better in most cases.

Total transit trips increase approximately 3 percent (39,290 vs. 38,100) in Scenario 5 over Scenario 3. As the land use assumptions are identical, this increment can be attributed to the LRT extension. (See Table 1.) Data in Table 1 indicate that LRT ridership comes equally from single-occupant autos as well as car pools.

An estimate of total transit trips for Scenario 4 is not available, so we cannot define the increase in LRT usage that occurs solely by adding the LUA sites. Overall, we believe the data support the notion that the combination of LRT and increased density provides the greatest transit ridership, while causing an insignificant increase in automobile traffic.

Please call me or Michelle Morris if you have any questions.

cc: Don Ballanti
Mike O'Connor

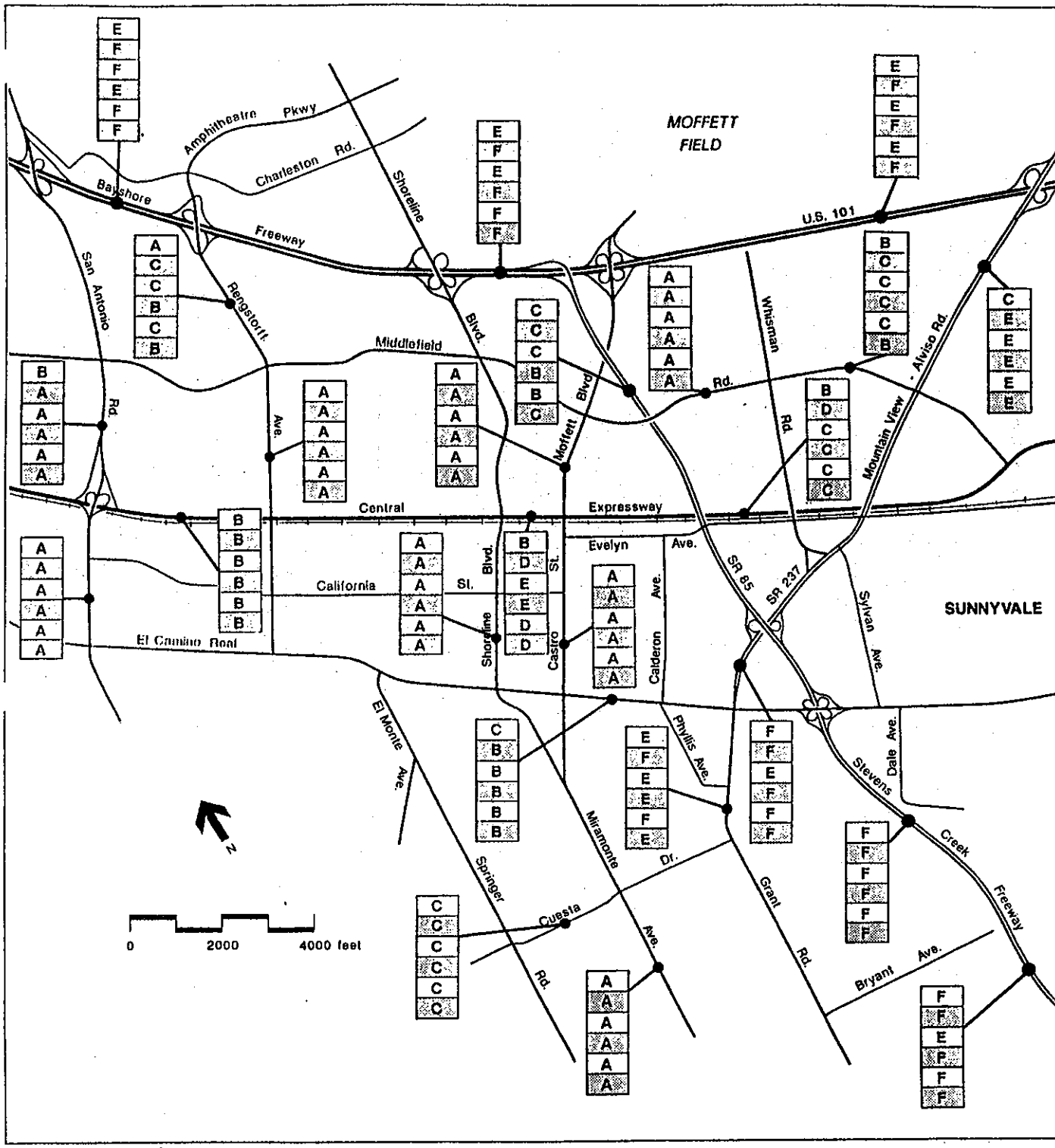
REVSCEN5.724 SMP CORR 7/91

MOUNTAIN VIEW GENERAL PLAN
Project #190014X0

Table 1
Home-Based-Work Trips

HBW Trips					
	Drive Alone (DA)	Drive with One Other Person (SR2)	Drive with Two Other Persons (SR3)	Transit Trips (TR)	Total Trips (TT)
Scenario 1	543,487	102,400	35,269	38,316	719,472
Scenario 3	545,820	103,372	35,724	38,127	723,043
Scenario 5	546,778	101,988	34,859	39,292	722,917

table1-5.724 smp corr 7/91



Korve Engineering, Inc.

LEGEND

Existing
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5

FIGURE 3

AM PEAK HOUR CURRENT AND FUTURE LEVELS OF SERVICE

Table 1, REVISED 7/16/91
Mountain View General Plan Update
ile: linksr2.wk1

LINK VOLUMES: DIRECTIONAL A.M. PEAK HOUR AND ADT

SCENARIO 5: SCENARIO 3 Land Use Plus Light Rail

Street Name/ Description	Location X to Y	No. Lanes	AM Peak Volumes N or E	S or W	Total	AM Pk Hr V/C	ADT Factor	ADT
ROADWAYS								
San Antonio	ECR to Central	6	1,115	878	1,993	0.42	0.08	24,913
San Antonio	Central to Middlefield	4	1,045	805	1,850	0.56	0.10	18,500
Rengstorff	Central to Middlefield	4	768	597	1,365	0.42	0.10	13,650
Rengstorff	Middlefield to US 101	4	628	517	1,145	0.28	0.10	11,450
Moffett	Central to Middlefield	4	865	834	1,699	0.47	0.10	16,990
Miramonte	South of Cuesta	4	416	255	671	0.22	0.10	6,710
Grant	Cuesta to ECR	4	2,020	1,133	3,153	1.09	0.08	39,413
Grant	South of Cuesta	4	1,130	543	1,673	0.29	0.08	20,913
Middlefield	San Antonio to Rengstorff	4	1,396	1,147	2,543	0.75	0.08	31,788
Middlefield	SR 85 to Whisman	4	671	446	1,117	0.36	0.08	13,963
Middlefield	Whisman to SR 237	4	1,341	1,015	2,356	0.55	0.08	29,450
Central Exwy	San Antonio to Rengstorff	6	1,416	1,317	2,733	0.47	0.08	34,163
Central Exwy	Castro to Shoreline	6	1,923	1,789	3,712	0.64	0.08	46,400
Central Exwy	SR 85 to Whisman	6	1,555	1,594	3,149	0.53	0.08	39,363
El Camino Real	Grant to SR 85	6	838	1,837	2,675	0.69	0.08	33,438
Cuesta	Springer to Miramonte	4	733	484	1,217	0.26	0.08	15,213
FREEWAYS								
US 101								
Mainline	San Antonio to Rengstorff	6	6,041	5,169	11,210	1.01	0.08	140,125
Carpool	San Antonio to Rengstorff	2	904	949	1,853	0.79	0.08	23,163
Mainline	Rengstorff to Shoreline	6	6,610	5,288	11,898	1.10	0.08	148,725
Carpool	Rengstorff to Shoreline	2	2,002	1,454	3,456	1.67	0.08	43,200
Mainline	Whisman to SR 237	6	6,154	4,412	10,566	1.03	0.08	132,075
Carpool	Whisman to SR 237	2	1,889	1,619	3,508	1.57	0.08	43,850
SR 237								
Mainline	Middlefield to US 101	4	3,478	1,838	5,316	0.87	0.08	66,450
Carpool	Middlefield to US 101	2	978	935	1,913	0.82	0.08	23,913
Mainline	South of SR 85	4	3,162	1,869	5,031	0.79	0.08	62,888
SR 85								
Mainline	South of Jct. US 101	4	2,818	1,945	4,763	0.70	0.08	59,538
Carpool	South of Jct. US 101	2	436	594	1,030	0.50	0.08	12,875

High Volume Intersections
Total Approach Volumes, Existing and 2005 Forecasts, AM Peak Hour

Intersection	NB	SB	EB	WB	TOTAL
EXISTING VOLUMES (1989-90)					
San Antonio Road/El Camino Real	1,130	750	750	1,220	3,850
Rengstorff/El Camino Real	0	400	730	1,550	2,680
Grant Road/El Camino Real	1,600	720	1,500	1,480	5,300
Central Expressway/Castro	250	360	1,470	1,230	3,310
Grant Road/Cuesta	1,060	700	590	0	2,350
Rengstorff/Central Expressway	860	410	1,090	1,230	3,590
San Antonio Road/Middlefield	2,300	840	1,360	660	5,160
BASE CASE 2005 (SCENARIO 1)					
San Antonio Road/El Camino Real	1,441	957	726	1,353	4,477
Rengstorff/El Camino Real	0	395	682	1,771	2,848
Grant Road/El Camino Real	2,100	1,710	1,890	1,870	7,570
Central Expressway/Castro	440	720	1,870	1,850	4,880
Grant Road/Cuesta	1,177	924	638	0	2,739
Rengstorff/Central Expressway	990	594	1,460	1,880	4,924
San Antonio Road/Middlefield	1,232	630	1,386	858	4,106
SCENARIO 2					
San Antonio Road/El Camino Real	1,452	968	704	1,496	4,620
Rengstorff/El Camino Real	0	528	693	1,815	3,036
Grant Road/El Camino Real	2,100	1,700	2,030	1,760	7,590
Central Expressway/Castro	520	690	1,960	1,790	4,960
Grant Road/Cuesta	1,188	924	627	0	2,739
Rengstorff/Central Expressway	1,089	572	1,470	1,860	4,991
San Antonio Road/Middlefield	1,276	616	1,397	880	4,169

Table 2, REVISED 7/16/91, Continued

High Volume Intersections
Total Approach Volumes, Existing and 2005 Forecasts, AM Peak Hour

Intersection	NB	SB	EB	WB	TOTAL
SCENARIO 3					
San Antonio Road/El Camino Real	1,298	770	660	1,463	4,191
Rengstorff/El Camino Real	0	516	660	1,463	2,639
Grant Road/El Camino Real	2,080	1,650	2,060	1,750	7,540
Central Expressway/Castro	520	730	1,980	1,690	4,920
Grant Road/Cuesta	1,144	913	649	0	2,706
Rengstorff/Central Expressway	1,111	605	1,450	1,860	5,026
San Antonio Road/Middlefield	1,133	671	1,254	1,199	4,257
SCENARIO 4					
San Antonio Road/El Camino Real	1,408	935	693	1,518	4,554
Rengstorff/El Camino Real	0	516	748	1,848	3,112
Grant Road/El Camino Real	2,100	1,680	2,060	1,750	7,590
Central Expressway/Castro	500	720	1,960	1,770	4,950
Grant Road/Cuesta	1,221	935	616	0	2,772
Rengstorff/Central Expressway	1,100	572	1,450	1,870	4,992
San Antonio Road/Middlefield	1,265	616	1,397	891	4,169
SCENARIO 5					
San Antonio Road/El Camino Real	1,506	878	704	1,487	4,575
Rengstorff/El Camino Real	0	463	773	1,735	2,971
Grant Road/El Camino Real	2,011	1,583	2,072	1,837	7,503
Central Expressway/Castro	523	758	1,923	1,656	4,860
Grant Road/Cuesta	1,081	957	656	0	2,694
Rengstorff/Central Expressway	1,080	597	1,416	1,833	4,926
San Antonio Road/Middlefield	1,150	609	1,197	886	3,842

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FEB 1 0 1992

February 10, 1992

DAVID J. POWERS & ASSOC., INC.

Mr. Michael J. Percy
City of Mountain View
500 Castro Street
Mountain View, California 94041

VIA FIRST CLASS MAIL

Subject: Changes in General Plan Dwelling Unit Estimates 190014X0

Dear Michael:

Alicia Guerra of David Powers and Associates has asked me to clarify an issue related to the transportation analysis conducted by Korve Engineering, Inc. (Korve) in support of the Mountain View General Plan update. Since the time we conducted our analysis of future travel demand volumes on the transportation network, the General Plan estimates of potential residential development in the City have been revised. At question is whether our analysis is still adequate for purposes of environmental documentation. Specifically, we have been asked to consider the changes in residential development since the time of our analysis, and to comment whether these revisions might impact the validity of our findings or recommendations.

Table A presents the early 1990 estimates of residential development potential of the 18 identified sites. These are the estimates used by Korve in analysis of future travel demand. As Table A indicates, we assumed an estimated 2,588 dwelling units under the "residential redevelopment" scenario, and approximately 4,787 additional dwelling units under the "land use alternatives" scenario. In all, the combination of RR and LUA potential is approximately 7,375 dwelling units in the 1990 estimate.

Table B indicates the revised dwelling unit estimates for both RR and LUA sites. This table has been updated by Powers and Associates to reflect direction from City staff and the Environmental Planning Commission as of January, 1992. The most obvious difference is that seven of the original 18 redevelopment sites have been eliminated from further consideration in the General Plan update. One of the sites which was previously categorized as an RR site is now considered to be an LUA site. And in several sites, the estimate of potential dwelling units has been either raised or lowered.

In sum, the development potential of the RR sites has remained essentially unchanged (2,588 vs. 2,587). The potential residential development on LUA sites has decreased from an original estimate of 4,787 to approximately 3,140. In all, approximately 5,727 dwelling units are considered in the General Plan residential development scenarios provided to us most recently.

A California Corporation

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Because the overall unit count has been reduced rather than increased, relative to our 1990 transportation analysis, the conditions presented in our future conditions report (September 1990) overstate the total travel demand that would be generated by the revised development scenarios. Both the residential redevelopment scenario and the land use alternative scenario still represent a "worst case condition" which comfortably brackets the level of development now contemplated in the General Plan. The transportation analysis remains acceptable for the purpose of evaluating global General Plan impacts, and for developing circulation policies and actions which will mitigate adverse impacts.

We also conclude that the transportation analysis is adequate for use by Powers and Associates in the Program Level Environmental Impact Report for the General Plan. The change in potential dwelling unit development does not result in a situation in which the EIR would underestimate the adverse circulation impacts of residential or other developments envisioned in the new General Plan.

Although the transportation analysis conducted by KORVE overestimates the travel demand that might be generated by residential redevelopment, we think that the difference is insignificant for the following reasons:

- The geographic distribution of anticipated redevelopment sites has not changed dramatically. Most of the reduction in potential dwelling unit development is contained is contained in the Rengstorff planning area. While there would be lower trip production in this area than we anticipated, the changes are limited to a relatively small area of the city.

- The largest potential residential redevelopment areas are located near major public transit corridors. Examples include the San Antonio Center/Old Mill Site which is served by Caltrain; the Evelyn Avenue and Downtown sites which will be served by light rail in the future and which are now served by Caltrain; and El Camino Real, which has the greatest number of county transit bus routes.

- The largest residential redevelopment areas are also located adjacent to land uses which provide employment, retail shopping, and recreational opportunities within walking or biking distance. The proportion of total trips generated by these households which would be taken by walking or bike is expected to be significantly higher than for the City at large.

- If the seven deleted sites are not redeveloped for residential use, it is probable that over time they will be redeveloped for uses consistent with current zoning, typically industrial or commercial. This possibility is already addressed as Scenario 1 in the Future Conditions Report. Traffic potentially generated by these non-residential uses would offset some of the reduction of the residential development.

In summary, we feel that the Korve Future Conditions Report based upon the original 18 sites still adequately encompasses the potential traffic generation, residential and other, contemplated in the revised General Plan. Therefore, although the measures of travel demand and system performance presented in the Future Conditions Report may tend to overestimate the anticipated level of development, they are conservative, and will tend to err on the high side rather than the low side. Some transportation system improvements which are required to provide additional capacity might be delayed or forestalled due to the reduced assumptions about residential development.

Please call me if you require additional clarification of this issue.

Sincerely,

KORVE ENGINEERING, INC.

Steven M. Pickrell, P.E.
Senior Project Manager

SMP:sf
Attachments
Percy.210 SMP-1992 Corr #1

cc: Alicia Guerra, Powers & Associates
Lynnie Melina, City of Mountain View

Table A
POTENTIAL RESIDENTIAL REDEVELOPMENT SITES IN MOUNTAIN VIEW
Original 18 Sites

Site No.	Planning Area	Area Description	EPC Rec	Potential Unit
1	Rengstorff	Leghorn/Independence East	LUA	738
2	Rengstorff	Leghorn/Independence East	LUA	324
3	Rengstorff	Plymouth/Sierra Vista	LUA	414
4	Whisman	Fairchild Dr. and Ellis St.	LUA	2,520
5	Sylvan/Dale	Evelyn Ave. and Moorpark Way	LUA	425
6	Central	Evelyn Ave. and Villa St.	RR	255
7	San Antonio	Old Mill Site (Showers/Calif.)	RR	630
8	San Antonio	Del Medio Ct. (Sears WH)	RR	72
9	Miramonte	Greenhouse at Marilyn Ave.	RR	30
10	Grant	SE Corner of Grant/Levin	LUA	60
11	Stierlin	Terra Bella/Linda Vista	LUA	258
12	Stierlin	Shoreline Blvd. S/O Middlefield	RR	60
13	Stierlin	Polaris and Gemini Avenues	RR	147
14	Whisman	NE Corner of Easy St./ Central Exp.	RR	24
15	Central	Downtown	RR	720
16	Thompson	Mayfield Ave.,/Central Exp. (HP)	LUA	48
17	Miramonte	SE Corner of El Camino/El Monte	RR	150
18	Partial	El Camino Commercial Strip	RR	500
SUBTOTAL		RR Sites		2,588
		LUA Sites		4,787
TOTAL				7,375

Table B
POTENTIAL RESIDENTIAL REDEVELOPMENT SITES IN MOUNTAIN VIEW
Proposed Seven Residential Redevelopment Sites and
Four Land Use Alternative Sites

Site No.	Planning Area	Area Description	EPC Rec	Potential Unit
4	Whisman	Fairchild Dr. and Ellis St.	LUA	2,520
5	Sylvan/Dale	Evelyn Ave. and Moorpark Way	LUA	425
6	Central	Evelyn Ave. and Villa St.	RR	365
7	San Antonio	Old Mill Site (Showers/Calif.)	RR	720
8	San Antonio	Del Medio Ct. (Sears WH)	RR	72
12	Stierlin	Shoreline Blvd. 2/0 Middlefield	RR	60
13	Stierlin	Polaris and Gemini Avenues	LUA	147
15	Central	Downtown	RR	720*
16	Thompson	Mayfield Ave.,/Central Exp. (HP)	LUA	48
17	Miramonte	SE Corner of El Camino/El Monte	RR	150
18	Partial	El Camino Commercial Strip	RR	500
SUBTOTAL		RR Sites		2,587
		LUA Sites		3,140
TOTAL				5,727

* Approximately 370 of the 720 units are already built and occupied. However, occupancy took place after the "base case" existing transportation conditions were established. As such, the full 720 dwelling unit redevelopment of site 15 is considered to be potential "new" development with respect to established base case conditions.

MVResTbl.206 SMP-1992 Prj #1

APPENDIX C

AIR QUALITY ANALYSIS
DONALD BALLANTI

CITY OF MOUNTAIN VIEW

MOUNTAIN VIEW 1991 GENERAL PLAN
ENVIRONMENTAL IMPACT REPORT

Donald Ballanti
Certified Consulting Meteorologist

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AIR QUALITY IMPACT ANALYSIS FOR THE PROPOSED REVISIONS TO THE MOUNTAIN VIEW GENERAL PLAN

Prepared for: David J. Powers and Associates
1885 The Alameda, Suite 204
San Jose, CA. 95126

Revised April 1992

Air Pollution Meteorology • Dispersion Modeling • Climatological Analysis

I. EXISTING AIR QUALITY CONDITIONS

Air Pollution Climatology

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine.

Winds

Northwest winds and northerly winds are most common in Mountain View, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula towards Redwood City, particularly during the summer months. Winds are lightest on the average in fall and winter. Every year in fall and winter there are periods of several days when winds are very light and local pollutants can build up.

Atmospheric Stability

Dilution of pollutants via vertical mixing is suppressed under inversion conditions, when a warm layer of air traps cooler air close to the surface. The level of atmospheric stability is measured in the Bay Area twice daily by radiosondes (balloon-borne instruments and radio transmitters) released at Oakland Airport. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Terrain

The topography of the Peninsula also affects air quality. The mid-Peninsula area is inland and somewhat sheltered, so that the terrain partially restricts lateral dilution of pollutants.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution and terrain that restricts horizontal dilution give Mountain View a relatively high atmospheric potential for pollution.

Air Quality Standards

The Clean Air Act of 1967, as amended, established air quality standards for several pollutants. These standards are divided into primary standards which are designed to protect the public health and secondary standards which are intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. In addition, the State of California has its adopted its own standards. The state standards

are durations of time for specific contaminant levels which are designed to avoid adverse effects with a margin of safety. The state and federal standards for criteria pollutants are shown in Table 1.

The pollutants covered in Table 1 are known as "criteria" pollutants because of published documents providing information on the health and other effects of various exposures to pollutants.

Another group of substances known as Toxic Air Contaminants is receiving increasing attention as a subject of public concern and regulation. These pollutants may be highly injurious, even in small quantities. Because there are many toxic pollutants and they are relatively uncommon, limits are set for these pollutants without the lengthy and costly process of developing ambient air quality standards.

Characteristics and Sources of Pollutants

The major air quality problems in the Bay Area are ozone, carbon monoxide and suspended particulates.

Ozone

Ozone is not emitted directly to the atmosphere by any source but is the result of a complex chemical reaction in the atmosphere in the presence of sunlight. The major pollutants involved in this reaction, known as ozone precursors, are hydrocarbons and oxides of nitrogen. The sources of these precursor pollutants are numerous and widespread, and the major sources are vehicles, industrial processes, combustion, solvents and paints. Because of the time delay of several hours involved in the formation of ozone, the highest concentrations are found downwind of urban areas. Ozone also can be transported long distances by wind so that ozone created in the Bay Area may be transported as far as the Sacramento area and communities in the Sierra Nevada range.

Carbon Monoxide

Carbon monoxide is a local pollutant in that high concentrations are found only very near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

Suspended Particulates

The major sources of particulate matter affecting the Mountain View area are dust from industrial processes, automobiles, agricultural burning and aerosols generated during the creation of photochemical smog. Dust from construction sites also contributes to particulate matter concentrations.

Table 1: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.10 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	---	0.25 PPM
Suspended Particulates	Annual	50 ug/m3	30 ug/m3
	24-Hour	150 ug/m3	50 ug/m3
Lead	30-Day Ave.	---	1.5 ug/m3
	3-Month Ave	1.5 ug/m3	---

ug/m3 = micrograms per cubic meter
PPM = parts per million

Toxic Air Contaminants

Assembly Bill 2588, the Toxic "Hot Spots" Information and Assessment Act of 1987, requires that industry provide information to the public about emissions of toxic air contaminants and their impact on public health. This law required local air districts and the state Air Resources Board to prepare a detailed inventory of sources of over 200 toxic air contaminants, the identification of high priority emission sources, and the preparation of health risk assessment for each of these priority sources.

The inventory of toxic air contaminant sources for the Bay Area identified 42 sources within Mountain View city limits. The majority of these sources are electronic and semiconductor manufacturers that utilize numerous solvents and gases. Twelve of the identified sources are dry cleaners, and another three deal with petroleum products. Of the 42 sources identified in Mountain View three were designated as high priority facilities by the Bay Area Air Quality Management District. Health risk assessments for these three facilities are required to be submitted to the District.

Past and Current Air Quality

The Bay Area Air Quality Management District operates a network of

Table 2: Number of Days Exceeding State or Federal Ambient Air Quality Ozone Standards in Redwood City and Mountain View, 1982-1989

Year	Maximum (PPM)	Days Exceeding Standard: State	Days Exceeding Standard: Federal
		Redwood City	
1982	0.10	0	1
1983	0.17	2	8
1984	0.11	0	14
1985	0.13	1	12
1986	0.10	0	1
1987	0.12	0	5
1988	0.10	0	2
1989	0.10	0	1
		Mountain View	
1982	0.11	0	6
1983	0.16	5	16
1984	0.12	0	13
1985	0.12	0	5
1986	0.13	1	5
1987	0.14	4	44
1988	0.12	0	28
1989	0.11	0	6

Source: Ref. 1

permanent air quality monitoring sites throughout the Bay Area, including an ozone monitoring site in Mountain View. For other pollutants, the closest monitoring site is in Redwood City.

Historical air quality data for these two sites show that the state and federal standards for sulfur dioxide, nitrogen dioxide and lead are met in the Mountain View area. Concentrations of other criteria pollutants exceed the ambient air quality standards, however.

Ozone

Table 2 shows ozone air quality data for the Mountain View and Redwood City monitoring sites for the years 1982-1989. The maximum measured concentration is shown, and the number of days that the state and federal standards were exceeded each year. Table 2 showsthat Mountain View, located south and generally downwind of Redwood City, has higher ozone levels. This is consistent with

observations that ozone air quality deteriorates southward along the San Francisco Peninsula.

Suspended Particulates

Since 1982, the suspended particulate standard was modified from specifying Total Suspended Particulate (TSP) to PM-10 (Particulate Matter, 10 micron). The state standard for suspended particulate was changed in 1983; the federal standards were similarly changed in 1987. Monitoring of PM-10 began at Redwood City in 1986.

Unlike gaseous pollutants, suspended particulates are not measured on a daily basis, but are measured every sixth day. The state and federal standards are for both a 24-hour and annual averaging time. Data from the Redwood City monitoring site for TSP (prior to 1987) and for PM-10 (since 1987) are shown in Table 3.

The limited data base from Redwood City for PM-10 indicates that the federal ambient air quality standards are met but the more stringent state standards, however, are exceeded.

Carbon Monoxide

Table 3 shows the maximum concentrations measured each year during 1982-1989 for carbon monoxide, and the number days that the 8-hour state and federal standards were exceeded. Only one violation of the standard was recorded in Redwood City during this 8-year period.

In addition to regular monitoring of carbon monoxide levels at Redwood City, the City of Palo Alto and Bay Area Air Quality Management District funded a special monitoring program for carbon monoxide within Palo Alto from November 1985 to February 1986. This study found that carbon monoxide concentrations within Palo Alto generally met the state and federal standards with the exception of two locations. (Ref. 2)

Regional Air Quality Planning

The San Francisco Bay Area has been designated as a region where three national ambient air quality standards are being exceeded. Under the 1977 Clean Air Act, the Association of Bay Area Governments (ABAG) was empowered to prepare a plan to address the region's non-attainment of standards for ozone, carbon monoxide and suspended particulates. The entire Bay Area is considered a non-attainment area for ozone; urbanized areas within the Bay Area are considered non-attainment for carbon monoxide.The Clean Air Act Amendments of 1977 specified that the national ambient air quality standards were to be met by 1982, with provision for extension of the deadline five years to 1987. However, the national ambient air quality standards were not met in the Bay Area by the end of 1987.

Table 3: Annual Average Concentrations and Number of Days Exceeding State and Federal Standards of Suspended Particulate, 1982-1989, in Micrograms per Cubic Meter

Year	Annual Mean:[1] Geometric	Arithmetic	Days Exceeding Standard: State	Federal
		Total Suspended Particulate		
1982	41.9	--	0	0
1983	36.7	--	0	0
1984	43.6	--	0	-
1985	44.0	--	0	-
1986	43.8	--	0	-
		PM-10		
1987	25.4	29.0	0	6
1988	29.8	34.7	0	4
1989	29.1	33.3	0	10

Source: Ref. 1

[1] The federal annual TSP standard prior to 1987 and PM-10 standard since 1987 specifies an annual geometric mean of 24-hour measurements. The state standard for PM-10 specifies an arithmetic mean of all 24-hour measurements.

Table 4: Maximum Concentrations and Number of Days Exceeding State or Federal Ambient Air Quality Carbon Monoxide Standards in Redwood City, 1982-1989

Year	Maximum (PPM)	Days Exceeding Standard:
1982	6.0	0
1983	9.6	1
1984	5.6	0
1985	6.4	0
1986	6.4	0
1987	5.4	0
1988	5.0	0
1989	5.3	0

Source: Ref. 1

Although the State of California has had its own ambient air quality standards for many years, until recently there was no requirement that these standards be attained by any date. The California Clean Air Act was signed into law on January 2, 1989. This legislation requires areas that exceed the California ambient air quality standards to plan for the eventual attainment of the standards. The time given to various areas would depend on the severity of air quality problems. The state Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. For the state ambient air quality standards, Santa Clara County is considered non-attainment for ozone and suspended particulates (PM-10). The San Jose Urbanized Area is considered non-attainment for carbon monoxide. (Ref. 3)

Generally, these plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods. The Act also grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage or require the use of ridesharing, vanpooling, flexible work hours or other measures which reduce the number or length of vehicle trips.

II. FUTURE AIR QUALITY

Local Pollutants

The local pollutant of greatest importance in the Mountain View area is carbon monoxide. Computer models have been developed that allow the prediction of concentrations of carbon monoxide concentrations near roadways in future years. One such model, the CALINE-4 program developed by the California Department of Transportation, was applied to six major intersections within Mountain View for current traffic volumes and projected year 2010 traffic volumes under three land use scenarios.

Given traffic volume, meteorology, site geometry and site characteristics, the model predicts pollutant concentrations for receptors located near the roadway. An intersection model was constucted, extending 250 meters in all directions. Receptors (locations where the model calculates concentrations) were located at distance of 10 from the roadway edge for all four corners of the intersection.

Concentrations of carbon monoxide were calculated at six intersections. These intersections were selected as having the highest potential for carbon monoxide based upon the volume of traffic and congestion conditions, and concentrations at these location should represent the highest to be expected within the Mountain View area.

Table 5 shows the results of the intersection analysis for the peak hour traffic period and the 8-hour peak traffic period. These values are to be compared to the federal 1-hour standard of 35 PPM

Table 5: Predicted Worst Cast 1-Hour and 8-Hour Concentrations, in Parts per Million

Intersection	Case 1	Case 2	Case 3	Case 4
		1-Hour Concentrations		
San Antonio/El Camino	15.4	13.6	13.8	13.4
Rengstorff/El Camino	14.3	12.5	12.7	12.2
Grant/El Camino	17.1	16.1	16.2	16.2
Central/Castro	15.0	14.1	14.2	14.2
Grant/Cuesta	13.7	12.2	12.2	12.1
Rengstorff/Central	15.2	14.2	14.2	14.2
		8-Hour Concentrations		
San Antonio/El Camino	6.5	5.7	5.8	5.6
Rengstorff/El Camino	6.0	5.3	5.3	5.1
Grant/El Camino	7.2	6.8	6.8	6.8
Central/Castro	6.3	5.9	6.0	6.0
Grant/Cuesta	5.8	5.1	5.1	5.1
Rengstorff/Central	6.4	6.0	6.0	6.0

Case 1 = Existing (1990)
Case 2 = Base Case (2005)
Case 3 = Residential Redevelopment Scenario (2005)
Case 4 = Residential Redevelopment and Land Use Designation Scenario (2005)

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and the state standard of 20 PPM, and the 8-hour standard (federal and state) of 9.0 PPM.

Concentrations shown in Table 5 for existing conditions are all well below the most stringent state and federal standards. By the year 2005, concentrations would be below current concentrations for all three land use scenarios.

Regional Pollutants

Future development within Mountain View would affect driving patterns in the region, and would therefore affect regional air

quality. Vehicle trips to and from Mountain View result in automobile emissions affecting the entire Bay Area.

To estimate the emissions associated with future land use changes, the URBEMIS-3 computer program, developed by the California Air Resources Board, was applied to alternative land use scenarios for Mountain View.

Table 6 shows the daily vehicular emissions associated with the three land use scenarios in the year 2005. Emissions are shown for the ozone precursors (hydrocarbons and oxides of nitrogen) and PM-10. These values reflect the net change in trip generation after subtracting trips from existing uses that would be removed.

Guidelines for the evaluation of projects and plans issued by the Bay Area Air Quality Management District consider emission increases of PM-10 or ozone precursors to be significant if they exceed 150 pounds per day. (Ref. 4) Based upon this criterion the Base Case land use scenario and Residential Redevelopment and Land Use Designations scenario would have result in significant new regional emissions.

The URBEMIS-3 program calculates emissions associated with land use changes. It cannot account for regional changes in travel patterns that may result from the project. In the case of Residential Redevelopment scenario and Residential Redevelopment and Land Use Designation scenario shifts in the jobs/housing balance would occur within Mountain View and the South Bay as a whole that would influence travel patterns. Increasing housing availability is an air quality strategy for South Bay. Presumably, new housing within Mountain View would absorb some of the population growth that would occur in the Bay Area elsewhere, and due to its proximity to employment, would ultimately reduce long distance commuting (and regiona air emission. The regional impacts of the Residential Redevelopment scenario and Residential Redevelopment and Land Use Designations scenario would therefore be partially offset by reductions in emissions elsewhere in the Bay Area. The amount of this offset is not known.

Toxic Air Contaminants

Future growth under either the Residential Redevelopment or the Residential Redevelopment and Land Use Designations scenarios has the potential to result in land use conflicts. Under both these scenarios lands currently zoned for industrial use or within areas zoned for industrial use would be developed with housing. The current use of Toxic Air Contaminants within industrial lands in Mountain View may mean that the exposure of the population to these pollutants would be increased under either of these scenarios.

III. ISSUES

Development under either the Residential Redevelopment or

Table 4: Year 2005 Regional Emission Increases, in Pounds per Day

	HC	NOX	PM-10
Base Case	402.1	752.7	73.3
Residential Redevelopment	289.3	482.5	52.9
Residential Redevelopment/ Land Use Designations	362.0	500.3	51.5

HC = Hydrocarbons
NOX = Oxides of Nitrogen
PM-10 = Particulate Matter, 10 Micron

Residential Redevelopment and Land Use Designations scenarios do not appear to result in problems with criteria pollutants. While the regional emission associated with traffic generated by the Residential Redevelopment and Land Use scenario does exceed the "threshold of significance", the development of housing within Mountain View is part of a larger overall regional strategy for improving air quality. This scenario would be consistent with regional programs and strategies for attaining the air quality standards in the region.

Either of these two scenarios would locate new housing in proximity to industrial lands. As noted earlier, there are 42 known sources of toxic air pollutants within Mountain View, the majority of which are located in industrial and manufacturing areas of Mountain View.

Unlike criteria pollutants, toxic air pollutants have not been the subject of public scrutiny or regulation for a long time. Federal, State and local programs for the identification of public health risks have only recently begun, and will the process of identifying sources and quantifying risks will be ongoing for a period of several years.

The City should develop specific policies regarding the siting of housing near sources of toxic air contaminants. Additional analysis of the proximity of identified toxic air contaminant sources and the parcels being considered for residential develop should be undertaken. Development of parcels within or near industrial areas should not proceed until an analysis of the risks associated with toxic air contaminant emissions has been completed and shown to be acceptable.

References

1. California Air Resources Board, California Air Quality Data Annual Summary, Vols. XIV-XXI, 1983-1990.

2. Ballanti, D., Air Quality Implications of the Palo Alto City-Wide Land Use and Transportation Study, Final Report, May 1988.

3. California Air Resources Board, Area Designations for State and National Ambient Air Quality Standards, Report TSD-006, 1989.

4. Bay Area Air Quality Management District, Air Quality and Urban Development- Guidelines, November 1985.

APPENDIX D

NOISE ANALYSIS
MO'C PHYSICS APPLIED

CITY OF MOUNTAIN VIEW

MOUNTAIN VIEW 1991 GENERAL PLAN
ENVIRONMENTAL IMPACT REPORT

Noise Study

General Plan Update
[year 2005]

Mountain View, California

November 1990

mo'c Physics Applied
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Introduction

This report is intended to provide background information on acoustics for the Mountain View General Plan Update. It contains estimates of vehicular traffic noise and information pertaining to noise from railroad, aircraft, wind tunnel and amphitheater operations. The chief finding is that vehicular traffic noise is not likely to intensify significantly in the foreseeable future [circa 2005].

The noise and land use compatibility standards which are contained in the current noise element of the City's general plan are reviewed. The consultant suggests that the City consider making some changes: that it adopt a new noise descriptor (one which has won wide acceptance in recent years because it is most easily and reliably derived from measurements or from simple parameters which describe the intensity and frequency of noise events), and, that it revise the chart of noise and land use compatibility guidelines. The proposed changes in the guidelines would consist not only of the use of the new descriptor but also the addition of a new category of uses (namely hospitals, schools, libraries & auditoriums).

The effectiveness of certain of the City's existing general plan noise policies is discussed. Mitigation which has occurred due to policies of other agencies is also cited, such as the recent construction of noise walls along US 101 and Rt. 85 by Caltrans and the noise wall mitigation which the County proposes for Central Expressway.

Decibels, Descriptors, Standards and Policies

The Decibel Scale

Noise intensity is customarily measured on a "decibel" scale which serves as an index of loudness. On this scale sounds as faint as 0 decibels are just barely audible, and only then in the absence of other louder sounds; intense sounds of 120-140 decibels are so loud as to be painful or to cause damage to hearing with but a brief exposure.[1]

noise environment or event: (conditions) noise level

anechoic chamber: (hearing test) 0-20 decibels
recording studio: (background) 20 decibels
quiet woods: (in a rural area, still air) 30 decibels
residence: (indoors at night, quiet suburb) 35 decibels
office: (busy, open-plan) 55 decibels
normal conversation: (3 to 5-foot separation) 60-65 decibels
20 mph automobile: (25-foot separation) 65 decibels
50 mph dump truck: (50-foot separation) 85 decibels
train horn: (100-foot separation) 105 decibels
claw hammer: (on wooden plank) 120 decibels
shotgun: (at shooter's ear) 140 decibels

[1] All of the noise levels which are given in this report or in the City's noise and land use compatibility guidelines– whether they are designated simply as "decibels" or not– are the result of "A-weighting". A signal from a microphone which ordinarily varies in proportion to the instantaneous sound pressure level is conditioned by this weighting procedure to represent the apparent intensity or perceived loudness of the sound rather than its true physical intensity. Decibel levels are thus adjusted to take into account the fact that human hearing is less sensitive to very low or very high-pitched sounds than it is to sounds of less extreme frequencies of a few hundred to a few thousand cycles per second. The A-weighted decibel is abbreviated "dBA".

These extremes are not often encountered in commonplace environments. Citizens of Mountain View are most frequently exposed to noise which ranges between 30 decibels and 85 decibels in intensity.[2]

Two Descriptors of Environmental Noise— Definitions

In general, the word "level" will be used here to refer to a numerical value for the noise intensity, especially to a decibel value. The instantaneous intensity of environmental noise (its moment-to-moment loudness) can be expressed as a time series or chart of the decibel level as it varies with time. The term is also applicable to certain calculated average values of the intensity of environmental noise which are intended to describe an entire period of exposure.

Such a descriptor is the "L_{10}". The noise and land use compatibility standards of the City's general plan are stated in terms of L_{10}. Over any specified interval of time, the L_{10} is the level which the instantaneous environmental noise level has exceeded for ten percent of the time. For example, if the environmental noise level is greater than 60 decibels during a cumulative six minutes of an hour, then the L_{10} for that hour is 60 dB because six minutes are 10% of an hour. (Note that the exceedance need not have occurred over six consecutive minutes.)

e.g. Along a busy urban street the wayside noise level during the pm peak traffic hour may vary between 55 and 70 decibels. The L_{10} may be 67 decibels.

2 The word "intensity" is intended to have its ordinary meaning— not the meaning which is given to it by physicists and engineers.

The definition may be applied to periods of greater than one hour, and indeed the current noise and land use compatibility standards of the City are stated in terms of daytime (7:00 am to 10:00 pm) and nighttime (10:00 pm to 7:00 am) L_{10}'s. Thus, the daytime L_{10} which is specified by the City is the decibel level which the environmental noise level exceeds for 90 minutes of the day; the nighttime L_{10} is the level which is exceeded for a total of 54 minutes of the night.

The "L_{eq}"— and it is called the "equivalent" noise level— is the decibel level which represents the time average of the energy content (or intensity) of the environmental noise. If the period over which the average is taken is the day, then the L_{eq} is denoted "L_d"; the nighttime average is "L_n".

e. g. Along a busy urban street the wayside noise level during the pm peak traffic hour may vary between 55 and 70 decibels. The L_{eq} may be 65 decibels.

Both the L_{10} and the L_{eq} tend to give greater weight to the louder noise events, but there are differences which are explored below.

Numerical Comparison of the L_{10} and L_d or L_n Descriptors

Each of the following examples pertains to circumstances in which the listed source of noise is presumed to be predominate.

Constantly Evident Sounds of Nearly Fixed Intensity

In this situation the L_{10} and the L_d or L_n are numerically nearly identical.

e. g. fan noise from an always-on ventilating system
(L_{10} = 52 dB, L_d = 52 dB, L_n = 52 dB)

Train Noise

The L_{10} will in general be much less than the L_d or L_n unless passbys are so frequent that there is a train within earshot for at least 10% of the time (six minutes per hour).

e.g. daytime Caltrain operations
(L_{10} = 56 dB, L_d = 64 dB; 100 feet from tracks; 40 trains in 15 hours)

e.g. nighttime Caltrains
(L_{10} = 48 dB, L_n = 60 dB; 100 feet from tracks; 10 trains in 9 hours)

Roadway Noise

Along all but the most sparsely travelled streets the daytime L_{10} will be comparable to the L_d, but the nighttime L_{10} may be a few decibels greater than the L_n.

e.g. daytime along Middlefield Road at Easy Street
(L_{10} = 63 dB, L_d = 63 dB; 50 feet from curb)

e.g. nighttime along Middlefield Road at Easy Street
(L_{10} = 59 dB, L_n = 55 dB; 50 feet from curb)

Impulsive Noise

Neither L_{10} nor L_d or L_n are significantly affected by brief bursts of sound.

e.g. door slam
e.g. firecracker
e.g. claw hammer striking nail

Recommending the Use of L_d and L_n

The above examples are intended to compare and contrast the responses of the daytime and nighttime L_{10}'s with L_d and L_n. They illustrate that there are some differences: L_{10} is not as responsive as are L_d and L_n to train noise or to other such noise which is comprised of "single-events" which have a combined duration of less than 10% of the time. (Recall that L_d and L_n are simply names for the daytime and nighttime L_{eq}'s. As above, we are here discussing distinctions between the L_{10} and L_{eq}-based descriptors.)

The consultant is not suggesting that a City may not have a policy which is based on a descriptor (L_{10}) which gives less weight to train noise than does some other descriptor (such as the L_{eq}). However, there is a State statute which requires that indoor noise levels in non-detached housing not exceed 45 decibels.[3] The descriptor in the statute (the prescribed method by which the decibel level is to be calculated) is based on the L_{eq}, not on the L_{10}.

The State's standard is actually stated in terms of the "CNEL" which is an acronym for the "community noise equivalent level". It is a weighted average of the hourly L_{eq}'s wherein nocturnal noise [10:00 pm to 7:00 am] is penalized by 10 decibels and evening noise [7:00 pm to 10:00 pm] is penalized by 5 decibels. The CNEL is very similar to the L_{dn}, the "day-night equivalent noise level". This latter descriptor is derived by adding 10 decibels to L_n and combining the result with L_d. In other words, the L_{dn} is just the CNEL without the little penalty for evening noise. ("Little", not so much because 5 decibels are insignificant but because the evening is defined to be just a 3-hour period.)[4]

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[3] California Administrative Code, Title 24, Part 2, Chapter 2-35, "Sound Transmission Control"

[4] The actual definition of L_{dn} is $10 \log_{10}[10^{(L_d/10)} + 10^{((L_n + 10)/10)}]$. Those are powers of 10 within the brackets. The logarithm is to the base 10. (A "bel" is a power of ten. It's to honor Alexander Graham Bell.)

The State's standard is to be compared with the City's current residential interior L_{10} guideline levels of 45 decibels (daytime) and 35 decibels (nighttime). Outwardly, the City's guidelines and the State's standard seem, at least numerically, to be nearly identical: the City's 35-decibel nighttime L_{10} guideline level seems to incorporate the same 10-decibel penalization of nighttime noise as the State's 45-decibel CNEL standard; the "evening" period of the CNEL which has no counterpart in the City's guidelines is only three hours long and the inclusion of the 5-decibel penalty thus has a rather insubstantial effect on the computed value of the CNEL.

However, a conflict of sorts becomes apparent when it is considered that the L_{10} and the CNEL may register quite different values for the same noise source. This fact is particularly well illustrated by the train noise examples above which compare the daytime L_{10} with L_d and the nighttime L_{10} with L_n. The State statute thus compels the City to ensure that mitigation of noise (including train noise) at apartments and condominiums is done according to a standard which leads to a certain outcome; the applicable guideline level of the City would bring about a different conclusion.

Such differences come about not because the numerical values of the City's daytime and nighttime guideline levels are not identical to the State's standard— they almost are— but because the respectively chosen descriptors are computed differently. For apartments and condominiums the differences are easily resolved by the common law: State law preempts the City's guidelines. However, the State law is inapplicable to detached homes, so that there could be pending applications for single family homes and condominiums, on adjacent lots having the same acoustical environment, with the City's guidelines providing one set of daytime and nighttime interior noise levels for the detached units and the State's standard providing another for the condominiums.

There are other reasons for recommending that the City consider switching from L_{10} to a descriptor which is based on the L_{eq}. The L_{eq} is more easily and more reliably related to a few simple quantities which describe motor vehicle, train and aircraft operations, such as the number of passbys, the speed of the vehicle, and the distance between the receptor and the path taken by the vehicle. The L_{10} is additionally dependent upon other more elusive factors, such as the detailed manner in which noise emissions vary among vehicles and the extent to which the traffic "bunches up". These additional factors are rather problematical to quantify. Theoretical models for the estimation of L_{10} from roadway traffic have been developed by the Federal Highway Administration (FHWA) and the National Cooperative Highway Research Program (NCHRP) of the National Academy of Sciences, but these models employ very simplified procedures which incorporate default assumptions for the bunching up effect and for the variations among vehicular emissions. In fact, the basic model which is promulgated by the FHWA and the NCHRP simply neglects these effects and doesn't even allow for L_{10} calculations over periods longer than an hour. Errors may be introduced by theoretical estimates of L_{10} which fail to faithfully implement the descriptor in all of its attributes.[5]

The *measurement* of L_{10} is not problematical, but it requires more complex equipment than does the measurement of the L_{eq}. A rather simple "integrating" sound level meter can be used to measure the L_{eq}. The L_{10} follows from "classification" of the noise levels and this function must be performed by other more complex circuitry. Like the integrating sound level meters, equipment to measure L_{10} is widely available "off the shelf"; it is more expensive and less simple to operate.

[5] "FHWA Highway Traffic Noise Prediction Model", FHWA-RD-77-108, December 1978, page 54

Speech interference effects of environmental noise were studied by the NCHRP and the US Environmental Protection Agency (EPA) in the early 1970's. The "exceedance" levels— L_0, L_1, L_2,...L_{98}, L_{99} & L_{100}— are naturally useful for analyzing speech interference because they immediately lead to an estimate of the percentage of time that noise exceeds a level which is high enough to interfere with speech. However, L_{10} is, by itself (without L_0, L_1, L_2...L_9, L_{11}, L_{12}..., etc.), not a sufficient basis for the analysis of speech interference. Moreover, it is not especially useful for the assessment of the potential for sleep interference inasmuch as the intensities of the noise events during intervals in which the noise level exceeds the L_{10} are not reflected in the L_{10} at all. (This point is made in a less academic way by the train noise examples which are given above.)

In promulgating its standards for the provision of noise walls along Federally-funded roadway projects the FHWA first settled on L_{10} as a descriptor. More recently, the agency has allowed the L_{eq} to be used in lieu of the L_{10} (if the local jurisdiction so elects). This switch occurred after the EPA adopted the L_{eq} as the basis of its descriptors of environmental noise. The EPA's guidelines make use of the L_{eq} and its derivatives: the L_d, the L_n and the L_{dn}.[6]

The CNEL is the preferred descriptor of aviation noise. Federal and State law requires that noise levels around major airports be assessed in terms of the CNEL. Palo Alto uses the L_{10} in its noise and land use compatibility guidelines; Menlo Park, Sunnyvale, Santa Clara, San Jose, Fremont and the County use the L_{dn} or the CNEL. In municipal or County guidelines the use of the latter descriptor is sometimes allowed as a proxy for the L_{dn}— with due regard for the near numerical equivalence of the two descriptors, the existence of the State's CNEL standard for non-detached housing, and the ready availability of aviation noise data which is couched in terms of the CNEL.

6 "Information on Noise Levels Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety", US EPA, 550/9-74-004, March 1974

Some Rules of Thumb

It should be realized that any use of the noise and land use compatibility guidelines implies that a forecast of some kind must be made. That is, one is presumably not only concerned about the acoustical environment of a project during just its first year of operation but throughout its lifetime.

Some things can't really be forecast very well: tire tread designs may change and affect vehicular noise emissions; a roadway surface may become noticeably noisier as it wears; noise emissions (which decline with operating speeds) may decline if there is increased congestion. In order to forecast the daytime or nighttime L_{10}, the L_d, the L_n, the L_{dn} or the CNEL along roadways, the operating speeds and volumes would be needed for every hour of the day for the future scenario. Such data are *always* not available. Assumptions are made. Rarely, the L_{dn} is measured by sampling the hourly noise levels around the clock, in which case there is a hidden assumption to the effect that the hourly values of the operating speeds and the hourly distribution of the average daily traffic will not change.

These are gross assumptions which tend to negate the finer attributes of the descriptors such as the L_{dn} and the CNEL.

Therefore, the consultant suggests that the following rules of thumb be accepted as adequate for all but the most critical applications of the L_{dn} and the CNEL.

L_{dn} and CNEL

If there is no particular tendency for the noise events to occur during the evening, then the L_{dn} and the CNEL are approximately equal.

e.g. Use aviation CNEL's in lieu of the aviation noise component of the L_{dn}.

L_{dn} and L_{eq}

For traffic noise along busy streets, the L_{dn} of the daily traffic noise is approximately equal to the L_{eq} of the peak traffic hour.

e.g. Measure the existing L_{eq} during the pm peak traffic hour and use the value in lieu of a round-the-clock measurement of the existing L_{dn}.

e.g. Forecast the future L_{eq} of the pm peak traffic hour using a noise prediction model and projected pm traffic volumes. Use the forecasted L_{eq} value in lieu of the L_{dn} of the daily traffic noise.

Other rules of thumb are applicable to the attenuation of noise by structures. The following are intended to be used with caution (in non-critical circumstances):

L_{dn}, L_{eq} and CNEL

When they are open, windows are the principal pathway for noise intrusion.

e.g. For environmental noise from trains, aircraft or roadways, noise levels in the interiors of residences which are of light-frame construction are 20 decibels less than outdoor levels if the windows are closed and 10 decibels less if the windows are open.

L_{dn}, L_{eq} and CNEL

Masonry or wooden walls which block the line of sight between a roadway and a receptor can significantly attenuate traffic noise. (Care should be taken where diesel buses or diesel trucks comprise more than a percent or so of the traffic, for much of the noise from such vehicles comes from the exhaust which may be released from a high stack.)

e. g. The noise level is reduced by roughly 5 decibels plus 1 decibel per foot of height of the top of the wall above the point of intersection with the line of sight.

Standards

Activity Interference

Speech is normally conducted in the range of 60 to 65 decibels. It is desirable to keep background noise levels below 55 decibels to prevent interference with speech. The US EPA has promulgated a set of policy recommendations which include recommendations concerning appropriate noise levels for various types of land uses. For example, for residential use the recommendation is that outdoor noise levels not exceed an L_{dn} of 55 decibels.

The agency's guidelines generally suggest that the potential for speech interference may be taken as a sort of guideline. The EPA's findings on speech interference are that a noise level of 55 decibels outdoors offers about 95% sentence intelligibility at a distance of 11 feet, and 99% intelligibility at a distance of 3 feet.[7]

[7] The findings are presented in the reference which is cited in footnote 6.

Hearing Damage Risk

The EPA has also promulgated a standard for the assessment of the risk of noise exposure to hearing, and this report relies on the EPA recommendation as the basis for assessing risk.[8] The agency's main criterion was this: an individual's threshold shift from daily exposures for 40 years should not exceed 5 decibels. The simple standard which evolved was a 24-hour L_{eq} of 70 decibels.

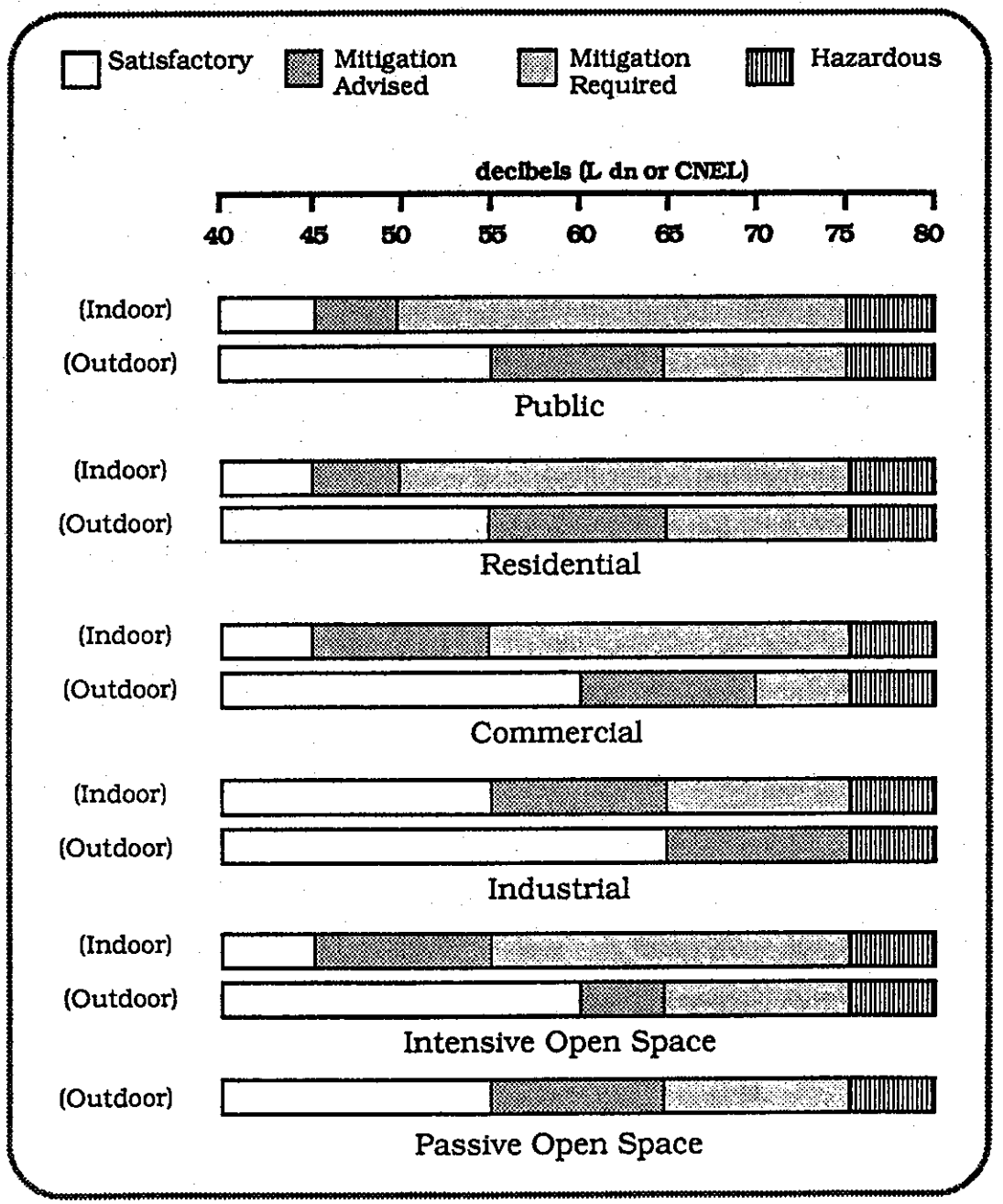
In other words, the agency recommends that individuals not be exposed daily to noise levels which exceed 70 decibels when averaged over 24 hours (L_{eq}). Such an exposure could consist of the individual being exposed to a constant noise of 70 decibels all the time or to noise of greater intensity but less daily duration. The following examples are of exposures which are deemed by the EPA to be "borderline":

Noise Level (L)	Duration of Exposure
70 decibels	24 hours per day
76 decibels	6 hours per day
82 decibels	90 minutes per day
88 decibels	24 minutes per day
94 decibels	6 minutes per day

Each noise level and duration of exposure in the table is equivalent in effect to a 24-hour L_{eq} of 70 decibels if there is no noise exposure at all for the other portion of the day. That is the meaning of the above table.

[8] The standard is presented in the reference which is cited in footnote 6.

Recommended Compatibility Guidelines



The above chart of noise and land use compatibility guideline levels is recommended by the consultant. The City's existing guideline levels are preserved but L_{dn} is used in lieu of the daytime and nighttime L_{10}'s and degrees of compatibility are suggested. Common sense should prevail: if there is concern only for the daytime noise exposure then L_d should be used in lieu of L_{dn}.

Effects of Noise Policies

All Sources

For all developments, there is an unseen effect of the City's noise guidelines: projects tend to be selectively placed (by developers and with the approval of the Planning Commission and the City Council) on sites which have an acoustical environment which is deemed to be compatible with the proposed use. Thus the noise and land use compatibility chart which is implemented through the environmental and design review processes of the City is the most basic and most effective element of the City's general plan noise policies.

Roadway Noise

For the most part, the noise wall construction which has occurred at new multi-unit developments in the City was required by both the City's guidelines and by the State's noise insulation standards because of roadway noise.

Caltrans has recently constructed miles of noise walls along US 101 and SR85 in Mountain View. Most of SR 85 in Mountain View has been virtually walled-in and the large residential neighborhood which lies between Moffett Boulevard and N. Whisman Road on the south side of US101 has been given a high wall. Such measures are required by the noise abatement guidelines [23 CFR §772] of the Federal Highway Administration. The latter were invoked because of Federal funding of projects to add commuter lanes to those roadways.

The walls generally reduce outdoor noise levels at the first row of homes behind them to something like 60 to 64 decibels (whereas the noise levels might be 10 to 12 decibels higher without the walls). Such noise levels don't meet the existing guidelines of the City for outdoor noise levels at residences.

The County's policy for the abatement of noise along its expressways is to reduce peak-hour noise levels to the lesser of 67 decibels or to the level which is obtained by the construction of a 6-foot wall. Note that this policy often leaves outdoor noise levels at residences well above the guideline levels of the City and of other municipalities.

The EIS which was prepared by the County for the proposed addition of commuter lanes to Central Expressway contains proposed noise wall alignments and heights. All of the proposed new walls would be on the north side (except that a 120-foot section of an existing wall on the south side would also be improved). There would be about 4,250 feet of new 6-foot high walls. All of the existing residential receptors along Central Expressway which do not now have a wall would get one. This statement is also applicable to houses which actually front on Willowgate and Wentworth Streets rather than on the Expressway and to apartments east of SR85 which are reached by ADA and Minaret Avenues.

The need for the policy of stating continuing support for legislation regulating noise by motor vehicles is questionable, as the State already has decibel standards for vehicular emissions which proscribe the sale or operation of noisy vehicles. The statute which pertains to the use of noisy vehicles on the road is not likely to be used by police or highway patrol officers. It requires a certain highly-specified setup of a sound level meter "noise trap". There is instead a third statute which is actually in regular use by the police. It simply states that "excessive" noise from a vehicle's muffler is prohibited, regardless of the decibel level.

The policy of attempting to use traffic management techniques to reduce noise levels is perhaps not effective. It would take a 26% reduction in traffic volumes to get a 1-decibel reduction in roadside (L_{dn}) noise levels. Likewise, along expressways there is only about a 2-decibel reduction of L_{dn} (and a 2.5-decibel reduction of the peak noise level during passbys) for every 5 mph of moderation of speed.

Concerning the policy of building quiet roadway surfaces, the condition of the surface can make a noticeable 5-decibel difference but the noisiness of any surface will change as it wears— generally for the worse. Maintenance considerations and stopping-distance safety requirements should take precedence over noise emissions in pavement design.

Noise Ordinance

The City has a noise ordinance which could be used to relieve any citizen who is affected by noise from stationary equipment. For other nuisance noises, such as loud music, parties, etc., the police may make use of a statute against "disturbing the peace".

Ames Research Center

The City has a policy implementation statement to the effect that there should be continued cooperation with Ames Research Center to control noise produced by its wind tunnels.

The consultant contacted four persons at the Center who have some responsibility for acoustical matters or for community relations regarding environmental factors. In the past several years the facility has been improving some of its wind tunnel systems and reconstructing a large tunnel which was "totaled" in a catastrophic event. Some of the improvements will tend to reduce noise emissions somewhat, but there will also be increased usage of wind tunnels at the Center. There will be some tests which will be open-ended (so that the flow will be vented into the atmosphere instead of re-circulated) and some of the open-ended tests will involve powered models which give off noise of their own. These tests may produce complaints if they are run at night.

One of the individuals which the consultant contacted remarked that the Center had been willing to try to schedule such tests in the day wherever possible and would continue to do so, even thought the utility bills would be lower if the operations were to be conducted at night. It therefore seems appropriate for the City to continue it's policy of requesting the cooperation of the Center in wind tunnel noise control.

Conditions Not Affected by Noise Policies

Train Noise

The changes which have occurred in train operations in the City have apparently been wrought for economic reasons rather than because of noise control policies.

Simple estimates have been provided above [page 5] for noise from Caltrain operations on the SPTC double tracks which divide the City. Caltrans bought all new locomotives and replaced its old cars in about 1985. The data on page 5 are for the new equipment. There are now about 40 trains between 7:00 am and 10:00 pm; about 10 run at night.

There are now a few freight trains each day, but a few years ago the freights were considerably more numerous. Most of the freight trains which were formerly run up the Peninsula have been diverted inland to a rail line which runs along I5. It is possible that freight traffic will be shifted back to the SPTC tracks and that train noise will thus be increased in future years. Given that there are Caltrains, a doubling of of the number of freights would cause less than a 3-decibel increase in train noise.

No acoustically significant expansion of Caltrain operations is foreseen. Just as for automobiles, a 26% increase in the number of Caltrains would amount to about a 1-decibel increase in the L_{dn}.

Moffett Field

The EIS which was recently completed for the proposed closure of the Moffett Field Naval Air Station (NAS) states that NASA flight operations would remain but that the Navy's Orion P-3 aircraft and other naval aircraft would no longer use the field if NAS were to be closed.

The estimate is that the CNEL from the field would be reduced by at least 5 decibels. This would mean that the 65 decibel CNEL contour would no longer touch the City. All but a few percent of the City would be free of aviation noise exceeding a CNEL of 60 decibels.

Shoreline Amphitheater

The City entered into a contract with Bill Graham Presents, the operator and lessee of the Amphitheater, which implies that the lessee would attempt to control the acoustical impact on nearby residences and that the City would refrain from introducing land uses into the area which would be incompatible with the operation of the amphitheater.

Residents of the mobile home park which is just south of the amphitheater are somewhat affected by the events. This was anticipated, to some degree.

However, there are also regular complaints each summer from residents more than a mile away in Palo Alto about intrusive sounds of music which come from the amphitheater at nighttime. The neighborhoods thus affected are on the *south* side of US101—across the freeway and well away from the amphitheater. The phenomenon is just that, an unanticipated effect which seems to be due to nocturnal temperature inversions aloft. Such inversions are frequently formed at night in the Bay area. There have been attempts to mitigate the problem by redirecting the speakers. There has been some noticeable improvement but complaints persist.

Trends in Environmental Noise Levels

Roadside Noise Levels

Where There Are No Barriers

Table A is a listing of estimated roadside noise levels along major roadways in the City. The reported values are based on traffic counts and projections which were provided by Korve Engineering. Scenario 1 is the future base case [2005] which incorporates growth which is foreseen by ABAG. Scenarios 2 and 3 include additional residential development: 2,640 and 7,560 units respectively.

The most important finding is that the new traffic would have a very modest impact. If a noise is increased in intensity by ten decibels then it sounds twice as loud. It takes a 26% increase in traffic to effect a 1-decibel increase in the time-averaged roadside noise level (L_{dn}). Such a small increase in the overall intensity of the always-fluctuating traffic noise is difficult to discern. A 3-decibel increase would be discernible but would seem to amount to a slight increase in loudness.

The table shows that increases along major roadways would amount to at most 3 decibels from 1990 to the 2005 base case [scenario 1]. The additional development which is foreseen for scenarios 2 and 3 would add at most 1 decibel to the base case and 3 decibels to the existing levels.

Where There Are Barriers

There is one caution which must be observed in making use of the table: the data pertain to fully-exposed receptors which have hard ground and no obstructions between them and the roadway. These conditions are often manifest, but, as is discussed above, along some roadways there are extended sections where noise walls have been built.

However, even along such protected segments, the column-to-column variations which are shown in table A are valid estimates of the impacts of the scenarios. That is, a noise wall may exist and may bring about noise levels which are perhaps 6 to 12 decibels less than those which are shown, but this would not affect the margin by which scenario 1 noise levels would exceed existing noise levels, or the margin by which scenario 2 levels would exceed scenario 1 levels, etc.

Appendix: Notes on Decibels

Arithmetic

A "bel" is a power of ten. Two quantities such as the intensities of two different sounds differ by one bel if they are related by one being ten times greater than the other. By the definition of the prefix "deci", the decibel is one-tenth of a power of ten. Thus when one quantity is ten times larger than another it is ten decibels greater.

How then are the quantities related when they differ by just one decibel? One of the quantities is 25.9% greater than the other. A bel can be imagined to accumulate from ten decibels in the way one dollar would grow into $10 if a 25.9% annual return were compounded over ten years.

When one quantity is twice another the two differ by three decibels. This can be checked by "compounding" 25.9% three times, once for each decibel: $1.259 \times 1.259 \times 1.259 \approx 2.0$. That 1.259 multiplied by itself ten times (ten decibels) is 10.0 (one bel) can also be checked.

The definition of the decibel can now be restated: one quantity which is 1.259 times another is one decibel greater.

Decibels and Traffic Volumes

The decibel scale of noise is based on "intensity", a physical quantity which can be taken to be the energy content of the sound. The intensity of a roadway's emissions is proportional to the traffic volume (except where vehicle speeds are affected by congestion).

But for the exceptional circumstances, it follows that any ratio of before-and-after traffic volumes is equal to the corresponding ratio of noise intensities. Hence a 25.9% change in traffic volumes causes a 1-decibel change in the noise level; a 58% change in traffic amounts to a 2-decibel change in the noise level, etc.

Table A: Mountain View Roadway Ldn Values— Existing and Year 2005

The distances are to be measured from the near edge of the travelled way. Note that all of the estimates pertain to locations which are fully-exposed to the roadway— not behind walls or other intervening barriers. (e. g., SR85 is walled-in throughout much of Mountain View,)

	existing	scenario 1	scenario 2	scenario 3
Central Expwy. San Antonio to Rengstorff				
volume:	2,755 vph	2,801 vph	2,818 vph	2,783 vph
Ldn at 50 feet:	69 dB	69 dB	69 dB	69 dB
Ldn at 100 feet:	67	67	67	67
Ldn at 200 feet:	64	65	65	65
Central Expwy. Castro to Shoreline				
volume:	3,015 vph	3,717 vph	3,767 vph	3,805 vph
Ldn at 50 feet:	69 dB	70 dB	70 dB	70 dB
Ldn at 100 feet:	67	68	68	68
Ldn at 200 feet:	65	66	66	66

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing	scenario 1	scenario 2	scenario 3
Central Expwy. SR 85 to Whisman				
volume:	3,025 vph	3,130 vph	3,250 vph	3,242 vph
Ldn at 50 feet:	69 dB	69 dB	70 dB	70 dB
Ldn at 100 feet:	67	67	68	68
Ldn at 200 feet:	65	65	65	65
Cuesta Springer to Miramonte				
volume:	1,100 vph	1,152 vph	1,151 vph	1,180 vph
Ldn at 50 feet:	61 dB	61 dB	61 dB	61 dB
Ldn at 100 feet:	59	59	59	59
Ldn at 200 feet:	56	56	56	57
El Camino Real Grant to SR85				
volume:	2,470 vph	2,785 vph	3,130 vph	3,130 vph
Ldn at 50 feet:	66 dB	66 dB	67 dB	67 dB
Ldn at 100 feet:	64	64	65	65
Ldn at 200 feet:	61	62	62	62

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing		scenario 1		scenario 2		scenario 3	
Grant	Cuesta to ECR							
volume:	2,150	vph	3,196	vph	3,219	vph	3,209	vph
Ldn at 50 feet:	68	dB	69	dB	69	dB	69	dB
Ldn at 100 feet:	65		67		67		67	
Ldn at 200 feet:	63		64		65		65	
Grant	South of Cuesta							
volume:	1,620	vph	1,793	vph	1,793	vph	1,720	vph
Ldn at 50 feet:	66	dB	67	dB	67	dB	67	dB
Ldn at 100 feet:	64		64		64		64	
Ldn at 200 feet:	62		62		62		62	
Middlefield	San Antonio to Rengstdorff							
volume:	2,085	vph	2,409	vph	2,444	vph	2,540	vph
Ldn at 50 feet:	66	dB	66	dB	66	dB	67	dB
Ldn at 100 feet:	63		64		64		64	
Ldn at 200 feet:	61		62		62		62	

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing	scenario 1	scenario 2	scenario 3
Middlefield SR 85 to Whisman				
volume:	1,080 vph	1,248 vph	1,228 vph	1,214 vph
Ldn at 50 feet:	65 dB	65 dB	65 dB	65 dB
Ldn at 100 feet:	62	63	63	63
Ldn at 200 feet:	60	60	60	60
Middlefield Whisman to SR 237				
volume:	1,860 vph	2,581 vph	2,653 vph	2,431 vph
Ldn at 50 feet:	67 dB	68 dB	68 dB	68 dB
Ldn at 100 feet:	65	66	66	66
Ldn at 200 feet:	62	64	64	63
Miramonte South of Cuesta				
volume:	670 vph	710 vph	709 vph	673 vph
Ldn at 50 feet:	61 dB	61 dB	61 dB	61 dB
Ldn at 100 feet:	59	59	59	59
Ldn at 200 feet:	56	56	56	56

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing	scenario 1	scenario 2	scenario 3
Moffett Central to Middlefield				
volume:	1,060 vph	1,875 vph	1,855 vph	1,740 vph
Ldn at 50 feet:	64 dB	67 dB	67 dB	67 dB
Ldn at 100 feet:	62	65	65	64
Ldn at 200 feet:	60	62	62	62
Rengstorff Central to Middlefield				
volume:	1,350 vph	1,407 vph	1,414 vph	1,450 vph
Ldn at 50 feet:	64 dB	64 dB	64 dB	64 dB
Ldn at 100 feet:	62	62	62	62
Ldn at 200 feet:	59	59	59	59
Rengstorff Middlefield to US 101				
volume:	1,200 vph	1,381 vph	1,397 vph	1,300 vph
Ldn at 50 feet:	63 dB	64 dB	64 dB	64 dB
Ldn at 100 feet:	61	62	62	61
Ldn at 200 feet:	59	59	59	59

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing		scenario 1		scenario 2		scenario 3	
San Antonio	El Camino Real to Central							
volume:	1,995	vph	2,122	vph	2,176	vph	1,945	vph
Ldn at 50 feet:	66	dB	66	dB	66	dB	65	dB
Ldn at 100 feet:	63		64		64		63	
Ldn at 200 feet:	61		61		61		61	
San Antonio	Central to Middlefield							
volume:	NA	vph	1,905	vph	1,934	vph	1,896	vph
Ldn at 50 feet:	NA	dB	65	dB	65	dB	65	dB
Ldn at 100 feet:	NA		63		63		63	
Ldn at 200 feet:	NA		61		61		61	
SR 237	Middlefield to US 101							
volume:	NA	vph	7,423	vph	7,423	vph	7,423	vph
Ldn at 50 feet:	NA	dB	74	dB	74	dB	74	dB
Ldn at 100 feet:	NA		72		72		72	
Ldn at 200 feet:	NA		69		69		69	

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing	scenario 1	scenario 2	scenario 3
SR 237 south of SR 85				
volume:	3,400 vph	5,188 vph	5,188 vph	5,188 vph
Ldn at 50 feet:	70 dB	71 dB	71 dB	71 dB
Ldn at 100 feet:	67	69	69	69
Ldn at 200 feet:	65	67	67	67
SR 85 south of US 101				
volume:	4,310 vph	5,786 vph	5,704 vph	5,786 vph
Ldn at 50 feet:	73 dB	74 dB	74 dB	74 dB
Ldn at 100 feet:	71	72	72	72
Ldn at 200 feet:	69	70	70	70
US 101 San Antonio to Rengstorff				
volume:	NA vph	12,883 vph	12,883 vph	12,883 vph
Ldn at 50 feet:	NA dB	76 dB	76 dB	76 dB
Ldn at 100 feet:	NA	74	74	74
Ldn at 200 feet:	NA	72	72	72

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

	existing		scenario 1		scenario 2		scenario 3	
US 101 Rengstorff to Shoreline								
volume:	NA	vph	15,070	vph	15,070	vph	15,070	vph
Ldn at 50 feet:	NA	dB	76	dB	76	dB	76	dB
Ldn at 100 feet:	NA		75		75		75	
Ldn at 200 feet:	NA		72		72		72	
US 101 Whisman to SR 237								
volume:	NA	vph	14,064	vph	14,064	vph	14,064	vph
Ldn at 50 feet:	NA	dB	76	dB	76	dB	76	dB
Ldn at 100 feet:	NA		74		74		74	
Ldn at 200 feet:	NA		72		72		72	

scenario 1 = existing + ABAG projections (2005)
scenario 2 = scenario 1 + 2,640 dwelling units (2005)
scenario 3 = scenario 2 + 4,920 dwelling units (2005)

APPENDIX E

COMMENTS RECEIVED ON THE ENVIRONMENTAL IMPACT REPORT

CITY OF MOUNTAIN VIEW

MOUNTAIN VIEW 1991 GENERAL PLAN
ENVIRONMENTAL IMPACT REPORT

STATE OF CALIFORNIA—THE RESOURCES AGENCY

~~GEORGE DEUKMEJIAN,~~ Governor

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

May 27, 1992

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JUN 01 1992
DAVID J. POWERS & ASSOC., INC.

RECEIVED
MAY 29 1992
PLANNING

Mr. Brad Eckhardt
City of Mountain View
500 Castro Street
Mountain View, California 94041

Dear Mr. Eckhardt:

Draft Environmental Impact Report (DEIR),
Mountain View 1992 General Plan Update

We have reviewed the subject DEIR for the City of Mountain View's 1992 General Plan Update. The General Plan shows a commendable concern for the protection of Mountain View's wildlife resources, and the mitigation measures outlined in the DEIR are well designed. However, we believe that the document would be strengthened by incorporation of the following items:

1. The infill development specified in the General Plan may affect burrowing owls. Relocation of owls from development sites has been the usual mitigation technique on Bay Area projects. However, to our knowledge, no long-term studies have been done to determine whether relocated owls are able to establish territory and successfully nest in their new range. While some local wildlife rehabilitators band relocated owls, subsequent sightings are few. This could be due to dispersal, lack of focused survey effort, or mortality. Ideally, relocated owls would be fitted with radio telemetry transmitters and tracked by a biologist retained for this purpose. This could be done by a graduate student from one of the local universities. The study should run for at least two years. The City of Mountain View's decision to fund such a study would be tremendously helpful in evaluating the effectiveness of relocation in protecting burrowing owl populations. It is important to determine this now, before further declines in burrowing owl populations and habitat necessitate the listing of the species.

2. In addition to the burrowing owl and the threatened and endangered species listed on page 149, several other species which are considered sensitive by State and Federal agencies occur in the area and should be cited in the General Plan for planning consideration. These include: Mimic tryonia - Federal Category 2 (Tryonia imitator), California tiger salamander - Federal Category 2 (Ambystoma tigrinum californiense), Saltmarsh common yellowthroat - Federal Category 2 (Geothylpis trichas sinuosa), Bank swallow - State Threatened (Riparia), Saltmarsh wandering shrew - Federal

Category 1 (Sorex vagrans halicoetes), Pt. Reyes bird's beak - Federal Category 2 (Cordylanthus maritimus ssp. palustris). In addition, the scientific name of the California clapper rail is given incorrectly on page 149. The correct name is Rallus longirostris obsoletus.

3. In reference to Action 13h on page 152, part of the Department's role is the regulation of hunting as a wildlife management tool and a traditional form of public recreation still enjoyed by many people.

Thank you for the opportunity to review and comment on this project. If you have any questions, please contact Jeannine DeWald, Associate Wildlife Biologist, (408) 429-9252.

Sincerely,

C. J. Monroe

For Brian Hunter
Regional Manager
Region 3

State of California

THE RESOURCES AGENCY OF CALIFORNIA

Memorandum

Mr. Douglas P. Wheeler
Secretary for Resources

Mr. Brad Eckhardt
Planning and Community Development Dept.
City of Mountain View
500 Castro Street
Mountain View, CA 94041

RECEIVED JUN 3 1992 STATE CLEARINGHOUSE

Date : May 26, 1992

Subject: Draft Environmental Impact Report (DEIR) for the Mountain View 1992 General Plan Update
SCH #91083044

From : **Department of Conservation—Office of the Director**

The Department of Conservation's Division of Mines and Geology (DMG) has reviewed the DEIR for the 1992 General Plan Update for the City of Mountain View. For background information we have also re-examined the City's 1982 General Plan, and the draft of the current Safety Element that we reviewed June 27, 1991 pursuant to Section 65302(g) of the California Government Code. We offer the following comments on these documents:

Comments addressing the DEIR:

The most recent technical study referenced in the Draft EIR is the ABAG Santa Clara County Map Set of 1987. More recent information such as the effects of the recent Loma Prieta earthquake in Mountain View and surrounding area would be very useful in the EIR and the Safety Element.

The present geologic hazards map (EIR figure 16) is very general and is virtually the same as that in the old 1982 Safety element.

DMG encourages the City Engineer to accumulate geotechnical data during development of the community and apply it to refine and update the city's geologic hazards map; thus, areas of known liquefaction potential or seismic amplification potential would eventually be delineated.

The paragraph on *groundshaking*, page 130, is inaccurate. We suggest replacing the term "Groundshaking" with "Earthquake damage" so that it reads "Earthquake damage is determined by the magnitude of an earthquake, depth of focus, distance from the fault, intensity and duration of shaking ....."

The *mitigation* actions (page 136) call for detailed geotechnical investigations only at the time of rezoning applications. Conditions for the three facility groups of Table 21, ranging from hospitals (critical) to warehouses (non-critical), are not included in the mitigation section, nor are the criteria identified (i.e. the geologic hazard areas of the city) under which geotechnical investigations would be required.

Comments Regarding the *Safety Element*

The draft Safety Element reviewed by DMG in June, 1991, is brief and far less comprehensive and accurate than the City's 1982 Safety Element or the current Draft EIR. Is it merely the goals, policy and action portion of a larger General Plan?

If the new Safety Element is *intended* to be so abbreviated, and the EIR material is to be adopted as part of the Safety Element, we suggest that the two documents be physically combined; or that each of the safety element issues in the EIR be clearly referenced in the Safety Element document, as described in the *1990 General Plan Guidelines, page 157.*

The Department appreciates the opportunity to comment on the DEIR. If you have any questions regarding these comments, please contact Roger Martin, Division of Mines and Geology Environmental Review Project Manager, at (916) 322-2562.

Stephen E. Oliva
Environmental Program Coordinator

cc: Roger Martin, Division of Mines and Geology

MTC
METROPOLITAN TRANSPORTATION COMMISSION

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EDWARD R. CAMPBELL
DAVID S. KARP

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S.F. Bay Conservation and Development Commission
ANGELO J. SIRACUSA

State Business, Transportation and Housing Agency
PRESTON W. KELLEY

U.S. Department of Transportation
WILLIAM P. DUPLISSEA

U.S. Department of Housing and Urban Development
GORDON H. MCKAY

Executive Director
LAWRENCE D. DAHMS

Deputy Executive Director
WILLIAM F. HEIN

June 5, 1992

Brad Eckhardt
City of Mountain View
Planning and Community Development Department
500 Castro Street
Mountain View, CA 94041

Subject: DEIR, Mountain View's 1992 General Plan Update

Dear Mr. Eckhardt:

This letter contains Metropolitan Transportation Commission (MTC) staff comments on the DEIR for the 1992 General Plan Update. This project entails 95 specific amendments to the 1982 Land Use Map, including a new mobile home park designation, the addition of the City's Sphere of Influence boundary, and specified population and building densities for the General Plan's land uses. It also provides policies and action programs to encourage and study the potential for residential redevelopment on 11 identified sites. The EIR considers two alternatives to the Project--a No Project alternative and an alternative consisting of the 1992 General Plan without the 11 new residential redevelopment sites.

1. Transportation System Impacts The DEIR provides forecasts of expected level of service on local roads and freeways under the different alternatives for the year 2005. It should provide more detail about the assumptions underlying these forecasts and about the forecasts. What trip generation, trip distribution, mode shift, and network assignment assumptions were used? The DEIR should show the volumes and capacities for all transportation links studied. It should also indicate whether the DEIR's traffic analysis assumes changes in commute mode choice due to the City's Transportation Demand Management program.

2. Effect of Increasing Residential Development The DEIR notes that increasing housing development and decreasing employment within the City has a very modest impact on the local transportation system. The stated reason is that the mere addition of housing does not

JOSEPH P. BORT METROCENTER • 101 EIGHTH STREET • OAKLAND, CA 94607-4700
510/464-7700 • TDD/TTY 510/464-7769 • FAX 510/464-7848

guarantee that any significant portion of new residents would take jobs in Mountain View. The disparity between the cost of the new housing and income levels afforded by the projected job growth may be too great.

We see jobs/housing balance as a potentially effective way to reduce the traffic impacts of growth, so we encourage the City to adopt the 11 residential redevelopment sites. However, this should be done in conjunction with policies to assure affordable housing and to provide proximity between jobs and housing. Furthermore, we support an increase in residential development in Mountain View as a way to reduce long-distance commuting to Santa Clara County, a job-rich subregion.

Thank you for the opportunity to comment on this DEIR. We look forward to receiving the final document.

Sincerely,

Susan Pultz

Susan Pultz
Environmental Review Officer

LOS ALTOS SCHOOL DISTRICT
201 COVINGTON ROAD
(415) 941-4010
LOS ALTOS, CA 94024
FAX (415) 941-7668

BOARD OF TRUSTEES: GERRI L. CARLTON, PHILIP J. FAILLACE, JOHN T. MOSS, DUANE W. ROBERTS, TERRI SACHS

MARGARET H. GRATIOT, SUPERINTENDENT

RECEIVED
JUN 08 1992
PLANNING

June 5, 1992

Mr. Brad Eckhardt, Urban Planner
City of Mountain View
Planning and Community Development Department
500 Castro Street
Mountain View, CA 94041

Response to 1992 General Plan Environmental Impact Report

Dear Sirs:

Any new or redeveloped residential areas within the Los Altos School District boundaries would have a significant impact on our schools.

Our schools are currently at capacity, and additional students would mean either adding additional new space or evicting tenants and refurbishing a closed school.

Our history shows that our student yield for the district is approximately .6 students per new single family residence. We have no history of yield from multi-family residences, but see no reason to expect that it would be lower than .6 for multi-bedroom units. We have also determined that the cost of additional instructional space per new student is approximately $9500.

Additional concerns if new housing is added on the east side of El Camino Real are student safety and traffic issues. All of our schools are on the west side of El Camino, and we have no busses.

I hope this information will be helpful to you in assessing the impact of any additional residential development in our school district.

Sincerely,

Margaret H. Gratiot

Margaret H. Gratiot
Superintendent

MHG/lc

Space Administration

Ames Research Center
Moffett Field, California 94035-1000

NASA

RECEIVED
JUN 15 1992
PLANNING

Reply to Attn of: EF:213-21/92-032

JUN 1 0 1992

Mr. Brad Eckhardt
City of Mountain View
Planning and Community Development Department
500 Castro Street
Mountain View, California 94041

Dear Mr. Eckhardt:

NASA/Ames Research Center has reviewed the Draft Environmental Impact Report of the Mountain View 1992 General Plan Update. We have no comments concerning most of the changes proposed, and in fact we appreciate the changes in designation made for most of the properties bounding Ames and Moffett Field.

However, we are concerned about potential residential development on the industrial site bordering Ellis Street, near Moffett Field. We believe that residential uses at the Fairchild/Ellis site would be negatively impacted by noise produced by Moffett Field aircraft and NASA wind tunnel operations. The General Plan Update acknowledges that a portion of the Fairchild/Ellis site is located in a designated Federal "noise impact zone," and that "the AICUZ designation is generally unacceptable for residential land uses."

Examples abound showing the potential interference this kind of development might have to future flight operations and wind tunnel testing activities at Moffett Field. We urge against consciously creating a situation that will challenge our long standing good neighbor status with the City of Mountain View. Other uses being studied for the Fairchild/Ellis site, including industrial and commercial uses, appear to be more compatible with Moffett Field operations.

We appreciate the opportunity to comment on the City of Mountain View 1992 General Plan Update, and look forward to your review and consideration of our concern. We would also welcome the opportunity to participate further in this process, particularly in studies relating to future Fairchild/Ellis zoning.

Sincerely,

Robert E. Eddy

Robert E. Eddy
Director, Engineering and Technical Services

Telephone: (415) 604-5000 FTS 464-5000 Central FAX: (415) 604-40

Santa Clara County Transportation Agency

An Agency of the County of Santa Clara

P.O. Box 611900, San Jose, CA 95161-1900

June 12, 1992

RECEIVED
JUN 16 1992
PLANNING

Mr. Brad Eckhardt, Urban Planner
City of Mountain View
Planning and Community Development Department
500 Castro Street
Mountain View, CA 94041

Subject: Response to Draft Environmental Impact Report
For 1992 Mountain View General Plan Update

Dear Mr. Eckhardt:

We have reviewed the subject project DEIR dated April 1992 and have the following comments:

We have observed that a copy of our letter dated September 12, 1991, to Mr. Michael Percy of your office, regarding the Notice of Preparation (NOP) of the subject project is included in your DEIR.

Our comments in that letter are still valid.

Subsequently, we would like to re-emphasize that where possible, more of the residential sites in close proximity to rail transit be considered for change to the high density residential designation.

If you have any questions, please do not hesitate to call me at (408) 299-2362.

Sincerely,

SADEGH SADEGHI
Project Engineer

SMS:kh

cc: JRL
RGH
Files

Board of Supervisors: Michael M. Honda, Zoe Lofgren, Ron Gonzales, Rod Diridon, Dianne McKenna

Santa Clara County Transportation Agency

An Agency of the County of Santa Clara

P.O. Box 611900, San Jose, CA 95161-1900

September 12, 1991

RECEIVED
SEP 17 1991
PLANNING

Michael Percy
Principal Planner
City of Mountain View
Planning and Community Development
500 Castro Street, Post Office Box 7540
Mountain View, CA. 94039-7540

Subject: Response to Notice of Preparation (NOP) of an Environmental Impact Report for the Mountain View General Plan Update

Dear Mr. Percy:

The Santa Clara County Transportation Agency has reviewed proposed changes for the general plan update. We are highly supportive of changes which would effectively integrate land use with public transit, improve pedestrian access, and are consistent with the T2010 Plan highway recommendations. We are particularly concerned with areas that are located in close proximity to existing and proposed transit stations. Following are specific general plan changes which are supported by the Agency:

- Integration into the General Plan of transportation facilities at the Evelyn Corridor/CalTrain Station Area. Facilities include the new LRT station, possible relocation of the CalTrain Station, possible additional station parking, and a possible bus transfer facility.

- Integration of the relocated CalTrain Station and the nearby bus transit center at the Old Mill Site.

- Reflection of Tasman LRT Corridor planned stations and park & ride areas. Consideration of general policies for pedestrian access, densification, rezoning, etc., for the Tasman Corridor.

- Consistency with T2010 Plan highway recommendations (e.g., Central Expressway HOV lane, Rengstorff overcrossing of Central Expressway and railroad tracks).

- Coordination of traffic analysis with the Tasman Corridor Project FEIS/FEIR.

- Conversion of areas from industrial/commercial to residential; however, we are concerned about the range used for medium high designation (12-40 du/ac). While the high end would be very supportive of densification efforts around transit stations,

Board of Supervisors: Michael M. Honda. Zoe Lofgre ... on, Dianne McKenna

the low end would not represent much change from the current pattern. We suggest policies to encourage development at the upper end of the density range (25 du/ac) for areas well served by transit.

These changes to the General Plan will aid in achieving goals to reduce vehicle trips and increase transit usage. We recognize Mountain View's commitment to achieving these goals and appreciate the opportunity to give our input.

If you have any questions about these comments, please call Jim Lightbody, Manager of Advance Planning, at (408) 299-3141.

Sincerely,

James E. Pierson
Deputy Director
Planning and Property

cc: Supervisor McKenna
LR
RGH
JRL
SF
RVE

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO, CA 95814

Jun 05, 1992

BRAD ECKHARDT
MOUNTAINVIEW PLANNING DEPT
P.O. BOX 7540
MOUNTAIN VIEW, CA 94039

RECEIVED
JUN 08 1992
PLANNING

Subject: MOUNTAIN VIEW GENERAL PLAN UPDATE
SCH # 91083044

Dear BRAD ECKHARDT:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

> "a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation. These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Daralynn Cox at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Christine Kinne

Christine Kinne
Acting Deputy Director, Permit Assistance

Enclosures

cc: Resources Agency

Santa Clara Valley Water District

5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118
TELEPHONE (408) 265-2600
FACSIMILE (408) 266-0271

AN AFFIRMATIVE ACTION EMPLOYER

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JUL 23 1992
DAVID J. POWERS & ASSOC., INC.

July 16, 1992

Mr. Brad Eckhardt
City of Mountain View
Planning and Community
Development Department
500 Castro Street
Mountain View, CA 94041

Dear Mr. Eckhardt:

The District has reviewed the Draft Environmental Impact Report for the City of Mountain View's 1992 General Plan Update.

The proposed changes in land use designations would not adversely impact the District's design flow rates for the flood control facilities in Mountain View.

We appreciate the opportunity to review this Draft EIR.

Sincerely,

Marc J. Klemencic
Division Engineer
Design Coordination Division

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