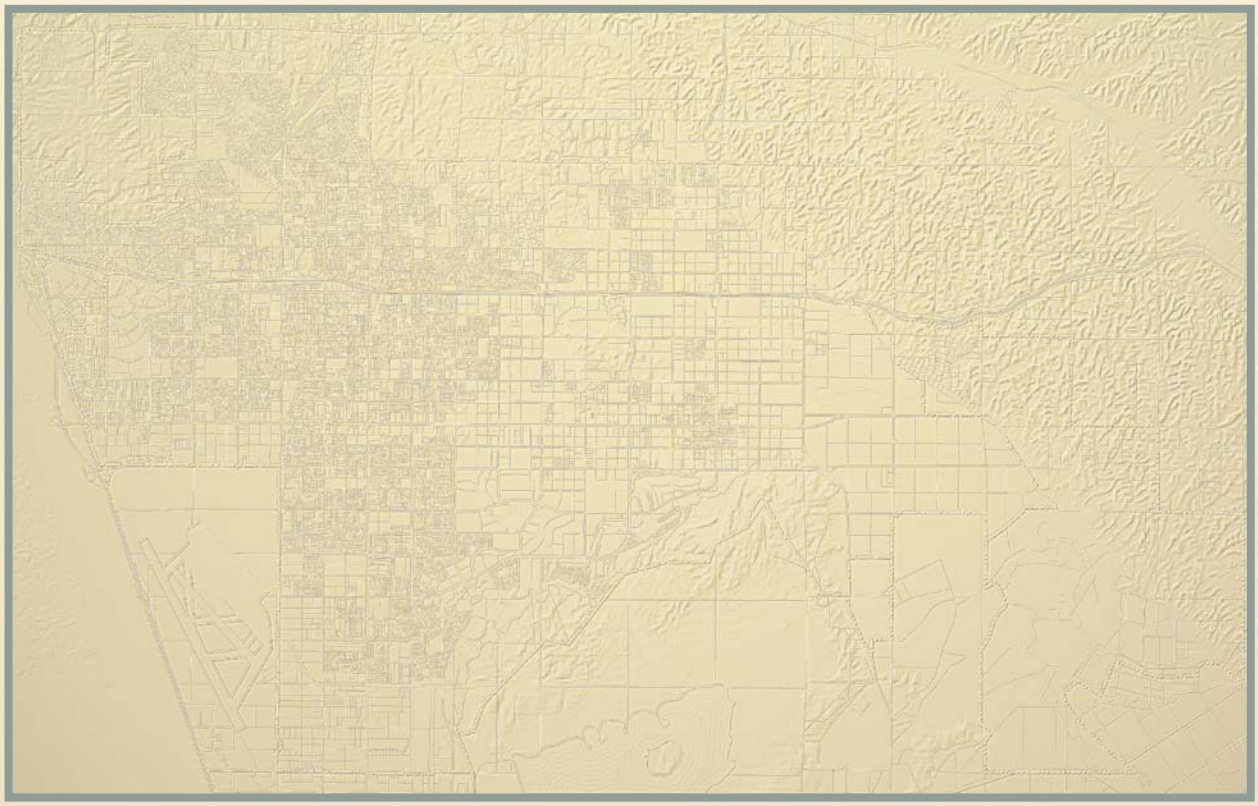
FINAL

ENVIRONMENTAL IMPACT REPORT
CITY OF MORENO VALLEY
GENERAL PLAN

VOLUME I



JULY 2006

SCH# 200091075

FINAL
ENVIRONMENTAL IMPACT REPORT

CITY OF MORENO VALLEY GENERAL PLAN

VOLUME I

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1.0 INTRODUCTION

This program environmental impact report (Program EIR) provides an evaluation of the environmental effects associated with the adoption and implementation of the Moreno Valley General Plan. The General Plan update involves reorganization of the Plan Elements; amendments to the land use plan; amendments to the Circulation Plan; and revisions to the goals, objectives, policies and programs. The adoption and implementation of a General Plan, as well as any amendments to the General Plan, constitutes a project under the California Environmental Quality Act (CEQA) and State CEQA Guidelines.

LEGAL REQUIREMENTS

This Program EIR has been prepared in accordance with the California Environmental Quality Act of 1970 as amended (Public Resources Code Section 21000 et seq.), and the Guidelines for the Implementation of CEQA published by the Resources Agency of the State of California (California Administrative Code Section 15000 et seq.).

This EIR was prepared by professional environmental consultants under contract to the City of Moreno Valley (City). The City of Moreno Valley is the lead agency for the preparation of this EIR as defined by CEQA (Public Resources Code Section 21067 as amended). The content of the document reflects the independent judgment of the City.

PURPOSES OF THE PROGRAM EIR

This Program EIR provides information to public agencies, the general public and decision-makers regarding the potential environmental impacts related to adoption and implementation of the updated Moreno Valley General Plan. The purpose of an EIR, under the provisions of CEQA is, "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." (Public Resources Code Section 21002.1(a)). This Program EIR will be used by the City of Moreno Valley Planning Commission and City Council in assessing the impacts of General Plan implementation.

SUBSEQUENT ENVIRONMENTAL REVIEW

According to CEQA Guidelines (Section 15168), a Program EIR may be prepared on a series of actions that can be characterized as one large project and are related either geographically or as logical parts in the chain of contemplated actions or in connection with issuance of rules, regulations or plans.

Section 15152 of the CEQA Guidelines indicates that tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan. Subsequent activities must be examined in light of this Program EIR to determine whether an additional

environmental document must be prepared. If a subsequent project or later activity would have effects that were not examined in this EIR, or not examined at an appropriate level of detail to be used for the subsequent activity, a new initial study would need to be prepared in accordance with CEQA to determine the appropriate environmental document needed. If the City finds that pursuant to Section 15152 and Section 15168 of the CEQA Guidelines that no new effect could occur or no new mitigation would be required for a subsequent project, the City can approve the activity as being within the scope of the project covered by this Program EIR and no new environmental documentation would be required.

BACKGROUND

In order to define the scope of the investigation of the Program EIR, the City of Moreno Valley distributed a Notice of Preparation (NOP) to: city, county and state agencies; other public agencies; and interested private organizations and individuals. The purpose of the NOP was to identify agency and public concerns regarding potential impacts of the project.

A public scoping meeting was held for the project on September 7, 2000. At this meeting members of the public were invited to comment on the scope and content of the EIR. Written comments were accepted by the City for approximately three weeks after the scoping meeting.

Written comments received during the 30-day public review period for the NOP and during the three week period following the scoping meeting are included in Volume II, Appendix A of this EIR.

AVAILABILITY OF REPORTS

This Program EIR is available for public review at the City of Moreno Valley Community and Economic Development Department, 14177 Frederick Street, P.O. Box 88005, Moreno Valley, California 92552-0805. Copies are available to the public upon payment of a reasonable charge for reproduction. The document is also available for public inspection at the Moreno Valley Branch Library located at 25480 Alessandro Blvd., Moreno Valley, CA 92553. Documents may be reviewed during regular business hours.

COMMENTS REQUESTED

Comments of all agencies and individuals were invited regarding the information contained in the Draft Program EIR. Responders were encouraged to provide the information they felt was lacking in the Draft Program EIR, or indicate where the information may be found. All comments on the Draft Program EIR were sent to the following City of Moreno Valley contact:

Cynthia S. Kinser, Principal Planner
City of Moreno Valley
Community Development Department
14177 Frederick Street
P.O. Box 88005
Moreno Valley, CA 92552-0805

Following a 45-day period of circulation and review of the Draft EIR, all comments and the City's responses to the comments were incorporated into a Final Program EIR prior to certification of the document by the City of Moreno Valley.

STRUCTURE OF THIS EIR

This EIR is organized into nine sections. Section 1.0 is this introduction. The executive summary provided in Section 2.0 includes a brief project description and summarizes project impacts and mitigation measures. Section 3.0 provides a detailed project description of the General Plan. The general environmental setting is provided in Section 4.0. Sections 5.1 through 5.14 analyze project impacts and identify mitigation measures designed to reduce significant impacts. Section 6.0 provides an analysis of alternatives to the project. An analysis of cumulative impacts, growth inducing impacts, significant irreversible environmental impacts and areas of no significant impact is provided in Section 7.0. Section 8.0 contains reference information. Section 9.0 contains the City's responses to comments received on the Draft EIR.

The appendices, which are provided in Volume II of this EIR, consist of the Notice of Preparation (NOP) and responses to the NOP and technical documents included as supporting information in the EIR. In compliance with Public Resources Section 21081.6, a mitigation monitoring and reporting program has been prepared and is provided as a separately bound document.

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2.0 EXECUTIVE SUMMARY

THE PROJECT

The project analyzed in this Program EIR is the adoption and implementation of a comprehensively updated Moreno Valley General Plan. The EIR provides a program-level assessment of the general environmental impacts resulting from the development of land and implementation of policies in accordance with the General Plan. Moreno Valley is considering three potential land use map alternatives for the General Plan. This Program EIR analyzes these three land use alternatives at an equal level of detail.

Alternative 1, also known as the "no project alternative," is the existing General Plan. Alternative 2 would allow more multiple-family housing, less commercial and office development to better match the demand for such uses and more business park/industrial development than Alternative 1. Alternative 2 also includes changes to the circulation plan. Alternative 3 is similar to Alternative 2, except in the northeastern portion of the City. Alternative 3 would allow more low-density (2 or fewer dwellings/acre) single-family housing, less office development, less business park development, and less conventional (5 dwellings/acre) single-family housing than Alternative 2.

PROJECT LOCATION

Moreno Valley is located in northwestern Riverside County, approximately 66 miles east of Los Angeles, 42 miles west of Palm Springs and 100 miles north of San Diego. The community is situated in a crescent of land bounded by the Box Springs Mountains to the north, the steep hills of the Badlands to the east and the mountains of the Lake Perris Recreation Area to the south. The surrounding jurisdictions include the City of Riverside, the City of Perris and the County of Riverside. A joint civilian and military airport under the jurisdiction of the March Air Reserve Base and the March Joint Powers Authority is located at the southwestern boundary. The State of California owns and operates regional recreation and open space areas south of the City limits: the San Jacinto Wildlife Area and Lake Perris State Recreation Area. The City is located in proximity to regional transportation routes including Interstate 60, which traverses the City and Interstate 215, which is located near the western boundary. Figure 3-1 in the Project Description depicts the planning area.

The City contains approximately 29,754 acres of land. The planning area consists of the incorporated City, as well as 9,966 acres of unincorporated land immediately north and east of the City within the City's sphere of influence (SOI). The planning area represents the probable near-term physical boundaries and service area of the City.

ENVIRONMENTAL IMPACTS

Moreno Valley determined that an EIR is required pursuant to the California Environmental Quality Act (CEQA) Guidelines. The environmental issue areas identified in the environmental Initial Study for assessment in the EIR include:

- Land Use and Planning
- Traffic/Circulation
- Air Quality
- Noise
- Hazards and Hazardous Materials
- Geology and Soils
- Hydrology and Water Quality
- Agricultural Resources
- Biological Resources
- Cultural Resources
- Aesthetics
- Population and Housing
- Public Services
- Mineral Resources

Based on the data and conclusions of this Program EIR, Moreno Valley finds that the project will result in significant project-level and cumulative impacts to traffic/circulation, air quality, and agricultural resources which cannot be fully mitigated. If Moreno Valley chooses to approve the project, it must adopt a "Statement of Overriding Considerations" pursuant to Sections 15093 and 15126 (b) of the CEQA Guidelines.

Table 2-1 provides an impact comparison of the three project alternatives. As shown, Alternative 1 is the environmentally inferior alternative; Alternative 2 is superior to Alternative 1; and Alternative 3 is the environmentally superior alternative, although it is not superior to Alternative 2 in all respects. Alternative 3 would result in less traffic congestion and less total air emissions than Alternative 2, but it would also allow residential development along State Route 60, thereby exposing future residents to higher levels of air pollution that exist along freeway corridors.

Table 2-2 summarizes the project impacts, mitigation measures, and level of significance after mitigation for all environmental issue areas.

TABLE 2-1
IMPACT COMPARISON OF THE THREE PROJECT ALTERNATIVES

Impact	Alternative 1 Existing General Plan*	Alternative 2	Alternative 3
Land Use and Planning	Not significant	Not significant	Not significant
Traffic/Circulation	Significant and unavoidable and greater than Alternatives 2 and 3	Significant and unavoidable, less than Alternative 1 and more than Alternative 3	Significant and unavoidable, and less than Alternatives 1 and 2
Air Quality	Significant and unavoidable, and greater than Alternatives 2 and 3	Significant and unavoidable, less than Alternative 1 and more than Alternative 3	Significant and unavoidable, and less than Alternatives 1 and 2
Noise	Less than Significant	Less than Significant	Less than Significant
Hazards and Hazardous Materials	Not significant	Not significant	Not significant
Geology and Soils	Less than Significant	Less than Significant	Less than Significant
Hydrology and Water Quality	Less than Significant	Less than Significant	Less than Significant
Agricultural Resources	Significant and unavoidable, and similar to Alternatives 2 and 3	Significant and unavoidable, and similar to Alternatives 1 and 3	Significant and unavoidable, and similar to Alternatives 1and 2
Biological Resources	Less than Significant	Less than Significant	Less than Significant
Cultural Resources	Less than Significant	Less than Significant	Less than Significant
Aesthetics	Less than Significant	Less than Significant	Less than Significant
Population and Housing	Not significant	Not significant	Not significant
Public Services and Utilities	Less than Significant	Less than Significant	Less than Significant
Mineral Resources	Not significant	Not significant	Not significant
Conclusion	**Environmentally Inferior**	**Environmentally Superior to Alternative 1; Inferior to Alternative 3**	**Environmentally Superior to Alternatives 1 and 2**

*The no project alternative

POTENTIAL AREAS OF CONTROVERSY

The CEQA Guidelines require potential areas of controversy to be identified in the Executive Summary. Responses to the NOP indicate potential areas of controversy including:

- Noise and safety impacts associated with the aircraft operations at the March Air Reserve Base
- Potential land use changes adjacent to the San Jacinto/Lake Perris Core Reserve
- Potential impacts to the proposed Master Drainage Plan facilities, including increased runoff or changes in the existing drainage patterns within the planning area
- Potential impacts to Riverside County Flood Control and Water Conservation District facilities
- Impacts associated with earthquake fault zones including the Farm Road Fault
- Impacts on transportation corridors and emergency response networks for a major earthquake
- Noise impacts
- Air quality impacts
- Impacts of new development on school districts
- Growth impacts
- Availability of water
- Circulation impacts

OTHER ALTERNATIVES TO THE PROJECT

In addition to the three General Plan land use alternatives examined in detail throughout this EIR, Section 6.0 of this EIR includes evaluation of the following alternatives in less detail:

- Increased Preservation of Agricultural Land
- Reduced Density

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
PROJECT LEVEL IMPACTS		
5.1 LAND USE AND PLANNING		
No significant impact to land use and planning has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
5.2 TRAFFIC/CIRCULATION		
A significant traffic impact associated with roadway segments could occur under all of the proposed alternatives.	**TR-1.** Conduct studies of specified arterial segments to determine if any additional improvements will be needed to maintain an acceptable LOS at General Plan build-out. Generally, these segments will be studied as new developments are proposed in their vicinity. Measures will be identified that are consistent with the Circulation Element designation of these roadway segments, such as additional turn lanes at intersections, signal optimization by coordination and enhanced phasing, and travel demand management measures. (Arterial segments that require further study are listed in Table 5.2-6 for Alternative 1, Table 5.2-8 for Alternative 2 and Table 5.2-10 for Alternative 3 of the EIR for the General Plan Update). The study of specified arterial segments will be required to identify measures to maintain an acceptable LOS at General Plan build-out for at least one of the reasons discussed below: (a) Segments will need improvement, but their ultimate volumes slightly exceed design capabilities. (b) Segments will need improvements but require inter-jurisdictional coordination. (c) Segments would require significant encroachment on existing adjacent development if built-out to their Circulation Element designations.	Significant and unavoidable

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.3 AIR QUALITY		
A significant air quality impact associated with short-term construction could occur under all of the proposed alternatives.	**AQ1.** Grading activities shall comply with South Coast Air Quality Management District Rule 403 regarding the control of fugitive dust **(Policy 6.7.4)**. **AQ2.** Building construction shall comply with the energy conservation requirements of Title 24 of the California Administrative Code **(Policy 6.7.5)**. **AQ3.** The City shall cooperate with regional efforts to establish and implement regional air quality strategies and tactics **(Policy 6.7.1)**.	Significant and unavoidable.
A significant long-term air quality impact could occur under all of the proposed alternatives.	Mitigation Measures AQ1 through AQ3 (above) and AQ4 through AQ10 below: **AQ4.** The City shall encourage the financing and construction of park-and-ride facilities **(Policy 6.7.2)**. **AQ5.** The City shall encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties **(Policy 6.7.3)**. **AQ6.** The City shall coordinate with Caltrans and RCTC regarding the integration of Intelligent Transportation Systems (ITS) consistent with the principles and recommendations referenced in the Inland Empire ITS Strategic Plan **(Policy 5.4.1)**. **AQ7.** The City shall ensure that all new developments make adequate provision for bus stops and turnout areas for both public transit and school bus service **(Policy 5.7.2)**. **AQ8.** The City shall integrate bikeways, consistent with the Bikeway Plan, with the circulation system and maintain Class II and III bikeways as part of the City's street system **(Policy 5.9.1)**.	Significant and unavoidable.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	AQ9. The City shall implement Transportation demand management (TDM) strategies that reduce congestion in the peak travel hours. Examples include carpooling, telecommuting, and flexible work hours **(Program 5-21)**. **AQ10.** The City shall conduct studies on the following street segments to determine if any additional traffic controls, pavement width or other operational system improvements are needed to achieve the desired level of service. These studies may be conducted concurrent with new development proposals that may impact these facilities. If feasible improvements cannot be identified, the City retains the option of considering a reduced LOS standard **(Program 5-9)**: • Alessandro Boulevard - Old 215 Frontage Road to Day Street • Cactus Avenue - Old 215 Frontage Road. to Elsworth Street • Day Street - Ironwood Avenue to SR-60 • Day Street - Campus Parkway to Eucalyptus Avenue • Gilman Springs Road - SR-60 to Spine Road • Graham Street - Sunnymead Boulevard to Eucalyptus Avenue • Heacock Street - Manzanita Avenue to SR-60 • Heacock Street - Sunnymead Boulevard to Eucalyptus Avenue • Heacock Street - Cottonwood Avenue to J. F. Kennedy Drive • Indian Avenue - San Michele to Nandina • Kitching Street - Iris Avenue to San Michele • Moreno Beach Drive – SR-60 to Eucalyptus Avenue • Perris Blvd. - Elder Avenue to Sunnymead Boulevard • Perris Blvd. - Nandina to City Limit • Pigeon Pass Road - Ironwood Avenue to SR-60 Freeway	
A significant impact associated with sensitive receptors could occur under all of the proposed alternatives.	Mitigation Measure AQ10 above.	Significant and unavoidable.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.4 NOISE		
A significant impact associated with construction noise could occur under all of the proposed alternatives.	**N5.** Construction activities shall be operated in a manner that limits noise impacts on surrounding uses (**Policy 6.5.2**). **N10.** Building construction shall be prohibited between 8 p.m. and 6.am. during the week and 8 p.m. and 7a.m. on weekends and holidays (**Policy 6.3.6**).	Less than significant.
A significant impact associated with vehicular traffic could occur under all of the proposed alternatives.	**N1.** The following noise control measures shall be applied to new single-family dwellings exposed to noise along major roadways: a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources. b. Install double-paned or similar sound rated windows. c. Provide sound insulating exterior walls and roofing systems. d. Locate and/or design attic vents to minimize sound propagation into each home. e. Provide forced-air ventilation systems. f. Place dwellings as far as practical from the noise source. **N2.** Acoustical analyses shall be conducted for new residential development along State Route 60. Noise control measures shall be required to reduce the amount of noise to acceptable levels (limit interior noise levels with doors and windows closed to 45 CNEL). **N6.** The City shall reevaluate designated truck routes in terms of noise impact on existing land uses to determine if those established routes and the hours of their use should be adjusted to minimize exposure to truck noise (**Program 6-3**).	Less than significant.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	N7. The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (**Policy 6.3.1**): a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways. b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels or 50 CNEL or less. c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less. **N9.** The City shall enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels (**Policy 6.3.5**).	
A potential noise impact associated with aircraft operations could occur under all of the proposed alternatives.	**N3.** The City shall discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL (**Policy 6.3.2**). **N8.** Where the future noise environment is likely to exceed 70 CNEL due to overflights from the joint-use airport at March, new buildings containing uses that are not addressed under Policy 6.3.1 shall require insulation to achieve interior noise levels recommended in the March Air Reserve Base Air Installation Compatible Use Zone Report (**Policy 6.3.3**).	Less than significant.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
A significant impact associated with stationary noise could occur under all of the proposed alternatives.	N7 and N9 (above) and N4 below: **N4.** New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses (**Policy 6.5.1**).	Less than significant.
5.5 HAZARDS AND HAZARDOUS MATERIALS		
No significant impact to hazards and hazardous materials has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
5.6 GEOLOGY AND SOILS		
A significant impact associated with soil and slope stability, fault rupture and seismicity and groundshaking could occur under all of the proposed alternatives.	**GS1.** The City shall reduce the fault rupture hazards through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. During the review of future development projects, the City shall require geologic studies and mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act. Additionally, future geotechnical studies shall contain calculations for seismic settlement on all alluvial sites identified as having high or very high liquefaction potential. Should the calculations show a potential for liquefaction, appropriate mitigation shall be identified and implemented (**Policy 6.1.1**). **GS2.** The City shall require all new developments, existing critical and essential facilities and structures to comply with the most recent Uniform Building Code seismic design standards (**Policy 6.1.2**).	Less than significant.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.7 HYDROLOGY AND WATER QUALITY		
A significant impact associated with surface water quality may occur under all of the proposed alternatives.	**HW1.** The City shall implement National Pollutant Discharge Elimination System Best Management Practices relating to construction of roadways to control runoff contamination from affecting the water resources (**Policy 5.4.2**). **HW2.** All components of the City's storm drain system shall conform to Riverside County Flood Control and Water Conservation District master drainage plans and the requirements of the Federal Emergency Management Agency (**Policy 6.2.5**). **HW3.** The City shall comply with the provisions of its permit(s) issued by the Regional Water Quality Control Board for the protection of water quality pursuant to the National Pollutant Discharge Elimination System (**Policy 7.2.2**).	Less than significant.
A significant impact associated with drainage may occur under all of the proposed alternatives.	Mitigation Measure HW2 above.	Less than significant.
A significant impact associated with groundwater may occur under all of the proposed alternatives.	Mitigation Measures H1 and H3 above.	Less than significant.
5.8 AGRICULTURAL RESOURCES		
A significant impact associated with agricultural resources may occur under all of the proposed alternatives.	No feasible mitigation measure consistent with the General Plan Land Use Alternatives 1, 2, and 3 project objectives and/or land uses has been identified. As a result, no feasible mitigation measure has been identified.	Significant and unavoidable.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.9 BIOLOGICAL RESOURCES		
A significant impact associated with biological resources may occur under all of the proposed alternatives.	**B1.** The City and all future public and private development projects within the City shall comply with the Long-term HCP for the Stephen's Kangaroo Rat. **B2.** The City shall comply with the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and the associated state and federal permits. **B3.** Where feasible, projects shall be designed to minimize impacts on sensitive habitat. **B4.** Prior to physical disturbance of any natural drainage course or wetland determined to contain riparian vegetation or otherwise qualify as a "jurisdictional" wetland or Non-wetland Water of the U.S., the applicant shall obtain a Streambed Alteration Agreement and/or permit, or written waiver of the requirement for such an agreement or permit, from all resource agencies with jurisdiction over such areas (CDFG and ACOE).	Less than significant.
5.10 CULTURAL RESOURCES		
A significant impact associated with cultural and paleontological resources may occur under all of the proposed alternatives.	**C1.** Prior to the approval of a project, the City will assess potential impacts to significant historic, prehistoric archaeological, and paleontological resources, including impacts to human remains, pursuant to Section 15064.5 of the California Environmental Quality Act Guidelines. If significant impacts are identified, the City will require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve monitoring, resource recovery, documentation or other measures.	Less than significant.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.11 AESTHETICS		
A significant impact to aesthetics may occur under all of the proposed alternatives.	**A1.** Enforce the Municipal Code requirements and use Specific Plans to ensure that all development within the City of Moreno Valley is of high quality, yields a pleasant living and working environment for existing and future residents and attracts business as the result of consistent exemplary design **(Objective 2-10**). **A2.** The City shall require new electrical and communication lines to be placed underground (**Policy 7.7.1**). **A3.** The City shall implement reasonable controls on the size, number and design of signs to minimize degradation of visual quality (**Policy 7.7.2**). **A4.** Gilman Springs Road, Moreno Beach Drive, and State Route 60 shall be designated as local scenic roads (**Policy 7.7.3**). **A5.** The City shall require development along scenic roadways to be visually attractive and to allow for scenic views of the surrounding mountains and Mystic Lake (**Policy 7.7.4**). **A6.** Minimize the visibility of wireless communication facilities by the public. Encourage "stealth" designs and encourage new antennas to be located on existing poles, buildings and other structures (**Policy 7.7.5**).	Less than significant.
5.12 POPULATION AND HOUSING		
No significant impact to population and housing has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
5.13 PUBLIC SERVICES AND UTILITIES		
A significant impact associated with public services and utilities may occur under all of the proposed alternatives.	Mitigation measures identified throughout the EIR will apply to public infrastructure and service impacts.	Less than significant. .
5.14 MINERAL RESOURCES		
No significant impact to mineral resources has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
CUMULATIVE IMPACTS		
LAND USE AND PLANNING		
No significant cumulative impact to land use and planning has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
TRAFFIC/CIRCULATION		
A significant traffic impact associated with roadway segments could occur under all of the proposed alternatives.	Pursuant to Section 15130(a)(3) of the CEQA Guidelines, contributions to the Transportation Uniform Mitigation Fee Program (TUMF) and the Development Impact Fee Program (DIF), discussed in Section 5.2, will serve as the projects fair share contribution to mitigate cumulative impacts.	Less than significant

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR QUALITY		
A significant cumulative air quality impact could occur under all of the proposed alternatives.	See Mitigation Measures AQ1 through AQ10 described in Section 5.3	Cumulatively significant and unavoidable
NOISE		
A significant cumulative impact associated with vehicular traffic could occur under all of the proposed alternatives.	See Mitigation Measures N1, N2, N6, N7 and N9 in Section 5.4	Less than significant
HAZARDS AND HAZARDOUS MATERIALS		
No significant cumulative impact to hazards and hazardous materials has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
GEOLOGY AND SOILS		
A significant cumulative impact associated with soil and slope stability, fault rupture and seismicity and groundshaking could occur under all of the proposed alternatives.	See Mitigation Measure GS1 and GS2 in Section 5.6.	Less than significant

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
HYDROLOGY AND WATER QUALITY		
A significant cumulative impact associated with surface water quality may occur under all of the proposed alternatives.	See Mitigation Measures HW1 through HW3 in Section 5.7.	Less than significant
AGRICULTURAL RESOURCES		
A significant cumulative impact associated with agricultural resources may occur under all of the proposed alternatives.	No feasible mitigation measure consistent with the General Plan Land Use Alternatives 1, 2, and 3 project objectives and/or land uses has been identified. As a result, no feasible mitigation measure has been identified.	Significant and unavoidable.
BIOLOGICAL RESOURCES		
A significant cumulative impact associated with biological resources may occur under all of the proposed alternatives.	See Mitigation Measures B1 through B4 in Section 5.9.	Less than significant
CULTURAL RESOURCES		
A significant cumulative impact associated with cultural and paleontological resources may occur under all of the proposed alternatives.	See Mitigation Measure C1 in Section 5.10	Less than significant

TABLE 2-2
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AESTHETICS		
A significant impact to aesthetics may occur under all of the proposed alternatives.	See Mitigation Measure A1 through A6 in Section 5.11	Less than significant
POPULATION AND HOUSING		
No significant cumulative impact to population and housing has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
PUBLIC SERVICES AND UTILITIES		
No significant cumulative impacts to public services and utilities has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.
MINERAL RESOURCES		
No significant cumulative impact to mineral resources has been identified for any of the proposed alternatives.	No mitigation measures are needed.	Not significant.

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3.0 PROJECT DESCRIPTION

THE PROJECT

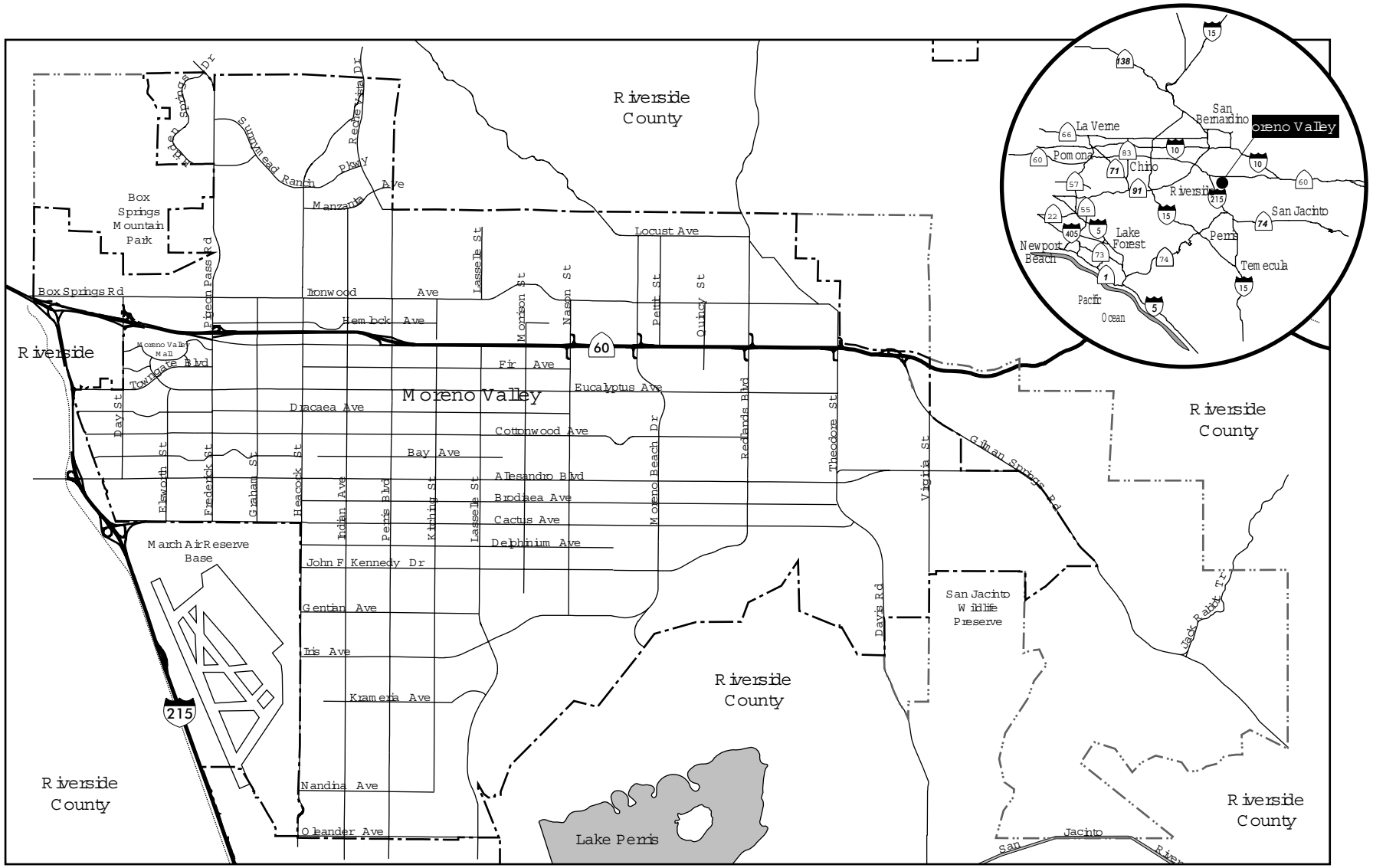
California state law requires each City to adopt a comprehensive, long-term general plan to guide the physical development of the incorporated city and any land outside of the city boundaries that bears a relationship to its planning activities. The project consists of a comprehensive update of the City of Moreno Valley General Plan. The General Plan is divided into several elements, whose various sections together meet the requirements for the seven mandatory elements under state law plus an optional economic development element. The mandatory elements are land use, open space, circulation, housing, safety, noise and conservation.

The City of Moreno Valley General Plan serves as a policy guide for determining the appropriate physical development and character of the City. The General Plan establishes the maximum level of development that can occur within the City. The Program EIR analyzes the environmental effects of the expected development in accordance with the General Plan through buildout.

The impact assessment in the Program EIR assumes a buildout level of development associated with each land use alternative. This includes development of all remaining vacant land in the planning area designated for urban use, as well as redevelopment of existing urban uses where such redevelopment is practical. The environmental impact analysis in this document is based on the change between existing conditions at the time analysis commenced and those projected at buildout.

REGIONAL SETTING

Figure 3-1 depicts the regional and local vicinity of the planning area, as well as the project boundaries. The City of Moreno Valley is located in northwestern Riverside County, approximately 66 miles east of Los Angeles, 42 miles west of Palm Springs and 100 miles north of San Diego. The community is situated in a crescent of land bounded by the Box Springs Mountains to the north, the steep hills of the Badlands to the east and the mountains of the Lake Perris Recreation Area to the south. The surrounding jurisdictions include the City of Riverside, the City of Perris and the County of Riverside. A joint civilian and military airport under the jurisdiction of the March Air Reserve Base and the March Joint Powers Authority is located at the southwestern boundary. The State of California owns and operates regional recreation and open space areas south of the city limits: the San Jacinto Wildlife Area and Lake Perris State Recreation Area. The City is located in proximity to regional transportation routes Interstate 60, which traverses the City, and Interstate 215, which is located near the western boundary of the planning area.



Source: P&D Consultants, August 2000

City Boundary

Sphere of Influence/Planning Area Boundary

North 0 6,000 12,000 ft

Figure 3-1
Regional Location and Planning Area

PURPOSE AND OBJECTIVES OF THE GENERAL PLAN

A General Plan serves as the blueprint for future growth and development. As a blueprint for the future, the plan must contain policies and programs designed to provide decision-makers with a solid basis for decisions related to land use and development. The General Plan is founded upon the community's vision for Moreno Valley and expresses the community's long-term goals to achieve a community that:

- Exhibits an orderly and balanced land use pattern that accommodates a range of residential, cultural, recreational, business and employment opportunities.
- Is clean, attractive and free of blight and deteriorated conditions.
- Provides public services and public facilities that are needed and desired by the community, including, but not limited to, a library(s) and library services.
- Enjoys a healthy economic climate that benefits both residents and businesses.
- Provides recreational amenities, recreation services and open space, including, but not limited to, parks, multi-use trails, community centers and open space.
- Enjoys a circulation system that fosters traffic safety and the efficient movement of motor vehicles, bicycles and pedestrians.
- Emphasizes public health and safety, including, but not limited to, police, fire, emergency and animal services and protection from floods and other hazards.
- Recognizes the need to conserve natural resources while accommodating growth and development.

PROJECT CHARACTERISTICS

Land Use and Circulation Alternatives

The City of Moreno Valley is considering three potential land use policy map alternatives for the General Plan. This Program EIR analyzes these three General Plan land use alternatives at an equal level of detail.

Table 3-1 summarizes the development capacity for buildout of the planning area under Land Use Alternatives 1, 2, and 3. The following describes the characteristics of each alternative:

TABLE 3-1
DEVELOPMENT CAPACITY OF ALTERNATIVES 1, 2, AND 3

Land Use	Units	Quantity		
		Alternative 1	**Alternative 2**	**Alternative 3**
Residential – Single Family Detached	DU	61,758	62,922	63,004
Residential Multi-Family Attached	DU	14,662	20,402	19,724
Commercial[1]	GLA	29,677	21,908	21,908
Professional Office	GFA	21,507	19,878	18,743
Public[2]	GFA	9,215	9,215	9,215
Business Park/Industrial	GFA	40,038	46,408	40,391
Park	AC	1,044	1,044	1,044
Open Space	AC	3,927	3,922	3,922
POPULATION		279,697	304,966	302,785

Sources: Urban Crossroads, *General Plan Traffic Study*, June 2004 and P&D Consultants, August 2004.

Since initiation of environmental analysis for the General Plan program, several minor land use amendments have occurred. These amendments have been processed and undergone environmental analysis separate from the General Plan program. Although these amendments are reflected on the Land Use Alternatives maps, they are not incorporated in the development capacities shown in this Table. Nearly all of the amendments are consistent with Alternative 2 and 3.

Notes:
1 – includes neighborhood, community, and regional commercial
2 – includes schools and government offices

DU- dwelling units
GLA Gross Leasable Area (Thousands of Square Feet)
STU- Students
GFA – Gross Floor Area (Thousands of Square Feet)
AC – Acres

General Plan Land Use Alternative 1 (Existing General Plan)

General Plan Land Use Alternative 1 would retain the existing land use plan. **Figure 3-2** depicts Land Use Alternative 1. Alternative 1 includes a few land use categories that were reclassified for mapping purposes: Planned Commercial, Planned Industrial and R5/Office. The Planned Commercial areas are located at the northeast corner of Day Street and Eucalyptus Avenue and the northwest corner of Oliver Street and Iris Avenue. The Planned Commercial areas are shown as Commercial on **Figure 3-2**. The Planned Industrial areas are located at the southeast corner of Theodore Street and SR 60 and the northwest corner of Alessandro Boulevard and Gilman Springs Road. The Planned Industrial areas are shown as Industrial on **Figure 3-2**. The R5/Office designation is located at the southwest corner of Elsworth Street and Cottonwood Avenue. The R5/Office area is shown as Residential/Office on **Figure 3-2**.

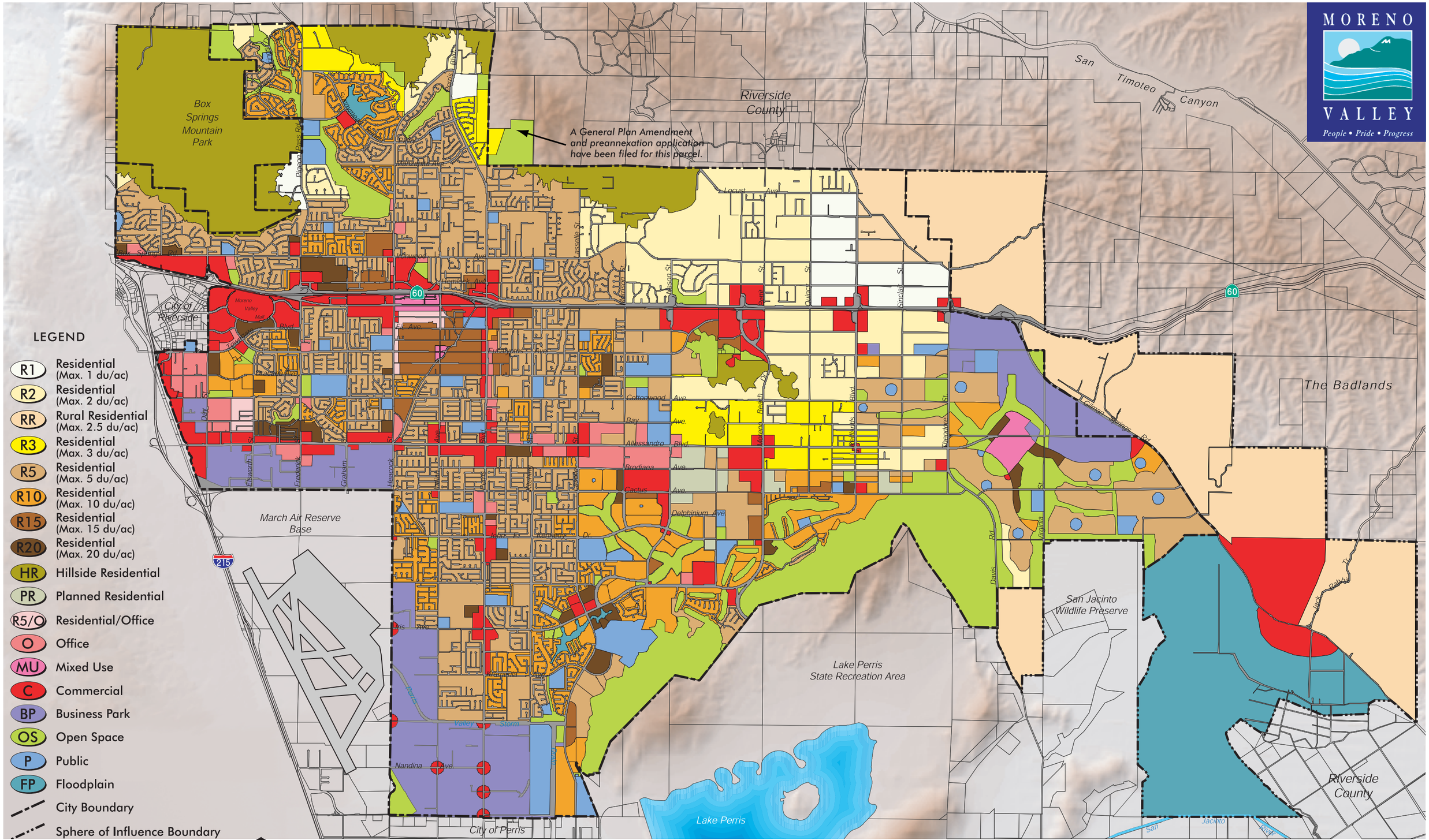


Figure 3-2
Land Use Alternative 1

General Plan Land Use Alternative 2

General Plan Land Use Alternative 2 would allow for more multiple-family housing, less commercial and office development to better match the demand for such uses and more business park/industrial development than would be allowed under Alternative 1 (existing General Plan). **Figure 3-3** depicts Land Use Alternative 2 (also, see **Table 3-1**).

General Plan Land Use Alternative 3

General Plan Land Use Alternative 3 would be similar to Alternative 2, except in the northeastern portion of the City. It would allow more low density (2 or fewer dwellings/acre) single family housing, less office development, less business park development, and less conventional (5 dwellings/acre) single family housing than Alternative 2. **Figure 3-4** depicts Land Use Alternative 3 (also, see **Table 3-1**).

Circulation System Alternatives

Land use patterns affect vehicular trip generation and traffic volumes. Depending on which of the three land use plans is adopted and implemented, certain changes may be required. Potential changes include modifying existing and planned roadways, freeway interchanges and freeway overpasses. The Program EIR analyzes all proposed changes and associated circulation changes at an equal level of detail.

Pending General Plan Amendment Applications

As of March 28, 2005, the privately initiated land use map amendments identified in **Table 3-2** were pending. Each of the following land use changes were processed separately from this General Plan amendment and underwent, or are undergoing, environmental analysis separate from this programmatic analysis. These land use changes are not reflected on each of the land use alternative maps (**Figures 3-2, 3-3,** and **3-4**).

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TABLE 3-2
PENDING LAND USE MAP CHANGES

Existing Designation	Proposed Designation	Location
Neighborhood Commercial (9.5 ac) and Residential 20 (10 ac)	Residential 15 (19.5 ac)	East side of Perris Blvd south of J.F. Kennedy Drive
Planned Commercial (13.9 ac) and Community Commercial (3.5 ac)	Office (10.5 ac) and Neighborhood Commercial (6.9 ac)	Northwest corner of Iris Av. and Oliver St.
Office (8.5 ac) and Planned Residential (26.9 ac)	Residential 5 (35.4 ac)	Northeast corner of Nason St. and Brodiaea Av.
Residential 2 (104.57 ac)	Residential 2 (31.74 ac), Residential 10, (11.6 ac), Residential 15 (25.25 ac), Business Park (33.98 ac) and Business Park – Mixed Use (2 ac)	South side of State Route 60 and west of Quincy St.
Office (0.67 ac)	Community Commercial (0.67 ac)	Southwest corner of Eucalyptus Av. and Lancaster Lane
Office (8.26 ac)	Residential 15 (8.26 ac)	North side of Delphinium Av. and the west side of Perris Blvd.
Residential 1 (9.39 ac)	Residential 2 (9.39 ac)	South side of Hemlock Av. approximately 1,500 feet west of Redlands Blvd.
Residential 2 (58 ac) and Planned Residential (18 ac)	Residential 5 (76 ac)	East side of Merwin St. between Alessandro Blvd. and Cactus Avenue; and east and west sides of Sinclair St. between Alessandro Blvd. and Brodiaea Av.
Planned Residential (10 ac)	Residential 2 (10 ac)	Southeast corner of Nason St. and Brodiaea Av.
Community Commercial (30 ac)	Residential 5 (30 ac)	East side of Oliver St. between Brodiaea Av. and Alessandro Blvd.
Office (2.34 ac)	Residential 15 (2.34 ac)	South side of Alessandro Blvd. to Copper Cove Lane between Martinique Dr. and Flamingo Bay Lane
Specific Plan. Moreno Valley Field Station Specific Plan (SP 218): 760 acres, including 24 ac of commercial, a high school, middle school and 2 elementary schools, 51 acres of parks, a 149 ac golf course and a range of residential designations allowing 2,922 non-age-restricted residences	A planned community consisting of 25 acres of commercial, a hotel site, open space (lakes and an 18 acre club house facility) and residential designations allowing 2,702 active senior residences and 220 non-age-restricted residences. The proposal would also revise the Circulation Plan by eliminating Morrison St. and J.F. Kennedy Dr. within the project boundaries.	South of Brodiaea Av., north of Iris Ave., east of Lasselle St. and west of Oliver St.

TABLE 3-2
PENDING LAND USE MAP CHANGES

Existing Designation	Proposed Designation	Location
Tourist Recreation Commercial (649 ac)	The application is incomplete. The proposal includes open space, 171 single family lots and 79 acres for future development in accordance with the Residential 5 and Residential 10 designations	Northeast side of Gilman Springs Road north of Jack Rabbit Trail.

Plan Elements

The updated Moreno Valley General Plan consists of elements that fulfill state requirements for the content of general plans and an optional economic development element. Each element identifies individual goals, objectives and related policies and implementation programs.

The mandated general plan elements include land use, circulation, housing, conservation, open space, noise and safety. The format of a general plan, however, is not mandated and general plans can be organized in any manner that a jurisdiction deems appropriate. This General Plan combines the noise element with the safety element. It also includes the land use element in the community development element. A general description of each subject area is provided below.

Community Development

The community development section, which contains the state-mandated land use element contains goals, policies and programs designed to direct the future growth of the community. It establishes the permitted uses of land and policies concerning urban design. The land use section identifies commercial, business park/industrial, office, flood plain, open space and public land use designations, and a range of residential designations. This element provides a guide for public facilities, special districts and other governmental issues.

Economic Development

The purpose of this section is to identify goals, policies and programs that would enhance the economic well-being of the community. This optional subject establishes policies intended to retain local businesses and attract new businesses.

Parks, Recreation and Open Space

This section identifies existing and planned parks, recreational facilities, trails and open space throughout the City. It addresses the level of existing park and recreational facilities, and policies for the provision of new facilities to meet the needs of the existing and future population. The conservation of non-recreational open spaces is also addressed in this section.

Circulation

The circulation section guides the design and development of the transportation system to support planned growth. Levels of service, mass transit, bicycle and pedestrian facilities and regional transportation plans are also addressed.

Safety

This section contains the state-mandated safety and noise elements. The purpose of this section is to identify and address hazards to people and property. It establishes goals, policies and programs to minimize hazards, while identifying actions needed to manage crisis situations such as earthquakes, fires and floods. This section addresses police services, fire and emergency services, animal control services, geologic hazards, air and water pollution, flood hazards, hazardous waste and air crash hazards.

Conservation

This section focuses on the conservation of natural resources, including biological resources, cultural resources, energy, agricultural resources, mineral resources, scenic resources and soil and water. It contains goals and policies to conserve environmental resources while providing opportunities for economic growth. This section also addresses the management of solid waste.

Housing

This section is intended to identify current and future housing needs and to set forth an integrated set of goals, policies and programs to assist in the preservation, improvement and development of housing for households of all income levels.

MORENO VALLEY
People • Pride • Progress

A General Plan Amendment and preannexation application have been filed for this parcel.

LEGEND

- R1 Residential (Max. 1 du/ac)
- R2 Residential (Max. 2 du/ac)
- RR Rural Residential (Max. 2.5 du/ac)
- R3 Residential (Max. 3 du/ac)
- R5 Residential (Max. 5 du/ac)
- R10 Residential (Max. 10 du/ac)
- R15 Residential (Max. 15 du/ac)
- R20 Residential (Max. 20 du/ac)
- HR Hillside Residential
- PR Planned Residential
- R5/O Residential/Office
- O Office
- MU Mixed Use
- C Commercial
- BP Business Park
- OS Open Space
- P Public
- FP Floodplain
- City Boundary
- Sphere of Influence Boundary

Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Figure 3-3
Land Use Alternative 2

MORENO VALLEY
People • Pride • Progress

A General Plan Amendment and preannexation application have been filed for this parcel.

LEGEND

- R1 Residential (Max. 1 du/ac)
- R2 Residential (Max. 2 du/ac)
- RR Rural Residential (Max. 2.5 du/ac)
- R3 Residential (Max. 3 du/ac)
- R5 Residential (Max. 5 du/ac)
- R10 Residential (Max. 10 du/ac)
- R15 Residential (Max. 15 du/ac)
- R20 Residential (Max. 20 du/ac)
- HR Hillside Residential
- PR Planned Residential
- R5/O Residential/Office
- O Office
- MU Mixed Use
- C Commercial
- BP Business Park
- OS Open Space
- P Public
- FP Floodplain
- City Boundary
- Sphere of Influence Boundary

Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Figure 3-4
Land Use Alternative 3

INTENDED USES OF THE PROGRAM EIR

The City will review subsequent implementation projects for consistency with the Program EIR and prepare appropriate environmental documentation pursuant to CEQA provisions for Program EIRs and subsequent projects. Section 1.0, Introduction of this EIR, provides a more detailed description of the Program EIR process. Subsequent projects under the Program EIR may include the following implementation activities:

- Rezoning of properties;
- Approval of specific plans;
- Approval of development plans, including tentative maps, conditional use permits, and other land use permits;
- Approval of development agreements;
- Approval of facility and service master plans and financing plans;
- Approval and funding of public improvements projects;
- Approval of amendments to the Municipal Code;
- Issuance of municipal bonds; and
- Acquisition of property.

The following responsible and trustee agencies may utilize this Program EIR in conjunction with discretionary approvals that may occur as part of subsequent development activities within the City. These agencies and approvals may include, but are not limited to, the following:

- California Department of Transportation (Caltrans) – right of way permits
- United States Army Corps of Engineers – Section 404 permits
- Regional Water Quality Control Board – Section 401 certifications, NPDES permits
- U.S. Fish and Wildlife Service – Section 7 or 10(a) consultation
- South Coast Air Quality Management District – air quality permits
- California Department of Fish and Game – Section 1601 Streambed Alteration Agreements

ALTERNATIVES

In addition to the three General Plan land use alternatives examined in detail, Section 6.0 of this EIR includes evaluation of the following alternatives in less detail:

- Increased Preservation of Agricultural Land
- Reduced Density

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4.0 ENVIRONMENTAL SETTING

The City of Moreno Valley is located in northwestern Riverside County, situated along a valley floor bounded by the hills and mountains of the Badlands to the east, Old Highway 215 to the west, the Box Springs Mountains to the north, and the mountains of the Lake Perris State Recreation Area to the south. Regional access to the planning area is provided by State Route 60, which traverses the City and Interstate 215. The surrounding jurisdictions include the City of Riverside, the City of Perris, and the County of Riverside.

The planning area is primarily developed with residential, commercial, and industrial land uses. Lands currently in agricultural production are concentrated in the eastern portion of the City. A joint civilian and military airport (March Air Reserve Base) is located at the southwestern boundary. The State of California owns and operates two regional recreation and open space areas, the San Jacinto Wildlife and the Lake Perris State Recreation Areas, at the southern boundary.

The elevation of the planning area ranges from a low of approximately 1,550 feet to a high of 1,800 feet. The planning area gradually slopes to the south and southwest with the higher elevations north of State Route 60 and the lower elevations near March Air Reserve Base. The City lies primarily on bedrock geology known as the Perris Block. This structural unit is located within the Peninsular Range Geomorphic Province, one of the major geologic provinces of Southern California. The Perris Block is a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, the Santa Ana River and a non-defined southeast boundary. The Perris Block has had a history of vertical land movements of several thousand feet due to shifts in the Elsinore and San Jacinto Faults. The primary source of strong seismic groundshaking in the planning area is the San Jacinto fault. The San Jacinto Fault Zone traverses the eastern portion of the planning area. Other regional faults of significance that could affect the planning area are the San Andreas and Elsinore faults.

There are a few small ponds and lakes scattered throughout the City. In addition, Lake Perris is located south of the City. The planning area is within the Santa Ana River and the San Jacinto River watersheds. The majority of the area is within the watershed of the San Jacinto River.

The climate of the area is characterized by warm, dry summers and mild winters. Most rain falls between the months of November and March. Winds around Moreno Valley are generally cyclic, blowing from the southwest and west, especially in the summer, during the day, while at night, especially during the winter, a weak off-shore breeze occurs. Occasionally in the fall these cyclical breezes are interrupted by strong, dry, warm desert winds (Santa Anas) from the north/northeast.

The topography and climate of Southern California combine to make the air basin in which the planning area is located an area of high air pollution potential. The basin fails to meet state and federal air quality standards for four of the six criteria pollutants including ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), and fine particulate matter (PM10). Because the state and federal standards cannot be achieved, the basin is considered a "non-attainment" area.

The natural habitat of the planning area is largely disturbed by urban development, weed abatement or agricultural activities. However, the area supports the following native or semi-native plant communities: Riversidean sage scrub, non-native grassland, chaparral, riparian scrub, disturbed alluvium, alkali playa, Riversidean alluvial fan sage scrub, and marsh. Additionally, non-native categories are found within the planning area, including residential/urban/exotic, field croplands, and orchards/groves.

The planning area has a rich diversity of wildlife species. Mammals, including mule deer, and large carnivores, including coyotes, bobcats, badgers, and gray fox, exist in the undeveloped portions of the City. Opossums, raccoons, skunks, cottontail rabbits, and many rodent species are also common. A wide variety of reptiles can be found in the City as well. Additionally, over one hundred species of birds, including owls, hawks and other birds of prey can be found in the area. The planning area also includes few species listed under the Endangered Species Act. The listed species include the Stephen's kangaroo rat, the California gnatcatcher, the Least bells vireo, and the San Bernardino kangaroo rat. Potentially listed species include the orange throated whiptail, the San Diego horned lizard, and the short nosed pocket mouse.

5.0 ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

This section of the EIR addresses: 1) the environmental setting for each impact topic; 2) the threshold for determining significance of environmental impacts; 3) the identification of environmental impacts; 4) proposed mitigation measures for significant impacts; and 5) the environmental impact remaining after the implementation of mitigation measures. Section 6.0 discusses the proposed project alternatives. Cumulative impacts are analyzed and presented in Section 7.1 of this EIR.

Each impact is discussed and analyzed in Sections 5.1 through 5.14. Each environmental issue area is addressed according to the following format:

Environmental Setting: A discussion of the existing conditions, services and environment of the planning area (State CEQA Guidelines Section 15125). Existing laws, regulations and practices and proposed General Plan objectives, policies and programs are also discussed with regard to each environmental effect.

Threshold for Determining Significance: The amount or type of impact that may create a substantial or potentially substantial adverse change in the environment as defined in Section 15382 of the CEQA Guidelines and as discussed in Section 15064 and 15065. Applicable City thresholds or standards serve as a guide for determining the thresholds contained in this document. Based on these criteria, project impacts can be classified as: less than significant; significant, but can be mitigated, avoided or substantially lessened; or significant and unavoidable.

Environmental Impact: A discussion of the impacts of the proposed project in quantitative and/or qualitative terms, based on the uses of land identified in the project description (State CEQA Guidelines Sections 15126 and 15358). Where appropriate, the discussion of environmental impact distinguishes between near-term and long-term impacts.

Mitigation Measures: A discussion of the measures required by the City of Moreno Valley to avoid, mitigate or substantially lessen significant impacts (State CEQA Guidelines Sections 15126.4 and 15370).

Impact After Mitigation: A discussion of the level of impact of the project following the implementation of required or recommended mitigation measures (State CEQA Guidelines Sections 15126.2 and 15126.4).

AREAS OF POTENTIAL ENVIRONMENTAL IMPACT

Detailed discussions of the following impacts are found in the corresponding sections. Other long-term environmental issues, including cumulative environmental impacts caused by the project, growth inducing impacts, unavoidable significant environmental impacts and areas of no significant impacts are discussed in Section 7.0 *Analysis of Long-Term Effects* of this EIR.

5.1 Land Use and Planning
5.2 Traffic/Circulation
5.3 Air Quality
5.4 Noise
5.5 Hazards and Hazardous Materials
5.6 Geology and Soils
5.7 Hydrology and Water Quality
5.8 Agricultural Resources
5.9 Biological Resources
5.10 Cultural Resources
5.11 Aesthetics
5.12 Population and Housing
5.13 Public Services
5.14 Mineral Resources

5.1 LAND USE

ENVIRONMENTAL SETTING

Existing Land Uses in the Planning Area

Figure 5.1-1 depicts the existing land use distribution within the Planning Area. **Table 5.1-1** depicts the estimated acreage and/or level of development (i.e., dwelling units or square footage) associated with each of the land uses shown in **Figure 5.1-1**. Land use within Moreno Valley is primarily residential in character. Single-family residential neighborhoods dominate the western half of the City. Residences are scattered throughout the largely rural eastern portion of the planning area. Major commercial developments are located in the northwestern part of the City along State Route 60 and Sunnymead Boulevard, and in the central portion of the City, along Alessandro and Perris Boulevards.

Industrial development is concentrated in the southwest corner of Moreno Valley between Kitching Street and Heacock Street. The area between Alessandro Boulevard and March Air Reserve Base contains industrial uses and several City of Moreno Valley facilities, including city hall, the public safety building and the animal shelter. There are two full-service hospitals in Moreno Valley. The Moreno Valley Community Hospital is on the north side of Iris Avenue, west of Oliver Street. The Riverside County Medical Center is located on the northwest corner of Cactus Avenue and Nason Street.

Neighboring Land Uses

The Riverside County Waste Resources Management District owns and operates the Badlands Sanitary Landfill at the eastern end of Ironwood Avenue. Riverside County Parks and Open Space District maintains a natural open space area in the hills around the landfill.

The San Jacinto Wildlife Area is located in the southeastern corner of the planning area. It was created by the State of California as mitigation for loss of wildlife habitat resulting from construction of the State Water Project. Additional habitat area continued to be added to encompass adjacent wetlands and to provide a corridor to the Badlands. It contains open grasslands and natural and man-made wetlands that attract and support migratory birds and resident wildlife.

Part of the San Jacinto Wildlife Area is within the historic floodplain of the San Jacinto River and is subject to periodic flooding. The resulting floodwater, known as Mystic Lake, has been known to inundate the area for months or years at a time.

The Lake Perris State Recreation Area, operated by the California Department of Parks and Recreation, is situated along the southern boundary of the City. Visitors to the park enjoy boating, fishing, picnicking and camping. Riverside County operates Box Springs

Mountain Park along the northwest city boundary, a passive park suited to hiking and horseback riding.

TABLE 5.1-1
EXISTING LAND USES

Land Use	Units	Quantity
Residential – Single Family Detached[1]	DU	37,116
Residential Multi-Family Attached	DU	4,929
Commercial[2]	GLA	9,234
Professional Office	GFA	1,025
Public[3]	GFA	7,998
Business Park/Industrial	GFA	2,537
Park	AC	291
Open Space	AC	4,664
Agriculture	AC	3,605
Vacant	AC	18,852
POPULATION		143,833

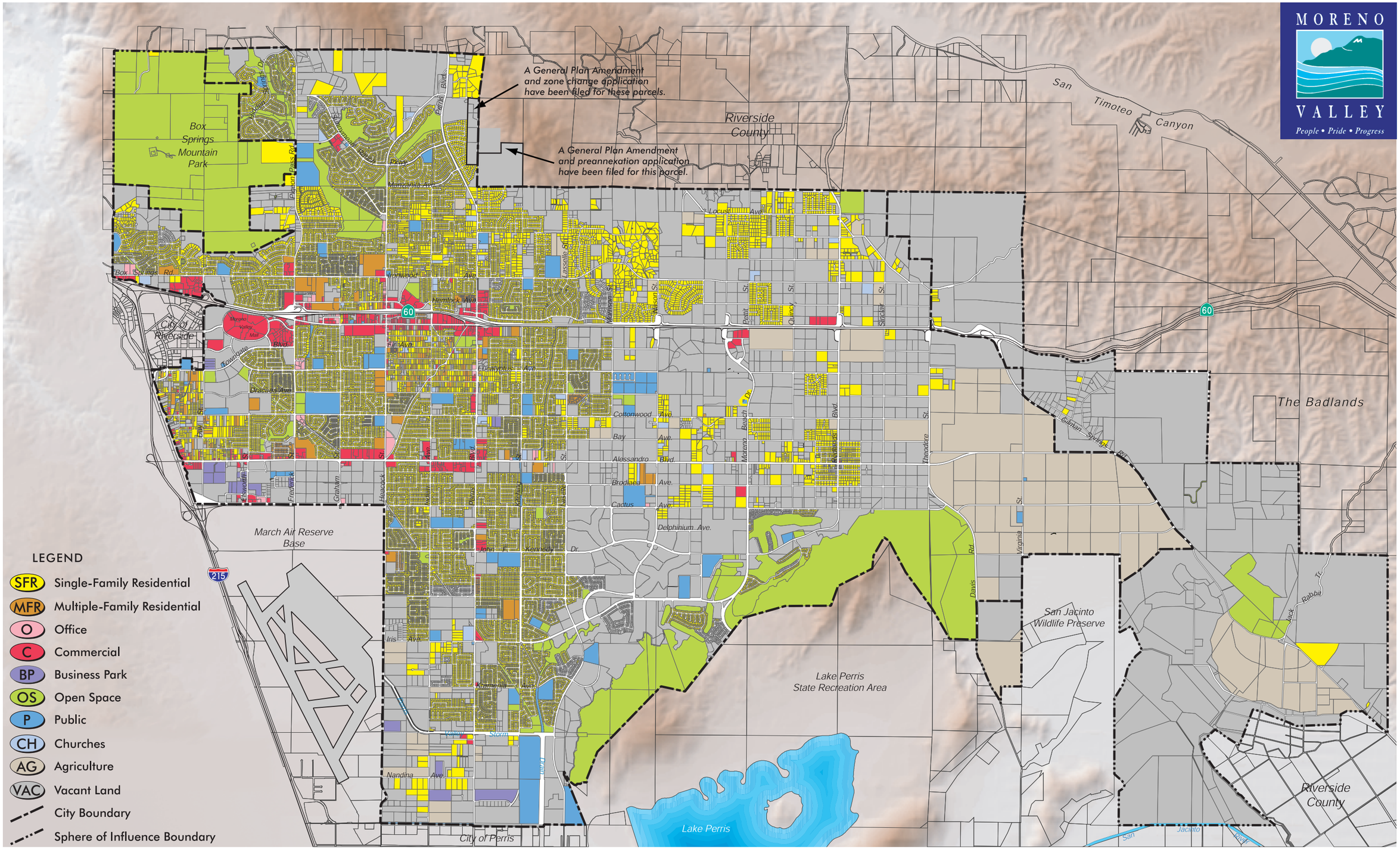
Sources: Department of Finance 2002 Estimates and P&D Consultants, August 2003.

Notes:
1 – includes mobile homes
2 – includes neighborhood, community, and regional commercial
3 – includes schools and government offices

DU- dwelling units
GLA Gross Leasable Area (Thousands of Square Feet)
STU- Students
GFA – Gross Floor Area (Thousands of Square Feet)
AC – Acres

March Air Reserve Base, located southwest of the city limits, was once an active-duty aerial refueling and deployment base. With over 9,000 military and civilian employees, the base played a major role in the local economy. The base was realigned from active duty to reserve status on April 1, 1996, creating March Air Reserve Base. In the year 2003, March Air Reserve Base was home to the 452nd Air Mobility Wing, the California Air National Guard and a range of other federal tenants.

Parts of the former active duty base not needed for the military mission were transferred to other agencies, including the March Joint Powers Authority (JPA). The March JPA was created in 1993 through a Joint Powers Agreement between the cities of Moreno Valley, Perris and Riverside and the County of Riverside. The March JPA has land use jurisdiction over military surplus property, including the March Inland Port. The March Inland Port is a joint-use military and civilian airport. As of the year 2003, the civilian aviation emphasis was on air cargo. March Field Park, the Ben Clark Training Center, the March Field Museum and the General Archie J. Old Golf Course are among the non-military uses on the former base property.



Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Figure 5.1-1
Existing (2000) Land Use Distribution in the Planning Area

Related Plans and Policies

City of Moreno Valley Municipal Code

The Municipal Code zoning regulations and Official Zoning Atlas identify specific types of land use, intensity of use, and development and performance standards applicable to specific areas and parcels of land within the City.

Specific Plans

Much of the development in the City was planned and developed per Specific Plans. These plans typically include specific zoning designations and standards for development within the specific plan areas. Some of the Moreno Valley specific plans include the Towngate, Moreno Valley Ranch, Sunnymead Ranch, Hidden Springs, Moreno Highlands, and Eastgate Specific Plans.

City of Moreno Valley Redevelopment Plan

The City of Moreno Valley created a Redevelopment Agency in accordance with the California Community Redevelopment Law to eliminate blight within the redevelopment planning area. With the adoption of Assembly Bill 1290, the Redevelopment Agency has prepared a five-year implementation plan, which was updated in 1999, for the redevelopment planning areas. The Redevelopment Plan is general in nature and does not include redevelopment proposals for individual properties.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The MSHCP establishes the framework for the conservation of plants and animals and establishing habitat reserves while allowing growth and development in Western Riverside County. The MSHCP is discussed in greater detail in *Section 5.9 Biological Resources* of this EIR.

Air Installation Compatible Use Zone (AICUZ) Study

In 1998, the United States Air Force prepared an Air Installation Compatible Use Zone (AICUZ) Study for the March Air Reserve Base. This study identifies areas subject to aircraft safety and noise concerns, as well as identifying appropriate land uses for those areas subject to these concerns. **Figures 5.4-1** and **5.5-3** of this EIR depict the noise and safety contours as identified in the AICUZ Report, respectively. Moreno Valley adopted the AICUZ Report guidelines for land uses within those areas that are most susceptible to air crashes.

SCAG Regional Plan

The Southern California Association of Governments (SCAG) is responsible for much of the regional planning in this area of Southern California. SCAG has been preparing long range growth and development plans for the Southern California region since the early 1970s. This program provides a framework for coordinating local and regional decisions regarding future growth and development. An important component of this process is the preparation of growth forecasts.

The adopted growth forecast becomes the basis for SCAG's functional plans (transportation, housing, air and water) for the region. The population totals and growth distribution are used in planning for future capacity of highways and transit systems, and the quantity and location of housing sewage treatment systems.

SCAG Growth Management Plan

The SCAG Growth Management Plan recommends methods to direct regional growth to minimize traffic congestion and better environmental quality. The goals of the Growth Management Plan include balancing jobs and housing. While SCAG has no authority to mandate implementation of its Growth Management Plan, the principal goals of the plan have implications for the land use policies in Moreno Valley.

Western Riverside County Association of Governments (WRCOG) Sub-Regional Comprehensive Plan

The WRCOG Sub-Regional Plan is a local plan intended to implement regional goals and objectives, including those contained in the SCAG Regional Plan and the South Coast Air Quality Management Plan. The Sub-Regional Plan establishes goals and objectives in the areas of growth management, economic development, mobility, air quality, housing, open space and habitat conservation, water resources, and solid waste.

Riverside County General Plan

Moreno Valley's sphere of influence is under the jurisdiction of the County of Riverside. The Reche Canyon/ Badlands Area Plan (Area Plan) portion of the Riverside County General Plan governs land use within the sphere of influence. Development permitted under the Area Plan for the sphere of influence would be slightly less intense than that which would be allowed under any of the Moreno Valley General Plan alternatives. It is not necessary for the City and County plans for the sphere of influence to match.

The Riverside General Plan Policy RCBAP 7.4 requires coordination between City and County with respect to the sphere of influence. Policy RCBAP 7.4 reads as follows: "Development applications subject to the California Environmental Quality Act (CEQA) located within the City of Moreno Valley sphere of influence shall be forwarded to the City for review. If the development application requires zoning that would be

inconsistent with the City's General Plan, a meeting shall be arranged among City staff. County staff and the applicant to jointly review the subject development application, in order to develop a joint set of conditions/requirements."

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Physically divide an established community;*
- *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or*
- *Conflict with any applicable habitat conservation plan or natural community conservation plan.*

ENVIRONMENTAL IMPACT

Proposed Land Use Pattern

The balance of land uses proposed within the planning area is intended to achieve a desirable community in which people can work, shop, reside, and recreate.

None of the General Plan alternatives propose any land uses or circulation element roadways that would divide an established community or be incompatible with existing or anticipated land uses. No significant impact associated with this issue will occur. The regulations in the City's Municipal Code, including the Zoning Ordinance, will continue to be enforced on all new and existing development, thereby reducing potential land use and operational incompatibilities to a level less than significant. Also, please see sections *5.3 Air Quality*, *5.4 Noise, and 5.8 Agricultural Resources* for the analysis of potential impacts to these environmental topics resulting from the land use plan.

Related Land Use Plans and Policies

City of Moreno Valley Zoning Ordinance

The Zoning Ordinance will be one of the primary tools for implementing general plan land use policy. Implementation of General Plan Alternatives 1, 2, or 3 will change existing General Plan land use designations for certain parcels within the planning area. The new land use designations may not be consistent with the existing zoning designations for those areas. Once one of the alternative General Plans is adopted, the City will update the Zoning Ordinance as necessary for consistency with the General Plan. No significant land use impact related to the Zoning Ordinance is anticipated.

Specific Plans

In some areas, the General Plan alternatives will create land use designations that are inconsistent with the specific plan zoning designations. The specific plans would have to be amended for consistency with the General Plan. The City has an established procedure for specific plan amendment. No significant land use impact related to these Specific Plans is anticipated.

City of Moreno Valley Redevelopment Plan

All of the three proposed General Plan Alternatives are consistent with the goals and policies contained in the Redevelopment Plan, including the overall goal to create a balanced city, including housing, industry and open space. The areas shown on the Redevelopment Plan map may be used for any of the various kinds of uses permitted by the General Plan. No significant land use impact related to the Redevelopment Plan is anticipated.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

The project's consistency with the MSHCP is discussed in detail in section *5.9 Biological Resources* of this EIR. Please refer to that section for the analysis.

Air Installation Compatible Use Zone (AICUZ) Study

The three proposed General Plan Alternatives would result in the development of land surrounding the March Air Reserve Base. Based on the allowable uses identified in the AICUZ, the proposed development under any of the three General Plan Alternatives would be consistent with the AICUZ guidelines for land uses within the areas most susceptible to air crashes. As a result, no significant land use impact is anticipated.

SCAG Regional Plan and WRCOG Sub-Regional Plan

The General Plan is consistent with these regional plans by: 1) allowing for an adequate number of jobs (about 157,000) to meet the needs of local households (about 73,000 to 77,000); 2) arranging the pattern of commercial, residential, and recreational uses in a way that reduces motorized vehicle miles of travel; and 3) placing higher density housing along existing and anticipated bus routes, thereby supporting mass transit. When fully developed the plan would accommodate more households and more jobs than identified in the SCAG 2025 projections; however the SCAG projections do not include land within the City's Sphere of Influence, and the City does not anticipate buildout of the planning area to occur by 2025. The City will work with SCAG and WRCOG when those agencies update their regional projections. No impact associated with these regional plans is anticipated.

Riverside County General Plan

The Riverside County General Plan includes a small commercial area at the northwest and southeast corners of Alessandro Boulevard and Gilman Springs Road. The Moreno Valley General Plan allows industrial uses at the northwest corner and rural residential development at the southeast corner.

The Moreno Valley land use designations along the eastern boundary of the City are primarily Rural Residential and Hillside Residential within which the residential density would vary with slope gradient, averaging about one dwelling per 5 or 10 acres. The Riverside County land use designations in that area would allow an even lower density of development. The designations include: Estate Residential (2 acre minimum), Rural Residential (5 acre minimum), Conservation (Habitat), Open Space-Rural and Open Space - Recreation.

The floodplain of Mystic Lake is located in the sphere of influence at the southeast corner of the study area. The Moreno Valley General Plan designation for that area is Floodplain. Most of that area is already under public ownership for habitat conservation. The Riverside County land use designations within that area are Conservation and Conservation (Habitat).

The Primary difference between the Riverside County General Plan and the Moreno Valley General Plan is in the area of Quail Ranch Golf Course. The Moreno Valley General Plan designation for that area is Commercial in recognition of the existing golf course and the potential for expansion. The Riverside County General Plan designates the portion of that area southwest of Gilman Springs as Agriculture and Conservation (Habitat), identifies the golf course as Open Space Recreation and the immediate area around the golf course as Medium Density Residential (2-5 dwellings per acre). The area north of the existing golf course is designated Open Space – Rural.

Regardless of the land use designations, of the two plans, a large amount of the Moreno Valley sphere of influence would remain undisturbed should the Western Riverside County Habitat Conservation Plan be approved. Some land would also be acquired with mitigation fees. Some areas, known as Criteria Areas, would be evaluated on a case-by-case basis for acquisition, partial acquisition or other form of conservation.

No significant impact associated with the Riverside County General Plan will occur.

MITIGATION MEASURES

No mitigation is required, since no significant environmental impact is anticipated for any of the General Plan land use alternatives.

IMPACT AFTER MITIGATION

Not significant.

NOTES AND REFERENCES

None.

5.10 CULTURAL RESOURCES

The following section is summarized from the *Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley* prepared by Archaeological Associates, Inc. (Revised August, 2003), and the *Cultural Resources Survey for the City of Moreno Valley, Riverside County, California* prepared by the Archaeological Research Unit (ARU) of the University of California at Riverside (October, 1987). The full text of these studies is contained in Volume II Appendix F of this EIR.

ENVIRONMENTAL SETTING

History of Moreno Valley

Human occupation of Southern California may date as far back as 10,000 years. However, there is no evidence of human activity in the Moreno Valley region prior to about 2,300 years ago. By the time the Spanish began to explore California, descendents of the Shoshonean people, the Luiseño, held the territory that currently includes the Moreno Valley planning area. However, other groups such as the Serrano and Cahuilla were also in the area. The most important habitation sites in Moreno Valley and the western San Jacinto Valley were at Perris Reservoir.

Development of the planning area began in 1890 as the Town of Moreno was founded. However, the absence of a reliable water supply prompted most of the residents to leave by the end of the decade. Neighboring townships, Sunnymead and Edgemont, were more successful and established rural communities drawing on well water. The three towns finally incorporated into the City of Moreno Valley in 1984, with a population of nearly 47,000.

Historic and Archaeological Resources

A state inventory, the California Register of Historic Resources (CRHR) includes properties of importance at the state level. All properties listed in the National Register of Historic Places (NRHP) are automatically included in the CPHR. The State of California also maintains an historic resources inventory which is administered by eleven regional offices. Riverside County records are kept at the Eastern Information Center (EIC), University of California at Riverside.

Local Buildings and Structures

In the early 1980s, the Riverside County Historical Commission conducted a historical survey of the Moreno Valley Region. For the most part, these recorded buildings are modest residences built during the first half of the twentieth century. Many of the

buildings have since been destroyed; however, a few have survived. **Table 5.10-1** summarizes the City's inventory of existing old houses. **Figure 5.10-1** depicts the locations of the homes.

TABLE 5.10-1
LISTED HISTORIC RESOURCE INVENTORY STRUCTURES IN MORENO VALLEY

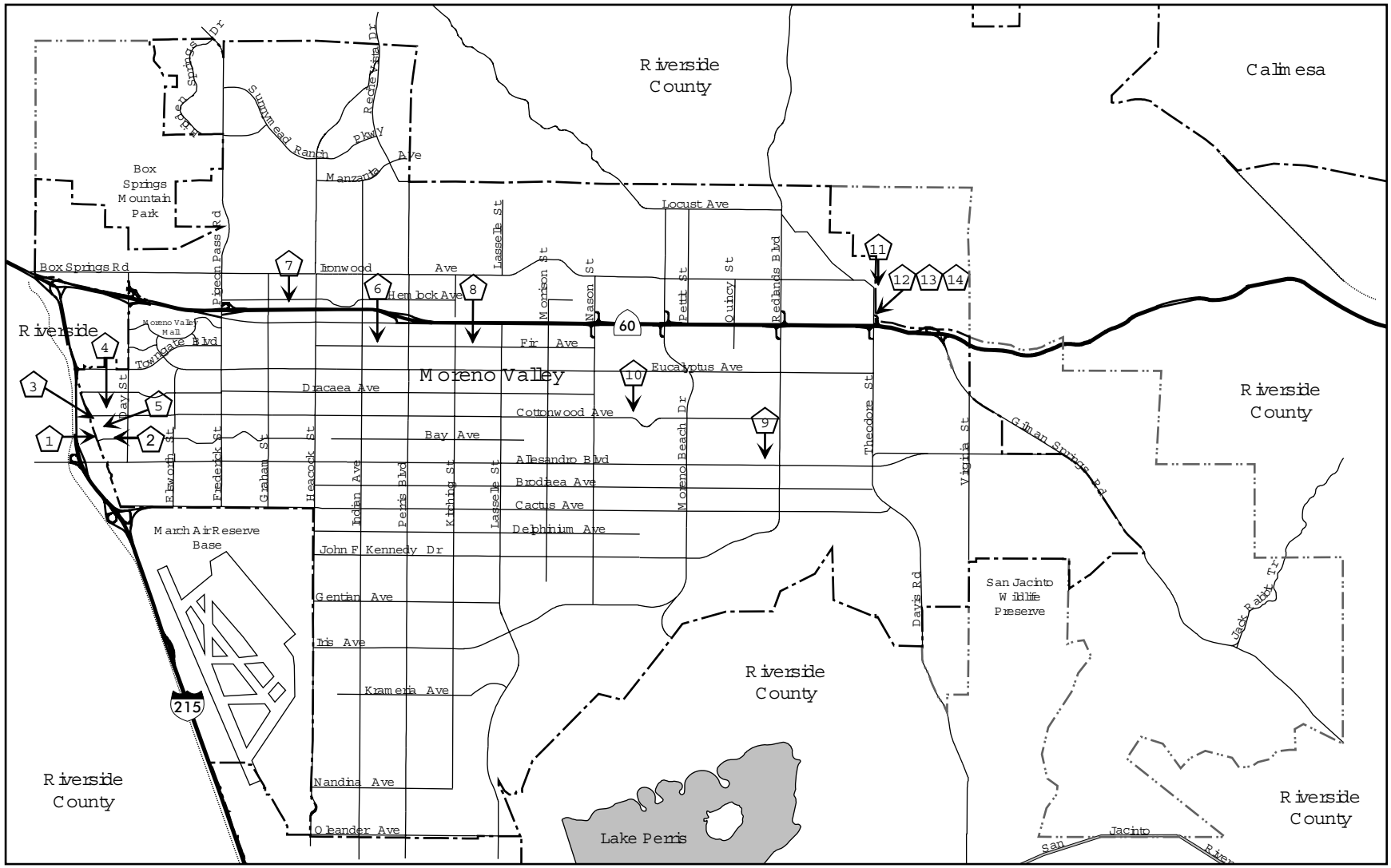
Address	Map Location	Approximate Year Built	Style/ Comments
Edgemont			
21730 Bay Ave.	1	1947	Bungalow
21874 Bay Ave.	2	1938	Vernacular
21613 Cottonwood Ave.	3	1930	Vernacular
21678 Cottonwood Ave.	4	1941	Moorish
13694 Edgemont St.	5	1920	Vernacular
Sunnymead			
24638 Fir Ave.	6	~1915	Vernacular
23741 Hemlock Ave.	7	~1910	Vernacular
24215 Fir Ave.	8	1891	n.a.
Moreno			
28780 Allesandro Blvd.	9	1928	Mission Revival
Southeastern Sector			
27476 Cottonwood Ave.	10	~1928	Adobe
Eastern Sector			
12130 Theodore St.	11	1920	Vernacular
12400 Theodore St.	12	~1915	Vernacular Stone
12400 Theodore St.	13	~1915	Vernacular Wood
12400 Theodore St.	14	~1915	Stone

Source: Archaeological Associates, 2003 and City of Moreno Valley, 2003.

As depicted in **Table 5.10-1**, the homes are listed under the communities the homes are located in. The communities include Edgemont, Sunnymead, Moreno, Southeastern Sector, and Eastern Sector. Description of the homes within each community is provided below.

Edgemont

Five residences in the Edgemont area have been previously evaluated. All lie in the vicinity of the "Old Interstate 215 Frontage Road" on the south side of the community. Only one, a vernacular built in 1920, is old enough to date to the original formation of the community. A "Moorish" themed house built in 1941 is arguably the most interesting example of domestic architecture within the City. This house appears eligible for listing in the California Register of Historical Resources.



Source: CBA, Inc., August 2000

City Boundary

Sphere of Influence

North 0 6,000 12,000 ft

1. 21730 Bay Ave.
2. 21874 Bay Ave.
3. 21613 Cottonwood Ave.
4. 21678 Cottonwood Ave.
5. 13694 Edgemont St.
6. 24638 Fir Ave.
7. 23741 Hemlock Ave.
8. 24215 Fir Ave.
9. 28780 Allesandro Blvd.
10. 27476 Cottonwood Ave.
11. 12130 Theodore St.
12. 12400 Theodore St.
13. 12400 Theodore St.
14. 12400 Theodore St.

Figure 5.10-1
Locations of Listed Historic Resource Inventory Structures

Sunnymead

The Riverside County Historical Commission identified eight old houses in the Sunnymead portion of Moreno Valley; however, four have been destroyed since the survey in the 1980s. One of these houses, constructed in the 1880s, may have been the last structure in Moreno Valley dating to the 19th century. Of the surviving homes, none is architecturally distinctive. However, three structures are interesting as one resembles a miniature barn and the others, dating to around 1910 and 1920 respectively, are in good condition. In addition, the New England style First Congregational Church located at 24215 Fir Avenue, thought to have been built in 1891, is considered to have local historical significance.

Moreno

Only one historic structure survives in Moreno, namely the mission revival style old Moreno School at 28780 Alessandro Boulevard. The wood frame stucco school was built in 1928 on the same site as the original school built back in the early 1890s. The school is the only public building in Moreno Valley which dates to before World War II. It is also the only California Point of Historical Interest (#53) within the City and therefore may be eligible for the California Register of Historical Resources. The building was planned for restoration as a private residence as of January 2003.

Southeastern Sector

The area bounded by Alessandro Boulevard on the south, Moreno Beach Drive on the east, Perris Boulevard on the west and Highway 60 on the north, is referred to as the "Southeastern Sector" and contains only one of the six recorded structures, as the others have since been demolished. The surviving structure belonged to "Doc" Atwood, a locally renowned physician who used the building as a home and office. This structure can be described as a classic California adobe and dates to around 1925.

Eastern Sector

This sector is defined by the area east of Redlands Boulevard. Four old structures survive in this area. One, a vernacular wood-framed house was built in 1920, while the remaining three structures are a part of the Anco Ranch, which was built sometime around 1915.

Historic Sites and Historic Archaeology

The current status of many of the sites and features itemized below is unknown. In cases where there is reason to believe that a site has been destroyed, this is mentioned. Where no more specific information is known, sites are referred to as though they exist.

Jackrabbit Trail

Jackrabbit Trail's origins may go back to prehistoric time because its route across The Badlands connects the San Jacinto Valley with the San Gorgonio Pass and Coachella Valley. In 1897 it was declared a public highway by the Riverside Board of Supervisors and called the Beaumont and Moreno Road. In 1915, the County rebuilt the trail into a two lane road, naming it the "Jackrabbit Trail" because its alignment was reminiscent of the erratic running of a jackrabbit.

Riverside International Raceway (RIR)

Located just east and south of the intersection of I-215 and Highway 60, the Riverside International Raceway (RIR) was once among the most famous American automobile racing tracks. RIR was originally a 9-turn grand prix course which opened about 1960. For many years, RIR was used principally as a sports car track and was the home of the LA Times Grand Prix CanAm event. During the late 1960's and 1970's, RIR became a NASCAR site. Championship Auto Racing Team (CART) raced at RIR between 1981 and 1983 and NASCAR and International Motor Sports Association (IMSA) continued to be regular visitors. RIR was closed in 1988 and the site is now occupied by the Moreno Valley Mall at Towngate, the Towngate Memorial Park, and other development.

Old Moreno

Only one of the original old Moreno structures has survived. The First Congregational Church, constructed in 1891, was relocated from old Moreno to 24215 Fir Avenue. The main intersection of town at Alessandro and Redlands Boulevards has remained largely undeveloped since the original late 19th century brick buildings (hotel, etc.) were demolished and the northwestern and southeastern corners remain vacant. As of December 2001, these locations were strewn with brick fragments. The southeastern corner also contains glazed tile and a cluster of old farm equipment. These corners represent historical archaeological sites which may have considerable research potential.

Adobe Buildings

Aside from Dr. Atwood's house, described earlier, there are no intact adobe buildings in Moreno Valley. However there are at least three adobe ruins in outlying areas of the City. These are small, single room structures which lack distinctive architectural features but are of great interest from a historical archaeological perspective.

Webb's House

Webb's house was discovered in 1991 in the Box Springs Mountains and is believed to have been constructed in the mid-1800s. The site consisted of field stone walls and a three-room stone house foundation. All were built with dry-laid local field stone. The remains may have since been destroyed by development.

Water-Related Remains

Cisterns: There are two cisterns of historic and or archeological significance located in the planning area. The first is a bee-hived shaped brick and concrete cistern 14 feet deep and 13.5 feet in diameter and located near the intersection of Dracaea Avenue and Nason Street. The second, located 1/4 mile east of the intersection of Laselle Street and Alessandro Boulevard, is a cylindrical brick and concrete cistern measuring 8 feet deep below ground surface and 5.5 feet in diameter. Both are believed to have been residential cisterns.

Other Sites

Historic Dump: This small dump is situated on the west side of Pigeon Pass Valley near a spring. Believed to date to the 1920's, the dump contains bottle glass and ceramic shards, one of which bore the trademark "Douglass Stoneware L.A. Cal."

Military target range: Located just north of the intersection of Box Springs Road and Clark Street in the northwestern corner of Moreno Valley, this property has been developed since the site was recorded in 1987. The range consisted of two target bunkers, 320 and 465 feet long. A series of earthen mounds formed rows south of the bunkers.

Prehistoric Archaeology

At least 190 prehistoric archaeological locations have been reported within the City of Moreno Valley. The vast majority are milling stations where bedrock metates (more or less flat grinding surfaces), commonly referred to as "slicks," and bedrock mortars are found. Naturally, these locations are generally situated around valley edges where suitable rock outcrops occur.

Slicks were used in conjunction with a hand-held muller, or *mano* whereas mortars were used in conjunction with a wood or stone pestle. The former are generally regarded as having been used to grind chaparral seeds such as chia while the latter are generally associated with acorn grinding. The great majority (about three-quarters) of the bedrock milling surfaces in Moreno Valley are slicks. This suggests that chaparral seed processing was the dominant milling activity as opposed to acorn processing--probably because oak stands were not widespread in the vicinity during prehistoric times.

The Late Prehistoric Luiseño and Cahuilla peoples who occupied the region were generally believed to be semi-sedentary, meaning that they wintered in villages, then spread out in family groups during the spring and summer months to harvest seeds and acorns. Thus, smaller occupational locations tend to be associated with areas where plentiful milling stations are found. Milling stations are indicated by the presence of bedrock mortars and slicks. Rock art is also found within several complexes. This consists of "pictographs" or painted images and "petroglyphs" or rock engravings. Most

of the so-called petroglyphs in Moreno Valley consist of boulders with "cupules", or cup-shaped holes, pecked into them.

In order to organize the recorded archaeological sites into some kind of meaningful pattern, the city's sites are divided into topographically distinct regions. The sites in these regions, referred to as "complexes" often contain one or more habitation areas accompanied by plentiful scattered milling stations. **Figure 5.10-2** shows the location of these Prehistoric Site Complexes within the planning area.

Box Springs Mountains Complex

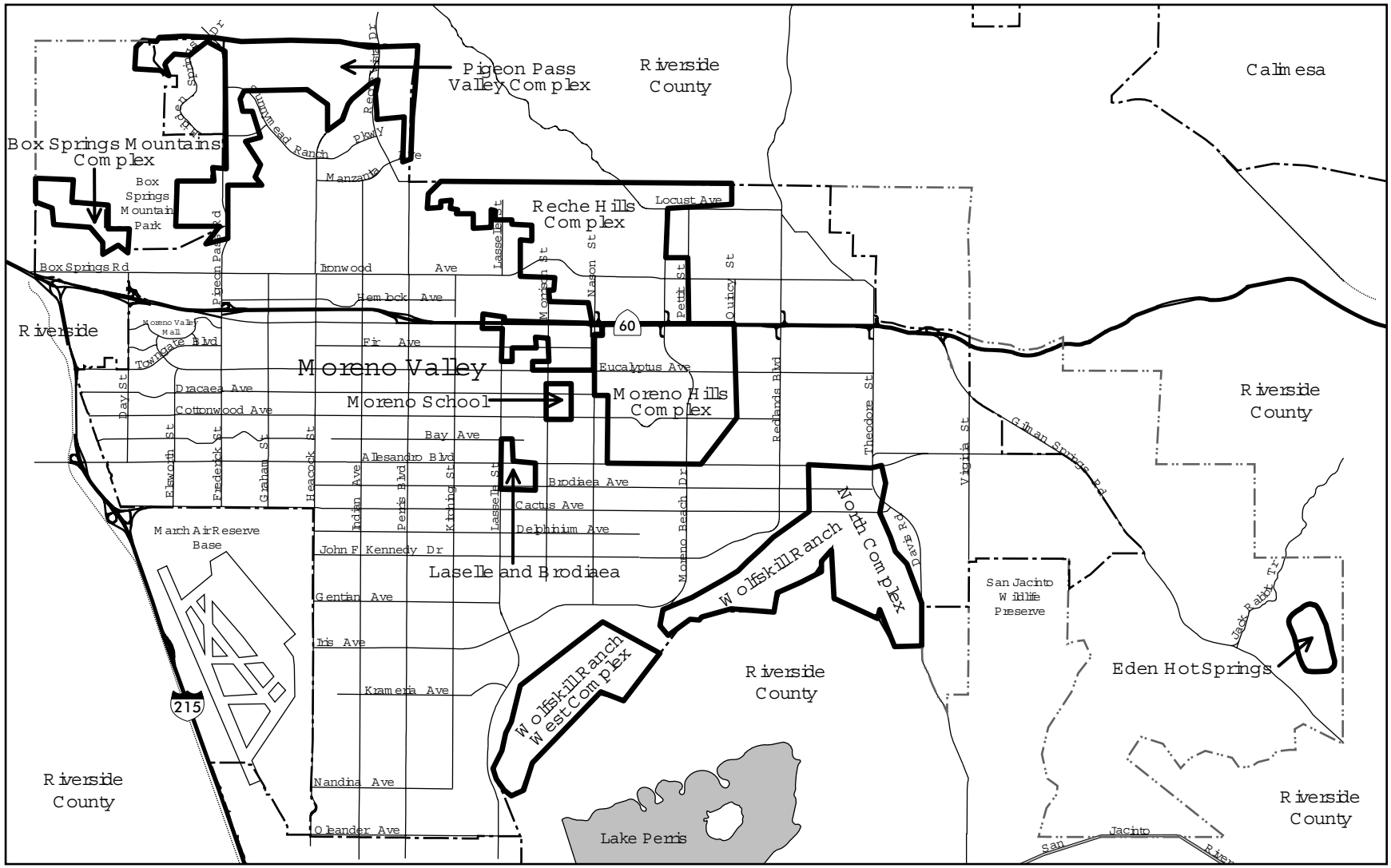
The Box Springs Complex includes the southwestern corner of the Box Springs Mountains overlooking the entrance to Box Springs Canyon. No doubt this area was much traveled during prehistoric time since it was along a natural route to the Los Angeles Basin. The presence of perennial springs encouraged semi-sedentary use of the place. The Moreno Valley portion of the complex includes twenty-one milling areas and camp with a storage shelter, cupule boulder, and apparent deposit. The camp is located about a half mile northeast of Box Springs Mountain. Although no spring is depicted at the location on the modern 7.5' Riverside East topographic sheet, it seems probable that water was available at the location during prehistoric time. Most of the southern half of this complex has been developed in recent years.

Pigeon Pass Valley Complex

This complex is located on both sides of the Pigeon Pass Valley although the camp and most of the milling stations are located on the west side at the foot of the Box Springs Mountains. The complex consists of at least twenty-four milling stations, one of which features a cupule boulder. The camp lies about half way up the valley.

Reche Hills Complex

The habitation areas for the Reche Hills Complex consist of two camps. Probably the more important of the two, is located in the mouth of Reche Canyon, while the other is a short distance to the southeast. The milling region for these camps seems to have been in a series of hills stretching south into Moreno Valley from the mountains on the west side of Reche Canyon. At least twenty-three milling stations are recorded in these hills. The Reche Hills Complex also features significant rock art in the form of cupule boulders, a pit-and-groove petroglyph (which may actually be a cupule boulder) and one pictograph.



Source: CBA, Inc., August 2000

City Boundary

Sphere of Influence

Significant Prehistoric Sites

North 0 6,000 12,000 ft

Figure 5.10-2
Locations of Prehistoric Sites

Moreno Hills Complex

The "Moreno Hills" is a small cluster of hills located just northwest of the Moreno town site. The hills extend northwest to an unnamed drainage which separates them from the southern end of the Reche Hills. Although the Moreno Hills are situated more or less in the middle of Moreno Valley, their prehistoric use appears to have been restricted to milling stations. Doubtless this is attributable to the absence of water. The nineteen recorded stations in the Moreno Hills were probably used at one time or another by individuals from various camps in the valley. However, they are closest to the main Reche Canyon camp and may be most closely associated with it.

Wolfskill Ranch North Complex

"Wolfskill Ranch North" comprises Mt. Russell and the surrounding hills as far west as the campground pass road (Via Del Lago). There are four habitation areas around Mt. Russell. The first site appears to be a major camp with milling features, midden, and pictographs located south of the peak in the reservoir valley. A midden deposit is an accumulation of refuse from a prehistoric settlement. The second, also an important camp, has both cupules and rock paintings accompanying its midden deposit. The site is located on the eastern flank of the hills south of Mt. Russell. Most of the milling stations within Moreno Valley jurisdiction would have been more accessible from this location. The third site is a rockshelter with accompanying milling station located at the foot of Mt. Russell east of the peak. Finally, the fourth habitation complex has midden deposits, milling features, cupules, and pictographs. It is the most centrally located habitation site relative to the bulk of milling stations on the north side of Mt. Russell. In addition to these habitation locations, there are seven lithic scatters (stone tools or projectiles) and thirty-six recorded milling stations in the Wolfskill Ranch North area.

Wolfskill Ranch West Complex

Wolfskill Ranch West comprises the area west of the campground pass road (Via Del Lago). The habitation area appears to have been located at the southwestern end of the complex. Nineteen additional milling stations lie in the Wolfskill Ranch West area.

Other Small Prehistoric Areas

Eden Hot Springs: The little valley south of Eden Hot Springs and west of Mt. Eden contains three camps with midden deposits in addition to a milling station. This location was probably used only during a limited portion of the year.

Moreno School: This location comprises a rocky hill northwest of the Moreno School on Cottonwood Avenue. It consists of five milling stations.

Lasselle & Brodiaea: Located near the intersection of Lasselle St. and Brodiaea Ave., this area is in an isolated rocky outcrop. Five milling stations are recorded here.

Paleontological Resources

The Moreno Valley area contains sedimentary rock-units with potential to contain significant nonrenewable paleontological (fossil) resources. These sedimentary units are referred to as the Mt. Eden Formation and the San Timoteo Formation.

The Mt. Eden Formation is described as being primarily reddish sandstone and dark green and brown clay with local reddish fanglomerate and conglomerate. The age of the fossils contained in the Formation and the dark reddish brown coloration distinguish the Mt. Eden Formation from the younger, green to gray, tan, and red weathering of the San Timoteo Formation. Fossilized fauna include cricetine rodent, horse and proboscidean (extinct animals related to elephants).

The San Timoteo Formation sediments consist of claystones, siltstones, shales, sandstones, gravels, and fanglomerates. Paleontological sites are abundant within the San Timoteo Formation, with vertebrate faunas (animals) and floras (plants) reported. These sites contain a variety of fossilized fauna including horse, peccary, antelope, camel, deer, mastodon, sloth, tortoise, sabertooth cat, bear, and rabbit.

The Mt. Eden Formation and the San Timoteo Formation are known to be highly fossiliferous, and have produced abundant and diverse floral and faunal remains ranging in age from as old as 5 million years to 1.3 million years or less.

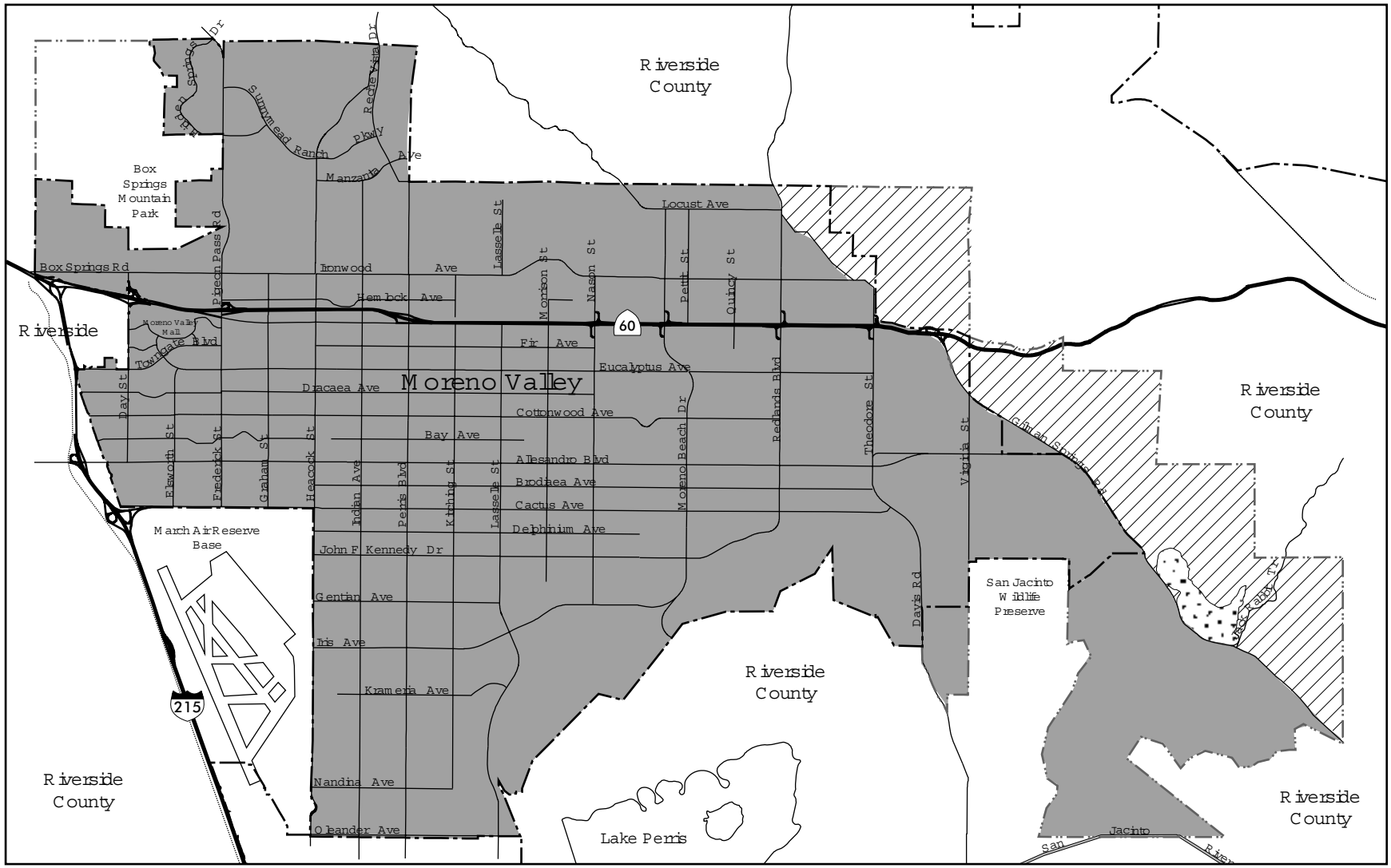
Figure 5.10-3 displays areas of paleontological resource sensitivity in the Moreno Valley planning area. These levels of sensitivity are based on extensive field work. In some areas there has been insufficient field work to make a determination. Consequently, the potential sensitivity of these areas is marked "undetermined."

Human Remains

No known human remains were identified in the *Study of Historical and Archaeological Resources for the Revised General Plan* report prepared by Archaeological Associates. In accordance with State law, the County Coroner will be contacted if human remains are inadvertently discovered.

Moreno Valley General Plan

General Plan Conservation Element Objective 7.6 and the associated policies and Program 7-6 are designed to ensure that cultural resources are identified and that impacts to cultural resources are avoided or reduced in ways that are consistent with their intrinsic value.



Source: CBA, Inc., August 2000

City Boundary | High Potential | Undetermined Potential | Low Potential

North 0 6,000 12,000 ft

Figure 5.10-3
Paleontologic Resource Sensitive Areas

Existing Regulations and Practices

Existing practice is to require studies where significant resources are known or likely to exist and avoiding or mitigating the impact where significant resources are identified. With respect to unknown resources or human remains that could be uncovered during excavation, work must stop until the find can be evaluated and mitigated. If human remains are discovered, under Section 7050.5 of the California Health and Safety Code, the coroner must be contacted and if he or she has reason to believe that the remains are those are those of a Native American, the coroner must contact the Native American Heritage Commission.

THRESHOLDS FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact will occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Causes a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines;*
- *Causes a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5 of the CEQA Guidelines;*
- *Directly or indirectly destroys a unique paleontological resource or site or unique geologic feature; or*
- *Disturbs any human remains, including those interred outside of formal cemeteries.*

ENVIRONMENTAL IMPACT

Local Buildings and Structures

As indicated in **Figure 5.10-1**, portions of the planning area contain local buildings and structures that are potentially significant cultural or historical resources. Implementation of any one of the General Plan Alternatives may result in new development in the planning area. Most of the anticipated development will occur in vacant areas where there are no structures. However, small urban in-fill development or redevelopment projects that are not subject to discretionary review by the City may also occur that could involve the removal or alteration of these structures with historical value or significance.

The potential impact to historic buildings and structures could be significant. The most important old structure in Moreno Valley is the old Moreno School. A City landmark and listed as a Point of Historical Interest by the state and therefore eligible for the California Register of Historical Resources, this structure and its grounds have long been

a focal point of interest for historic-minded citizens. There are several other locations which also merit special mention, most notably the unique "Moorish" house in Edgemont and the three buildings comprising the Anco Ranch. In addition to these, there are ten other standing residences within the City which are included in the state inventory of historic structures. These buildings are all under private ownership.

For many of the local buildings and structures identified in **Figure 5.10-1**, the proposed land uses are identical under all three Alternatives. However, different land uses proposed by the Alternatives may affect seven significant buildings or structures. Alternative 1 proposes commercial uses for the land including the three structures located at 12400 Theodore Street (points 12-14 on **Figure 5.10-1**); while Alternatives 2 and 3 propose low-density residential uses. All three Alternatives propose low-density residential uses for the lands including the structure at 12130 Theodore Street (point 11); however, the residential density proposed in Alternative 1 is lower than that proposed in Alternatives 2 and 3. Office uses are proposed by Alternative 1 for the land including the structure at 21678 Cottonwood Avenue (point 4); while both Alternatives 2 and 3 would include office and residential uses. Both Alternatives 2 and 3 propose business park uses; while Alternative 1 proposes commercial uses for the land including the structures located at 21613 Cottonwood Avenue (point 3) and 21730 Bay Avenue (point 1).

Implementation of any of the proposed General Plan Alternatives has the potential to negatively impact local buildings and structures that are determined local cultural or historic resources. This is considered a significant impact. Implementation of Mitigation Measure C1 will reduce the impact associated with local buildings and structures to a level less than significant. Mitigation Measure C1 requires that the City shall, prior to approval of a project, assess potential impacts to significant historic, prehistoric archaeological, and paelontological resources pursuant to Section 15064.5 of the California Environmental Quality Act Guidelines. If significant impacts are identified, the City will require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve monitoring, resource recovery, documentation, or other measures.

Historic Sites and Historic Archaeology

Historic and archaeological sites of value or significance have been identified within the planning area and the potential impact to these resources may be significant. These include the sites of at least two and possibly three small "adobe" ruins which appear to have been built of solidified decomposed granite. This construction material is unique and may be archaeologically promising. Additionally, the site of downtown old Moreno at Alessandro and Redlands Boulevards is strewn with bricks and other small structural remains of the town's original brick commercial buildings, suggesting the possibility that an interesting historic archaeological deposit may be present.

Implementation of any of the proposed General Plan Alternatives has the potential to negatively impact historic and archaeological sites of value or significance. This is

considered a significant impact. Implementation of Mitigation Measure C1 will reduce the impact associated with historic sites and historic archaeology to a level less than significant.

Prehistoric Archaeology

As indicated in **Figure 5.10-2**, portions of the planning area contain prehistoric archaeological sites. Implementation of any of the General Plan Alternatives will result in new development in some of the vacant areas within the Prehistoric Site Complexes, areas with a high potential of containing prehistoric archaeological resources.

The potential impact to prehistoric archaeological resources is considered significant. At least 180 prehistoric archaeological locations have been recorded within the City of Moreno Valley. The vast majority of these are milling stations consisting only of bedrock grinding surfaces used by prehistoric people to grind chaparral seeds. However, at least five prehistoric locations are reported to include cultural deposits that present opportunity for archaeological research. Cupule boulders ("petroglyphs") are reported at eight locations and rock paintings ("pictographs") at four. The cultural deposits and rock art sites are fragile resources and their current status is presently uncertain. Numerous milling stations in the rocky slopes around the City are also of archaeological value.

Several of the Prehistoric Site Complexes shown in **Figure 5.10-2** cover large areas and multiple land uses are proposed by all three General Plan Alternatives for most of these Complexes. Listed below is a summary of differences between the proposed Alternatives regarding each Prehistoric Site Complex:

- **Eden Hot Springs:** Low density residential uses are proposed by all three Alternatives for the Eden Hot Springs Complex.

- **Wolfskill Ranch North Complex:** Most of the land included within the Wolfskill Ranch North Complex is set aside for open space uses, with the remaining land proposed for residential uses at various densities. Alternative 1 differs in that it allows a small amount of commercial uses within this Complex.

- **Wolfskill Ranch West Complex:** All three Alternatives propose a large portion of open space with some residential uses at various densities.

- **Lasselle and Brodiaea:** Office uses are proposed for the land within the Lasselle and Brodiaea prehistoric areas in Alternative 1. Alternatives 2 and 3 include a small portion of land proposed for commercial use, while the remaining land could be used for residential uses of varying densities.

- **Moreno School:** All three alternatives propose a mix of open space, public and low-density residential uses.

- **Moreno Hills Complex:** The three alternatives propose a mix of commercial, residential, and open space uses; however Alternative 1 differs in that it also includes a portion of land for office use. Additionally, Alternative 1 includes less land proposed for residential uses, and Alternatives 2 and 3 differ in the density of the proposed residential uses. Alternative 3 proposes the highest density of residential land uses.

- **Reche Hills Complex:** The proposed land uses for the Reche Hills Complex is nearly identical under all three Alternatives, however a small portion of the adjacent to the north side of Highway 60 is proposed for commercial use in Alternative 1, whereas low-density residential use is proposed in Alternatives 2 and 3.

- **Pigeon Pass Valley Complex:** All three alternatives include a mix of low-density and hillside residential uses. A General Plan Amendment and zone change application that has been filed for several parcels in this area.

- **Box Springs Mountain Complex:** The three Alternatives do not vary. Some of the complex is developed and Box Springs Mountain Regional Park encompasses the bulk of the area.

Implementation of any of the proposed General Plan Alternatives has the potential to negatively impact local prehistoric archeological sites in the city that are local cultural or historic resources. This is considered a significant impact. Implementation of Mitigation Measure C1 will reduce the impact associated with prehistoric archaeological resources to a level less than significant.

Paleontological Resources

The Moreno Valley area contains sedimentary rock-units with potential to contain significant nonrenewable paleontological resources which are subject to adverse impacts by ground-disturbing activities. However, much of Moreno Valley is covered with recent alluvium. These sediments overlie fossiliferous sedimentary units of the Mt. Eden Formation and the San Timoteo Formation. Excavation to depths normal for development would probably not penetrate recent alluvial sediments to encounter fossiliferous deposits. As shown in **Figure 5.10-3**, areas with the highest potential of encountering paleontological resources in the City include the hills in the east end of the planning area known as the Badlands. Implementation of any of the General Plan Alternatives would involve new development that could result in grading or excavation in areas with potential or known paleontological resources. This is considered a significant impact. Implementation of Mitigation Measure C1 will reduce the impact associated with paleontological resources to a level less than significant.

Human Remains

There are no known human remains in the project area. However, grading activities could uncover previously unknown human remains especially in areas that have not been surveyed. Grading activities will result in a significant impact to this issue throughout development of the project area. Implementation of the existing regulations and practices described in the *Existing Setting* subsection as well as Mitigation Measure C1 will reduce this impact to a level less than significant.

MITIGATION MEASURES

C1. Prior to the approval of a project, the City will assess potential impacts to significant historic, prehistoric archaeological, and paelontological resources, including impacts to human remains, pursuant to Section 15064.5 of the California Environmental Quality Act Guidelines. If significant impacts are identified, the City will require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve monitoring, resource recovery, documentation or other measures.

IMPACT AFTER MITIGATION

Less than significant

NOTES AND REFERENCES

David Van Horn, et. al.; "Study of Historical and Archeological Resources for the Revised General Plan, City of Moreno Valley" (2003) Appendix F of this report.

5.11 AESTHETICS

ENVIRONMENTAL SETTING

The City of Moreno Valley lies on a relatively flat valley floor surrounded by rugged hills and mountains. The topography of the planning area is defined by the Box Springs Mountains and Reche Canyon area to the north, the "Badlands" to the east, and the Mount Russell area to the south. These features provide the City with outstanding scenic vistas. **Figure 5.11-1** depicts the major scenic resources within the planning area.

The major scenic resources within the planning area are visible from State Route 60, the major transportation route in the area. Upon entering the Moreno Valley from the west, the dominant view is of the Box Springs Mountains to the immediate north and the Mount Russell foothills to the south. Both mountain ranges display numerous rock outcroppings and boulders that add visual character to these landforms.

Moreno Peak is part of a prominent landform located south of State Route 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from State Route 60, offers views of Moreno Peak and panoramic view of Moreno Valley. Panoramic views of the valley can also be seen from elevated segments of some local roads and from hillside residences. The views are particularly attractive on clear days and at night when the glow of city lights can be seen.

As State Route 60 traverses east through the City, it passes through the Badlands area. Characterized by steep and eroded hillsides, the Badlands form the eastern boundary of the planning area and provide a sweeping range of hills that act as a visual backdrop to the valley. Vast expanses of open land can be found in the eastern portion of the City. These tracts of land allow for uninterrupted scenic vistas form State Route 60, Gilman Springs Road, and other roadways and provide views of the San Jacinto Valley and the ephemeral Mystic Lake. Views of the San Bernardino and San Gabriel Mountains are evident at times from the valley floor. Winter snows on the mountains often offer a striking view.

Much of the existing development within the planning area is limited to the flat valley floor, preserving the views of the largely undeveloped surrounding hillsides. Existing urbanized development consists of residential, business park, commercial, office, and public uses, with single-family residential uses comprising the great majority of urbanized land. Non-residential urban uses are concentrated along major transportation corridors and around the joint civilian and military use March Air Reserve Base. The March Air Reserve Base, with its runways, museum, and military structures, forms a major identifiable land use within the City and is visibly prominent from Interstate 215.

The man-made environment is equally important in terms of scenic values. Buildings, landscaping and signs often dominate the view. Agricultural uses such as citrus groves are less common, but visually pleasing features.

Existing development in the planning area includes many light sources, including, but not limited to, streetlights, traffic signals, illuminated signs, ball field lighting, security lighting and storefront lighting. The headlights of vehicles traveling on existing roadways also contribute to the ambient level of light and glare.

Moreno Valley General Plan

General Plan Objectives 2.10 and 7.7 and associated policies foster development that is visually attractive. Policy 7.7.1 discourages development along prominent ridgelines. Policies 7.7.2 and 7.7.6 minimize the visual impact of overhead utility lines and wireless communication facilities. Policy 7.7.3 calls for reasonable controls to reduce the impact of signs on visual quality. Policies 7.7.4 and 7.7.5 require development along designated scenic roadways to be visually attractive and to allow for views of the surrounding mountains and Mystic Lake. Objective 2.10 and the associated policies ensure that new developments, including new buildings, walls and landscaping, are visually attractive. Policy 2.10.2 calls for objectionable views to be screened from view and Policy 2.10.7 discourages lighting that causes excessive light and glare on adjacent properties.

Existing Regulations

The Municipal Code contains design guidelines that regulate the aesthetic quality of new development with respect to structures, signs, walls, landscaping and other improvements. Existing regulations also require night lighting for non-residential developments to be shielded where appropriate to reduce the intensity of light that spills on neighboring properties.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Have a substantial adverse effect on a scenic vista;*
- *Substantially damage scenic resources;*
- *Substantially degrade the existing visual character or quality of the City and its surroundings; or,*
- *Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.*

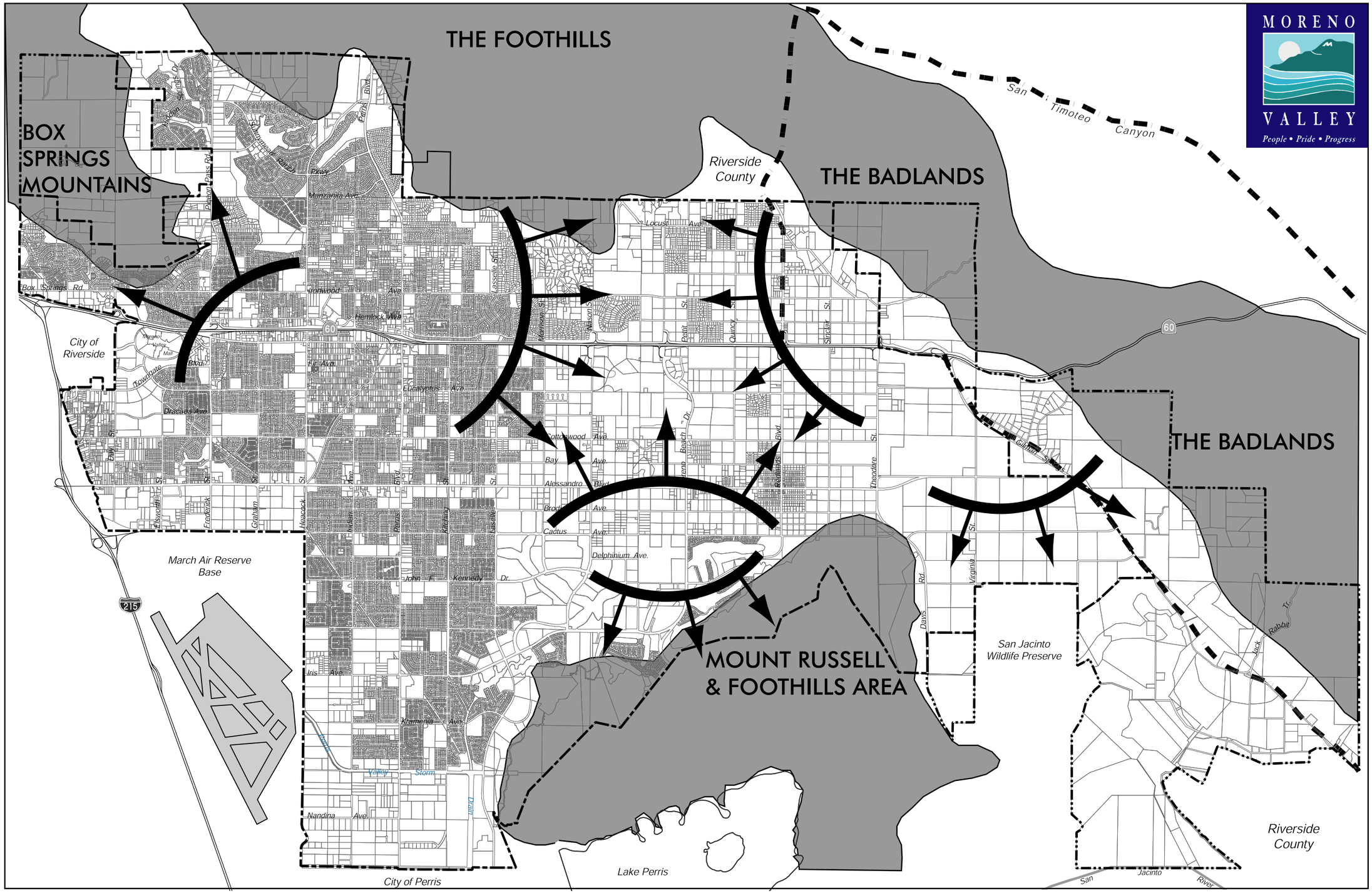


Figure 5.11-1
Major Scenic Resources

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2, and 3

Implementation of the Moreno Valley General Plan Land Use Alternatives 1, 2, or 3 will result in the further development in the planning area. All three of the Land Use Alternatives propose similar land uses along the hillside areas and will result in similar aesthetic impacts when implemented. The majority of the hillside areas, excluding the hillsides reserved for open space uses, will be developed with low density residential uses. The valley floor will also be developed into a mixture of residential and non-residential uses. Alternative 3 would allow more residential development along SR 60 east of Nason Street than Alternative 3. This would affect the character of the views along that stretch. Such views might be more or less aesthetically appealing depending on the nature of the resulting structures, walls, and how those properties are maintained. Given that noise barriers would be necessary between future residences and State Route 60, scenic views of the surrounding hills could be obscured to some degree. This is considered a significant impact. Implementation of Mitigation Measures A1 through A6 will reduce this impact to a level less than significant.

All of the three General Plan Land Use Alternatives propose similar goals and policies to address the aesthetic impacts associated with future development of the City according to the General Plan. These goals and policies serve to create a community that strives to preserve its existing visual resources, such as significant views and vistas, as well as encourage an environment that is characterized by attractive landscaping and pleasing building design.

The City also enforces its Municipal Code that helps to preserve scenic resources by regulating the allowable uses within each zoning district. The Code also regulates the allowable amount of light and glare and regulates the type and location of signage.

Together, the existing regulations and Mitigation Measures A1 through A6 reduce the aesthetic impacts of new development to a level less than significant.

MITIGATION MEASURES

A1. Enforce the Municipal Code requirements and use Specific Plans to ensure that all development within the City of Moreno Valley is of high quality, yields a pleasant living and working environment for existing and future residents and attracts business as the result of consistent exemplary design **(Objective 2-10**).

A2. Require new electrical and communication lines to be placed underground (**Policy 7.7.1**).

A3. Implement reasonable controls on the size, number and design of signs to minimize degradation of visual quality (**Policy 7.7.2**).

A4. Gilman Springs Road, Moreno Beach Drive, and State Route 60 shall be designated as local scenic roads (**Policy 7.7.3**).

A5. Require development along scenic roadways to be visually attractive and to allow for scenic views of the surrounding mountains and Mystic Lake (**Policy 7.7.4**).

A6. Minimize the visibility of wireless communication facilities by the public. Encourage "stealth" designs and encourage new antennas to be located on existing poles, buildings and other structures (**Policy 7.7.5**).

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

None.

5.12 POPULATION AND HOUSING

ENVIRONMENTAL SETTING

The majority of the project area is contained within the jurisdictional boundaries of the City of Moreno Valley. The remainder of the project area, the City's sphere of influence, is primarily undeveloped and contains only a few residential units and no major employment generating uses. Estimates of population and housing stock vary somewhat depending on the method of calculation used and the assumed number of persons per dwelling unit. According to the Department of Finance, the City had an estimated population of 165,328 and 46,944 housing units as of January of 2005. Approximately 5.3 percent of the housing units were vacant. The average household size was 3.703 persons.

According to the 2000 Census, the median age in Moreno Valley was 27.1, which is lower than the County median age of 33.1. This difference is attributable to the large number of family aged persons (children under 18 and parents between the ages of 25 and 44) in Moreno Valley. As shown in **Table 5.12-1**, 76.8 percent of the City's population was below 45 years old in 2000, compared to the County where 70 percent of the population less than 45 years old. Based on the 2000 Census, the population of Moreno Valley continues to have a younger population since 37 percent of its population is younger than 18 years or old, compared to the County, where 30 percent of its population is younger than 18 years or old.

TABLE 5.12-1
2000 AGE DISTRIBUTION

Age Group	Moreno Valley	County of Riverside
Under 24 Years	47.3%	39.5%
25 to 44 Years	29.5%	28.9%
45 Years or Older	23.2%	31.6%

Source: 2000 Census

The Census 2000 estimated that 41,431 housing units were in Moreno Valley. The California Department of Finance estimated that 42,045 housing units were in the City as of January 1, 2002 and 46,944 as of January 1, 2005. This represents an increase of 4,899 units since the 2000 Census. Of the City's housing stock in 2005, 86.6 percent were single-family residences, 11.2 percent were multi-family residences, and 2.2 percent were mobile homes.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Induce substantial population growth in an area, either directly or indirectly;*
- *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or,*
- *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.*

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2, and 3

Implementation of General Plan Land Use Alternative 1, 2, or 3 would allow an increase of dwelling units and population within the project area. The following summarizes the expected population and dwelling units for the buildout of General Plan Land Use Alternatives 1, 2, and 3, as well as the resulting increase from existing conditions (see Table 3-1 in the Project Description):

- **Alternative 1** – 279,697 persons or 76,420 households (82% increase)
- **Alternative 2** – 304,966 persons or 83,324 households (98% increase)
- **Alternative-3** – 302,785 persons or 82,728 households (97% increase)

New residents will locate to the project area. The actual rate of development that may occur pursuant to the proposed General Plan Land Use Alternatives 1, 2, or 3 will depend on market conditions and other factors, such as availability of infrastructure or environmental constraints. The rate of population and housing growth resulting from the implementation of General Plan Land Use Alternatives 1, 2, or 3 would not differ substantially from each other or from recently experienced growth rates. Amendment of the General Plan could accommodate population growth, but would not induce growth. No significant impact is anticipated.

Implementation of General Plan Land Use Alternative 1, 2 or 3 would not result in the displacement of substantial numbers of existing housing units or persons since the majority of the areas designated for future development consist of vacant land. Some residential units may be removed in conjunction with the redevelopment of land. Alternative 1 could indirectly result in the displacement of more existing housing than

Alternative 2 or 3. Alternative 1 designates a large part of the existing residential neighborhood of Edgemont in southwest Moreno Valley as Office and Commercial, which might encourage nonresidential development. Alternatives 2 and 3 designate most of that area as Residential/Office, which allows for residential development. This impact would not be large, however, as removal of a large number of units is not likely. As a result, no significant impact will result from the displacement of a large number of persons or housing units.

MITIGATION MEASURES

No mitigation measure is proposed.

IMPACT AFTER MITIGATION

Not significant

NOTES AND REFERENCES

1. California Department of Finance, Demographic Research Unit. E-5 City/County Population and Housing Estimates, 2003, Revised 2002 and Revised 2001, with 2000 DRU Benchmark.

2. California Department of Finance, Demographic Research Unit. E-5 City/County Population and Housing Estimates, 1/1/2005.

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5.13 PUBLIC SERVICES AND UTILITIES

POLICE PROTECTION

ENVIRONMENTAL SETTING

The City of Moreno Valley contracts police services from the Riverside County Sheriff's Department. As **Figure 5.13-1** depicts, the department is located in the Public Safety Building at 22850 Calle San Juan de Los Lagos in the City of Moreno Valley's Civic Center. The department also uses satellite offices in strategic locations throughout the City. These offices provide a place for officers to write reports, make phone calls and tend to other responsibilities without leaving the field.

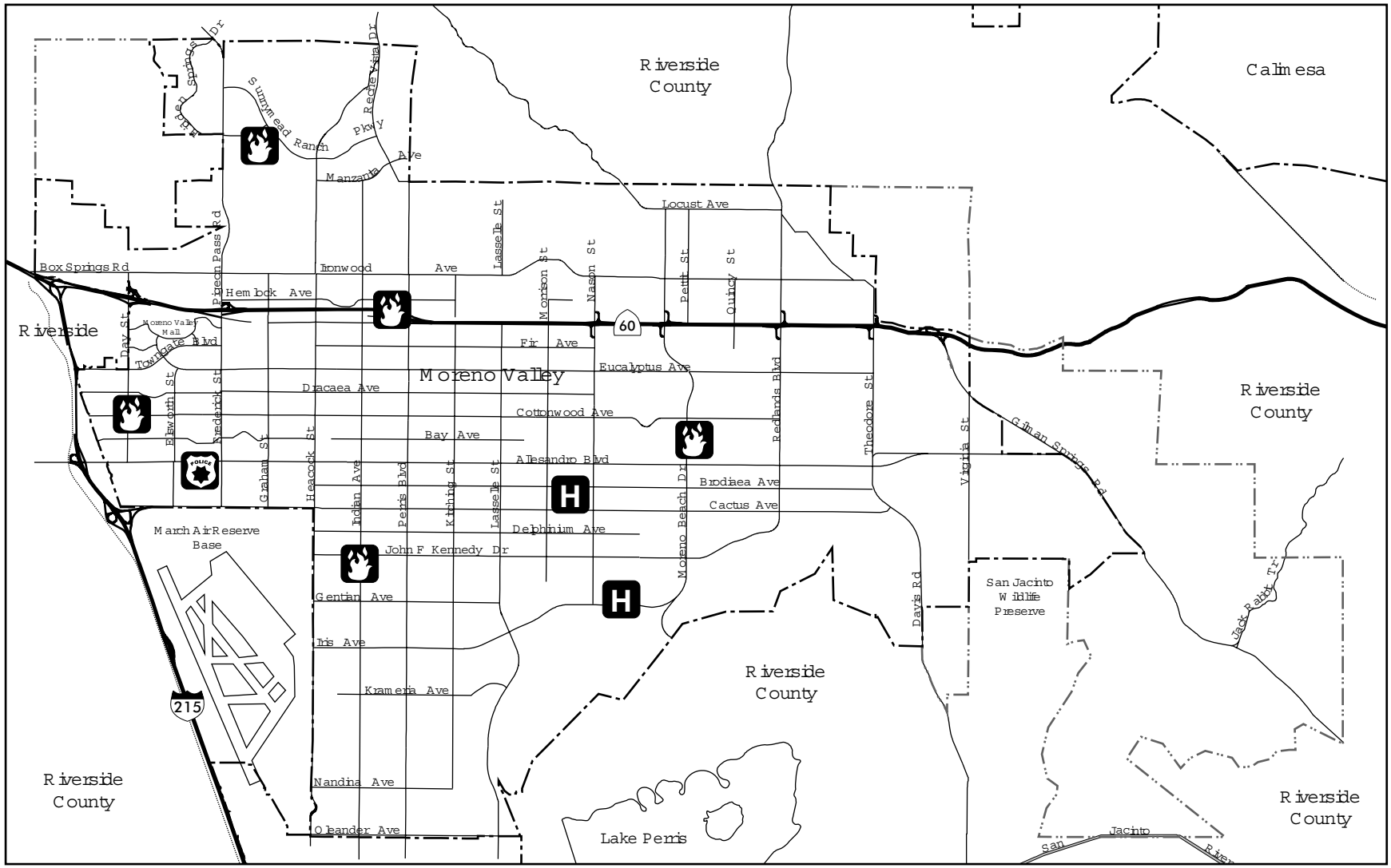
The department has 143 authorized sworn personnel and 45.5 authorized civilian personnel. Using the City's year 2003 population of about 150,200 and 143 sworn officers, the City provides a ratio of 0.95 officers per 1,000 residents.

Moreno Valley has a relatively low crime rate based on the number of serious crimes per 1,000 residents. Larceny/Theft was the most frequent reported in the City according to the 2000 Department of Justice/Uniform Crime Report (UCR), comprising 42 percent of all crimes. Burglary was the second most frequent crime, accounting for approximately 27 percent of all crimes. Only 18 percent of all crimes were against individuals, while the remaining crimes were directed against property.

The MVPD tracks response times for Priority 1, Priority 2, and Priority 3 calls. A Priority 1 call is an emergency call which requires immediate response where there is reason to believe that a continuing serious threat to life exists. The average response time to Priority 1 calls in Moreno Valley in 2002 was seven minutes.

A Priority 2 call is defined as a call reporting a situation that is urgent, but not life threatening. The average response time to a Priority 2 call in Moreno Valley in 2002 was 16.2 minutes.

A Priority 3 call is a call reporting a crime that is neither urgent or life threatening. The average response time to a Priority 3 call in Moreno Valley in 2002 was 38.2 minutes.



Sources: City of Moreno Valley, December 2003

City Boundary

Sphere of Influence

Fire Station

Police Station

Hospital

North 0 6,000 12,000 ft

Figure 5.13-1
Locations of Public Facilities

Moreno Valley General Plan

Safety Element Objective 6.8 is to strive for police staffing of at least 1 officer per 1,000 residents, as feasible given budget constraints. Objective 6.9 and the associated policies encourage neighborhood watch programs, require security lighting in new developments and require defensible space concepts to be incorporated in the design of new developments.

Existing Regulations and Practices

The City did a development impact fee study (1999) that concluded that the existing Police Building and the planned expansion of the facility would serve the needs of the City through buildout. Each new development is assessed a fee to cover its fair share of the cost of the expanded police facility. All new development is reviewed by the Police Department to identify risks to security and ways to minimize those risks.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for police protection services, the construction of which could cause significant environmental impacts.*

ENVIRONMENTAL IMPACT

Alternatives 1, 2, and 3

The MVPD does not have established response time standards. The Department's aim is to provide service as fast as possible under all circumstances depending on availability of officers in the field and type of calls for service on hand. The MVPD's objective is to respond within six minutes or less for Priority 1 calls. The MVPD prepares a quarterly report and reviews calls for service and response times to ensure the department is deployed efficiently and adequately.

Implementation of any of the General Plan Land Use Alternatives will result in increased population and new development. With the increase in population and new development, additional police services, and expanded facilities will be required to provide acceptable service levels. The existing police building is 43,700 square feet in area and the planned expansion is for an additional 36,300 square feet in the civic center complex. The need

for additional police facilities would not differ substantially between the three land use alternatives.

The specific environmental impact of expanding the police station cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as a police station, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new police facilities.

IMPACT AFTER MITIGATION

Less than significant**.**

NOTES AND REFERENCES

1. Bill Di Yorio, Chief of Police. Electronic communication to Rick Brady, P&D Consultants, 7/11/03.

2. DMG-Maximus, City of Moreno Valley Development Impact Fee Study, 1999

FIRE PROTECTION AND EMERGENCY SERVICES

ENVIRONMENTAL SETTING

The City of Moreno Valley contracts with the Riverside County Fire Department to provide fire protection, fire prevention and emergency services to its residents. The Riverside County Fire Department is administered and operated by the California Department of Forestry and Fire Protection. As **Figure 5.13-1** depicts, the Department consists of a Fire Prevention and Administration Bureau located in the Public Safety Building at 22850 Calle San Juan de Los Lagos in the City of Moreno Valley's Civic Center and six fire stations throughout the community. **Table 5.13-1** displays the addresses and summarizes the equipment and staff located at each station.

TABLE 5.13-1
MORENO VALLEY FIRE STATIONS

Fire Station	Address	Personnel	Equipment
Station 2 (Sunnymead)	24935 Hemlock Avenue	7 firefighters	1 engine 1 ladder truck (100') 1 rescue squad
Station 6 (Towngate)	22250 Eucalyptus	3 firefighters	1 engine 1 rescue squad
Station 48 (Sunnymead Ranch)	10511 Village Road	6 firefighters	2 engines 1 rescue squad
Station 65 (Kennedy Park)	15111 Indian	6 firefighters	2 engines 1 rescue squad
Station 58 (Moreno)	Intersection of Bay Ave and Moreno Beach	3 firefighters	1 engine 1 brush engine 1 rescue squad
Station 91 (College Park)	16110 Lasselle Street	4 firefighters	1 engine 1 breathing support unit 1ladder truck (75')

Source: Moreno Valley Fire Department, 2003.

The goal of the department is to arrive on the scene of emergencies within five minutes of notification, 90 percent of the time. In 2002, the department met this goal by arriving at the scene of emergencies within five minutes of notification 94.3 percent of the time. Response time is defined as the period of time that elapses from the moment the fire station is notified, until that unit's arrival at the location of the incident.

The City requires adequate fire suppression water flows be provided to new development projects. The Eastern Municipal Water District (EMWD) stores water in several million gallon tanks throughout their service area to ensure continued pressure and supplies in an emergency. The Box Springs Mutual Water Company, however, is unable to provide the rate of flow that is recommended for fire suppression.

The Fire Department responds to medical aid calls with basic life support services. Private sector paramedics provide advanced life support services. Currently, American Medical Response handles medical emergencies that require paramedic assistance and/or ambulance transportation under contract with the County of Riverside.

Moreno Valley General Plan

Safety Element Objectives 6.11 through 6.16 and the associated policies provide direction for to ensure adequate protection from fire hazards, in terms of both fire prevention and suppression. The policies address a range of policies and programs, including fire education programs, building codes, fuel modification along the wildland-urban interface and requirements for smoke detectors, automatic fire sprinklers, emergency water supply and emergency access.

Existing Regulations and Practices

All new development must comply with existing fire codes, including, but not limited to, emergency access requirements and fire flow requirements for fire suppression.

The City did a development impact fee study in 1999. The study concluded that the former Sunnymead (Station No. 2) and Moreno station (Station No. 58) needed to be replaced and three new stations would be needed through buildout of the City. Since the time of the study, the Sunnymead Station has since been relocated on Hemlock Avenue, west of Perris Boulevard and one new station (College Park) has been constructed on Lasselle Street, south of Iris Avenue. Each new development is assessed a fee to cover its fair share of the cost of new fire facilities.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency services, the construction of which could cause significant environmental impacts.*

ENVIRONMENTAL IMPACT

Implementation of any of the General Plan Land Use Alternatives will result in increased population and new development. This increase in development and population generated by the proposed land uses will require additional fire stations, personnel, and equipment over time to ensure adequate fire and emergency service capabilities. The need for fire facilities would not differ substantially between the three General Plan land use alternatives.

The Fire Department anticipates the need to relocate one fire station and add two additional fire stations to meet the need posed by new development allowed under each of the Alternatives. Specifically, the Department plans to relocate the Moreno Beach Fire Station #58. In addition, the Department will need to construct a fire station in the northeast portion of Moreno Valley and an additional station in the southeast portion. Each new fire station would also require additional staffing (3-4 firefighters per engine company).

The specific environmental impact of expanding fire protection and emergency service facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as fire stations, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new fire facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. Andrew Bennett, Fire Marshal. Letter to Rick Brady, P&D Consultants, 7/23/03.

2. DMG-Maximus, City of Moreno Valley Development Impact Fee Study, 1999

EDUCATION

ENVIRONMENTAL SETTING

Children who reside in the City of Moreno Valley attend schools within two different school districts. In addition, the City is home to the Moreno Valley campus of Riverside Community College. Educational facilities in Moreno Valley are depicted in **Figure 5.13-1**. The two school districts serving the planning area are described below.

Moreno Valley Unified School District

The Moreno Valley Unified School District (MVUSD) operates 19 elementary, six middle, and four high schools. The District also operates three learning centers. As depicted in **Table 5.13-2**, the 2003-04 capacity exceeds the school district's projected enrollment by 4,839 students. Landmark Elementary and Midland Middle are the only schools in MVUSD where projected enrollment is greater than existing capacity.

TABLE 5.13-2
MORENO VALLEY UNIFIED SCHOOL DISTRICT SCHOOLS

School	Location	Capacity 2003-04	Projected Enrollment 2003-04
Elementary		*17,830*	*16,116*
Armada	25201 John F. Kennedy Drive	1,069	1,006
Bear Valley	26125 Fir Avenue	1,008	811
Box Springs	11900 Athens Drive	618	540
Butterfield	13400 Kitching Street	1,253	976
Cloverdale	12050 Kitching Street	1,093	881
Creekside	13563 Heacock Street	1,236	1,144
Edgemont	21790 Eucalyptus Avenue	929	874
Hendrick Ranch	25570 Brodiaea Avenue	1,054	981
Hidden Springs	9801 Hidden Springs Drive	594	463
Honey Hollow	11765 Honey Hollow Drive	1,043	898
Midland	11440 Davis Street	878	954
Moreno	26700 Cottonwood Avenue	690	576
North Ridge	25101 Kalmia Avenue	936	779
Ridge Crest	28500 John F. Kennedy Drive	682	654
Seneca	11615 Wordsworth Road	634	517
Serrano	24100 Delphinium Avenue	1,116	1,066
Sugar Hill	2455 Old Country Road	996	887
Sunnymead	12875 Heacock Street	949	835
Sunnymeadows	23200 Eucalyptus Avenue	1,052	1,274
Middle		*9,987*	*8,507*
Badger Springs	24750 Delphinium Avenue	1,854	1,499
Landmark	15261 Legendary Drive	1,392	1,396
Palm	11900 Slawson Avenue	1,890	1,587
Mountain View	13130 Morrison Street	1,811	1,568
Sunnymead	23996 Eucalyptus Avenue	1,215	968
Vista Heights	23049 Old Lake Drive	1,825	1,489
High		*11,184*	*9,539*
Canyon Springs	23100 Cougar Canyon Drive	2,958	2,728
Moreno Valley	23300 Cottonwood Avenue	2,970	2,292
Valley View	13135 Nason Street	2,976	2,587
Vista del Lago	15150 Lasselle Street	2,280	1,932
TOTAL		**39,001**	**34,162**

Source: Moreno Valley Unified School District, 2003.

The Moreno Valley Unified School District is adding three relocatables at Ridge Crest elementary and will be adding more to other schools in 2004-05 to accommodate anticipated growth in student population. In addition, the District opened the Towngate Elementary School (designed for 800 students) at 22480 Dracaea Ave. in September 2004. The District was also planning to build another school (La Jolla Elementary School at Iris Ave. and J.F. Kennedy Drive) in September 2005.

Val Verde Unified School District

In 2002/2003 residents in Moreno Valley attended four elementary, one middle, and one high school in the Val Verde Unified School District. With the exception of Rainbow Ridge Elementary, enrollment at all these schools exceeded the district capacity standard (see **Table 5.13-3**).

TABLE 5.13-3
VAL VERDE UNIFIED SCHOOL DISTRICT SCHOOLS

School	Location	Capacity 2002-03	Enrollment 2002-03
Elementary		*2,600*	*3,280*
El Portero	16820 Via Pamplona Drive	650	728
Mary McLeod Bethune	25390 Krameria Street	650	1,031
Rainbow Ridge	15950 Indian Avenue	650	590
Victoriano	25650 Los Cabos Drive	650	931
Middle School		*1,250*	*1,580*
Vista Verde	28777 Krameria Street	1,250	1,580
High School		*2,500*	*2,538*
Rancho Verde	17750 Lasselle Street	2,500	2,538
TOTAL		**6,350**	**7,398**

Source: Val Verde Unified School District, 2003.

In August of 2004, the Val Verde School District opened the Red Maple Elementary School on Red Maple Ave., east of Perris Blvd. with a capacity 850 students. As of March of 2005, two additional elementary schools were under construction: the Lasselle Elementary School (950 student capacity) on Krameria Ave., east of Lasselle St. and an expansion of the Rainbow Ridge Elementary School (300 student capacity). The District also plans to construct the Indian Middle School (1,250 student capacity) adjacent to the Rainbow Ridge Elementary School.

Continuation, Adult, and Vocational Schools

The Moreno Valley Unified School District operates three learning centers that provide independent study, adult, and/or vocational services. Bayside Community and Charter School serves 147 at-risk students in grades 9-12. March Valley Academic Center consists of two alternative schools, March Mountain and March Valley. March Valley serves approximately 300 students in grades 1-12, while March Mountain is a small continuation high school of approximately 650 students.

Riverside Community College – Moreno Valley

The Moreno Valley branch of the Riverside Community College District provides transfer programs paralleling the first two years of university offerings, pre-professional,

career preparation, and occupational and technical programs leading to an associate of arts degree, an associate of science degree, and a variety of certificates. Riverside Community College had 7,500 students enrolled as of the fall of 2002.

Existing Regulations

State law requires that no building permit may be issued without certification that school fees have been paid.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for public school facilities, the construction of which could cause significant environmental impacts.*

ENVIRONMENTAL IMPACT

Implementation any of the General Plan Land Use Alternatives will result in increased population and new development, generating a need for expansion of existing school facilities or construction of new schools within the affected school districts. Some of these facilities will be constructed or expanded within the planning area. Several future school sites are designated for public uses on all three General Plan alternative land use plans. The environmental impact of school facility construction on those sites is addressed in this EIR. The impact of school construction on unknown sites is a matter of speculation. No further discussion is included here pursuant to Section 15145 of the CEQA Guidelines.

The subject of mitigation for impacts on school facilities has been impacted by the passing of the Leroy F. Green School Facilities Act of 1998 (SB 50). The law limits the impact fees and site dedication that school districts can require of developers to off-set the impact of new development on the school system. In passing SB 50, the California legislature declared it has exclusive jurisdiction on the subject of the need for and mitigation of impacts related to school facilities.

The specific environmental impact of expanding educational facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as school facilities, may result in potentially significant

environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

No mitigation beyond the payment of school fees is required according to State law. Additionally, mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new school facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. Moreno Valley Unified School District, *School Capacity and Enrollment Projection 2003-2004*, June 2003.

2. Paul Baird, Moreno Valley Unified School District. Electronic communication to Rick Brady, P&D Consultants, 7/16/03.

3. Val Verde Unified School District, *2003 Needs Analysis Report*, April 2003.

4. Val Verde Unified School District, *Facilities Department Presentation of Future School Sites*, April 2003.

LIBRARIES

ENVIRONMENTAL SETTING

The Moreno Valley Public Library is located on the site of the old Midland Middle School at 25480 Alessandro Boulevard. The 16,000 square foot library, which opened to the public in 1986, was originally part of the Riverside County library system but in 1998 the City assumed sole operation and responsibility over the facility. It is funded by tax revenue generated by the residents of Moreno Valley through property assessments, various State and federal grants, and support by the Moreno Valley Friends of the Library.

The library holds an estimated 98,000 volumes, exceeding its original design capacity of 50,000 volumes. With a population of 165,328 in January of 2002 (per Department of

Finance), Moreno Valley's library contained 0.1 square feet per capita. The City standard is 0.5 gross square feet per capita of library space and 1.2 volumes per capita.

A development impact fee study was conducted in 1999. The study concluded that an additional 51,166 square feet of library space would be needed to serve the projected population at buildout. New residential development is assessed a fee to cover its fair share of the cost of the new facilities. The new library is planned for the existing civic center at the southwest corner of Frederick Street and Alessandro Boulevard.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for public libraries, the construction of which could cause significant environmental impacts.*

ENVIRONMENTAL IMPACT

Implementation of any of the General Plan Land Use Alternatives will result in increased population and increased demand for library services. The need for additional library facilities would not differ substantially between the three land use alternatives.

The City has approved plans for a 69,000 to 70,000 square foot library The specific environmental impact of constructing the new library has already been evaluated and a Negative Declaration, dated March 19, 2003 has been adopted. No further analysis of impacts associated with constructing and operating the new library is needed.

The Library Advisory Board also recommended building three branch libraries, each encompassing a least 20,000 square feet in floor area. The specific environmental impact of building branch libraries cannot be determined at this General Plan level of analysis; however, development of branch libraries may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing new library facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

DMG-Maximus, City of Moreno Valley Development Impact Fee Study, 1999.

PARKS AND RECREATION

ENVIRONMENTAL SETTING

Parklands

The Moreno Valley parks and recreation system exists within the context of the City's existing development pattern. **Table 5.13-4** identifies 335 acres of existing public parks in Moreno Valley and describes amenities found at these park sites. **Table 5.13-5** identifies the City's existing recreational facilities that complement its designated parkland. Existing public parks and other recreation facilities in the community are depicted on **Figure 5.13-1**.

TABLE 5.13-4
EXISTING PARKS AND RECREATIONAL FACILITIES

Facility	Address	Size (acres)	Features
Sunnymead Park	12655 Perris Blvd	15.53	lighted softball/baseball field, restroom, snack bar, tot lot, sheltered picnic tables, barbeques
Moreno Valley Community Park	13380 Frederick St	15.58	lighted soccer field, snack bar, restroom, tot lot, sheltered picnic tables, barbeques,
John F. Kennedy Park	15115 Indian St	7.69	lighted softball/baseball field, lighted tennis courts, restroom, tot lot, sheltered picnic tables, barbeques
Weston Park	13170 Lasselle St	4.14	softball/baseball field, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques
Gateway Park	23975 Manzanita Ave	7.67	restroom, tot lot, sheltered picnic tables, barbeques
Westbluff Park	10750 Pigeon Pass Rd	5.00	basketball court, restroom, tot lot, sheltered picnic tables, barbeques
Woodland Park	25705 Cactus Ave	9.11	lighted tennis courts, lighted softball/baseball field, lighted basketball courts, multi-use athletic field, restroom, tot lot, barbeques, covered shelter

TABLE 5.13-4
EXISTING PARKS AND RECREATIONAL FACILITIES

Facility	Address	Size (acres)	Features
Morrison Park	26667 Dracaea Ave	14.01	lighted softball/baseball fields, multi-use athletic field, restroom, snack bar, sheltered picnic tables, barbeques
Bethune Park	25450 Lurin Ave	6.00	tennis court, softball/baseball field, snack bar, water feature, restroom, tot lot, picnic tables, barbeques, covered shelter
Moreno Valley Equestrian Park & Nature Center	11150 Redlands Blvd	45.00	horse arena
Sunnymead Ranch Linear Park Site	Village Rd & Old Lake Rd	5.50	multi-purpose trail
California Aqueduct Linear Park Site	Kitching St & Krameria (South)	5.00	multi-purpose trail
California Aqueduct Linear Park Site	Balboa St & Dracaea Ave	4.50	multi-purpose trail
California Aqueduct	Kitching St & Krameria (North)	4.00	multi-purpose trail
Ridge Crest Park	28506 John F. Kennedy Dr	5.00	soccer field, volleyball court, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques
Fairway Park	27891 John F. Kennedy Dr	5.50	soccer field, volleyball court, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques
Victoriano Park	25730 Los Cabo Dr	5.00	basketball court, restroom, sheltered picnic tables, barbeques
Pedrorena Park	16009 Rancho Del Lago	5.50	tennis courts, basketball court, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques
El Potrero Park	16901 Lasselle St	15.00	soccer fields, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques, covered shelter
TownGate Memorial Park	13501 Elsworth St	16.97	lighted softball/baseball field, multi-use athletic field, restroom, tot lot, sheltered picnic tables, barbeques
Bayside Park	24435 Bay Ave	2.04	basketball court, tot lot, picnic tables, barbeques, covered shelter, horseshoe pits
Adrienne Mitchell Memorial Park	22631 Bay Ave	4.43	basketball court, multi-purpose trail, tot lot, picnic tables, barbeques, covered shelter, horseshoe pits

TABLE 5.13-4
EXISTING PARKS AND RECREATIONAL FACILITIES

Facility	Address	Size (acres)	Features
Hidden Springs Park – Phase 1	9675 Hidden Springs Dr	7.00	open space, tot lot, sheltered picnic tables
March Field Park and Valley Skate Park	6th St	70.00	lighted softball/baseball fields, skate park, roller hockey rink, restroom, snack bar, picnic tables, covered shelter
Parque Amistad	26160 Gentian Ave	4.24	softball/baseball fields, basketball court, multi-use athletic field, tot lot, picnic tables, barbeques, covered shelter
Vista Lomas Park	26700 Iris Ave	4.0	basketball court, tot lot, picnic tables, barbeques
College Park	16100 Lasselle St	25.0	multi-use athletic field, restroom, picnic tables, tot lot
Shadow Mountain Park	23239 Presidio Hills Dr	10.0	softball/baseball field, tot lot, sheltered picnic tables, barbeques
Celebration Park	14875 Caliente Dr	6.46	open space, restroom, tot lot, picnic tables, barbeques, water feature, covered shelter
	Total	**334.87**	

Source: City of Moreno Valley, 2005.

TABLE 5.13-5
RECREATION FACILITIES

Recreation Facility	Address	Features
Conference and Recreation Center	14075 Frederick St	gymnasium, banquet facilities, meeting rooms, class rooms, department offices
Senior Community Center	25075 Fir Ave	game tables, banquet facilities, horseshoe pits
TownGate Community Center	13100 Arbor Park Ln	banquet facilities, class room
Alessandro Gymnasium	23301 Dracaea Ave	basketball court, volleyball court
March Mountain High School Gymnasium	24551 Dracaea Ave	basketball court, volleyball court
Moreno Valley Recreation Center	13671 Frederick St	basketball court, recreation hall
Cottonwood Golf Center	13671 Frederick St	golf course, snack bar
Canyon Springs High School Swimming Pool	32100 Cougar Canyon Dr	swimming pool
Moreno Valley High School Swimming Pool	23300 Cottonwood Ave	swimming pool
Valley View High School Swimming Pool	13135 Nason St	swimming pool

Source: City of Moreno Valley, 2005.

Moreno Valley residents also have access to two regional parks: Box Springs Mountain Park (1,555 acres) located approximately five miles northeast of the planning area; and

Lake Perris State Recreation Area (8,300 acres) located about one mile south of the planning area. While the Lake Perris State Recreation Area is maintained by the State of California and the Box Springs Mountain Park is maintained by the Riverside County Parks Department.

Joint-use agreements with local school districts supplement the City's recreation facilities. Through the agreements, the City has access to all school facilities including gymnasiums, pavilions, swimming pools, and athletic fields to provide programs to the community. According to the Parks and Recreation Department, the joint-use agreements with the Moreno Valley and Val Verde Unified School District are in effect until terminated by either party.

Multi-use Trails

Moreno Valley has an extensive planned trails network traversing much of the planning area.

Moreno Valley General Plan

The Parks, Recreation and Open Space Element of the General Plan has identified portions of the planning area for future parkland acquisition. Most of these areas are located north of Highway 60, with a portion extending south from Highway 60 to Cactus Avenue on either side of Moreno Beach Drive. Additionally, the General Plan includes policies and programs that deal with parks and recreation. Program 4-1 directs the City to develop a parks and recreation facilities master plan. Program 4-9 requires that the City acquire land and develop neighborhood and community parks in the "Recommended Future Parkland Acquisition Areas" shown in Figure 4-4 of the Parks, Recreation and Open Space Element. Policy 4.2.7 establishes the 3-acre per 1,000 residents level of service standard and Policy 4.2.17 requires new development to contribute to the park needs of the City.

Existing Regulations

The City's development impact fee ordinance requires new development to dedicate parkland and/or pay in-lieu fees to provide 3 acres of parkland per 1,000 new residents.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Increases the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or*

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered recreation facilities, or the need for new or physically altered recreation facilities to maintain acceptable service ratios or other performance objectives for park and recreational facilities, the construction of which could cause significant environmental impacts.*

ENVIRONMENTAL IMPACT

As shown in **Table 5.13-6**, there is an existing deficiency of approximately 161 acres of parklands within the City when compared to the 496 acres that would be required to provide three acres of developed parkland per 1,000 residents. Currently, about 2 acres of parkland are provided per 1,000 residents. As shown in **Table 5.13-6**, the estimated increase in population at the time of buildout according to each Alternative will require additional parkland within the planning area. Based on the expected populations of the three alternatives, Alternative 1 will result in a demand for 839 acres, Alternative 2 – 915 acres, and Alternative 3 – 908 acres. Because each Alternative assumes the same level of parkland development will occur, the impacts to parkland increase the greater the population. This Alternative 1 has the least impact to parks while Alternative 2 has the greatest.

TABLE 5.13-6
EXISTING AND FUTURE PARK ACREAGE NEEDS

	Population*	Park Acreage Required**	Available Acreage from Existing and Planned Parkland[1]	Surplus/ (Shortfall)
Existing	165,328	496	335 (Existing)	(161)
Alternative 1	279,697	839	610	(229)
Alternative 2	304,966	915	610	(305)
Alternative 3	302,785	908	610	(298)

Notes:
*Existing population based on January 2005 Department of Finance estimate. Alternatives 1 to 3 as listed in Table 3-1 in the *Project Description* of this EIR.
**Based on standard of three acres per 1,000 people.
1 – Does not include regional parkland available at Box Springs Regional Park.

Table 5.13-7 identifies new planned parks. The planned parks remain static throughout the three alternatives.

TABLE 5.13-7
PLANNED PARKS

Year	Site	Acres
2005	Rancho Verde Equestrian Staging Area, SEC or Lasselle St. and Kentucky Derby Dr.	1.45
2005	Ranch Verde Park, NEC of Lasselle St. and Cremello Way, on the California Aqueduct	3.00
2005	Lasselle Sports Park PA 4C	12.00
		0
NA	Festival Project, Ironwood and Davis St	12.90
NA	Hidden Springs, Sycamore Canyon and Hidden Springs Rd	17.00
NA	Cactus Corridor PA 5, Brodiaea and Redlands	10.00
NA	Cactus Corridor PA 8, Brodiaea between Sinclair and Theodore	8.00
NA	Elder Retention Basin, Elder Ave	10.00
NA	Morrison Park Extension, Cottonwood Ave and Morrison	9.00
NA	California Aqueduct Linear Park, between Indian Avenue and Perris Blvd. at Gentian Ave.	5.50
		0
NA	Rainbow Ridge School Park, Iris east of Indian	10.00
	Moreno Valley Field Station Specific Plan	0
NA	PA 3 next to elementary school	5.00
NA	PA 16 next to elementary school	5.00
NA	PA 10 next to middle and high school	15.20
NA	PA 19 community park, JFK and Nason St.	25.90
	Moreno Highlands Specific Plan	0
NA	PA 58 Cottonwood Ave and Redlands Blvd	8.00
NA	PA 59 Cottonwood Ave and Theodore St	39.00
NA	PA 60 Alessandro Blvd and Village Center Blvd	29.00
NA	PA 61 Alessandro Blvd west of Cracaea Ave	22.00
NA	PA 62 south of Fir Ave, west of Gilman Springs Rd	27.00
Total		274.95

With only the construction of the currently planned parks identified in **Table 5.13-7**, the existing shortfall of parkland would be improved for Alternative 1 and worsened with Alternatives 2 and 3. With the decreased parkland ratios for Alternatives 2 and 3, new development may increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, resulting in a significant project level impact.

However, State law allows cities to impose parkland dedication and/or in-lieu fees on new development equal to three acres of parkland per 1,000 residents. Therefore, although specific parks may not be planned at this time, new development allowed under the general plan will be required to provide parkland or fees equal to three acres per

1,000 residents. Because the City imposes this parkland requirement on all new developments, the existing parkland deficiency would not be worsened under any of the alternatives, and no significant parks and recreation impact would occur.

The specific environmental impact of expanding parks and recreational facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as parks, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR. Additionally, future parks and recreational development will undergo project-specific environmental review per CEQA.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new parks and recreational facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. City of Moreno Valley, *Master Plan of Trails Map,* n.d.
2. *Moreno Valley Recreation Guide & City Newsline, Web Edition*, Summer 2003.
3. DMG-Maximus, City of Moreno Valley Development Impact Fee Study, 1999
4. City of Moreno Valley, Department of Parks and Recreation, 2005

WATER SERVICE

ENVIRONMENTAL SETTING

The City of Moreno Valley is served by two water purveyors: Eastern Municipal Water District, and the Box Springs Mutual Water Company. Eastern Municipal Water District is the primary water purveyor, serving approximately 85 percent of the planning area. The Box Springs Mutual Water Company is the water purveyor for the area that lies between Old Highway 215 and Elsworth Street and between Alessandro Boulevard and the north side of Eucalyptus Avenue.

Most of the City's water is imported via the California Aqueduct from northern and central California. This water is managed by the Metropolitan Water District of Southern California (MWDSC). It is MWDSC's policy to provide its service area with adequate

supplies of water to meet expanding and increasing needs in the years ahead. MWDSC currently maintains that successful implementation of its Integrated Resources Plan (IRP) will provide sufficient water to supply all projected imported water demands for the next 20 years. When additional water is required to meet the water district's increasing needs for domestic, industrial, and municipal water, MWDSC will be prepared to deliver such supplies.

The Metropolitan Water District recently constructed a major reservoir, the Diamond Valley Lake, in the Domenigoni Valley area south of Hemet. The reservoir, intended to hold about 800,000 acre-feet of water, began filling in November of 1999. The water in Diamond Valley Lake will improve the reliability of the water supply. It will store water that is available during wet years for use during periods of drought.

A secondary source of imported water is available to the City from the Colorado River Aqueduct. However, the long-term viability of this water source is questionable given California's historical overdraft of the Colorado River. In addition to imported water, groundwater is also used. Portions of the Perris Basin and the San Jacinto Basin (hydrological groundwater basins) are located beneath the City.

According to EMWD, water demand in the Moreno Valley area has ranged from 22,000 acre feet per year (afy) to 25,000 afy. Development in the planning area is adequately served by existing EMWD infrastructure.

Most of the Box Springs Mutual Water Company distribution system facilities are undersized, aged, and deteriorated, which limits its ability to deliver adequate water flow for new development. Approximately 75 percent of water supplied by the Box Springs Mutual Water Company is groundwater. The remaining supply consists of imported water purchased from the Western Municipal Water District.

Existing Regulations

Development within the service area of the Box Springs Water Company is severely restricted because the existing distribution system cannot provide sufficient flow to satisfy the requirements of the Uniform Fire Code. New development cannot not take place within the Box Springs Mutual Water Company service area until adequate water flow is made available.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in the demand for water that exceeds the capacity of the existing entitlements and resources; or*

- *Require or results in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

ENVIRONMENTAL IMPACT

Water Supply

EMWD estimates that each of the three General Plan Land Use Alternatives will generate approximately the same water demand, ranging from 40,375 afy to 42,187 afy. Build-out according to each of the alternatives will increase existing domestic water demand by approximately 85 percent. **Table 5.13-8** displays details of the water demand estimates derived from a summary of the proposed land use alternatives provided to EMWD.

TABLE 5.13-8
ESTIMATED WATER DEMAND TABLE

Land Use	Factor (Acres/ Units)	Alternative 1		Alternative 2		Alternative 3	
		Quantity	Demand	Quantity	Demand	Quantity	Demand
Single Family	0.5	61,758	30,879	62,922	31,461	63,004	31,502
Multifamily	0.25	14,662	3,666	20,402	5,101	19,724	4,931
Commercial	3.6	1,209	2,176	993	1,788	967	1,741
Industrial Uses	1.25	919	1,149	1,065	1,332	927	1,159
Parkland	2.4	1,044	2,506	1,044	2,506	1,044	2,506
Open Space	0	3,927	-	3,922	-	3,922	-
Total Demand			40,375 afy		42,187 afy		41,839 afy

Source: EMWD, 2003.
Notes: 1. Parkland demand estimates are based upon the assumption that 60% of the acreage is irrigated at a duty of 4 feet per acre per year.
2. Open space is considered non-irrigated.
3. Parkland acreage includes box springs regional park.
5. afy = acre feet per year.

Future additional water demand will be met with local groundwater and imported water provided by the Metropolitan Water District of Southern California (MWDSC). The ability of MWDSC to meet projected water demands is documented in MWDSC's Integrated Resources Plan, Regional Urban Water Management Plan and the March 25, 2003, Report on Metropolitan's Water Supplies. These plans are based upon demand estimates submitted by member agencies; therefore, the City of Moreno Valley's projected water demand is included in MWD's regional water demand estimate. EMWD works closely with MWDSC and member agencies to ensure that the Integrated Resources Plan (IRP) will be fully implemented. According to EMWD, existing water supply should be considered adequate to meet projected water demands in the planning area (EMWD Year 2000 Urban Water Management Plan). The impact to water supply is less than significant.

EMWD has several programs in place to conserve water. For example, prior to issuance of landscape irrigation meters, new public and private developments must install landscaping and irrigation systems that operate at high levels of water use efficiency. In addition, increasing amounts of water reclaimed from sewage treatment plants is being used for landscape irrigation and agriculture. EMWD is also recharging groundwater basins and desalinating saline groundwater to protect and increase the supply of water.

Moreno Valley General Plan

Conservation Element Program 7-3, states that the City will maintain a close working relationship Eastern Municipal Water District (EMWD) to ensure that it plans for and is aware of the opportunities to use reclaimed water in Moreno Valley. Additionally, Conservation Element Program 7-4 directs the City to provide guidelines for preferred planting schemes and specific species to encourage aesthetically pleasing landscape statements that minimize water use. Policy 7.3.1 requires water conserving landscaping and irrigation systems. Policy 7.3.2 encourages the use of reclaimed water and other legally acceptable sources of irrigation water.

Water Infrastructure

Implementation of any of the General Plan Land Use Alternatives will result in new development that will require additional domestic water service. This increase in development is expected to result in incremental increased demand for services that exceeds the capabilities of existing infrastructure serving the planning area. These improvements would include, but not be limited to:

- Construction of major transmission and distribution pipelines;
- Construction of new storage reservoirs; and/or
- Expansion of existing and construction of new pumping stations.

The water system improvements that would be needed would not differ substantially between the three General Plan alternatives. Eastern Municipal Water District prepared a Water Facilities Master Plan in 2003 describing water facilities to be constructed through 2025. The Master Plan calls for a new water storage tank in the hills north of Kalmia between Perris Boulevard and Nason Street, another on Moreno Peak, north of Cottonwood Avenue and west of Moreno Beach Drive and a third new tank in the hills north of the city limits, west of Redlands Boulevard. Build out of the city would require additional storage tanks, including several in the hills along the eastern edge of the planning area.

The specific environmental impact of expanding water facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as pipelines and reservoirs, may result in potentially significant

environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

Construction of new water tanks has the greatest potential to create environmental effects. The areas around the tanks are designed to safely convey flows in the event of tank rupture. As such, flood hazards are minimal. The primary potential effects would involve aesthetics and biological resources because the tanks are typically located in hillside areas. Water tanks create visual effects, but the impact is less than significant.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new water facilities.

IMPACT AFTER MITIGATION

Less than significant**.**

NOTES AND REFERENCES

1. Michael Garner, Resource Development Administrator, Eastern Municipal Water District. Letter to Rick Brady, P&D Consultants, 7/30/03.

2. Henry Johnson, Superintendent, Box Springs Mutual Water Company. Letter to Rick Brady, P&D Consultants, 8/7/03.

3. Eastern Municipal Water District, "Year 2000 Urban Water Management Plan"

4. Metropolitan Water District, "Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability," March 25, 2003

5. Eastern Municipal Water District, "Water Facilities Master Plan," 2003

SEWER SERVICE

ENVIRONMENTAL SETTING

Wastewater service in Moreno Valley is provided by the Eastern Municipal Water District (EMWD), which serves most of the City and surrounding areas, and the Edgemont Community Services District, which provides service to a small area in southwestern Moreno Valley. As of the year 2003, sewer lines do not exist within most of the eastern side of Moreno Valley.

EMWD operates over 356 miles of sewer mains (12" and above) and six sewage lift stations to provide wastewater collection services within the planning area. All wastewater is collected and conveyed to the Moreno Valley Regional Water Reclamation Facility (MVRWRF) located in the southwestern portion of the City and has a capacity to treat 16 million gallons of wastewater per day (mgd) and a capacity to expand to 41 mgd. The utilization in the year 2002 was approximately 11 mgd.

Sewer services for the southwestern Moreno Valley is provided by the Edgemont Community Services District. The District provides wastewater treatment under contract with the City of Riverside. According to the District, the pipes that transmit sewage to the City of Riverside Water Quality Control Plant are over 50 years old and are in need of repair. Current flow treatment at the facility is approximately 30 mgd.

Sewage treatment facilities must obtain permits from the Regional Water Quality Control Board. The water discharged from the facilities meets the water quality standards established by the Board. Some of the treated water is recycled for landscaping and agricultural uses.

Moreno Valley General Plan

General Plan Policy 2.12.1 requires that adequate septic or sewer service capacity will be available in a timely manner prior to approval of any development application. Policy 2.13.3 requires each project to provide the infrastructure needed to support that project at the time it is needed. Program 2-3 calls for the City to work with Eastern Municipal Water District and the Edgemont Community Services District and the Regional Water Quality Control Board to prepare a wastewater master plan for southwest Moreno Valley that addresses the need for sewer services and the timing for facility improvements.

Existing Regulations

Discharges from sewage treatment facilities must comply with the water quality standards established by the Regional Water Quality Control Board. Air emissions from sewage treatment facilities must also comply with air quality standards established by the Air Quality Management District.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments; or*

- *Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

ENVIRONMENTAL IMPACT

The three General Plan Land Use Alternatives analyzed in this EIR will generate roughly equivalent amounts of wastewater. Wastewater flow will increase in proportion to the increase in water use. Therefore, wastewater generated within the planning area is expected to increase by up to 85 percent as the planning area approaches build-out. Existing wastewater collection infrastructure (e.g., pipes) operated by EMWD and the Edgemont Community Services District is not adequate to meet the anticipated increase in wastewater generated within the planning area.

The City of Riverside Water Quality Control Plant has a design capacity of 40 mgd and a wet weather capacity of 50 mgd. The Edgemont Community Services District provides wastewater services to a small, mostly developed portion of the planning area. Given the current average daily flow of 30 mgd at the Water Quality Control Plant, development according to either of the Land Use Alternatives within the limited portions of the planning area served by the Edgemont Community Services District will not significantly impact the Plant's ability to provide wastewater treatment consistent with Regional Water Quality Control Board standards.

However, without expansion of the Moreno Valley Water Reclamation Facility (MVRWRF), development according to any of the three General Plan Land Use Alternatives would exceed the existing capacity of the facility. Necessary improvements to the MVRWRF resulting from implementation of any of the three General Plan Alternatives would include, but not be limited to:

- Construction of new and expansion of existing (paralleling) transmission sewers;
- Construction of new and expansion of existing lift stations; and/or
- Expansion of the MVRWRF.

Eastern Municipal Water District has prepared a wastewater facilities master plan for its service area and levies connection charges on new development to finance the construction of the necessary facilities. Most of the facilities consist of pipelines that are buried under area roadways. As such, the environmental impacts of constructing sewer pipelines would be minimal.

Expansion of the Moreno Valley Water Reclamation Facility is planned in and around the northern portion of the existing facility. It is a highly disturbed site that substantially consists of structures, pavement and bare soil. Discharges from the expanded facility must comply with the water quality regulations established by the Regional Water Quality Control Board. Similarly, air emissions must also comply with Air Quality Management District regulations. Therefore, expansion of the facility does not have the potential to cause a significant effect on the environment.

The specific environmental impact of expanding pipelines and lift stations cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as pipelines and lift stations, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new sewer facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. Michael Garner, Resource Development Administrator, Eastern Municipal Water District. Letter to Rick Brady, P&D Consultants, 7/30/03.

FLOOD CONTROL SYSTEM

ENVIRONMENTAL SETTING

Regional flood control planning and facilities are under the jurisdiction of the Riverside County Flood Control and Water Conservation District (RCFCWCD). The City of

Moreno Valley, however, has the responsibility for design, construction, and maintenance of local drainage facilities. Road curb and gutter and roadside ditches supplement the flood control system.

Several portions of the planning area are subject to a 100-year flood, meaning a flood with a one percent chance of occurring in any given year. The Moreno Valley area has experienced serious flooding problems in the past and a drainage system is required to convey storm runoff safely through the area. The flood prone areas are depicted in **Figure 5.5-2** in Section *5.5 Hazards* of this EIR.

RCFCWCD prepared five "Master Drainage Plans" for the planning area. The master plans call for a system of open channels and underground storm drains, which in conjunction with streets, will allow for the safe passage of storm flows through developed areas.

No master drainage plan has been completed for the area that lies generally east of Theodore Street. Development in this area should be coordinated with RCFCWCD.

Moreno Valley General Plan

General Plan Conservation Element Policy 7.4.4 calls for preservation of drainage courses in a natural state when retaining natural habitat does not threaten public safety.

Existing Laws and Regulations

Flood control improvements in stream channels require permits from the California Department of Fish and Game and the Army Corps of Engineers. Such permits normally include conditions for the mitigation of impacts to biological resources. A Section 401 Water Quality Certification from the State Water Resources Control Board may also be required for flood control improvements in stream channels.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

ENVIRONMENTAL IMPACT

Implementation any of the proposed General Plan Alternatives will result in increased development and additional demand for flood control and drainage services. The alternatives would require flood control and drainage systems that are roughly equivalent. The specific environmental impact of expanding flood control facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as flood controls, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

However, development and operation of storm drains would result in removal or disturbance of plants and animals that inhabit stream channels. This impact on biological resources is discussed in Section 5.9 of this environmental impact report. The impact on biological resources is potentially significant.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new flood control facilities. See Section 5.9 of this report concerning mitigation for impacts on biological resources.

IMPACT AFTER MITIGATION

Less than significant, except for biological impacts. See Section 5.9 of this report regarding biological resources. Implementation of the mitigation measures discussed in Section 5.9 will reduce impacts related to biological resources to below a level of significance.

NOTES AND REFERENCES

None.

ENERGY

ENVIRONMENTAL SETTING

Electrical service is currently provided to the planning area by Southern California Edison and natural gas service is provided by the Southern California Gas Company. Moreno Valley formed a municipal utility that will deliver electricity to future customers

in developing portions of the City beginning in 2004. Electricity that is provided throughout California, is generated by numerous power plants that are located within and outside the State.

Electrical Facilities

Electricity is delivered to the planning area is received at both the Maxwell Substation located at Ironwood Avenue and Heacock Street, the Alessandro Substation located near John F. Kennedy Boulevard and Kitching Street, and the Bunker Substation northeast of the intersection of Ironwood Avenue and Pettit Street. SCE's 115 KV transmission lines bring power into these substations, where it is stepped down to 33 KV for distribution to its customers through a local service network emanating from the two substations.

Currently there are several major 115 KV transmission lines within the planning area. These transmission lines have rights-of-way of varying widths between 20 to 50 feet with most of them being 30 feet in width. In addition to the major transmission lines, there is also an extensive local service network of overhead and underground service lines. These service lines carry electricity from the substations to each SCE customer. There are no existing local electrical generation facilities.

Table 5.13-9 identifies monthly average peak loads for electricity in the State of California between 1998 and 2002, based on various assumptions of weather conditions and economic and demographic growth in a California Independent System Operator (ISO) Control Area, which comprises the bulk of California's transmission system. The State of California experienced energy shortages during the past few years, with peak demand approaching or reaching daily load supply. During the power shortage, rolling, or rotating blackouts were ordered to avoid widespread blackouts.

Consumers substantially reduced peak demand in response to the shortage and skyrocketing electricity prices. The state streamlined the procedures for constructing new power plants. More than 9,500 megawatts of capacity were added over three years. The electricity market has stabilized . The State has initiated new efficiency standards and programs.

TABLE 5.13-9
HISTORICAL MONTHLY AVERAGE PEAK ELECTRICAL LOADS (MW)
CALIFORNIA ISO CONTROL AREA

Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
1998	N/A	N/A	N/A	N/A	N/A	33,688	43,394	45,811	44,442	31,208	30,846	33,264
1999	31,419	31,532	31,146	31,174	34,698	40,937	45,884	44,005	40,188	36,772	32,860	34,432
2000	32,744	32,394	32,552	33,911	39,808	43,630	45,245	45,494	43,740	35,712	33,338	34,115
2001	32,623	30,683	29,778	31,770	37,808	39,762	41,192	41,419	37,993	38,805	32,138	33,347
2002	33,488	31,854	31,033	31,460	38,165	41,146	42,441	40,803	41,358	35,269	31,770	32,307

Source: CAISO 2003 Summer Assessment, California Independent Operating System, 2003.

Moreno Valley General Plan

General Plan Objective 7.5 and associated policies encourage the efficient use of energy, including passive cooling with landscaping and the use of solar power.

Existing Laws and Regulations

The California Building Code (Title 24) requires new buildings to be constructed in an energy efficient manner. Additions and alterations must also conform to the energy efficiency standards. The standards are updated periodically to incorporate the latest technologies and methods.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in the use of substantial amounts of fuel and/or energy; or*

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered energy transmission facilities, need for new or physically altered energy transmission facilities, the construction of which could cause significant environmental impacts, to maintain acceptable levels of service.*

ENVIRONMENTAL IMPACT

Electricity Supply

Table 5.13-10 depicts the monthly instantaneous peak load forecast for years 2003 through 2013 for the CAISO control area. The table shows that in 2013, monthly peak electrical loads are anticipated to range from a low of approximately 38,000 megawatts (MW) in the late winter months to a high of approximately 52,600 MW in August.

New development within the planning area resulting from the implementation of any of the three General Plan Land Use Alternatives will result in an additional demand for electricity. **Tables 5.13-11, 5.13-12,** and **5.13-13** depict the anticipated increase in demand for electricity. The anticipated demand for electricity varies for each Alternative. The anticipated increase in demand for electricity when compared to existing conditions is approximately 180.1-megawatt hours (mwh) per month for Alternative 1 (77% increase), 209.3 mwh/month for Alternative 2 (88% increase), and 205.9 mwh/month for Alternative 3 (87% increase).

TABLE 5.13-10
MONTHLY INSTANTANEOUS PEAK ELECTRICAL LOAD FORECAST (MW)
CAISO CONTROL AREA 2003-2013

Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2003	32,519	31,529	30,830	32,188	37,386	39,577	41,477	42,894	38,708	35,132	32,037	32,995
2004	34,867	32,786	32,541	33,481	38,338	42,184	43,637	45,794	40,501	35,661	33,843	34,855
2005	35,578	33,472	33,230	34,165	39,040	42,875	44,289	46,477	41,144	36,328	35,524	35,528
2006	36,304	34,173	33,933	34,863	39,756	43,578	44,951	47,171	41,796	37,007	35,218	36,213
2007	37,044	34,888	34,651	35,575	40,485	44,293	45,623	47,875	42,459	37,699	35,927	36,912
2008	37,799	35,618	35,385	36,302	41,227	45,019	46,305	48,589	43,132	38,404	36,649	37,624
2009	38,570	36,363	36,134	37,044	41,982	45,757	46,998	49,314	43,816	39,123	37,386	38,350
2010	39,356	37,124	36,898	37,801	42,752	46,507	47,700	50,049	44,510	39,854	38,138	39,090
2011	40,158	37,900	37,679	38,574	43,535	47,270	48,413	50,796	45,216	40,600	38,905	39,845
2012	40,977	38,694	38,477	39,362	44,333	48,044	49,137	51,554	45,933	41,359	39,688	40,614
2013	41,813	39,483	39,261	40,165	45,237	49,024	50,139	52,605	46,870	42,202	40,497	41,442

Source: CAISO 2003 Summer Assessment, California Independent Operating System, 2003.

TABLE 5.13-11
ESTIMATED CURRENT AND FUTURE ELECTRICITY DEMAND
ALTERNATIVE 1

Land Use	Usage Factor (kwh/month)	Existing du/ksf	Estimated Existing Annual Usage (mwh/month)	Increase in du/ksf	Estimated Usage at Buildout (mwh/month)	Change in Usage (mwh/month)
Single-Family Residential	5,700/du	37,116 dus	211.6	24,642 dus	352.1	140.5
Multi-Family Residential	3,940/du	4,929 dus	19.4	9,733 dus	57.7	38.3
Commercial	20/ksf	9,234 ksf	0.2	20,443 ksf	0.6	0.4
Office/Business Park	17/ksf	3,562 ksf	0.1	57,982 ksf	1.0	0.9
Public	8/ksf	7,998 ksf	0.1	1,217 ksf	0.1	0.0
TOTAL			**231.4 mwh**		**411.5 mwh**	**180.1 mwh**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
kwh = kilowatt hours, mwh = megawatt hours, du = dwelling unit, sf = square feet, ksf = thousand square feet

Although the State of California recently experienced energy shortages, the increased electricity demand will not place a significant increase in demand upon the State electricity supply system. Buildout of each alternative will use approximately 0.5 percent of the total electrical use in the California ISO control area (using the lowest monthly estimated demand for 2013). However, this assumes buildout of each General Plan Alternative compared to the available data for 2013. While it is unknown when buildout of any of the General Plan Alternatives will occur, it can be assumed the planning area will reach buildout well beyond 2013. No significant impact associated with the use of substantial amounts of electricity will occur.

TABLE 5.13-12
ESTIMATED CURRENT AND FUTURE ELECTRICITY DEMAND
ALTERNATIVE 2

Land Use	Usage Factor (kwh/month/ du or ksf)	Existing du/ksf	Estimated Existing Annual Usage (mwh/month)	Increase in du/ksf	Estimated Usage at Buildout (mwh/month)	Change in Usage (mwh/month)
Single-Family Residential	5,700/du	37,116 dus	211.6	25,806 dus	358.7	147.1
Multi-Family Residential	3,940/du	4,929 dus	19.4	15,472 dus	80.4	61.0
Commercial	20/ksf	9,234 ksf	0.2	12,674 ksf	0.4	0.2
Office/Business Park	17/ksf	3,562 ksf	0.1	62,724 ksf	1.1	1.0
Public	8/ksf	7,998 ksf	0.1	1,217 ksf	0.1	0.0
TOTAL			**231.4 mwh**		**440.7 mwh**	**209.3 mwh**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
kwh = kilowatt hours, mwh = megawatt hours, du = dwelling unit, sf = square feet, ksf = thousand square feet

TABLE 5.13-13
ESTIMATED CURRENT AND FUTURE ELECTRICITY DEMAND
ALTERNATIVE 3

Land Use	Usage Factor (kwh/month/ du or ksf)	Existing du/ksf	Estimated Existing Annual Usage (mwh/month)	Increase in du/ksf	Estimated Usage at Buildout (mwh/month)	Change in Usage (mwh/month)
Single-Family Residential	5,700/du	37,116 dus	211.6	25,888 dus	359.2	147.6
Multi-Family Residential	3,940/du	4,929 dus	19.4	14,795 dus	77.7	58.3
Commercial	20/ksf	9,234 ksf	0.2	10,490 ksf	0.4	0.2
Office/Business Park	17/ksf	3,562 ksf	0.1	62,724 ksf	1.1	1.0
Public	8/ksf	7,998 ksf	0.1	1,217 ksf	0.1	0.0
TOTAL			**231.4 mwh**		**438.5 mwh**	**205.9 mwh**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
kwh = kilowatt hours, mwh = megawatt hours, du = dwelling unit, sf = square feet, ksf = thousand square feet

Natural Gas Supply

In addition to increased electricity demand, each General Plan Alternative would result in additional demand for natural gas. **Tables 5.13-14, 5.13-15,** and **5.13-16** depict the anticipated increase in demand for natural gas. Natural gas demand generated by each Alternative would increase in comparison to existing conditions. The increase in natural gas demand is approximately 203.4 million cubic feet (mcf) per month for Alternative 1 (80% increase), 234.3 mcf/month for Alternative 2 (85% increase), and 232.1 mcf/month for Alternative 3 (84% increase).

None of the General Plan Alternatives propose uses considered to use excessive amounts of natural gas or waste with respect to natural gas use. No significant impact associated with the use of substantial amounts of natural gas will occur.

TABLE 5.13-14
ESTIMATED CURRENT AND FUTURE NATURAL GAS DEMAND
ALTERNATIVE 1

Land Use	Usage Factor (cf/month)	Existing du/ksf	Estimated Existing Annual Usage (mcf/month)	Increase in du/ksf	Estimated Usage at Buildout (mcf/month)	Change in Usage (mcf/month)
Single-Family Residential	6,665.0/du	37,116 dus	247.4	24,642 dus	411.6	164.2
Multi-Family Residential	4,011.5/du	4,929 dus	19.8	9,733 dus	58.8	39.0
Commercial	2.9/ksf	9,234 ksf	0.0	20,443 ksf	0.1	0.1
Office/Business Park	2.0/ksf	3,562 ksf	0.0	57,982 ksf	0.1	0.1
Public	2.0/ksf	7,998 ksf	0.0	1,217 ksf	0.0	0.0
TOTAL			**267.2 mcf/mo**		**471.6 mcf/mo**	**203.4 mcf/mo**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
cf = cubic feet, du = dwelling unit, sf = square feet, mcf = million cubic feet, ksf = thousand square feet

TABLE 5.13-15
ESTIMATED CURRENT AND FUTURE NATURAL GAS DEMAND
ALTERNATIVE 2

Land Use	Usage Factor (cf/month)	Existing du/ksf	Estimated Existing Annual Usage (mcf/month)	Increase in du/ksf	Estimated Usage at Buildout (mcf/month)	Change in Usage (mcf/month)
Single-Family Residential	6,665.0/du	37,116 dus	247.4	25,806 dus	419.4	172.0
Multi-Family Residential	4,011.5/du	4,929 dus	19.8	15,472 dus	81.9	62.1
Commercial	2.9/ksf	9,234 ksf	0.0	12,674 ksf	0.1	0.1
Office/Business Park	2.0/ksf	3,562 ksf	0.0	62,724 ksf	0.1	0.1
Public	2.0/ksf	7,998 ksf	0.0	1,217 ksf	0.0	0.0
TOTAL			**267.2 mcf/mo**		**501.5 mcf/mo**	**234.3 mcf/mo**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
cf = cubic feet, du = dwelling unit, sf = square feet, mcf = million cubic feet, ksf = thousand square feet

TABLE 5.13-16
ESTIMATED CURRENT AND FUTURE NATURAL GAS DEMAND
ALTERNATIVE 3

Land Use	Usage Factor (cf/month)	Existing du/ksf	Estimated Existing Annual Usage (mcf/month)	Increase in du/ksf	Estimated Usage at Buildout (mcf/month)	Change in Usage (mcf/month)
Single-Family Residential	6,665.0/du	37,116 dus	247.4	25,888 dus	419.9	172.5
Multi-Family Residential	4,011.5/du	4,929 dus	19.8	14,795 dus	79.2	59.4
Commercial	2.9/ksf	9,234 ksf	0.0	10,490 ksf	0.1	0.1
Office/Business Park	2.0/ksf	3,562 ksf	0.0	62,724 ksf	0.1	0.1
Public	2.0/ksf	7,998 ksf	0.0	1,217 ksf	0.0	0.0
TOTAL			**267.2 mcf/mo**		**499.3 mcf/mo**	**232.1 mcf/mo**

Sources: South Coast Air Quality Management District and P&D Consultants.
Notes:
cf = cubic feet, du = dwelling unit, sf = square feet, mcf = million cubic feet, ksf = thousand square feet

Electricity and Natural Gas Infrastructure and Facilities

Implementation of any of the three proposed General Plan Alternatives may require additions and improvements to the facilities that supply new development. Expansion of distribution and transmission lines and related facilities to provide adequate capacity is a necessary consequence of growth and development. In addition to adding new distribution feeders, the range of electric system improvements needed to accommodate growth may include upgrading existing substation and transmission line equipment, expanding existing substations to their ultimate buildout capacity, and building new substations and interconnecting transmission lines. Comparable upgrades or additions needed to accommodate additional load on the gas system could include facilities such as regulator stations, odorizer stations, valve lots, and distribution and transmission lines.

The specific environmental impact of expanding electricity and natural gas facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as electricity and natural gas facilities, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new electrical facilities.

IMPACT AFTER MITIGATION

Less than significant

NOTES AND REFERENCES

1. California Energy Commission, "2003 Integrated Energy Policy Report," November 12, 2003.

SOLID WASTE

ENVIRONMENTAL SETTING

Solid waste generated within the planning area is primarily deposited in the Riverside County Waste Management Department's (RCWMD) Badlands Landfill, located approximately 1.5 miles north of SR-60 near Ironwood Avenue and Theodore Street. However, the City's trash hauler can also use other County landfills in the area such as the Lamb Canyon Landfill and El Sobrante landfill. All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste. Waste Management of Inland Empire currently provides waste pickup in Moreno Valley.

Badlands Landfill: The Badlands landfill encompasses 1,093 acres, of which 150 acres are permitted for landfilling and another 70 acres are permitted for excavation and stockpiling cover material and other ancillary activities. The landfill is currently permitted to receive 4,000 tons per day and has an overall remaining disposal capacity of approximately 9,804,704.62 tons as of January 1, 2003. During the year 2002, the landfill received 469,705.38 tons of solid waste for disposal, an average of 1,520 tons per day. The Badlands Landfill is expected to reach capacity between 2018 and 2020; however, the landfill site has potential for further expansion.

El Sobrante Landfill: The El Sobrante Landfill is located east of Interstate 15 and Temescal Canyon Road to the South of the City of Corona and Cajalco Road at 10910 Dawson Canyon Road. The existing landfill encompasses 1,322 acres, of which 645 acres are permitted for landfilling. The El Sobrante Landfill is currently permitted to receive 10,000 tons of refuse per day (tpd), of which 4,000 tpd is reserved for refuse generated within Riverside County. The landfill has a total capacity of approximately 109 million tons or 184.93 million cubic yards, of which approximately 68 million tons are reserved for in-County waste. As of June 30, 2003, the landfills remaining capacity is approximately 98 million tons. From July 1, 2002 through June 30, 2003, the El Sobrante Landfill accepted a total of approximately 2.125 million tons of waste, of which 800,000 were generated within Riverside County. The landfill is expected to continue receiving solid waste for approximately 30 years.

Lamb Canyon Landfill: The Lamb Canyon Landfill is located between the City of Beaumont and the City of San Jacinto at 16411 Lamb Canyon Road (State Route 79). The landfill encompasses approximately 1,109 acres, of which 138 acres are permitted landfill acreage. The landfill is currently permitted to receive 1,900 tpd for disposal and has a remaining disposal capacity of approximately 5,235,043 tons, as of January 1, 2003. During the year 2002, the landfill received 178,509.18 tons of solid waste, averaging 560 tons per day. A proposal to expand the Lamb Canyon Landfill footprint to encompass and additional 144.6 acres and increase its maximum daily disposal capacity to 3,000 tons is currently under review. The expansion proposal would result in a total landfill capacity of 16.2 million tons, which would extend the use of facility to approximately 2023. The site has further potential for expansion beyond 2023.

The RCWMD operates a Hazardous Waste Program that provides pickup of motor oil, antifreeze, car batteries, latex paint, gasoline, solvents, aerosol cans, cleaners, household batteries, pool and spa chemicals, oil based paint, pesticides and fertilizers at no cost to residents.

The California Integrated Waste Management Act of 1989 (Assembly Bill 939) revised the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 included a number of components including those related to the Waste Management Board and Waste Management Plans; permitting and enforcement; financing and a requirement for reducing solid waste by 50 percent after the year 2000.

The City Council adopted a "Source Reduction and Recycling Element" in 1992, describing how Moreno Valley plans to meet the goals mandated by AB939. The element includes strategies to address various components of the solid waste challenge, including the character of the waste stream, source reduction, recycling, composting, special waste (e.g. construction debris, auto bodies, medical waste, tires and appliances), education and public information, disposal facility capacity, funding and integration of the various components.

Currently, Moreno Valley works in concert with the local waste hauling company to meet its waste diversion requirements. Residential customers place recyclable materials at the curb for collection by the waste hauler, Waste Management of the Inland Empire. The waste hauler separates and markets the recyclable materials, including cardboard, paper, tin/metal, aluminum cans, plastics and glass. The City is currently in compliance with AB 939, having diverted 50 percent of its solid waste from local landfills in 2002.

Moreno Valley General Plan

General Plan Policy 7.8.1 encourages recycling projects by individuals, organizations, businesses and government agencies.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purpose of this EIR, a significant impact would occur if the proposed project:

- *Is served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs; or*

- *Does not comply with federal, state, and local statutes and regulations related to solid waste.*

ENVIRONMENTAL IMPACT

Implementation of the General Plan will result in new residential and non-residential development. This new development will generate an increased demand for solid waste collection and disposal capacity. As shown in **Tables 5.13-17, 5.13-18,** and **5.13-19** it is estimated that the generation of solid waste is anticipated to increase by about 396 tons per day for Alternative 1, 413 tons per day for Alternative 2, and 405 tons per day for Alternative 3.

TABLE 5.13-17
ESTIMATED CURRENT AND FUTURE SOLID WASTE GENERATION
ALTERNATIVE 1

Land Use	Generation Factor (lbs/day)	Estimated Existing Development	Increase in Development	Estimated Increase in Solid Waste Generation at buildout (tons/day)
Single-Family Residential	10/du	37,116 dus	24, 642 dus	123.2
Multi-Family Residential	7/du	4,929 dus	9,733 dus	34.1
Commercial	6/ksf	9,234 ksf	20,443 ksf	61.3
Office/Business Park	6/ksf	3,562 ksf	57,982 ksf	173.9
Public	6/ksf	7,998 ksf	1,217 ksf	3.7
TOTAL				**396.2 tons/day**

Source: Modified by P&D Consultants from Orange County Sanitation Department
Notes: du = dwelling units; ksf = thousand square feet; lbs = pounds

TABLE 5.13-18
ESTIMATED CURRENT AND FUTURE SOLID WASTE GENERATION
ALTERNATIVE 2

Land Use	Generation Factor (lbs/day)	Estimated Existing Development	Increase in Development	Estimated Increase in Solid Waste Generation at buildout (tons/day)
Single-Family Residential	10/du	37,116 dus	25,806 dus	129.0
Multi-Family Residential	7/du	4,929 dus	15,472 dus	54.2
Commercial	6/ksf	9,234 ksf	12,674 ksf	38.0
Office/Business Park	6/ksf	3,562 ksf	62,724 ksf	188.2
Public	6/ksf	7,998 ksf	1,217 ksf	3.7
TOTAL				**413.1 tons/day**

Source: Modified by P&D Consultants from Orange County Sanitation Department
Notes: du = dwelling units; ksf = thousand square feet; lbs = pounds

TABLE 5.13-19
ESTIMATED CURRENT AND FUTURE SOLID WASTE GENERATION
ALTERNATIVE 3

Land Use	Generation Factor (lbs/day)	Estimated Existing Development	Increase in Development	Estimated Increase in Solid Waste Generation at buildout (tons/day)
Single-Family Residential	10/du	37,116 dus	25,888 dus	129.4
Multi-Family Residential	7/du	4,929 dus	14,795 dus	51.8
Commercial	6/ksf	9,234 ksf	10,490 ksf	31.5
Office/Business Park	6/ksf	3,562 ksf	62,724 ksf	188.2
Public	6/ksf	7,998 ksf	1,217 ksf	3.7
TOTAL				**404.6 tons/day**

Source: Modified by P&D Consultants from Orange County Sanitation Department
Notes: du = dwelling units; ksf = thousand square feet; lbs = pounds

Currently, the planning area is served by Waste Management of Inland Empire, a City of Moreno Valley solid waste franchise hauler. With the growth in demand for collection services resulting from development under any one of the General Plan Alternatives, Waste Management's existing capacity may be exceeded; however, this impact is less than significant as it can be expected that existing waste haulers would either increase their services to meet the additional demand, or services would be contracted to an additional hauler as needed.

According to the Riverside County Waste Management District, although implementation of any of the three General Plan Alternatives will exceed the existing permitted capacity of its facilities, there is considerable expansion potential on these sites.

The specific environmental impact of expanding solid waste facilities cannot be determined at this General Plan level of analysis; however, development and operation of public facilities, such as solid waste facilities, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of this EIR.

MITIGATION MEASURES

Mitigation measures in other sections of this EIR address the potential environmental impacts of constructing or expanding new solid waste facilities.

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. Sung Key Ma, Planner, Riverside County Waste Management Department. Letter to Rick Brady, P&D Consultants, 7/14/03.

2. Sung Key Ma, Planner, Riverside County Waste Management Department. Email message to Eliza Echevarria, Senior Management Analyst, City of Moreno Valley, 11/24/03.

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5.14 MINERAL RESOURCES

ENVIRONMENTAL SETTING

The California Surface and Mining Reclamation Act (SMARA) of 1975 requires local governments to address mineral recovery activities through the direct regulation of mining operations, and through planning policies that balance the mineral resources needs of the state with the maintenance of environmental quality. SMARA requires cities and counties to adopt ordinances conforming to state policy for the review and approval of reclamation plans and permits to conduct surface mining operations.

In accordance with classification guidelines established by the SMARA, the State Geologist is required to classify, on the basis solely of geological factors and without regard to existing land use and ownership, the following:

- Areas containing little or no mineral deposits;
- Areas containing significant mineral deposits; or
- Areas containing mineral deposits, the significance of which requires further evaluation.

The California Department of Conservation, Division of Mines and Geology has not identified significant mineral resources within the planning area.[1] The County of Riverside's General Plan identifies sand and gravel resources along Gilman Springs Road in the City's sphere of influence and a rock products resource in the center of the City, north of Highway 60. An existing sand and gravel quarry located at the corner of Gilman Springs Road and Jack Rabbit Trail is closed and is no longer operating.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or,*

- *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.*

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2, and 3

Implementation of the proposed General Plan Land Use Alternatives 1, 2, or 3 would result in the development of urban uses throughout the majority of the planning area, including the area along Highway 60 and Gilman Springs Road. No regionally or statewide significant mineral resources are located within the planning area. Implementation of the proposed General Plan alternatives would not result in the loss of availability of a significant mineral resource, and no significant impact to mineral resources would occur.

Both the City and the County have adopted SMARA regulations governing the extraction of mineral resources and eventual reclamation of mining operations. Continued implementation of these regulations will allow for the mining of locally-important mineral resources, as identified in the County of Riverside General Plan. As a result, no significant impact to mineral resources will occur.

MITIGATION MEASURES

No mitigation measure is proposed.

IMPACT AFTER MITIGATION

Not significant.

NOTES AND REFERENCES

1. Personal Conversation with Russ Miller at the California Department of Conservation, Los Angeles Office (3/20/01).

5.2 TRAFFIC/CIRCULATION

The information contained in this section is summarized from the *City of Moreno Valley General Plan Traffic Study* (Traffic Study), prepared by Urban Crossroads, Inc. (June 30, 2004, revised). This study is contained in Volume II Appendix B of this EIR.

ENVIRONMENTAL SETTING

Methodology

The daily traffic volume forecasts in the Traffic Study have been prepared using the Moreno Valley Traffic Model (MVTM). The MVTM was developed in accordance with regional consistency requirements and has obtained the required finding of consistency from the Riverside County Transportation Commission. The MVTM is based on the traditional forecasting procedure that includes trips generation, trip distribution and traffic assignment. The model addresses traffic from surrounding communities as well as Moreno Valley.

Level of Service (LOS) Standards

The evaluation criteria used to evaluate traffic impacts is known as Level of Service (LOS). LOS is a qualitative measure that describes operational conditions within a traffic stream, generally in terms of such factors as speed, delay, travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway or intersection being evaluated.

The definitions of level of service for arterial traffic flow are depicted in **Table 5.2-1**, below:

TABLE 5.2-1
LEVEL OF SERVICE (LOS) DESCRIPTIONS

LOS	Traffic Flow Conditions
A	Free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

TABLE 5.2-1
LEVEL OF SERVICE (LOS) DESCRIPTIONS

LOS	Traffic Flow Conditions
C	Stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.
D	High-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.
E	Operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.
F	Level-of-Service F. Forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount, which can traverse the point. Queues form behind such locations. Arrival flow exceeds discharge flow.

Source: 2000 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209)

The existing Circulation Element recognizes that an LOS of C is optimal. However, it also allows peak hour levels of service in the LOS "D" range in certain locations. These locations include areas of high employment concentration, north/south roads in the vicinity of SR-60 or other locations in already developed areas of the City with geometric constraints that prevent LOS "C" from being achieved.

Existing Circulation Plan

The City's currently adopted General Plan Circulation Element contains the existing circulation plan for the City. It also establishes parameters for standard roadway cross-sections.

Figure 5.2-1 depicts the City's currently adopted circulation plan that identifies Moreno Valley's existing system of major roadways, including freeways and arterial streets. There are certain instances where the currently adopted circulation plan does not accurately represent the already constructed roadway system. For example, Day Street south of the SR-60 Freeway is designated as an Arterial roadway on the currently adopted Circulation Plan. The roadway cross-section for an Arterial roadway includes 4 through travel lanes (2 in each direction), with a center median capable of accommodating left turns at intersections with other roadways. Sections of Day Street south of SR-60 have been constructed with as many as 8 through lanes (4 in each

direction). **Figure 5.2-2** presents the Circulation Element roadway cross-sections, incorporating both currently adopted cross-sections and updates for the proposed Circulation Element[1].

Existing Roadway Characteristics

As depicted in **Figure 5.2-1**, the major regional east-west roadway is State Route 60 (SR-60), linking Moreno Valley to both neighboring and outlying communities. Additional regional east-west travel is provided by Box Springs/Ironwood, Sunnymead Boulevard and Alessandro Boulevard, both of which are maintained by the City. Sunnymead Boulevard serves as the traditional commercial corridor of Moreno Valley. Alessandro Boulevard serves as a commercial and industrial corridor at its westerly end. Other major east-west routes within the City are, from north to south, Eucalyptus Avenue, Cottonwood Avenue and Cactus Avenue.

Although immediately to the west of the City, Interstate 215 (I-215) is the primary regional route for north-south travel, linking Moreno Valley to both neighboring and outlying communities. Additional regional north-south routes include Perris Boulevard, Redlands Boulevard and Gilman Springs Road. Other north-south access is provided by Moreno Beach Drive and Pigeon Pass Road/Frederick Street.

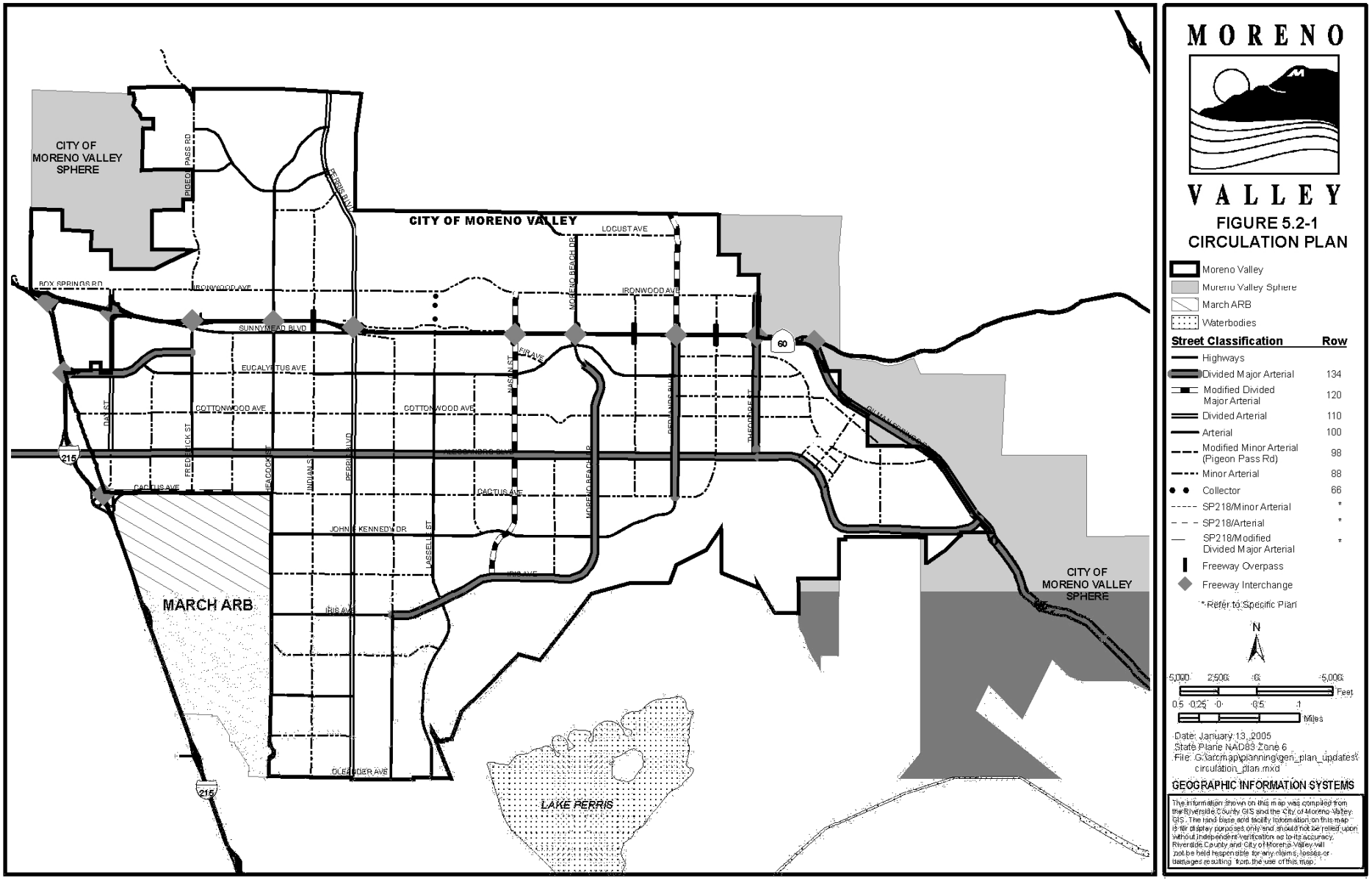
Figure 5.2-3, below, depicts the existing number of through lanes for selected roadways within the City. Existing roadways range from 2-lane undivided roadways to 8-lane divided facilities.

Existing Daily Volume to Capacity (V/C) Ratios

Figure 5.2-4 presents the year 2000 daily traffic volume to capacity (V/C) ratios based upon existing lanes in 2000; and **Figure 5.2-5** presents the year 2000 daily traffic volumes. As depicted in **Figure 5.2-5**, the daily traffic volumes on the City's arterial system range from very low volumes to volumes that exceed 30,000 vehicles per day (VPD). Frederick Street, Heacock Street, and Perris Boulevard are north-south arterials that carry daily traffic volumes approaching or exceeding 30,000 VPD in the vicinity of the SR-60 Freeway. Similarly, Alessandro Boulevard and Cactus Avenue are east-west arterials that carry daily traffic volumes ranging between 25,000 VPD and 30,000 VPD east of the I-215 Freeway.

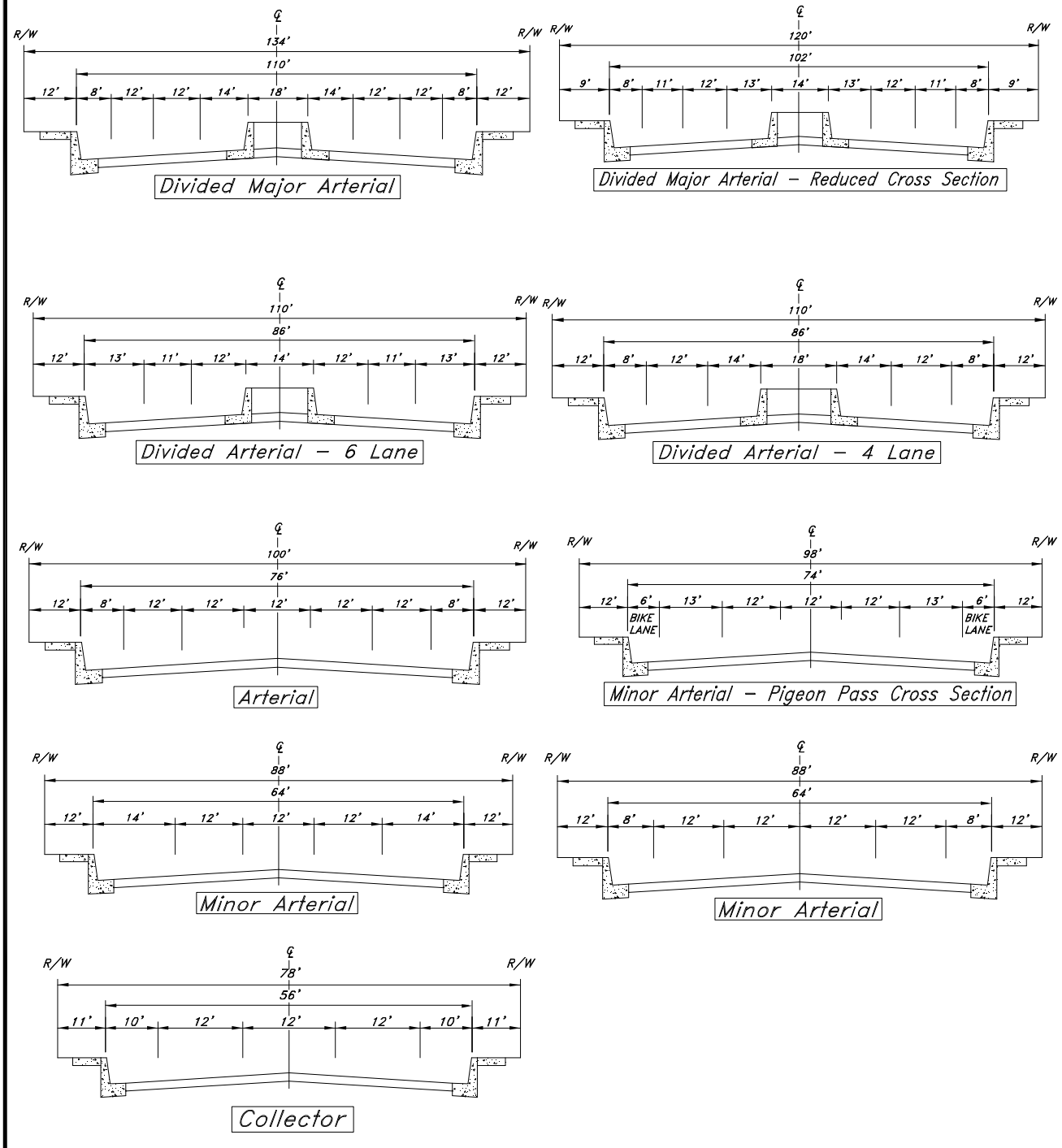
Table 5.2-2 summarizes the roadway segments where the year 2000 daily traffic volumes are near existing daily traffic capacities, while **Table 5.2-3** identifies those roadway segments where the year 2000 daily traffic volumes exceed existing capacities. A roadway segment where the V/C ratio exceeds 1.0 is considered deficient; such roadways have traffic volumes that exceed their acceptable LOS of "C" or "D" as established by the existing City Circulation Element. A roadway segment where the V/C ratio exceeds 0.80 is considered near existing design capacity, or nearing deficiency. A total of 14 roadway segments have V/C ratios indicating that they are near to their existing daily traffic capacities. A total of 13 roadway segments have V/C ratios that

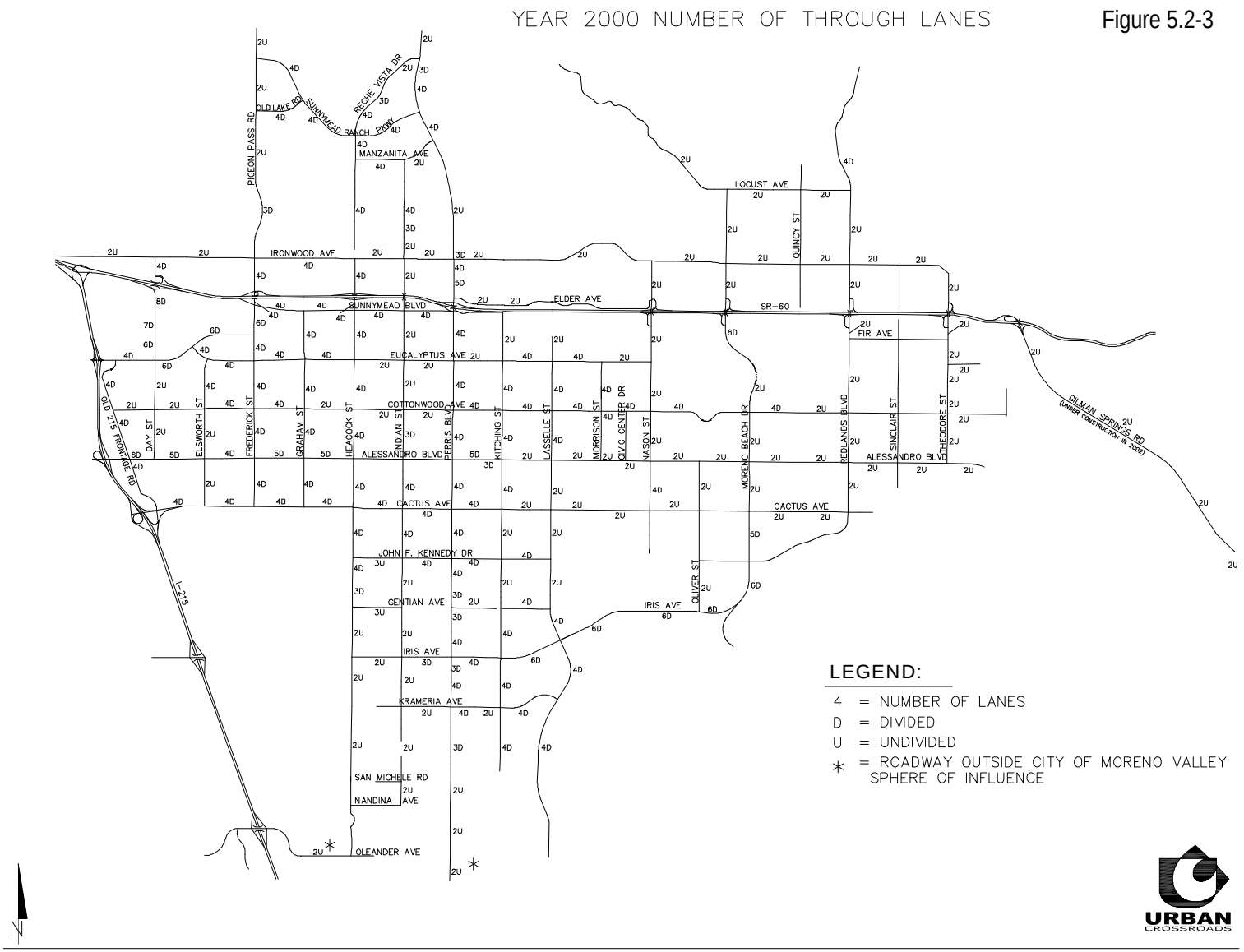
[1] The "Divided Major Arterial – Reduced Cross Section" and the "Divided Arterial – 4 Lane" are the two new roadway cross-sections included in the proposed Circulation Element; the remainder of the roadway cross-sections depicted in Figure 5.2-2 are unchanged from the existing Circulation Element.


MORENO VALLEY
FIGURE 5.2-1
CIRCULATION PLAN
CITY OF MORENO VALLEY SPHERE
CITY OF MORENO VALLEY
MARCH ARB
LAKE PERRIS
CITY OF MORENO VALLEY SPHERE
PIGEON PASS RD
FERRIS BLVD
LOCUST AVE
BOX SPRINGS RD
IRONWOOD AVE
MORENO BEACH DR
SUNNYMEAD BLVD
EUCALYPTUS AVE
COTTONWOOD AVE
MASON ST
FIR AVE
DAY ST
FREDERICK ST
HEACOCK ST
INDIAN ST
PERRIS BLVD
ALESSANDRO BLVD
CACTUS AVE
JOHN F KENNEDY DR
LASSELL ST
IRIS AVE
OLEANDER AVE
HUBERT BEACH DR
THEODORE ST
GILMAN SPRINGS RD
60
215
Moreno Valley
Moreno Valley Sphere
March ARB
Waterbodies
Street Classification
Row
Highways
Divided Major Arterial 134
Modified Divided Major Arterial 120
Divided Arterial 110
Arterial 100
Modified Minor Arterial (Pigeon Pass Rd) 98
Minor Arterial 88
Collector 66
SP218/Minor Arterial *
SP218/Arterial *
SP218/Modified Divided Major Arterial *
Freeway Overpass
Freeway Interchange
* Refer to Specific Plan
N
5,000 2,500 0 5,000 Feet
0.5 0.25 0 0.5 1 Miles
Date: January 13, 2005
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\circulation_plan.mxd
GEOGRAPHIC INFORMATION SYSTEMS
The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

PROPOSED CITY OF MORENO VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

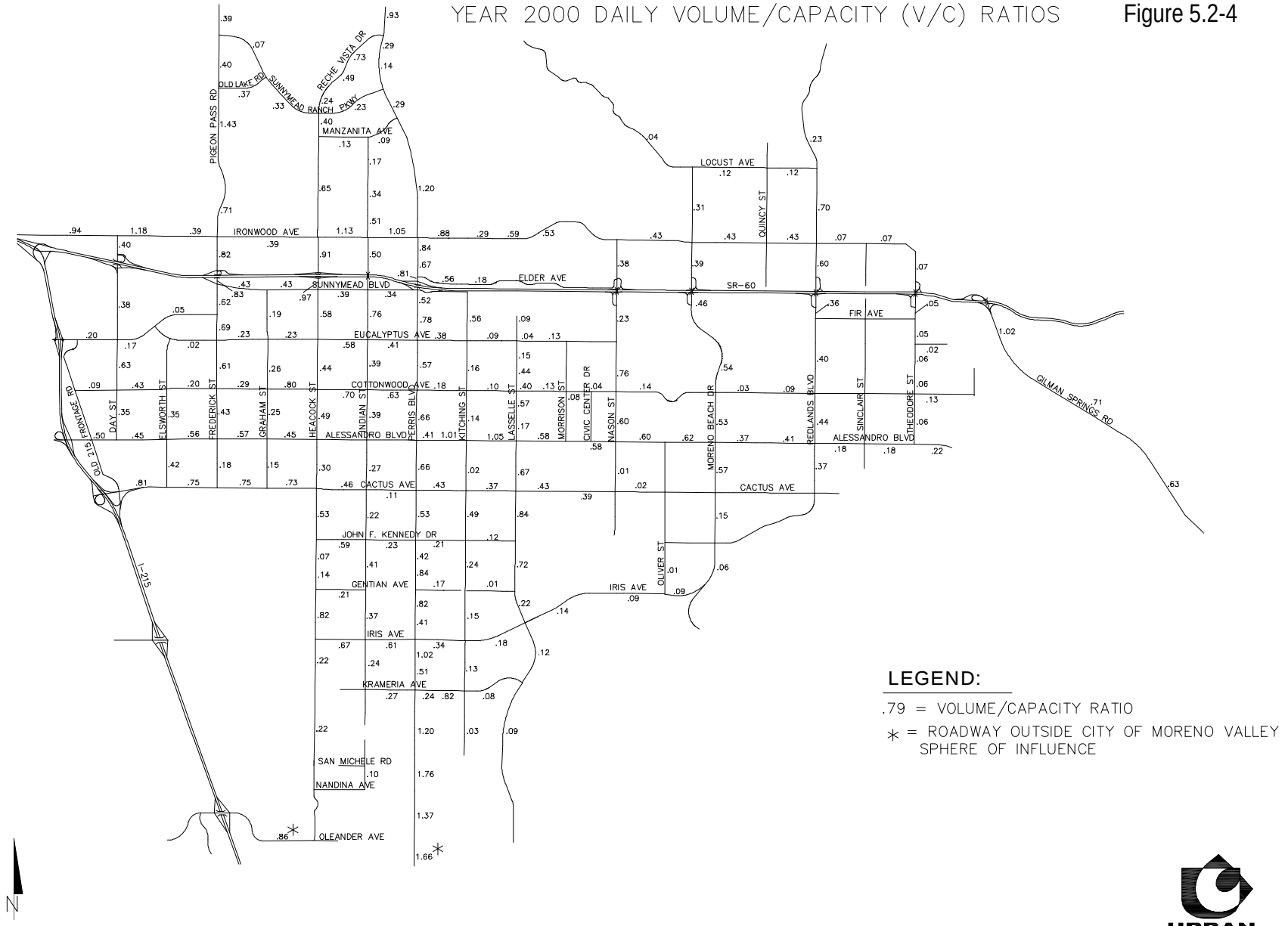
Figure 5.2-2




YEAR 2000 NUMBER OF THROUGH LANES
Figure 5.2-3
OLD LAKE RD
SUNNYMEAD RANCH PKWY
RICHE VISTA DR
PIGEON PASS RD
MANZANITA AVE
IRONWOOD AVE
SUNNYMEAD BLVD
ELDER AVE
LOCUST AVE
QUINCY ST
SR-60
FIR AVE
EUCALYPTUS AVE
COTTONWOOD AVE
ALESSANDRO BLVD
CACTUS AVE
JOHN F. KENNEDY DR
GENTIAN AVE
IRIS AVE
KRAMERIA AVE
SAN MICHELE RD
NANDINA AVE
OLEANDER AVE
OLD 215 FRONTAGE RD
I-215
DAY ST
ELSWORTH ST
FREDERICK ST
GRAHAM ST
HEACOCK ST
INDIAN ST
PERRIS BLVD
KITCHING ST
LASSELLE ST
MORRISON ST
CIVIC CENTER DR
NASON ST
MORENO BEACH DR
REDLANDS BLVD
SINCLAIR ST
THEODORE ST
OLIVER ST
GILMAN SPRINGS RD
(UNDER CONSTRUCTION IN 2007)
LEGEND:
4 = NUMBER OF LANES
D = DIVIDED
U = UNDIVIDED
* = ROADWAY OUTSIDE CITY OF MORENO VALLEY SPHERE OF INFLUENCE
N
URBAN CROSSROADS

YEAR 2000 DAILY VOLUME/CAPACITY (V/C) RATIOS

Figure 5.2-4



LEGEND:

.79 = VOLUME/CAPACITY RATIO

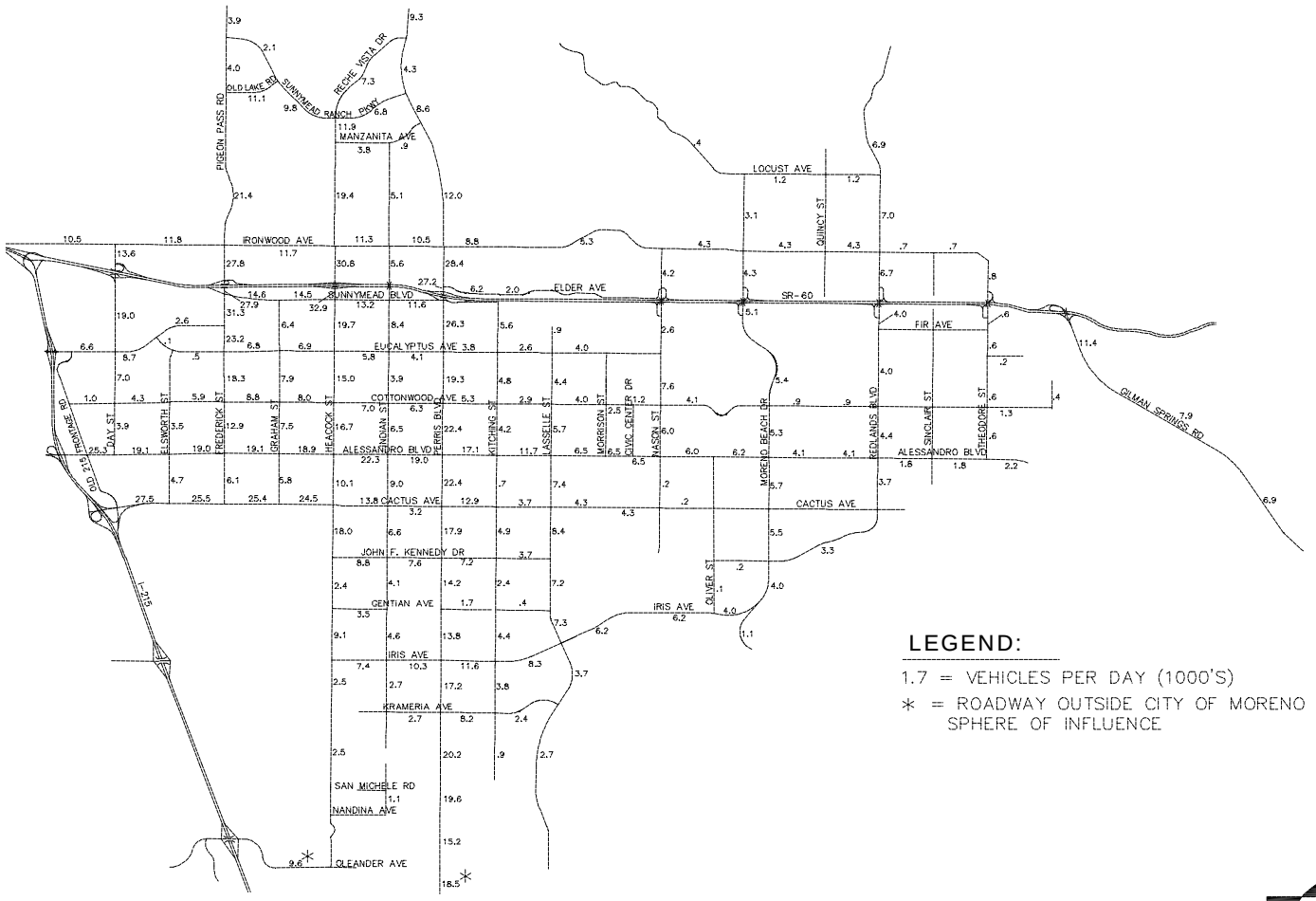
∗ = ROADWAY OUTSIDE CITY OF MORENO VALLEY SPHERE OF INFLUENCE

URBAN CROSSROADS

MORENO VALLEY GENERAL PLAN UPDATE TRAFFIC STUDY, Moreno Valley, California – 00024:05 rev. 04/14/04

YEAR 2000 AVERAGE DAILY TRAFFIC VOLUMES

Figure 5.2-5



URBAN CROSSROADS

MORENO VALLEY GENERAL PLAN UPDATE TRAFFIC STUDY, Moreno Valley, California -- 00024:04 rev. 07/30/02

exceed their existing daily traffic capacities. In many instances, these roadway segments have not been constructed to their planned dimensions and capacities. For example, as shown on **Table 5.2-3**. Perris Boulevard between Mariposa Avenue and Nandina Avenue, which has the highest existing V/C ratio, has not been constructed to its ultimate capacity.

TABLE 5.2-2
YEAR 2000 ROADWAY SEGMENTS
WITH VOLUME TO CAPACITY RATIOS NEAR EXISTING DAILY TRAFFIC CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION[1]	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C" [2]	LOS "D" [2]		
Heacock St.	SR-60 Fwy.	Sunnymead Blvd.	4D		33,750	32,900	0.97
Box Springs Rd.	I-215/SR-60 Fwy.	Day St.	2U		11,125	10,500	0.94
Perris Blvd.	n/o Heacock St.	Heacock St.	2U	10,000		9,300	0.93
Heacock St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	30,800	0.91
Ironwood Ave.	Perris Blvd.	Lasselle St.	2U	10,000		8,800	0.88
Perris Blvd.	JF Kennedy Dr.	Gentian Ave.	3D		16,875	14,200	0.84
Lasselle St.	Cactus Ave.	JF Kennedy Dr.	2U	10,000		8,400	0.84
Frederick St.	SR-60 Fwy.	Sunnymead Blvd.	4D		33,750	27,900	0.83
Pigeon Pass Rd.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	27,800	0.82
Krameria Ave.	Perris Blvd.	Kitching St.	2U	10,000		8,200	0.82
Heacock St.	Gentian Ave.	Iris Ave.	2U		11,125	9,100	0.82
Perris Blvd.	Gentian Ave.	Iris Ave.	3D		16,875	13,800	0.82
Cactus Ave.	I-215 Fwy.	Elsworth St.	4D		33,750	27,500	0.81
Oleander Ave.[3]	I-215 Fwy.	Heacock St.	2U		11,125	9,600	0.86

[1] Road section in terms of number of through lanes and design D= divided (with median) U=undivided (no median)

[2] Based upon existing lanes

[3] Location outside City Sphere of Influence

TABLE 5.2-3
YEAR 2000 ROADWAY SEGMENTS WITH VOLUME TO CAPACITY RATIOS THAT EXCEED EXISTING DAILY TRAFFIC CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C" [2]	LOS "D" [2]		
Perris Blvd.	Mariposa Ave.	Nandina Ave.	2U		11,125	19,600	1.76
Pigeon Pass Rd.	Old Lake Rd.	Ironwood Ave.	3U	15,000		21,400	1.43
Perris Blvd.	Nandina Ave.	Oleander Ave.	2U		11,125	15,200	1.37
Perris Blvd.	Krameria Ave.	Mariposa Ave.	3U		16,875	20,200	1.20
Perris Blvd.	Manzanita Ave.	Ironwood Ave.	2U	10,000		12,000	1.20
Ironwood Ave.	Day St.	Pigeon Pass Rd.	2U	10,000		11,800	1.18
Ironwood Ave.	Heacock St.	Indian Ave.	2U	10,000		11,300	1.13
Alessandro Blvd.	Kitching St.	Lasselle St.	2U		11,125	11,700	1.05
Ironwood Ave.	Indian Ave.	Perris Blvd.	2U	10,000		10,500	1.05
Gilman Springs Rd.	SR-60 Fwy.	Spine Rd.	2U		11,125	11,400	1.02
Perris Blvd.	Iris Ave.	Krameria Ave.	3D		16,875	17,200	1.02
Alessandro Blvd.	Perris Blvd.	Kitching St.	3D		16,875	17,100	1.01
Perris Blvd. [3]	Oleander Ave.	s/o Oleander Ave.	2U		11,125	18,500	1.66

[1] Road section in terms of number of through lanes and design D= divided (with median) U=undivided (no median)
[2] Based upon existing lanes

[3] Location outside City Sphere of Influence

Regional Planning

The transportation planning context for the City of Moreno Valley includes ongoing regional planning efforts, which consist of the Regional Transportation Plan, the Riverside County Integrated Project, Intelligent Transportation Systems, Transportation Demand Management, and the Congestion Management Program. Regional access is an important function of the transportation network, allowing safe and efficient travel between cities, counties and states. Efficient regional access supports the economic development and general welfare of the community and helps maintain acceptable levels of service on local streets.

To promote efficient regional access, the City currently maintains strong lines of communication with regional and state agencies, including: Western Riverside Council of Governments (WRCOG), Riverside County Transportation Commission (RCTC), the Southern California Association of Governments (SCAG) and Caltrans. In cooperation with these agencies, the City participates in the development of and adheres to the policies of the following regional plans:

Regional Transportation Plan

The Regional Transportation Plan (RTP) is a component of the Regional Comprehensive Plan and Guide prepared by the Southern California Association of Governments (SCAG) to address regional issues, goals, objectives, and policies for the Southern California region. The RTP, which SCAG periodically updates, sets broad goals for the region and provides strategies to reduce problems related to congestion and mobility. The RTP identifies transportation facilities that are of regional significance. In order to be eligible for federal funding assistance, transportation projects must be consistent with the RTP.

Riverside County Integrated Project

A primary objective of the Riverside County Integrated Project (RCIP) is to accommodate projected population growth within Riverside County by focusing development within areas that will be readily accessible, will provide a good quality of life for future residents, and will minimize environmental and community impacts, including impacts to sensitive habitats and endangered species. The RCIP consists of three concurrent planning efforts: (1) the Community and Environmental Transportation Acceptability Process (CETAP); (2) the Riverside County General Plan update; and (3) a Multi-Species Habitat Conservation Plan (MSHCP) for Western Riverside County. The CETAP is the planning effort that most directly affects projected traffic in Moreno Valley.

As part of the CETAP process, four transportation corridors in the general vicinity of the City of Moreno Valley are currently being analyzed. Two of these corridors are internal to Riverside County (Winchester to Temecula, and Hemet to Corona/Lake Elsinore); and two are inter-county corridors (from Moreno Valley County to San Bernardino County, and Riverside County to Orange County). The inter-county corridor from Moreno Valley to San Bernardino County, known as Bi-County Corridor, would directly affect Moreno Valley. Roadways that could serve as potential termini or connections for this corridor in the City of Moreno Valley include Pigeon Pass Road, Reche Canyon Road North, and a potential direct connection to the regional freeway system at the SR-60/I-215 interchange at the western edge of the City of Moreno Valley (the core alignment).

The core alignment would connect California Street in San Bernardino County with the I-215/SR-60 Freeway interchange, and require a four-lane tunnel underneath Box Springs Mountain. The Pigeon Pass Road connection would require that Pigeon Pass Road be widened and realigned to provide a 4-lane arterial section at the north end of the City of Moreno Valley. Pigeon Pass Road would connect to the new Bi-County Corridor at the west side of the Riverside County Landfill. The Reche Canyon Road North connection would also require widening to provide a 4-lane arterial facility. This alternative would be connected to Barton Road in Colton, where it would then be realigned along Hunts Lane and continue north to the I-10 Freeway.

The combined effect of the CETAP corridors would be to reduce traffic volumes on most freeway and major arterial facilities within the City of Moreno Valley. The SR-60 Freeway (particularly in the eastern part of the City), Redlands Boulevard north of SR-60 and Gilman

Springs Road all would experience reductions in daily traffic in excess of 10,000 vehicles per day, due to the combined effects of the proposed CETAP corridors. The combined section of the I-215/SR-60 Freeways is also expected to experience a 10% decrease in daily traffic volumes (approximately 35,000 vehicles per day).

A few Moreno Valley roadways would experience an increase in traffic as a result of the proposed CETAP corridor improvements. These roadways include I-215 north of Alessandro Boulevard, Pigeon Pass Road north of Sunnymead Ranch Parkway, and Reche Canyon Road north of Locust Avenue. The proposed Moreno Valley to San Bernardino Bi-County Corridor itself is projected to carry upwards of 60,000 vehicles per day between the I-10 Freeway and SR-60 Freeway. However, according to analysis conducted as part of the Traffic Study, the overall net effect of the CETAP corridors would be generally positive for the City of Moreno Valley.

Congestion Management Program

The Congestion Management Program (CMP) was established in 1990 under Proposition 111. The intent of the CMP is to more directly link land use, transportation and air quality thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. RCTC is the designated Congestion Management Agency (CMA) for Riverside County, and holds responsibility for the development and implementation of the Riverside County CMP. The CMP identifies a network of roadways that serve as regional linkages between Riverside County cities and adjacent counties. Local agencies are required to monitor how new development projects will impact the CMP network. Should a new development project cause a location on the CMP network to fall below a Level of Service (LOS) F, the local agency must prepare a deficiency plan that would outline specific mitigation measures and a schedule for mitigating the deficiency.

Funding with Development Fees

New developments are responsible for participation in Transportation Uniform Mitigation Fee Program (TUMF) and the Development Impact Fee Program (DIF). The purpose of these fees is to facilitate build-out of the planned circulation systems. These fee programs establish a fair share contribution for new development. Adopted by the City in February 2003, the TUMF has been cooperatively adopted by a number of western Riverside County jurisdictions. It places a fee on new residential and non-residential development that will fund regional highway and arterial improvements consistent with the Western Riverside County of Governments (WRCOG) Regional TUMF Network. Fees are calculated on a per unit basis for residential uses, and on a per square foot basis for commercial and industrial uses. Major TUMF funded improvements are proposed for Cajalco Road, Alessandro Boulevard, Central Avenue and Van Buren Boulevard.

The City's Development Impact Fee Program (DIF) also levies fees on new residential and non-residential development to fund building of the City's General Plan circulation system and traffic signal system. In many cases, individual developments will be able to construct improvements that are part of the TUMF and DIF programs in lieu of paying fees.

Regional Deficiencies

The Box Springs segment of SR-60 / I-215 is one of the most congested segments of the Riverside County freeway system. It is also the primary access route for Moreno Valley commuters to employment and activity centers that are located in Orange County, Los Angeles County, and western portions of Riverside and San Bernardino Counties. Currently, the Box Springs segment carries about 160,000 vehicles per day, and generally operates at LOS F during peak travel periods. Besides high traffic volumes and limited lane capacity, other factors that contribute to severely congested conditions on this segment are a significant percentage of large trucks, a steep road grade, and the merging of two state highways. Congestion at the interchange with the 91 Freeway also contributes to congestion along this segment.

Although the Box Springs segment is outside of the City of Moreno Valley, mitigation of this bottleneck is of utmost importance because its congestion affects a vast number of City residents, and ultimately could impede fruition of the City's proposed General Plan. Currently, Caltrans has a plan to improve the Box Springs segment by adding auxiliary lanes, High Occupancy Vehicle (HOV) lanes, and construction of an eastbound grade separated truck by-pass lane at the SR-60 / I-215 interchange. The City of Moreno Valley advocates these improvements and additional improvements including at least two new general-purpose lanes and a grade separated HOV lane from westbound SR-60 to southbound I-215. In addition, the City advocates for alternatives that would divert traffic from the Box Springs segment. Examples include extension of the San Jacinto branch line for Metrolink, CETAP improvements proposed for the Moreno Valley to the San Bernardino Corridor, and TUMF improvements proposed for Cajalco Road, Alessandro Boulevard, Central Avenue and Van Buren Boulevard.

March Air Reserve Base/March Inland Port

March Air Reserve Base/March Inland Port is currently active as a center for military reserve activities and as a military communication center. Although its long-term future as a military facility is uncertain, it is not slated for expansion or closure at this time. Much of the original base has been transferred to the jurisdiction of the joint powers Authority (JPA), and is slated for commercial, industrial and warehousing development. From a transportation standpoint, all vehicular access to and from the Base must travel through Moreno Valley on Cactus Avenue or Heacock Street.

Alternative Transportation Systems

Bikeway System

The Moreno Valley Bikeway Plan consists of Class I, Class II and Class III routes. Class I bikeways are dedicated trails, separated from vehicular traffic. Class II are designated, striped bikeways generally located along the right shoulder of the roadway. Class III routes are identified with roadside signs, and do not have marked travel lanes. These bikeways provide bicycling opportunities for both recreational and commuting purposes.

Public Transit

Public transit in the City of Moreno Valley consists primarily of bus service. In the future, it is anticipated that Moreno Valley will also have access to commuter rail services. Major components of the public transit system include bus and rail systems.

Bus Service

RCTC is charged with coordinating the operation of all public transportation services in Riverside County with a goal towards promoting program efficiency and effectiveness between transit operators. Moreno Valley is primarily served by the Riverside Transportation Agency (RTA), which provides public bus service to most of western Riverside County, including Moreno Valley.

Transit Oasis

The Transit Oasis is a mobility concept that has been promoted as part of the RCIP. The concept of the Transit Oasis is to provide an integrated system of local, rubber-tired transit hubs that are linked with regional transit systems (either rail or bus). In Moreno Valley, a Transit Oasis would serve to transport commuters to the proposed Metrolink station near the I-215 and Alessandro Boulevard interchange. A Transit Center allows ease of transfer between transit lines. Its use should be considered wherever three or more lines converge (e.g. Moreno Valley Mall).

Commuter Rail

Currently, RCTC owns the San Jacinto Branch Line located west of Moreno Valley, parallel to I-215. This is a service line track that provides Burlington, Northern & Santa Fe (BNSF) freight service to the region. This rail line carries a low volume of freight trains to and from industrial, commercial, and agricultural areas, south of Moreno Valley. RCTC has plans to initiate commuter rail service on this line that would extend to San Jacinto. A commuter rail station is planned for the southwest quadrant of Alessandro at I-215 along the Metrolink Perris Valley Line (PVL) that would provide convenient access for Moreno Valley residents.

Moreno Valley General Plan

The proposed Circulation Element for the General Plan incorporates the recommendations of the traffic study into a series of goals, objectives, policies and programs. Goal 1 of the Circulation Element states:

> *Develop a safe, efficient, environmentally and financially sound, integrated vehicular circulation system consistent with the City General Plan Circulation Element Map, which provides access to development and supports mobility requirements of the system's users.*

To support this goal, the proposed Circulation Element includes objectives, policies and programs, including, but not limited to programs 5-1 through 5-9 which establish mechanisms

for addressing projected arterial deficiencies. These programs focus on the need for continued studies, close coordination with other local agencies, and identification of appropriate funding sources.

In addition, the proposed Circulation Element proposed a number of regional transportation programs intended to mitigate traffic impacts to the State freeway system. Participation in these programs is incorporated as part of the proposed Circulation Element programs 5-10 through 5-13. These programs focus on the need for continued studies, close coordination with regional and other local agencies, and identification of appropriate funding sources.

Proposed Circulation Element programs 5-14 and 5-15 implement programs in support of the efforts of Riverside Transit Agency toward the expansion of the existing bus system within the City and the provision of future public transportation consistent with the Riverside County Transit Plan. Proposed Circulation Element programs 5-16 and 5-17 implement programs to facilitate the development of bikeways in accordance with the Bikeway Plan.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Cause an increase in traffic that results in a V/C ratio in excess of 1.0, exceeding the City's LOS standards;*
- *Exceed a level of service standard established by the County Congestion Management Agency*[2]*;*
- *Result in a change in air traffic patterns that results in substantial safety risks;*
- *Increase hazards due to a design feature or incompatible uses;*
- *Result in inadequate emergency access;*
- *Result in inadequate parking capacity; or*
- *Conflict with adopted policies, plans, or programs supporting alternative transportation.*

[2] City LOS standard is "C" or "D"; and is higher than the designated CMP standards for Riverside County. Therefore, the City LOS standards are applied as the primary threshold of significance.

ENVIRONMENTAL IMPACT

To determine potential impacts of the proposed City of Moreno Valley General Plan Update, the Traffic Study evaluated future traffic volumes that would be generated from the three land use alternatives, presented in the Project Description (**Table 3-1**). In addition to the three land use alternatives, the Traffic Study also evaluated three additional circulation alternatives. Based on these evaluations, the preferred circulation system was selected, assuming development in accordance with Land Use Alternative 2. This preferred circulation system is promulgated through the Circulation Element of the General Plan Update.

Proposed Circulation Plan

Roadways

The proposed Circulation Plan depicts the City planned arterial system and existing freeway segments that run within or adjacent to City boundaries. **Figure 5.2-6**, below, illustrates the proposed Circulation Plan. It includes roadway network improvements that reflect a balance between roadway capacity needs and physical constraints (i.e., existing development or environmental conditions that preclude roadway widening). For example, the proposed interchange at Lasselle Street is not included to avoid disruption of the neighborhood in and around the interchange.

Other major network changes include the addition of a freeway over-crossing at Graham Street and removal of freeway over-crossings at Sinclair Street and Quincy Street. The light traffic volumes on Sinclair Street and Quincy Street indicated by the traffic modeling, conducted as part of the Traffic Study, did not justify construction of the over-crossings for those streets. Relatively light traffic volumes at several sections of Redlands Boulevard and Nason Street resulted in the recommended downgrading of those sections from 6-lanes to 4-lanes.

Table 5.2.4, below, presents the major roadway changes to arterials and selected collectors[3] proposed for the Circulation Plan, and compares these changes to the existing circulation plan.

Figure 5.2-6 also contains the proposed Circulation Plan roadway classifications. Two new categories of roadway designations are added: Divided Major Arterial – Reduced Cross-Section, and Divided Arterial – 6-Lane. Both classifications provide 6 lanes of travel. The Circulation Plan also continues the City's existing practice of providing dedicated turn lanes as required; this practice results in higher levels of traffic capacity and safety.

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[3] Collectors identified in Table 5.2-4 and Figure 5.2-6 are those necessary to provide access to existing and future areas of low density, primarily located in the east side of the City.

TABLE 5.2-4
PROPOSED CIRCULATION PLAN CHANGES

ROADWAY	SEGMENT LIMITS		CURRENT CIRCULATION PLAN CLASSIFICATION	EXISTING CIRCULATION PLAN LANES	PROPOSED CIRCULATION PLAN CLASSIFICATION	PROPOSED CIRCULATION PLAN LANES
	FROM	TO				
Old 215 Frontage Rd.	Dracaea Av.	Alessandro Bl.	Arterial	4D	Minor Arterial - Pigeon Pass Cross-Section	4D
Old 215 Frontage Rd.	Alessandro Bl.	Day St.	N/A	N/A	Minor Arterial - Pigeon Pass Cross-Section	4D
Old 215 Frontage Rd.	Alessandro Bl.	Cactus Av.	Arterial	4D	N/A	N/A
Day St.	Box Springs Rd.	SR-60 EB Ramps	Divided Arterial	4D	Minor Arterial	4D
Day St.	SR-60 EB Ramps	Campus Pkwy.	Divided Arterial	4D	Divided Major Arterial	6D
Day St.	Campus Pkwy.	Gateway Dr.	Divided Arterial	4D	Divided Major Arterial	6D
Day St.	Gateway Dr.	Eucalyptus Av.	Divided Arterial	4D	Divided Major Arterial	6D
Day St.	Cottonwood Av.	Alessandro Bl.	Divided Arterial	4D	Minor Arterial	4D
Day St.	Alessandro Bl.	Cactus Av.	N/A	N/A	Minor Arterial	4D
Pigeon Pass Rd.	Old Lake Rd.	Ironwood Av.	Modified Minor Arterial	4D	Minor Arterial - Pigeon Pass Cross-Section	4D
Frederick St.	Ironwood Av.	SR-60 Fw.	Minor Arterial	4D	Divided Arterial	6D
Frederick St.	SR-60 Fw.	Towngate Bl.	Arterial	4D	Divided Major Arterial	6D
Graham St.	Ironwood Av.	Sunnymead Bl.	N/A	N/A	Minor Arterial	4D
Kitching St.	Iris Av.	Lurin Av.	Arterial	4D	Minor Arterial	4D
Lasselle St.	n/o Eucalyptus Av.	Eucalyptus Av.	Minor Arterial	4D	N/A	N/A
Morrison St.	John F. Kennedy Dr.	s/o John F. Kennedy Dr.	Minor Arterial	4D	N/A	N/A
Nason St.	Ironwood Av.	SR-60 EB Ramps	Modified Divided Major Arterial	6D	Minor Arterial	4D
Nason St.	SR-60 EB Ramps	Dracaea Av.	Modified Divided Major Arterial	6D	Divided Arterial	4D
Nason St.	Dracaea Av.	Alessandro Blvd.	Modified Divided Major Arterial	6D	Arterial	4D
Nason St.	Alessandro Blvd.	Delphinium Av.	Modified Divided Major	6D	Divided Major Arterial -	6D

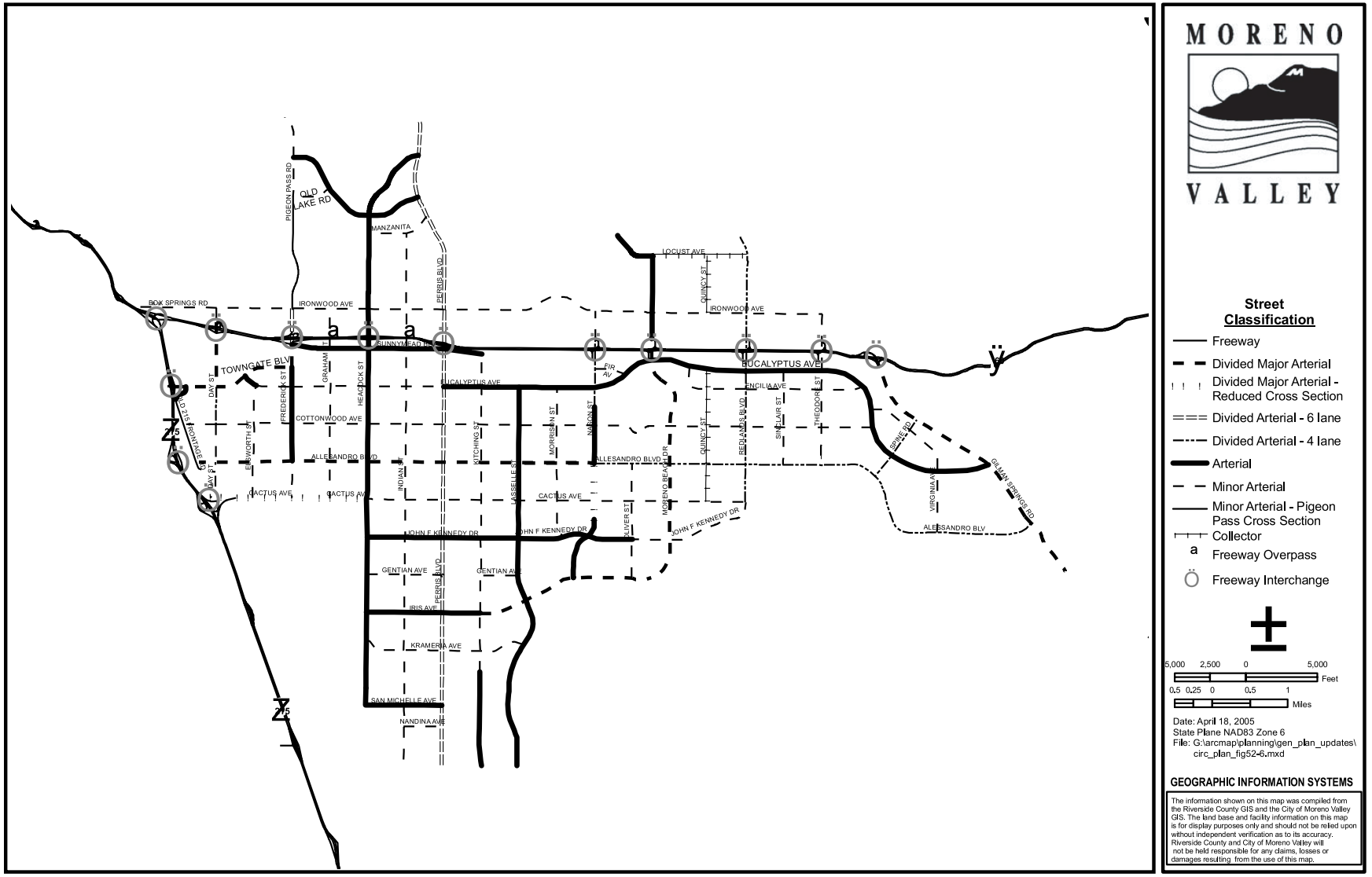
TABLE 5.2-4
PROPOSED CIRCULATION PLAN CHANGES

ROADWAY	SEGMENT LIMITS		CURRENT CIRCULATION PLAN CLASSIFICATION	EXISTING CIRCULATION PLAN LANES	PROPOSED CIRCULATION PLAN CLASSIFICATION	PROPOSED CIRCULATION PLAN LANES
	FROM	TO				
			Arterial		Reduced Cross-Section	
Nason St.	Delphinium Av.	Iris Ave.	Modified Divided Major Arterial	6D	Arterial	4D
Moreno Beach Dr.	SR-60 EB Ramps	SR-60 Fw.	Arterial	4D	Divided Major Arterial	6D
Quincy St.	n/o Locust Av.	Locust Av.	Minor Arterial	4D	N/A	N/A
Quincy St.	Locust Av.	Ironwood Av.	Minor Arterial	4D	Collector	2U
Quincy St.	Ironwood Av.	Eucalyptus Av.	Minor Arterial	4D	N/A	N/A
Redlands Bl.	n/o Manzanita Av.	Manzanita Av.	Minor Arterial	4D	N/A	N/A
Redlands Bl.	Manzanita Av.	SR-60 Fw.	Modified Divided Major Arterial	6D	Divided Arterial	4D
Redlands Bl.	SR-60 Fw.	Alessandro Bl.	Divided Major Arterial	6D	Divided Arterial	4D
Redlands Bl.	Alessandro Bl.	Cactus Av.	Arterial	4D	Divided Arterial	4D
Sinclair St.	Ironwood Av.	Eucalyptus Av.	Minor Arterial	4D	N/A	N/A
Sinclair St.	Alessandro Bl.	Cactus Av.	Minor Arterial	4D	N/A	N/A
Theodore St.	SR-60 EB Ramps	Alessandro Bl.	Divided Major Arterial	6D	Minor Arterial	4D
Spine Rd.	Gilman Springs Rd.	Eucalyptus Av.	Divided Major Arterial	6D	Divided Arterial	4D
E. Spine Rd.	Eucalyptus Av.	Alessandro Bl.	Minor Arterial	4D	N/A	N/A
W. Spine Rd.	Eucalyptus Av.	Alessandro Bl.	Minor Arterial	4D	N/A	N/A
Old Lake Rd.	Pigeon Pass Rd.	Sunnymead Ranch Pkwy.	Arterial	4D	Minor Arterial	4D
Locust Av.	Moreno Beach Dr.	Redlands Bl.	Minor Arterial	4D	Collector	2U
Elder Av.	Perris Bl.	Nason St.	Minor Arterial	4D	N/A	4D
Sunnymead Bl.	Perris Bl.	Kitching St.	Minor Arterial	4D	Arterial	4D
Eucalyptus Av.	Elsworth St.	Frederick St.	Arterial	4D	Minor Arterial	4D
Eucalyptus Av.	Indian St.	Perris Bl.	Arterial	4D	Minor Arterial	4D
Eucalyptus Av.	Moreno Beach Dr.	Redlands Bl.	Arterial	4D	Arterial	4D

TABLE 5.2-4
PROPOSED CIRCULATION PLAN CHANGES

ROADWAY	SEGMENT LIMITS		CURRENT CIRCULATION PLAN CLASSIFICATION	EXISTING CIRCULATION PLAN LANES	PROPOSED CIRCULATION PLAN CLASSIFICATION	PROPOSED CIRCULATION PLAN LANES
	FROM	TO				
Eucalyptus Av.	Redlands Bl.	Spine Rd.	Divided Major Arterial	6D	Arterial	4D
Eucalyptus Av.	Spine Rd.	Gilman Springs Rd.	Divided Arterial	4D	Arterial	4D
Encilia Av.	Eucalyptus Av. east of Moreno Beach Dr.	Eucalyptus Av. east of Theodore St.	NA	N/A	Minor Arterial	4D
N. Spine Rd.	W. Spine Rd.	E. Spine Rd.	Minor Arterial	4D	N/A	N/A
S. Spine Rd.	W. Spine Rd.	E. Spine Rd.	Minor Arterial	4D	N/A	N/A
Dracaea Av.	Redlands Bl.	Eucalyptus Av.	Minor Arterial	4D	N/A	N/A
Alessandro Bl.	Nason St.	Gilman Springs Rd.	Divided Major Arterial	6D	Divided Arterial	4D
Cactus Av.	I-215 Fw.	I-215 SB Ramps	Minor Arterial	4D	Divided Major Arterial - Reduced Cross-Section	6D
Cactus Av.	Graham St.	Heacock St.	Arterial	4D	Divided Major Arterial - Reduced Cross-Section	6D
John F. Kennedy Dr.	Oliver St.	Redlands Bl.	Arterial	4D	Minor Arterial	4D
Gentian Av.	Perris Bl.	Kitching St.	Minor Arterial	4D	N/A	N/A

NOTE: Selected collectors are those necessary to provide access to existing and future areas of low density, primarily located in the east side of the City.
N/A = either not included in Current General Plan Circulation Element or recommended for deletion.



Source: Urban Crossroads, June 2004

Figure 5.2-6
Proposed Circulation Plan

Level of Service

Similar to the existing City Circulation Element, the proposed Circulation Element recognizes that an LOS of C is optimal. However, it also recognizes that in the vicinity of SR-60 and high employment centers, an LOS of D is appropriate. Objective 5.3 of the proposed Circulation Element states:

Maintain Level of Service (LOS) "C" on roadway links, wherever possible, and LOS "D" in the vicinity of SR 60 and high employment centers.

Figure 5.2-7 depicts the LOS standards that are applicable to all segments of the proposed Circulation Plan.

Impacts on Roadway Levels of Service

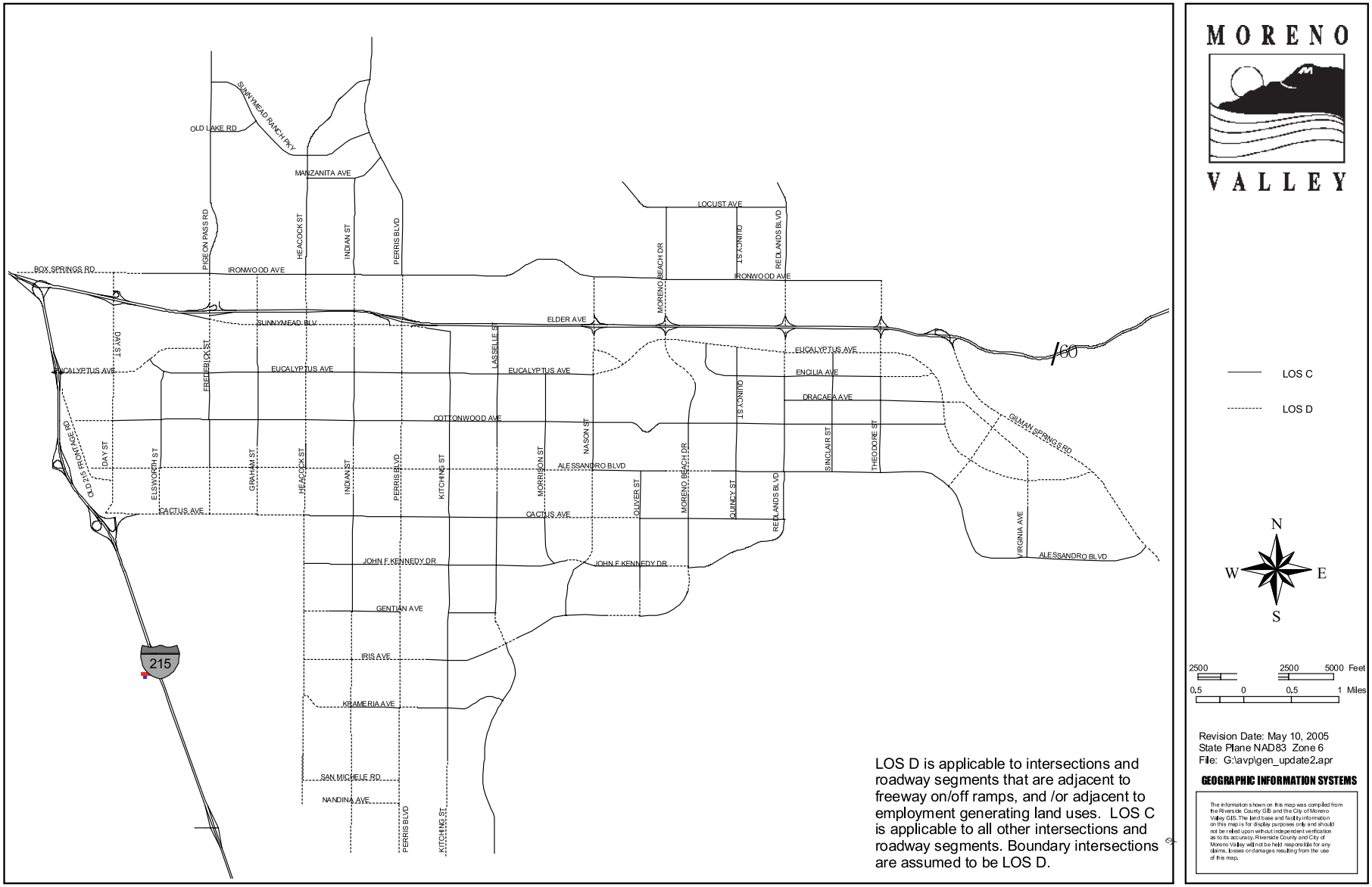
Projected traffic volumes on the proposed Circulation Plan network of streets were calculated as part of the Traffic Study for each of the three land use alternatives. For each alternative, the calculation of future traffic assumed: (1) the City of Moreno Valley will be built-out to the maximum square footages and dwelling units permitted in the alternative; (2) regional growth will occur in accordance with respective jurisdictional general plans and regional plans; and (3) build-out for the purposes of the Traffic Study calculation is expected to occur after year 2030.

In addition to the three land use alternatives, the Traffic Study also evaluated three additional circulation alternatives. Based on these evaluations, the preferred circulation system was selected, assuming development in accordance with Land Use Alternative 2. This preferred circulation system is promulgated through the City of Moreno Valley Circulation Element of the General Plan update.

Projected traffic impacts related to each land use alternative are summarized below. A roadway segment where the V/C ratio exceeds 1.0 is considered deficient; such roadways have traffic volumes that exceed their acceptable LOS of "C" or "D" as established by the proposed Circulation Element. A roadway segment where the V/C ratio exceeds 0.80 is considered near existing design capacity, or nearing deficiency.

Alternative I

Build-out of the City under Land Use Alternative 1 would result in an average of 2,960,087 daily trips. As shown in **Table 5.2.5**, a total of 41 roadway segments would have projected V/C ratios indicating they are near to their daily traffic capacities. **Table 5.2-6** identifies those roadway segments where the projected traffic volumes exceed roadway design capacities; 37 roadway segments have V/C ratios that are projected to exceed their daily traffic capacities.



Source: Urban Crossroads, June 2004.

Figure 5.2-7
LOS Standards

TABLE 5.2-5
ALTERNATIVE 1 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES NEAR OR AT CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Frederick St.	Towngate Blvd.	Eucalyptus Ave.	4D		33,750	33,582	1.00
Iris Ave.	Los Cabos Dr	Camino Flores	6D		50,625	49,559	0.98
Cactus Ave.	Lasselle St.	Morrison St.	4D	30,000		29,397	0.98
Cactus Ave.	Perris Blvd.	Kitching St.	4D	30,000		29,103	0.97
Alessandro Blvd.	Elsworth St.	Frederick St.	6D		50,625	49,067	0.97
Eucalyptus Ave.	Frederick St.	Graham St.	4D	30,000		28,487	0.95
Nason St.	Eucalyptus Ave.	Cottonwood Ave.	6D	45,000		42,425	0.94
John F. Kennedy Dr.	Moreno Beach Dr.	Redlands Blvd.	4D	30,000		28,235	0.94
Cottonwood Ave.	Day St.	Elsworth St.	4D	30,000		27,977	0.93
Graham St.	Sunnymead Blvd.	Fir Ave	4D	30,000		27,939	0.93
Ironwood Ave.	Nason St.	Moreno Beach Dr.	4D	30,000		27,805	0.93
Eucalyptus Ave.	Elsworth St.	Frederick St.	4D	30,000		27,769	0.93
Perris Blvd.	Sunnymead Blvd.	Eucalyptus Ave.	6D		50,625	46,583	0.92
Ironwood Ave.	Barclay Dr.	Pigeon Pass Rd.	4D	30,000		27,586	0.92
Heacock St.	John F. Kennedy Dr.	Gentian Ave.	4D		33,750	30,931	0.92
Heacock St.	Eucalyptus Ave.	Cottonwood Ave.	4D		33,750	30,703	0.91
Moreno Beach Dr.	Alessandro Blvd.	Cactus Ave.	6D	45,000		40,760	0.91
Cottonwood Ave.	Nason St.	Moreno Beach Dr.	4D	30,000		27,021	0.90
Nason St.	SR-60 Fwy.	Eucalyptus Ave.	6D		50,625	45,108	0.89
Alessandro Blvd.	Graham St.	Heacock St.	6D		50,625	44,625	0.88
Kitching St.	Cottonwood Ave.	Alessandro Blvd.	4D	30,000		26,352	0.88
Kitching St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		26,197	0.87
Heacock St.	Gentian Ave.	Iris Ave.	4D		33,750	29,431	0.87
Heacock St.	Sunnymead Ranch Pkwy.	Manzanita Ave.	4D	30,000		25,796	0.86
Kitching St.	Eucalyptus Ave.	Cottonwood Ave.	4D	30,000		25,765	0.86
Pigeon Pass Rd.	Old Lake Rd.	Ironwood Ave.	4D	30,000		25,711	0.86
Graham St.	Cottonwood Ave.	Bay Ave.	4D	30,000		25,357	0.85
Old 215 Frontage Rd.	Eucalyptus Ave.	Cottonwood Ave.	4D		33,750	28,373	0.84
Kitching St.	Mariposa Ave.	Nandina Ave.	4D		33,750	28,357	0.84
Eucalyptus Ave.	Nason St.	Moreno Beach Dr.	4D		33,750	28,271	0.84
Lasselle St.	Cottonwood Ave.	Bay Ave.	4D	30,000		24,956	0.83
Gilman Springs Rd.	Alessandro Blvd.	s/o Alessandro Blvd.	6D		50,625	42,058	0.83
Graham St.	Fir Ave	Eucalyptus Ave.	4D		33,750	27,939	0.83
Kitching St.	Sunnymead Blvd.	Eucalyptus Ave.	4D	30,000		24,688	0.82

TABLE 5.2-5
ALTERNATIVE 1 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES NEAR OR AT CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Perris Blvd.	Mariposa Ave.	Nandina Ave.	6D		50,625	41,380	0.82
Ironwood Ave.	Day St.	Barclay Dr.	4D		33,750	27,586	0.82
Perris Blvd.	Iris Ave.	Krameria Ave.	6D		50,625	41,079	0.81
Lasselle St.	Krameria Ave.	Oleander Connector Rd.	4D	30,000		24,324	0.81
Perris Blvd.	Krameria Ave.	Mariposa Ave.	6D		50,625	41,014	0.81
Moreno Beach Dr.	Alessandro Blvd.	Brodiaea Av	6D		50,625	40,760	0.81
Oleander Ave. [1]	I-215 Fwy.	Heacock St.	6D		50,625	43,994	0.87

[1] Location outside City Sphere of Influence

TABLE 5.2-6
ALTERNATIVE 1 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES IN EXCESS OF CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Heacock St.	SR-60 Fwy.	Sunnymead Blvd.	4D		33,750	58,647	1.74
Eucalyptus Ave.	Old 215 Frontage Rd.	Day St.	6D		50,625	79,060	1.56
Day St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	45,070	1.34
Moreno Beach Dr.	SR-60 Fwy.	Eucalyptus Ave.	6D		50,625	64,666	1.28
Day St.	SR-60 Fwy.	Eucalyptus Ave.	7D		56,363	71,511	1.27
Moreno Beach Dr.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	40,932	1.21
Indian St.	Fir Ave.	Eucalyptus Ave.	4D	30,000		36,151	1.21
Alessandro Blvd.	Old 215 Frontage Rd.	Day St.	6D		50,625	60,721	1.20
Redlands Blvd.	n/o Locust Ave.	Locust Ave.	4D	30,000		35,805	1.19
Kitching St.	Iris Ave.	Krameria Ave.	4D	30,000		35,395	1.18
Pigeon Pass Rd.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	39,471	1.17
Kitching St.	Krameria Ave.	Mariposa Ave.	4D	30,000		34,590	1.15
Alessandro Blvd.	Day St.	Elsworth St.	6D		50,625	58,031	1.15
Heacock St.	Cactus Ave.	John F. Kennedy Dr.	4D		33,750	37,725	1.12
Heacock St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	37,435	1.11

TABLE 5.2-6
ALTERNATIVE 1 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES IN EXCESS OF CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Cactus Ave.	Old 215 Frontage Rd.	Elsworth St.	6D		50,625	55,997	1.11
Iris Ave.	Lasselle St.	Nason St.	6D	45,000		49,559	1.10
Gilman Springs Rd.	SR-60 Fwy.	Spine Rd.	6D		50,625	55,744	1.10
Frederick St.	Sunnymead Blvd.	Towngate Blvd.	6D		50,625	55,156	1.09
Cactus Ave.	Graham St.	Heacock St.	4D		33,750	36,378	1.08
Perris Blvd.	Elder Ave.	Sunnymead Blvd.	6D		50,625	54,400	1.07
Heacock St.	Cottonwood Ave.	Alessandro Blvd.	4D		33,750	36,224	1.07
Indian St.	Sunnymead Blvd.	Fir Ave	4D		33,750	36,151	1.07
Heacock St.	Sunnymead Blvd.	Eucalyptus Ave.	4D		33,750	36,012	1.07
Indian St.	Mariposa Ave.	Nandina Ave.	4D		33,750	35,574	1.05
Perris Blvd.	Nandina Ave.	Oleander Ave.	6D		50,625	52,641	1.04
Frederick St.	SR-60 Fwy.	Sunnymead Blvd.	7D		56,363	57,848	1.03
Lasselle St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		30,777	1.03
Cactus Ave.	Heacock St.	Indian St.	4D	30,000		30,496	1.02
Indian St.	Nandina Ave.	Oleander Ave.	4D		33,750	34,304	1.02
Perris Blvd.	Ironwood Ave.	Elder Ave.	6D		50,625	51,356	1.01
Heacock St.	Alessandro Blvd.	Cactus Ave.	4D		33,750	34,183	1.01
Eucalyptus Ave.	Graham St.	Heacock St.	4D	30,000		30,358	1.01
Heacock St.	Manzanita Ave.	Ironwood Ave.	4D	30,000		30,228	1.01
Alessandro Blvd.	Frederick St.	Graham St.	6D		50,625	50,983	1.01
Perris Blvd. [1]	Oleander Ave.	s/o Oleander Ave.	6D		50,625	54,624	1.08
Oleander Ave. [1]	Heacock St.	Indian St.	6D		50,625	51,575	1.02

[1] Location outside City Sphere of Influence

Alternative 2

Build-out of the City under Land Use Alternative 2 would result in an average of 2,628,197 daily trips. As shown in **Table 5.2.7**, a total of 34 roadway segments would have projected V/C ratios indicating they are near to their daily traffic capacities. **Table 5.2-8** identifies those roadway segments where the projected traffic volume exceeds roadway design capacity; 26 roadway segments have V/C ratios that are projected to exceed their daily traffic capacity.

TABLE 5.2-7
ALTERNATIVE 2 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH VOLUME TO CAPACITY RATIOS NEAR OR AT CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Perris Blvd.	Ironwood Ave.	Elder Ave.	6D		50,625	50,571	1.00
Indian St.	Fir Ave.	Eucalyptus Ave.	4D		33,750	33,677	1.00
Indian St.	Nandina Ave.	Oleander Ave.	4D		33,750	33,469	0.99
Iris Ave.	Camino Flores	Nason St	6D	45,000		44,144	0.98
Lasselle St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		29,261	0.98
Cactus Ave.	Heacock St.	Indian St.	4D	30,000		29,067	0.97
Frederick St.	Towngate Blvd.	Eucalyptus Ave.	4D		33,750	32,677	0.97
Alessandro Blvd.	Frederick St.	Graham St.	6D		50,625	48,888	0.97
Ironwood Ave.	Barclay Dr.	Pigeon Pass Rd.	4D	30,000		28,674	0.96
John F. Kennedy Dr.	Moreno Beach Dr.	Redlands Blvd.	4D	30,000		28,630	0.95
Alessandro Blvd.	Day St.	Elsworth St.	6D		50,625	48,008	0.95
Graham St.	Fir Ave.	Eucalyptus Ave.	4D	30,000		27,959	0.93
Heacock St.	John F. Kennedy Dr.	Gentian Ave.	4D		33,750	31,310	0.93
Alessandro Blvd.	Elsworth St.	Frederick St.	6D		50,625	46,911	0.93
Cactus Ave.	Lasselle St.	Morrison St.	4D	30,000		27,460	0.92
Heacock St.	Eucalyptus Ave.	Cottonwood Ave.	4D		33,750	30,597	0.91
Eucalyptus Ave.	Frederick St.	Graham St.	4D	30,000		26,922	0.90
Perris Blvd.	Sunnymead Blvd.	Eucalyptus Ave.	6D		50,625	45,160	0.89
Moreno Beach Dr.	SR-60 Fwy.	Eucalyptus Ave.	6D		50,625	44,930	0.89
Heacock St.	Gentian Ave.	Iris Ave.	4D		33,750	29,615	0.88
Iris Ave.	Los Cabos	Camino Flores	6D		50,625	44,144	0.87
Heacock St.	Sunnymead Ranch Pkwy.	Manzanita Ave.	4D	30,000		25,929	0.86
Pigeon Pass Rd.	Old Lake Rd.	Ironwood Ave.	4D	30,000		25,641	0.85
Ironwood Ave.	Day St.	Pigeon Pass Rd.	4D		33,750	28,674	0.85
Eucalyptus Ave.	Elsworth St.	Frederick St.	4D	30,000		25,148	0.84
Kitching St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		25,022	0.83
Kitching St.	Cottonwood Ave.	Alessandro Blvd.	4D	30,000		24,983	0.83
Graham St.	Sunnymead Blvd.	Fir Ave.	4D		33,750	27,959	0.83
Cottonwood Ave.	Day St.	Elsworth St.	4D	30,000		24,785	0.83
Indian St.	Iris Ave.	Krameria Ave.	4D		33,750	27,443	0.81
Sunnymead Blvd.	Frederick St.	Graham St.	4D		33,750	27,280	0.81
Box Springs Rd.	I-215/SR-60 Fwy.	Day St.	4D		33,750	27,262	0.81
Oleander Ave. [1]	Heacock St.	Indian St.	6D		50,625	50,650	1.00
Oleander Ave. [1]	I-215 Fwy.	Heacock St.	6D		50,625	44,190	0.87

[1] Location outside City Sphere of Influence

TABLE 5.2-8
ALTERNATIVE 2 - PROPOSED CIRCULATION PLAN ARTERIAL ROADWAY SEGMENTS WITH VOLUME TO CAPACITY RATIOS THAT ARE OVER DAILY TRAFFIC CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Heacock St.	SR-60 Fwy.	Sunnymead Blvd.	4D		33,750	58,154	1.72
Day St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	45,917	1.36
Eucalyptus Ave.	Old 215 Frontage Rd.	Day St.	7D		56,363	73,580	1.31
Day St.	SR-60 Fwy.	Eucalyptus Ave.	7D		56,363	67,787	1.20
Gilman Springs Rd.	SR-60 Fwy.	Spine Rd.	6D		50,625	59,356	1.17
Pigeon Pass Rd.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	39,524	1.17
Kitching St.	Iris Ave.	Krameria Ave.	4D	30,000		34,010	1.13
Heacock St.	Cactus Ave.	John F. Kennedy Dr.	4D		33,750	37,961	1.12
Heacock St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	37,932	1.12
Indian St.	Sunnymead Blvd.	Fir Ave.	4D	30,000		33,677	1.12
Kitching St.	Krameria Ave.	Mariposa Ave.	4D	30,000		33,527	1.12
Perris Blvd.	Elder Ave.	Sunnymead Blvd.	6D		50,625	54,400	1.07
Frederick St.	Sunnymead Blvd.	Towngate Blvd.	6D		50,625	54,164	1.07
Heacock St.	Cottonwood Ave.	Alessandro Blvd.	4D		33,750	35,945	1.07
Cactus Ave.	Old 215 Frontage Rd.	Elsworth St.	6D		50,625	53,874	1.06
Heacock St.	Sunnymead Blvd.	Eucalyptus Ave.	4D		33,750	35,873	1.06
Redlands Blvd.	n/o Locust Ave.	Locust Ave.	4D	30,000		31,509	1.05
Alessandro Blvd.	Old 215 Frontage Rd.	Day St.	6D		50,625	52,764	1.04
Eucalyptus Ave.	Graham St.	Heacock St.	4D	30,000		31,247	1.04
Indian St.	Mariposa Ave.	Nandina Ave.	4D		33,750	35,061	1.04
Heacock St.	Alessandro Blvd.	Cactus Ave.	4D		33,750	35,018	1.04
Heacock St.	Manzanita Ave.	Ironwood Ave.	4D	30,000		30,610	1.02
Perris Blvd.	Nandina Ave.	Oleander Ave.	6D		50,625	51,479	1.02
Frederick St.	SR-60 Fwy.	Sunnymead Blvd.	7D		56,363	57,260	1.02
Cactus Ave.	Graham St.	Heacock St.	4D		33,750	34,108	1.01
Perris Blvd.[1]	Oleander Ave.	s/o Oleander Ave.	6D		50,625	52,146	1.03

[1] Location outside City Sphere of Influence

Alternative 3

Build-out of the City under Land Use Alternative 3 would result in an average of 2,549,919 daily trips. As shown in **Table 5.2.9**, a total of 32 roadway segments would have projected V/C ratios indicating they are near to their daily traffic capacities. **Table 5.2-10** identifies those roadway segments where the projected traffic volume exceeds roadway design capacity; 23 roadway segments have V/C ratios that are projected to exceed their daily traffic capacity.

TABLE 5.2-9
ALTERNATIVE 3 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES THAT ARE NEAR OR AT CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Indian St.	Sunnymead Blvd.	Fir Ave.	4D		33,750	33,763	1.00
Indian St.	Nandina Ave.	Oleander Ave.	4D		33,750	33,717	1.00
Perris Blvd.	Elder Ave.	Sunnymead Blvd.	6D		50,625	50,532	1.00
Perris Blvd.	Ironwood Ave.	Elder Ave.	6D		50,625	50,532	1.00
Lasselle St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		29,559	0.99
Frederick St.	Towngate Blvd.	Eucalyptus Ave.	4D		33,750	33,230	0.98
Alessandro Blvd.	Frederick St.	Graham St.	6D		50,625	49,829	0.98
Cactus Ave.	Heacock St.	Indian St.	4D	30,000		29,498	0.98
Iris Ave.	Camino Flores	Nason St.	6D	45,000		43,927	0.98
Alessandro Blvd.	Day St.	Elsworth St.	6D		50,625	49,349	0.97
Graham St.	Fir Ave.	Eucalyptus Ave.	4D	30,000		28,280	0.94
Heacock St.	John F. Kennedy Dr.	Gentian Ave.	4D		33,750	31,526	0.93
Alessandro Blvd.	Elsworth St.	Frederick St.	6D		50,625	47,166	0.93
John F. Kennedy Dr.	Moreno Beach Dr.	Redlands Blvd.	4D	30,000		27,546	0.92
Cactus Ave.	Lasselle St.	Morrison St.	4D	30,000		27,492	0.92
Perris Blvd.	Sunnymead Blvd.	Eucalyptus Ave.	6D		50,625	45,916	0.91
Heacock St.	Eucalyptus Ave.	Cottonwood Ave.	4D		33,750	30,603	0.91
Cactus Ave.	Perris Blvd.	Kitching St.	4D	30,000		27,185	0.91
Heacock St.	Gentian Ave.	Iris Ave.	4D		33,750	30,027	0.89
Iris Ave.	Los Cabos Dr	Camino Flores	6D		50,625	43,927	0.87
Moreno Beach Dr.	SR-60 Fwy.	Eucalyptus Ave.	6D		50,625	43,555	0.86
Pigeon Pass Rd.	Old Lake Rd.	Ironwood Ave.	4D	30,000		25,672	0.86
Eucalyptus Ave.	Elsworth St.	Frederick St.	4D	30,000		25,532	0.85
Morrison St.	Cactus Ave.	John F. Kennedy Dr.	4D	30,000		25,375	0.85
Kitching St.	John F. Kennedy Dr.	Gentian Ave.	4D	30,000		25,352	0.85
Graham St.	Sunnymead Blvd.	Fir Ave.	4D		33,750	28,280	0.84
Kitching St.	Cottonwood Ave.	Alessandro Blvd.	4D	30,000		25,103	0.84
Cottonwood Ave.	Day St.	Elsworth St.	4D	30,000		24,867	0.83
Indian St.	Iris Ave.	Krameria Ave.	4D		33,750	27,653	0.82
Sunnymead Blvd.	Frederick St.	Graham St.	4D		33,750	27,621	0.82
Oleander Ave. [1]	Heacock St.	Indian Ave.	6D		50,625	50,585	1.00
Oleander Ave. [1]	I-215 Fwy.	Heacock St.	6D		50,625	44,067	0.87

[1] Location outside City Sphere of Influence

TABLE 5.2-10
ALTERNATIVE 3 - PROPOSED CIRCULATION PLAN ROADWAY SEGMENTS WITH DAILY VOLUMES OVER DAILY TRAFFIC CAPACITY

ROADWAY	FROM	TO	ROAD-WAY SECTION	DESIGN CAPACITY		DAILY VOLUME	V/C
				LOS "C"	LOS "D"		
Day St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	45,057	1.34
Eucalyptus Ave.	Old 215 Frontage Rd.	Day St.	7D		56,363	74,663	1.32
Day St.	SR-60 Fwy.	Eucalyptus Ave.	7D		56,363	67,151	1.19
Pigeon Pass Rd.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	39,408	1.17
Kitching St.	Iris Ave.	Krameria Ave.	4D	30,000		34,099	1.14
Heacock St.	Ironwood Ave.	SR-60 Fwy.	4D		33,750	38,232	1.13
Heacock St.	Cactus Ave.	John F. Kennedy Dr.	4D		33,750	38,196	1.13
Kitching St.	Krameria Ave.	Mariposa Ave.	4D	30,000		33,790	1.13
Indian St.	Fir Ave.	Eucalyptus Ave.	4D	30,000		33,763	1.13
Gilman Springs Rd.	SR-60 Fwy.	Spine Rd.	6D		50,625	56,590	1.12
Frederick St.	Sunnymead Blvd.	Towngate Blvd.	6D		50,625	54,509	1.08
Heacock St.	Cottonwood Ave.	Alessandro Blvd.	4D		33,750	36,057	1.07
Alessandro Blvd.	Old 215 Frontage Rd.	Day St.	6D		50,625	53,911	1.06
Heacock St.	Sunnymead Blvd.	Eucalyptus Ave.	4D		33,750	35,787	1.06
Cactus Ave.	Old 215 Frontage Rd.	Elsworth St.	6D		50,625	53,608	1.06
Eucalyptus Ave.	Graham St.	Heacock St.	4D	30,000		31,426	1.05
Indian St.	Mariposa Ave.	Nandina Ave.	4D		33,750	35,311	1.05
Heacock St.	Alessandro Blvd.	Cactus Ave.	4D		33,750	35,005	1.04
Heacock St.	Manzanita Ave.	Ironwood Ave.	4D	30,000		30,909	1.03
Cactus Ave.	Graham St.	Heacock St.	4D		33,750	34,519	1.02
Perris Blvd.	Nandina Ave.	Oleander Ave.	6D		50,625	51,488	1.02
Redlands Blvd. [1]	n/o Locust Ave.	Locust Ave.	4D	30,000		30,893	1.03
Perris Blvd. [1]	Oleander Ave.	s/o Oleander Ave.	6D		50,625	51,889	1.02

[1] Location outside City Sphere of Influence

Table 5.2-11 summarizes the number of segments that would exceed design capacity for each alternative. Alternative 1 would result in the greatest number of road segments that exceed design capacity and Alternative 3 would result in the fewest number of segments that exceed design capacity. However, regardless of the land use alternative and implementation of the proposed circulation plan changes presented in **Table 5.2-4**, above, traffic levels would exceed the City's LOS standards for numerous segments throughout the City.

TABLE 5.2-11
SUMMARY OF NUMBER OF SEGMENTS THAT WOULD EXCEED DESIGN CAPACITY

General Plan Alternative	Roadway Segments Exceeding Design Capacity
1	37
2	26
3	23

Impacts Related to Proposed Circulation Element

Implementation of Circulation Element programs 5-1 through 5-9, as well as associated objectives and policies, are expected to improve traffic flow on roadway segments that exceed City LOS standards. However, as noted in **Table 5.2-11**, above, regardless of implementation of the proposed Circulation Plan changes, certain roadway segments within the City may experience V/C ratios that exceed 1.0. These roadways would experience traffic volumes that exceed their acceptable LOS of "C" or "D." This is a significant impact. Implementation of Mitigation Measure TR-1 will reduce the impact; however the impact to local roadway segments would remain significant and unavoidable.

Impacts on Level of Service Standards Established by the County Congestion Management Agency

As shown in **Table 5.2-12**, Trip Generation Summary, below, General Plan Land Use Alternatives 2 and 3 improve the balance of trip productions to attractions over Alternative 1, which represents the existing Circulation Element. Improved trip balance is the result of improved jobs to housing balance, and will result in reduction of total vehicular miles of travel on the state freeway system. Also, Alternatives 2 and 3 will result in a reduction in total number of trips generated in the City, with consequent benefits to the State freeway system.

Implementation of Circulation Element programs 5-10 through 5-13, in concert with the expected reduction in freeway trips under Alternatives 2 and 3, are expected to reduce impacts associated with projected regional traffic and County established policies relative to LOS to less than significant levels.

March Air Reserve Base/March Inland Port – Safety Risks Due to Changes in Air Traffic Patterns

Implementation of the proposed General Plan is not expected to significantly increase the number of individuals using the airport facilities at March Air Reserve Base/March Inland Port, which is a joint civilian and military airport. Additionally, the proposed General Plan would not result in construction of incompatible development within the airport area of influence. Therefore, implementation of the General Plan is not expected to result in a change in air traffic

patterns, including either an increase in traffic levels or additional safety risks associated with new development in areas subject to airport operations. No significant impact associated with March Air Reserve Base or air traffic patterns has been identified.

TABLE 5.2-12
TRIP GENERATION SUMMARY OF NUMBER – LAND USE ALTERNATIVES 1, 2 AND 3

TRIP PURPOSE		ALT. 1	ALT. 2	ALT. 3
HOME-BASED WORK	PRODUCTIONS	173,878	186,715	185,725
	ATTRACTIONS	406,767	383,454	356,993
HOME-BASED NON-WORK	PRODUCTIONS	371,407	399,443	397,249
	ATTRACTIONS	979,021	772,045	762,990
NON-HOME BASED	PRODUCTIONS	514,507	436,978	423,481
	ATTRACTIONS	514,507	436,978	423,481
TOTAL	PRODUCTIONS	1,059,792	1,023,136	1,006,455
	ATTRACTIONS	1,900,295	1,592,477	1,543,464
TOTAL		2,960,087	2,615,613	2,549,919
TOTAL DIFFERENCE FROM ALTERNATIVE 1			(344,474)	(410,168)
PERCENT DIFFERENCE FROM ALTERNATIVE 1			-11.64%	-15.68%

Hazards due to Roadway Design, Incompatible Uses or Inadequate Emergency Access

The City will continue to implement its adopted road standards, the State of California Department of Transportation Highway Design Manual, Municipal Code, and Fire Code. As a result, new and improved roadways will be designed to avoid unsafe design and to provide adequate emergency access. No significant impact associated with these issues is anticipated.

Impacts on Parking Capacity

The City will continue to enforce its adopted parking standards described in Chapter 9 of the Municipal Code to ensure that adequate off-street parking is provided for all land uses. No significant impact relative to parking is anticipated.

Conflicts with Adopted Policies, Plans or Programs Supporting Alternative Transportation

Goal 2 of the proposed Circulation Element states:

> *Maintain safe and adequate pedestrian, bicycle, and public transportation systems to provide alternatives to single occupant vehicular travel and to support planned land uses.*

The proposed Circulation Element contains a Bikeway Plan that identifies all existing and planned bike routes within the City. The proposed Circulation Element also contains policies and programs that support convenient, safe and efficient bus and rail transportation systems. Implementation of the proposed Circulation Element policies and programs is expected to facilitate pedestrian, bicycle, bus and rail improvements. No significant impact relative to alternative transportation is anticipated.

MITIGATION MEASURES

To mitigate expected impacts to roadway levels of service, proposed Circulation Element Program 5-6 is added as Mitigation Measure TR-1 to the Project, as follows:

TR-1 Conduct studies of specified arterial segments to determine if any additional improvements will be needed to maintain an acceptable LOS at General Plan build-out. Generally, these segments will be studied as new developments are proposed in their vicinity. Measures will be identified that are consistent with the Circulation Element designation of these roadway segments, such as additional turn lanes at intersections, signal optimization by coordination and enhanced phasing, and travel demand management measures.

The study of specified arterial segments will be required to identify measures to maintain an acceptable LOS at General Plan build-out for at least one of the reasons discussed below:

(a) Segments will need improvement, but their ultimate volumes slightly exceed design capabilities.
(b) Segments will need improvements but require inter-jurisdictional coordination.
(c) Segments would require significant encroachment on existing adjacent development if built-out to their Circulation Element designations.

SIGNIFICANCE AFTER MITIGATION

Significant and Unavoidable. Implementation of the mitigation measure is expected to reduce impacts associated with projected vehicular traffic. However, because it is not known at this time if Mitigation Measure TR-1 would reduce all traffic capacity deficiencies to less than significant levels, impacts to local roadway segments are considered significant after mitigation. All impacts to the state circulation system will be less than significant.

NOTES AND REFERENCES

None

5.3 AIR QUALITY

Air quality calculations generated by P&D Consultants (July 2003) are provided in Volume II Appendix C of this EIR.

ENVIRONMENTAL SETTING

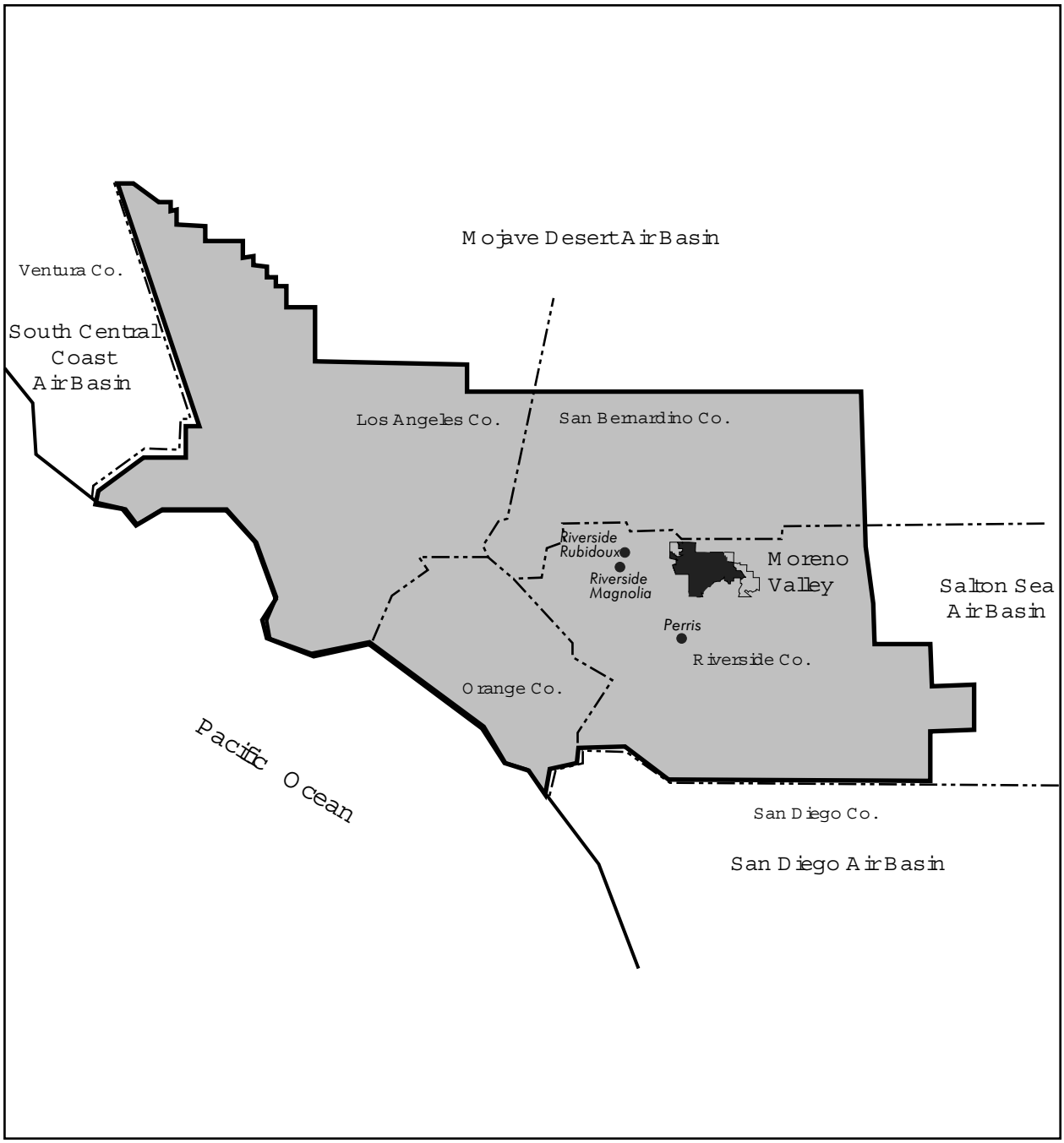
The City of Moreno Valley is located within the South Coast Air Basin (Basin). Air quality within the Basin is administered by the South Coast Air Quality Management District (SCAQMD). The Basin is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties. **Figure 5.3-1** depicts the location of Moreno Valley within the South Coast Air Basin.

The Basin is a physical unit that, due to low wind speeds and a prevailing inversion layer, retains pollutants for substantial periods. The slow dispersal of pollutants results in high concentrations of primary pollutants including carbon monoxide (CO), hydrocarbons, oxides of nitrogen (NO_X), and fine particulate matter (PM_{10}). The Basin also supports the formation of ozone. The atmospheric haze created by the presence of these pollutants is known as smog.

Climate and Meteorology

The Basin climate is influenced by the semi-permanent high pressure zone off the eastern Pacific Ocean which is responsible for deflecting storms away from the Basin and allowing for the mild climate indigenous to the region. Moreno Valley has an annual average mean temperature for January and July of 51 and 76 degrees Fahrenheit, respectively. During the summer the maximum temperature ranges from approximately 90 to 100 degrees Fahrenheit. According to the California Department of Water resources, rainfall can vary greatly from year to year, but averages from 11 to 14 inches annually within the region.

The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer. The warm upper layer forms a cap over the cool marine layer, which prevents pollution from dispersing upwards. This inversion allows pollutants to accumulate within the lower layer. Light winds during the summer further limit ventilation.



Source: SCAQMD CEQA Manual, 1993

South Coast Air Basin Boundary

County Boundaries

Air Quality Monitoring Station

Not to Scale

North

Figure 5.3-1
South Coast Air Basin

Because of the low average wind speeds in the summer and a persistent daytime temperature inversion, emissions of hydrocarbons and oxides of nitrogen have an opportunity to combine with sunlight in a complex series of reactions. These photochemical reactions produce ozone, a particularly damaging pollutant.

Moreno Valley's air quality is greatly influenced by pollutants transported from other portions of the Basin. The prevailing winds in the Basin transport pollutants generated in the densely urbanized coastal areas (Orange County and Los Angeles County) as far east as Moreno Valley within a period of a few hours. Sometimes the inversion layer will trap pollutants in the Basin, exacerbating the air quality situation.

Air Quality Standards

The State of California and the federal government have established air quality standards and emergency episode criteria for various pollutants. Generally, state regulations have stricter standards than those at the federal level. Air quality standards are set at concentrations that provide a sufficient margin of safety to protect public health and welfare. Episode criteria define air pollution concentrations at the level where short-term exposures may begin to affect the health of a portion of the population particularly susceptible to air pollutants. The health effects are progressively more severe and widespread as pollutant concentrations increase. The state and federal standards for the most important pollutants and the health effects associated with the most important pollutants are presented in **Table 5.3-1**.

The South Coast Air Basin has some of the worst air quality problems in the nation. Despite implementing many strict controls, the basin still fails to meet state and federal air quality standards for four of the criteria pollutants including ozone, nitrogen dioxide (NO_X), carbon monoxide (CO), and fine particulate matter (PM10). Because the state and federal standards are not achieved, the basin is considered a "non-attainment" area for those pollutants.

Air Quality Management Plan

In accordance with federal Clean Air Act requirements, the State of California must submit a State Implementation Plan (SIP) to demonstrate how non-attainment areas will meet a number of federal health-based standards by specific deadlines.

To bring the South Coast Air Basin in compliance with the SIP, the South Coast Air Quality Management District (SCAQMD) adopted a revised Air Quality Management Plan (AQMP) on August 1, 2003. The 2003 update of the South Coast Air Quality Management Plan is the region's plan for attaining federal and state clean air standards. It outlines the air pollution control measures needed to meet federal standards for ozone by 2010, and for fine particulates, by 2006. It also demonstrates how the federal standard for carbon monoxide will be maintained. The plan also takes a preliminary look at what will be needed to achieve more stringent proposed standards for ozone and ultrafine particulates ($PM_{2.5}$).

TABLE 5.3-1
CALIFORNIA AND FEDERAL AIR QUALITY STANDARDS

Air Pollutant	State Standard	Federal Primary Standard	Most Relevant Health Effects
	Concentration/ Averaging Time	Concentration/ Averaging Time	
Ozone	0.09 ppm, 1-hr. avg.> 	0.12 ppm, 1-hr. avg.> 0.08 ppm, 8-hr. avg.>	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals. (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr. avg.> 20 ppm, 1-hr. avg.>	9 ppm, 8-hr. avg.> 35 ppm, 1-hr. avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr. avg.>	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr. avg.> 0.25 ppm, 1-hr. avg.>	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr. avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM_{10})**	20 $\mu g/m^3$, ann. geometric mean> 50 $\mu g/m^3$, 24-hr. average >	50 $\mu g/m^3$, ann. arithmetic mean > 150 $\mu g/m^3$, 24-hr. avg. >	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children; (c) Increased risk of premature death from heart or lung diseases in elderly
Suspended Particulate Matter ($PM_{2.5}$)**	12 $\mu g/m^3$, ann. arithmetic mean > 65 $\mu g/m^3$, 24-hr avg.>	15 $\mu g/m^3$, ann. arithmetic mean > 65 $\mu g/m^3$, 24-hr avg.>	
Sulfates	25 $\mu g/m^3$, 24-hr avg.=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu g/m^3$, 30-day avg.=	1.5 $\mu g/m^3$, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount such that the extinction coefficient is greater than 0.23 inverse kilometers (to reduce the visual range to less than 10 miles) at relative humidity less than 70 percent, 8-hour average (10am-6pm)		Visibility impairment on days when relative humidity is less than 70 percent
Hydrogen Sulfide	0.03 ppm 1-hr. avg.>		(a) Iritation to eyes and respiratory tract; (b) Conjuctivitis, pain, lacrimation, and photophobia may persist for several days; (c) Coughing, pain in breathing, pain in nose and throat; (d) Repeated exposure causes headache, dizziness, and digestive disturbances; (e) Collapse and death.[1]

TABLE 5.3-1
CALIFORNIA AND FEDERAL AIR QUALITY STANDARDS

Vinyl Chloride	0.01 ppm 24-hr. avg.>		(a) Iritation to eyes and respiratory tract; (b) Acute exposure causes dizziness, drowsiness, headaches, and giddiness; (c) Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness, lung and kidney irritation, and inhibition of blood clotting in humans and cardiac arrhythmias in animals.[2]

* For readers convenience in picking out standards quickly, concentration appears first; e.g. "0.12 ppm, 1-hr. avg.>" means 1-hr. avg> 0.12 ppm
** New and stricter state standards for PM are proposed and adopted by ARB. They include: PM 10 annual average of 20 ug/m^3 and new PM 2.5 annual average of 12 ug/m^3.
[1] Source: USACE http://el.erdc.usace.army.mil/workshops/04jun-wots/kaluschue.pdf
[2] Source: EPA http://www.epa.gov/ttn/atw/hlthef/vinylchl.html
Source: South Coast Air Quality Management District, Air Quality Management Plan, 2003.

Regulatory Framework

The Federal Clean Air Act established national air quality objectives. The Clean Air Act requires any region that does not meet federal air quality standards to prepare plans for bringing the area in to compliance. The State of California enacted the California Clean Air Act (CCAA) in 1988. The CCAA established air quality standards that are more stringent than the federal standards and requires regional emissions to be reduced by 5 percent or more per year until the region is in compliance. The South Coast Air Quality Management District is the agency responsible for developing the regional air quality plan.

The California Air Resources Board (CARB) is responsible for statewide air quality regulations and the Environmental Protection Agency is responsible for federal air quality regulations. Recent actions by both agencies will substantially reduce harmful emissions. The CARB and the EPA adopted new low sulfur standards for diesel fuel that will allow advanced emission control devises to be placed on existing and new generation diesel engines. The new fuels and advanced emission control devises will dramatically reduce emissions of sulfur and particulates. The new low sulfur diesel fuel standard will be phased in beginning in mid-2006. The CARB also adopted tougher exhaust standards for large diesel engines that are calculated to reduce nitrogen oxide and particulate emissions by 90 percent. The tougher diesel exhaust standards will take effect beginning with the 2007 model year. On October 23, 2003, the CARB passed additional regulations aimed at reducing emissions from ships, off-road construction equipment, diesel trucks, lawn and garden equipment and chemical based consumer products.

Air Quality Monitoring

As depicted on **Figure 5.3-1**, Moreno Valley is located within the South Coast Air Quality Management District in the central portion of the Basin. The South Coast Air Basin is designated as a non-attainment area for federal and state ozone and PM_{10} standards, meaning that air quality standards are being exceeded. The planning area is located in the vicinity of three monitoring stations operated by the AQMD: the Perris, Riverside-Rubidoux, and the Riverside-Magnolia stations. The Perris station is

considered to best represent the air quality conditions in Moreno Valley. The Perris and the Riverside-Magnolia stations monitor ozone and particulate matter levels, while the Riverside-Rubidoux station monitors ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide levels. Therefore, the Perris and Riverside-Rubioux station data is used to represent the air quality conditions of Moreno Valley.

Ozone

Ozone (O_3) is a pungent, colorless gas typical of southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. Ozone levels typically peak during the summer and early fall months. **Table 5.3-2** depicts the Perris air quality monitoring station ozone data. The number of days that the state 1-hour ozone levels are exceeded in the Perris station has increased slightly between 1998 and 2002, while the days on which the national 1-hour ozone levels were exceeded have decreased slightly. State 1-hour ozone level standard was exceeded 38 times in 1998 and 59 times in 2002. However, the national 1-hour ozone standard was exceeded 8 times in 1998, while in 2002 it was exceeded 4 times. As depicted in **Table 5.3-2**, the national 1-hour ozone standard was not exceeded at all in 1999. Additionally, the highest 1-hour ozone measurement in 1998 was 0.149 parts per million (ppm), while in 2002 the highest measurement was 0.147 ppm.

TABLE 5.3-2
HIGHEST FOUR DAILY MAXIMUM HOURLY OZONE MEASUREMENTS AND NUMBER OF DAYS ABOVE THE HOURLY STANDARDS AT PERRIS (1998-2002)
(parts per million)

Year	1998	1999	2000	2001	2002
High	Aug 04 0.149	Aug 13 0.112	Jul 22 0.164	Aug 11 0.152	Aug 12 0.147
2nd High	Jul 16 0.147	Aug 14 0.111	Jul 27 0.147	Jun 08 0.151	Jun 18 0.125
3rd High	Aug 06 0.139	Jul 29 0.109	Jul 20 0.141	Jul 28 0.149	Jul 08 0.125
4th High	Jul 17 0.137	Jun 30 0.106	Jul 30 0.140	May 31 0.148	Jul 31 0.125
*Days over State Standard	38	10	65	73	59
*Days over National Standard	8	0	15	19	4
**Year Coverage	99	100	100	100	100

Source: California Air Resources Board, 2003.
Notes:
* The number of days at least one measurement was greater than the level of the state hourly standard (0.09 parts per million) of the national hourly standard (0.12 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.
** Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutants concentrations are expected. For the current year, Year Coverage will be 0 at the beginning year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.

Table 5.3-3 depicts the Riverside-Rubidoux air quality monitoring station ozone data. The number of days that the state and national 1-hour ozone levels are exceeded in the Riverside-Rubidoux station has decreased slightly between 1998 and 2002. State 1-hour ozone level standard was exceeded 70 times in 1998 and 56 times in 2002. The national 1-hour ozone standard was exceeded 32 times in 1998, while in 2002 it was exceeded 12 times. Additionally, the highest 1-hour ozone measurement in 1998 was 0.195 parts per million (ppm), while in 2002 the highest measurement was 0.155 ppm.

TABLE 5.3-3
HIGHEST FOUR DAILY MAXIMUM HOURLY OZONE MEASUREMENTS AND NUMBER OF DAYS ABOVE THE HOURLY STANDARDS AT RIVERSIDE-RUBIDOUX (1998-2002)
(parts per million)

Year	1998	1999	2000	2001	2002
High	Aug 30 0.195	Jul 11 0.142	May 27 0.140	Aug 25 0.143	Sep 22 0.155
2nd High	Jul 16 0.193	Jun 13 0.131	Sep 17 0.133	Aug 05 0.140	Jul 07 0.148
3rd High	Jul 26 0.166	Aug 21 0.131	Aug 13 0.129	Aug 18 0.138	Aug 10 0.144
4th High	Aug 08 0.166	Jun 12 0.122	Oct 01 0.123	Sep 23 0.132	Jul 08 0.139
*Days over State Standard	70	38	42	41	56
*Days over National Standard	32	3	7	7	12
**Year Coverage	98	98	100	100	95

Source: California Air Resources Board, 2003.
Notes:
* The number of days at least one measurement was greater than the level of the state hourly standard (0.09 parts per million) of the national hourly standard (0.12 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.
** Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutants concentrations are expected. For the current year, Year Coverage will be 0 at the beginning year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.

As illustrated in **Tables 5.3-2** and **5.3-3**, although ozone levels have continued to show slight improvement at the Riverside-Rubidoux monitoring station and slight decline in the Perris monitoring station between 1998 and 2002, the state ozone standard was exceeded an average of 49 days each year at the both stations.

Particulate Matter

Particulate matter (PM_{10}) is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, or mists. The size of the particles (10 microns or smaller) allows them to enter the air sacs deep in the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction. Particulate matter is generated by wind blowing dry soils from sites disturbed by construction,

agriculture and other activities, vehicle exhaust, fireplaces, wildfires, waste burning, industrial sources, pollen and spores.

Table 5.3-4 depicts the PM_{10} data for the Perris air quality monitoring station. According to the table, PM_{10} levels have increased since 1998. The daily PM_{10} levels exceeded the annual state standard 14 times in 1998, while in 2002, PM_{10} level exceeded the state standard 24 times. The highest daily PM_{10} concentration in 1998 was 98.0 micrograms per cubic meter ($\mu g/m^3$), while in 2001 PM_{10} level reached up to 100.0 $\mu g/m^3$. However, the federal annual standard was not exceeded at all in between 1998 and 2002.

TABLE 5.3-4
HIGHEST FOUR DAILY PM_{10} MEASUREMENTS AND ANNUAL STATISTICS AT PERRIS (1998-2002)
(micrograms per cubic meter)

Year	1998	1999	2000	2001	2002
High	Oct 08 98.0	Nov 02 112.0	Mar 31 87.0	Oct 16 86.0	Sep 23 100.0
2nd High	Oct 20 81.0	Dec 08 98.0	Oct 09 75.0	May 01 79.0	Sep 05 79.0
3rd High	Sep 14 76.0	Nov 14 92.0	Dec 08 75.0	Aug 17 78.0	Feb 07 76.0
4th High	Dec 31 66.0	Jan 18 91.0	Dec 02 73.0	Nov 21 77.0	Nov 22 72.0
Measured:					
*Days over State Standard	14	30	13	16	24
*Days over National Standard	0	0	0	0	0
Calculated:					
*Days over State Standard	79	180	78	96	144
*Days over National Standard	0	0	0	0	0
***State Annual Average	33	44	36	36	41
***National Annual Average	34	50	41	40	45
**3-Year National Average	No data	No data	No data	44	42
****Year Coverage	86	100	96	97	No data

Source: California Air Resources Board, 2003.
Notes:
* Measured days are those days that an actual measurement was greater than the level of the state daily standard (50 micrograms per cubic meter) or the national daily standard (150 micrograms per cubic meter). Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
** The 3-year statistics include data from the listed year and the two years before the listed year.
*** The state annual average is a geometric mean of all measurements. The national annual average is an arithmetic average of the 4 arithmetic quarterly averages.
**** Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.

Table 5.3-5 depicts the PM_{10} data for the Riverside-Rubidoux air quality monitoring station. According to the table, PM_{10} levels have also increased significantly in this station since 1998. The daily PM_{10} levels exceeded the annual state standard 42 times in 1998, while in 2002, PM_{10} level exceeded the state standard 81 times. The highest daily PM_{10} concentration in 1998 was 116.0 micrograms per cubic meter ($\mu g/m^3$), while in 2002 PM_{10} level reached as high as 130.0 $\mu g/m^3$. However, the federal annual standard was not exceeded at all in between 1998 and 2002.

TABLE 5.3-5
HIGHEST FOUR DAILY PM_{10} MEASUREMENTS
AND ANNUAL STATISTICS
AT RIVERSIDE-RUBIDOUX (1998-2002)
(micrograms per cubic meter)

Year	1998	1999	2000	2001	2002
High	Oct 20 116.0	Nov 02 153.0	Dec 05 139.0	Oct 16 136.0	Nov 25 130.0
2nd High	Nov 25 111.0	Sep 21 134.0	Dec 23 139.0	Aug 17 133.0	Nov 01 102.0
3rd High	Jul 16 109.0	Mar 01 119.0	Dec 02 131.0	Oct 25 131.0	Oct 20 100.0
4th High	Aug 21 107.0	Jan 18 118.0	Dec 29 126.0	Oct 19 117.0	Sep 23 99.0
Measured:					
*Days over State Standard	42	46	68	76	81
*Days over National Standard	0	0	0	0	0
Calculated:					
*Days over State Standard	202	265	264	264	257
*Days over National Standard	0	0	0	0	0
***State Annual Average	48	64	54	54	53
***National Annual Average	55	73	55	65	60
**3-Year National Average	61	65	62	65	61
****Year Coverage	91	100	100	100	No data

Source: California Air Resources Board, 2003.
Notes:
* Measured days are those days that an actual measurement was greater than the level of the state daily standard (50 micrograms per cubic meter) or the national daily standard (150 micrograms per cubic meter). Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
** The 3-year statistics include data from the listed year and the two years before the listed year.
*** The state annual average is a geometric mean of all measurements. The national annual average is an arithmetic average of the 4 arithmetic quarterly averages.
**** Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.

Carbon Monoxide, Nitrogen Dioxide, and Sulfur Dioxide

According to the California Air Resources Board, the Riverside-Rubidoux air monitoring station has not exceeded carbon monoxide (CO), nitrogen dioxide (NO_2), or sulfur dioxide (SO_2) state and/or national standards within the years 1998-2002.

Sensitive Receptors

High concentrations of air pollutants pose health problems for the general population, particularly young children playing outdoors, the elderly and the sick. Locations where these people congregate are considered sensitive receptor areas. Examples of sensitive receptor areas include schools, community centers, parks hospitals, convalescent homes and nursing homes.

Objectionable Odors

Construction activities and certain types of land uses, such as heavy industrial, commercial and agricultural uses may create objectionable odors in the study area. The South Coast Air Quality Management District (SCAQMD) Rule 402 prohibits such emissions. Any mobile or stationary source generating an objectionable odor is subject to Rule 402 and may be reported to the SCAQMD.

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Circulation Element Objectives 5.3, 5.4, 5.8 and 5.9 and related policies and Programs 5-4, 5-5, 5-6, 5-9 through 5-16 serve to control vehicular emissions by limiting the number of vehicle miles traveled, enhancing circulation and relieving traffic congestion. They encourage walking, bicycling, mass transit, transportation demand management, intelligent transportation systems and road improvements that allow for the efficient movement of vehicles.

Each of the land use alternatives as well as Safety Element Objective 6.6 and related policies promote land use patterns that reduce trip distances and thereby reduce air pollution. The plan locates commercial sites and parks close to residential areas (particularly higher density areas) and provides adequate areas for job-generating land uses. Safety Element Objective 6.7 and related policies support regional air quality strategies, park and ride facilities and express bus service. Policy 6.7.4 requires heavy industrial sites to be separated from residential areas and sensitive receptors.

Objective 7.5 and related policies concerning energy conservation would also reduce air emissions. Policy 7.5.5 encourages solar power and other forms of renewable energy. Policy 7.5.3 calls for the placement of commercial, industrial and multiple family uses in areas of high transit potential.

Existing Regulations

Rule 403 is an existing AQMD regulation that requires watering and other actions to reduce the amount of fugitive dust particles released into the air due to grading, construction, demolition and other activities.

Title 24 regulations are statewide building design and construction standards that improve the energy efficiency of new buildings. Energy efficiency reduces the demand for electric generation, natural gas and other fuels. Energy efficient buildings also reduce the air emissions associated with electric generation and combustion of natural gas and other fuels.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Violate any Federal, State, or local ambient air quality standard;*
- *Substantially contribute to an existing air quality violation;*
- *Conflict with the SCAQMD Air Quality Management Plan or SCAG Growth Management Plan;*
- *Create objectionable odors; or*
- *Expose sensitive receptors to substantial pollutant concentrations.*

ENVIRONMENTAL IMPACT

Air quality impacts from future development allowed under the three General Plan Land Use Alternatives can be divided into two types; short-term impacts and long-term impacts. Short-term impacts are associated with construction activities and long-term impacts are associated with the continued operation of developed land uses and the associated increase in vehicular trips.

Short-Term Impacts

General Plan Alternatives 1, 2, and 3

Future development in the planning area will generate construction impacts associated with the following construction activities: 1) construction equipment emissions; 2)

emissions from workers' vehicles traveling to and from the construction sites; and 3) dust from grading and earth-moving operations. Construction related air quality impacts will occur periodically throughout implementation of the General Plan, regardless of which Land Use Alternative is selected. Construction activity will primarily generate PM_{10}, CO, and NO_X. In addition, reactive organic gases (ROGs) will be released during the use of architectural coatings, exterior paints and asphalt.

The three General Plan Land Use Alternatives identify future allowed land uses; however, no specific development is proposed. Construction emissions for specific development projects will vary depending on the size of the project, amount of grading required, type and quantity of construction equipment, building floor area or number of residential units to be constructed. As such, construction related emissions cannot be accurately determined at this general plan level of analysis. However, general construction emissions output calculations were performed to describe a typical construction related emissions output per day. The demolition, grading, and building construction emissions calculations were based on a daily development of approximately 4.5 acres within the planning area. These calculations are contained in Volume II Appendix C of this EIR. **Table 5.3-6** depicts a summary of the construction related emissions anticipated to occur with a typical project that could occur under the General Plan.

TABLE 5.3-6
TYPICAL CONSTRUCTION RELATED EMISSIONS

Pollutant	Total Emissions (lbs/day)
PM_{10}	18
ROG	113
NOx	154
CO	141

Source: P&D Consultants, July 2003.

As depicted in **Table 5.2-6**, the demolition, grading, and building construction activities of a typical development project allowed under the General Plan may result in an average of 18 pounds per day of PM_{10} emissions, 113 pounds per day of ROG emissions, 154 pounds per day of NO_X emission, and 141 pounds per day of CO emissions for one project. However, more than one project is likely to be under construction at one time.

The South Coast Air Basin currently fails to meet state and federal air quality standards for four of the criteria pollutants including ozone, nitrogen dioxide, carbon monoxide, and fine particulate matter. Therefore, the addition of construction related emissions to the air basin could violate the existing federal, State, and local air quality standards for ozone, nitrogen dioxide, carbon monoxide, and fine particulate matter and contribute to an existing air quality violation. This is considered a significant impact.

The PM_{10} emissions associated with construction activities can be reduced by approximately 50 percent with implementation of the SCAQMD Rule 403 construction regulations. Also, implementation of the aforementioned new state and AQMD regulations on construction equipment, diesel fuels and diesel exhaust will substantially reduce short-term impacts on air quality. Implementation of Mitigation Measures AQ1, AQ2, and AQ3 will further reduce the construction related air quality impact; however, the impact associated with construction related emissions is anticipated to remain significant and unavoidable.

Long-Term Impacts

General Plan Alternatives 1, 2, and 3

New development that would occur pursuant to any of the three General Plan Alternatives would impact regional air quality. The major sources of new air pollution would result from: 1) on-site emissions from the use of natural gas for space heating, cooking and water heating; 2) emissions from vehicles traveling to and from the planning area; 3) emissions from the combustion of fossil fuels at power plants to produce the electricity used within the planning area; and 4) stationary source emissions from industrial and commercial uses.

Table 3-1 in the *Section 3.0 Project Description* of this EIR summarizes the level of development expected to occur with implementation of the three General Plan Land Use Alternatives. As depicted, approximately 76,420 dwelling units and 100,437,000 square feet of non-residential development may occur under the Alternative 1. Implementation of Alternative 2 is expected to generate approximately 83,324 dwelling units and 97,409,000 square feet of non-residential development. Under Alternative 3, approximately 82,728 dwelling units and 90,257,000 square feet of non-residential development would occur.

The City currently implements, and will continue to implement state-mandated air quality regulations. The General Plan also provides residential land use in close proximity to commercial centers and employment centers. This allows people to walk to work, and shopping, which will result in a reduction of the number of vehicular trips generated by implementation of the General Plan, and reduction in the associated air pollution.

Table 5.3-7 depicts the estimated daily emissions associated with buildout of Land Use Alternative 1, which includes both stationary and mobile emissions. **Table 5.3-7** also summarizes the difference between existing and Alternative 1 estimated daily emissions. The planning area is anticipated to generate over 57,838 pounds per day of PM_{10}, 26,196 pounds per day of ROG, 11,738 pounds per day of NO_X, and 116,908 pounds per day of CO. As depicted in **Table 5.3-7**, this is a decrease of approximately 2,385 pounds per day of ROG, 17,101 pounds per day of NO_X, and 141,723 pounds per day of CO.

TABLE 5.3-7
COMPARISON OF ESTIMATED EXISTING AND ALTERNATIVE 1
DAILY AVERAGE PROJECT EMISSIONS (LBS/DAY)

Pollutant	Existing			Buildout			Net Change
	Stationary Source Emissions	Mobile Source Emissions	Total	Stationary Source Emissions	Mobile Source Emissions	Total	
PM_{10}	615	12,557	13,172	1,300	56,538	57,838	44,666
ROG	7,715	20,866	28,581	16,332	9,864	26,196	(2,385)
NO_x	1,075	27,764	28,839	2,852	8,886	11,738	(17,101)
CO	5,289	253,342	258,631	11,345	105,563	116,908	(141,723)

( ) = decrease
Notes: All emission levels provided in Table 5.3-7 are unmitigated; mitigated emission levels are discussed in the *Section 7.0 Cumulative Impacts.*
Source: P&D Consultants, July 2003.

Table 5.3-8 depicts the estimated daily emissions associated with buildout of General Plan Alternative 2, which includes both stationary and mobile emissions. **Table 5.3-8** also summarizes the difference between existing and Alternative 2 estimated daily emissions. The planning area is anticipated to generate over 52,535 pounds per day of PM_{10}, 26,776 pounds per day of ROG, 10,814 pounds per day of NO_X, and 107,699 pounds per day of CO. As depicted in **Table 5.3-8**, this is a decrease of approximately 1,805 pounds per day of ROG, 18,025 pounds per day of NO_X, and 150,932 pounds per day of CO.

Table 5.3-9 depicts the estimated daily emissions associated with buildout of General Plan Alternative 3, which includes both stationary and mobile emissions. **Table 5.3-9** also summarizes the difference between existing and Alternative 3 estimated daily emissions. The planning area is anticipated to generate over 50,977 pounds per day of PM_{10}, 26,383 pounds per day of ROG, 10,554 pounds per day of NO_x, and 104,763 pounds per day of CO. As depicted in **Table 5.3-9**, this is a decrease of approximately 2,198 pounds per day of ROG, 18,285 pounds per day of NO_x, and 153,868 pounds per day of CO.

TABLE 5.3-8
COMPARISON OF ESTIMATED EXISTING AND ALTERNATIVE 2
DAILY AVERAGE PROJECT EMISSIONS (LBS/DAY)

Pollutant	Existing			Buildout			Net Change
	Stationary Source Emissions	Mobile Source Emissions	Total	Stationary Source Emissions	Mobile Source Emissions	Total	
PM_{10}	615	12,557	13,172	1,417	51,118	52,535	39,363
ROG	7,715	20,866	28,581	17,779	8,997	26,776	(1,805)
NO_x	1,075	27,764	28,839	2,805	8,009	10,814	(18,025)
CO	5,289	253,342	258,631	12,192	95,507	107,699	(150,932)

( ) = decrease
Notes: All emission levels provided in Table 5.3-9 are unmitigated; mitigated emission levels are discussed in the *Section 7.0 Cumulative Impacts.*
Source: P&D Consultants, July 2003.

TABLE 5.3-9
COMPARISON OF ESTIMATED EXISTING AND ALTERNATIVE 3
DAILY AVERAGE PROJECT EMISSIONS (LBS/DAY)

Pollutant	Existing			Buildout			Net Change
	Stationary Source Emissions	Mobile Source Emissions	Total	Stationary Source Emissions	Mobile Source Emissions	Total	
PM_{10}	615	12,557	13,172	1,407	49,570	50,977	37,805
ROG	7,715	20,866	28,581	17,653	8,731	26,383	(2,198)
NO_x	1,075	27,764	28,839	2,781	7,773	10,554	(18,285)
CO	5,289	253,342	258,631	12,110	92,653	104,763	(153,868)

( ) = decrease
Notes: All emission levels provided in Table 5.3-5 are unmitigated; mitigated emission levels are discussed in the *Section 7.0 Cumulative Impacts.*
Source: P&D Consultants, July 2003.

As depicted in **Tables 5.3-7** through **5.3-9**, implementation of Alternative 3 would result in the least air quality emissions, while implementation of Alternative 1 would result in the most emissions. As a result, implementation of Alternative 3 would generally be the most environmentally superior General Plan Alternative in terms of total air emissions.

The South Coast Air Basin currently fails to meet state and federal air quality standards for four of the criteria pollutants including ozone, nitrogen dioxide, carbon monoxide, and fine particulate matter. Although emission levels are anticipated to decrease for

ROG, NO_X, and CO by the buildout of any of the three General Plan Alternatives due to stricter air quality standards and better technology, implementation of any of the three General Plan Alternatives could still significantly contribute to the existing air quality violations. As a result, implementation of the General Plan could violate the existing federal, State, and local air quality standard and conflict with the SCAQMD Air Quality Management Plan or SCAG Growth Management Plan. Implementation of Mitigation Measures AQ1 through AQ10 would reduce the air quality impacts; however, the long-term air quality impact is anticipated to remain significant and unavoidable due to cumulative effects in combination with air emissions within the South Coast Air Quality Basin.

Sensitive Receptors

General Plan Alternatives 1, 2, and 3

Future development according to any of the three General Plan Alternatives has the potential to increase the exposure of sensitive receptors, including residents, in the planning area to increased air pollutant levels associated with carbon monoxide (CO). Section 5.2 *Traffic/Circulation* of this EIR provides an analysis of roadway and intersection operations for General Plan buildout. As depicted in Section 5.2, implementation of the proposed General Plan could result in several intersections operating at Level of Service (LOS) E or worse. These intersections would have the potential to create localized CO "hot spot" impacts. Typically, if a sensitive receptor is located within 500 feet of an intersection operating at LOS worse than E, a significant impact would occur. Therefore, implementation of the General Plan may result in a significant impact associated with sensitive receptors.

Concentrations of air pollutants such as carbon monoxide and particulates are much higher adjacent to freeways than the concentrations of pollutants in areas located far from freeways. The land use plan for Alternatives 1 and 3 would allow new residential development adjacent to State Route 60 (from Moreno Beach Drive east), while Alternative 2 would allow commercial, office and business park development adjacent to the freeway. Therefore, both Alternatives 1 and 3 would expose more sensitive receptors to air pollution from freeway traffic than would be the case under Alternative 2.

Implementation of Mitigation Measure AQ10 would reduce the impact; however, the impact associated with sensitive receptors would remain significant and unavoidable. Mitigation Measure AQ10 requires that studies shall be conducted on the identified street segments to determine if any additional traffic controls, pavement width or other operational system improvements are needed to achieve the desired level of service.

Objectionable Odors

General Plan Alternatives 1, 2, and 3

Future construction activity allowed according to the three proposed General Plan Alternatives could generate objectionable odors. These odors would be short-term in nature. Future industrial and commercial uses could also generate objectionable odors. Any objectionable odor may be reported to the AQMD, which resolves complaints through investigation within one business day of the received complaint, and issuance of Notices to Comply/Notices of Violation, when necessary. These existing regulations will avoid any significant impacts associated with objectionable odors associated with implementation of any of the three General Plan Alternatives. Implementation of the General Plan will not result in a significant objectionable odors impact.

MITIGATION MEASURES

AQ1. Grading activities shall comply with South Coast Air Quality Management District Rule 403 regarding the control of fugitive dust **(Policy 6.7.5)**.

AQ2. Building construction shall comply with the energy conservation requirements of Title 24 of the California Administrative Code **(Policy 6.7.6)**.

AQ3. Cooperate with regional efforts to establish and implement regional air quality strategies and tactics **(Policy 6.7.1)**.

AQ4. Encourage the financing and construction of park-and-ride facilities **(Policy 6.7.2)**.

AQ5. Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties **(Policy 6.7.3)**.

AQ6. Coordinate with Caltrans and RCTC regarding the integration of Intelligent Transportation Systems (ITS) consistent with the principles and recommendations referenced in the Inland Empire ITS Strategic Plan **(Policy 5.4.2)**.

AQ7. Ensure that all new developments make adequate provision for bus stops and turnout areas for both public transit and school bus service **(Policy 5.8.4)**.

AQ8. Integrate bikeways, consistent with the Bikeway Plan, with the circulation system and maintain Class II and III bikeways as part of the City's street system **(Policy 5.10.2)**.

AQ9. Implement Transportation demand management (TDM) strategies that reduce congestion in the peak travel hours. Examples include carpooling, telecommuting, and flexible work hours **(Program 5-12)**.

AQ10. Conduct studies of specified arterial segments to determine if any additional improvements will be needed to maintain an acceptable LOS at General Plan build-out. Generally, these segments will be studied as new developments are proposed in their vicinity. Measures will be identified that are consistent with the Circulation Element designation of these roadway segments, such as additional turn lanes at intersections, signal optimization by coordination and enhanced phasing, and travel demand management measures. The arterial segments that require further study are shown on General Plan Figure 5-1 *(Road segments listed in Table 5.2-6 for Alternative 1, Table 5.2-8 for Alternative 2 and Table 5.2-10 for Alternative 3 of the EIR for the General Plan Update)*. **(Program 5-6)**

IMPACT AFTER MITIGATION

Significant and unavoidable.

NOTES AND REFERENCES

None.

5.4 NOISE

A portion of the following section is based on a noise analysis prepared by Wieland Associates, Inc. (July 2003). The noise analysis is provided in Volume II Appendix D of this EIR.

ENVIRONMENTAL SETTING

Moreno Valley is subject to typical urban noises such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities. The City of Moreno Valley also has several transportation-related noise sources, including airport noise, railroad operations, major arterials and State Route 60. Noise sources that are not directly related to transportation include noise from commercial and industrial centers, construction, and property maintenance activities.

Noise Environment

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility is subjective and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness." Sound pressure is measured and quantified using a logarithmic scale, which gives the level of sound in decibels (dB). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, an A-weighting system is used to adjust measured sound levels and is expressed as dBA.

Noise consists of pitch, loudness, and duration; therefore, it is difficult to describe noise with a single unit of measure. Federal and state agencies have established noise and land use compatibility guidelines that use averaging approaches to noise measurement. Two measurement scales commonly used in California are the Community Noise Equivalent Level (CNEL) and the day-nigh level (L_{dn}). In order to account for increased human sensitivity at night, the CNEL level includes a five dB penalty on noise during the 7:00 P.M. to 10:00 P.M. time period and a 10 dB penalty on noise during the 10:00 P.M. to 7:00 A.M. time period. The L_{dn} level includes only the ten dB weighting for late-night noise. These values are nearly identical for almost all noise sources.

Title 24 (Part 2 Volume 1) of the California Code of Regulations includes noise insulation standards for new multi-family structures (hotels, motels, apartments, condominiums, and other attached dwellings) located within the 60 CNEL contour adjacent to roads, railroads, rapid transit lines, airports or industrial areas. An acoustical analysis is required showing that these multi-family units have been designed to limit interior noise levels with doors and windows closed to 45 CNEL in any habitable room. Title 21 of the California Code of Regulations (Subchapter 6, Article 2, Section 5014)

specifies that acoustical analyses shall be required for all new residential structures located near airports, where noise levels exceed 60 CNEL, showing that the proposed design will achieve noise levels in all habitable rooms of not more than 45 CNEL.

The environmental impact of noise is a function of the sensitivity of the land use where noise is heard. In general, land use sensitivity to noise is a function of human annoyance and community reaction rather than health and safety considerations. Human annoyance takes place at sound levels that are much lower than the sound levels that could produce hearing loss.

Residents typically become annoyed when the noise level in their environment interferes with sleeping, talking and listening to radio or television. People are particularly sensitive to nighttime noises that interfere with sleep. Interior noise levels of 45 Ldn or CNEL or less are considered necessary for restful sleep.

A summary of surveys of community reaction to noise was published in 1978. (T.J. Schultz, "Synthesis of Social Surveys on Noise Annoyance," Journal of the Acoustical Society of America, Vol. 63 No. 8, August 1978) Generally, very few people were highly annoyed with a residential noise environment of 50 Ldn, about 10 percent at 60 Ldn and approximately 16 percent at 65 Ldn. The level of annoyance increased to approximately 25 percent when the noise levels reached 70 Ldn, 35 percent at 75 Ldn and 70 percent at 85 Ldn.

It is important to note that the aforementioned surveys were completed before energy efficient building practices were commonplace. Energy efficient buildings tend to insulate interior living spaces from both heat and noise. Therefore, the level of annoyance at any given exterior noise level should be lower in newer housing developments than would be the case in older developments.

Noise can also interfere with nonresidential uses such as schools, libraries, churches, and hospitals. The activities associated with these uses, such as resting, concentrating, reading and listening, are best conducted in relatively quiet settings.

Agencies use different noise standards and guidelines based on the level of annoyance that is considered to be acceptable. All agency standards and guidelines attempt to strike a balance between community annoyance and economic feasibility.

The U.S. Department of Housing and Urban Development (HUD) developed noise guidelines to ensure that housing projects supported by the agency are located in acceptable living environments. HUD defines and exterior noise level between 65 Ldn and 75 Ldn as "normally unacceptable" and above 75 Ldn as "Unacceptable."

The State of California General Plan Guidelines label exterior noise levels between 60 and 70 Ldn or CNEL as "conditionally acceptable" for residential uses (i.e. new construction is acceptable with the condition that noise reduction measures are identified

and included in the project design). Noise levels between 70 and 75 Ldn or CNEL are considered "normally unacceptable" for residential uses (i.e. new construction is discouraged and if new construction is proposed, noise reduction measures must be identified and incorporated into the project design). Noise levels above 75 Ldn or CNEL are considered "clearly unacceptable" for residential uses.

The California General Plan Guidelines also label exterior noise levels between 60 and 70 Ldn or CNEL as "conditionally acceptable" for schools, libraries, churches, and hospitals and noise levels between 70 and 80 Ldn or CNEL as "normally unacceptable." Noise levels above 80 Ldn or CNEL are considered "clearly unacceptable" for those uses. Office and commercial uses are considered "conditionally acceptable" between 60 and 75 Ldn or CNEL and "normally unacceptable" above 75 Ldn or CNEL.

The Moreno Valley General Plan discourages new residential development where noise due to aircraft overflights exceeds 65 CNEL. In addition, noise attenuation is required where necessary to achieve acceptable interior noise levels. The acceptable interior noise is 45 CNEL for residences and schools and 50 CNEL for libraries, hospitals, places of worship and office uses.

Transportation-Related Noise

Noise generated by transportation activity is the primary Moreno Valley noise source. Transportation noise is concentrated along the transportation corridors and aircraft flight patterns associated with the joint-use airport at March Air Reserve Base. Noise levels adjacent to roadways vary with the volume of traffic, the vehicular speed, the truck mix and the road cross-section. High traffic volumes and speed along State Route 60 and arterial roadways contribute to high noise levels. Noise levels due to air traffic from the joint-use airport at March Air Reserve Base depend on aircraft characteristics, the number, path, elevation and duration of flights as well as the time a day that flights take place. As depicted in **Figure 5.4-1,** a portion of the western Moreno Valley falls within the 60 CNEL future noise contour of the March joint-use airport).

Moreno Valley General Plan

Proposed Safety Element Objectives 6.3, 6.4 and 6.5 and associated policies and Program 6-3 substantially reduce noise exposure. For example, Policy 6.3.1 requires noise mitigation for sensitive uses where the projected noise level would exceed 65 CNEL. Policy 6.3.2 discourages residential uses where current or projected exterior noise due to aircraft over flights would exceed 65 CNEL. Policy 6.5.1 requires new commercial and industrial activities to mitigate noise impacts on adjacent uses. Policy 6.5.2 requires construction activities to limit noise impacts on surrounding uses. Program 6-3 calls for the City to reevaluate designated truck routes in terms of noise impact to determine if those routes and the hours that they are used should be adjusted to minimize exposure to truck noise.

Each land use alternative limits noise exposure for residential uses in areas heavily impacted by aircraft noise. In each case, areas exposed to noise levels of 65 CNEL or more are planned for commercial, office and industrial uses. Alternative 1 also prohibits residential uses in areas exposed to noise levels between 60 and 65 CNEL.

Existing Regulations

The noise generated by construction is addressed by existing city regulations. It is unlawful to create noise that annoys reasonable people of normal sensitivity. There are also restrictions on hours of activity. Grading may take place between 7 a.m. and 8 p.m. Construction may take place between 6 a.m. and 8 p.m. during the week and 7 a.m. and 8 p.m. on weekends and holidays.

Moreno Valley enforces the provisions of the State Noise Insulation Standards (Title 24). Title 24 specifies that combined indoor noise for multi-family living spaces shall not exceed 45 dB(A) CNEL. This standard must be implemented when the outdoor noise level exceeds 60 dB(A) CNEL. The future noise contour map can be used to determine the appropriate time to implement this standard. Title 24 also requires that the standard be applied to all new hotels and motels.

Existing Noise Control Practices

Current practice is to require six-foot high masonry walls between single-family lots and major roadways. Such walls typically provide substantial noise attenuation (3-6 dba).

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Expose persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies*

- *Expose persons to or generation of excessive groundborne vibration or groundborne noise levels.*

- *Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

- *Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

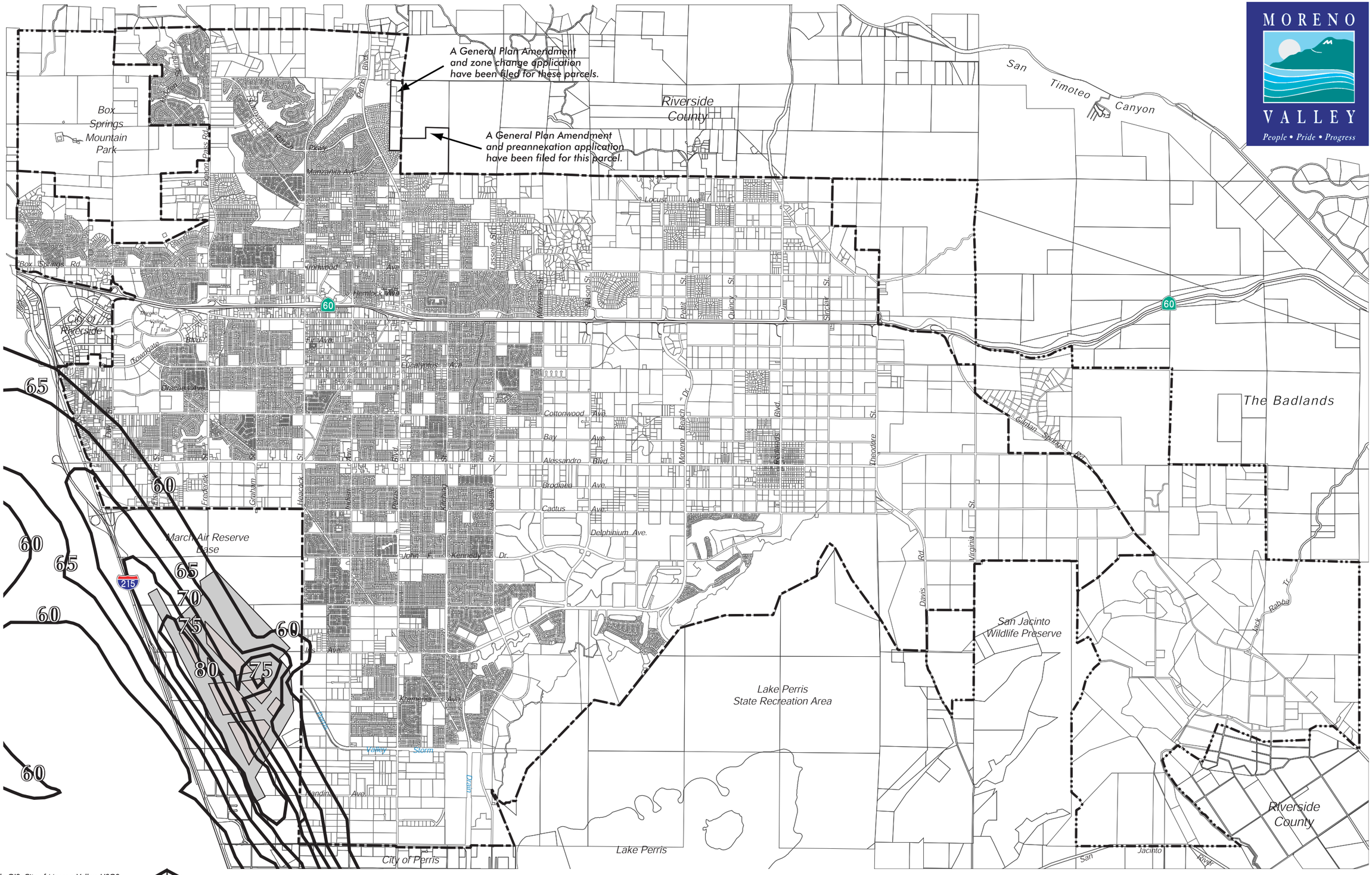


Figure 5.4-1 March Reserve Air Base Noise Impact Area

- *For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.*

- *For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.*

ENVIRONMENTAL IMPACT

Construction Activities

Implementation of the Moreno Valley General Plan would result in additional development, which would generate noise during construction. Construction activity would have the potential to impact noise sensitive land uses located adjacent to construction sites.

Table 5.4-1 illustrates typical noise levels from operating construction equipment at a distance of 50 feet. As shown, construction equipment generates high levels of intermittent noise ranging from 70 dB(A) to 105 dB(A). Although construction activities will result in a noise impact at such locations, this impact will be short-term and will cease upon completion of construction. The temporary nature of the impact in conjunction with existing city regulations on hours of operation will lessen the potential of a significant impact due to construction noise. However, noise sensitive land use located adjacent to construction sites may be significantly impacted by future construction in the planning area as a result of groundborne noise levels and vibration, noise levels that exceed existing standards, and excessive temporary or periodic increases in the ambient noise level. Mitigation Measures N5 and N10 will reduce these impacts to a level less than significant.

TABLE 5.4-1
CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment Item	Range of Noise Level at 50 Feet	Nominal Noise Level, Leq, at 50 Feet
Earthmoving		
Backhoes, 200 HP	71 to 93 dB(A)	85 dB(A)
Berm Machine, 100 HP	74 to 84 dB(A)	80 dB(A)
Dozers	72 to 96 dB(A)	86 dB(A)
Front Loaders, 300 HP	71 to 96 dB(A)	82 dB(A)
Graders	73 to 95 dB(A)	85 dB(A)
Paver	80 to 92 dB(A)	89 dB(A)
Roller, 180 HP	78 to 84 dB(A)	79 dB(A)
Scrapers	73 to 95 dB(A)	88 dB(A)
Tractors, 200 HP	72 to 96 dB(A)	84 dB(A)
Trencher, 80 HP	76 to 86 dB(A)	82 dB(A)
Truck/Trailer, 200 HP	70 to 92 dB(A)	82 dB(A)
Truck:125 HP, 150 HP	76 to 85 dB(A)	80, 82 dB(A)
Materials Handling		
Concrete Mixer	70 to 90 dB(A)	85 dB(A)
Concrete Pump	74 to 84 dB(A)	82 dB(A)
Crane, Moveable: 50 HP, 200 HP, 400 HP	75 to 95 dB(A)	76, 80, 83 dB(A)
Derrick	86 to 89 dB(A)	88 dB(A)
Forklift, 40 HP	68 to 82 dB(A)	80 dB(A)
Side Boom, 200 HP	80 to 90 dB(A)	85 dB(A)
Water Truck, 500 HP	79 to 88 dB(A)	84 dB(A)
Stationary Equipment		
Boiler, 1600 HP	79 to 85 dB(A)	82 dB(A)
Compressors: 100 HP, 200 HP	68 to 87 dB(A)	78, 81 dB(A)
Generators: 20 HP, 400 HP, 1300 HP	69 to 81 dB(A)	74, 81, 84 dB(A)
Pumps: 25 HP, 200 HP, 350 HP	60 to 80 dB(A)	73, 76, 80 dB(A)
Impact Equipment		
Compactor, 20 HP	84 to 90 dB(A)	86 dB(A)
Jack Hammers	75 to 104 dB(A)	88 dB(A)
Pile Drivers (Peak Level)	90 to 104 dB(A)	101 dB(A)
Pneumatic Tools	82 to 88 dB(A)	86 dB(A)
Rock Drills	90 to 105 dB(A)	98 dB(A)
Steam Boiler (Pile Driver)	83 to 92 dB(A)	88 dB(A)
Other Equipment		
Saws	67 to 92 dB(A)	78 dB(A)
Vibrators	69 to 80 dB(A)	76 dB(A)
Welding Machines: 50 HP, 80 HP	76 to 85 dB(A)	80, 82 dB(A)

Source: Wieland Associates, 1999.

Vehicular Traffic

The following analyzes vehicular noise impacts of Alternatives 1, 2, and 3.

Alternative 1

Implementation of the General Plan Alternative 1 will allow new development within the planning area. Such development will generate additional traffic that will increase noise levels along the roadways. Table F-1, contained in Appendix D in Volume II of this EIR, summarizes the buildout noise levels from roadways within the planning area. As Table F-1 depicts, future noise levels along major streets in the planning area are projected to range from approximately CNEL 60.5 dB(A) to CNEL 86.0 dB(A). State Route 60 and Interstate 215 will continue to be the primary noise sources with noise levels reaching CNEL 86.0 dB(A) and CNEL 85.5 dB(A), respectively, at a distance of 50 feet from the near lane centerline.

Figure 5.4-2 depicts the buildout noise contours for Alternative 1. As identified in **Figure 5.4-2** and Table F-1, certain portions of the City will be subject to noise levels exceeding the City's noise standards. Sections of Alessandro Boulevard, Cactus Avenue, Day Street, Eucalyptus Avenue, Gilman Springs Road, Interstate 215, Iris Avenue, Moreno Beach Drive, Perris Boulevard, and State Route 60 have noise contours 75 dB(A) or higher at 50 feet from the centerline of the outside lane. This is considered a significant impact because the project will result in a permanent increase in ambient noise levels above levels existing without the project, and these levels may exceed established standards along some roadway corridors. Implementation of Mitigation Measures N1, N2, N6, N7 and N9 will reduce these impact associated with vehicular noise to a level less than significant

Alternative 2

Implementation of the General Plan Alternative 2 will allow new development within the planning area. Such development will generate additional traffic that will increase noise levels along the roadways. Table F-2, contained in Appendix D in Volume II of this EIR, summarizes the buildout noise levels from roadways within the planning area. As Table F-2 depicts, future noise levels along major streets in the planning area are projected to range from approximately CNEL 56.5 dB(A) to CNEL 86.0 dB(A). Interstate 215 and State Route 60 will continue to be the primary noise sources with noise levels reaching CNEL 86.0 dB(A) and CNEL 85.5 dB(A), respectively, at a distance of 50 feet from the centerline of the near lane. Under this alternative, the fewest number of residential units would be allowed along the SR 60 corridor.

Figure 5.4-3 depicts the buildout noise contours for Alternative 2. As identified in **Figure 5.4-3** and Table F-2, certain portions of the City will be subject to noise levels exceeding the City's noise standards. Sections of Alessandro Boulevard, Cactus Avenue, Eucalyptus Avenue, Gilman Springs Road, Interstate 215, Iris Avenue, Perris Boulevard, and State Route 60 have noise contours 75 dB(A) or higher at 50 feet from the centerline

of the near lane. This is considered a significant impact because the project will result in a permanent increase in ambient noise levels above levels existing without the project, and these levels may exceed established standards. Implementation of Mitigation Measures N1, N2, N6, N7 and N9 will reduce the impact associated with vehicular noise to a level less than significant.

Alternative 3

Implementation of General Plan Alternative 3 will allow new development within the planning area. Such development will generate additional traffic that will increase noise levels along the roadways. Table F-3, contained in Appendix D in Volume II of this EIR, summarizes the buildout noise levels from roadways within the planning area. As Table F-3 depicts, future noise levels along major streets in the planning area are projected to range from approximately CNEL 60.0 dB(A) to CNEL 86.0 dB(A). State Route 60 and Interstate 215 will continue to be the primary noise sources with noise levels reaching CNEL 86.0 dB(A) and CNEL 85.5 dB(A) at a distance of 50 feet from the near lane centerline.

Figure 5.4-4 depicts the buildout noise contours for Alternative 3. As identified in **Figure 5.4-4** and Table F-3, certain portions of the City will be subject to noise levels exceeding the City's noise standards. Sections of Alessandro Boulevard, Cactus Avenue, Eucalyptus Avenue, Gilman Springs Road, Interstate 215, Iris Avenue, Moreno Beach Drive, Perris Boulevard, and State Route 60 have noise contours 75 dB(A) or higher at 50 feet from the near lane centerline. This is considered a significant impact because the project will result in a permanent increase in ambient noise levels above levels existing without the project, and these levels may exceed established standards. Implementation of Mitigation Measures N1, N2, N6, N7 and N9 will reduce the impact associated with vehicular noise to a level less than significant.

Aircraft Operations

As depicted in **Figure 5.4-1**, a very small portion of the southwestern Moreno Valley falls within the 75 CNEL noise contour impact area. It is within the Clear Zone of the Moreno Valley Industrial Area Specific Plan. Additionally, small portions of the southwestern and western City fall within the 70 CNEL, 65 CNEL, and 60 CNEL noise contour impact areas. For all three alternatives, uses within those contours are acceptable or conditionally acceptable. To ensure that "conditionally acceptable" land uses are properly designed to avoid significant noise impacts associated with aircraft operations, Mitigation Measures N3 and N8 are proposed. Implementation of these measures will reduce the impact associated with aircraft operations to a level less than significant.

Stationary Noise

Implementation of any of the three General Plan Alternatives may result in excessive noise generated by non-residential projects such as industrial and commercial uses, restaurants, and bars. These types of uses are allowed throughout the planning area. This

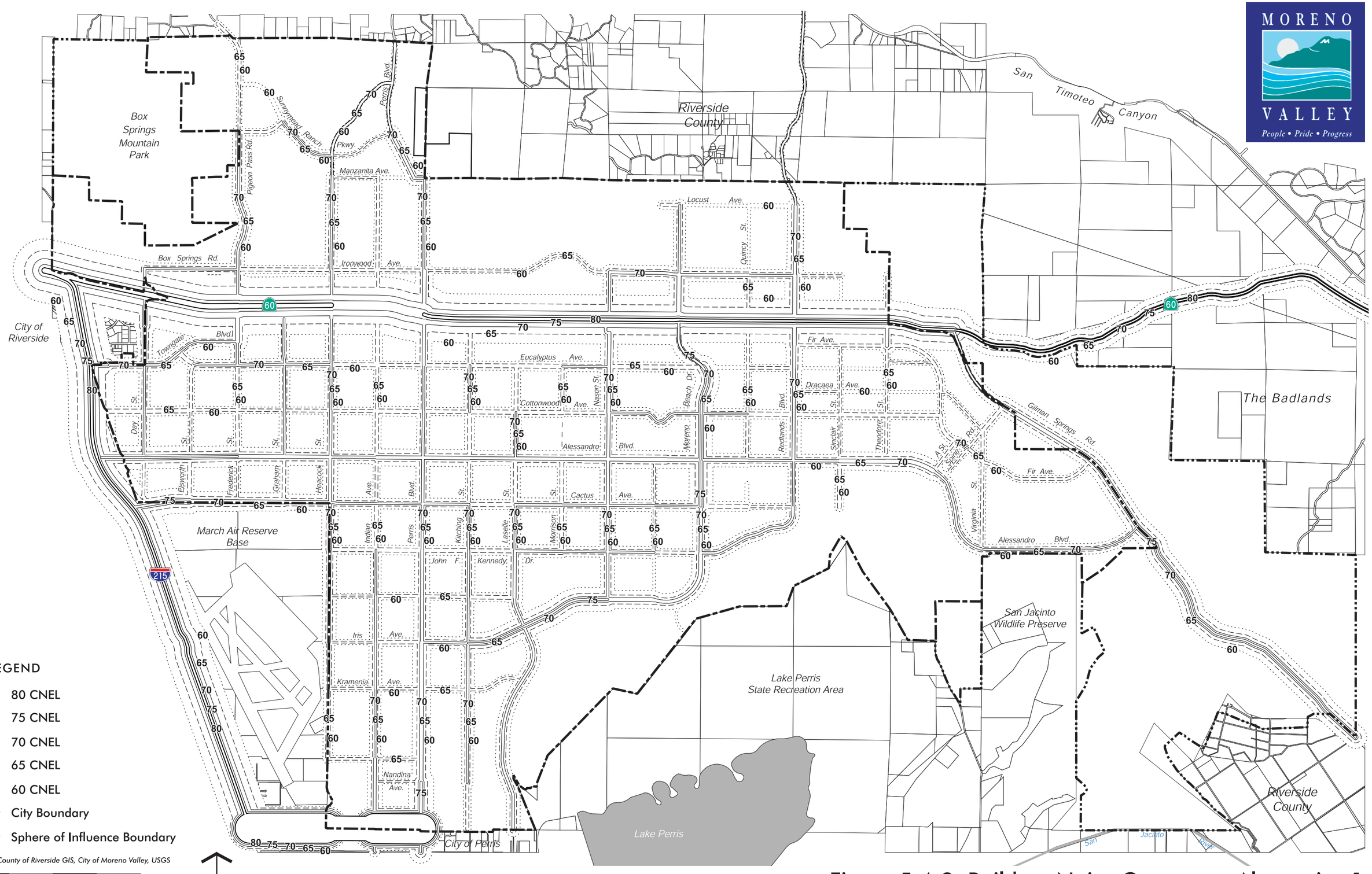


Figure 5.4-2 Buildout Noise Contours – Alternative 1

MORENO VALLEY
People • Pride • Progress

Box Springs Mountain Park

Riverside County

San Timoteo Canyon

City of Riverside

March Air Reserve Base

The Badlands

San Jacinto Wildlife Preserve

Lake Perris State Recreation Area

Lake Perris

City of Perris

Riverside County

Box Springs Rd.
Sunnymead Ranch Pkwy.
Perris Blvd.
Pigeon Pass Rd.
Manzanita Ave.
Ironwood Ave.
Locust Ave.
Quincy St.
Fir Ave.
Eucalyptus Ave.
Cottonwood Ave.
Dracaea Ave.
Gilman Springs Rd.
Alessandro Blvd.
Cactus Ave.
Iris Ave.
Krameria Ave.
Nandina Ave.
John F. Kennedy Dr.
Towngate Blvd.
Day St.
Elsworth St.
Frederick St.
Graham St.
Heacock St.
Indian Ave.
Perris Blvd.
Kitching St.
Laselle St.
Morrison St.
Nason St.
Beach Dr.
Moreno Beach Dr.
Redlands Blvd.
Sinclair St.
Theodore St.
A St.
Spine Rd.
Virginia St.
San Jacinto Wildlife Preserve Rd.
San Jacinto Wildlife Preserve Rd.

LEGEND

- 80 CNEL
- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL
- City Boundary
- Sphere of Influence Boundary

Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Figure 5.4-3 Buildout Noise Contours – Alternative 2

MORENO VALLEY
People • Pride • Progress

Box Springs Mountain Park
Riverside County
San Timoteo Canyon
City of Riverside
March Air Reserve Base
The Badlands
San Jacinto Wildlife Preserve
Lake Perris State Recreation Area
Lake Perris
City of Perris
Riverside County

Box Springs Rd.
Pigeon Pass Rd.
Sunnymead Ranch Pkwy.
Perris Blvd.
Manzanita Ave.
Iroquois Ave.
Locust Ave.
Quincy St.
Fir Ave.
Eucalyptus Ave.
Cottonwood Ave.
Dracaea Ave.
Gilman Springs Rd.
Alessandro Blvd.
Cactus Ave.
Iris Ave.
Krameria Ave.
Nandina Ave.
John F. Kennedy Dr.
Towngate Blvd.
Day St.
Elsworth St.
Frederick St.
Graham St.
Heacock St.
Indian Ave.
Perris Blvd.
Kitching St.
Laselle St.
Morrison St.
Nason St.
Beach Dr.
Moreno Blvd.
Redlands Blvd.
Sinclair St.
Theodore St.
A St.
Spine Rd.
Virginia St.
San Jacinto Blvd.

LEGEND

- 80 CNEL
- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL
- City Boundary
- Sphere of Influence Boundary

Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Figure 5.4-4 Buildout Noise Contours – Alternative 3

is considered a potentially significant impact because stationary noise sources may subject some residents and noise sensitive land uses to substantial increases in ambient noise levels and groundborne vibration that exceed established standards. Noise generated by new development is controlled through the normal design review process and General Plan Policy 6.5.1. When reviewing proposed non-residential projects, noise impacts to surrounding development will be considered. Acoustical analyses will be required for projects that could generate noise potentially affecting residential and other sensitive uses. Where impacts are identified, mitigation measures will be required. Implementation of Mitigation Measures N4, N7, and N9 will reduce this impact to a level less than significant.

MITIGATION MEASURES

N1. The following noise control measures shall be applied to new single-family dwellings exposed to noise along major roadways:

a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.

b. Install double-paned or similar sound rated windows.

c. Provide sound insulating exterior walls and roofing systems.

d. Locate and/or design attic vents to minimize sound propagation into each home.

e. Provide forced-air ventilation systems.

f. Place dwellings as far as practical from the noise source.

N2. Acoustical analyses shall be conducted for new residential development along State Route 60. Noise control measures shall be required to reduce the amount of noise to acceptable levels (limit interior noise levels with doors and windows closed to 45 CNEL).

N3. Discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL (**Policy 6.3.2**).

N4. New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses (**Policy 6.5.1**).

N5. Construction activities shall be operated in a manner that limits noise impacts on surrounding uses (**Policy 6.5.2**).

N6. The City shall reevaluate designated truck routes in terms of noise impact on existing land uses to determine if those established routes and the hours of their use should be adjusted to minimize exposure to truck noise (**Program 6-3**).

N7. The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (**Policy 6.3.1**):

a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.

b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less.

c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.

N8. Where the future noise environment is likely to exceed 70 CNEL due to overflights from the joint-use airport at March, new buildings containing uses that are not addressed under Policy 6.3.1 shall require insulation to achieve interior noise levels recommended in the March Air Reserve Base Air Installation Compatible Use Zone Report (**Policy 6.3.3**).

N9. The City shall enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels (**Policy 6.3.5**).

N10. Building construction shall be prohibited between 8 p.m. and 6.am. during the week and 8 p.m. and 7 a.m. weekends and holidays (**Policy 6.3.6**).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

None.

5.5 HAZARDS

ENVIRONMENTAL SETTING

Certain natural conditions and human activities in Moreno Valley create risks to individuals and properties within the community. Hazards of potential concern in the planning area include hazardous materials, flooding, fires, and air crash potential near the joint civilian and military use March Air Reserve Base. Seismic and other geologic hazards are addressed in *Section 5.6, Geology/Soils* of this EIR.

Hazardous Materials

Hazardous materials are used in Moreno Valley for a variety of purposes including maintenance and operations at March Air Reserve Base, manufacturing, service industries, various small businesses, agriculture, medical uses, schools, and households. Accidents can occur in the production, use, transport and disposal of these hazardous materials. The probability of accidental spills is accentuated by the fact that the region is susceptible to earthquakes.

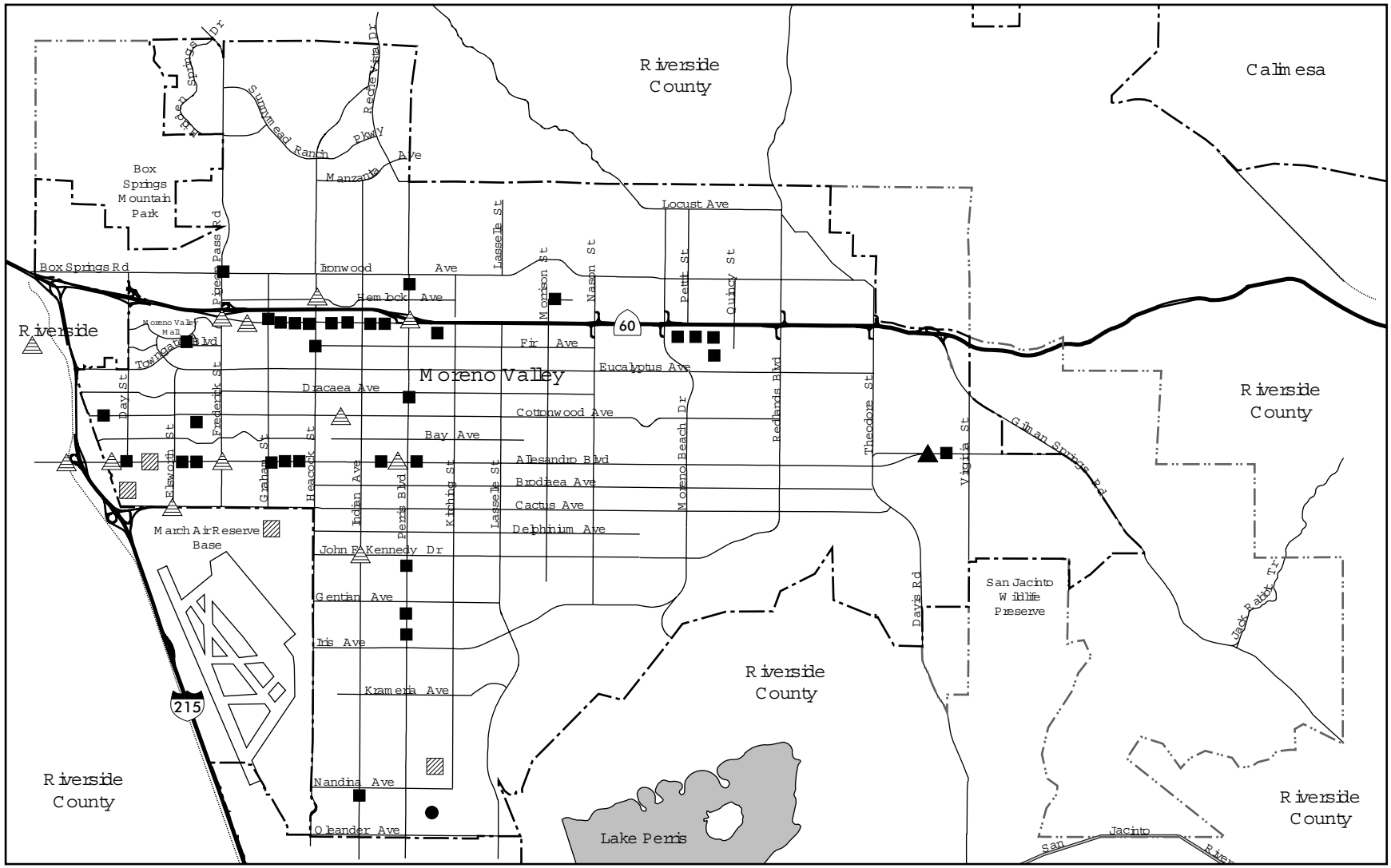
Hazardous Materials Handlers/Generators

Many chemicals used in household cleaning, construction, dry cleaning, film processing, landscaping, and automotive maintenance and repair are considered hazardous. There are more than 40 businesses that handle/generate hazardous waste within the City of Moreno Valley that is monitored by the U.S. Environmental Protection Agency (EPA). Small quantity hazardous waste generators include facilities such as automotive repair, dry cleaners, and medical offices. **Figure 5.5-1** depicts the location of these EPA registered sites.

Riverside County Area Plan

The County of Riverside, Health Services Agency, Department of Environmental Health, Hazardous Materials Division (DEH) established the Area Plan based on requirements of Chapter 6.95 of the California Health and Safety Code, Title 19 of the California Code of Regulations and the U.S. Environmental Protection Agency Superfund Amendments and Reauthorization Act (SARA) Title III for emergency response to a release or threatened release of a hazardous material within the County. The Hazardous Materials Program and Response Plan contained in the Area Plan serves the majority of the cities in Riverside County, including Moreno Valley.

As part of the Area Plan, the Federal Risk Management Plan (RMP), as incorporated and modified by the State of California Accidental Release Prevention (CalARP) Program, is designed to prevent harm to people and the surrounding environment by the use of various organized systems to identify and manage hazards. The goal of the CalARP



Source: U.S. EPA (Envirofacts) and State Water Resource Control Board (LUSTIS)
Note: Locations of hazards are approximate.

City Boundary

Sphere of Influence

North 0 6,000 12,000 ft

Leaking Underground Storage Tanks

Air Toxic Releases

Toxic Releases

Multiple Hazards
(includes hazardous waste handlers, toxic releases, and air releases)

Hazardouz Waste Handlers

Figure 5.5-1
Hazardous Materials Sites

program is to make all facilities that handle regulated substances free of catastrophic incidents

Any stationary source (business) that exceeds the threshold quantities of regulated substances shall submit a RMP under the CalARP Program. A Business Emergency Plan (BEP) must be submitted by all businesses that handle hazardous materials over a designated threshold quantity. Upon completion of a BEP, the BEP is submitted to Moreno Valley's local Certified Unified Program Agency (CUPA). The CUPA with responsibility for the City of Moreno Valley is the County of Riverside Health Department, Environmental Health Division. A BEP contains vital information that may be utilized to minimize the effects and extent of a threatened release of hazardous materials. In addition, this information allows emergency response personnel to determine potential risks and hazards while developing a strategy for handling an emergency involving hazardous materials. Annually submitted RMPs are currently reviewed by the County Environmental Health Division.

If a hazardous materials emergency occurred within the City of Moreno Valley, the first response would be the Moreno Valley Fire Department and from the California Department of Forestry (CDF)/Riverside County Fire Department Hazardous Materials Response Team (HMERT). The HMERT, is stationed at the Beaumont CDF Station 20.

Leaking Underground Storage Tanks

According to the State Water Resources Control Board's (SWRCB) Leaking Underground Storage Tank (LUST) database (LUSTIS, 1999), 27 leaking underground storage tanks have been identified within the planning area. The majority of these tanks have leaked gasoline, and the remaining have leaked diesel and/or waste oil. Of the 27 reported cases, 15 cases have been assessed, remediated and closed. Twelve leaking underground storage tank cases remain open and are currently being assessed. **Figure 5.5-1** depicts the approximate location of the leaking underground storage tank cases currently being assessed.

Transportation of Hazardous Materials

Hazardous materials pass through the City via the freeway, rail and surface street system. Interstate 215 (I-215) is near the City's western boundary. The nearest railway is the Burlington Northern and Santa Fe railway which runs parallel to I-215. While train derailment can occur at anytime, it is during an earthquake that a derailment and hazardous materials release would pose the greatest risk. The major automotive transportation routes through the City include Interstate 60, Alessandro Boulevard, Perris Boulevard, and Cactus Avenue.

The City has no direct authority to regulate the transport of hazardous materials on State highways or rail lines. Transportation of hazardous materials by truck and rail is regulated by the U.S. Department of Transportation (DOT). DOT regulations establish criteria for safe handling procedures. Federal safety standards are also included in the California Administrative Code. The California Health Services Department regulates the haulers of hazardous waste.

Moreno Valley General Plan

In the proposed General Plan Safety Element, Objective 6.10 and its associated Policies promote safe handling of hazardous materials within the planning area.

Flooding

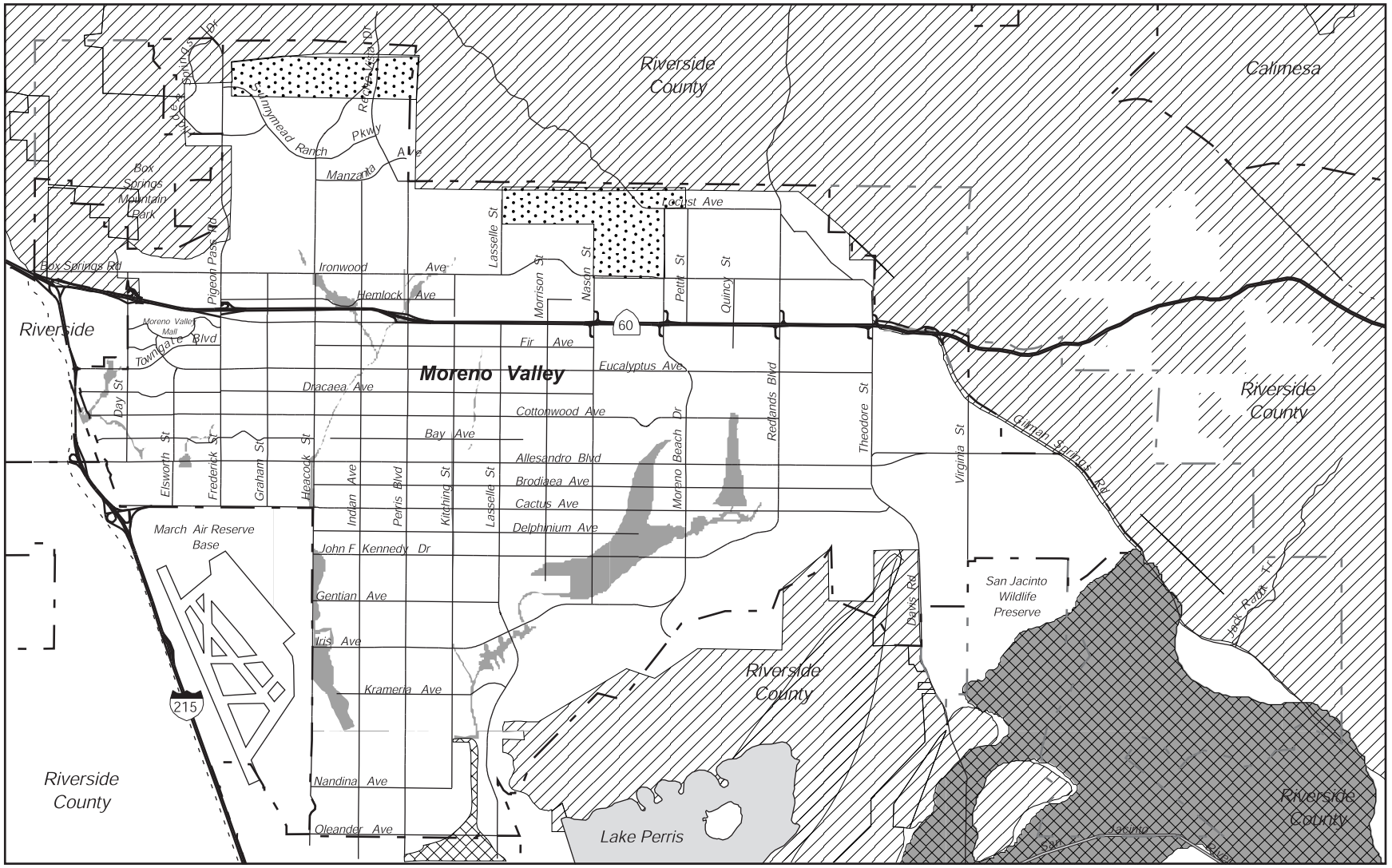
The Riverside County Flood Control and Water Conservation District has responsibility for planning and construction of regional flood control facilities. The City retains the responsibility for designing, construction, and maintenance of local drainage facilities.

Four types of flooding conditions could occur in Moreno Valley: flooding in defined watercourses; ponding; sheet flow; and dam inundation flooding. Flood levels within defined watercourses vary along many of the drainage ways and floodplains. Ponding occurs when water flow is obstructed due to manmade obstacles. Within the planning area, these obstructions include the embankments of State Route 60 and other roadways crossing defined watercourses. Sheet flows occur when capacities of existing drainage channels are exceeded and water flow diverts from its originally defined path over a generally broad and undefined area. As depicted in **Figure 5.5-2**, portions of the City are also subject to potential dam inundation due to failure of the Pigeon Pass Dam and Lake Perris Dam. The potential for significant damage to occur within the planning area as a result of failure of Lake Perris Dam is considered remote. The flood potential due to failure of Pigeon Pass Dam is even more remote because it does not retain water throughout the year.

The City of Moreno Valley is required by Section 8589.5 of the California Government Code to have in place emergency procedures for the evacuation and control of populated areas within the limits of inundation below dams. In addition, real estate disclosure upon sale or transfer of property in the inundation area is required under AB 1195 Chapter 65 passed on June 9, 1998.

Figure 5.5-2 depicts the flood prone areas within the City as mapped by the County of Riverside and the Federal Emergency Management Agency (FEMA). This figure depicts the inundation areas for a 100-year flood; a flood of this size has a one percent chance of occurring in a given year.

An extensive flood prone area exists along the Quincy Channel between Cottonwood Avenue and Cactus Avenue. An extensive floodplain also extends along Oliver Street from a point north of Alessandro Boulevard and extending in a southwesterly direction as far as the northeast corner of Morrison Street and Filaree Avenue and the northeast corner of Nason Street and Iris Avenue. Another extensive flood prone area exists east of Heacock Street and Lateral A of the Perris Valley Channel next to March Air Reserve Base.



Source: Merkel Associates, 2002

City Boundary | Sphere of Influence | Substantial Fire Risk | 100-year Floodplain

Very High Fire Risk | Inundation Area

North 0 6,000 12,000 ft

Figure 5.5-2
Floodplains and High Fire Hazard Areas

A portion of the floodplain of the San Jacinto River covers a wide area in the southeast corner of the planning area. There is a depression in that area that contains the ephemeral Mystic Lake.

Dam inundation is a potential, albeit remote, flood hazard through several portions of the planning area. This condition is based on the assumption of instantaneous failure of a dam with the reservoir at or near its full capacity. Two locations of concern exist within the planning area: Poorman Reservoir (Pigeon Pass Reservoir) and Lake Perris. Failure of the dam at Poorman Reservoir could result in extensive flooding along the downstream watercourse. The risk of flooding due to dam failure is limited to the period during and immediately after major storms. The reservoir does not retain water throughout the year. Failure of the dam at Lake Perris would only affect a very small area south of Nandina Avenue along the Perris Valley Storm Drain and the Mystic Lake area in the southeast corner of the planning area.

Master Drainage Plans

The Riverside County Flood Control and Water Conservation District (RCFCWCD) has prepared Master Drainage Plans for watershed areas in western Riverside County generally at the request of cities or in unincorporated areas where drainage infrastructure is necessary for existing or planned development. These documents analyze drainage flows and make recommendations for improvements. When fully implemented, MDP facilities will provide adequate drainage outlets and will relieve those areas within the MDP boundaries of the most serious flooding problems.

A flood control system has been constructed within much of Moreno Valley to direct runoff from developed areas and prevent flooding. Flood control deficiencies have been identified and improvements have been proposed in the Master Drainage Plans (West End, Sunnymead Area, Perris Valley and the Moreno Valley Master Drainage Plan). A master drainage plan has not been adopted for the area generally located east of Theodore Street.

Moreno Valley General Plan

The proposed General Plan Safety Element, Objective 6.2 and its associated policies seek to reduce the potential for flooding.

Existing Practices

Moreno Valley participates in the National Flood Insurance Program (NFIP), which is administered by the FEMA. The NFIP program provides federal flood insurance and federally financed loans for property owners in flood prone areas. To qualify for federal flood insurance, the City must identify flood hazard areas and implement a system of protective controls. In addition, all development is required to comply with RCFCWCD requirements for construction of master drainage plan facilities.

Wildland and Urban Fires

The City of Moreno Valley is subject to both wildland and urban fires. The natural vegetation in the area is highly prone to fire. As depicted in **Figure 5.5-2**, a portion of the northern and eastern portions of the City and the planning area is within a High Fire Hazard Area. This could create a potential public safety hazard for residents in the event of a wildland fire. The urbanized portions of the City are subject to structural fires.

Moreno Valley General Plan

In the proposed General Plan Safety Element, Objectives 6.13 through 6.16 and their associated policies promote wildland and urban fire prevention.

Emergency Preparedness

Local Emergency Operations Plans are intended to help local jurisdictions respond to emergency situations with a coordinated system of emergency service providers and facilities. Moreno Valley is currently in the process of revising its Emergency Operations Plan (Multi-Hazard Functional Plan, November 14, 1995). The plan identifies resources available for emergency response and establishes coordinated action plans for specific emergency situations including earthquake, fire, major rail and roadway accidents, flooding, hazardous materials incidents, terrorism and civil disturbances.

The City of Moreno Valley uses the Standardized Emergency Management System (SEMS) when responding to emergencies. The system was established to provide an organized systematic approach in responding to disaster events. The system includes the following phases: preparedness, response, recovery, and mitigation.

The preparedness phase involves activities undertaken in advance of an emergency or disaster. Emphasis is on planning, training, disaster drills and public education and awareness programs.

Moreno Valley places a high priority on public disaster education. Citizens are provided a range of emergency management training, including Federal Emergency Management Agency (FEMA) Community Emergency Response Team (CERT) training, emergency preparedness workshops, disaster presentations at schools, CPR, first aid training, HAM radio classes and terrorism awareness training.

As of 2003, several emergency volunteer teams were in operation. The Emergency Response Force (ERF) and the Community Emergency Response Team (CERT) are volunteers who are trained to assist during times of emergency. The Moreno Valley Radio Amateur Civil Emergency Services (RACES) is a volunteer team of HAM Radio Operators who are trained to provide back up emergency communications.

The response phase includes increased readiness, initial response and extended response activities. During an extended response, the City would generally activate its Emergency

Operations Center (EOC). The EOC would normally be manned 24-hours a day by both public safety and other City personnel to coordinate emergency response activities. As of 2002, the EOC was located at City Hall and the alternate EOC was in the Public Safety Building.

Recovery activities involve restoration of services and returning the affected area to pre-emergency conditions as soon as practical. Recovery activities could range from restoring water and power to providing information to the public regarding state and federal disaster assistance programs.

Mitigation efforts occur both before and after emergencies or disasters. Mitigation includes eliminating or reducing the likelihood of future emergencies.

Moreno Valley General Plan

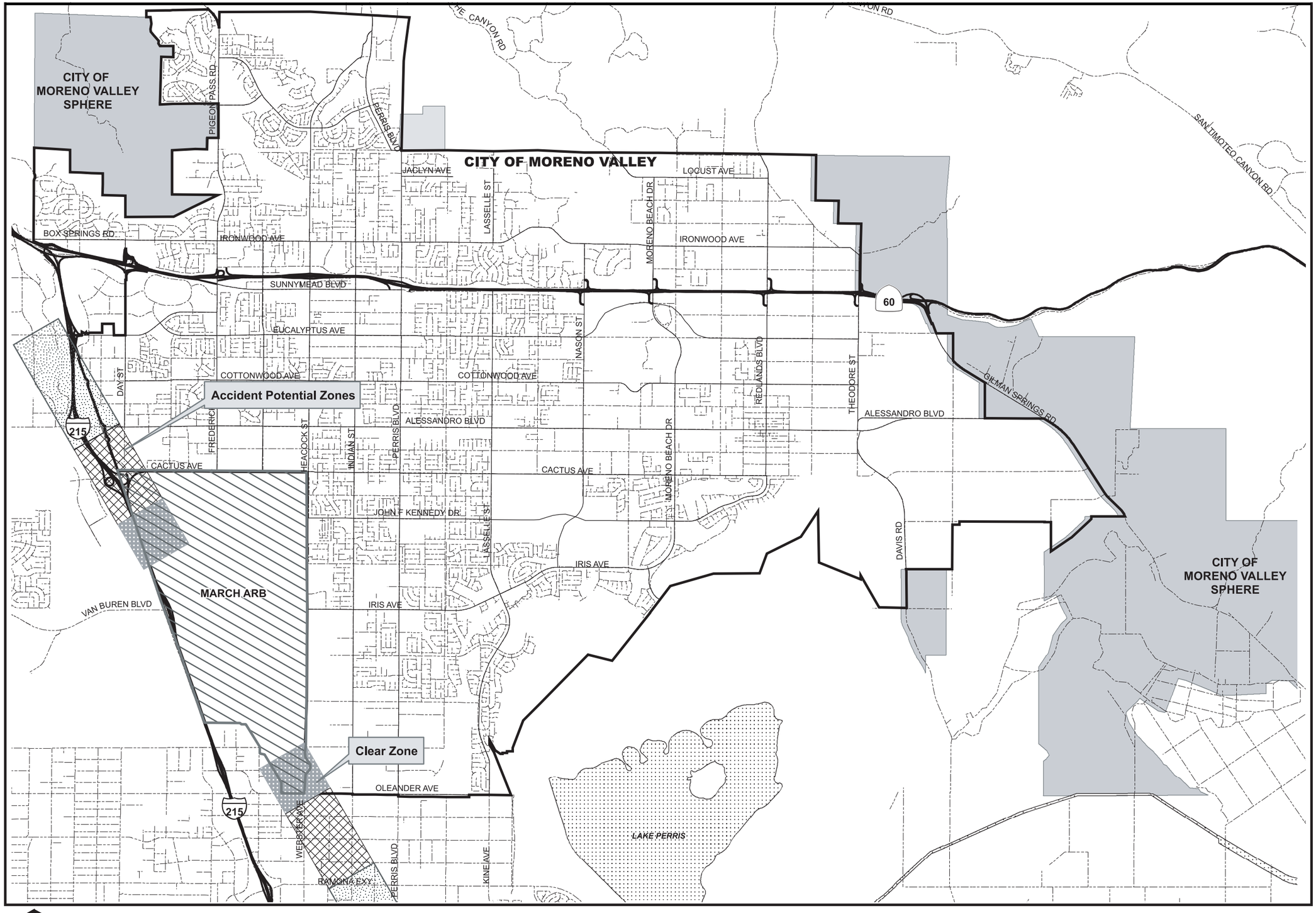
In the proposed General Plan Safety Element, Objectives 6.11 and 6.12, and their associated Policies serve to promote emergency preparedness within the planning area.

Aircraft Hazards

The airfield southwest of Moreno Valley is a joint-use airport, operated by the March Air Reserve Base and the March Inland Port Airport Authority. Air operations present some risk for air crashes. To promote compatible land use in areas around Air Force Installations, which are subject to aircraft noise and accident hazards, the Air Force developed the Air Installation Compatible Use Zone (AICUZ) program. The program is intended to provide information concerning aircraft accident hazards to communities surrounding Air Force installations and to prevent incompatible development in areas affected by aircraft operations.

Air crash hazards and land use compatibility associated with the airfield at March were analyzed in the Air Installation Compatibility Use Zone report prepared by the Air Force in 1998. The report mapped areas of relative potential for crashes into various categories: areas on or adjacent to the runway; areas within the clear zone; Accident Potential Zone (APZ) I; and Accident Potential Zone (APZ) II. The flight operations present a potential, albeit minor, risk for air crashes. As shown in **Figure 5.5-3**, the risk is greatest immediately under the takeoff and landing zone located at either end of the runway(s).

The area on or adjacent to the runway is within the boundaries of the joint-use airport and is outside of the planning area. The accident potential within the clear zone, which extends 3,000 feet from each end of the runway, is considered to be of such high risk that few uses are acceptable. A small area at the extreme southwest corner of the City is within the clear zone.



- Streets
- Major Streets
- Highways
- March ARB
- Accident Potential Zone I
- Accident Potential Zone II
- Clear Zone
- Moreno Valley
- Moreno Valley Sphere
- Waterbodies

5,000 2,500 0 5,000 Feet

0.5 0.25 0 0.5 1 Miles

Date: March 27, 2006
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\air_crash.mxd
*Air Accident Zone data provided by MARB

GEOGRAPHIC INFORMATION SYSTEMS

The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

North

Figure 5.5-3
City Areas Affected by Aircraft Hazard Zones

The accident potential within APZ I and APZ II is considered to be significant enough to warrant special attention.

The basic criteria for APZ I and APZ II land use guidelines is the prevention of uses that:

- have high residential density characteristics;
- are labor intensive;
- promote concentrations or extended duration of concentration of people, in particular, of people who are unable to respond to emergency situations such as children, elderly, handicapped;
- involve utilities and services required for the area to which disruption would have a significant adverse impact (e.g. electrical substations, telephone switching stations, etc.); or pose hazards to aircraft operations.

Precise maps of the air crash hazard areas (safety zones) in the vicinity of March were prepared to reflect the actual flight pattern for departures. Departing aircraft turn to the west shortly after takeoff. The resulting air crash hazard areas slant to the west of the accident potential zones shown in the 1998 AICUZ Report.

Tall structures are also an issue in the vicinity of airports. Federal Aviation Regulations (FAR) Part 77 recommends that local jurisdictions institute height controls to limit tall structures that might present hazards to aircraft operations. Part 77 defines the navigable airspace around airports to help local jurisdictions determine if a proposed tall structure might interfere with air operations.

General Plan

Policy 6.16.4 of the Safety Element calls for land use limitations within air crash hazard areas in accordance with the AICUZ program.

Existing Regulations

Existing city zoning regulations limit development within the air crash hazard areas in accordance with the AICUZ program.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Create a hazard to the public and environment involving the production, use or transport of hazardous wastes and materials;*

- *Place housing or structures within a 100-year flood hazard area exposing people and structures to flooding hazards;*

- *Expose people or structures to a significant risk of loss, injury or death involving wildfires;*

- *Impair implementation of an adopted emergency response plan or emergency evacuation plan; or*

- *Expose substantial numbers of people to significant risk of loss, injury or death involving air crashes.*

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2 and 3

Hazardous Materials

Hazardous Materials Generators and Leaking Underground Storage Tanks

Implementation of any of the three proposed General Plan Land Use Alternatives will result in the development of new residential, commercial, and industrial uses. As a result more hazardous materials will be used within the planning area. The hazardous materials used and stored within the planning area are likely to be common materials associated with uses such as gasoline stations, automotive repair shops, commercial uses, and industrial uses.

The General Plan Safety Element objectives, policies and implementation programs including implementation and/or compliance with the Riverside County Area Plan address the proper use, storage, collection and disposal of hazardous materials. Continued implementation of these policies and implementation programs will avoid any significant hazardous materials impact, and no mitigation is required.

Future development under any of the three proposed General Plan Alternatives could lead to an increase in the number of Underground Storage Tanks (USTs) in Moreno Valley and thus, potentially more Leaking Underground Storage Tanks (LUSTs). The Regional Water Quality Control Board (RWQCB) issues permits to operate underground storage tanks. The RWQCB is also responsible for monitoring the USTs and responding to requests to assess and remediate leaking tanks. Future commercial and industrial land uses that propose to install USTs will have to comply with all RWQCB policies. Based on continued oversight by the RWQCB for installation and operation of USTs, no significant impact is anticipated.

Transportation of Hazardous Materials

Under any of the three proposed General Plan Land Use Alternatives, more hazardous materials will be transported through the City on major roads and on the railway (adjacent to I-215). Due to the anticipated increase in generation and transport of hazardous materials within and adjacent to the City, the probability of accidents and

environmental contamination will increase. The transport of hazardous materials by truck and rail is regulated by the U.S. Department of Transportation (DOT). Regulation by the DOT will avoid any significant impact associated with the transportation of hazardous materials.

General Plan Land Use Alternative 2 will allow more business park/industrial development which may involve the use of more hazardous materials than Land Use Alternatives 1 or 3; however, the increase in hazards/hazardous materials in the City under Land Use Alternative 2 will not be significantly greater than under Land Use Alternatives 1 or 3.

Implementation of any of the three General Plan Land Use Alternatives will not result in a significant impact associated with the generation, use, transport or disposal of hazardous materials.

Flooding

The three proposed General Plan Land Use Alternatives designate land in the planning area for various types of land uses. Open Space and Flood Plain designations are applied to some land within the 100-year flood zones, particularly in the southeastern portion of the planning area. These designations only allow natural open space, parks, and recreational facilities, prohibiting residential structures. As a result no permanent population will exist in those portions of the flood zone. However, areas within the 100-year flood zone are designated for other uses, including residential, commercial and industrial uses. The development of additional residential and business-related uses in those areas must comply with existing programs aimed to reduce flooding hazards. These programs include: 1) participation in the National Flood Insurance Program; 2) coordination with the RCFCWCD to ensure maintenance of flood control channels and completion of necessary repairs to RCFCWCD-owned facilities on an as-needed basis; and 3) maintenance of emergency procedures in accordance with Section 8589.5 of the California Government Code. The City will continue to implement these programs as described in the General Plan Safety Element.

Implementation of the City's existing floodplain management programs and the policies contained in the General Plan Safety Element will avoid any significant flooding impacts. No mitigation is required. No significant flooding impact would occur under any of the three proposed General Plan Land Use Alternatives.

Wildland and Urban Fires

Implementation of any of the General Plan Land Use Alternatives will result in new development and the expansion adjacent to the high wildland fire hazard area, thereby resulting in a greater potential for wildland and urban fires. The existing practices and General Plan objectives, policies and programs will serve to avoid any significant wildland and urban fire impact, and no mitigation is required. No significant wildland or urban fire impact will occur as a result of implementing any of the three proposed General Plan Land Use Alternatives. Under Land Use Alternative 3, less residential development would be allowed in the northeastern portion of the City which would

subject less people to impacts associated with wildland fires; although the number of people that would be affected under Land Use Alternatives 1 and 2 is not significantly greater than Land Use Alternative 3. Therefore, the potential impacts associated with wildland fires are essentially the same regardless of which proposed General Plan Land Use Alternative is implemented.

Emergency Preparedness

Implementation of any of the three General Plan Alternatives will not impair implementation of or interfere with the existing or proposed emergency operations plan. The General Plan will not result in a significant impact to the City's adopted Emergency Operations Plan and no mitigation is required.

Aircraft Hazards

The establishment of tall structures around airports and inappropriate uses in areas subject to air crash hazards could substantially increase the risk for loss of lives and property. As such, land use restrictions are needed in these areas in the interest of public safety. Such restrictions are also needed to ensure the long-term viability of the airport.

Existing zoning regulations and proposed General Plan policies prohibit incompatible development in areas most susceptible to air crashes. None of the proposed General Plan Alternatives propose to develop incompatible land uses within the APZs. Therefore, no significant aircraft hazard is associated with any of the three proposed Alternatives. This issue is not considered a significant impact.

MITIGATION MEASURES

No mitigation measure is identified as no significant hazard or hazardous materials impact has been identified.

IMPACT AFTER MITIGATION

Not significant

NOTES AND REFERENCES

1. United States Environmental Protection Agency Website.

2. State of California Water Resources Control Board Website.

3. United States Air Force, March Air Reserve Base. *Air Installation Compatible Use Zone (AICUZ) Study.* 1998.

4. Riverside County Flood Control and Water Conservation District. *Master Plan for the Sunnymead Area.* October 1978.

5. Riverside County Flood Control and Water Conservation District. *Master Drainage Plan for the City of Moreno Valley West End.* April 1991.

6. Riverside County Flood Control and Water Conservation District. *Moreno Master Drainage Plan.* April 1999.

7. Riverside County, Department of Environmental Health. *Area Plan–Hazardous Material Management and Emergency Response*. January 2000.

8. CH2MHILL Study, April 2001.

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5.6 GEOLOGY AND SOILS

ENVIRONMENTAL SETTING

The City of Moreno Valley planning area is situated along a valley floor bounded by the hills and mountains of the Badlands to the east, State Route 215 to the west, the Box Springs Mountains to the north, and the mountains of the Lake Perris State Recreation Area to the south. The planning area slopes to the south.

Geology

The City lies primarily on bedrock known as the Perris Block. This structural unit is located within the Peninsular Range Geomorphic Province, one of the major geologic provinces of Southern California. The Perris Block is a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, the Santa Ana River and a non-defined southeast boundary. The Perris Block has had a history of vertical land movements of several thousand feet due to shifts in the Elsinore and San Jacinto Faults. **Figure 5.6-1** depicts the geology of the planning area.

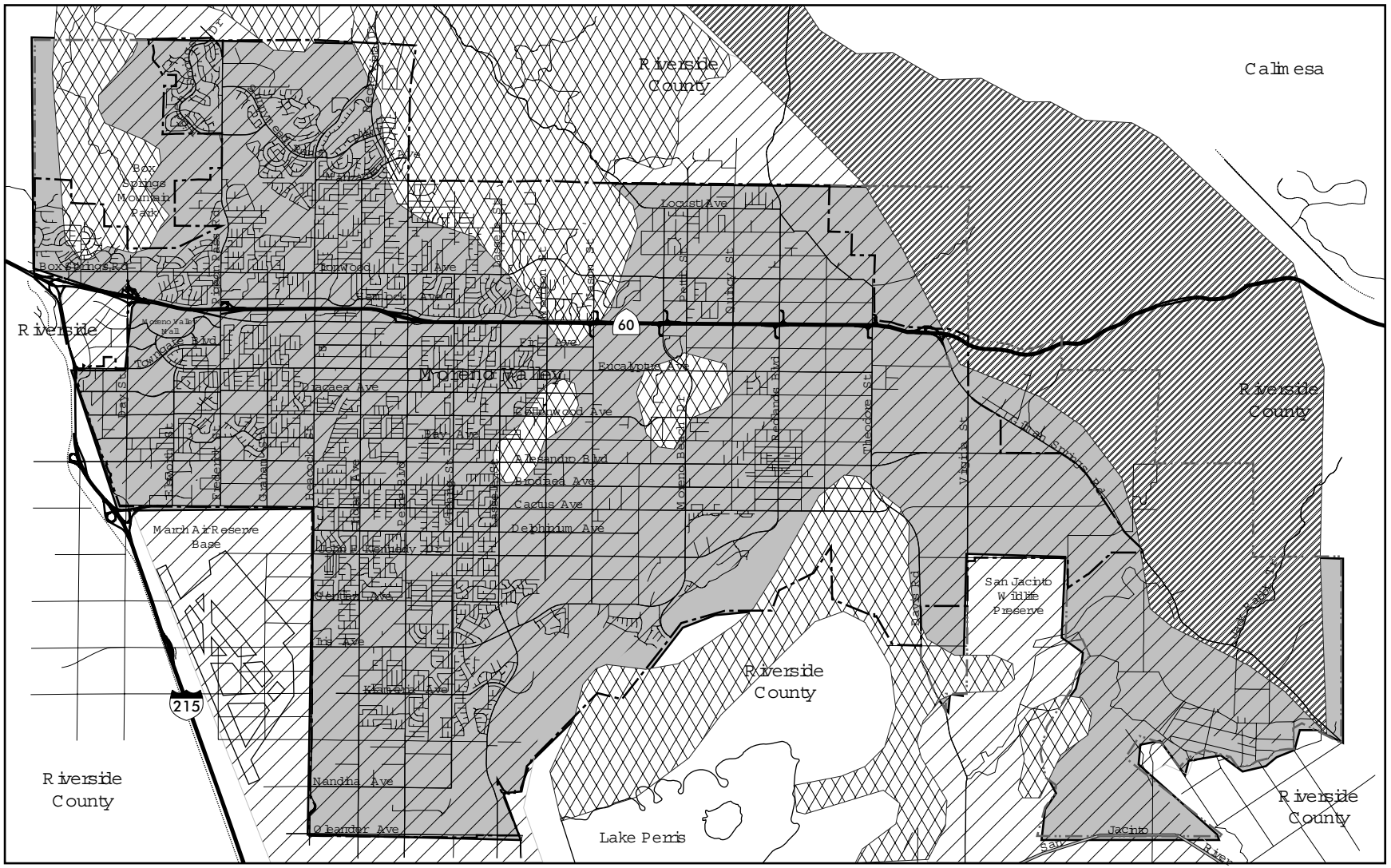
The materials within the valley area are characterized by Pliocene - Pleistocene alluvium ranging from relatively thin (20 feet to 200 feet) to intermediate thickness (up to 2,000 feet), overlaying the primarily granitic bedrock.

The rocky, mountainous areas of the planning area, including the Box Springs Mountains and the Mount Russell/Lake Perris State Recreation area, have an underlying granitic bedrock that consists essentially of quartz diorite, and displays granite rock outcrops and large boulders.

The Badlands range, at the eastern end of the planning area comprises deposits of what was once an inland sea, later elevated and deformed by geologic processes, before becoming severely eroded to its present state. This area consists of folded semi-consolidated sedimentary sandstone, siltstone, and shale.

Soils and Slope Stability

Five soil associations occur within the planning area. The five soil types are: Monserate-Arlington-Exeter; Hanford-Tujunga-Greenfield; Cieneba-Rock Land-Fallbrook; San Emigdio-Grangeville-Metz; and the Badlands-San Timoteo.



Source: Generalized Geologic Map of Part of the Northern Peninsular Ranges, 1985. University of California Riverside, Campus Museum Contributions No. 1, page 64.

Note: This map is not a substitute for detailed Alquist-Priolo Special Studies Maps or Riverside County Hazard Management Zone Maps. For Accurate sitings refer to California State and Riverside County Geolgists.

0 6,000 12,000 ft

North

Perris Bedrock

Quarternary Alluvium

Semi Consolidated Sandstone, Siltstone and beds of gravel

Granite Rocks of the Southern California Batholith

Figure 5.6-1 Geology

Monserate-Arlington-Exeter. This soil association is found adjacent to and within the eastern half of the March Air Reserve Base. It consists of well-drained soils that developed in alluvium from predominantly granitic materials. Soil stability is considered fair to good with minimal erosion potential.

Hanford-Tujunga-Greenfield. This soil association is found within the central portion of the study area, generally extending northeast to southeast of March Air Reserve Base. It consists of well drained to somewhat excessively drained soils, developed in granitic alluvium. Soil stability is considered poor to fair with significant erosion potential.

Cieneba-Rock Land-Fallbrook. This soil association is found on uplands located in the Box Springs Mountains area, and extends east to Reche Canyon, and into the Mount Russell area. It consists of somewhat excessively drained soils on undulating steep slopes. Soil stability is generally considered fair with marginal potential for erosion.

San Emigdio-Grangeville-Metz. This soil association is found along the western side of Gilman Springs Road. It consists of well-drained soils on nearly level to steep slopes. Soil stability is considered poor to fair with significant potential for erosion.

Badlands-San Timoteo. This soil association if found along the northern portion of Gilman Springs Road into the Badlands region. It consists of well-drained soils on steep to very steep slopes. The soils are variable consisting of soft sandstone, siltstone, and beds of gravel. Soil stability is considered poor to fair with significant potential for erosion.

Some of these soils have poor to fair stability and are considered to be potentially expansive. Soils prone to collapse are commonly associated with wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. The collapse potential of the soils identified above ranges from minimal to significant. The Monserate-Arlington-Exeter soil association has minimal collapse potential and the Cienega-Rock Land-Fallbrook association has marginal potential for collapse.

The primary factors that determine an area's susceptibility to slope instability are the underlying geologic and soils characteristics. The abundant shales and siltstones underlying the Badlands are highly porous and do not hold together well when wet, which can lead to slope instability and landslides. Secondary factors contributing to slope instability and landslides include rainfall and earthquakes. A "slow moving" landslide reportedly exists along Gilman Springs Road in the eastern portion of the planning area.[1]

[1] Michael A. McKibben, Ph.D., September 28, 2000 comment letter.

Existing Regulations

Existing grading regulations require permit applications to include soils engineering reports and, where necessary, engineering geology reports. The recommendations contain in the reports must be included in the grading plans and specifications. The reports typically include recommendations concerning cuts, fills, compaction and foundation design to ensure stable development.

Subsidence

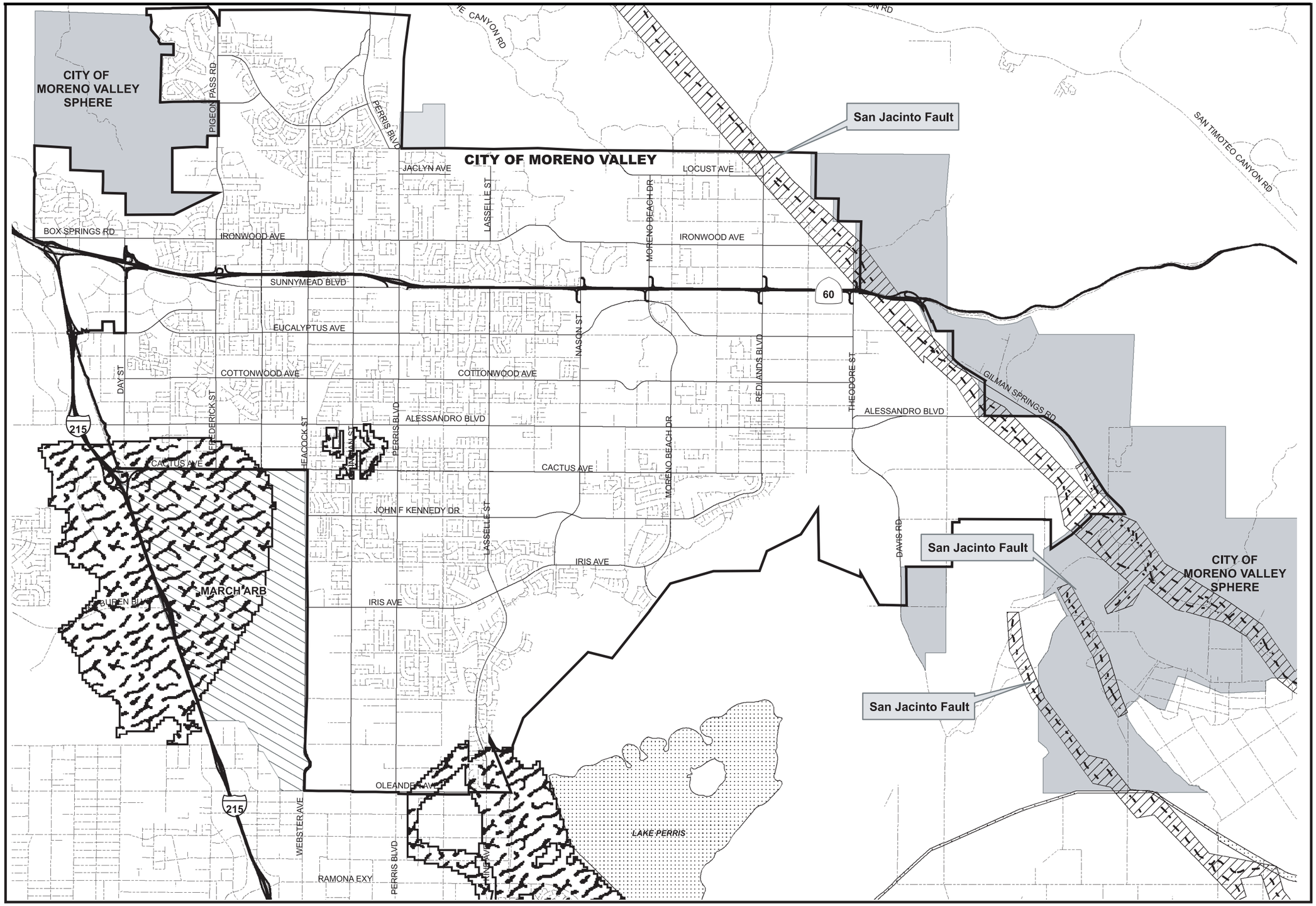
The low-lying areas in the southeast corner of the planning area have experienced tectonic subsidence, as well as subsidence as a result of groundwater withdrawal for agricultural use. The southeast corner of the planning area is within the San Jacinto Wildlife Area and/or within the designated floodplain.

Fault Rupture

The San Jacinto fault passes through the eastern portion of the planning area. The San Jacinto fault is considered to be the most active fault in Southern California. An Alquist-Priolo Special Fault Zone has been established for the San Jacinto fault. The Casa Loma fault (a fault strand of the San Jacinto fault) lies 1.5 miles southwest of the San Jacinto fault in the southeast corner of the planning area. It had been speculated that the Casa Loma strand might extend northwest of the Alquist-Priolo Special Fault Zone, but geologic studies to date have been unable to show that the fault extends beyond the Special Fault Zone. The fault strand that lies to the northeast of the Casa Loma fault is known as the Claremont Fault. **Figure 5.6-2** depicts the location of these faults. Another fault, known as the Farm Road Fault, was identified in 1992 in the far southeast corner of the planning area. Insufficient information is available to determine whether it is an active fault.

Existing Regulations

Existing state law and city regulations and practices require most development applications within the Alquist-Priolo Zone to include geologic reports addressing potential surface rupture due to faulting. No structure for human occupancy is permitted to placed across the trace of an active fault, nor generally within 50 feet of any active fault trace.



MORENO VALLEY
People • Pride • Progress

- Streets
- Major Streets
- Highways
- Faults
- Fault Zones
- Potential Liquefaction
- Moreno Valley
- Moreno Valley Sphere
- March ARB
- Waterbodies

5,000 2,500 0 5,000 Feet

0.5 0.25 0 0.5 1 Miles

Date: March 24, 2006
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\geologic.mxd

GEOGRAPHIC INFORMATION SYSTEMS

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North

Figure 5.6-2
Seismic Hazards

TABLE 5.6-1
POTENTIAL EARTHQUAKE SCENARIOS
FOR MORENO VALLEY

Fault Name	Distance from Moreno Valley	Type Per UBC	Slip Rate (mm/year)	Maximum Credible Earthquake
San Jacinto	0	A	12.0	7.2
Elsinore	12 to 18 miles	B	4.0	6.8
San Andreas	15 to 20 miles	A	24.0	7.4

Source: City of Moreno Valley, General Plan, September 20, 1988.
[1] A = Faults that are capable of producing large magnitude events that have a highs rate of seismicity.

Seismicity and Groundshaking

Earthquake-generated groundshaking is the most critical and potentially damaging earthquake effect in the planning area. Three potential sources of strong seismic groundshaking in the planning area include the San Jacinto fault, the San Andreas Fault and the Elsinore Fault. The major source of potential earthquake damage to the planning area is from activity along the San Jacinto fault. The San Andreas fault is an active fault that is located approximately 15 to 20 miles northeast of the planning area. The Elsinore fault is located approximately 12 to 18 miles southwest of the planning area. A major earthquake associated with any of these faults could result in moderate to severe groundshaking in the planning area. Damage to buildings and infrastructure could be expected as a result of groundshaking during a seismic event.

Table 5.6-1 depicts the seismic data for regional faults that could affect the planning area. As depicted, the maximum credible earthquake from these faults ranges from 6.8 to 7.4.

Most loss of life and injuries that occur during an earthquake are related to the collapse of buildings and secondary damage. Seismic groundshaking can also result in substantial structural damage and loss of income.

Existing Regulations

All buildings in the region are required to resist seismic groundshaking in accordance with the Uniform Building Code (UBC). However, the UBC does not provide 100 percent protection against seismic damage.

Liquefaction

Liquefaction is a process by which clay-free soil deposits, primarily sands and silts, temporarily lose strength during severe groundshaking and behave as a sticky liquid

rather than a solid. Liquefaction occurs primarily in areas of recently deposited sands and silts and in areas of high groundwater levels. Poorly consolidated sediment and high groundwater levels occur most frequently in creekbeds and floodplains. Although the City has seen no evidence of liquefaction events occurring in the community nor has any geotechnical report recently submitted to the City identified liquefaction hazards, the Riverside County General Plan has identified a range of liquefaction susceptibility in Moreno Valley from very low with deep groundwater in the northern and eastern portions of the community to very high with shallow groundwater generally west of Perris Boulevard.

Moreno Valley General Plan

The proposed Moreno Valley General Plan Safety Element Objective 6.1 is to "minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and secondary effects." Based on this objective, the Element provides the following Policy Statements applicable to this section:

6.1.1 Reduce fault rupture hazards to a level of acceptable risk through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. Require geologic studies and mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act. Additionally, future geotechnical studies shall contain calculations for seismic settlement on all alluvial sites identified as having high or very high liquefaction potential. Should the calculations show a potential for liquefaction, appropriate mitigation shall be identified and implemented.

6.1.2 Require all new developments, existing critical and essential facilities and structures to comply with the most recent Uniform Building Code seismic design standards.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Expose people or structures to unacceptable risks of major geologic, seismic or soils hazards that could not be overcome by using reasonable construction and/or maintenance practices.*

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2, and 3

The impact analysis provided in this section addresses the three General Plan Alternatives. The geology and soils impacts will be similar for each General Plan Land Use Alternative.

Geology

Development according to any of the General Plan Land Use Alternatives is not anticipated to result in a significant impact associated with the geologic formation underlying the planning area. The Perris Bedrock is considered to be relatively stable. No mitigation is required.

Soil and Slope Stability

Some of the soils that occur within the planning area are susceptible to collapse which may pose a hazard to new development. This is considered a significant impact. Implementation of Mitigation Measures GS1 and GS2 will reduce this impact to a level less than significant.

Subsidence

An area in the southeastern portion of the planning area has experienced subsidence in the past. However, the area is located within the San Jacinto Wildlife Area and/or within the designated floodplain, where the risk for injury or loss of life due to subsidence is considered low. Therefore, no significant impact associated with subsidence is anticipated to occur.

Fault Rupture

An Alquist-Priolo Special Fault Zone has been established for the San Jacinto fault. The major source of potential damage due to fault rupture is from activity along the San Jacinto fault.

The San Jacinto Fault Zone underlies portions of General Plan Land Use Alternatives 1, 2, and 3, planned for residential, business park, commercial, and public land uses. Schools are strictly prohibited by the State Department of Education and Title 5 from locating on an active fault or within an Alquist-Priolo Zone.

This issue is considered a significant impact. Implementation of Mitigation Measures GS1 and GS2 will reduce this impact to a level less than significant.

Seismicity and Groundshaking

The planning area is located in a region with several active fault lines. The entire area is at risk for damage caused by groundshaking and seismic activity. The seismic risk in the planning area is similar to other portions of Riverside County.

With the increase of development and population allowed under the General Plan Alternatives, the number of people and buildings exposed to seismic groundshaking will increase. This is considered a significant impact. Implementation of Mitigation Measures GS1 and GS2 will reduce the impact to a level less than significant.

Liquefaction

As described above, the Riverside County General Plan identifies a range of liquefaction susceptibility in Moreno Valley ranging from very low with deep groundwater in the northern and eastern portions of the community to very high with shallow groundwater generally west of Perris Boulevard. The area subject to high and very high liquefaction potential according to the County's mapping is largely developed, and the new General Plan policies and land uses will not affect this existing development. Although no new residential development is expected in this area, new non-residential development may occur in the vacant lands in this area. Because development will be allowed in the high susceptibility areas, this is considered a significant impact. Currently, the City Engineer routinely requires project proponents to evaluate the potential for land settlement when conducting foundation investigations, which would address this potential impact. Additionally, implementation of Mitigation Measures GS1 and GS2 will reduce the impact to a level less than significant. Therefore, potential impacts to new homes and residents will not occur.

MITIGATION MEASURES

GS1. The City shall reduce the fault rupture hazards through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. During the review of future development projects, the City shall require geologic studies and mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act. Additionally, future geotechnical studies shall contain calculations for seismic settlement on all alluvial sites identified as having high or very high liquefaction potential. Should the calculations show a potential for liquefaction, appropriate mitigation shall be identified and implemented (**Policy 6.1.1**).

GS2. The City shall require all new developments, existing critical and essential facilities and structures to comply with the most recent Uniform Building Code seismic design standards (**Policy 6.1.2**).

IMPACT AFTER MITIGATION

Soil and Slope Stability

Less than significant.

Subsidence

Less than significant.

Fault Rupture

Less than significant.

Seismicity and Groundshaking

Less than significant.

Liquefaction

Less than significant.

NOTES AND REFERENCES

1. Earth Consultants International. *Slope and Soil Instability Hazards-County of Riverside*, August 1, 2000.

2. Morton, Douglas "Subsidence and Ground Fissures I the San Jacinto Basin Area, Southern California" U.S. Geological Survey Open File Report 94532 (1992)

3. Martin, Jay and Reeder, Wessly (Gary S. Rasmussen and Associates) "Engineering Geology Investigation; Tentative Tract No. 24721; South of Eucalyptus Avenue, east of Redlands Boulevard; Moreno Valley, CA (1989).

4. Park, Stephen and Pendergraft, Darin "Interim Technical Report of the San Jacinto Shallow Seismic Reflection Survey (1992).

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5.7 HYDROLOGY/WATER QUALITY

ENVIRONMENTAL SETTING

Drainage

Most of the planning area drains into the San Jacinto River. The northwest portion of the planning area drains to the west into a tributary of the Santa Ana River.

Figure 5.7-1 depicts the established drainage system within the planning area. The Riverside County Flood Control and Water Conservation District (RCFCWCD) is the agency responsible for the regional flood control system. The RCFCWCD has prepared three Master Drainage Plans (Sunnymead Area, West End, and Moreno) each of which covers a different portion of the City. The RCFCWCD presently owns and maintains a number of flood control facilities, while the City controls a number of local facilities. New development is required to build master drainage plan facilities and/or pay fees that are used to build the facilities. Three major storm drains (Sunnymead Stormdrain, Kitching Stormdrain, and the Perris Valley Stormdrain) serve the City. These channels generally flow north to south. These channels drain to the San Jacinto River, Canyon Lake and ultimately to Lake Elsinore.

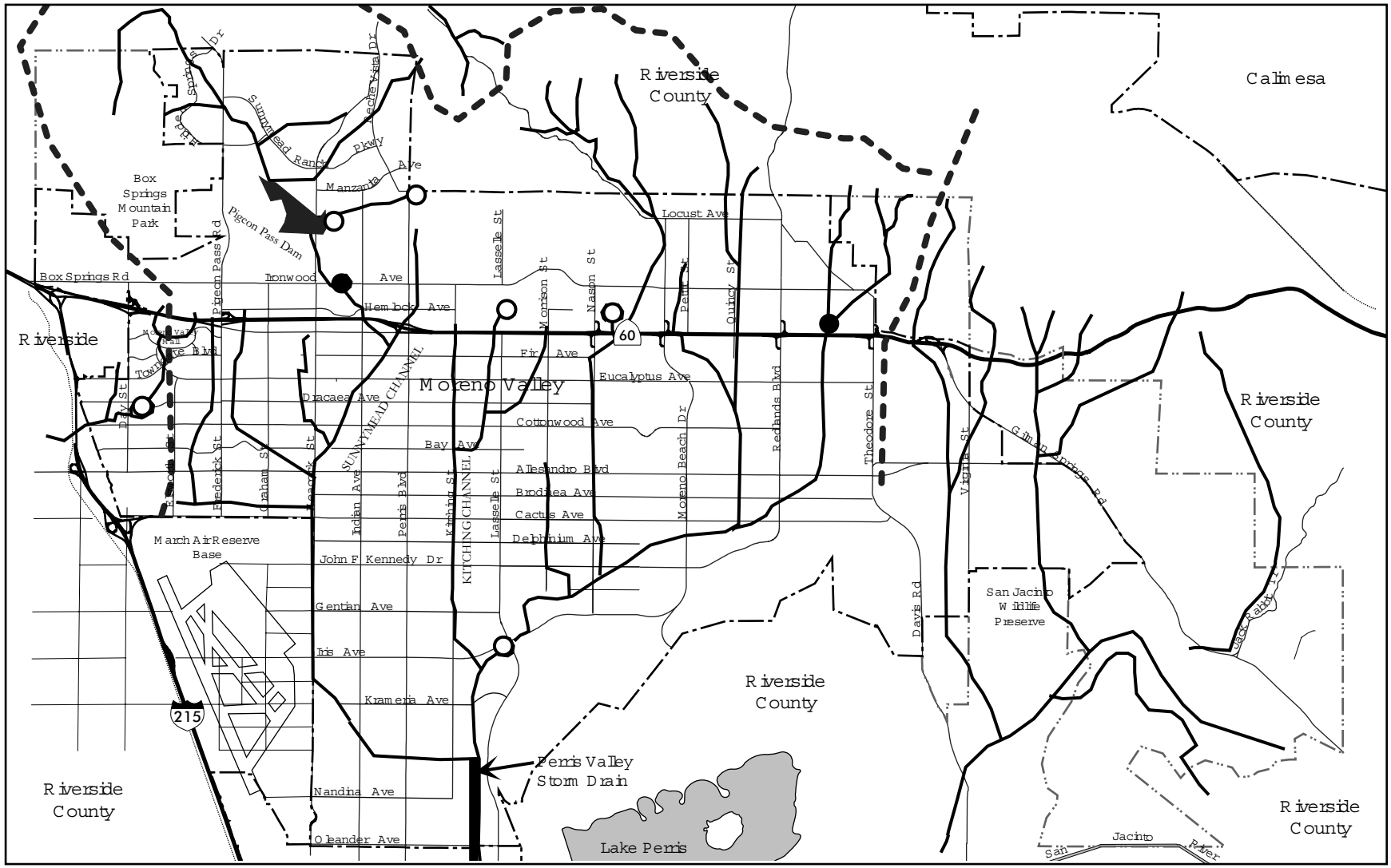
There are a few small ponds and lakes scattered throughout the City. Lake Perris is located south of the City and is a potential source of drainage waters flowing to developed areas.

The planning area's primary watersheds, the Santa Ana River and the San Jacinto River watersheds, are described below.

Santa Ana River. The Santa Ana River is the largest river in the south coast region, with a length of about 100 miles and approximately 2,700 square miles of watershed area. The river exits the San Bernardino Mountains and continues westward to the Prado Dam, through the Santa Ana River Canyon, and then flows to the ocean. In addition to being a major flood control facility, the river also serves as a means by which groundwater basins are recharged and is an important wildlife habitat.

San Jacinto River. The San Jacinto River drains approximately 540 square miles to the Railroad Canyon Reservoir (Canyon Lake) which discharges into Lake Elsinore, which discharges into a tributary of the Santa Ana River. Discharges from the two lakes are very rare.

A minor topographic divide extending southward from the Box Springs Mountains across the western portion of the planning area acts as a drainage divide between the watersheds of the San Jacinto and Santa Ana Rivers. All stormwater runoff east of the topographic



Source: Riverside County

Surface Flow Lines | Drainage Divide | Flood Basin - Existing | Flood Basin - Future

North 0 6,000 12,000 ft

Figure 5.7-1
Storm Water Flows and Major Drainage Facilities

divide generally flows in a southerly direction to the San Jacinto River. Stormwater west of the divide flows in a westerly direction to the Santa Ana River.

Another topographic divide generally located east of Theodore Street diverts stormwater flows to the San Jacinto River in two directions. Runoff east of the divide flows through the San Jacinto Valley. Runoff west of the divide flows to the Perris Valley.

Improved Drainage Channels

Sunnymead Storm Channel

The Sunnymead Storm Channel is a concrete-lined channel that extends from State Route 60 and crosses the planning area in a southwesterly direction. The Channel accepts stormwater runoff from the Box Springs Mountains and areas south of the mountains. The runoff flows into the Sycamore Canyon Watershed. This stormwater runoff eventually flows into the Santa Ana Watershed. **Figure 5.7-1** depicts the location of the Sunnymead Storm Channel.

Kitching Channel

The Kitching Channel is an open channel that averages a 12-foot bottom, 7-foot deep trapezoidal channel. Kitching Channel and its storm drains system constitutes the backbone of the eastern half of the Sunnymead Master Drainage Plan. The Channel drains in a southerly direction approximately from State Route 60 through the central portion of Moreno Valley and into the Perris Valley Stormdrain and ultimately into the San Jacinto River Watershed. **Figure 5.7-1** depicts the location of the Kitching Channel.

Perris Valley Stormdrain

The Perris Valley Stormdrain is an open channel. Lateral A runs west to east between Kramenia Avenue and Nandina Avenue. Lateral A enters the main channel west of Lasselle Street. Eventually, the stormdrain empties into the San Jacinto River Watershed. **Figure 5.7-1** depicts the approximate location of the Perris Valley Stormdrain.

Surface Water Quality

Surface water quality in the planning area is regulated by the Santa Ana Regional Water Quality Control Board (RWQCB) Region 8. The Santa Ana Regional Water Quality Control Board Basin Plan (Basin Plan) establishes water quality standards for all the ground and surface waters of the region. The Santa Ana Region includes the upper and lower Santa Ana River watersheds, the San Jacinto River watershed, and several other small drainage areas.

Santa Ana River Watershed

According to the United States Geological Survey, the quality of surface water in the Santa Ana River Watershed becomes progressively poorer as water moves toward the ocean from the San Bernardino Mountains. Water quality decreases due to a number of factors including runoff from urban and agricultural areas.

San Jacinto River Watershed

Currently, the San Jacinto River itself has not been identified to have serious water quality problems. However, the San Jacinto River drains into Railroad Canyon Reservoir (Canyon Lake) and the Railroad Canyon Reservoir occasionally discharges into Lake Elsinore. Both Canyon Lake and Lake Elsinore have been determined to have water quality problems.

Perris Lake

Runoff from the planning area does not enter or affect Perris Lake.

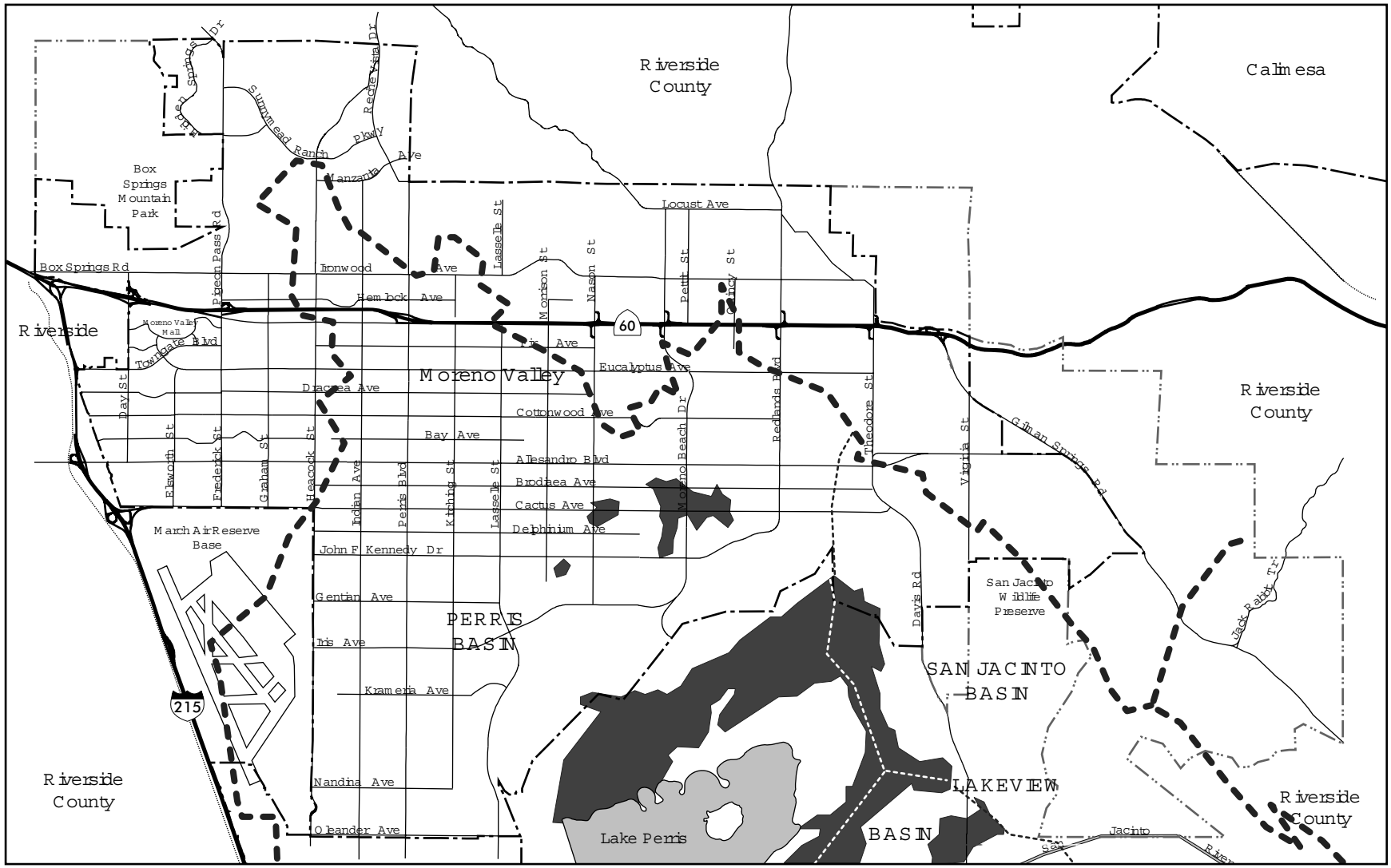
Railroad Canyon Reservoir (Canyon Lake)

The Railroad Corridor Reservoir has high nutrient loading which leads to alga blooms, and high dissolved organic carbon. During storm events, the inflow water carries sediments raising the turbidity of the lake water. The RWQCB is currently assessing the lakes Total Maximum Daily Loads (TDML). The RWQCB has placed the lake on the 303(d) list[1] of pollutant/stressors for pathogens and nutrients.

Lake Elsinore

Lake Elsinore also has high nutrient loading, which causes algae blooms. Due to the shallow depth of the lake, the algae blooms cause significant problems in the lake. The lake experiences occasional fish kills due to low levels of dissolved oxygen. The RWQCB is currently assessing the lakes TDML. The RWQCB has placed the lake on the 303(d) list of pollutant/stressors for sedimentation/siltation, unknown toxicity, nutrients, organic enrichment, and low levels of dissolved oxygen.

[1]The 303(d) list is compiled by the U.S. EPA. The list identifies impaired water bodies in the United States. In California, the list is compiled and updated by the State Water Resources Control Board for the EPA.



Source: Department of Water Resources

Subarea Boundary

Nonwater-Bearing Portion

Basin Boundary

North 0 6,000 12,000 ft

Figure 5.7-2
Groundwater Basins

Beneficial Uses

Beneficial uses of groundwater and surface water have been established for each water body within the RWQCB Region 8. According to the RWQCB Basin Plan:

> Beneficial uses are defined as the uses of water necessary for the survival or well being of man, plants and wildlife. These uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind. Examples include drinking, swimming, industrial and agricultural water supply, and the support of fresh and saline aquatic habitats.

Table 5.7-1 on the following page depicts the beneficial uses associated with each of the affected watersheds.

Groundwater

The majority of the planning area lies in the Perris North Groundwater Basin and the easternmost portion of the planning area lies within the San Jacinto Groundwater Basin. **Figure 5.7-2** depicts the location of the basins. Groundwater depth ranges from approximately 100 feet to 150 feet below ground surface. The California State Department of Water Resources (DWR) has estimated the groundwater basins in the vicinity of the planning area to have capacity for approximately one million acre-feet of water. It is estimated that the basins store approximately 620,000 acre-feet (AF) of water.

Table 5.7-2 depicts the beneficial uses associated with the Perris North and San Jacinto Canyon groundwater basins.

TABLE 5.7-2
BENEFICIAL USES OF PROJECT
AFFECTED GROUNDWATER BASINS

Beneficial Uses	Perris North	San Jacinto
Municipal and Domestic Supply	+	+
Agricultural Supply	+	+
Industrial Service Supply	+	+
Industrial Process Supply	+	+

Source: California Regional Water Quality Control Board Santa Ana River Basin (Region 8). *Water Quality Control Plan.* 1995.

\+ Indicates an existing beneficial use that was actually attained in the surface or ground water on or after November 28, 1975.

TABLE 5.7-1
BENEFICIAL USES OF PROJECT EFFECTED WATERSHEDS

Beneficial Uses	Santa Ana River (Reaches 3 and 4)	San Jacinto River (Reaches 1, 3, and 4)	Lake Perris	Lake Elsinore	Railroad Canyon Reservoir
Municipal and Domestic Supply	0	Reach 1 - # Reaches 3 and 4 exempted	+	0	+
Agricultural Supply	+	#	+		+
Groundwater Recharge	+	#	+		+
Industrial Service Supply			+		
Industrial Process Supply			+		
Contact Water Recreation	+	#	+	+	+
Non-contact Water Recreation	+	#	+	+	+
Warm Freshwater Habitat	+	#	+	+	+
Cold Freshwater Habitat			+		
Wildlife Habitat	+	#	+	+	+
Rare, Threatened or Endangered Species	+				

\+ Indicates an existing beneficial use that was actually attained in the surface or ground water on or after November 28, 1975.

\# Indicates an intermittent beneficial use.

0 Indicates that the water body has been exempted by the RWQCB from the municipal use designation under the terms and conditions of State Board Resolution No. 88-63, *Sources of Drinking Water Policy.*

There are currently few domestic uses for groundwater in the watershed as the City primarily relies upon imported water from the Eastern Municipal Water District (EMWD). Slightly over 3,000 AF/YR is produced from the Perris and Perris South subbasins and is blended with imported water for use in the western portions of the EMWD service area.

Groundwater management issues in the EMWD are complex. The groundwater basins within the EMWD are among the largest un-adjudicated groundwater systems in Southern California. In the east, groundwater production and use is limited by a stipulated judgment and groundwater levels are in decline due to significant overdraft. In the west, a groundwater management plan (AB 3030) was developed for the desalination of brackish groundwater as a means of controlling rising groundwater levels which threaten adjacent higher quality subbasins and increasing production by blending groundwater with imported water.

There is a documented problem with groundwater quality in the Perris North and the San Jacinto Groundwater Basins. The groundwater salinity problem is partially the result of naturally occurring elements in the soil and partially due to human activity. Groundwater salinity problems in EMWD's service area extend from Menifee northward through Perris and toward Moreno Valley, following the I-215 corridor. This problem appears to be related primarily to saltwater intrusion and high salt content in the water-bearing sediments that were deposited in a marine environment, rather than due to human pollution of the aquifers. The high salt content rises during periods of high groundwater extraction, indicating a strong correlation between groundwater levels and salt content. The high salt content in the basin degrades water quality, requiring blending with imported water or treatment before use.

March Air Reserve Base

According to the RWQCB (Region 8), March Air Reserve Base has in the past contributed pollutants to the surface water and groundwater of the Perris North Subbasin. The pollutants identified by the RWQCB result from: trichloroethylene (TCE); fuel; and landfills. The base is a Superfund listed site. The Air Force operates wells and facilities to clean the contaminated groundwater.

Moreno Valley General Plan

General Plan Conservation Element, Objectives 7.1 and 7.2 and their associated policies, are included in the General Plan to limit potential water quality impacts to surface water and groundwater resources.

Proposed General Plan Policy 7.2.2 requires all projects to comply with the discharge permit requirements of the Regional Water Quality Control Board.

Existing Regulations

Regional Water Quality Control Board Requirements for Septic Systems

All proposed septic systems (subsurface sewage disposal systems) must comply with Regional Water Quality Control Board regulations designed to prevent groundwater contamination from septic system effluent.

Existing Drainage Regulations and Plans

All development within the planning area must comply with Riverside County Flood Control and Water Conservation District, Federal Emergency Management Agency and City requirements. The master planned drainage system and local drainage facilities are engineered to resist erosion and sedimentation. The City's grading regulations ensure that changes in existing drainage patterns associated with new development do not create substantial erosion or sedimentation that is added to the storm drain system.

Santa Ana Watershed Project Authority (SAWPA) - Water Resources Plan

The SAWPA was formed to find a mutually beneficial way of protecting water quality in the Santa Ana Watershed. Orange County Water District, Inland Empire Utilities Agencies, San Bernardino Valley Municipal Water District, Western Municipal Water District, and Eastern Municipal Water District) represent all the major areas of water use in the Santa Ana Watershed formed SAWPA. The Eastern Municipal Water District (EMWD) serves the City of Moreno Valley.

SAWPA operates a desalter that removes contaminants from groundwater to make the water suitable for use. SAWPA also operates the Santa Ana Regional Interceptor (SARI) line that carries desalter brine and industrial waste water to a treatment facility in Orange County. The SARI line does not extend into Moreno Valley at this time.

National Pollutant Discharge Elimination System

Under the authority of the Clean Water Act, the federal Environmental Protection Agency created the National Pollutant Discharge Elimination System (NPDES) to protect water resources and control pollutants in runoff. The program requires communities of a certain size to obtain permits from the Regional Water Quality Control Board. Moreno Valley, Riverside County and 23 other cities and agencies obtained a joint NPDES permit from the RWQCB-Santa Ana Region. As a co-permittee, the City has the following obligations and responsibilities:

- Conduct storm drain system inspections;
- Conduct and coordinate with the County any surveys and characterizations needed to identify the pollutant sources and drainage areas;

- Implement management programs, monitoring programs and implementation plans;

- Enact legislation and ordinances as necessary to establish legal authority;

- Pursue enforcement actions as necessary to ensure compliance with the stormwater management programs and the implementation plans; and

- Respond to emergency situations (e.g., accidental spills, leaks, illegal discharges and illicit connections) to prevent or reduce the discharge of pollutants to storm drain systems and streams.

The City has established a system for controlling activities that could pollute stormwater runoff, such as new residential, commercial and industrial development. Developers must file project-specific water quality management plans (WQMP's) with the City for review. Project-specific water quality management plans must be approved prior to issuance of grading permits or building permits.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Substantially degrade or deplete groundwater supplies;*

- *Substantially degrade water quality;*

- *Violate any water quality standards or waste discharge requirements;*

- *Substantially alter the existing drainage patterns of the City in a manner that would result in substantially erosion or siltation; or*

- *Contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems.*

- *Place housing within a 100-year floodplain as shown on the FEMA Insurance Rate Maps.*

ENVIRONMENTAL IMPACT

Surface Water Quality

General Plan Alternatives 1, 2, and 3

Implementation of the General Plan will result in the development of new residential and non-residential uses such as business park, commercial, industrial, office and public/institutional uses. Additionally, currently developed but under-developed parcels could also be redeveloped with more intensive uses. Based on the General Plan land use map, it is anticipated that approximately 18,800 acres of vacant land will be developed by buildout of the City under each of the alternatives. Although, each alternative would allow a different level of development to occur on the 18,880 acres of vacant land, it is anticipated that a similar amount of this vacant land will be converted to urban, less impervious uses under each of the three alternatives.

Development allowed under the General Plan Alternatives will contribute pollutants to the planning area's surface waters (i.e., Santa Ana River, San Jacinto River, Canyon Lake Reservoir, and Lake Elsinore). Pollutants such as oil, grease, pesticides, fertilizers and detergents will be introduced. In addition, runoff associated with the industrial land uses are potential sources of pollutants that are not normally in runoff from other land uses. Further, grading and construction activity could cause erosion and sedimentation. Therefore, mentioned non-point source pollutants in the runoff will flow into local drainage channels incrementally deteriorating water quality. This is considered a potentially significant impact.

Implementation of Mitigation Measures HW1, HW2, and HW3 will reduce this potential impact to a level less than significant. Mitigation Measure HW1 requires the City to require new development to incorporate Best Management Practices pursuant to the National Pollutant Discharge Elimination System (NPDES) permit. Mitigation Measure HW2 requires the City to provide and maintain a storm system that conforms to the Riverside County Flood Control and Water Conservation District drainage master plans and the requirements of FEMA. Mitigation Measure HW3 requires the City to comply with the provisions of its permits issued by the RWQCB for the protection of water quality pursuant to the National Pollutant Discharge Elimination System. Mitigation Measure HW3 will be a crucial part of the City's participation in local municipal compliance with the Regional Board's pending Total Daily Maximum Loads (TMDL) for nutrients (phosphorous and nitrogen) and pathogens (bacteria) entering Canyon Lake.[2]

Under the NPDES Stormwater Permit required as part of Mitigation Measure HW1, all development and significant redevelopment must be implemented with non-point source pollution control measures known as Best Management Practices (BMPs) both during

[2] July 29, 2005 letter from California Regional Water Quality Control Board (Letter Q in Section 9.0) to Cynthia Kinser.

construction and for the life of the project. Post-construction BMPs must address all pollutant loads carried by dry weather run-off and first-flush storm water runoff from an entire project. Implementation of BMPs in future development projects will significantly reduce water quality impacts from non-point source pollutants. BMPs limit water contamination during and after construction by reducing the amount of runoff, reducing contact between pollutants and runoff or treating runoff that comes in contact with pollutants.

Drainage

General Plan Alternatives 1, 2, and 3

Development of the planned land uses under any of the three General Plan Alternatives will affect the drainage system. New development will result in greater areas of impervious surfaces (such as streets, sidewalks and parking lots). The absorption rate of impervious surfaces is less than the rate for natural lands. Instead of absorbing into the ground, water on impervious surfaces runs-off and drains into the local drainage system, potentially increasing the amount of storm water runoff. The volume of additional runoff could pose a potential flooding hazard during intense rainstorms. A significant impact associated with these issues could occur. Implementation of Mitigation Measure HW2 will reduce this impact to a level less than significant. As part of Mitigation Measure HW2, drainage facilities will be designed and constructed with sufficient capacity to safely convey additional stormwater flows and thereby ensure that no habitable structure will be placed within a 100-year floodplain as shown on the FEMA Insurance Rate Maps. Additionally, development of the planned land uses under any of the three General Plan Alternatives will have the potential to physically alter existing natural drainage courses and wetlands. Mitigation Measure B4 in Section 5.9 shall require an applicant to obtain a Streambed Alteration Agreement and/or permit, or written waiver of the requirement for such an agreement or permit, from all resource agencies with jurisdiction over such areas (CDFG and ACOE), prior to physical disturbance of any natural drainage course or wetland determined to contain riparian vegetation or otherwise qualify as a "jurisdictional" wetland or Non-wetland Water of the U.S.

Groundwater

General Plan Alternatives 1, 2, and 3

Increases in impervious surfaces will result in a reduction in the amounts of rainwater that will infiltrate the soil to the groundwater table. On the other hand, additional groundwater recharge could occur due to infiltration of irrigation water through the soil as well as infiltration of irrigation water runoff as it flows through soft-bottomed channels. This might result in an incremental reduction in groundwater recharge rates over time. The impact of an incremental reduction in groundwater would not be significant as domestic water supplies are not reliant on groundwater as a primary source.

However, development allowed under the proposed General Plan alternatives may result in an increase in the amount of industrial chemicals and urban contaminants infiltrating groundwater supplies. As increasing levels of urban contaminants, such as fertilizers and pesticides enter groundwater aquifers, groundwater quality will decline over time. This is considered a significant impact. Implementation of Mitigation Measures HW1 and HW3 will reduce this impact to a level less than significant.

MITIGATION MEASURES

HW1. The City shall implement National Pollutant Discharge Elimination System Best Management Practices relating to construction of roadways to control runoff contamination from affecting the water resources (**Policy 5.4.2**).

HW2. All components of the City's storm drain system shall conform to Riverside County Flood Control and Water Conservation District master drainage plans and the requirements of the Federal Emergency Management Agency (**Policy 6.2.5**).

HW3. The City shall comply with the provisions of its permit(s) issued by the Regional Water Quality Control Board for the protection of water quality pursuant to the National Pollutant Discharge Elimination System (**Policy 7.2.2**).

IMPACT AFTER MITIGATION

Less than significant.

NOTES AND REFERENCES

1. City of Moreno Valley. General Plan. September 20, 1998.

2. California Regional Water Quality Control Board Santa Ana River Basin (Region 8). *Water Quality Control Plan.* 1995.

3. California Department of Water Resources. DWR website - G*roundwater Level Data Retrieval Map Interface*.

4. Riverside County Flood Control and Water Conservation District. *Master Drainage Plan for the Sunnymead Area.* October 1978.

5. Riverside County Flood Control and Water Conservation District. *Moreno Master Drainage Plan.* April 1991.

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7. California Department of Water Resources. Gary Gilbreath. Telephone conversations and correspondence. March 2001.

8. California Regional Water Quality Control Board Santa Ana River Basin (Region 8). Cindy Li. Telephone conversations and correspondence. March 2001.

9. Eastern Municipal Water District. 2000 Urban Water Management Plan. December 31, 2000.

10. Eastern Municipal Water District. Christy Crother. Telephone conversations and correspondence. March 2001.

11. Eastvale Municipal Water District. Chantal Stapleton. Telephone conversations and correspondence. March 2001.

12. Eastern Municipal Water District. 2002 Annual Report on the Status of the Groundwater Subbasins.

5.8 AGRICULTURAL RESOURCES

ENVIRONMENTAL SETTING

Existing Activities

The planning area has a long history of agricultural use, including grazing, groves, dry grain, and truck crop production. Lands currently used for agriculture are concentrated in the eastern portion of the City. Agricultural land within the City is generally leased to farm operators. Few, if any of the farms within the valley are owner-operated. As of year 2002, four major types of agriculture took place in Moreno Valley: grazing, fruit orchards, dry grain farming, potato and fruit crop farming and poultry production. The poultry operations have since closed. Nearly all of the remaining agricultural use occurs in the rural eastern portion of the City.

Preservation of prime agricultural land is an important state and national goal and many of the soils in Moreno Valley are well suited in agricultural production. However, soil alone does not guarantee the success of an agricultural enterprise. The high cost of land, the high cost of water and energy, fragmented ownership patterns, and market conditions limit the potential return on investment. These economic factors are a disincentive to continued farming in Moreno Valley.

Important Farmland Categories

Through its Farming Mapping and Monitoring Program (FMMP), the California Department of Conservation produces agricultural resource inventories and maps based on soil quality and land use within California. These inventories and maps are updated every two years. **Figure 5.8-1** depicts the location of the important farmlands within the planning area. **Table 5.8-1** depicts the acreage for each category.

TABLE 5.8-1
PLANNING AREA AGRICULTURAL RESOURCES

Agricultural Classifications	Approximate Acreage
Prime Farmland	1,639
Farmland of Statewide Importance	330
Unique Farmland	60
Farmland of Local Importance	10,781
Grazing Land	1,269
Other Land	12,109
Water	632

Source: California Department of Conservation, Division of Land Resources 2002.

Prime Farmland

Prime Farmland is defined by the California Department of Conservation as: "Land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at sometime during the [past four years]."

As shown in **Figure 5.8-1**, the majority of the Prime Farmland in the planning area is located in the center of the planning area, north and south of Highway 60, with a few parcels scattered in the southern portion of the planning area. According to the State's 2002 data, there are approximately 1,639 acres of Prime Farmland in the planning area. Some of this land may have been developed or taken out of production in preparation of development, since the last State agricultural survey.

Farmland of Statewide Importance

Farmland of Statewide Importance is defined by the California Department of Conservation as: "Land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops at sometime during the past four years."

Compared to the other farmland categories, Farmland of Statewide Importance comprises a small portion (approximately 330 acres) of the total farmland acreage in the planning area. These areas are limited to the southwestern most portion of the planning area and a few parcels south of Highway 60 in the center of the planning area. Some of this land may have been developed, or taken out of production in preparation of development, since the last State agricultural survey.

Unique Farmland

Unique Farmland is defined by the California Department of Conservation as: "Lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California."

Unique Farmland comprises the smallest segment of agricultural production in the planning area, with 60 acres. This land is located in the central portion of the planning area. Some of this land may have been developed, or taken out of production in preparation for development, since the last State agricultural survey.

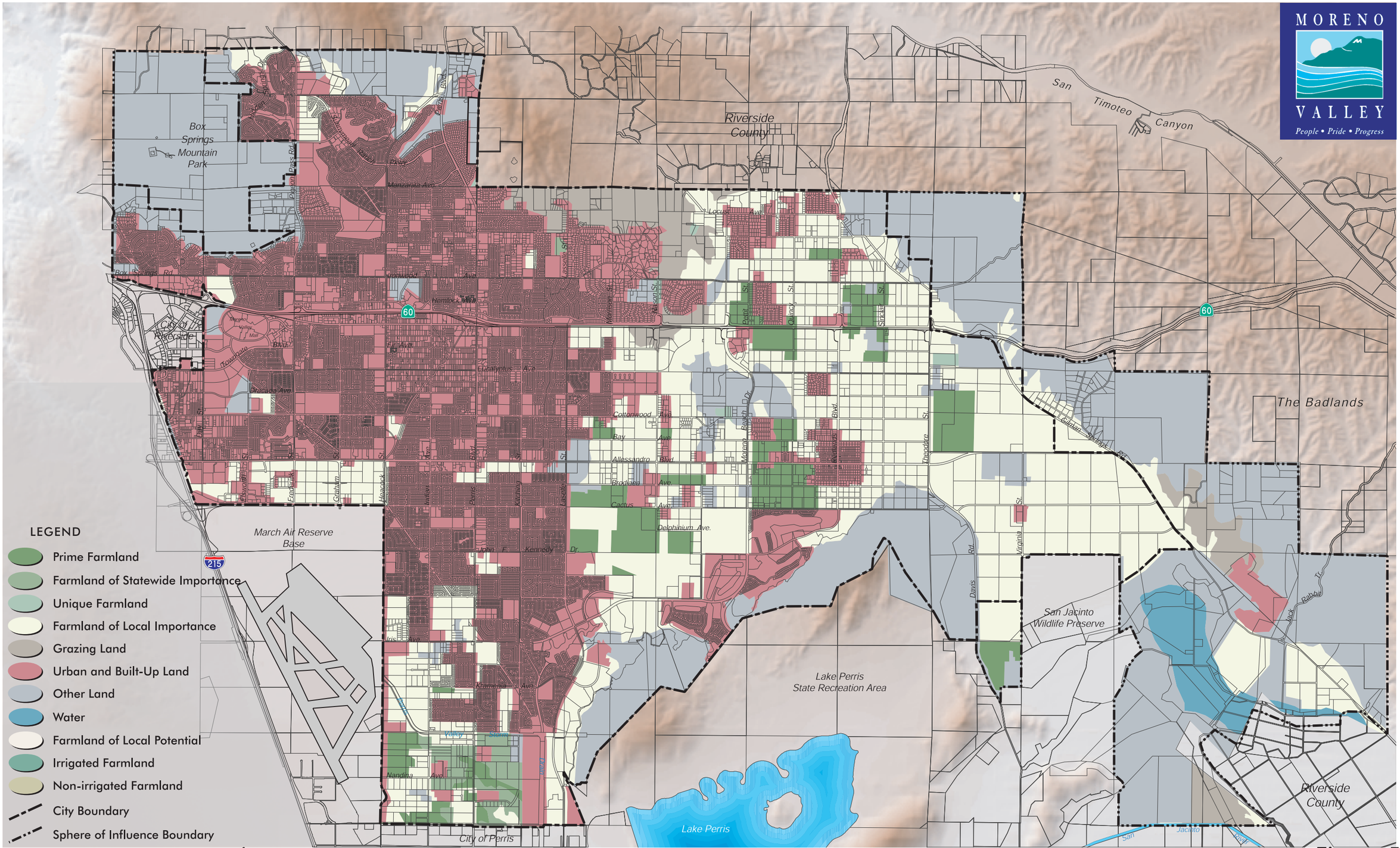


Figure 5.8-1
Important Farmlands

Farmland of Local Importance

Farmland of Local Importance for the County of Riverside is defined by the California Department of Conservation as:

- "Soils that would be classified as Prime and Statewide, but lack irrigation water. Lands planted to dryland crops of barley, oats, and wheat."

- "Lands producing major crops for Riverside County, but that are not listed as Unique crops. These crops are identified as returning $1 million or more dollars on the Riverside County Agricultural Report. Crops identified are permanent pasture (irrigated), summer squash, okra, eggplant, radishes, and watermelons."

- "Dairylands, including corrals, pasture, milking facilities, hay and manure storage areas if accompanied with permanent pasture of hayland of 10 acres or more."

- "Lands identified by city or county ordinance as Agricultural Zones or Contracts. Lands planted to jojoba, which are under cultivation and are of producing age."

Farmland of Local Importance comprises the largest portion of farmland within the planning area (approximately 10,800 acres). This category of farmland is mainly located along the edges of the planning area, with the largest portion located in the eastern portion of the planning area. Some of this land may have been developed, or taken out of production in preparation of development, since the last State agricultural survey.

Other Categories

Other portions of the planning area are classified as Urban and Built-up Land, Grazing Land, Other Land and Water.

Surrounding Agricultural Lands

As shown in **Figure 5.8-1**, significant amounts of important agricultural lands are located to the south of the planning area, including Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. Patches of Farmland of Local Importance are also located to the west, across Interstate 215, as well as to the northeast, along San Timoteo Canyon. Additional Prime Farmland is also located along San Timoteo Canyon.

Riverside County Agriculture Conversion

Table 5.8-2 depicts the conversion of agricultural land to non-agricultural uses within Riverside County from 2000 to 2002. As depicted in this table, the County experienced a net decrease of 15,339 acres of important farmland during this period. This trend is expected to continue as the increase in population continues to create pressure for new housing and other land uses.

TABLE 5.8-2
RIVERSIDE COUNTY
CHANGE IN LAND USE SUMMARY

Land Use Category	Total Acreage Inventoried		2000-2002 Acreage Changes			
	2000	2002	Acres Lost (-)	Acres Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	151,011	141,715	14,506	5,210	19,716	-9,296
Farmland of Statewide Importance	49,446	48,046	3,472	2,072	5,544	-1,400
Unique Farmland	40,950	39,049	6,441	4,540	10,981	-1,901
Farmland of Local Importance	243,414	240,672	20,044	17,302	37,346	-2,742
Important Farmland Subtotal	***484,821***	***469,482***	***44,463***	***29,124***	***73,587***	***-15,339***
Grazing Land	124,714	126,887	2,256	4,429	6,685	2,173
Agricultural Land Subtotal	***609,535***	***596,369***	***46,719***	***33,553***	***80,272***	***-13,166***
Urban and Built-up Land	254,816	262,866	13,145	21,195	34,340	8,050
Other Land	1,007,724	1,012,840	17,185	22,301	39,486	5,116
Water Area	62,541	62,541	0	0	0	0
Total Area Inventoried	***1,934,616***	***1,934,616***	***77,049***	***77,049***	***154,098***	***0***

Source: Farmland Conversion Report 20002002 (Department of Conservation, 2004).

Williamson Act

The Williamson Act (California Land Conservation Act, California Government Code, Section 51200 et.seq.) is a statewide mechanism for the preservation of agricultural land and open space land. The Act provides a comprehensive method for local governments to protect farmland and open space by allowing lands in agricultural use to be placed under contract (agricultural preserve) between a local governmental and land owner. Under this act, agricultural lands are taxed at their agricultural value rather than their value for higher valued uses. In exchange, the landowner enters into a contract to retain his or her land in agricultural use for at least 10 years. Once a "Notice of Nonrenewal" is filed, it is ten years until the contract expires. At the time that the first General Plan was adopted, hundreds of acres within the planning area were under Williamson Act contracts. Notices of Nonrenewal have since been filed for these areas. No land within the planning area is currently under a Williamson Act contract.

Moreno Valley General Plan

The General Plan policies support agriculture as an interim use; however, no land in the planning area is designated for agricultural preservation. To allow for the interim use of land for agricultural uses, the City identifies agricultural crops as an allowable use for all of its zoning categories. The proposed General Plan Parks, Recreation, and Open Space Element contains the following objective:

Objective 4.1: Retain agricultural open space as long as agricultural activities can be economically conducted, and are desired by agricultural interests (with some agriculture retained in long-term use), and provide for an orderly transition of agricultural lands to other urban and rural uses.

To support this objective, the City identifies policies to encourage grazing and crop production as a compatible part of a rural residential atmosphere. Additionally, where practical, the City plans to incorporate existing groves into the design of future development projects. These groves can help retain the agricultural character of the area as well as provide a buffer between different land uses.

THRESHOLD FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use;*
- *Conflict with existing zoning for agricultural use, or a Williamson Act contract; or*
- *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.*

ENVIRONMENTAL IMPACT

General Plan Land Use Alternatives 1, 2, and 3

Planning Area Farmland Conversion

Implementation of General Plan Alternatives 1, 2, or 3 will result in the eventual conversion of the majority of the agricultural uses within the planning area to urban uses. None of the General Plan Land Use alternatives proposes a land use designation that would provide for the permanent preservation of agricultural land. While majority of the planning area will eventually be converted to non-agricultural urban uses, some of the existing agricultural activities will continue as interim uses, as allowed under the City's existing Development Code for all zoning categories. Due to market factors, implementation of the various General Plan alternatives may result in different rates of conversion of agricultural land to urban uses since one land use alternative may be more economically desirable than the others. Since market forces change over time, it is not possible to determine with certainty which of the three General Plan Land Use alternatives would result in a quicker conversion of agricultural land.

While the three General Plan Land Use Alternatives allow for long-term agricultural production in areas designated for Open Space, the areas proposed for Open Space are not currently identified as important farmland by the state. As a result, this policy will not result in the preservation of existing important farmland.

The conversion of agricultural land to urban uses is a long and continuing trend within the planning area. Although it is difficult to quantify the amount of agricultural land that is under development pressure, such pressure exists and will continue with or without implementation of any of the three proposed General Plan Alternatives.

With the continuing urbanization of the planning area, the value of land for the remainder of the planning area will increase, which will in turn encourage the sale of farmland for conversion to urban uses. The increased value of land will make it difficult for farmers to buy or lease agricultural land in the area. Additionally, a net decrease in farmland under cultivation may have an indirect consequent increase in agricultural production costs such as transportation and labor. Agricultural activities tend to be incompatible with urban and suburban neighbors because of factors such as fugitive dust, chemical drift, odors, pesticide use, and machinery noise associated with normal farming operations. Some other factors which make agriculture economically infeasible in urbanized areas are increased incidences of theft and vandalism and increased distances to support services and processing facilities.

As a result, while there are existing pressures that would result in the conversion of agriculture within and adjacent to the planning area with or without implementation of any of the three proposed General Plan Alternatives, the General Plan will result in a significant and unavoidable impact associated with the conversion of existing agricultural land to non-agricultural uses.

Potential mitigation measures exist which would reduce the impact related to the loss of agricultural resources within the planning area. These potential mitigation measures include:

- Enrolling productive agricultural land, not presently under contract, under a Williamson Act contract;
- Providing protection to on-going agricultural operations from complaints and nuisance complaints from adjacent new development;
- Protecting productive agricultural land subject to conversion through the purchase or transfer of its development rights;
- Purchasing conservation easements on existing agricultural land to ensure that the land is never converted to urban uses; and
- Donating funds to a regional or statewide program that promotes and implements the use of agricultural land conservation easements.

As stated above, General Plan Land Use Alternatives 1, 2, and 3 contain policies to encourage the interim use of land for agricultural activities. However, even with these measures, there are existing pressures that would result in the conversion of agriculture within and adjacent to the planning area with or without implementation of any of the three proposed General Plan Alternatives. Therefore, a significant and unavoidable impact to agriculture as a result of the implementation of General Plan Land Use Alternatives 1, 2, or 3 will remain.

Since the Williamson Act program is a voluntary program for private property owners, the City can only encourage owners of agricultural land to enter into contracts. While encouraging property owners to enter into Williamson Act contracts will result in the short-term preservation of the farmland, property owners have the option of non-renewal of their contract at any time, and after the ten year contract period ends, the agricultural land will be available for conversion to urban uses. Providing protection for on-going agricultural activities from new development, such as requiring buffers between agricultural operations and new development or requiring disclosure to the purchasers of adjacent property of the potential impacts of agricultural activities on residential uses, will not result in the permanent preservation of the farmland. These potential mitigation measures only serve to provide farmers with the option to continue farming as long as they desire without fear of complaints and nuisance suits from new adjacent residents.

Since the use of Williamson Act contracts and regulations protecting interim agricultural activities will not result in the permanent preservation of farmland, the purchase or transfer of development rights, purchase of conservation easements, or donation of funds to assist in the conservation of farmland would need to be implemented to ensure the permanent preservation of farmland. These measures are economically infeasible and not consistent with the objectives and land uses of General Plan Land Use Alternative 1, 2, or 3. As there is no feasible mitigation measure consistent with the objectives and land uses of General Plan Land Use Alternative 1, 2, or 3, no mitigation measure is proposed and the impact will be significant and unavoidable.

Williamson Act

The planning area contains no land under a Williamson Act contract; therefore, implementation of any of the three General Plan alternatives could not result in significant impact associated with this issue.

Conversion of Agricultural Lands Due to Environmental Changes

As discussed above, by reducing the amount of land in the planning area in agricultural production, the project would have the indirect effect of increasing development pressure and accelerating the loss of the remainder of existing agricultural land, including adjacent agricultural lands. A net decrease in farmland under cultivation in an area has a consequent increase in agricultural production costs such as transportation and labor. Agricultural activities tend to be incompatible with urban and suburban neighbors

because of factors such as dust, odors, pesticide use and machinery noise associated with normal farming operations.

While implementation of General Plan Land Use Alternatives 1, 2, and 3 will increase development pressures on adjacent farmland, resulting in its conversion to urban uses, this conversion will be a continuation of an existing trend in the planning area and county, as described above and shown in **Table 5.8-2**. Based on this current trend and land use planning, development pressures will continue to affect adjacent agricultural lands whether or not General Plan Land Use Alternative 1, 2, or 3 is adopted and implemented.

Since adjacent agricultural land outside of the planning area is not under the jurisdiction of the City of Moreno Valley, the City is limited as to the control is has in reducing the potential impact to agricultural resources resulting from the implementation of General Plan Land Use Alternatives 1, 2, or 3. Mitigation measures, such as encouraging Williamson Act participation, transfer of development rights, or imposing fees on new development to be used for the preservation of existing agricultural lands, can not be imposed by the City on adjacent land outside of the City limits. As a result, the only way the City can mitigate the impact of implementing General Plan Alternatives 1, 2, or 3 is to mitigate for the loss of farmland within the planning area, as discussed above, thereby reducing development pressure on adjacent farmlands. Since the feasible mitigation measures that are available to reduce the impact to loss of farmland within the planning area are not consistent with the project objectives and land uses of the General Plan alternatives, no mitigation measure is proposed and the impact will be significant and unavoidable.

MITIGATION MEASURES

No feasible mitigation measure consistent with the General Plan Land Use Alternatives 1, 2, and 3 project objectives and land uses has been identified. As a result, no feasible mitigation measures have been identified.

IMPACT AFTER MITIGATION

Significant and unavoidable.

NOTES AND REFERENCES

None.

5.9 BIOLOGICAL RESOURCES

The information contained within this section is summarized from the *Moreno Valley General Plan EIR Biological Report* (Merkel & Associates, September 2004). The report is provided in Volume II Appendix E of this EIR.

The existing biological resources documented in this report were determined through an extensive review of the most current, available biological literature and Geographical Information Systems (GIS) data available for the planning area. Previous biological surveys conducted by Merkel & Associates (M&A) staff, as well as biological information gathered by other consultants for projects within Moreno Valley, were further reviewed.

Vegetation communities were primarily identified based on the regional GIS data incorporated into the MSHCP (KTU+A and PSBS 1995). Floral and faunal species potential presence was determined based on vegetation community presence/absence and knowledge of species requirements. The assessment of presence or potential presence of sensitive biological resources was also based on MSHCP data, which incorporated California Natural Diversity Database records for sensitive species.

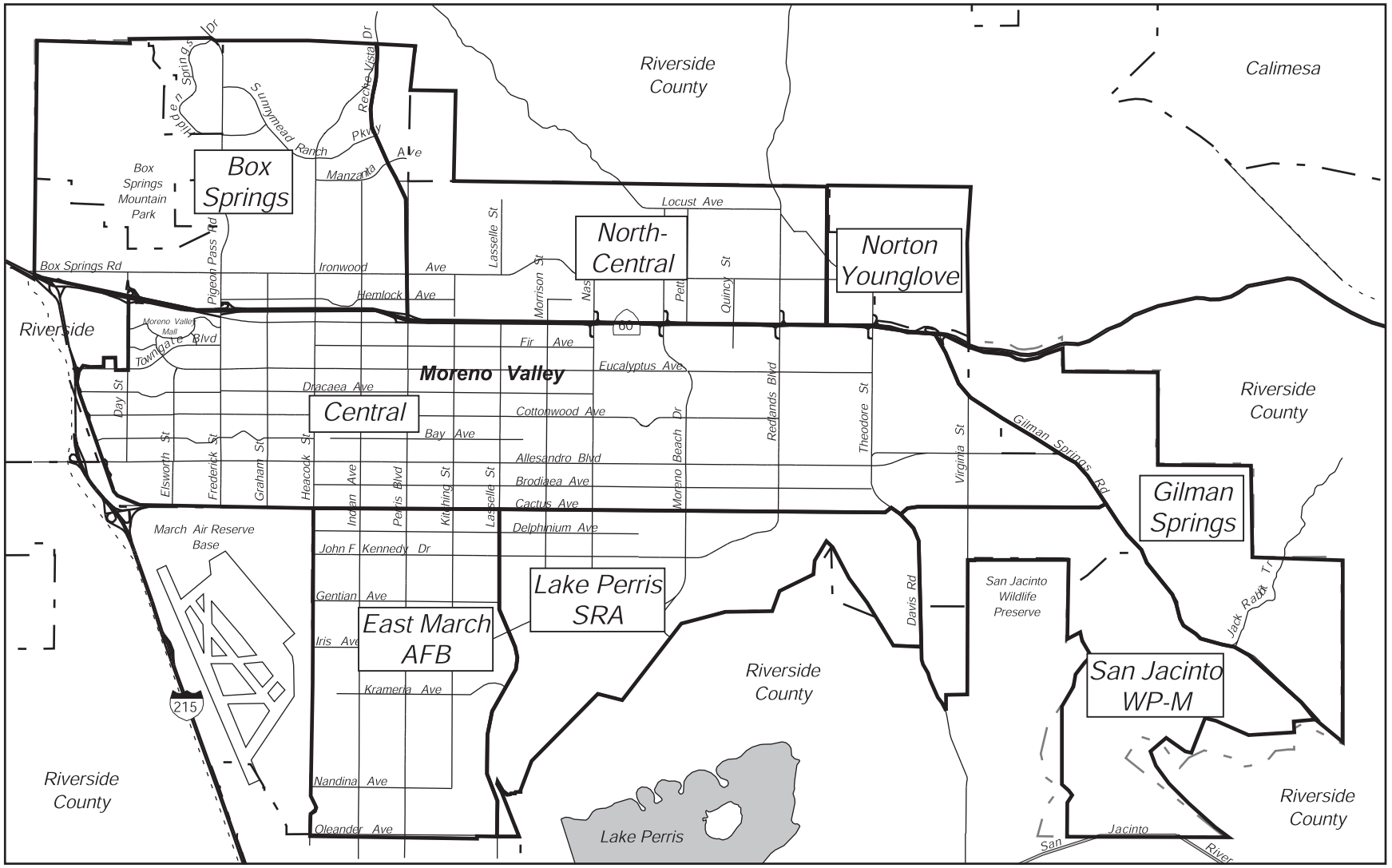
In addition to the MSHCP and vegetation community information, the following sources were consulted to aid in determining faunal presence/absence: USFWS 2000b, Ericksen and Belk 1999, Sauer *et al*. 1996, Sauer *et al*. 2000, Zeiner *et al*. 1988, Zeiner *et al*. 1990a and 1990b. M&A also contacted individuals with special expertise to determine the likelihood of species presence for certain groups (*e.g.*, bats).

Additionally, M&A biologists, Craig Reiser and Diana Jensen, conducted field investigations in April 2001 to ground truth portions of the regional GIS vegetation data and record locations of identified sensitive species.

ENVIRONMENTAL SETTING

Planning Area Geographic Sections

Since the planning area covers such a broad area, the area has been divided into eight sections based on geography and existing land use. The sections include Box Springs Regional Park, North-Central, Norton Younglove, Gilman Springs Road-Badlands, San Jacinto Wildlife Area-Mystic Lake, Lake Perris State Recreation Area (SRA), East March Air Force (Reserve) Base, and Central sections. **Figure 5.9-1** depicts the location of each of the sections. The sections are delineated along parcel lines and each of the sections is designed to contain significant land use and biological features. The eight sections are defined and described below.



Source: Merkel Associates, 2002

City Boundary

Sphere of Influence

North 0 6,000 12,000 ft

Figure 5.9-1
Planning Area Biological Geographic Sections

Box Springs Regional Park Section

This section includes planning area lands north of State Route 60 and west of Perris Boulevard. It is largely occupied by Box Springs Regional Park (designated as open space) in the west and dominated by a mixture of residential, public, vacant and open space land east of Box Springs Regional Park and west of Perris Boulevard.

North-Central Section

The North-Central Section includes the area north of State Route 60, east of Perris Boulevard and west of Sinclair Street. Dominated by vacant land and residential development, this section lies (regionally) between the Box Springs area to the west and the Badlands to the east. County of Riverside lands bound this section on the north. In terms of land use, this section is very similar to the Central Section which borders to the south.

Norton Younglove Section

The Norton Younglove Section lies north of State Route 60 from Sinclair Street east into the Badlands. It is immediately east of the North-Central Section. It is a small section, mapped almost entirely as vacant land and unlike previous sections, it supports a predominance of native vegetation communities.

Gilman Springs Road-Badlands Section

South of State Route 60 and east of Gilman Springs Road lies the Gilman Springs Road-Badlands Section. Similar to the North-Central Section to its northeast, this section is largely mapped as vacant lands, with inclusions of residential lands and open space. This section supports a large area of native vegetation communities associated with the Badlands, which comprise the eastern part of this section and continue eastward outside the planning area.

San Jacinto Wildlife Area -Mystic Lake Section

The San Jacinto Wildlife Area-Mystic Lake Section is situated in the southeastern portion of the planning area, west of Gilman Springs Road, north of the San Jacinto Wildlife Area, and northeast of Lake Perris State Recreational Area. It is bordered to the west by Davis Road and to the north by Cactus Avenue. Existing land uses within this section include vacant and agricultural.

Lake Perris State Recreation Area (SRA) Section

Between Lasselle Street and Davis Road, south of Cactus Avenue, and north of Lake Perris SRA is the Lake Perris SRA Section. This section is characterized by open space

and native vegetation on its southeastern half along the Lake Perris SRA lands and by vacant, public, and residential lands on its northwestern side.

East March Air Force (Reserve) Base (AFB) Section

The East March AFB Section is adjacent to the Lake Perris SRA Section on the west. Its northern boundary is formed by Cactus Avenue and its western and southern boundaries are formed by the planning area boundary. Immediately adjacent to this section (to the west) and outside the project boundary, is the March Air Reserve Base. In terms of existing land uses, this is a diverse section composed of residential, agricultural, public, vacant, open space, and commercial and/or business park parcels.

Central Section

The planning area lands located in the central section of the planning area have been grouped into the Central Section. This broad central area contains nearly equal parts residential parcels and vacant lands with a scattering of other land use designations. On the eastern side, large areas are shown as agriculture on the Riverside County vegetation maps, while the west has a higher percentage of commercial uses. Some Non-native Grasslands appear to have been inaccurately mapped as Cropland on the Riverside County vegetation maps (City of Moreno Valley 2004). To the south, this section is bounded by March Air Reserve Base and Cactus Avenue, to the north by State Route 60, on the east by Gilman Springs Road, and in the west by the project boundary and City of Riverside.

Planning Area Characteristics

The elevation of the planning area ranges from a low of approximately 1,550 feet to a high of 1,800 feet. The planning area gradually slopes to the south and southwest with the higher elevations north of the Pomona Freeway and Moreno Peak and the lower elevations near March Air Reserve Base.

A number of unnamed drainages are located throughout the planning area. In the west, these small watercourses drain into Poorman Reservoir or continue southwest outside of the project area. Drainages from the Badlands feed into the San Jacinto River near the southeastern boundary of the planning area and water from the north drains into the Perris Valley Storm Drain, a tributary of the San Jacinto River in the southwestern portion of Moreno Valley.

The City lies primarily on bedrock geology known as the Perris Block. The planning area's underlying surficial geology is predominantly mapped as Quaternary Alluvium and Mesozoic Granitic Rocks (Rogers 1965).

Multi-Species Habitat Conservation Plan (MSHCP)

The Moreno Valley planning area is located within the Reche Canyon/Badlands Area Plan portion of the MSHCP. The MSHCP serves as a comprehensive, multi-jurisdictional Habitat Conservation Plan, pursuant to Section (a)(1)(B) of the federal Endangered Species Act of 1973, as well as a Natural Communities Conservation Plan (NCCP) under the State NCCP Act of 2001 (Dudek 2003a). The plan "encompasses all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the Cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning Beaumont, Calimesa, Perris, Hemet, and San Jacinto." The overall biological goal of the MSHCP is to conserve covered species and their habitats, as well as maintain biological diversity and ecological processes while allowing for future economic growth within a rapidly urbanizing region (Dudek 2003a).

Federal and State wildlife agencies approved permits required to implement the MSHCP on June 22, 2004. Implementation of the plan will conserve approximately 500,000 acres of habitat, including land already in public or quasi-public ownership and about 153,000 acres of land in private ownership that will be purchased or conserved through other means. The money for purchasing private land will come from development mitigation fees as well as state and federal funds.

The MSHCP includes a program for the collection of development mitigation fees, policies for the review of projects in areas where habitat must be conserved and policies for the protection of riparian areas, vernal pools and narrow endemic plants. It also includes a program for performing surveys for "narrow endemic plants", burrowing owls and the Los Angeles pocket mouse.

The intent of the MSHCP is to ensure the survival of a range of plants and animals and avoid the cost and delays of mitigating biological impacts on a project-by-project basis. It would allow the incidental take (removal for development purposes) of currently listed species and their habitat. It would also allow the incidental take of species that might be listed in the future.

Regional Vegetation Communities/Flora

A range of vegetation types are known to occur within the planning area. The County of Riverside prepared the vegetation community map depicted in **Figure 5.9-2**. **Table 5.9-1** lists the vegetation types with approximate acreages. **Table 5.9-1** also addresses the vegetation types within 11 collapsed vegetation categories consistent with the format provided in the MSHCP and are classified according to the Holland Code (HC) classification system (Holland 1986). The reader should note that the County's vegetation map is not 100 percent accurate. For example, non-native woodland was erroneously mapped as oak woodland and some of the land classified as cropland is actually non-native grassland.[1]

[1] Jeff Specter, City of Moreno Valley, March 2005.

TABLE 5.9-1
REGIONAL VEGETATION COMMUNITIES AND APPROXIMATE ACREAGES WITHIN THE PLANNING AREA

Collapsed Vegetation Community Classifications	Uncollapsed Vegetation Community Classifications	Approximate Acreages
Coastal Sage Scrub	Riversidean Sage Scrub	6,808
Riversidean Alluvial Fan Sage Scrub	Disturbed Alluvial	16
	Riversidean Alluvial Fan Sage Scrub	19
Chaparral	Chaparral	2192
Grassland	Non-Native Grasslands	3,231
Playas and Vernal Pools	Alkali Playa	2,027
	San Jacinto Vernal Pools	Not mapped
Riparian Scrub, Woodland, Forest	Riparian Scrub	26
Meadows and Marshes	Marsh	2
Woodland	Non-native Woodland*	13
	Oak Woodland	8
Water	Open Water/Reservoir/Pond	371
Subtotal of Natural/Naturalized Habitats:		**14,713**
Developed, Disturbed Land	Residential/Urban/Exotic	16,767
Agricultural Land	Field Croplands**	10,800
	Groves/Orchards	364
	Dairy/Livestock***	225
Subtotal of Developed, Disturbed, and Agricultural Lands:		**28,156**
Total:		**42,869**

*****Although the Riverside County vegetation maps depict Oak Woodlands within Moreno Valley, City staff has ground truthed these areas and found only non-native eucalyptus and pepper trees.
** An undetermined amount of land classified as field croplands is actually non-native grassland.
*** As of 2004, the dairy/livestock operations were no longer in operation and are considered to be non-native grassland.

The general characteristics of the planning area vegetation classifications and associated floral resources are described below.

Coastal Sage Scrub

Coastal Sage Scrub occupies a total of approximately 6,808 acres of land throughout the planning area, and includes one sub-association, Riversidean Sage Scrub.

Riversidean Sage Scrub. Riversidean Sage Scrub occurs extensively on the plains of western Riverside County, and throughout much of the Moreno Valley region. This phase of sage scrub includes a dominance of low, soft-woody sub-shrubs that are typically drought deciduous. Typical stands are fairly open and dominated by Brittlebush, California Sagebrush, Flat-top Buckwheat, Yellow Bush Penstemon, Black Sage, White Sage, Matchweed, and Deerweed. The understory is often dominated by Red Brome, a noxious introduced weedy species that can sometimes out-compete a number of native annuals for site resources (*e.g.*, water). This community is typically found on dry sites, such as steep slopes, severely drained soils, or clay soils.

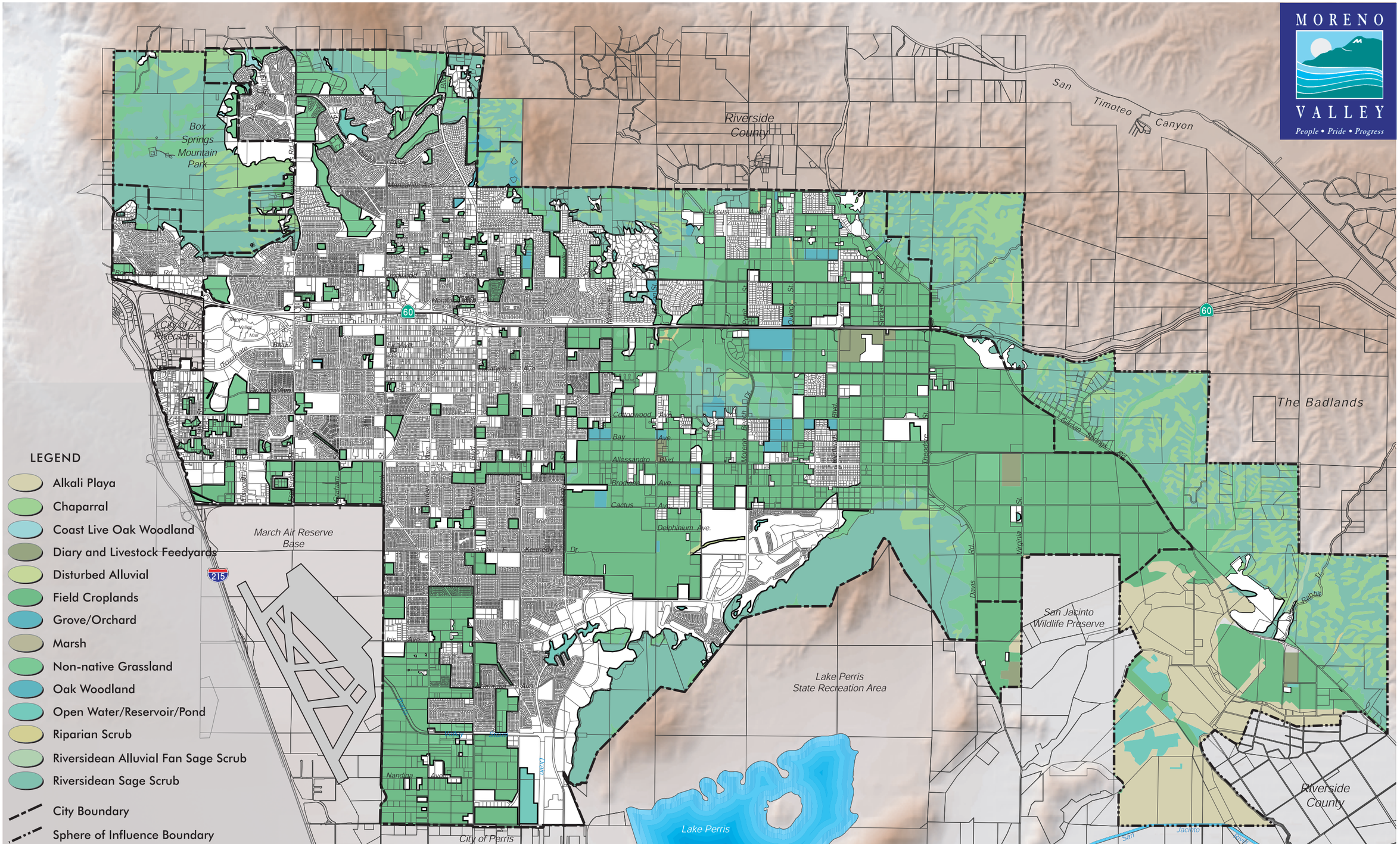


Figure 5.9-2
Planning Area Vegetation Community

Riversidean Sage Scrub is predominantly on the periphery of the Moreno Valley planning area. Substantial tracts occur in the Box Springs Regional Park Section, particularly within Box Springs Mountain Park. Smaller areas of sage scrub occur in the North-Central Section west of Locust Avenue on the northern planning area boundary. Along the eastern edge of the planning area where Moreno Valley meets the Badlands the largest tracts of sage scrub persist within the Norton Younglove and Gilman Springs Road-Badlands Sections (approximately 2,528 acres). Another substantial area of Riversidean Sage Scrub is north of Lake Perris, in the Lake Perris SRA Section. Additionally, sage scrub has been mapped on either side of Moreno Beach Drive, south of State Route 60, in the Central Section.

The quality of the sage scrub habitat in the planning area varies from very low to very high quality. The highest quality sage scrub has been mapped in the Norton Younglove and Gilman Springs Road-Badlands Sections, particularly along the western edge of the Badlands. Areas, such as Box Springs Mountain within Box Springs Regional Park Section and the slopes north of Lake Perris SRA in the Lake Perris SRA Section, support sage scrub habitats ranging from very low to high quality. Sage scrub in the Central and North-Central Sections of the planning area is predominantly low to moderate quality.

Riversidean Alluvial Fan Sage Scrub

Tracts of Riversidean Alluvial Fan Scrub, typically a sub-association of Riversidean Sage Scrub, occur within broad washes of sandy alluvial drainages that carry rainfall runoff sporadically in winter and spring, but remain relatively dry through the remainder of the year. Riversidean Alluvial Fan Sage Scrub is restricted to drainages and floodplains with very sandy substrates that have a dearth of decomposed plant material. These areas do not develop into riparian woodland or scrub due to the limited water resources and scouring by occasional floods. In deeply erosive areas such as the Badlands, numerous stream courses may support narrow bands of this vegetation. Locally, plants may include Scale Broom and Common Groundsel.

Approximately 19 acres of Riversidean Alluvial Fan Sage Scrub is found in areas of the Badlands within the Gilman Springs Road-Badlands Section. Specifically, one band of Riversidean Alluvial Fan Sage Scrub has been mapped within the planning area, running north-south near Jack Rabbit Trail, and continuing north into the Badlands, outside the planning area. Additionally, a second, smaller strip is mapped approximately 2.4 miles northwest of the larger strip. This smaller area of Riversidean Alluvial Fan Sage Scrub also occupies a drainage which continues outside the planning area to the northeast within the Badlands. The quality of these scrub areas is expected to be relatively high given the context of the habitat within undisturbed native communities.

Disturbed Alluvial. This disturbance-associated habitat typically occurs where extensive impacts have denuded a broad sandy floodplain, removing most of the vegetative cover. Such habitat is sometimes associated with sand mining activities. Although such lands may eventually recover to a form of riparian habitat, flooding is

often necessary to introduce the wetland seed components. Small xeric-adapted annuals, such as species of everlasting, may occur sporadically in this open terrain. Mule Fat is usually the first wetland species to pioneer.

Disturbed Alluvium is mapped at only one location within the planning area, southeast of Delphinium Avenue within the Lake Perris SRA Section (approximately 16 acres).

Chaparral

Chaparral is a relatively tall (1.5-3 meters high) plant community dominated by broad-leaved, deep rooted, woody shrubs. Chaparral occurs on dry, rocky, often steep slopes with sparse soils. Shaded, north-facing slopes are generally where the densest vegetation occurs, while south-facing slopes are more open. Occasionally, Chaparral contains substantial patches of bare soil or, as is the case within the planning area, it forms a mosaic with sage scrub. Characteristic species include Chamise, Spanish Bayonet/Mojave Yucca, Mission Manzanita, Our Lord's Candle, Big-berry Manzanita, Holly-leaf Cherry, Laurel Sumac, and Deerweed.

Approximately 2,192 acres of Chaparral has been mapped within the planning area in roughly the same areas as Riversidean Sage Scrub. It is likely that these areas contain several different chaparral sub-associations, including Chamise Chaparral and Southern Mixed Chaparral, which have not been mapped in detail.

Along the northwestern corner of the planning area, within Box Springs Regional Park Section, it occurs in association with sage scrub on the eastern slopes of the park, and north of Sunnymead Ranch Parkway. In the North-Central Section Chaparral occupies vacant lands west of Locust Avenue and north of Ironwood Avenue, and east of Perris Blvd. To the east along the Badlands, Chaparral is interspersed with sage scrub and grasslands within the North-Central, Norton-Younglove, and Gilman Springs Road-Badlands Sections. Smaller patches exist in the Central Section, along Moreno Beach Drive south of State Route 60, and in association with sage scrub on the eastern side of the Lake Perris SRA Section.

The Chaparral within the planning area is relatively undisturbed and contiguous with other native habitat; therefore, the quality of the vegetation is generally considered to be very good. However, where Chaparral borders Non-native Grasslands or agricultural lands, a higher percentage of exotics within the Chaparral edge is expected, thereby decreasing habitat quality.

Non-native Grasslands

Annual, non-native grassland is the most common grassland habitat in Riverside County. This vegetation community develops most commonly where grazing, disking, or fire has disturbed native scrub. Non-native Grasslands usually develop in close association with rural land uses. Holland (1986) describes non-native grasslands as a dense to sparse

cover of annual grasses with flowering culms 0.2-0.5 meters high, often associated with numerous species of wildflowers, especially in years of favorable rainfall. Local grasslands are dominated by grasses such as bromes, wild oats, and barley, as well as non-native forbs such as mustard and filarees.

Non-native Grasslands are widely dispersed throughout the Moreno Valley area, covering approximately 3,231 acres of the planning area occurring in all of the eight planning area sections. They are mapped in association with both native and non-native vegetation communities and occur in a variety of patch sizes. In some instances the regional mapping effort may not have accurately delineated grasslands from agricultural lands. As previously stated, this has been addressed where feasible by ground truthing.

The most substantial areas of Non-native Grasslands occur within Box Springs Regional Park and Gilman Springs Road-Badlands Sections. They are located within the central portion of the Box Springs Regional Park Section, east of the park. Here the grasslands are bordered by a mix of native habitats (sage scrub and chaparral) and residential development. In the Gilman Springs Road-Badlands Section, grasslands occur on the western edge of the Badlands, along Gilman Springs Road. They are bounded to the east by sage scrub and chaparral and to the west by fields and croplands.

Although not considered a native vegetation community, Non-native Grasslands have the capacity to support a variety of wildlife. The quality of Non-native Grassland areas typically relates directly to the size of the patch and to the surrounding vegetation communities and land uses. The large areas of grassland within a larger native habitat context are expected to have high value for wildlife (Box Springs Regional Park and Gilman Springs Road-Badlands grasslands). Smaller, fragmented patches with a more urban or disturbed edge, such as those in the other planning area sections, may have value for a specific animal (*e.g.*, locally nesting, foraging raptor) but their overall value would be decreased.

Non-native Woodlands

Areas mapped by the Riverside County vegetation maps as Oak Woodland and Coast Live Oak Woodland within the Moreno Valley were ground-truthed by City of Moreno Valley staff and found to consist of eucalyptus and pepper trees (City of Moreno Valley 2004). These Non-native Woodland areas occupy approximately 21 acres within the project area. Non-native woodlands occur in the northwestern portion of the project area and at a single location to the northeast. Within the Box Springs Regional Park Section, the largest area of woodland (just over 11 acres) occurs in open space just northwest of Hidden Springs Road. Smaller areas of woodland occur within Box Springs Regional Park, on the northern Planning Area boundary equidistant from the east and west boundaries of the Box Springs Regional Park Section, and east of Perris Blvd.. The only other area mapped as woodland (approximately 2.9 acres) lies on the boundary of the North-Central and Norton Younglove Sections, north of the terminus of Sinclair Street.

These woodlands are generally surrounded by Non-native Grasslands or Croplands and are extremely limited in size. Their quality would generally be considered poor, due to their non-native nature. Where woodlands occur adjacent to Non-native Grasslands they can have value as raptor perches, which promote foraging and eucalyptus may provide raptor nesting areas.

Playas and Vernal Pools

Approximately 2,027 acres of Alkali Playa have been mapped within the planning area. As discussed in detail below, no vernal pools have been mapped within the planning area by the regional vegetation mapping effort.

Alkali Playa. Alkali Alkali Playa is a rare vegetation community type usually composed of low, grayish, microphyllous and succulent shrubs that reach a height of one meter (Holland 1986). Total cover is typically low and the understory is minimal. Characteristic plant species may include Sea-blite/Bush Seepweed, Pickleweed, Alkali Heath, and Salt Grass. According to M&A fieldwork, the native Bush Seepweed, Alkali Heath, and non-native Five-hook Bassia are common on the playas.

Several regionally sensitive plant species are sometimes associated with this regionally declining habitat. In 2001, M&A biologists observed an extraordinarily wet year at Mystic Lake, in the southeastern corner of the planning area. The peripheral salt marsh habitat had expanded well beyond dry years with many plants in full bloom. One of largest known populations of sensitive Salt Marsh Daisy was recorded and seedling Tamarisk were noted on playa areas. Smooth Tarplant was also observed.

Alkali Playa covers much of the far southeastern corner of the project site, within the San Jacinto Wildlife Area-Mystic Lake Section, north of the San Jacinto River. A small area of Alkali Playa also extends into the Gilman Springs Road-Badlands Section. It surrounds open water habitat and lies adjacent to Croplands.

The large, unfragmented expanse of Alkali Playa in the southeastern corner of the planning area is expected to have moderate to very good value. The size of the habitat area combined with the lack of fragmentation and preserve adjacency lead to the expected high value, but edges adjacent to agriculture are expected to have lowered value.

San Jacinto Vernal Pools. Vernal Pools are those areas that pond year-to-year as evidenced by the presence of adequate standing water to support vegetation characteristic of vernal pool habitat in most years. In contrast, alkaline vernal playas are large, shallow, lakes, some of which are the result of man-made topographic features that impede the natural flow of water. They are subject to seasonal flooding and ponding on a less reliable basis, but possess soils and vegetation that develops in response to periodic flooding and low soil permeability (Dudek 2003b). In drier years, these areas support Alkali Grassland habitat (RECON 1995 in Dudek 2003b). Dominant species in Vernal

Pools are typically native annuals, which create a low to moderate level of perennial herbaceous cover.

Alkali Grasslands, Alkali Playas, and Vernal Pools have a shared floristic composition and are often difficult to differentiate (White 1994 in Dudek 2003b). No Vernal Pool areas were identified in the vegetation mapping, but they potentially occur (unmapped) within the planning area. According to the MSHCP, areas within the MSHCP study area potentially affected by existing State and federal wetlands regulations, include the southeastern corner of the planning area, occupied by Alkali Playas and potentially, vernal pools.

Riparian Scrub

Riparian Scrub occupies approximately 26 acres of land throughout the planning area. Riparian Scrub areas most frequently consist of Willow/Mule Fat scrub along intermittent and perennial lowland streams. Arroyo Willow and Mule Fat are typically present. Other shrubby trees including Blue Elderberry, Sandbar/Narrow-leaved Willow, Black Willow, Lance-leaf Willow, and Red Willow may also be present. M&A biologists observed that the Badlands drainage courses contain a lot of Mule Fat and Arrow Weed.

The riparian habitat understory may contain Mugwort, Western Ragweed, California Blackberry, and California Rose. Due to the historical and current disturbance within most of Moreno Valley's riparian habitats, weedy species such as Giant Reed, Pampas Grass, and Tamarisk have become well established.

Small, isolated pockets of Riparian Scrub are mapped in the North-Central Section between Pettit Street and Quincy Street, both north and south of Locust Avenue. An area of Riparian Scrub has also been mapped near the corner of Nason Street and State Route 60 and just west of Gilman Springs Road, in the Central Section. Generally, these areas persist within otherwise cultivated fields adjacent to residential or urban development. Run-off associated with dry season irrigation may help promote these narrow bands of wetland habitat. The quality of these habitats is highly variable. Although their fragmented nature has increased edge effects and decreased overall quality; in some instances, these areas are very valuable to urban tolerant wildlife as refuge, providing cover and a food and water source. Thus, quality of these habitats may be low, but value can nonetheless be high.

Riparian Scrub is also mapped to the east where Moreno Valley meets the Badlands. In both the Norton-Younglove and Gilman Springs Road-Badlands Sections, strips of Riparian Scrub have been mapped within the Chaparral and sage scrub areas. Such riparian areas are expected to be of high quality due to their connectivity with native or semi-native habitats and the decreased likelihood of disturbance or introduction of exotic, invasive species.

Marsh

This generalized habitat may have components of both brackish and freshwater marsh, given the high levels of alkalinity found locally. Soft-flag Cattail is often a primary flora component. Bulrushes, spike sedges, Marsh Fleabane, and Southwestern Spiny Rush are potentially present in marsh habitat. A number of non-native herbaceous perennials may cluster on the periphery of such wetlands.

The only marsh habitat within the planning area lies along the area's southeastern boundary within the San Jacinto Wildlife Area-Mystic Lake Section. Here a patch of marsh lies just within or on the planning area boundary, flanked by Croplands and Alkali Playa. The patch extends southward outside of the planning area toward the San Jacinto River. The marsh's quality is undetermined and the sliver of habitat within the planning area is not substantial.

Open Water/Reservoir/Pond

This category includes all naturally occurring or human-made open water bodies, totaling about 371 acres within the planning area. The 1995 vegetation community delineation is unlikely to have mapped very small agricultural ponds or areas of seasonal ponding water; thus, areas described herein are generally greater than 0.75 acre in size.

The primary concentration of open water occurs in the southeastern corner of the planning area east of the San Jacinto Wildlife Area within the San Jacinto Wildlife Area-Mystic Lake Section. These open water habitats are surrounded by Alkali Playa and Croplands.

Smaller water bodies have been mapped on the boundary of the Lake Perris SRA and East March AFB Sections, at Lasselle Street (within the East March AFB Section), along the Perris Valley Storm Drain (in the Lake Perris SRA Section), east of Moreno Beach Blvd. and south of Cactus Avenue (within the Lake Perris SRA Section), within open space just north of the Lake Perris SRA Section, at Virginia Street (within the San Jacinto Wildlife Area-Mystic Lake Section), north of Sunnymead Ranch Parkway (within the Box Springs Regional Park Section), and north of the intersection of Ironwood Avenue and Morrison Street (in the North Central Section).

Open water, even in the form of stock ponds, reservoirs, and treatment ponds has value for wildlife as a waterfowl migratory stopover location, as water source, and a foraging location for some predators. Areas of natural open water or human-made open water with adjacent open space have higher biological value.

Residential/Urban/Exotic Land

This vegetation category includes all areas of residential and urban development, including completely disturbed areas, such as vacant lots. Disturbed areas typically

support a host of weedy species including, but not limited to, Castor-bean, Fennel, Yellow Star-thistle, and Russian Thistle. Exotic, ornamental plantings are typically associated with development; therefore, they are included within this community. Exotic plantings such as Eucalyptus trees may, in some areas, form non-native, sparse or dense woodlands. However, this category does not include agricultural groves or orchards, which have been classified separately.

This category accounts for much of the planning area (approximately 16,767 acres), particularly the western half of Moreno Valley. With the exception of Box Springs Regional Park and agricultural lands to the south, east of March AFB, residential or urban development occupies all sizable tracts of land within the western half of the planning area. Although residential and urban areas also occur in the eastern planning area, the predominant existing land use is mapped as agriculture.

Specifically, in the Norton-Younglove, Gilman Springs Road-Badlands, and San Jacinto Wildlife Area-Mystic Lake Sections, very little area (5 percent or less) has been mapped as Residential/Urban/Exotic Land. Whereas, in the Lake Perris SRA, Central, and North-Central sections, between 38 percent and 48 percent of the area has been mapped as Residential/Urban/Exotic Land. Also, the Box Springs Regional Park and East March AFB Sections has over half of their acreage mapped as Residential/Urban/Exotic Land.

Residential/Urban/Exotic lands do not typically contain native vegetation or provide essential habitat connectivity; however, exotic woodland habitats do provide nesting and perching habitat for many avian species, particularly raptors.

Agricultural Land

Agricultural Land is shown to occupy approximately 11,389 acres throughout the Planning Area, and includes Field Croplands, Groves/Orchards, and Dairy/Livestock. According to City Staff, an undetermined amount of the area mapped as Field Croplands and Dairy/Livestock is actually Non-native Grassland.

Field/Croplands. This category includes all extensive agricultural operations, such as unoccupied pasture/field areas or herbaceous row crops (approximately 10,800 acres). Field/Croplands typically occupy relatively level terrain and suitable soils for agricultural planting. This habitat type includes a variety of vegetation in different shapes, sizes, and coverage percentages. Crops may vary throughout the year or year to year even within the same field, but they are typically monocultures. Remnant species include Russian Thistle, Common Bindweed, Jimsonweed, Doveweed, and Vinegar Weed.

In contrast to the Residential/Urban/Exotic Land, which dominates the western portion of the planning area, a large portion of the land in the east has been devoted to Field/Croplands. The majority of the western half of the Central Section is mapped as Field/Croplands, as is virtually all of the San Jacinto Wildlife Area-Mystic Lake Section that is not mapped as Alkali Playa or Open Water. Field/Croplands are also mapped

within the East March AFB Section around the Perris Valley Storm Drain and north of Lake Perris State Recreational Area from Virginia Street west to Laselle Street. Additionally, Field/Croplands occupy the southeastern and southwestern portions of the North-Central and Norton-Younglove Sections, respectively.

Field/Croplands do not typically contain any substantial native vegetation; however, these lands do provide foraging grounds for raptorial birds and habitat for small mammal species. These lands may also facilitate local population dispersal of sensitive species by functioning as stepping stone connections between fragmented native habitat.

Groves/Orchards. Orchards/Groves are typically open, single-species, tree-dominated habitats consisting of woody crops including, but not limited to, citrus fruits and avocados. Such crops can be grown on much steeper slopes than those areas used for herbaceous crops and, thus, frequently occur more often on sloped areas and have a patchier distribution. The understory is typically open to facilitate harvesting, and the cultivated tree species may be deciduous or evergreen. Understory plants are herbaceous and may be a planted or natural cover.

The Orchard/Grove community occurs in patches ranging from less than an acre to over 80 acres and totals approximately 364 acres within the planning area. Orchard/Grove lands are concentrated in the North-Central and Central Sections and almost entirely absent from the remaining planning area. They occur in the North-Central Section, east of Perris Blvd., and are scattered across four other North-Central Section locations. Similarly, within the Central Section, they are mapped on parcels scattered across the middle portion of the section.

Although Groves/Orchards do not typically contain native vegetation, they do provide cover for wildlife movement, as well as perch and nest sites for raptorial and passerine bird species.

Dairy/Livestock. This vegetation category includes all intensive agriculture such as dairy farms, feeder lot cattle operations, horse farms, and large-scale poultry farms covering approximately 225 acres of the planning area.

Dairy/Livestock operations have been mapped exclusively in the Central and San Jacinto Wildlife Area-Mystic Lake Sections. They are mapped at Redlands Blvd. and State Route 60, Nason Street and Alessandro Blvd., and on Virginia Street in the Central Section. Within the San Jacinto Wildlife Area-Mystic Lake Section, they are mapped at south of where Jack Rabbit Trail meets Gilman Springs Road. As of 2004, the poultry ranch on Nason Street, the cattle lot on Virginia Street and the horse farm on State Route 60 were no longer in operation and can be considered to be non-native grassland (City of Moreno Valley 2004).

Regional Wildlife Habitat and Fauna

The value of an area to wildlife is primarily dependent on physical and biological factors. Other important factors include the location relative to other land uses, the quality of habitat on and adjacent to the area, and the uniqueness of the habitat within a regional context. The planning area supports habitats ranging from very disturbed to high quality native plant communities. Road bisections, adjacent urban development, and agricultural uses decrease the wildlife value of much of the area, particularly within the western and central portions of the planning area. Areas of prime importance to wildlife are generally concentrated within the Badlands, Box Springs Regional Park, Lake Perris SRA adjacent lands, and San Jacinto Wildlife Area and adjacent lands.

Vegetation communities are discussed below with regard to their generally accepted (and not site specific) wildlife values. Following this discussion, faunal groups are discussed in the context of their expected presence by vegetation community.

Utilization of agricultural areas, particularly Fields/Croplands, by wildlife varies greatly depending upon the crop sown and time of year. Numerous bird and mammal species may be found within certain Field/Croplands in the appropriate season. Conversely, other crops experience low utilization by native wildlife. Orchards/Groves adjacent to Field/Croplands or Non-native Grasslands may be relied upon as perches that facilitate raptor foraging within the adjacent open terrain. Non-native Woodlands and Orchards/Groves also provide cover for wildlife movement and may facilitate local dispersal by individuals otherwise isolated by development. However, they do not generally provide resources to native vertebrates that are comparable to native woodlands.

The unique plant associations that create the sage scrub community support a diverse and frequently abundant sensitive faunal assembly. Southern California sage scrub and Chaparral exhibit extremely high levels of species diversity and endemism. The majority of the species found in the region are dependent upon one or both of these communities, from reptiles to large mammals.

Non-native Grasslands have the potential to support numerous small mammals and provide foraging habitat for raptorial and passerine birds. They are not comparable to Native Grasslands, but can support numerous species if they have a relatively low percentage of weedy exotics such as mustards and are predominantly annual grasses.

Riparian ecosystems provide permanent as well as temporary habitat to many terrestrial organisms. The also provide primary movement corridors. Riparian ecosystems benefit a variety of species through their value as habitat, their water retention capacity, and their ability to buffer the effects of organic nutrients and toxins (Peck 1993). Riparian areas usually harbor greater wildlife diversity and abundance than upland areas and can be important breeding areas for a number of migratory bird species. Many vertebrates that predominantly utilize peripheral habitats such Chaparral or sage scrub also utilize

riparian habitats to varying degrees. Similarly, marsh habitats are typically highly productive and support an array of distinctive species.

Areas of Alkali Playa are not as heavily utilized by wildlife as other native vegetation communities found within the planning area. Disturbed Alluvial is not expected to provide habitat for vertebrate species prior to initial vegetative recovery. Although some small mammals and reptiles from neighboring vegetation communities will traverse this habitat, the lack of vegetation limits the ability of this community to provide adequate cover for resident species.

The following text generally discusses the fauna species known or with a potential to occur in the planning area and their associated habitats. Fauna species are discussed in a regional context; therefore, existing site-specific conditions may differ since species presence cannot be predicted by vegetation community presence alone. In addition, some species are expected to occur in Residential/Urban/Exotic areas; however, this category is not discussed, as it is not the natural or preferred habitat of any native species. Sensitive species are addressed in greater detail in the subsequent, Sensitive Biological Resources portion of the report.

Invertebrates

Limited information is available to provide a thorough description of all invertebrate found within the Moreno Valley region. Butterfly species are frequently the focus of invertebrate discussion and a variety of common species are expected within the planning area. Only potentially significant species are discussed herein. They occur in a wide range of habitats; including sage scrub and Chaparral, open areas devoid of substantial shrub cover such as non-native grasslands and agricultural/disturbed land, as well as more densely vegetated areas such as riparian habitat and woodlands. These habitats provide various host-specific plants suitable for larval development, adult nectar resources, and topographical features, such as hilltops or open ground that aid in courtship and mating.

Quality habitat for a diverse assemblage of butterflies is generally located on the northern, eastern and southern periphery of the planning area in association with native habitats in the Box Springs Regional Park, North-Central, Norton-Younglove, Gilman Springs Road-Badlands, San Jacinto Wildlife Area -Mystic Lake, and Lake Perris SRA Sections. Vernal pool locations are not mapped within the planning area but may occur unmapped, particularly within the San Jacinto Wildlife Area -Mystic Lake Section.

The Quino Checkerspot Butterfly has been recorded from a number of locations in southwestern Riverside County, but Moreno Valley is not among the locations that harbor critical populations. In fact, the planning area was excluded from the recent protocol survey areas and is not addressed in recent Quino Checkerspot Butterfly Recovery Plan (USFWS 2000b and USFWS 2000c). Additionally, the Delhi Sands Flower-loving Fly is not known to occur in the planning area (Dudek 2003b).

In contrast to butterflies, vernal pool brachiopods are strongly restricted to vernal pool habitat, and consequently, many of these species are considered to be sensitive. Available information (Ericksen and Belk 1999 and Dudek 2003b) indicates the presence of three sensitive crustaceans, Vernal Pool Fairy Shrimp, Santa Rosa Plateau Fairy Shrimp, and Riverside Fairy Shrimp within the region.

Amphibians and Reptiles

Amphibians typically occur in riparian habitats with peripheral upland vegetation. Riparian ecosystems often provide temporary ponding water utilized as breeding habitat by various amphibious species, as well as abundant vegetation for cover and foraging. Amphibians will also create burrows in adjacent upland habitats.

Reptiles occur in a variety of habitats, including riparian, woodland, sage scrub, and Chaparral habitats, as well as grasslands and agricultural/disturbed lands. Lizards and snakes utilize rock crevices for cover within the habitat. Quality reptilian habitat is generally located in the Box Springs Regional Park area, the Badlands, and Lake Perris SRA area. However, the agricultural lands located throughout the region are also expected to support several common reptiles and smaller pockets of native habitat, such as those within the middle of the Central Section along Moreno Beach Drive. Expected amphibian and reptile species are listed in **Table 5.9-2**, within their expected habitats; however, these species are not necessarily restricted to the listed habitats.

TABLE 5.9-2
AMPHIBIAN AND REPTILE SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitats	Reptiles[1]
Riversidean Sage Scrub, Alluvial Fan Sage Scrub, and Chaparral	Pacific Treefrog (*Pseudacris regilla*), California Toad (*Bufo boreas halophilus*), Western Spadefoot (*Scaphiopus hammondii*), San Diego Banded Gecko (*Coleonyx variegatus abbottii*), Granite Spiny Lizard (*Sceloporus orcutti*), Western Fence Lizard (*Sceloporus occidentalis*), Side-blotched Lizard (*Uta stansburiana*), San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*), Coastal Whiptail (*Cnemidophorus tigris stejnegeri*), Orangethroat Whiptails (*C. hyperythrus*), Southern Alligator Lizards (*Elgaria multicarinata*), Western Skink (*Eumeces skiltonianus*), Silvery (California) Legless Lizard (*Anniella pulchra pulchra*), Western Threadsnake (*Leptotyphlops humilis*), Coachwhip (*Masticophis flagellum*), Striped Racer (*Masticophis lateralis lateralis*), San Diego Gopher Snake (*Pituophis catenifer annectens*), California Kingsnake (*Lampropeltis getula californiae*), Long-nosed Snake (*Rhinocheilus lecontei*), Coast Patchnose Snake (*Salvadora hexalepis virgultea*), Western Blackhead Snake (*Tantilla planiceps*), Lyre Snake (*Trimorphodon biscutatus*), Night Snake (*Hypsiglena torquata*), Coastal Rosy Boa (*Lichanura trivirgata roseofusca*), Red Diamond Rattlesnake (*Crotalus exsul*), Speckled Rattlesnake (*Crotalus mitchelli*), Southern Pacific Rattlesnake (*Crotalus viridis helleri*), Glossy Snake (*Arizona elegans*), Coastal or California Glossy Snake (*Arizona elegans occidentalis*)
Non-Native Grassland, Field/ Croplands	Pacific Treefrog, California Toad, Western Spadefoot, Orangethroat Whiptails, Southern Alligator Lizards, Western Skinks, Western Fence Lizard, Side-blotched Lizard, San Diego Horned Lizard, Coastal Whiptail, Common Kingsnake (*Lampropeltis getula californiae*), San Diego Gopher Snake, Southern Pacific Rattlesnake, Glossy Snake, Coastal or California Glossy Snake

TABLE 5.9-2
AMPHIBIAN AND REPTILE SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitats	Reptiles[1]
Non-native Woodland	Garden Slender Salamander (*Batrachoseps major major*), Pacific Chorus Frog, California Toad, Orangethroat Whiptails, Southern Alligator Lizards, Western Skinks, Silvery (California) Legless Lizard
Riparian Scrub	Garden Slender Salamander, Pacific Chorus Frog, California Toad, Orangethroat Whiptails, Southern Alligator Lizards, Western Skinks, Two-striped Garter Snake (*Thamnophis hammondii*), San Bernardino Ringneck Snake (*Diadophis punctatus modestus*), California Red-sided Garter Snake (*Thamnophis sirtalis parietalis*), Glossy Snake, Coastal or California Glossy Snake
Marshes and Open Water/ Reservoir/ Pond	Pacific Treefrog, Bullfrog (*Rana catesbeiana*), Southern Pacific Pond Turtles (*Clemmys marmorata pallida*), non-native Sliders (*Trachemys* sp)

[1]Some species may be listed more than once due to their occurrence in multiple habitats.

Birds

Several vegetation communities provide habitat for numerous species of resident and migratory birds. A number of avian species breed within Sage Scrub and Chaparral habitats, and forage among the leaf litter in the vegetative understory. Rocky outcrops, particularly on undisturbed slopes or peaks can provide perching or roosting sites for raptors. Grasslands and agricultural lands located adjacent to woodland areas provide foraging habitat for resident, wintering, and migrant raptors. Avian diversity and abundance is substantial within riparian and woodland habitats. These habitats are comprised of several horizontal niches including canopy, shrub, herb, and ground, which provide a network of valuable roosting, foraging, and breeding areas for birds.

Quality avian habitat within the planning area is concentrated in the areas where native vegetation or foraging habitat is present. In particular, Non-native Grasslands and Croplands within the Moreno Valley area are a significant foraging resource for resident, wintering, and migrant raptors. Numerous biological reports from the planning area note Moreno Valley's critical importance as a raptor wintering area. The abundance of raptors is particularly high in winter due to the influx of migrants, which supplement the resident population. The significance of each foraging area varies based upon several factors, such as habitat quality, as determined by prey productivity; access to hunting perches; proximity to human disturbance; and the level of human disturbance within the vicinity. Raptor species vary in their tolerance of human activity, ability or willingness to utilize different patch sizes, utilization of different vegetation communities, perching requirements or preferences, and preferred prey items.

Textual discussion of all potentially occurring or expected avian species would be extremely lengthy. Therefore, species presence according to habitat is provided in **Table 5.9-3**. Avian species may be observed flying above numerous habitats; however, where there is no clear association (foraging, nesting, or roosting) between the habitat type and the species, the species has not been recorded for that habitat.

TABLE 5.9-3
AVIAN SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitat	Associated Species*	
Riversidean Sage Scrub & Riversidean Alluvial Fan Scrub	Northern Harrier (*Circus cyaneus*) Red-tailed Hawk (*Buteo jamaicensis*) Golden Eagle (*Aquila chrysaetos*) American Kestrel (*Falco sparverius*) Merlin (*Falco columbarius*) Prairie Falcon (*Falco mexicanus*) California Quail (*Callipepla californica*)Mourning Dove (*Zenaida macroura*) Greater Roadrunner (*Geococcyx californianus*) Burrowing Owl (*Speotyto cunicularia*) Lesser Nighthawk (*Chordeiles acutipennis*) Common Poorwill (*Phalaenoptilus nuttallii*) Costa's Hummingbird (*Calypte costae*) Rufous Hummingbird (*Selasphorus rufus*) Allen's Hummingbird (*Selasphorus sasin*) Say's Phoebe (*Sayornis saya*) Western Kingbird (*Tyrannus verticalis*) Loggerhead Shrike (*Lanius ludovicianus*) Common Raven (*Corvus corax*) Coastal Cactus Wren (*Campylorhynchus brunneicapillus couesi*) Rock Wren (*Salpinctes obsoletus*) Canyon Wren (*Catherpes mexicanus*)	Bewick's Wren (*Thryomanes bewickii*) California Gnatcatcher (*Polioptila californica*) Wrentit (*Chamaea fasciata*) Northern Mockingbird (*Mimus polyglottos*) Sage Thrasher (*Oreoscoptes montanus*) California Thrasher (*Toxostoma redivivum*) Yellow-rumped Warbler (*Dendroica coronata*) Lazuli Bunting (*Passerina amoena*) California Towhee (*Pipilo crissalis*) Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*) Bell's Sage Sparrow (*Amphispiza belli belli*) Black-throated Sparrow (*Amphispiz bilineata*) White-crowned Sparrow (*Zonotrichia leucophrys*) McCown's Longspur (*Calcarius mccownii*) Lapland Longspur (*Calcarius lapponicus*) Chestnut-collared Longspur (*Calcarius ornatus*) House Finch (*Carpodacus mexicanus*) Lesser Goldfinch (*Carduelis psaltria*)
Chaparral	Turkey Vulture (*Cathartes aura*) Red-tailed Hawk Golden Eagle California Quail Mourning Dove Greater Roadrunner Anna's Hummingbird (*Calypte anna*) Costa's Hummingbird Rufous Hummingbird Allen's Hummingbird Say's Phoebe Loggerhead Shrike, Western Scrub-Jay (*Aphelocoma californica*) Common Raven Bushtit (*Psaltriparus minimus*) Canyon Wren Bewick's Wren Blue-gray Gnatcatcher (*Polioptila caerulea*) Swainson's Thrush (*Catharus ustulatus*) Hermit Thrush (*Catharus guttatus*) Wrentit	Northern Mockingbird California Thrasher Yellow-rumped Warbler Black-throated Gray Warbler (*Dendroica nigrescens*) Townsend's Warbler (*Dendroica townsendi*) Lazuli Bunting Green-tailed Towhee (*Pipilo chlorurus*) Spotted Towhee (*Pipilo maculatus*) California Towhee Southern California Rufous-crowned Sparrow Black-chinned Sparrow (*Spizella atrogularis*) Bell's Sage Sparrow Fox Sparrow (*Passerella iliaca*) Golden-crowned Sparrow (*Zonotrichia atricapilla*) White-crowned Sparrow Dark-eyed Junco (*Junco hyemalis*) House Finch Lesser Goldfinch Lawrence's Goldfinch (*Carduelis lawrencei*)
Non-native Grasslands, Field/ Croplands	Cattle Egret (*Bubulcus ibis*) White-faced Ibis (*Plegadis chihi*) Greater White-fronted Goose (*Anser albifrons*)	American Crow (*Corvus brachyrhynchos*) Common Raven California Horned Lark (*Eremophila alpestris*

TABLE 5.9-3
AVIAN SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitat	Associated Species*	
	Snow Goose (*Chen caerulescens*)	*actia*)
	Ross' Goose (*Chen rossii*)	Tree Swallow (*Tachycineta bicolor*)
	Canada Goose (*Branta canadensis*)	Violet-green Swallow (*Tachycineta thalassina*)
	White-tailed Kite (*Elanus leucurus*)	Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)
	Bald Eagle (*Haliaeetus leucocephalus*)	
	Northern Harrier	Cliff Swallow (*Hirundo pyrrhonota*)
	Swainson's Hawk (*Buteo swainsoni*)	Barn Swallow (*Hirundo rustica*)
	Red-tailed Hawk,	Western Bluebird (*Sialia mexicana*)
	Ferruginous Hawk (*Buteo regalis*)	Mountain Bluebird (*Sialia currucoides*)
	Rough-legged Hawk (*Buteo lagopus*)	European Starling (*Sturnus vulgaris*)
	Golden Eagle	American Pipit (*Anthus rubescens*)
	American Kestrel	Vesper Sparrow (*Pooecetes gramineus*)
	Merlin	Lark Sparrow (*Chondestes grammacus*)
	Peregrine Falcon (*Falco peregrinus*)	Lark Bunting (*Calamospiza melanocorys*)
	Prairie Falcon	Savannah Sparrow (*Passerculus sandwichensis*)
	Ring-necked Pheasant (*Phasianus colchicus*)	Grasshopper Sparrow (*Ammodramus savannarum*)
	Black-bellied Plover (*Pluvialis squatarola*)	
	Killdeer (*Charadrius vociferus*)	Lincoln's Sparrow (*Melospiza lincolnii*)
	Mountain Plover (*Charadrius montanus*)	White-crowned Sparrow
	Long-billed Curlew (*Numenius americanus*)	Red-winged Blackbird (*Agelaius phoeniceus*)
	Franklin's Gull (*Larus pipixcan*)	Tricolored Blackbird (*Agelaius tricolor*)
	Ring-billed Gull (*Larus delawarensis*)	Western Meadowlark (*Sturnella neglecta*)
	California Gull (*Larus californicus*)	Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)
	Rock Dove (*Columba livia*)	
	Mourning Dove	Brewer's Blackbird (*Euphagus cyanocephalus*)
	Barn Owl (*Tyto alba*)	Brown-headed Cowbird (*Molothrus ater*)
	Burrowing Owl (*Speotyto cunicularia*)	House Finch
	Short-eared Owl (*Asio flammeus*)	Lesser Goldfinch
	Say's Phoebe	House Sparrow (*Passer domesticus*)
	Western Kingbird	
	Loggerhead Shrike (*Lanius ludovicianus*)	
Orchards/ Groves and Non-native Woodlands	White-tailed Kite (*Elanus leucurus*)	Red-breasted Nuthatch (*Sitta canadensis*)
	Sharp-shinned Hawk (*Accipiter striatus*)	White-breasted Nuthatch (*Sitta carolinensis*)
	Cooper’s Hawk (*Accipiter cooperii*)	House Wren (*Troglodytes aedon*)
	Red-tailed Hawk	Ruby-crowned Kinglet (*Regulus calendula*)
	Red-shouldered Hawk (*Buteo lineatus*)	Western Bluebird (*Sialia mexicana*)
	American Kestrel	Swainson’s Thrush
	Mourning Dove (*Zenaida macroura*)	Hermit Thrush
	California Quail (*Callipepla californica*)	American Robin (*Turdus migratorius*)
	Common Ground-Dove (*Columbina passerina*)	Northern Mockingbird (*Mimus polyglottos*)
	Barn Owl	European Starling
	Great Horned Owl (*Bubo virginianus*),	Cedar Waxwing (*Bombycilla cedrorum*)
	Costa's Hummingbird	Phainopepla (*Phainopepla nitens*)
	Rufous Hummingbird	Orange-crowned Warbler (*Vermivora celata*)

TABLE 5.9-3
AVIAN SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitat	Associated Species*	
	Allen's Hummingbird	Nashville Warbler (*Vermivora ruficapilla*)
	Acorn Woodpecker (*Melanerpes formicivorous*)	Yellow-rumped Warbler
	Red-breasted Sapsucker (*Sphyrapicus ruber*)	Black-throated Gray Warbler
	Red-naped Sapsucker (*Sphyrapicus nuchalis*)	Townsend's Warbler
	Northern Flicker (*Colaptes auratus*)	MacGillivray's Warbler
	Olive-sided Flycatcher (*Contopus cooperi*)	Wilson's Warbler
	Western Wood-Pewee (*Contopus sordidulus*)	Summer Tanager
	Pacific-slope Flycatcher (*Empidonax difficilis*)	Western Tanager
	Black Phoebe (*Sayornis nigricans*)	Black-headed Grosbeak (*Pheucticus melanocephalus*)
	Say's Phoebe	California Towhee,
	Ash-throated Flycatcher (*Myiarchus cinerascens*)	White-crowned Sparrow
		Yellow-headed Blackbird
	Cassin's Kingbird (*Tyrannus vociferans*)	Brown-headed Cowbird
	Western Kingbird	House Finch
	Cassin's Vireo (*Vireo cassinii*)	Purple Finch (*Carpodacus purpureus*)
	Warbling Vireo (*Vireo gilvus*)	Lesser Goldfinch
	Western Scrub-Jay	American Goldfinch (*Carduelis tristis*)
	American Crow	
	Common Raven	
	Bushtit	
Alkali Playa	Western Snowy Plover (*Charadrius alexandrinus nivosus*)	Killdeer
		Mountain Plover (*Charadrius montanus*)
Riparian and Marsh	American Bittern (*Botaurus lentiginosus*)	Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
	Western Least Bittern (*Ixobrychus exilis hesperis*)	Pacific-slope Flycatcher
	Great Blue Heron (*Ardea herodias*)	Black Phoebe (*Sayornis nigricans*)
	Great Egret (*Casmerodius albus*)	Ash-throated Flycatcher
	Snowy Egret (*Egretta thula*)	Vermilion Flycatcher (*Pyrocephalus rubinus*)
	Cattle Egret	Least Bell's Vireo (*Vireo bellii pusillus*)
	Green Heron (*Butorides virescens*)	Cassin's Vireo
	Black-crowned Night Heron (*Nycticorax nycticorax*)	Warbling Vireo
		Tree Swallow
	Green-winged Teal (*Anas crecca*)	Violet-green Swallow
	Mallard (*Anas platyrhynchos*)	Northern Rough-winged Swallow
	Northern Pintail (*Anas acuta*)	Cliff Swallow
	Blue-winged Teal (*Anas discors*)	Barn Swallow
	Cinnamon Teal (*Anas cyanoptera*)	Bushtit
	Northern Shoveler (*Anas clypeata*)	Marsh Wren (*Cistothorus palustris*)
	Gadwall (*Anas strepera*)	Orange-crowned Warbler
	American Wigeon (*Anas americana*)	Nashville Warbler
	Ring-necked Duck (*Aythya collaris*)	Yellow Warbler (*Dendroica petechia*)
	Hooded Merganser (*Lophodytes cucullatus*)	Yellow-rumped Warbler
	Ruddy Duck (*Oxyura jamaicensis*)	MacGillivray's Warbler (*Oporornis tolmiei*),
	Sharp-shinned Hawk	(*Carduelis pinus*)
	Cooper's Hawk	Lesser Goldfinch
	Red-shouldered Hawk	Lawrence's Goldfinch
	Red-tailed Hawk	American Goldfinch

TABLE 5.9-3
AVIAN SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitat	Associated Species*	
	Virginia Rail (*Rallus limicola*)	Common Yellowthroat (*Geothlypis trichas*)
	Sora (*Porzana carolina*)	Wilson's Warbler (*Wilsonia pusilla*)
	Common Moorhen (*Gallinula chloropus*)	Yellow-breasted Chat (*Icteria virens*)
	American Coot (*Fulica americana*)	Summer Tanager (*Piranga rubra*)
	Killdeer	Western Tanager (*Piranga ludoviciana*)
	Short-billed Dowitcher (*Limnodromus griseus*)	Black-headed Grosbeak
	Long-billed Dowitcher (*Limnodromus scolopaceus*)	Blue Grosbeak (*Guiraca caerulea*)
		Song Sparrow (*Melospiza melodia*)
	Common Snipe (*Gallinago gallinago*)	White-crowned Sparrow
	Mourning Dove	Red-winged Blackbird (*Agelaius phoeniceus*)
	Western Screech-Owl (*Otus kennicottii*)	Tricolored Blackbird (*Agelaius tricolor*)
	Black-chinned Hummingbird (*Archilochus alexandri*)	Brown-headed Cowbirds (*Molothrus ater*)
		Hooded Oriole (*Icterus cucullatus*)
	Nuttall's Woodpecker (*Picoides nuttallii*)	Bullock's Oriole (*Icterus bullockii*)
	Downy Woodpecker (*Picoides pubescens*)	House Finch
	Hairy Woodpecker (*Picoides villosus*)	Red Crossbill (*Loxia curvirostra*)
	Western Wood-Pewee	Pine Siskin
Open Water, including shoreline	Pied-billed Grebe (*Podilymbus podiceps*)	Osprey (*Pandion haliaetus*)
	Horned Grebe (*Podiceps auritus*)	Bald Eagle
	Eared Grebe (*Podiceps nigricollis*)	Peregrine Falcon
	Western Grebe (*Aechmophorus occidentalis*)	Common Moorhen
	Clark's Grebe (*Aechmophorus clarki*)	American Coot
	American White Pelican (*Pelecanus erythrorhynchos*)	Semipalmated Plover (*Charadrius semipalmatus*)
		Killdeer
	Double-crested Cormorant (*Phalacrocorax auritus*)	Black-necked Stilt (*Himantopus mexicanus*)
		American Avocet (*Recurvirostra americana*)
	Great Blue Heron	Greater Yellowlegs (*Tringa melanoleuca*)
	Great Egret	Lesser Yellowlegs (*Tringa flavipes*)
	Snowy Egret	Spotted Sandpiper (*Actitis macularia*)
	Cattle Egret	Whimbrel (*Numenius phaeopus*)
	Green Heron	Long-billed Curlew
	Black-crowned Night Heron	Marbled Godwit (*Limosa fedoa*)
	White-faced Ibis	Western Sandpiper (*Calidris mauri*)
	Greater White-fronted Goose	Least Sandpiper (*Calidris minutilla*)
	Snow Goose	Dunlin (*Calidris alpina*)
	Ross' Goose	Short-billed Dowitcher
	Canada Goose	Long-billed Dowitcher
	Wood Duck (*Aix sponsa*)	Wilson's Phalarope (*Phalaropus tricolor*)
	Green-winged Teal	Red-necked Phalarope (*Phalaropus lobatus*)
	Mallard	Franklin's Gull, Herring Gull (*Larus argentatus*)
	Northern Pintail	Bonaparte's Gull (*Larus philadelphia*)
	Blue-winged Teal	Ring-billed Gull
	Cinnamon Teal	California Gull
	Northern Shoveler	Caspian Tern (*Sterna caspia*)
	Gadwall	Forster's Tern (*Sterna forsteri*)
	American Wigeon	Belted Kingfisher (*Ceryle alcyon*)
	Canvasback (*Aythya valisineria*)	Tree Swallow
	Redhead (*Aythya americana*)	Violet-green Swallow

TABLE 5.9-3
AVIAN SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitat	Associated Species*	
	Ring-necked Duck	Northern Rough-winged Swallow
	Lesser Scaup (*Aythya affinis*)	Cliff Swallow
	Greater Scaup (*Aythya marila*)	Black Swift (*Cypseloides niger*)
	Common Goldeneye (*Bucephala clangula*)	Vaux's Swift (*Chaetura vauxi*)
	Bufflehead (*Bucephala albeola*)	White-throated Swift (*Aeronautes saxatalis*)
	Hooded Merganser	
	Common Merganser (*Mergus merganser*)	
	Ruddy Duck	

*Species may be listed in multiple habitats as applicable.

Mammals

Small mammal species typically occur in sage scrub, Chaparral, grasslands and agricultural areas, and several of these species will intermittently use riparian and woodland habitats for foraging and cover. Various species of bats forage in grasslands and woodland habitats, as well as over open water. Meso-predators historically occurred in a variety of upland and riparian habitats, but many have adapted to more disturbed or urbanized habitats and may reach high densities in these communities. Larger mammals often require greater blocks of connected habitat for hunting and travel within their range.

Quality habitat for small mammal species is generally located throughout the planning area; however, the only areas consisting of wider, connected blocks of habitat suitable for larger mammal species are located on the periphery of the planning area where contiguous blocks of native habitat persist in the Badlands, along the northern project boundary and into Box Springs Regional Park, and in the south at Lake Perris SRA. Species presence according to habitat is provided in **Table 5.9-4,** with the exception of bats. Bats use a variety of habitats for specific purposes, foraging, roosting, etc. For this group a textual discussion is more clear and concise and has been provided following the table.

While some mammal species may use Alkali Playa habitat, none are specifically associated with it. In contrast to other faunal groups, there are mammal species which are expected primarily in association with Residential/Urban/Exotic portions of the planning area, including House Mouse, Norway Rat, and Black Rat.

TABLE 5.9-4
MAMMAL SPECIES KNOWN OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Habitats	Reptiles[1]
Riversidean Sage Scrub, Alluvial Fan Sage Scrub, and Chaparral	Desert Cottontail (*Sylvilagus audubonii*), San Diego Black-tailed Jackrabbit (*Lepus californicus bennetii*), Botta's Pocket Gopher (*Thomomys bottae*), Los Angeles Little Pocket Mouse (*Perognathus longimembris brevinasus*), California Pocket Mouse (*Chaetodipus californicus*), Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*), Pacific/Agile Kangaroo Rat (*Dipodomys agilis*), California Mouse (*Peromyscus californicus*), Cactus Mouse (*Peromyscus eremicus*), Deer Mouse (*Peromyscus maniculatus*), Brush Mouse (*Peromyscus boylii*), Piñon Mouse (*Peromyscus truei*), Southern Grasshopper Mouse (*Onychomys torridus ramona*), San Diego Desert Woodrat (*Neotoma lepida intermedia*), Stephens' Kangaroo Rat (*Dipodomys stephensi*), San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*), Ringtail (*Bassariscus astutus*), Western Spotted Skunk (*Spilogale gracilis*), Virginia Opossum (*Didelphis virginiana*), Gray Fox (*Urocyon cinereoargenteus*), Coyote (*Canis latrans*), Mountain Lion (*Puma concolor*), and Mule Deer (*Odocoileus hemionus*).
Non-Native Grassland, Field/Croplands	California Ground Squirrel (*Spermophilus beecheyi*), Botta's Pocket Gopher (*Thomomys bottae*), Stephens' Kangaroo Rat (*Dipodomys stephensi*), American Badger (*Taxidea taxus*), Long-tailed Weasel (*Mustela frenata*), Virginia Opossum (*Didelphis virginiana*), Gray Fox (*Urocyon cinereoargenteus*), Coyote (*Canis latrans*), Desert Cottontail (*Sylvilagus audubonii*), San Diego Black-tailed Jackrabbit
Non-native Woodland	Long-tailed Weasel, Western Gray Squirrel (*Sciurus griseus*), Dusky-footed Woodrat (*Neotoma fuscipes*), Virginia Opossum (*Didelphis virginiana*), Gray Fox (*Urocyon cinereoargenteus*), Coyote (*Canis latrans*), Mule Deer
Riparian Scrub and Marshes	Ornate Shrew (*Sorex ornatus*), Brush Rabbit (*Sylvilagus bachmani*), Western Harvest Mouse (*Reithrodontomys megalotis*), California Vole (*Microtus californicus*), Raccoon (*Procyon lotor*), Virginia Opossum (*Didelphis virginiana*), Striped Skunk (*Mephitis mephitis*), Gray Fox (*Urocyon cinereoargenteus*), Coyote (*Canis latrans*), Bobcat (*Felis rufus*)

[1] Some species may be listed more than once due to their occurrence in multiple habitats.

Resident bats species exist within the planning area. Although breeding habitat for some bat species is absent from the planning area, these species may utilize the edges of the planning area for foraging. Species presence data for bats is limited, especially since they are not typically included within regional species and habitat conservation planning efforts. The determination of species expected within the area is based on the availability of suitable habitat and input from local bat researchers. Potentially present in the planning area are the Yuma Myotis, Long-eared Myotis, Fringed Myotis, Long-legged Myotis, Western Small-footed Myotis, California Myotis, Silver-haired Bat, Western Pipistrelle, Big Brown Bat, Western Red Bat, Hoary Bat, Western Yellow Bat, Pallid Bat, Townsend's West, Big-eared Bat, Brazilian Free-tailed Bat, Pocketed Free-tailed Bat, and California Mastiff Bat.

Sensitive Biological Resources

Regional Sensitive Habitats

According to CEQA (Article 13 §15206), sensitive wildlife habitats include but are not limited to riparian lands, wetlands, bays, estuaries, and marshes and habitats of rare or endangered species (as defined by CEQA Article 13 §15380). Typically, unique vegetation communities (associations of plant species that are rare or substantially depleted, unusual, or limited in distribution) are also considered sensitive, but designations of sensitive habitats outside of the CEQA definition vary between jurisdictions.

Four regionally sensitive habitats are identified within the Planning Area: 1) Riparian Habitats/Wetlands (including Open Water and Marsh), 2) Coastal Sage Scrub/Riversidean Alluvial Fan Sage Scrub, 3) Raptor Foraging/Wintering Habitat, and 4) Core Reserves/Designated Critical Habitat.

Riparian Habitats/Wetlands. Wetlands and associated riparian habitats are extremely limited in southern California. Wetland vegetation communities are given the highest priority within the state inventory by the CNDDB. Many species are dependent upon riparian areas for food, cover, and breeding. Riparian habitats are also valued for their function as wildlife movement corridors and habitat linkages.

Riparian habitats are limited in the planning area, restricted to the linear Riparian Scrub areas mapped within the native habitats of the Badlands (Gilman Springs Road-Badlands and Norton-Younglove Sections) and the persisting Riparian Scrub within the more disturbed and developed context of the North-Central and Central Sections. Open water habitats are scattered throughout the planning area, as previously described in the Regional Vegetation Communities/Flora Section. Marsh occurs only along the extreme southern boundary of the planning area within the San Jacinto Wildlife Area-Mystic Lake Section, north of the San Jacinto River. With the exception of areas such as wastewater treatment ponds and mining ponds, each of these wetland or riparian areas would be considered sensitive, regardless of the surrounding landscape.

Coastal Sage Scrub/Riversidean Alluvial Fan Sage Scrub. Sage scrub has been drastically reduced in southern California, largely due to development. Much of the remaining southern California sage scrub has been fragmented into isolated tracts with a disproportionate amount of edge. Sage scrub occurs in large tracts within the more pristine portions of the planning area, including Box Springs Regional Park (Box Springs Regional Park Section), north of Lake Perris SRA (Lake Perris SRA Section), the Badlands (Gilman Springs Road-Badlands and Norton-Younglove Sections), and along the northern edge of the planning area near Reche Canyon (North-Central and Norton-Younglove Sections). A moderate size patch of sage scrub also persists near Moreno Beach Drive (Central Section); however, this sage scrub is more disturbed, with a dense weedy understory present throughout these hillsides.

Raptor Wintering/Foraging Habitat. The Moreno Valley area is considered to be an important raptor wintering area, because it is a location where raptorial birds concentrate due to a high abundance of roosting sites, a good prey base, and suitable hunting habitat. In fact, Moreno Valley has been repeatedly identified as supporting significant numbers of wintering raptors. According to the Moreno Valley Ranch Specific Plan Environmental Impact Report, CDFG has determined that the entire group of hills surrounding Lake Perris is an important raptor wintering area (City of Moreno Valley 1987). A similar conclusion was reached for the Moreno Valley Ranch area west of San Jacinto Wildlife Area by Pacific Southwest Biological Services (PSBS 1989). In 1979, CDFG designated this area as an "Area of Special Biological Importance" due to the high densities of wintering raptors.

Local grasslands have a preponderance of non-native grasses and forbs; however, any pockets of Native Grasslands would be considered high in value and sensitive. Wildlife diversity and productivity in Native Grasslands is typically greater than Non-native Grasslands. Perennial grasses can provide more palatable food later into the season for rodents, lagomorphs, and other herbivores, because they stay green later into the year (Strait 2000). Therefore, they have the potential to support denser populations of herbivorous mammals for a longer period of time, resulting in corresponding increases in prey availability for raptors and mammalian carnivores. Similarly, the floristic diversity that characterizes most Native Grasslands supports a greater variety of insects, and has a greater probability of supporting insectivorous birds and mammals. Lizards are more common in grasslands with openings and bare ground, such as those around native bunchgrasses, and a number of birds rely on habitat features provided by bunchgrasses or open grasslands (Strait 2000). Although not comparable to Native Grasslands, the Non-native Grasslands in Moreno Valley have an increased value and significance due to their known capacity to support resident, wintering, and transient raptor populations. In addition, some Field/Cropland areas provide valuable foraging habitat.

As discussed within the previous Regional Vegetation Communities/Flora section, grasslands have been mapped in all sections of the planning area and occur in conjunction with both native habitats (on the planning area periphery) and developed or disturbed areas (within the more central portions of the planning area). Large areas of Field/Croplands occur predominantly in the southeast portion of the planning area. Those areas adjacent to native habitats are expected to be of higher value for raptor foraging, but an assessment of the value and sensitivity of individual grassland or Field/Cropland areas would require area by area investigation.

Stephens' Kangaroo Rat Habitat Conservation Plan Core Reserve. The Stephens' Kangaroo Rat Habitat Conservation Plan Core Reserve areas consist of the San Jacinto-Lake Perris Core Reserve and Potrero Area of Critical Concern (ACEC) Core Reserve. Both core reserves occur partially within and adjacent to Moreno Valley. These areas are considered sensitive habitat areas.

The San Jacinto-Lake Perris Core Reserve encompasses 10,932 acres located south of central Moreno Valley and north of the Ramona Expressway. Most of the Stephens' kangaroo rat occupied habitat in this reserve occurs west of Davis Road and northeast of the Lake Perris reservoir in the State Recreation Area. The northeast portion of this reserve extends east of Gilman Springs Road and connects with the Badlands. The steep hills along the northwest boundary of the reserve act as a buffer to protect the occupied habitat from development in Moreno Valley (RCHCA 1996). However, small patches of Stephens' kangaroo rat occupied habitat along Davis Road are potentially vulnerable to the effects of the roadway and adjacent development (RCHCA 1996). It should be noted that, according to recent information provided by the City of Moreno Valley in 2003, Davis Road has been vacated and is no longer an issue. In addition to Stephens' Kangaroo Rat, 13 other sensitive species are known to occur within this core reserve (RCHCA 1996).

The Potrero ACEC Core Reserve is located south of State Route 60 and east of Gilman Springs Road. This area is owned and managed by the U.S. Bureau of Land Management (BLM). The BLM has committed to managing the area in a manner consistent with the goals and objectives of the Stephens' Kangaroo Rat Habitat Conservation Plan (HCP) (RCHCA 1996). This reserve area also supports at least four other sensitive species (RCHCA 1996).

Proposed and Designated Critical Habitat for Federal Threatened and Endangered Species. Critical habitat areas for the Riverside Fairy Shrimp, Arroyo Toad, California Red-legged Frog, Southwestern Willow Flycatcher, and Least Bell's Vireo are located outside of Moreno Valley. No critical habitat areas for the species are located within Moreno Valley. The critical habitat designation for the California Gnatcatcher and the proposed designation for the San Bernardino kangaroo rat include habitat within and/or immediately adjacent to Moreno Valley (USFWS 2000a and 2000d). Critical habitat maps can be found in Volume II Appendix E of this EIR.

Critical habitat designation is important for federal activities and the processing of federal permits. Under Section 7 (a) (2) of the Endangered Species Act, federal agencies planning or permitting activities involving critical habitat must consult with the Fish and Wildlife Service and ensure that their actions do not harm a listed species or its critical habitat.

Unit 10 of the California Gnatcatcher Critical Habitat encompasses approximately 199,940 acres within the proposed MSHCP planning area. Areas providing essential linkages between core populations occur in the Lake Perris area, the Badlands, and Box Spring Mountains (USFWS 2000d). These areas provide connectivity between core populations within and outside of the County (USFWS 2000d).

San Bernardino Kangaroo Rat Proposed Critical Habitat Unit 3, San Jacinto River-Bautista Creek, encompasses approximately 10,104 aces in Riverside County including areas along the San Jacinto River (USFWS 2000a). This species occupies the San Jacinto

Valley and foothills of the Badlands. Areas proposed for designation are primarily, but not entirely, restricted to floodplains. Within the planning area, habitats adjacent to Gilman Springs Road and Jack Rabbit Trail are proposed for designation as Critical Habitat. The area south of the roads and east of Davis Road is also proposed for designation.

MSHCP Conservation Area Cores and Linkages/Wildlife Corridors

The Moreno Valley planning area is located within the Multi-Species Habitat Conservation Plan (MSHCP). The MSHCP identifies cores for habitat conservation and linkages for wildlife movement (**Figure 5.9-3**). Wildlife corridors are important to the continued functioning of local and regional ecosystems.,

The Moreno Valley planning area is partially located within Subunits 1, 2, 3, and 4 of the MSHCP, Reche Canyon/Badlands Area Plan (Dudek 2003a) (**Figure 5.9-4**). A portion of the land within the Reche Canyon/Badlands Area Plan must be conserved. The target for conservation within the Reche Canyon/Badlands Area Plan is 10,520 to 15,610 acres. The target for conservation within the current city boundary is only 80-130 acres. Target conservation acreages are also established for each subunit. Each subunit is further divided into cell groups and cells with specific conservation objectives .

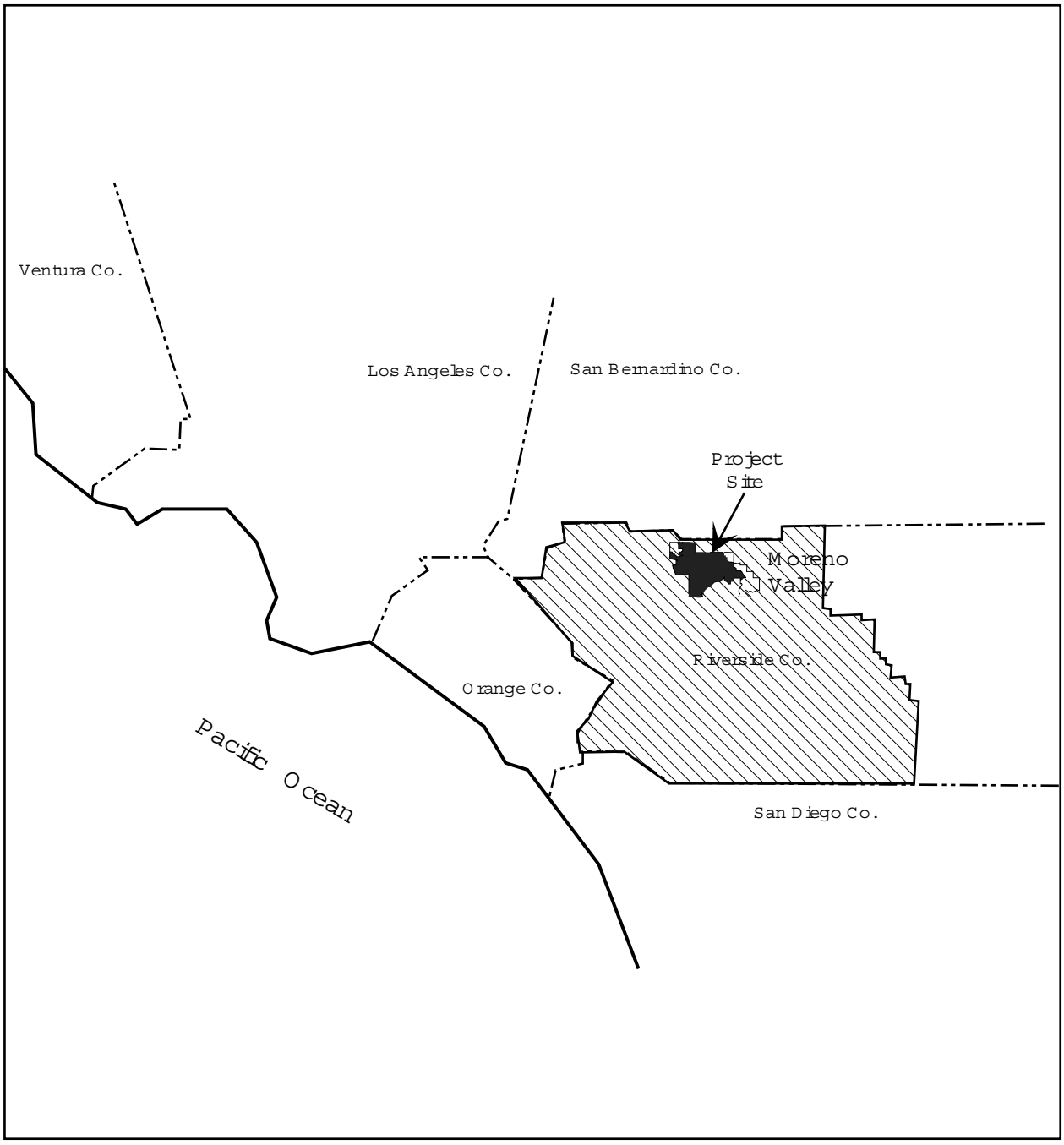
Subunit 1, Box Springs – East and Proposed Constrained Linkage 8

Subunit 1 is located in the northwest portion of the planning area for the Moreno Valley General Plan, next to Box Springs Regional Park. the focus of MSHCP conservation for Subunit 1 is to conserve existing, intact upland habitat augmenting existing Box Springs Mountain Reserve, conserve existing populations of the Bell's Sage Sparrow and Cactus Wren, and maintain the linkage area to Box Springs Mountain for the bobcat (Dudek 2003a). Conservation of this Subunit will focus on sage scrub and grasslands and will contribute to assembly of Constrained Linkage 8.

Proposed Constrained Linkage 8 is comprised of upland habitats in the Pigeon Pass Valley and connects two existing noncontiguous habitat blocks in the Box Springs Mountain area.

Subunit 2, Reche Canyon and Proposed Linkage 4

Subunit 2 overlaps the northwest portion of the Moreno Valley General Plan planning area. The majority of Subunit 2 is situated north of the current city limits, between Pigeon Pass Road and Reche Canyon Road. The portion of the Subunit within the current city limits lies between Pigeon Pass Road and Perris Boulevard. The focus of conservation for Subunit 2 is to conserve upland habitat in the Badlands, maintain a connection between Blue Mountain to the west and Reche Canyon, conserve existing population of the Bell's sage sparrow, maintain core areas for Nevin's barberry, bobcat, and mountain lion (Dudek 2003a).



Source: SCAQMD CEQA Manual, 1993

Western County MSHCP Study Area

County Boundaries

Not to Scale

North

Figure 5.9-3
Project Site Location within the MSHCP Area

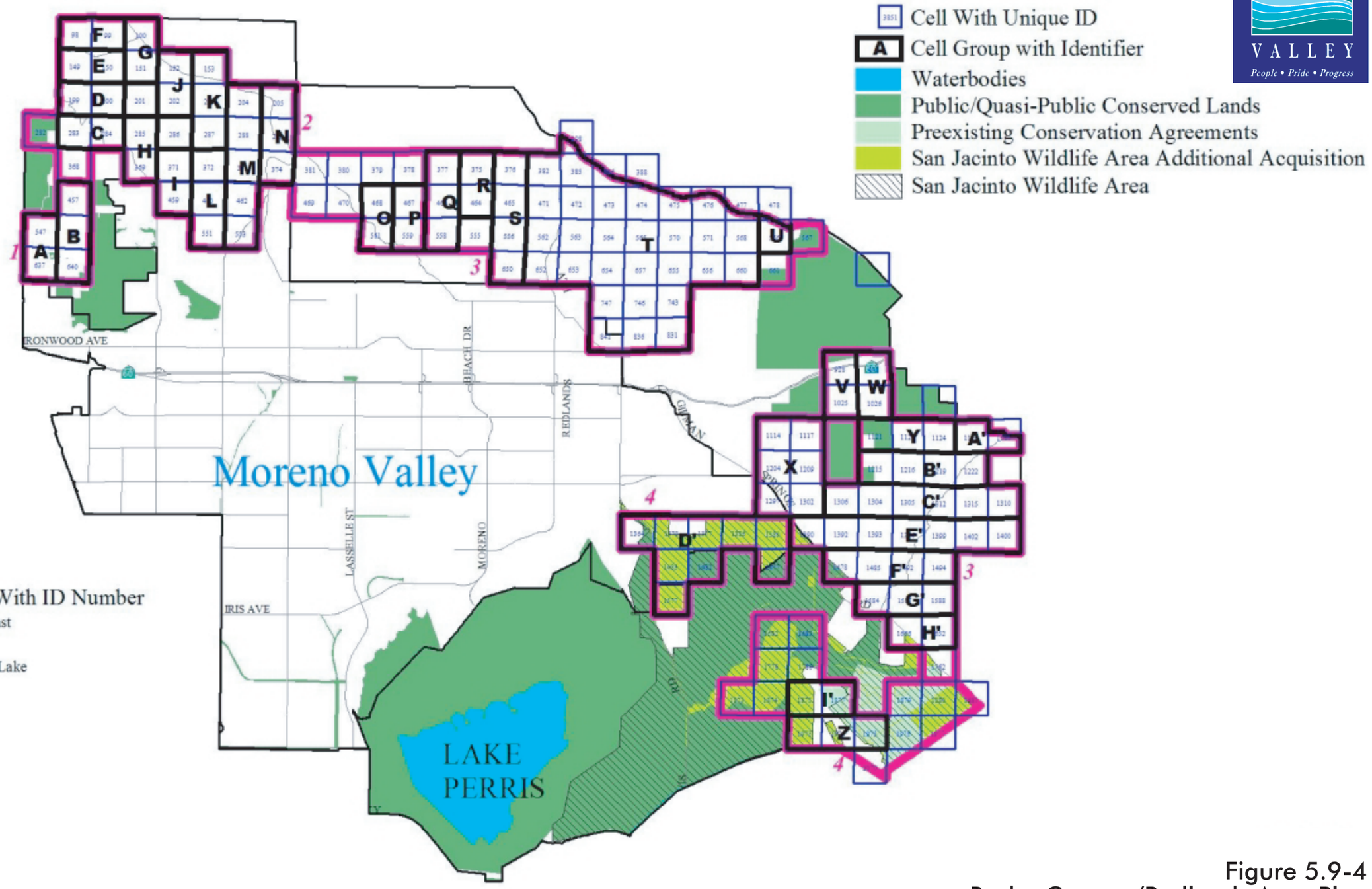
Proposed Linkage 4 is comprised of upland habitats in Reche Canyon, immediately north of the Moreno Valley General Plan planning area. This linkage is anticipated to link with Box Springs Reserve, the Badlands, and San Bernardino County (Dudek 2003a). It does not overlap the planning area, but MSHCP text indicates that portions of the planning area (MSHCP Subunit 2, Cell Groups I, L, and M) contribute to the assembly of Proposed Linkage 4. Conservation within this area is to focus on chaparral, sage scrub, and grasslands. Proposed Linkage 4 chaparral and sage scrub provide habitat for species including Bell's sage sparrow, Stephens' kangaroo rat, bobcat, and Nevin's barberry.

Subunit 3, Badlands – North and Proposed Core 3

Subunit 3 overlaps the northeast portion of the planning area for the Moreno Valley General Plan. It consists of substantially mountainous terrain situated north of the current city limits, east of Perris Boulevard and east of the city limits, north of Ironwood Avenue. Within the Moreno Valley planning area, the focus of conservation for Subunit 3 is to conserve large habitat blocks in the Badlands, maintain a linkage area to the San Jacinto Wildlife Area for the Stephens' kangaroo rat, maintain core areas for Nevin's barberry and bobcat, and maintain core and linkage habitat for mountain lion (Dudek 2003a).

Subunit 4, San Jacinto Wildlife Area/Mystic Lake and Existing Core H

Subunit 4 overlaps a portion of the southeastern portion of the Moreno Valley General Plan planning area. It includes portions of the steeply sloping terrain in the Badlands, northeast of Gilman Springs Road, as well as the floodplain of the San Jacinto River, southwest of Gilman Springs Road. The focus of conservation for Subunit 4 is to conserve alkali playa and other habitats to augment existing conservation areas in the San Jacinto Wildlife Area and Mystic Lake; conserve existing vernal pool complexes associated with the San Jacinto River floodplain in the Mystic Lake/San Jacinto Wildlife area; provide a connection of intact habitat between San Jacinto Wildlife Area/Mystic Lake and the Badlands area to the north; conserve Willow-Domino-Travers soils supporting sensitive plants; maintain a continuous linkage along the San Jacinto River from the southern boundary of the Reche Canyon/Badlands Area Plan to the Southeastern Area Plan boundary, and maintain linkages for the Stephens' kangaroo rat and bobcat (Dudek 2003a). Existing Core H is comprised of Lake Perris State Recreation Area (SRA), San Jacinto Wildlife Area, private lands and lands with pre-existing conservation agreements (Dudek 2003a). It provides habitat for several sensitive, MSHCP planning species, contains suitable soils for narrow endemic plant species, supports vernal pools, and may provide a connection to MSHCP Core Areas in the Badlands and the San Jacinto River (Dudek 2003a).



Sources: RCTC, June 2003.

Figure 5.9-4
Reche Canyon/Badlands Area Plan

Rare, Threatened, Endangered, Endemic, and/or Sensitive Species, or MSHCP Covered Species

Sensitive species are generally divided into low and high sensitivity. Any species listed as threatened or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) is considered a high sensitivity species. Species proposed for listing may also be considered high sensitivity. Low sensitivity species include those listed by U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Game (CDFG) as Species of Special Concern or by CDFG as Special Animals. Species of Special Concern are considered sensitive because of declining population levels, limited ranges, and/or continuing threats, which have made them vulnerable to extinction. Special Animals refers to taxa that meet criteria established by the California Department of Fish and Game Natural Diversity Database (CNDDB). These species are either listed, rare, declining, associated with a declining habitat, have a limited range, or are listed as sensitive by other state or federal agencies, or non-governmental organizations.

Sensitive plants include those listed by USFWS (1999, 2003, and 2003b) and CDFG (2003b). Sensitive wildlife species include those listed by USFWS (1999, 2003, and 2003a) and CDFG (2003a). Sensitive species observed in Moreno Valley were limited; however, numerous mammalian species can be difficult to detect during limited diurnal surveys and/or without trapping. A number of sensitive species recorded from the region are expected to use portions of the planning area.

Table 5.9-5 summarizes the rare, threatened, endangered, endemic, and/or sensitive species known from or with a potential to occur in the planning area, based on existing MSHCP and California Department of Fish and Game Natural Diversity Database data, as well as general knowledge of sensitive species occurrences in the identified habitats. It provides sensitivity status, MSHCP status, suitable habitat description applicable to the planning area (*e.g.*, appropriate habitat for wintering species, as opposed to nesting habitat), status within the planning area, and expected and/or known occurrence by the eight planning area sections.

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Plants							
Acanthomintha ilicifolia	San Diego Thorn Mint	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/clay; elevation 10-935 meters. Annual herb, blooms April-June	FT/SE	List: 1B		San Diego Thorn Mint has been reported to occur in a location northwest of Moreno Valley (Reiser 2001). This population may have been extirpated.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Allium munzii	Munz's Onion	Heavy clay soils within chaparral, coastal scrub, and valley and foothill grassland.	FE/ST	List: 1B	NE, Covered	No reported populations within the Moreno Valley Planning Area, but could occur in small numbers undetected on clay soils in grassland/sage scrub.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Atriplex parishii	Parish's Brittlescale	Chenopod scrub, playas, vernal pools; elevation 25-1,900 meters. Found in association with Traver-Domino-Willows soils. Annual herb, blooms June-October	SP	List: 1B	Covered	Although no current populations are known from the lower and middle segments of the San Jacinto River, Mystic Lake, or the San Jacinto Wildlife Area, these areas support suitable habitat, and historical localities imply that these areas may also be key to the species survival (Dudek 2003b).	SJWP
Atriplex coronata var. *notatior*	San Jacinto Valley Crownscale	Playas, valley and foothill grassland (mesic), vernal pools/alkaline; elevation 380-500 meters. Found in association with Traver-Domino-Willows soils. Annual herb, blooms April-August	FE	List: 1B	Covered	San Jacinto Valley Crownscale populations are located in association with San Jacinto River and Mystic Lake (Dudek 2003b).	SJWP
Atriplex serenana var. davidsonii	Davidson's Saltscale	Coastal bluff scrub, coastal scrub/alkaline; elevation 10-200 meters. Found in association with Traver-Domino-Willows soils. Annual herb, blooms April-October	SP	List: 1B	Covered	Primarily restricted to the alkali floodplains of the San Jacinto River and Mystic Lake. It has been reported along the middle segment of the San Jacinto River floodplain from Mystic Lake south to the Ramona Expressway (Dudek 2003b).	SJWP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Berberis nevinii	Nevin's Barberry	Chaparral, cismontane woodland, coastal scrub, riparian scrub/sandy or gravelly; elevation 295-825 meters. Shrub (evergreen), blooms March-April	FE/SE	List: 1B	Covered	Primarily distributed within the San Timoteo/Badlands area (Dudek 2003b).	BAD, NY
Brodiaea filfolia	Thread-leaved Brodiaea	Chaparral (openings), cismontane woodlands, coastal scrub, playas, valley and foothill grassland, vernal pools/ often clay loamy sand, or alkaline silty-clay soils; elevation 40-1,220 meters. Perennial herb (bulbiferous), blooms March-June	FT/SE	List: 1B	Covered	Occurs in population clusters along the San Jacinto River. South of the San Jacinto Wildlife Area there are about 3,800 acres of potentially suitable habitat for Thread-leaved Brodiaea on private lands along the San Jacinto River floodplain and in the upper reaches of Railroad Canyon. Three populations of brodiaea have been found here. Core locations include the San Jacinto River just southwest of Mystic Lake (Dudek 2003b).	SJWP
Brodiaea orcuttii	Orcutt's Brodiaea	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/mesic, clay, sometimes serpitinite; elevation 30-1,615 meters. Perennial herb (bulbiferous), blooms May-July	SP	List: 1B	Covered	Not known from the Planning Area, but could occur undetected within suitable habitat.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Caulanthus simulans	Payson's Jewel-flower	Chaparral, coastal scrub/sandy granitic; elevation 90-2,200 meters. It frequently occurs on rocky steep slopes, in burned areas or in disturbed sites such as streambeds. Annual herb, blooms March-June	SP	List: 4	Covered	Although not reported within the Planning Area by the MSHCP documents, Payson's Jewelflower is known from the Moreno Valley area including Reche Canyon, March Air Reserve Base, and Moreno Valley itself (Reiser 2001).	NC, NY, AFB, BAD

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Centromadia pungens ssp. laevis	Smooth Tarplant	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland/alkaline; elevation 0-480 meters. Annual herb, blooms April-September	SP	List: 1B	Covered	This species is primarily restricted to alkali floodplains. It has been recorded southeast of the San Jacinto Reservoir; immediately to the north, east of the duck ponds at the San Jacinto Wildlife Reserve; and in Moreno Valley, one mile south of Highway 60 and Dracaea Avenue on the west side of Nason Street (Reiser 2001). It was also recorded in the Mystic Lake area by M&A biologists in 2001. Core locations within the MSHCP area have only been partially identified, but they include (but are not limited to) the San Jacinto Wildlife Area and the middle segment of the San Jacinto River (Dudek 2003b).	SJWP, C
Chorizanthe parryi var. *parryi*	Parry's Spineflower	Chaparral, coastal scrub within sandy or rocky openings; elevation 40-1,705 meters. It is primarily restricted to alluvial floodplains and alluvial chaparral. Annual herb blooms April-June		List: 3	Covered[2]	Known from Moreno Valley, Reche Canyon, and Gilman Hot Springs Road (Dudek 2003b).	NC, NY, BAD
Convolvulus simulans	Small-flowered Morning Glory / Clay Bindweed	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentinite seeps; elevation 30-700 meters. Annual herb, blooms March-July	SP	List: 4	Covered	Not known from the Planning Area, but could occur undetected within suitable habitat/soils.	May not occur in Planning Area. Insufficient data to determine "expected" locations.

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Dodecahema leptoceras	Slender-horned Spineflower	Chaparral, cismontane woodland, coastal scrub/alluvial scrub, sandy; elevation 200-760 meters. May be dependent upon alluvial scrub that is maintained by flooding. Annual herb, blooms April-June	FE/SE	List: 1B	NE, Covered	Known from the upper San Jacinto River (outside the Planning Area). Low potential for undetected occurrence within suitable habitat in Planning Area.	BAD
Githopsis diffusa ssp. filicaulis	Mission Canyon Bluecup	Chaparral (mesic, disturbed areas); elevation 450-700 meters. Annual herb, blooms April-June	SP	List: 3		Not known from the Planning Area, but could occur undetected within suitable habitat.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Harpagonella palmeri	Palmer's Grapplinghook	Chaparral, coastal scrub, valley and foothill grassland/clay; elevation 20-830 meters. Annual herb, blooms March-May	SP	List: 4	Covered	Not known from the Planning Area, but could occur undetected within suitable habitat.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Hordeum intercedens	Vernal Barley / Little Barley	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools; elevation 5-1,000 meters. Annual herb, blooms March-June	SP	List: 3	Covered	Populations include those identified at the San Jacinto Wildlife Area and the San Jacinto River floodplain from Mystic Lake south to I-215 (Dudek 2003b).	SJWP
Lasthernia glabrata ssp. coulteri	Coulter's Goldfields	Marshes and swamps (coastal salt), playas, vernal pools; elevation 1-1,220 meters. Coulter's Goldfields occur primarily in association with the Traver-Domino-Willows soil association. Annual herb, blooms February-June	SP	List: 1B	Covered	The largest and most significant populations within the MSHCP area are within the San Jacinto Wildlife Area and southern shores of Mystic Lake (Dudek 2003b). This represents the largest remaining concentration of this species in its known range and is an MSHCP core population. In 2001, a thriving population was observed by M&A biologists at Mystic Lake.	SJWP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Malacothamnus parishii	Parish's Bush Mallow	Chaparral, coastal sage; elevation 305-455 meters. Shrub, deciduous, blooms June-July.		List: 1A		Not known from the Planning Area, may be extinct. Very low potential for undetected occurrence within suitable habitat.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Microseris douglasii ssp. platycarpha	Small Flower Microseris	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/clay; elevation 15-1,070 meters. Annual herb, blooms March-May	SP	List: 4		Not known from the Planning Area, but could occur undetected within suitable habitat.	May not occur in Planning Area. Insufficient data to determine "expected" locations.
Mimulus diffusus	Palomar Monekyflower	Chaparral, lower montane coniferous forest/ sandy or gravelly; elevation 1,220-1,830 meters. Annual herb, blooms April-June	SP	List: 4	Covered	It has been reported in the Reche Canyon area, but is not known from the Planning Area. It may occur, undetected, in areas of sufficient elevation and suitable habitat.	NY
Navarretia fossalis	Spreading Navarretia / Prostrate Navarretia	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools; elevation 30-1,300 meters. Annual herb, blooms April-June	FT/SP	List: 1B	NE, Covered	Riverside County supports the largest remaining populations of Spreading Navarretia, and these populations are associated with the largest areas of available habitat in the United States (Dudek 2003b). One of the primary areas of occurrence for this species is along the San Jacinto River, extending from just west of Mystic Lake south to the Perris Valley Airport (Dudek 2003b). It has also been reported near Davis Road by the San Jacinto Wildlife Reserve. MSHCP core locations/populations of Spreading Navarretia include the alkali habitats within the project	SJWP, LP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
						vicinity, the San Jacinto Wildlife Area (Dudek 2003b).	
Phacelia ciliata var. *opaca*	Great Valley Phacelia / Merced Phacelia	Valley and foothill grassland (clay); elevation 60-150 meters. Annual herb, blooms February-May		List: 1B		Not known from the Planning Area, but could occur undetected within suitable habitat, particularly near Mystic Lake.	SJWP
Trichocoronis wrightii var. *wrightii*	Wright's Trichocoronis	Meadows and seeps, marshes and swamps, vernal pools/alkaline; elevation 5-435 meters. Annual herb, blooms May-September		List: 2	NE, Covered	This species is known from four locations along the San Jacinto River from the vicinity of the Ramona Expressway and San Jacinto Wildlife Area and along the northern shore of Mystic Lake (Dudek 2003b). Due to its overall rarity, both of the recently confirmed locations, middle segment of the San Jacinto River and San Jacinto Wildlife Area, are core locations (Dudek 2003b).	SJWP
Invertebrates							
Branchinecta lynchi	Vernal Pool Fairy Shrimp	Short-lived/seasonal, cool vernal pools. Alkali pools appear to be important (Dudek 2003b).	FT/SA		Covered	Known from the general western Riverside area, but not reported from Moreno Valley. May occur detected.	SJWP
Euphydryas editha quino	Quino Checkerspot	Open grassland and openings within shrub habitats that support Dwarf Plantain (*Plantago erecta*) or other recognized host plants.	FE/SA		Covered	Moreno Valley was excluded from the recent protocol survey areas and is not addressed in recent Quino Checkerspot Butterfly Recovery Plan (USFWS 2000b and USFWS 2000c). Persistence of a population is not likely, but cannot be ruled out where appropriate habitat persists. No key MSHCP populations occur within the Planning Area (Dudek 2003b).	

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Streptocephalus woottoni	Riverside Fairy Shrimp	The Riverside Fairy Shrimp is restricted to deep seasonal vernal pools, vernal pool like ephemeral ponds, and stock ponds (Ericksen and Belk 1999). Found in various pools in Western Riverside, Orange and San Diego Counties. Pools are at elevations ranging from 30-415 m in seasonal grasslands, which may be interspersed among chaparral or coastal sage scrub vegetation.	FE/SA		Covered	Two known sites occurred along Highway 79, but not within the Planning Area, and have been graded. Other undiscovered populations may occur in the vicinity; however, the species has not been reported within the Planning Area.	
Amphibians							
Spea hammondii	Western Spadefoot	Prefers sandy or gravelly soil in grasslands, sage scrub, open chaparral, and pine-oak woodlands; grasslands with shallow temporary pools are optimal	FSC/ CSC		Covered	Between the City of Riverside and Moreno Valley, north of Highway 60, the Badlands, and March Air Force Base. MSHCP key population areas include areas that still support intact grassland, vernal pool, sage scrub, Chaparral, riparian, and scrub/grassland vegetation communities (Dudek 2003b).	BSRP, NC, NY, BAD, SJWP, LP
Reptiles							
Anniella pulchra pulchra	Silvery Legless Lizard	Shows a preference for areas of leaf litter and loose soil along washes, beach sand dunes, open scrub and woodland, and sandy benches along alluvial fans.	FSC/ CSC			Specific occurrences are not mapped but areas of sage scrub, alluvial scrub, chaparral, woodlands, and even agricultural (orchard) areas with friable soils may support the species. The alluvial habitats near Gilman Springs Road may be of particular importance.	BSRP, NY, BAD, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Clemmys marmorata pallida	Southern Pacific Pond Turtle/Western Pond Turtle	Permanent or nearly permanent bodies of water below 600 ft. Require basking sites such as partially submerged logs, vegetation mats or open mud banks.	FSC/ CSC		Covered	The San Jacinto River may be an important location for this turtle (Dudek 2003b); in addition, it may occur in open water habitats in the southern portion of the Planning Area, in relative proximity to the river.	SJWP
Cnemidophorus hyperythrus	Orangethroat Whiptail	Sage scrub (and chaparral), prefers sandy areas with patches of brush and rocks; may be associated with buckwheat and Black Sage	CSC		Covered	In scrub, chaparral, and flood plain habitat to 1,040 meters. These areas are also considered to be key populations (Dudek 2003b).	BSRP, NC, NY, BAD, LP, C
Cnemidophorus tigris multiscutatus	Coastal Whiptail	Coastal Sage Scrub, chaparral, and grasslands	SA		Covered	In open grassland and/or scrub, which is also considered to be the key population areas (Dudek 2003b).	BSRP, NC, NY, BAD, LP, C
Coleonyx variegatus abbotti	San Diego Banded Gecko	Areas of rock outcrop within sage scrub and chaparral	SA		Covered	Point data (CNDDB through the MSHCP) indicates species presence in Moreno Valley (Dudek 2003b). Key MSHCP areas include locations where granitic rock outcrops are present within scrub or chaparral (Dudek 2003b).	BSRP, NC, NY, BAD, LP, C
Crotalus ruber ruber	Northern Red Diamond Rattlesnake	Occupies rocky outcrops and areas of heavy brush or rugged terrain in chaparral, sage scrub, or desert scrub on both coastal and desert slopes, usually below 4000 feet	CSC		Covered	In scrub and chaparral habitats with rock outcrops. These areas are also considered to be key populations (Dudek 2003b).	BSRP, NC, NY, BAD, LP, C
Diadophis punctatus modestus	San Bernardino Ringneck Snake	Occupies a variety of habitats including Riparian Scrub, woodlands, chaparral, sage scrub (although less likely in the xeric scrubs), and grasslands.	SA			Not specifically mapped, but expected in appropriate native habitats throughout much of the project area, woodlands and riparian areas may be of particular importance.	BSRP, NC, NY, BAD, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Lichanura trivirgata roseofusca	Coastal Rosy Boa	Rocky outcrop areas within chaparral and sage scrub	FSC/SA			Expected in association with relatively undisturbed scrub and chaparral containing substantial rock outcrops.	BSRP, NC, NY, BAD, LP
Phrynosoma coronatum bainvillii	San Diego Horned Lizard	Chaparral, sage scrub, oak woodlands, and grasslands; sometimes occurs along seldom used dirt roads where native ant species are prevalent	CSC		Covered	This species is expected within appropriate habitats up to 2,100 meters. These areas are also considered to be key populations (Dudek 2003b).	BSRP, NC, NY, BAD, C
Salvadora hexalepis virgultea	Coast Patch-nosed Snake	Chaparral and sage scrub; may require mammal burrows or woodrat nests for overwintering	CSC			Expected in association with relatively undisturbed scrub and chaparral within the Planning Area.	BSRP, NC, NY, BAD, LP
Thamnophis hammondii	Two-striped Garter Snake	Associated with semi-permanent and permanent bodies of water in a variety of habitats; requires a relatively dense riparian border	CSC, Protected			Not specifically mapped, but likely occurs where Riparian Scrub persists within the Planning Area.	NC, NY, BAD
Birds							
Accipiter cooperii	Cooper's Hawk	Oak, riparian deciduous or other woodland habitats usually near water	CSC (nesting)		Covered	May utilize native and non-native woodlands, where appropriate prey base exists. Are known from Box Springs Regional Park area, March AFB, Lake Perris, Badlands, and the San Jacinto Wildlife Preserve/Mystic Lake area, but not in dense concentrations (Dudek 2003b).	BSRP, NC, NY, BAD, SJWP, LP, C
Accipiter striatus	Sharp-shinned Hawk	Mixed woodlands near open areas, prefers but not restricted to riparian habitats	CSC (nesting)		Covered	Winter visitor reported from Lake Perris SRA, San Jacinto Wildlife Preserve/Mystic Lake area, the Badlands, and Box Springs (Dudek 2003b). Not a breeding species in the Planning Area.	BSRP, NC, NY, BAD, SJWP, LP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Ardea alba	Great Egret	Marshes, open water (fresh, brackish or salt), and riparian habitats	SA (rookery)			May forage within riparian areas or along the edges of open water, natural or human-constructed. Also expected to forage in agricultural areas (Field/Cropland).	NC, NY, BAD, SJWP, LP, AFB, C
Agelaius tricolor	Tricolored Blackbird	Feeds in grasslands and croplands, breeds near freshwater, preferably in marshes or other emergent wetlands	FSC/ CSC (nesting)		Covered	Historically, a breeding colony occurred at San Jacinto Wildlife Preserve. They have also bee reported from the Badlands. San Jacinto Wildlife Preserve/Mystic Lake area is a core area (Dudek 2003b).	NY, BAD, SJWP
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow	Rocky hillsides supporting sparse, low scrub or chaparral, sometimes mixed with grasses	CSC		Covered	Concentrations occur in Box Springs Mountains and the Badlands (Dudek 2003b).	BSRP, NY, BAD, LP
Amphispiza belli belli	Bell's Sage Sparrow	Relatively open chaparral (*e.g.* Chamise Chaparral) and sage scrub; Non-fragmented, contiguous areas on relatively flat terrain appear to be preferred	FSC/ CSC		Covered	Broad but sparse distribution within appropriate chaparral and sage scrub habitats. Box Springs Regional Park, Lake Perris and Badlands are considered core areas.	BSRP, NY, BAD, LP,
Aquila chrysaetos	Golden Eagle	Nests in cliffs (or trees), found in generally mountainous or hilly terrain; forages in grasslands, deserts, and shrubby habitats	CSC, Protected		Covered	Potentially present in small numbers throughout the Planning Area. May have nested in Box Springs Mtns. Badlands and Lake Perris areas receive more use (Dudek 2003b).	BSRP, NC, NY, BAD, LP, SJWP
Ardea herodias	Great Blue Heron	Rookerys located in tall trees near water. Foraging typically occurs along shorelines, marshes and riparian areas, but may include use of open grasslands and agricultural areas.	SA (rookery)		Covered	Not known to nest within the Planning Area, but expected to forage in wetlands and grasslands or agricultural lands.	NC, NY, BAD, SJWP, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Asio flammeus	Short-eared Owl	Located in open areas with few trees such as annual and perennial grasslands, dunes, irrigated lands, and fresh and saltwater wetlands in low elevations	CSC (nesting)			May forage in Field/Croplands, grasslands, and marsh areas. Not recorded as breeding within the Planning Area.	NC, NY, BAD, SJWP, LP, AFB, C
Athene cunicularia	Burrowing Owl	Occurs in open dry grasslands, agricultural, rangelands and desert habitats. Inhabit grass, forb and shrub stages of pinyon and ponderosa pine habitats as well as airports, golf courses, and vacant urban lots.	FCS/ CSC		Covered	Species has been identified in the Badlands, San Jacinto Wildlife Preserve/Mystic Lake/Lake Perris area, and the March Air Force Base (Dudek 2003b). Lake Perris and Mystic Lake may be core areas.	NY, BAD, LP, SJWP, AFB, C
Botaurus lentiginosus	American Bittern	Found in freshwater marsh and vegetated borders of open water. Typically associated with freshwater.	FSC			May breed at San Jacinto Wildlife Preserve/Mystic Lake.	SJWP
Buteo regalis	Ferruginous Hawk	Dry, open habitats, typically grasslands	FSC/ CSC		Covered	Known to use the Badlands for wintering.	NY, BAD
Buteo swainsoni	Swainson's Hawk	Open desert, grasslands or cropland containing scattered, large trees or small groves.	FCS/ST		Covered	Recorded at Box Springs Mountain and the Badlands, may occur in low numbers during migration where perching and foraging habitat persist. Not a breeding species within the Planning Area.	BSRP, NC, NY, BAD, C
Campylorhynchus brunneicapillus	Cactus Wren	Cactus thickets in areas dominated by California sagebrush and Flat-top Buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*). *N*ests in tall Cholla (*Opuntia prolifera*) and Prickly-pear.	CSC		Covered	It also occurs from the City of Riverside east to the Box Springs Mountains and into the Badlands and is known from the Lake Perris area (Dudek 2003b). Core Areas include the Badlands, Box Springs Mountains, and the Lake Perris area, which appear to be remaining strongholds for low to moderate numbers of the cactus wrens in	BSRP, NC, NY, BAD, LP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
						western Riverside county (Dudek 2003b).	
Cathartes aura	Turkey Vulture	Open habitats with protected large trees, snags, rock outcrops, or cliffs for nesting	None		Covered	Not known to breed within the Planning Area but expected to forage in appropriate habitats throughout.	BSRP, NY, BAD, SJWP, LP, AFB
Carduelis lawrencei	Lawrence's Goldfinch	May utilize a variety of habitats, but most strongly associated with riparian areas.	FSC/SA (nesting)			Not addressed by MSHCP, but may occur within appropriate habitats.	NC, NY, BAD,
Chaetura vauxi	Vaux's Swift	Forages over open water or habitat edges.	FSC/ CSC (nesting)			Not addressed by MSHCP, but may occur within appropriate habitats. Only expected as a winter visitor or migrant.	BSRP, NY, BAD, SJWP, LP, AFB
Charadrius alexandrinus nivosus	Western Snowy Plover	Sandy ocean beaches, drying margins of lagoons, tidal mudflats, playas, and small pond levees.	FT/CSC (nesting)			Not expected as a breeding species in the MSHCP area, but may occasionally utilize alkali playa habitats in association with the San Jacinto Wildlife Preserve/Mystic Lake area.	SJWP
Charadrius montanus	Mountain Plover	Fields of bare, plowed dirt.	FPT/ CSC		Covered	Winter visitor and/or migrant plovers are expected within Field/Croplands and Alkali Playa.	NC, NY, SJWP, LP, AFB, C
Chondestes grammacus	Lark Sparrow	Fields and grasslands with scattered trees and shrubs and woodland-grassland edge	FSC/SA (nesting)			Not addressed by MSHCP, but may occur within appropriate habitats.	BSRP, NC, NY, BAD, SJWP, LP, AFB, C
Circus cyaneus	Northern Harrier	Occurs in grassland, agricultural fields, fresh and saltwater mashes and desert sinks	CSC (nesting)		Covered	Locations include San Jacinto Wildlife Preserve/Mystic Lake area. It may be present in higher numbers as a winter visitor throughout open habitats.	NC, NY, BAD, SJWP, LP, AFB, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Dendroica petechia	Yellow Warbler	Riparian woodlands, especially of willows	CSC (nesting)		Covered	Limited potential for occurrence in the Planning Area due to the lack of riparian woodlands, but may occur within well developed riparian scrub and has been noted at Lake Perris/Mystic Lake (Dudek 2003b).	NC, NY, BAD, LP
Egretta thula	Snowy Egret	Marshes, open water (fresh, brackish or salt), and riparian habitats	SA (rookery)			Not addressed in the MSHCP, but may occur within riparian habitats, along the edges of open water, or, to a lesser degree in Field/Croplands	BSRP, NC, NY, BAD, SJWP, LP, AFB, C
Elanus leucurus	White-tailed Kite	Grasslands, agricultural fields, and open habitats with areas of dense deciduous trees for nesting	FSC/SA, Protected (nesting)		Covered	The Lake Perris/Mystic Lake area is considered a core area (Dudek 2003b). The species may occur as a resident and/or winter visitor throughout the Planning Area.	BSRP, NC, NY, BAD, SJWP, LP, AFB, C
Empidonax difficilis	Pacific-slope Flycatcher	Riaprian woodland, some oak woodlands.	FSC/SA			Expected within suitable woodland habitats throughout the Planning Area.	BSRP, NY, BAD
Empidonax traillii extimus	Southwestern Willow Flycatcher	Riparian woodland	FE/SA (nesting)		Covered	Recorded from Box Springs Mountains and Lake Perris, but is unlikely to occur within the Planning Area as a breeder due to the lack of mature riparian forest.	NY, BAD
Eremophila alpestris	Horned Lark	Grasslands, disturbed areas and open habitats with sparse, low vegetation	CSC		Covered	This species is concentrated in Moreno Valley and San Jacinto Wildlife Preserve/Mystic Lake, then more sparsely distributed in the Badlands (Dudek 2003b).	NC, NY, BAD, SJWP, LP, AFB, C
Falco columbarius	Merlin	Located around agricultural fields, grasslands, and mudflats. Winter visitor to the San Diego County area	CSC		Covered	A rare winter visitor only, this species has been observed at the San Jacinto Wildlife Preserve/Mystic Lake area (Dudek 2003b).	SJWP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Falco mexicanus	Prairie Falcon	Open grassland, agricultural fields and desert scrub	CSC (nesting)		Covered	Numerous records from San Jacinto Wildlife Preserve/Mystic Lake area. Less frequent records from the Badlands and Moreno Valley.	NC, NY, BAD, SJWP, LP, AFB, C
Falco peregrinus anatum	American Peregrine Falcon	Most frequent along or near coast around mudflats, shores or ponds	Delisted FSC/SE, Protected (nesting)		Covered	Recorded at San Jacinto Wildlife Preserve/Mystic Lake area (Dudek 2003b). Not known or expected to breed in the area.	SJWP
Haliaeetus leucocephalus	Bald Eagle	Occurs in association with large water bodies, nesting and perching in large snags or trees or on cliffs. In southern California, they are typically migrants or winter residents at large inland water bodies.	FT/SE		Covered	Not known from the Planning Area, but may occasionally utilize open water areas for opportunistic foraging during migration.	SJWP
Icteria virens	Yellow-breasted Chat	Riparian woodland/scrub with dense undergrowth	CSC (nesting)		Covered	Potentially present in Riparian Scrub, where it persists in the Planning Area. Core areas include the San Jacinto River, to the south of the Planning Area.	NC, NY, BAD
Ixobrychus exilis hesperis	Western Least Bittern	Large brackish and freshwater marshes	CSC (nesting)			Potentially present within marsh habitat in the southeastern portion of the Planning Area	SJWP
Lanius ludovicianus	Loggerhead Shrike	Found within grassland or open habitats with bare ground and sparse shrub and/or tree cover for nesting and perching	FSC/ CSC (nesting)		Covered	Both the Badlands and Moreno Valley are considered core areas.	NC, NY, BAD, SJWP, LP, C
Larus californicus	California Gull	Occurs in open ocean, beaches, bays, estuaries, lagoons, as well as garbage dumps, agricultural fields, and freshwater ponds and lakes	CSC (nesting)			May occur in the Planning Area where opportunistic foraging prospects exists and/or at open water. Not known or expected to breed in the area.	SJWP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Nycticorax nycticorax	Black-crowned Night Heron	Forage in open water habitats (fresh, brackish, and salt) and occasionally in agricultural areas. Nest in trees, riparian or otherwise or in marshes.	SA (rookery)			Formerly bred in the San Jacinto Wildlife Preserve/Mystic Lake area.	SJWP
Pandion haliaetus	Osprey	Coasts and inland waters	CSC (nesting)		Covered	May occasionally visit San Jacinto Wildlife Preserve/Mystic Lake and Lake Perris. Breeding locations are neither known nor expected.	SJWP
Phalacrocorax auritus	Double-crested Cormorant	Coasts and inland waters with appropriate loafing and roosting sites. Nest on ledges, trees, or rugged slopes	CSC		Covered	Known from San Jacinto Wildlife Area.	SJWP
Plegadis chihi	White-faced Ibis	Freshwater ponds, rivers, irrigated fields and brackish lagoons	FSC/ CSC		Covered	Formerly bred at San Jacinto Wildlife Preserve/Mystic Lake area and is still sighted there, as well as in Moreno Valley.	SJWP
Polioptila californica	California Gnatcatcher	Various successional stages of sage scrub	FT/CSC		Covered	Although the Badlands are known to support this species, it is not considered a key population.	NY, BAD
Selasphorus rufus	Rufous Hummingbird	Sage scrub, chaparral, orchards, and exotic planting/landscape areas	SA (nesting)			Expected within appropriate habitats throughout the Planning Area	BSRP, NC, NY, BAD, LP, C
Selasphorus sasin	Allen's Hummingbird	Sage scrub, chaparral, orchards, and exotic planting/landscape areas	FSC/SA (nesting)			Expected within appropriate habitats throughout the Planning Area	BSRP, NC, NY, BAD, LP, C
Spizella atrogularis	Black-chinned Sparrow	Chaparral and sage scrub-chaparral mixed habitats, may be excluded from smaller fragments	SA (nesting)			Expected in large blocks of chaparral or chaparral-sage scrub areas on the periphery of the project area.	BSRP, NY, BAD, LP
Toxostoma redivivum	California Thrasher	Sage scrub or chaparral	FSC/SA (nesting)			May occur throughout chaparral and sage scrub habitats on the periphery of the Planning Area and/or near Moreno Beach Drive.	BSRP, NC, NY, BAD, LP, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Vireo bellii pusillus	Least Bell's Vireo	Moist woodlands, typically early successional riparian habitat (details in report text)	FE/SE (nesting)		Covered	Species not reported as nesting extensively within the Planning Area, but is known from March AFB and may occur in appropriate riparian scrub habitats elsewhere.	NY, BAD, AFB
Xanthocephalus xanthocephalus	Yellow-headed Blackbird	Occurs in riparian and marsh habitats, also forages in agricultural lands	SA (nesting)			May occur within riparian scrub, marsh, or Fields/Croplands within the Planning Area.	NC, NY, BAD, SJWP
Mammals							
Antrozous pallidus	Pallid Bat	Utilizes open forest and grassland habitats for feeding and multiple habitats for roosting	CSC			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP, NC, NY, BAD, LP
Bassariscus astutus	Ringtail	Chaparral or forested habitat in close association with rock outcrops and riparian habitat	Protected			Expected where large tracts of unfragmented chaparral habitats persist, particularly within the Badlands.	BSRP, NY, BAD,
Chaetodipus californicus femoralis	California Pocket Mouse	Found in areas of fine sandy ground, (Chaparral/Coastal Sage Scrub)	CSC			Not addressed by the MSHCP, may occur within sage scrub and/or chaparral with appropriate substrate, particularly.	BSRP, NC, NY, BAD
Chaetodipus fallax fallax	Northwestern San Diego Pocket Mouse	Found in Coastal sage scrub	CSC		Covered	Sage scrub, grasslands, and chaparral throughout the Planning Area are considered to support key populations. The species is most likely to occur within the unfragmented habitats on the periphery of the project area.	BSRP, NY, BAD, SJWP, LP,
Corynorhinus townsendii	Townsend's Big-eared Bat	Cave rooster, feeds in forest/woodland habitats or along habitat edges within 15 km of roost site	FSC/ CSC			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Dipodomys merriami parvus	San Bernardino Kangaroo Rat	Riversidean Sage Scrub close to washes and alluvial areas, Riversidean Alluvial Fan Sage Scrub that is characterized by sparse vegetative cover and sandy, loose soils for the species' fossorial lifestyle	FE/CSC		Covered	Known (in some cases historically) from Reche Canyon, Moreno Valley, March AFB, San Jacinto Wildlife Preserve/Lake Perris, but these populations may not currently exist. There are no key populations mapped within the Planning Area.	NY, BAD, AFB,
Dipodomys stephensi	Stephens' Kangaroo Rat	Areas of sparse vegetation primarily grasslands, but may occur in sage scrub or disturbed areas	FE/ST		Covered	Key MSHCP populations occur at San Jacinto Wildlife Area-Lake Perris Preserve, Potrero/Badlands area, and Sycamore Canyon-March Air Reserve Base Reserve.	BSRP, NC, NY, BAD, SJWP, LP, AFB, C
Eumops perotis californicus	Greater Western Mastiff Bat /California Mastiff Bat	Extensive open areas with abundant roost locations in rock outcrops, (found where oaks and chaparral occur)	FSC/ CSC			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP, NC, NY, BAD, LP
Lepus californicus bennettii	San Diego Black-tailed Jackrabbit	Relatively open chaparral and sage scrub and grasslands	CSC		Covered	Throughout Planning Area where grassland, sage scrub and chaparral persist. May also be present within agricultural areas (Field/Croplands). The Badlands are probably a key area for this species (Dudek 2003b).	BSRP, NC, NY, BAD, C
Myotis ciliolabrum	Western Small-footed Myotis	Uses a variety of habitats, prefers open stands in forests/woodlands, brushy habitats, and riparian areas	FSC/SA			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP, NC, NY, BAD, LP
Myotis evotis	Long-eared Myotis	Uses multiple habitats for roosting (mainly crevices), forages in oak/coniferous forests, may require water	FSC/SA			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP
Myotis thysanodes	Fringed Myotis	Uses multiple habitats for roosting (mainly crevices), primarily feeds in (coniferous) forests	FSC/SA			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Myotis volans	Long-legged Myotis	Uses multiple habitats for roosting (mainly crevices), primarily feeds in (coniferous) forests	FSC/SA			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP
Myotis yumanensis	Yuma Myotis	Utilizes multiple habitats (primarily woodlands and forests) but forages over water	FSC/SA			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP
Neotoma lepida intermedia	San Diego Desert Woodrat	Chaparral and to a lesser degree chaparral, particularly abundant in areas of rock outcrops	CSC		Covered	Known from the Badlands and San Jacinto Wildlife Preserve/Lake Perris area. Likely also occurs where suitable habitat exists throughout the remainder of the Planning Area.	BSRP, NC, NY, BAD, LP
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	Cliff rooster, feeds in multiple habitats	CSC			Not addressed by the MSHCP, potentially present within suitable habitat in the Planning Area.	BSRP, NC, NY, BAD, LP
Onychomys torridus ramona	Southern Grasshopper Mouse	Variety of habitats, including grasslands, sage scrub and chaparral, where friable soils occur	FSC/ CSC			Potentially present throughout much of the Planning Area periphery lands, recorded from the Box Springs, March AFB, and Badlands areas.	BSRP, NC, NY, BAD, AFB
Perognathus longimembris brevinasus	Los Angeles Little Pocket Mouse	Found in areas of fine sandy ground, (Coastal Sage Scrub)	CSC		Covered	The Badlands, San Jacinto Wildlife Preserve, Lake Perris SRA, March AFB, and Moreno Valley are all considered key population areas (Dudek 2003b). Specific, recorded occurrences include San Jacinto Wildlife Preserve and adjacent to Alessandro Avenue (Dudek 2003b).	NY, BAD, SJWP, LP, AFB, C

TABLE 5.9-5
RARE, THREATENED, ENDANGERED, ENDEMIC, AND/OR SENSITIVE SPECIES KNOWN FROM OR WITH A POTENTIAL TO OCCUR IN THE PLANNING AREA
(continued)

Scientific Name	Common Name	Suitable Habitat Description	Federal/ State (CDFG) Status[1]	CNPS Status	MSHCP Status[2]	Status within Planning Area	Known and/or Expected Occurrence by Sections[3]
Puma concolor	Mountain Lion	Chaparral or woodland habitats with requisite areas of riparian vegetation and interspersions of rock outcrops and irregular terrain where deer are present	Protected		Covered	May occur on the periphery of the Planning Area where larger tracts of native scrub and chaparral habitats connect to off-site key populations areas in the surrounding mountains and foothills.	BSRP, NC, NY, BAD
Taxidea taxus	American Badger	Grasslands and open scrub habitats	SA			Expected in areas with substantial grasslands. Badlands population may be of critical importance.	NC, NY, BAD, SJWP, LP

[1] Sensitivity Status: FE = Federally Endangered, FT = Federally Threatened, FSC = Federal Species of Concern, SE = State (California) Endangered, ST = State Threatened, CSC = California Species of Special Concern, SA = Special Animal, (rookery) or (nesting) = CNDDB tracks only nesting locations, Protected = Department of Fish and Game "Protected" per Sections 3511, 4700, 500 and/or 5515 of the Fish and Game Code, NE = MSHCP Narrow Endemic Plant Species

[2] In accordance with the MSHCP Implementing Agreement, "Covered" species that are not listed as "Covered Species Adequately Conserved"

[3] Planning Area Report Sections: BSRP = Box Springs Regional Park, NC = North- Central, NY = Norton Younglove, C = Central, BAD = Gilman Springs Road-Badlands, SJWP = San Jacinto Wildlife Preserve-Mystic Lake, LP = Lake Perris SRA, and AFB = East March AFB

Although the Grasshopper Sparrow was addressed as a sensitive species in the previous version of this biological report (and is an MSHCP covered species), it has since been removed from the CDFG Special Animals list and has correspondingly been removed from the report's sensitive species analysis. In contrast, Lark Sparrow, Allen's Hummingbird, and California Thrasher were not previously addressed as sensitive species. Since completion of the first report iteration, these species have been listed by USFWS and/or CDFG as sensitive and are, thus, addressed herein.

THRESHOLDS FOR DETERMINING SIGNIFICANCE

For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:

- *Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.*

- *Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.*

- *Have possible environmental effects which are individually limited but cumulatively considerable.*

It is important to note that the significance of a given activity is variable according to the environmental setting.

Direct and Indirect Impact Definitions

The 2005 CEQA guidelines define a "direct impact or primary effect" as "effects which are caused by the project and occur at the same time and place" that can produce a physical change in the environment. CEQA guidelines define an "indirect impact or secondary effect" as "effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" physical change in the environment (California Resources Agency 2005, δ15358).

ENVIRONMENTAL IMPACTS

The City of Moreno Valley is considering three potential land use alternatives for the General Plan (for a detailed discussion of each alternative, refer to Section 3.0 Project Description of this EIR). **Figures 3-2**, **3-3**, and **3-4**, located in Section 3.0 Project Description, depict the three proposed land use maps. The biological resources impact analysis in this section is based on the change between existing conditions and those projected for the expected development scenario at buildout. Where a land use designation is proposed that differs from existing conditions (on the ground), the potential for indirect (future) impacts has been assessed assuming that the area is fully developed as allowed by the proposed General Plan land use designation.

For the purposes of this analysis, potential biological impacts are being discussed according to the eight designated sections within the planning area. The following text

provides a qualitative (and where feasible a quantitative) impact analysis, based on the potential for direct, indirect, and cumulative impacts to existing biological conditions under the proposed planning actions, as well as a determination of biological significance for each potential impact per CEQA and the MSHCP.

Impact Analysis Assumptions

The following assumptions are used in the impact analysis:

- Any area with a proposed designation of Residential (except Hillside or Rural Residential), Office, Mixed Use, Commercial, or Business Park was considered to be impacted throughout the area, with a potential for the future complete loss of all biological resources not protected under existing regulations. Areas proposed for Hillside Residential or Rural Residential designations are expected to leave a portion of the area in a natural state due to steep slope development restrictions. Areas within the Badlands and Box Springs Regional Park are dominated by steep slopes. Development within these areas would be required to maintain 35 to 60% open space, per the City's Residential Site Development Standards.

- Areas adjacent to any Residential, Office, Mixed Use, Commercial, or Business Park designation are assumed to experience potential development-associated impacts due to increased noise, lighting, traffic, increased percentage of non-permeable surface area, and, in the case of potential residential development, the introduction of domestic animals.

- Existing State and Federal regulations are assumed to provide protection against habitat loss impacts for all jurisdictional wetlands and Non-wetland Waters of the U.S./Streambeds. It is assumed that any potential impacts assessed would be mitigated to a level below significance through compliance with the state and federal statues regulating these resources (see mitigation measures later in this section). However, wetland buffer areas may not be afforded adequate protection under existing regulations; thus, jurisdictional areas may be subject to indirect impacts resulting from increased lighting and noise, increased edge effects, and the introduction of non-native species.

- Riparian associated species are generally assumed to receive protection from habitat loss impacts due to the above regulations, but not from indirect impacts such as increased lighting and noise, increased edge effects, the introduction of non-native species, and any increase in domestic animals.

- Species listed as federally threatened or endangered receive protection under the federal ESA and species listed by the state as threatened or endangered receive protection under CESA. It is assumed that any potential impacts assessed would be mitigated to a level below significance through compliance with the state and federal statues regulating these listed species.

Adoption of this General Plan EIR would not result in significant direct impacts to existing biological resources; however, adoption of the General Plan would lead to future (indirect) impacts through approval of development projects. Therefore, this section identifies potential future impacts that could occur through increased future development, and these impacts are cited as potential "indirect impacts." Planning actions ultimately resulting in quantifiable direct impacts to biological resources would be addressed subsequently through analysis at a lower tier, project-specific level of environmental review. As identified later in this section, implementation of the recommended mitigation measures would provide for completion of further environmental review at the project-specific level to minimize the risk of unmitigated impacts being authorized through adoption of this General Plan EIR.

Indirect impacts that may occur as a result of project implementation vary according to future proposed development. The most obvious potential indirect biological impact is wildlife habitat loss. In addition to potential habitat loss, impacts may occur within remaining habitats due to development-associated effects (referred to herein as "collateral indirect impacts") that diminish wildlife habitat quality. Wherever increased development would be allowed, the following collateral indirect impacts are possible:

- Wildlife disturbance caused by the presence of humans, pets (Crooks 1998, Crooks *et al.* 2000, and Hawkins *et al*. 1999), and vehicles within and adjacent to directly impacted areas;
- Artificial lighting that alters nocturnal wildlife activity (Buchanan 1993 and Rydell and Baagoe 1996), artificially increases depredation rates on vulnerable species (Frank 1988), and/or disrupts circadian rhythms (Upgren 1996);
- Alterations in natural moisture regimes caused by turf and landscape irrigation and the placement of impermeable (paved) surfaces;
- Increased urban runoff, especially that containing herbicides, fungicides, pesticides, and fertilizers required to maintain turf and landscaping; and
- Increased habitat fragmentation with a potential corresponding decrease in species diversity and abundance (Crooks 1999, Crooks and Soule 2000, and Giusti and Tinnin 1993).

Potential Vegetation Community Indirect Impacts

Proposed planning actions could result in the permanent loss of habitat by allowing future development to occur. In addition, proposed planning actions have the potential to produce deleterious collateral indirect impacts that could adversely modify the composition and value of wildlife habitat adjacent to development areas. **Table 5.9-6** summarizes the potential indirect impacts to vegetation communities within the planning area, by planning area section, in an unquantified manner. Tables, which identify existing land use by section and proposed land use by section and alternative, can be found in Appendix E Volume II of this EIR.

TABLE 5.9-6
POTENTIAL INDIRECT IMPACTS TO VEGETATION COMMUNITIES WITHIN THE PLANNING AREA

	Residential/Urban/Exotic and Diary/Livestock	Field/Croplands	Orchards/Groves	Riversidean Coastal Sage Scrub	Non-native Grasslands	Chaparral (only significant if part of a corridor)	Alkali Playa, Riparian Scrub, and Marsh	Disturbed Alluvium and Riversidean Alluvial Fan Sage Scrub	Corridor associated habitat impacts
Box Springs Regional Park Section				X	X	X			X
North-Central Section		X		X	X		X		X
Norton Younglove Section		X		X	X	X	X		X
Gilman Springs Road-Badlands Section				X	X	X	X	X	X
San Jacinto Wildlife Area-Mystic Lake Section		X							
Lake Perris SRA Section		X			X			X	
East March AFB Section		X			X				
Central Section		X		X	X		X		X

The following discussion identifies the general impacts for each alternative occurring within each of the eight geographic sections shown on **Figure 5.9-1**. More specific discussion of impacts and mitigation measures is provided under *Significance of Vegetation Community Impacts and Mitigation* located later in this section.

Box Springs Regional Park Section

Alternative 1

Land Use Policy Map Alternative 1 proposes changes within the Box Springs Regional Park and along the northern edge of this section from the existing condition. These areas support significant tracts of native habitat and provide connectivity with extensive open space outside of the planning area. Under Alternative 1, the land use designation for Box Springs Mountain Park would be entirely Hillside Residential. The Hillside Residential development requirements ensure that a substantial percentage of the area would remain in a natural state. In contrast, the existing use for this area (on the ground) is predominantly Open Space with a small area of Residential. The designation of Box Springs Mountain Park as Hillside Residential could result in the fragmentation of some of the most extensive tracts of Riversidean Sage Scrub and Chaparral remaining within the planning area. It could also result in a substantial loss of Non-native Grassland. The

ultimate potential result would be the degradation in the value of this area for use by wildlife species not adapted to urban environments.

Along the northern boundary of this section, areas currently occupied by Vacant Land and Residential would be designated as Residential (R2, R3, and R10), Hillside Residential, Commercial, Public, and Open Space. These northern areas currently support Non-native Grasslands, Chaparral, sage scrub, woodlands, open water, and existing Residential development. These proposed land use designations could result in a loss of the native vegetation communities and corresponding loss of resident species. In particular, there would be potential for impacts to several areas of Non-native Grasslands that occupy over 100 acres each and border sage scrub habitats. Although two relatively large grassland areas are proposed for designation as Open Space, (same as existing conditions) these areas are isolated by residential development and have reduced biological value. The areas proposed for Open Space designation within this section occur primarily in the northern portions, within a matrix of proposed Residential areas.

Under Alternative 1, lands now Vacant or mapped as Open Space provide a measure of connectivity from the Box Springs Mountain Park eastward toward the Badlands. More extensive native habitats occur north of the planning area but within Moreno Valley this northern strip of largely undeveloped land provides connectivity in an otherwise developed landscape. Alternative 1 would allow for residential development throughout much of this area. The density of this development would be variable, based on multiple classes of the Residential designation, but regardless of density, connectivity could be severed through habitat impacts (see the Wildlife Corridor Impacts discussion later in this section).

Alternative 2 and Alternative 3

In this section, Alternative 2 differs from Alternative 1 in the proposed designations within Box Springs Regional Park. Alternative 2 designates a larger portion of the park, primarily to the northwest and southeast, as Open Space and the remainder as Hillside Residential. While biologically superior to Alternative 1, Alternative 2 could still result in the degradation of large areas of native or semi-native habitats. The connectivity would be improved under these Alternatives (2 and 3), when compared with Alternative 1, simply due to the presence of some remaining potential open space, but is not comparable to existing conditions.

Proposed land use designations under Alternative 3 do not differ from those under Alternative 2 for this section; therefore, the potential impact analysis is the same as that presented for Alternative 2.

North-Central Section

Alternative 1

Under this alternative, the North-Central Section would be subject to the potential conversion of existing Vacant land, Agricultural lands (Field/Croplands), Orchards/Groves, and Non-native Woodlands to Residential and limited Commercial development with an area of Open Space in the annexed parcel. Areas that currently support native or semi-native vegetation that would be subject to potential Residential development include Riversidean Sage Scrub, Chaparral, and Non-native Grassland communities along the northern project edge. The potential loss of Field/Croplands and Orchards/Groves would occur in the central and eastern part of the section.

In the southern part of this section, an area mapped as Vacant on the Existing Land Use Map, which supports Non-native Grassland, is proposed for designation as Open Space. Another area proposed for Open Space designation is the Non-native Grassland, Riversidean Sage Scrub, and Chaparral along the northeastern border of Perris Blvd. However, these areas would be surrounded by Residential and Commercial designations potentially resulting in isolation of the proposed Open Space.

Additionally, scattered, small patches of Riparian Scrub in this section may be subject to increased indirect impacts associated with potential development. Existing regulations require mitigation that reduce these impacts to a level less than significant.

Alternative 2 and Alternative 3

When compared with Alternative 1, Alternative 2 allows for less Commercial use and increased Office use within this section and maintains an area of Open Space in the northeastern corner. Since this Open Space is mapped as such under the existing land use, it would reflect no change from existing conditions. The substitution of Office designations for Residential or Commercial would not affect the potential for habitat loss or increase potential for indirect impacts.

Alternative 3 replaces the Office and Commercial designations on the Existing Land Use Map along State Route 60 with Residential use. This is not expected to result in a different potential habitat loss impact, but the increase in potential Residential use could have a corresponding increase in indirect impact to any remaining adjacent areas of native habitat from human intrusion and domestic animal impacts.

Norton Younglove Section

Alternative 1

Based on the Existing Land Use Map, this section is currently occupied almost entirely by Vacant land with the exception of some relatively small areas of Residential

development. Under Alternative 1, the area would be designated as Rural Residential and Residential (R1) with two small areas called out for Commercial use along State Route 60.

The designations proposed under Alternative 1 could result in the loss or fragmentation of existing large contiguous tracks of Riversidean Sage Scrub, Chaparral, and Non-native Grasslands. There could also be a loss of Field/Cropland through conversion to housing. The overall potential result would be a loss of native habitats and reduction of wildlife use for non-urban-tolerant species. However, portions of these areas are expected to be maintained in a natural state due to restrictions on development of steep slope areas.

Riparian Scrub found in the western portion of this section could experience impacts; however, existing U.S. Army Corps of Engineers regulations pursuant to the federal Clean Water Act and California Department of Fish and Game regulations pursuant to the Fish and Game Code will afford some protection to any Wetlands or Non-wetland Waters of the U.S./Streambeds.

The Riversidean Sage Scrub and Chaparral of this section also provide connectivity between extensive native habitats to the northwest and similar habitats to the southeast in the Badlands. Severance of this connection could impact wildlife diversity and abundance throughout the immediate region (see the discussion of Wildlife Corridor Impacts later in this section).

Alternative 2 and Alternative 3

Alternative 2 reduces the amount of Commercial designation and replaces it with Residential and Office. This change would not alter the habitat loss potential from that determined under Alternative 1, but it could increase other indirect impacts including habitat fragmentation from human intrusion and introduction of non-native meso-predators.

Alternative 3 designates the entire section as Residential and has the same potential for impacts through future habitat loss as the previous alternatives, but even greater potential for indirect impacts associated with Residential development.

Gilman Springs Road-Badlands Section

Alternative 1

Under existing conditions, this section is almost entirely Vacant land, with the exception of an Open Space area adjacent to Gilman Springs Road and Jack Rabbit Trail, and scattered areas of residential development. In terms of biological resources, this area supports Riversidean Sage Scrub, Chaparral, Non-native Grasslands that continue off-site to the east, as well as, Riversidean Alluvial Fan Scrub and Riparian Scrub.

Alternative 1 proposes designation of this section almost entirely as Residential and Commercial. A small area consisting of approximately 17 acres on the northwestern edge is slated for Open Space designation. The potential for impacts exists throughout the section with a corresponding loss of resident species, faunal and floral diversity and abundance, raptor wintering and foraging habitat, and sensitive species habitat.

Riparian Scrub found in this section could experience impacts; however, existing U.S. Army Corps of Engineers regulations pursuant to the federal Clean Water Act and California Department of Fish and Game regulations pursuant to the California Fish and Game Code will afford protection against significant, unmitigated impacts to Wetlands or Non-wetland Waters of the U.S./Streambeds.

Alternative 2 and Alternative 3

These alternatives would not differ from Alternative 1 with regard to potential for biological impacts within this section.

San Jacinto Wildlife Area-Mystic Lake Section

Alternative 1

The lands within this section are currently mapped as Vacant, Agriculture, and Public, while lands within this section qualify as 100-year Floodplain that is not a distinction on the Existing Land Use map. Under the proposed Alternative 1, the land in the southwest would be under the Floodplain designation, with the exception of a Commercial area along Gilman Springs Road. North and east of the San Jacinto Wildlife Area the proposed designations include Open Space, Public, and Residential, including the Rural Residential designation in the Badlands east of Gilman Springs Road. A large percentage of the Rural Residential designation is expected to be maintained in a natural state due to restrictions on development of steeply sloping areas.

It is important to note that 1,000 acres of the area designated as Open Space, Public and Residential situated south of the prolongation of Cactus Avenue, also known as Gato del Sol Avenue, was purchased by the State of California for expansion of the San Jacinto Wildlife Area. Given that the State intends to manage the area for wildlife conservation purposes, it is unlikely that there will be adverse biological impacts in this area. However, property at the southeast and southwest corners of Gato del Sol Avenue and Virginia Street, on the east side of Davis Road and the east side of Gilman Springs Road, was not included in the State purchase.

The majority of the San Jacinto Wildlife Area-Mystic Lake Section is within the San Jacinto Wildlife Area.

This area is almost entirely occupied by Alkali Playa and Field/Croplands with areas of open water. While virtually all of the Alkali Playa lies within the proposed Floodplain

designation, portions of the Field/Cropland would be designated as Residential or Commercial. According to the City of Moreno Valley Draft General Plan Goals, Objectives, Policies and Programs, "the primary purpose of areas designated Floodplain is to designate floodplain areas where permanent structures for human occupancy are prohibited to protect the public health and safety" (City of Moreno Valley 2001). Since the Floodplain designation prohibits the construction of habitable structures and the majority of the designation is within the San Jacinto Wildlife Area, biological impacts in this area are unlikely.

The overall potential result would be a loss of native habitat and reduction of wildlife use for non-urban-tolerant species, but the impacts would be limited. A large percentage of this geographic section will be maintained in a natural state within the expanded San Jacinto Wildlife Area, the Rural Residential designation and the Floodplain designation.

Alternative 2 and Alternative 3

These alternatives would not differ from Alternative 1 with regard to potential for biological impacts within this section.

Lake Perris State Recreation Area Section

Alternative 1

Under existing conditions, this section is predominantly occupied by Open Space and Vacant land with interspersed small Public and Residential areas. Under Alternative 1, the section's lands would be divided between Open Space, Residential, Commercial, and Public designations. The existing Open Space north of Lake Perris is proposed to remain as Open Space and there would be no expected impacts to the native habitats which make up this area. The area now mapped as Vacant would be divided between Open Space, Residential, Commercial, and Public uses. The proposed designations could result in a loss of Non-native Grassland and Field/Cropland.

The Non-native Grassland loss would occur in the northeastern portion of the site adjacent to the large area of Open Space. Although smaller than other grasslands within the Moreno Valley area, the Non-native Grassland here is substantial and its location adjacent to Open Space native habitats increases its wildlife value. The loss of Field/Croplands would occur in the northwestern corner of the section. Disturbed Alluvium is also located within a potential impact area and may experience increased impacts.

Alternative 2 and Alternative 3

In comparing the three alternatives, the differences consist of a proposed designation of Commercial under Alternative 1 and Residential under Alternatives 2 and 3 in the north central portion of the section. The potential for habitat loss within the section is the same

for each alternative, but the potential for other indirect wildlife impacts increases under Alternatives 2 and 3 due to the area proposed for Residential designation. Residential uses create indirect impacts due to intrusion by humans and domestic animals.

East March AFB Section

Alternative 1

Under Alternative 1, proposed land use designations of Business Park and Residential could result in the loss of over 1,000 acres of Field/Cropland and Non-native Grassland. The areas currently mapped as Vacant or Agriculture lands lie in the southwestern corner of the section. Additional losses of Non-native Grassland and Field/Cropland could occur in the central portion of the section where designations of Commercial and Residential are proposed, but these areas are smaller and are biologically isolated under existing conditions.

Alternative 2 and Alternative 3

There is no biological impact difference between the three alternatives.

Central Section

Alternative 1

In the western half of the Central section most of the biological resources have been eliminated through previous development. However, along the southern boundary, an area of Vacant land (approximately 300 acres) supporting Field/Cropland persists and lies adjacent to Non-native Grassland. Other isolated grasslands proposed for designation as Residential or Office or a combination of the two have less ability to provide significant foraging habitat or to support significant numbers of sensitive species due to their smaller size and isolation under existing conditions.

In the eastern half of this section, the proposed designation of lands as Residential, Commercial, Business Park, and Mixed Use could result in a loss of extensive Vacant and Agriculture lands known to support Field/Croplands, Orchards, Non-native Grassland, Riversidean Sage Scrub, and Chaparral. In particular, the majority of the remaining Riversidean Sage Scrub and Non-native Grassland habitat along Moreno Beach Drive is proposed for Open Space or Hillside Residential. This area is only remnant of historic Riversidean Sage Scrub coverage left in central Moreno Valley.

About 52 acres of habitat on the south side of Moreno Park (northwest corner of Cottonwood Avenue and Moreno Beach Drive) were transferred to the Eastern Municipal Water District. Although the General Plan land use designation is Hillside Residential, other than a small area for water storage tanks, the District is obligated to maintain the property as open space. The transfer to the District was mitigation for biological impacts

associated with the Moreno Valley Field Station Specific Plan (City of Moreno Valley 2004).

Proposed Open Space designations would not provide connectivity to Open Space areas to the south. These proposed Open Space areas could result in the maintenance of some resident species but they are not expected to preserve the diversity and abundance of species found here under current conditions.

Alternative 2 and Alternative 3

Alternatives 2 and 3 land use designations would have the same biological impacts than those discussed under Alternative 1.

Significance of Vegetation Community Impacts and Mitigation

Residential/Urban/Exotic and Dairy/Livestock

Developed areas, such as Residential/Urban/Exotic and Dairy/Livestock, do not contain substantial native vegetation and have little biological value; however, they may provide local travel routes for urban tolerant mammals. Regardless, potential impacts to developed areas within the planning area would not be significant. No mitigation measures are required.

Field/Croplands, Orchards/Groves and Non-native Woodlands

The significance of impacts to these habitats is based upon the wildlife value. Potential impacts to expansive tracts (generally over 100 acres) of Field/Croplands are considered significant due to the importance of the Moreno and San Jacinto Valleys as raptor wintering areas.

Orchards/Groves and Non-native Woodlands are known to provide habitat for sensitive species; however, typically the species found within these areas are low sensitivity and dense populations are not expected. The habitat is considered suitable for a number of species but not high quality. The densities of sensitive species in these areas are not expected to be sufficient to result in significant impacts. No mitigation measures are required.

Riversidean Sage Scrub

There has been a significant loss of this sensitive, native vegetation community throughout southern California. Riversidean Sage Scrub within the center of Moreno Valley was mapped as moderate to low value but the Sage Scrub on the outskirts of Moreno Valley, toward Box Springs and the Badlands, was high to very high quality habitat (KTU+A/PSBS in Dudek 2003b). Impacts to Riversidean Sage Scrub are considered to be individually and cumulatively significant because it supports the

California Gnatcatcher, a federally threatened species, as well as a host of other regionally or locally sensitive species. Implementation of Mitigation Measures identified later in this section will reduce this impact to a level less than significant.

Chaparral

Chaparral remains regionally common throughout most of southern California and is typically not considered sensitive in this region due to its relatively wide distribution and persistence. However, where chaparral is located within a MSHCP core or linkage area (described previously for the planning area), or where it supports federally or state listed, endangered or threatened species, MSHCP narrow endemic species, or a critical population of a sensitivity species it is sensitive and impacts are significant. Thus, impacts to Chaparral within Box Springs Regional Park, or within the Box Springs Regional Park Section, north of Sunnymead Ranch Parkway (MSHCP Subunit 2, Cell Groups I, L, and M) are considered significant, as these areas comprise or contribute to an Existing Core/Non-Contiguous Habitat Block (A) and Proposed Linkage (4), respectively. Impacts to Chaparral within the Norton-Younglove Section (MSHCP Subunit 3, cell group T) is slated to contribute to assembly of the Proposed Core 3, thus impacts to Chaparral within this section would be significant. In the Badlands-Gilman Road Section, impacts to Chaparral south of State Route 60 would be considered significant due to the habitats expected contribution to Proposed Core 3.

Additionally, habitats adjacent to Gilman Springs Road and Jack Rabbit Trail are proposed for designation as Critical Habitat for the San Bernardino Kangaroo Rat. Impacts to Chaparral within this area may be significant. Implementation of Mitigation Measures identified later in this section will reduce this impact to a level less than significant.

Non-native Grasslands

Grasslands are disappearing rapidly in Southern California because they generally occur on relatively flat ground and are easily developed. Non-native Grassland is not typically considered sensitive as a habitat alone; however, it is considered a significant resource for raptor foraging, may support sensitive plant species, and may serve as a habitat linkage. Impacts to substantial grassland areas (generally over 100 acres) known to support wintering raptors are considered significant, particularly where the grasslands abut Open Space or high densities of raptors have been recorded. Implementation of Mitigation Measures identified later in this section will reduce this impact to a level less than significant.

Disturbed Alluvium and Riversidean Alluvial Fan Sage Scrub

Alluvial Fan Scrub occupies broad washes of sandy alluvial drainages that are active with rainfall runoff, but remain relatively dry through the remainder of the year. Due to regional losses, Riversidean Alluvial Fan Scrub is now essentially confined to remnant

patches along unaltered streams and washes (Olson 2001). Although the drainages with which this habitat type is associated would fall under the jurisdictions of the Army Corps of Engineers (ACOE) and California Department of Fish and Game (CDFG), the surrounding vegetation community may not receive adequate protection under these regulations. Impacts to Riversidean Alluvial Fan Sage Scrub may occur within the Gilman Springs Road-Badlands Section. These impacts would be significant due regional losses and wildlife value.

Based on the limited wildlife value of the Disturbed Alluvium community, its disturbed nature, and the biological isolation of the Disturbed Alluvium patch within the planning area, impacts to Disturbed Alluvium are not expected to be significant.

Implementation of Mitigation Measures identified later in this section would reduce the impact associated with Riversidean Alluvial Fan Sage Scrub to a level less than significant.

Alkali Playa, Riparian Scrub, and Marsh

No significant impacts to Alkali Playa habitat would occur because this community is contained within proposed Open Space or Floodplain designation. Wetlands and riparian habitats could be significantly impacted as a result of future development as permitted by the Land Use Alternatives. However, existing federal and state regulations enforce a no net loss policy of these resources, which offer a measure of protection and help ensure that impacts are mitigated sufficiently.

Sensitive Species Potential Impacts and Mitigation

The proposed project has the potential to result in impacts to sensitive flora and fauna species present within the Planning Area. Impacts to federally and state listed, endangered and threatened species listed in **Table 5.9-5** would be significant under CEQA. Impacts to lower sensitivity species that are not presently threatened with extinction would be significant under CEQA if the species exists in such small numbers throughout all or a significant portion of their range that they may become endangered if their habitat environment worsens, or the species are likely to become endangered within the foreseeable future throughout all or a significant portion of their range and may be considered threatened.

Implementation of the Mitigation Measures (identified later in this section) would provide adequate protection of sensitive species impacted by the project.

Sensitive Plant Species Impacts and Mitigation

The Mission Canyon Bluecup occurs in moist or disturbed areas. Impacts to this species may occur where appropriate habitat exists and the project proposes a land use designation other than Open Space or Floodplain. Mission Canyon Bluecup is an

extremely rare plant that may be naturally approaching extinction based on its few historical collections. Some botanists dismiss this plant taxonomically as a form of a variable group. Potential impacts to this species are not anticipated to be significant due to the plant's low sensitivity status and no evidence of significant populations within the planning area.

Impacts to Payson's Jewelflower could occur in the North-Central Section and Norton Younglove Section where Chaparral and sage scrub habitats may be replaced by residential development due to the proposed land use changes. In these sections impacts to Palomar Monkeyflower may also occur where Chaparral is proposed for Residential designation. Impacts in these areas would not conflict with MSHCP conservation strategies for the two covered species and are not anticipated to be significant.

Implementation of any of the three General Plan land use alternatives could result in a significant impact associated with Parry's Spineflower. This species could occur where Chaparral and scrub habitats are designated as Residential in the Box Springs Regional Park Section, North-Central Section, Norton Younglove Section, and Gilman Springs Road-Badlands Section. Implementation of Mitigation Measures identified later in this section would reduce this impact to a level less than significant.

Impacts to core locations of Smooth Tarplant are not anticipated due to designation of the southeastern portion of the project site as Floodplain. However, impacts to the population mapped one mile south of State Route 60 and Dracaea Avenue on the west side of Nason Street could occur, as this area is proposed for designation as Residential. These impacts would not conflict with MSHCP conservation of the species and would not be significant per CEQA.

San Jacinto Valley Crownscale occurs in Alkali Playas, and an MSHCP core location of San Jacinto Valley Crownscale is located along the San Jacinto River from Mystic Lake southwest to the vicinity of Perris (Dudek 2003b). Impacts to this species are not expected under any of the three land use alternatives, due to designation of the southeastern portion of the section as Floodplain. Similarly, impacts to Parish's Brittlescale, Davidson's Saltbush, Thread-leaved Brodiaea, Vernal Barley, Coulter's Goldfields, Spreading Navarretia, and Wright's Trichocoronis (an MSHCP Narrow Endemic Species) are not anticipated.

If Orcutt's Brodiaea, Clay Bindweed (Small-flowered Morning Glory), Palmer's Grapplinghook, and/or Small Flowered Microseris occur in this area, they are expected on clay soils. The following mapped soil types are found in the vicinity of the San Jacinto River floodplain: Willows silty clay, Waukena fine sandy loam, Waukena loam, San Emigdio fine sandy loam, and Chino silt loam. These species may occur within the silty clay soils. Since this area is proposed for designation as Floodplain, impacts are not expected to these species. Similarly, if Great Valley Phacelia or Parish's Bush Mallow occur in the Moreno Valley area, they would be expected near Mystic Lake and impacts are not anticipated.

San Diego Thorn Mint occurs in the northwest portion of Moreno Valley (Box Springs Regional Park Section) where existing areas of Chaparral or sage scrub are designated as developable. Munz's Onion could occur where existing Riversidean Sage Scrub and grassland/sage scrub exist but are designated for potential development by all of the three land use alternatives (entirely by Alternative 1 and partially by Alternatives 2 and 3). Similarly, Nevin's Barberry may occur where sandy and gravelly Riversidean Sage Scrub occurs and could be developed under the proposed General Plan land use designations. Slender-horned Spineflower, an MSHCP Narrow Endemic Species, which occupies Chaparral, sage scrub, and grasslands, but may be dependent upon alluvial scrub. It could occur in the Badlands where alluvial scrub has been mapped and designated as developable. Each of these four species (San Diego Thorn Mint, Munz's Onion, Nevin's Barberry, and Slender-horned Spineflower) is a state and/or federally listed species. Impacts to these listed species would be considered significant.

Munz's Onion, Nevin's Barberry, and Slender-horned Spineflower are MSHCP covered species (Western Riverside County Regional Conservation Authority *et al.* 2003). MSHCP coverage of these species is based on conservation of known, extant, significant populations, none of which are in the planning area. However, impacts to a smaller, previously unknown population would still be significant. Since these are MSHCP covered species, mitigation would be limited to compliance with the MSHCP. Therefore, implementation of Mitigation Measure will assure that no significant impact associated with Munz's Onion, Nevin's Barberry, and Slender-horned Spineflower would occur.

Impacts to San Diego Thorn Mint, which is not an MSHCP covered species, would be addressed through federal and State regulations applicable to listed plant species.. This plant has been reported in an area northwest of Moreno Valley, but it can no longer be found in that area. There is insufficient information to determine where the plant can be found.

Sensitive Faunal Species Impacts and Mitigation

Impacts to sensitive faunal species are expected to occur in conjunction with habitat loss. The expected overall result of each Land Use Alternative would be a net reduction of habitat available to the full spectrum of wildlife that presently utilize the Planning Area. **Table 5.9-7** lists the species that are potentially affected by geographic planning area section.

Fragmentation of wildlife habitat and increased lighting and noise that will likely occur over time will also reduce the quality of existing habitats for many large mammalian predators, birds of prey, and their prey species. This is considered a potentially significant impact. Implementation of Mitigation Measures identified later in this section will reduce this impact to a level less than significant.

Significance of Impacts for MSHCP Covered Species and Mitigation

MSHCP covered species that may be impacted by the proposed project include those listed in **Table 5.9-8**. As previously stated, application of the proposed mitigation measures would reduce impacts to these species to a level below significant.

Sensitive species not addressed by the MSHCP, but that may be impacted by the proposed project are discussed in **Table 5.9-9**. Impact significance and details supporting the significant determination for these species are provided within the table. Significance determinations are based upon available regarding species status within the planning area and the Thresholds of Significance provided earlier. .Application of the proposed mitigation measures would reduce impacts to these species to a level below significant.

Raptor Wintering/Foraging Habitat Impacts and Mitigation

In fall and winter periods, most hawk species preferentially use grasslands and fields (Craighead and Craighead 1969). Urbanization can negatively impact raptors through habitat alteration, habitat loss and fragmentation, and direct human disturbance. Examinations of raptor foraging in relation to prey biomass and habitat structure indicate that plant cover exerts a significant effect on raptor foraging success and distribution (Preston 1990). A study conducted in Boulder, Colorado found that urban open space grasslands, not including isolated patches, can support sizable populations of most diurnal raptors, so long as prey populations persist, but some species are highly sensitive to landscape urbanization (Berry *et al*. 1998). Specifically, they found that counts of Bald Eagles, Ferruginous Hawks, Rough-legged Hawks, and Prairie Falcons were negatively correlated with the amount of urban development (Berry *et al*. 1998). In fact, as little as 5-7 percent urbanization was sufficient to cause the more sensitive raptor species to avoid a landscape (Berry *et al*. 1998).

Similarly the White-tailed Kite, Northern Harrier, Golden Eagle, Turkey Vulture, and accipiters are not known to be tolerant of urban activity and rarely nest in urban areas (Bird *et al*. 1996). Species such as the Northern Harrier that hunt by coursing low over the ground and surprising prey in their path require relatively large areas of open country to foraging within. In contrast, buteos typically possess a relatively low wing-to-aspect ratio and are less adapted for hunting in flight. They hunt primarily from elevated perches and prefer areas with available perch sites. Buteos tend to be more tolerant of urban activity, with the Ferruginous Hawk displaying the least degree of tolerance (Bloom and McCrary in Bird *et al*. 1996).

Proposed land use designations throughout the planning area (aside from Open Space and Floodplain) have the potential to reduce the availability of raptor foraging and wintering habitat. The Moreno Valley region is known for its high density of wintering raptors, and the loss of extensive portions of foraging habitats could have repercussions beyond the immediate area. All of Moreno Valley is vulnerable to such impacts under each of the

TABLE 5.9-7
POTENTIAL IMPACTS TO SENSITIVE FAUNAL SPECIES AND WILDLIFE RESOURCES BY PLANNING AREA SECTIONS

Planning Area Section	Primary Potential Habitat Impacts	Corresponding Potential Sensitive Wildlife Impacts	Other Potential Biological Resource Impacts
Box Springs Regional Park Section	Riversidean Sage Scrub, Non-native Grassland, Chaparral, Non-native Woodlands	Western Spadefoot, San Diego Banded Gecko, San Diego Horned Lizard, Orangethroat Whiptail, Coastal Whiptail, Silvery Legless Lizard, Coastal Rosy Boa, San Bernardino Ringneck Snake, Coast Patch-nosed Snake, Northern Red Diamond Rattlesnake, Pacific-Slope Flycatcher, Coastal Cactus Wren, California Gnatcatcher, Southern California Rufous-crowned Sparrow, Black-chinned Sparrow, Bell's Sage Sparrow, Lark Sparrow, Allen's Hummingbird, Rufous Hummingbird, California Thrasher, Loggerhead Shrike, California Horned Lark, White-tailed Kite, Cooper's Hawk, Sharp-shinned Hawk, Northern Harrier, Golden Eagle, Turkey Vulture, Merlin, Swainson's Hawk, Ferruginous Hawk, Prairie Falcon, Peregrine Falcon, Burrowing Owl, San Diego Black-tailed Jackrabbit, Los Angeles Little Pocket Mouse, California Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, American Badger, Ringtail, and Mountain Lion.	Raptor Foraging/ Wintering Habitat
North-Central Section	Riversidean Sage Scrub, Non-native Grassland, Chaparral, Field/Cropland, Orchards/Groves, Riparian Scrub	Western Spadefoot, San Diego Banded Gecko, San Diego Horned Lizard, Orangethroat Whiptail, Coastal Whiptail, Silvery Legless Lizard, Coastal Rosy Boa, San Bernardino Ringneck Snake, Coast Patch-nosed Snake, Northern Red Diamond Rattlesnake, American Bittern, Black-crowned Night Heron, Great Blue Heron, Great Egret, Snowy Egret, Southwestern Willow Flycatcher, Least Bell's Vireo, Yellow Warbler, Yellow-breasted Chat, Lawrence's Goldfinch, Coastal Cactus Wren, California Gnatcatcher, Southern California Rufous-crowned Sparrow, Black-chinned Sparrow, Bell's Sage Sparrow, Lark Sparrow, Allen's Hummingbird, Rufous Hummingbird, California Thrasher, Loggerhead Shrike, California Horned Lark, Cooper's Hawk, Sharp-shinned Hawk, White-tailed Kite, Northern Harrier, Golden Eagle, Merlin, Prairie Falcon, Peregrine Falcon, Short-eared Owl, Burrowing Owl, Swainson's Hawk, Ferruginous Hawk, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Los Angeles Little Pocket Mouse, California Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, American Badger, Ringtail, and Mountain Lion.	Raptor Foraging/ Wintering Habitat
Norton Younglove Section	Riversidean Sage Scrub, Non-native Grassland, Chaparral, Field/Cropland	Western Spadefoot, San Diego Banded Gecko, San Diego Horned Lizard, Orangethroat Whiptail, Coastal Whiptail, Silvery Legless Lizard, Coastal Rosy Boa, San Bernardino Ringneck Snake, Coast Patch-nosed Snake, Northern Red Diamond Rattlesnake, Coastal Cactus Wren, California Gnatcatcher, Southern California Rufous-crowned Sparrow, Black-chinned Sparrow, Bell's Sage Sparrow, Lark Sparrow, Allen's Hummingbird, Rufous Hummingbird, California Thrasher, Loggerhead Shrike, California Horned Lark,	Raptor Foraging/ Wintering Habitat

TABLE 5.9-7
POTENTIAL IMPACTS TO SENSITIVE FAUNAL SPECIES AND WILDLIFE RESOURCES BY PLANNING AREA SECTIONS

Planning Area Section	Primary Potential Habitat Impacts	Corresponding Potential Sensitive Wildlife Impacts	Other Potential Biological Resource Impacts
		White-tailed Kite, Northern Harrier, Golden Eagle, Turkey Vulture, Merlin, Prairie Falcon, Peregrine Falcon, Short-eared Owl, Burrowing Owl, Ferruginous Hawk, Swainson's Hawk, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Stephens' Kangaroo Rat, Los Angeles Little Pocket Mouse, California Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, American Badger, Ringtail, and Mountain Lion.	
Gilman Springs Road-Badlands Section	Riversidean Sage Scrub, Non-native Grassland, Chaparral, Field/Cropland, Riversidean Alluvial Fan Scrub	Western Spadefoot, San Diego Banded Gecko, San Diego Horned Lizard, Orangethroat Whiptail, Coastal Whiptail, Silvery Legless Lizard, Coastal Rosy Boa, San Bernardino Ringneck Snake, Coast Patch-nosed Snake, Northern Red Diamond Rattlesnake, Black-crowned Night Heron, Great Blue Heron, Great Egret, Snowy Egret, Southwestern Willow Flycatcher, Least Bell's Vireo, Yellow Warbler, Yellow-breasted Chat, Lawrence's Goldfinch, Mountain Plover, Coastal Cactus Wren, California Gnatcatcher, Southern California Rufous-crowned Sparrow, Black-chinned Sparrow, Bell's Sage Sparrow, Lark Sparrow, Allen's Hummingbird, Rufous Hummingbird, California Thrasher, Loggerhead Shrike, California Horned Lark, White-tailed Kite, Northern Harrier, Golden Eagle, Turkey Vulture, Sharp-shinned Hawk, Cooper's Hawk, Merlin, Prairie Falcon, Peregrine Falcon, Short-eared Owl, Burrowing Owl, Ferruginous Hawk, Swainson's Hawk, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Los Angeles Little Pocket Mouse, California Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, American Badger, Ringtail, and Mountain Lion.	Raptor Foraging/ Wintering Habitat
San Jacinto Wildlife Preserve-Mystic Lake Section	Field/Cropland	Mountain Plover, Ferruginous Hawk, Swainson's Hawk, Peregrine Falcon, Prairie Falcon, Turkey Vulture, Burrowing Owl, Short-eared Owl, Loggerhead Shrike, Lark Sparrow, California Horned Lark, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Northwestern San Diego Pocket Mouse, Los Angeles Little Pocket Mouse.	Raptor Foraging/ Wintering Habitat

TABLE 5.9-7
POTENTIAL IMPACTS TO SENSITIVE FAUNAL SPECIES AND WILDLIFE RESOURCES BY PLANNING AREA SECTIONS

Planning Area Section	Primary Potential Habitat Impacts	Corresponding Potential Sensitive Wildlife Impacts	Other Potential Biological Resource Impacts
Lake Perris SRA Section	Field/Cropland	Mountain Plover, Ferruginous Hawk, Swainson's Hawk, White-tailed Kite, Prairie Falcon, Peregrine Falcon, Golden Eagle, Turkey Vulture, Burrowing Owl, Short-eared Owl, Lark Sparrow, Allen's Hummingbird, California Thrasher, Loggerhead Shrike, California Horned Lark, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Stephens' Kangaroo Rat, Northwestern San Diego Pocket Mouse, Los Angeles Little Pocket Mouse.	Raptor Foraging/ Wintering Habitat
East March AFB Section	Field/Cropland	Ferruginous Hawk, Swainson's Hawk, White-tailed Kite, Prairie Falcon, Peregrine Falcon, Golden Eagle, Turkey Vulture, Burrowing Owl, Short-eared Owl, Loggerhead Shrike, Lark Sparrow, California Horned Lark, Tricolored Blackbird, Yellow-headed Blackbird, Stephens' Kangaroo Rat, Los Angeles Little Pocket Mouse, Southern Grasshopper Mouse.	Raptor Foraging/ Wintering Habitat
Central Section	Field/Cropland, Riversidean Sage Scrub, Non-native Grassland, Chaparral, Orchards/Groves	Western Spadefoot, San Diego Banded Gecko, San Diego Horned Lizard, Orangethroat Whiptail, Coastal Whiptail, Silvery Legless Lizard, Coastal Rosy Boa, San Bernardino Ringneck Snake, Coast Patch-nosed Snake, Northern Red Diamond Rattlesnake, California Gnatcatcher, Southern California Rufous-crowned Sparrow, Black-chinned Sparrow, Rufous Hummingbird, Loggerhead Shrike, California Horned Lark, California Thrasher, Allen's Hummingbird, Cooper's Hawk, Sharp-shinned Hawk, White-tailed Kite, Northern Harrier, Golden Eagle, Merlin, Peregrine Falcon, Prairie Falcon, Short-eared Owl, Burrowing Owl, Swainson's Hawk, Ferruginous Hawk, Tricolored Blackbird, Yellow-headed Blackbird, San Diego Black-tailed Jackrabbit, Los Angeles Little Pocket Mouse, California Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, Stephens' Kangaroo Rat, American Badger.	Raptor Foraging/ Wintering Habitat

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Western Spadefoot	MSHCP key population areas for the Western Spadefoot include areas that still support intact grassland, vernal pool, sage scrub, Chaparral, riparian, and mixed scrub/grassland vegetation communities and are in relatively large blocks and connected to other suitable habitat throughout the region (Dudek 2003b). Conservation for the Western Spadefoot will be achieved by the inclusion of suitable habitat within the San Jacinto Foothills and Riverside Lowlands Bioregions (which contains the Planning Area) within the MSHCP Conservation Area. Since the Land Use Alternatives could result in potential impacts to some of these vegetation communities within criteria areas of the MSHCP Conservation Area, the Western Spadefoot key MSHCP populations in the project area may be adversely, significantly impacted by the proposed project.
Coastal Whiptail	Open grassland/coastal sage scrub habitats throughout the MSHCP Plan Area are considered to support key populations (Dudek 2003b). As with the horned lizard and Orangethroat Whiptail, the MSHCP relies upon conservation within Core Areas that may be impacted within the Reche Canyon/Badlands Plan Area. Since this is an MSHCP covered species and Planning Area Land Use Alternatives could feasibly preclude species conservation, impacts would be considered significant.
Northern Red Diamond Rattlesnake	Implementation of the MSHCP, including the conservation of existing populations and suitable habitat will maintain viable populations of the rattlesnake within the MSHCP Conservation Area. This strategy requires conservation of both the Wildlife Area/Lake Perris (Existing Core H) and Badlands (Proposed Core 3) (Dudek 2003b). Since the proposed Land Use Alternatives could impact Proposed Core 3, impacts to this species have been assessed as significant.
Orangethroat Whiptail	The Orangethroat Whiptail may experience an alteration in its local distribution or known range in the area through the loss of suitable and occupied habitat (particularly within the Badlands). More than 50% of historic occurrences of the Orangethroat Whiptail in western Riverside County are presumed extirpated due to loss of habitat. The remaining range seems to be tied to Coastal Sage Scrub adjacent to floodplains or terraces along streams occurring in western Riverside County (Dudek 2003b). Comparable to the horned lizard, MSHCP conservation of this species relies upon conservation within Core Areas of the Conservation Area including the Badlands (Core 3) and Box Springs Mountain (Existing Noncontiguous Habitat Block A and Constrained Linkage 8). Potential range/distribution impacts within these areas under the proposed Land Use Alternatives would be significant.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
San Diego Banded Gecko	MSHCP conservation for the San Diego banded gecko will be achieved by the inclusion of suitable Conserved Habitat within 7 Core Areas which are composed of large blocks of habitat within the MSHCP Conservation Area. The MSHCP key areas include locations where granitic rock outcrops are present in scrub or Chaparral habitats (Dudek 2003b). The rocky outcrops in the higher elevations of Moreno Valley are not as vulnerable to development as low-lying areas; therefore, this reptile is expected to persist in these areas, regardless of the proposed project. However, since this species is addressed by the regional planning effort and calls for conservation within Core and Criteria Areas, some of which (*e.g.*, Core Area 3 in the Badlands) maybe impacted by the proposed Land Use Alternatives, impacts are considered significant.
San Diego Horned Lizard	MSHCP conservation of this species relies upon conservation within Core Areas of the Conservation Area including the Badlands (Core 3) and Box Springs Mountain (Existing Noncontiguous Habitat Block A and Constrained Linkage 8). Under the proposed Land Use Alternatives impacts may occur within these areas. A serious threat to the San Diego Horned Lizard is the progressive elimination of its food base by exotic ants that have invaded upland habitats. Since the invasive ants are known to expand in association with development, and there has been no effective, large-scale method of control yet developed, impacts to San Diego Horned Lizard may be significant under build-out conditions.
American Bittern	Impacts to the American Bittern have been assessed where this species may intermittently occupy Riparian Scrub; however, impacts to known nesting sites and MSHCP key areas (San Jacinto Wildlife Area/Mystic Lake) are not anticipated under the MSHCP. The proposed Land Use Alternatives are not expected to effect MSHCP conservation of this species, nor would the species' range be restricted or population viability be reduced; thus, impacts are not significant.
Bell's Sage Sparrow	Lovio (1999) found Bell's Sage Sparrow to be the most sensitive to habitat fragmentation of 31 nesting species in southwestern San Diego County. During initial studies, the smallest fragment of habitat in which Lovio found the species was 160 hectares (about 400 acres) (Lovio 1999). MSHCP areas with the Planning Area proposed for conservation (for this species) include Box Springs Mountain and the Badlands (Dudek 2003b). Conservation of Criteria Areas within these Cores would allow for preservation of the species through habitat preservation and avoidance or minimization of edge effects. However the proposed Land Use Alternatives have potential to result in impacts within these areas that could hinder or prevent conservation through habitat loss and increased edge effects. These impacts would be significant.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Black-crowned Night Heron	Impacts to this Heron have been assessed where this species may occupy Riparian Scrub. Inclusion of suitable primary breeding and foraging habitat and secondary foraging habitat will achieve MSHCP conservation of this species. The core known or potential breeding locations within the Planning Area are limited to Mystic Lake/San Jacinto Wildlife Area, which is not proposed for impacts. Thus, the proposed Land Use Alternatives are not expected to effect MSHCP conservation of this species, nor would the species' range be restricted or population viability be reduced and impacts would, correspondingly, not be significant.
Burrowing Owl	The MSHCP Conservation Area will provide adequate habitat for foraging and breeding and includes conservation of Criteria Areas within Box Springs Mountain, Lake Perris/Mystic Lake, and the Badlands (Dudek 2003b). The MSHCP conservation strategy also includes pre-construction surveys of potential habitat areas and conservation as appropriate until sufficient conservation is attained because it occurs in grassland habitats that are not relatively abundant within the MSHCP Conservation Area and the distribution of the species within the Plan Area is not well known (Dudek 2003b). Due to the potential for impacts to this species within extensive habitats that may be necessary for conservation, impacts are considered significant.
California Gnatcatcher	The MSHCP conservation strategy for this species involves preservation of both suitable habitat and Core Areas within large blocks of habitat and connections of these Core Areas (Dudek 2003b). Areas occupied by the gnatcatcher but not constituting a Core Area that will be conserved include…the Badlands, which provide connectivity into San Bernardino County (Dudek 2003b). Stepping stone reserves conserve some locations of gnatcatchers and connect some of the smaller numbers of gnatcatchers which do not comprise core populations including, Sycamore Canyon Regional Park which is connected by Box Springs Mountains to Highgrove by either very narrow drainages or stepping stone reserves (Dudek 2003b). Impacts to criteria areas within the Badlands or Box Springs Regional Park would be significant due to the species status, critical habitat designations, and the potential to preclude conservation under the MSHCP.
California Horned Lark	Although impacts to this species would be expected due to the loss of foraging and nesting habitat, several large blocks of habitat supporting the current known and potential foraging and nesting locations of the horned lark will be conserved as Criteria Area and Public/Quasi- Public lands within the MSHCP Conservation Area, including the Mystic Lake/San Jacinto Wildlife Area. Since the proposed Land Use Alternatives do not conflict with this conservation strategy, impacts are not considered significant.
Coastal Cactus Wren	The conserved MSHCP Core Areas for this species include (but are not limited to) the suitable and occupied habitat within the Criteria Area and Public/Quasi-Public designations in the Badlands, Box Springs Mountains, and Lake Perris/Bernasconi Hills (Dudek 2003b). The Lake Perris Core Area is within the low hills between the San Jacinto Wildlife Area and Mystic Lake (and within the Bernasconi Hills)(Dudek 2003b). Conservation of the cactus wren also requires species-specific conservation measures within the Core Areas of the MSHCP Conservation Area via a number of methods. Impacts to these Core Areas may result under the proposed Land Use Alternatives and the impacts would be significant.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Cooper's Hawk	Several large blocks of habitat supporting or potentially supporting the hawk will be conserved as Criteria Area and Public/Quasi-Public designations, including the San Jacinto Wildlife Area-Lake Perris and the Badlands (Dudek 2003b). The Badlands area provides a major habitat block and linkage to Potrero Creek, Lake Perris and Mystic Lake/San Jacinto Wildlife Area, and to San Timoteo Creek (Dudek 2003b). Thus, impacts within the Badlands that could result following implementation of the proposed Land Use Alternatives would be significant.
Ferruginous Hawk	Large blocks of habitat supporting the current known and potential foraging locations of the Ferruginous Hawk will be conserved as Criteria Area and Public/Quasi-Public including San Jacinto Wildlife Area/Mystic Lake and surrounding playa Habitat and the Badlands (Dudek 2003b). Due to the potential for impacts to suitable habitat within these areas under the Policy Amendment, significant impacts have been assessed
Golden Eagle	Conservation of this species under the MSHCP calls for preservation of known nest sites, buffers, and areas which may contain potential nesting areas and contain potential and known foraging habitat, including the Badlands and Lake Perris and the surrounding environment (Dudek 2003b). Impacts to Criteria Areas in these areas would be significant impacts.
Great Blue Heron	This heron may be impacted through a loss of Riparian Scrub and/or open foraging habitats (Non-native Grasslands and Field/Croplands). However, comparable to the bittern and Black-crowned Night Heron, the MSHCP conservation strategy for this species would not be effecetd by the proposed Land Use Alternatives and impacts are therefore not significant.
Least Bell's Vireo	Several large blocks of habitat supporting or potentially supporting the vireo are within the Criteria Area and Public/Quasi-Public designations, including the Badlands (Dudek 2003b). The Badlands area provides a major habitat block that provides a linkage to Potrero Creek, Lake Perris, San Jacinto Wildlife Area and continuing north into San Bernardino County (Dudek 2003b). Impacts to this area are possible under the Land Use Alternatives; thus, significant impacts could occur.
Loggerhead Shrike	MSHCP Core Areas where conservation of this species will focus include Lake Perris/Mystic Lake/San Jacinto Wildlife Area (Existing Core H) and the Badlands (Proposed Core 3) (Dudek 2003b). For the shrike, conservation of the Badlands is important for maintaining connectivity between the lowlands and Cherry Valley/Banning (Dudek 2003b). Due to the potential for impacts within the Badlands, impacts to this species would be considered significant.
Merlin	Several large blocks of habitat supporting the known and potential foraging locations of the Merlin will be conserved as MSHCP Criteria Area and Public/Quasi-Public, including the Mystic Lake/ San Jacinto Wildlife Area. Although impacts to this species have been assessed outside of the San Jacinto Wildlife Preserve-Mystic Lake Section, these impacts would not be significant, as significant numbers of Merlins are not anticipated to occur within these areas. Within the San Jacinto Wildlife Preserve-Mystic Lake Section impacts are not expected.
Mountain Plover	The MSHCP address conservation of this species through preserving a block of well connected habitat supporting the current known locations, and several smaller blocks of habitat supporting potential foraging habitat as Criteria Area and public/quasi public, including the Mystic Lake/ San Jacinto Wildlife Area with adjacent playa habitat, and San Jacinto River floodplain, and playas west of Hemet as the primary focus areas and the grassland adjacent to Lake Elsinore, Lake Skinner/Diamond Valley Lake, and Lake Mathews as other potential habitat areas. The proposed Land Use Alternatives

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
	support this strategy through designation of virtually all of the San Jacinto Wildlife Preserve-Mystic Lake Planning Area Section as Floodplain. Taking the MSHCP into consideration, impacts would not be significant.
Northern Harrier	MSHCP conservation will focus on several large blocks of habitat including foraging and nesting locations conserved as Criteria Area and Public/Quasi-Public designations, including the Mystic Lake/San Jacinto Wildlife Area and Badlands (Dudek 2003b). Impacts within the Badlands would be significant.
Prairie Falcon	MSHCP Conservation Area will provide adequate habitat for nesting and foraging including the San Jacinto Wildlife Preserve area (Dudek 2003b). Since the proposed Land Use Alternatives do not conflict with the MSHCP conservation strategy, impacts are not anticipated to be significant.
Peregrine Falcon	MSHCP Conservation Area will provide adequate habitat for including the San Jacinto Wildlife Preserve area (Dudek 2003b). Since the proposed Land Use Alternatives do not conflict with the MSHCP conservation strategy, impacts are not anticipated to be significant.
Sharp-shinned Hawk	Several large blocks of habitat supporting or potentially supporting this hawk will be conserved within the Criteria Area and Public/Quasi-Public lands, including the Mystic Lake/San Jacinto Wildlife Area, Box Springs, and the Badlands (Dudek 2003b). Potential impacts within the Box Springs Regional Park and Badlands Criteria Areas would be significant.
Southern California Rufous-crowned Sparrow	Several large blocks of Habitat supporting the Southern California Rufous-crowned Sparrow will be conserved within Criteria Area and Public/Quasi-Public designations, including the Core Areas at Box Springs Mountains, Lake Perris, and the Badlands (Dudek 2003b). Impacts to these areas targeted for conservation would be possible under the Land Use Alternatives and these impacts would be significant.
Southwestern Willow Flycatcher	The flycatcher may occur within riparian habitats, although the potential for resident flycatchers is low. Nevertheless, due to the species' specialized habitat requirements, all known populations should be considered critical. Box Springs Mountain has smaller riparian systems that contain potentially suitable habitat and could be occupied in the future. Small habitat patches and sites with small numbers are likely to be as important as the large sites (Dudek 2003b). Due to the importance of any habitat to recovery of the species, any impacts are significant.
Swainson's Hawk	The large blocks of potentially suitable habitat which will be conserved for this hawk include the San Jacinto Wildlife Area/Mystic Lake and surrounding playa Habitat, Box Springs Mountain, and the Badlands (Dudek 2003b). Due to the potential for impacts to suitable habitat within these areas under the Policy Amendment, significant impacts have been assessed.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Tricolored Blackbird	Several large blocks of Habitat supporting the historic breeding locations with currently suitable habitat, potential nesting colony areas, and potential foraging locations of the Tricolored Blackbird will be conserved as Criteria Area and Public/Quasi-Public Lands, including the Mystic Lake/San Jacinto Wildlife Area. Areas of potential foraging habitat, including grassland and agriculture land, are including within or adjacent to these areas that are, or have been, identified as breeding colony locations. Other large blocks of habitat that may provide foraging and nesting opportunities include (but are not limited to) the Badlands (Dudek 2003b). Impacts are not anticipated within the San Jacinto Wildlife Preserve itself, but impacts may occur on adjacent Field/Croplands potentially used for foraging. These impacts would be significant if they preclude achievement of the conservation strategy.
Turkey Vulture	Several large blocks of habitat supporting the current known and potential foraging and nesting locations of the turkey vulture will be conserved as criteria area and Public/Quasi-Public designations, including Rawson Canyon and the Bernasconi Hills area (Dudek 2003b). Special conservation measures specific to the Turkey Vulture will be required by the MSHCP including protection of nest sites from human disturbance during the nesting season (Dudek 2003b). Since the Planning Area is not known to support nesting vultures and adequate foraging habitat would be conserved through the MSHCP, outside of the Planning Area, significant impacts are not anticipated.
Yellow-breasted Chat	Areas not documented as MSHCP Core Areas but that contain scattered point locations and/or provide potential chat suitable habitat include (but are not limited to) the Badlands and the Mystic Lake/San Jacinto Wildlife Area (Dudek 2003b). The Badlands area provides a major Habitat block or proposed core that provides a connection to Potrero Creek and the Lake Perris area and Mystic Lake/San Jacinto Wildlife Area (Dudek 2003b). The MSHCP Conservation Area is slated to provide adequate linkages between Core Areas and smaller drainages that may support small numbers of the species. The proposed Land Use Alternatives could impact chat conservation within the Badlands; these impacts would be significant.
Yellow Warbler	According to the MSHCP species account, "the Badlands area provides a major Habitat block that provides a linkage to Potrero Creek, Lake Perris/Mystic Lake, and San Jacinto Wildlife Area...Conservation of the small patches of riparian habitat and the sites containing small numbers of yellow warblers may contribute to the populations within the Plan Area (Dudek 2003b). The proposed Land Use Alternatives would allow for development within Criteria Areas of the Badlands which may be necessary for the conservation of the Yellow Warbler within the MSHCP Conservation Area; thus, impacts are significant.
White-tailed Kite	Several large blocks of Habitat supporting the current known nesting and foraging locations, wintering sites, and potential foraging and nesting locations of the white-tailed kite will be conserved as Criteria Area and Public/Quasi-Public designations, including the Lake Perris/Mystic Lake area (Dudek 2003b). The proposed Land Use Alternatives are not expected to preclude adequate conservation of this species, thus impacts are not anticipated to be significant.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Los Angeles Little Pocket Mouse	Conservation of this pocket mouse will be achieved by inclusion of suitable Conserved Habitat in the MSHCP Conservation Area. This includes key populations in the Planning Area within the Badlands, where an important complex has been identified for this species. The San Jacinto Wildlife Area-Lake Perris-Badlands-San Jacinto River complex includes important discrete pocket mouse locations, including Reche Canyon, Potrero Valley, and San Timoteo Creek. This habitat complex generally is contiguous, with the exception of four major roads: Gilman Springs Road between the San Jacinto Wildlife Area and the Badlands; Highway 79 between the northwestern portion of the Badlands and Potrero Valley; Highway 60 which bisects the Badlands; and Redlands Boulevard which also bisects the Badlands farther to the west. Construction of adequate culverts below some these roads may be needed to allow for pocket mouse movement within these areas. Impacts within this complex may result in significant impacts.
Mountain Lion	The configuration of the MSHCP reserve system to accommodate movement and dispersal of lions to areas such as the Santa Ana Mountains, Lake Mathews-Estelle Mountain, Lake Skinner-Diamond Valley Lake, the Badlands, and the San Bernardino Mountains is crucial. Habitat linkages between these Core Areas will be important for accommodating movement and dispersal (Dudek 2003b). The Badlands provide a northwest-southeast movement corridor connected to the San Jacinto Wildlife Area-Lake Perris to the south, the San Jacinto Mountains to the southeast and the San Bernardino Mountains to the north. The Badlands reserve area would be comprised of Criteria Area, Public/ Quasi-Public lands and rural mountainous designation areas. Significant obstacles to large mammal movement along the Badlands are Highway 60 and Lamb Canyon (Highway 79) (Dudek 2003b). Impacts to this Core Area may be significant for Mountain Lion.
Northwestern San Diego Pocket Mouse	The largest intact habitat complex for this pocket mouse is the Badlands-San Jacinto Mountain foothills-Agua Tibia Wilderness complex, which comprises approximately the eastern one-third of the Plan Area. Continuous habitat for the woodrat runs from the northwest extent of the Badlands north of Moreno Valley south to the foothills of the San Jacinto Mountains in the area of Sage and farther south to the Agua Tibia Wilderness and the Cahuilla and Anza valleys (Dudek 2003b). It should be noted that a substantial amount of the Badlands habitat is designated rural mountainous, which will provide some habitat for the pocket mouse, but which will not be managed as habitat (Dudek 2003b). Given the steep topography in the Badlands, it is highly likely that the majority of the area will remain undeveloped and remain suitable for the pocket mouse; however, significant impacts could occur here through residential development.
San Bernardino Kangaroo Rat	Conservation of the San Bernardino Kangaroo Rat will be achieved by inclusion of suitable Conserved Habitat in the MSHCP Conservation Area. The proposed Land Use Alternatives are not anticipated to effect this conservation strategy and thus, any impacts have been considered less than significant. However, per the MSHCP, additional surveys would be required within portions of the Planning Area (based on Dudek 2003a, Figure 6-5), prior to subsequent development, to conform to the MSHCP Additional Survey Needs and Procedures.

TABLE 5.9-8
IMPACTS TO MSHCP COVERED SPECIES

MSHCP Covered Species subject to Potential Impacts	Impacts to Species
San Diego Black-tailed Jackrabbit	The MSHCP Conservation Area includes large habitat areas and adequate habitat linkages that will allow for the natural fluctuations in population densities and distribution of the jackrabbit, including (but not limited to) the Badlands-San Jacinto River (Dudek 2003b). Impacts to suitable habitats within Criteria Areas of the Badlands may result in significant impacts.
San Diego Desert Woodrat	Conservation for the woodrat will be achieved by inclusion of suitable Conserved Habitat in the MSHCP Conservation Area, Including large habitat blocks and linkages that are suitable for occupation by the woodrat in four major habitat complexes (Dudek 2003b). The largest intact habitat complex for the desert woodrat is the Badlands-San Jacinto Mountain foothills-Agua Tibia Wilderness complex, which comprises approximately the eastern one-third of the Plan Area. Continuous habitat for the woodrat runs from the northwest extent of the Badlands north of Moreno Valley south to the foothills of the San Jacinto Mountains in the area of Sage and farther south to the Agua Tibia Wilderness and the Cahuilla and Anza valleys (Dudek 2003b). Impacts to Core Areas within this complex would be significant.
Stephens' Kangaroo Rat	Although the Stephens' Kangaroo Rat is listed under the ESA, the Habitat Conservation Plan (HCP) for the Stephens' Kangaroo Rat in Western Riverside County provides an avenue for legal "take" of this species, if the HCP's conditions and requirements are met (RCHCA 1996). Expansion of the MSHCP Conservation Area under the MSHCP would increase the amount of Conserved Habitat by at least 3,200 acres in the two new Core Areas and by several thousand acres in smaller scattered patches throughout the MSHCP Conservation Area. Impacts to this species would be considered significant, as it is a listed species.

TABLE 5.9-9
IMPACTS TO NON-COVERED SPECIES

Non-MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Coastal Rosy Boa	The Coastal Rosy Boa is also a Special Animal with a restricted range, but its CNDDB ranking indicates the species is apparently secure. Planning Area impacts to this species are not expected to reduce its range or effect population viability; thus, they are not significant.
Coast Patch-nosed Snake	Extensive areas in coastal southern California with a shrubby habitat structure that are suitable for the Coast Patch-nosed Snake have been converted through various land uses to habitats largely unsuitable to this species. However, a large amount of suitable habitat still exists in the Planning Area region and the species is expected to persist. Impacts are not anticipated that would reduce population levels below viability or reduce the species range and thus impacts are not significant.
San Bernardino Ringneck Snake	Although the San Bernardino Ringneck Snake may experience an alteration in local distribution pattern in the area through the loss of suitable and occupied habitat within the Badlands, this species' range is not expected to contract. Proposed designation of the Badlands as Rural Residential requires that properties with slopes greater than 25% maintain 60% of the area in open space. This restriction is expected to maintain suitable habitat for the ringneck. And impacts would not be significant.
Silvery Legless Lizard	The Silvery Legless Lizard's fossorial existence in substrates with a high sand content renders it vulnerable. This species has probably disappeared from 20% of the area within its known California historic range (California Department of Fish and Game Habitat Conservation Planning Branch 2000d). It is believed that legless lizards cannot survive in urbanized, agricultural, or other areas where a loose substrate in which to burrow has been removed or radically altered; however, this species may persist in agricultural areas where suitable substrate persists. Currently, there is limited availability of suitable habitats for the legless lizard within the project area, and no specific locations of population sites have been documented in Moreno Valley; therefore, impacts to this species are not expected to be significant
Allen's Hummngbird	Allen's Hummingbirds were recently added to the CDFG Special Animals list but their status remains relatively low. They are known to utilize a variety of habitats and are relatively urban-tolerant making them less susceptible to impacts. Impacts to this species would not effect the regional population of species range and would not be significant.
Black-chinned Sparrow	Potential impacts to the Black-chinned Sparrow may occur through loss of suitable habitats, particularly large blocks of Coastal and Riversidean Sage Scrub and/or Chaparral. It has been consistently reported within Breeding Bird Survey data from the region and is expected to persist within the Moreno Valley area in moderate numbers within suitable habitat. The Black-chinned Sparrow is listed on the 2001 Draft Birds Species of Special Concern list for California (CDFG 2001d, CDFG and PRBO 2001). The Black-chinned Sparrow may be less susceptible to potential habitat loss impacts than other

TABLE 5.9-9
IMPACTS TO NON-COVERED SPECIES

Non-MSHCP Covered Species subject to Potential Impacts	Impacts to Species
	local passerines because of an apparent preference for steep sloping terrain, which supports suitable sage scrub and Chaparral habitats. This terrain generally limits the allowable density under build-out and is less attractive to developers; thus, it is not under as severe development pressure. Impacts to this species are not expected to be significant due to their habitat preferences and the limited allowable density of development therein.
California Thrasher	California Thrasher was recently added to the CDFG Special Animals list, but is considered to be a low sensitivity species. Due to this species ability to occupy a variety of sites, use of habitats that may be less intensely developed due to slope constraints, and relative tolerance of fragmentation, the species is expected to persist in the area without significant impacts to population viability and/or range.
Great Egret	The Breeding Bird Survey population results for California Great Egrets display significant increasing trends (Sauer *et al.* 2000). Impacts to Great Egret through loss of riparian habitat are not expected to be significant. The Moreno Valley area's limited Riparian Scrub habitats are not known to support substantial breeding populations of this species, and there is no indication that impacts to the species within the Planning Area would constitute a substantial loss to the regional or overall populations.
Lawrence's Goldfinch	The Breeding Bird Survey data indicate that the population trend for the Lawrence's Goldfinch in California may be declining but the trend is not significant; furthermore, the trend for the species in southern California grasslands indicates an increase (Sauer *et al.* 1999). It has not been included on the Draft Bird Species of Special Concern list for California and does not appear to be subject to imminent threats, particularly within the western Riverside County area. Impacts to Lawrence's Goldfinch through loss of riparian habitat are not expected to be significant. The Moreno Valley area's limited Riparian Scrub habitats are not known to support substantial breeding populations, and there is no indication that impacts within the Planning Area would constitute a substantial loss to the regional or overall populations.
Lark Sparrow	This species is only maintains sensitivity for nesting sites. It is expected within the Planning Area in moderate densities where grasslands or fields retain shrubs, trees, or fence posts for perching. The Planning Area population is not known to be significant, nor is it at the edge of the species' range. Loss of individuals due to the proposed Land Use Alternatives would not be significant.
Pacific-slope Flycatcher	This relatively ubiquitous species was recently listed by CDFG as a Special Animal and is a Federal Species of Concern. It is typically associated with riparian forest and is not expected in the Planning Area in significant numbers. Impacts would not alter the species range or population on a regional or species-wide level and are not considered significant.
Rufous Hummingbird	The Rufous Hummingbird would only be expected on a migrant basis. The Partners in Flight priorities indicate that threats to this hummingbird in its non-breeding range are not high (Partners In Flight Bird Prioritization Technical Committee 1998). Impacts are not expected to be significant due to the lack of potential range or population viability impacts.

TABLE 5.9-9
IMPACTS TO NON-COVERED SPECIES

Non-MSHCP Covered Species subject to Potential Impacts	Impacts to Species
Snowy Egret	According to the Breeding Bird Survey, Snowy Egret displays significant increasing population trends for California (Sauer *et al.* 2000). Impacts to Snowy Egret are not expected to be significant. The Planning Area is not known to support a substantial breeding population and there is no indication that impacts would constitute a substantial loss to the regional or overall populations.
Short-eared Owl	The Short-eared Owl has CDFG Species of Special Concern status, but only for nesting sites. The Short-eared Owl is declining due to loss of open grassland habitat. The species is also vulnerable to depredation by skunks, feral cats and dogs, especially during nesting. The Short-eared Owl only occurs in the Moreno Valley area as a wintering or migrating species [Muehter, V. R. (ed.) 1998]. While threats to the non-breeding season habitat are imminent, the species' widespread wintering range likely decreases susceptibility. Due to the widespread wintering range of the species, the lack of evidence of significant wintering populations in the Moreno Valley area, and sensitivity status for nesting areas only, impacts are not expected to be significant.
Yellow-headed Blackbird	Impacts to Yellow-headed Blackbird would be confined to foraging area impacts, and it is believed that adequate amounts of foraging habitat will remain throughout the region despite the implementation of any of the Land Use Alternatives.
California Pocket Mouse	The California Pocket Mouse occupies a variety of habitats, but its range within Western Riverside is poorly documented or understood. Relatively abundant numbers of this species have been recorded within suitable habitat. No significant populations for this species have been identified within or adjacent to Moreno Valley, and as such, no significant impacts have been assessed.
Southern Grasshopper Mouse	The Southern Grasshopper Mouse may experience an alteration in local distribution or known range in the area through the loss of suitable and occupied habitat within the Badlands. The Southern Grasshopper Mouse is restricted to coastal Southern California, with marginal records for Mint Canyon west of Palmdale, San Fernando, Riverside, Valle Vista, Warner Pass, La Puerta Valley, Jacumba, Santee Mountains, and the mouth of the Tijuana River Valley (Hall 1981). It has also been reported from Reche Canyon (2004b). Development in the Moreno Valley area may restrict the eastern range of this species and extirpate populations within the Planning Area. Although development in the Badlands would restrict development densities and the amount of overall habitat conversion within steep slopes, areas of flatter terrain (which this species prefers) may become subject to greater development pressure. This species is found in low numbers and requires a large home range, making it susceptible to habitat fragmentation (2004a). Thus, the persistence of smaller areas of steep terrain is not expected to be sufficient to maintain the Planning Area population. This loss would constitute a loss of a significant portion of the species range and would be significant.
American Badger	American Badger populations have declined drastically in California within the last century, and they have been extirpated from many areas in southern California (California Department of Fish and Game Habitat Conservation Planning Branch 2000). Agricultural and urban developments have been the primary causes of decline and extirpation of populations of badgers in California. No current data exist on the status of American Badger populations in

TABLE 5.9-9
IMPACTS TO NON-COVERED SPECIES

Non-MSHCP Covered Species subject to Potential Impacts	Impacts to Species
	California, but they have obviously declined or disappeared in large sections of the state, particularly areas west of the Cascade-Sierra Nevada mountain axis and in coastal basins of southern California (CDFG Habitat Conservation Planning Branch 2000a). Loss of large expanses of grassland habitats and other anthropogenic influences are associated with this species' decline. As habitat becomes more fragmented, it will become increasingly difficult for badgers to disperse to suitable habitat. Impacts to native habitats suitable for badger occupation may occur within the Badlands. However, based on review of the City's Slope analysis for these areas, much of the Badlands will be subject to steep slope development regulations which will provide a measure of protection to this species through preservation of 35-60% open space.
Ringtail	Ringtails have a decided preference for Chaparral, rocky hillsides, and riparian areas (Belluomini 1980). Although riparian areas are being degraded throughout the state, ringtail populations do not appear to be threatened at present. Abundance data suggest that ringtail numbers are either stable or increasing (Orloff 1980). Impacts have been assessed as not significant.

proposed Land Use Alternatives due to the potential for loss of large tracts of Non-native Grassland, Riversidean Sage Scrub, and Field/Croplands.

In the Box Springs Mountain area, under Alternative 1, the loss of large areas of Non-native Grassland and Riversidean Sage Scrub could result in potential impacts to raptor foraging and wintering habitat. Impacts to raptors could potentially occur under Alternative 2 or 3, but they would not be as extensive as those allowed under Alternative 1.

Impacts to raptor foraging habitat could occur where Field/Croplands are proposed for designation as Residential, Business Park, Commercial, Office, or Mixed Use in the eastern half of the North-Central Section, the northern and western portions of the San Jacinto Wildlife Area-Mystic Lake Section, the northwestern corner of the Lake Perris SRA Section, the southern portion of the East March AFB Section, and the eastern half of the Central Section.

In the Norton Younglove Section raptor foraging habitat loss could occur as the result of Riversidean Sage Scrub, Non-native Grassland, or Field/Croplands habitats being designated as Residential. In the Gilman Springs Road-Badlands Section the situation is similar; the loss of large areas of Non-native Grassland and sage scrub could result in impacts to resident, migrant, and wintering raptors.

Although, potential raptor foraging and wintering impacts are expected to be significant; these impacts have been addressed both on a habitat basis and a species basis, where sensitive species would be affected, and addressing them separately (in terms of additional mitigation) would be redundant. Furthermore, impacts to raptor species have been addressed by the MSHCP, which provides coverage for Cooper's Hawk, Ferruginous Hawk, Golden Eagle, Merlin, Northern Harrier, Peregrine Falcon, Prairie Falcon, Sharp-shinned Hawk, Swainson's Hawk, and White-tailed Kite. Therefore, application of mitigation measures would reduce raptor foraging impacts to a level below significant.

Impacts to Federal or State Listed Species or Designated Critical Habitat

Significant impacts to Western Snowy Plover are not anticipated under the any of the three land use alternatives. The Western Snowy Plover is expected within the Alkali Playa habitat of the San Jacinto Wildlife Area-Mystic Lake Section, which is proposed for designation as Floodplain and is not expected to be subject to increased development pressure.

All other listed species impacts and impacts to designated critical habitat have been previously addressed (see Tables 5.9-8 and 5.9-9).

Stephens' Kangaroo Rat Habitat Conservation Plan (HCP) Core Reserve Impacts and Mitigation

Portions of the San Jacinto Core Reserve and Potrero ACEC Core Reserve for the Stephen's kangaroo rat lie within and/or adjacent to the planning area. Core areas with the potential for impacts have been identified by comparing Figure 21 of the Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County (RCHCA 1996) and the proposed Land Use Policy Maps (Alternatives 1-3).

No habitat loss impacts within the Potrero ACEC Core Reserve are anticipated under any of the three proposed land use alternatives, but other core reserve areas immediately adjacent to the planning area boundary may experience indirect impacts.

Under the three proposed land use alternatives, there is a Commercial designation along the eastern boundary of the San Jacinto Core Reserve. On the reserve's northwestern edge, where the core reserve extends westward from Lake Perris State Recreation Area (SRA) into city lands, the area is proposed for Open Space designation. It is believed, that the Open Space designation follows the reserve boundary and no habitat loss impacts are anticipated within the reserve. Indirect impacts could occur where an area bordering a reserve is currently vacant and has a proposed designation that would allow for development. This is the case to the north of the San Jacinto Core Reserve boundary. This potential for development and impacts discussed above does not differ between the three General Plan land use alternatives.

Approval and implementation of the HCP in 1996 was based on the determination that the HCP would conserve the kangaroo rat within the western Riverside County area covered by the plan (Dudek 2003b). Thus, impacts that occur outside of the reserve, albeit adjacent, are not considered to be significant.

The HCP states that a regionally important corridor for the rat exists from San Jacinto-Lake Perris east past Gilman Springs Road to the Badlands (RCHCA 1996). There have been a series of recent land acquisitions by the State of California that established substantial corridors between these areas and as such, implementation of any of the three proposed General Plan land use alternatives would not be expected to have a significant impact on the corridor (City of Moreno Valley 2003). In addition, application of the mitigation measure that calls for implementation of the MSHCP, would enhance this corridor, thereby ensuring that impacts to the Stephen's Kangaroo Rat HCP remain at a level below significant.

San Jacinto Wildlife Area Impacts and Mitigation

Since the initiation of the biological review for the General Plan Update, the San Jacinto Wildlife Area has undergone several boundary adjustments. Most importantly, land north of the old boundary has been added to the area owned and managed by the California Department of Fish and Game (CDFG).

The proposed Land Use Alternatives do not show the 1,000 acre expansion of the San Jacinto Wildlife Area (SJWA) within the City limits because the area is subject to a development agreement that precludes the City from unilaterally changing the land use plan for that area. The land use designation is just a technicality. The SJWA is operated by CDFG for wildlife conservation purposes and Moreno Valley does not have jurisdiction over the area. It would not be subject to development, regardless of the designation or road alignments shown on the Moreno Valley General Plan. Therefore, none of the proposed land use alternatives would have a direct effect of the SJWA.

Increased traffic, associated with increased development, could occur in the area of the SJWA under each of the alternatives' build-out conditions. Roads have been implicated as hazards due to road kill for a number of species, as displacement factors affecting animal distribution and movement patterns, as population fragmenting factors, and as sources of deleterious edge effects (Noss 2002). While no new roads are expected in the SJWA, under the project examined herein, Gilman Springs Road would be expected to support a greater traffic volume.

Beyond the updated SJWA boundaries, lands to the north and east are zoned for residential and commercial development. The corresponding increase in human use, traffic, night lighting and water runoff could have collateral impacts on the flora and fauna within the SJWA.

The SJWA is part of one of the MSHCP core habitat reserves (Core H). The MSHCP was based on the assumption that areas outside of the core reserves would be developed and that such development would have indirect effects on the core reserves. The MSHCP includes guidelines to reduce the effects of development along the urban/wildlands interface (MSHCP Section 6.1.4). The MSHCP also includes planning criteria (Biological Considerations for Subunit 4 of the Reche Canyon/Badlands Area Plan) to provide for a wildlife corridor, between the SJWA and the adjacent Badlands to the north."

Implementation of the MSHCP would ensure that impacts to the SJWA remain at a level below significant.

MSHCP Conservation Area Core and Linkage/Wildlife Corridor Impacts and Mitigation

Impacts to MSHCP Cores and Linkages have been assessed based on the location of the Cores and Linkages and the conservation goals for these areas versus the potential for impacts under the proposed land use alternatives. The cores and linkages within the Reche Canyon/Badlands Area Plan include all of Constrained Linkage 8, a large portion of Proposed Core 3, a large portion of Proposed Linkage 4, and a small portion of

Existing Core H as described in the environmental setting portion of this section under the heading "MSHCP Conservation Area Cores and Linkages/Wildlife Corridors."

Constrained Linkage 8

Proposed Constrained Linkage 8 is comprised of upland habitats in the Pigeon Pass Valley and connects two existing Noncontiguous Habitat Blocks in the Box Springs Mountain area. Based on the proposed designation of the northwestern corner of the planning area as Hillside Residential (all alternatives) impacts could occur within the area, which could prevent full achievement of the conservation goals for this linkage. These impacts could be significant. However, application of the mitigation measure identified later in this section that calls for implementation of the MSHCP, would reduce the effects on the MSHCP to a level of less than significant.

Proposed Linkage 4

Proposed Linkage 4 is comprised of upland habitats in Reche Canyon, immediately north of the planning area. It does not overlap the planning area, but MSHCP text indicates that portions of the planning area contribute to the assembly of Proposed Linkage 4. Impacts within this area may interfere with achievement of the conservation goals for this linkage. Nevertheless, significant impacts could occur under build out conditions if the remaining native habitats were lost to residential development. Application of the mitigation measure, identified later in this section, that calls for implementation of the MSHCP, would reduce the effects on the MSHCP to a level less than significant.

Proposed Core 3

Proposed Core 3 (Badlands/Potrero) consists of private lands and some Public/Quasi-Public parcels on the eastern edge of the planning area. It is considered to be of high biological value both as a core and for its multiple linkage functions. Impacts to this area would include loss of native habitats to Rural Residential and Commercial development. These impacts could preclude establishment of the Core, which would be a significant impact. Application of the mitigation measure, identified later in this section, that calls for implementation of the MSHCP, would reduce the effects on the MSHCP to a level less than significant.

Existing Core H

Existing Core H is comprised of Lake Perris SRA, San Jacinto Wildlife Area, private lands and lands with pre-existing conservation agreements (Dudek 2003a). Significant impacts are not anticipated due to the proposed designation of much of the area as Floodplain and the expansion of the San Jacinto Wildlife Area.

Cumulative Impacts

The cumulatively considerable impacts to sensitive species within the planning area are discussed in Section *7.0 Cumulative Impacts* of this EIR.

MITIGATION MEASURES

The following measures have been developed to provide assurances that potential significant biological impacts associated with the implementation of the proposed General Plan Update will be mitigated. Subsequent project-level environmental review could identify more detailed site-specific mitigation measures.

B1. The City and all future public and private development projects within the City shall comply with the Long-term HCP for the Stephen's Kangaroo Rat.

B2. The City shall comply with the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and the associated state and federal permits.

B3. Where feasible, projects shall be designed to minimize impacts on sensitive habitat.

B4. Prior to physical disturbance of any natural drainage course or wetland determined to contain riparian vegetation or otherwise qualify as a "jurisdictional" wetland or Non-wetland Water of the U.S., the applicant shall obtain a Streambed Alteration Agreement and/or permit, or written waiver of the requirement for such an agreement or permit, from all resource agencies with jurisdiction over such areas (CDFG and ACOE).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant.

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6.0 ALTERNATIVES

In addition to the three General Plan Land Use Alternatives analyzed in the EIR, this section analyses other alternatives based on rationale provided in the CEQA Guidelines.

RATIONALE FOR ALTERNATIVES SELECTION

CEQA requires the consideration of alternative development scenarios and the analysis of impacts associated with the alternatives. Through comparison of these alternatives to the proposed project, the advantages of each can be weighed and analyzed. Section 15126.6 of the CEQA Guidelines requires that an EIR, "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

Additionally, Section 15126.6 of the Guidelines states:

- The specific alternative of "no project" shall also be evaluated along with its impact. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. (15126.6(e)(1)(2))

- . . . An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. . . . The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly discuss the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. . . Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii), infeasibility[1], or (iii) inability to avoid significant environmental impacts. (15126.6(a)(c))

[1] Section 15364 of the CEQA Guidelines defines feasible as follows: "'Feasible' means capable of being accomplished within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors."

Pursuant to CEQA Guidelines, a range of alternatives to the proposed project is considered and evaluated in this EIR. These alternatives were developed in the course of project planning and environmental review. The discussion in this section provides:

1. A description of alternatives considered;
2. An analysis of whether each alternative meets most of the basic objectives of the proposed project as described in Section 3.0 of this EIR; and
3. A comparative analysis of the alternatives under consideration and the proposed project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the project to a less than significant level.

ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION AND ANALYSIS

Alternative Location

The CEQA Guidelines recommend considering an alternative location to reduce potential impacts of a proposed project. The proposed General Plan is a plan guiding the growth and development of areas that are located within the jurisdiction of the City of Moreno Valley or its sphere of influence. Because no other lands are within the jurisdiction of the City of Moreno Valley, no alternative location is analyzed.

6.1 NO PROJECT/EXISTING GENERAL PLAN

This alternative is analyzed within this EIR as it is a required under CEQA Guidelines Section 15126.6(e). According to Section 15126.6(e)(2) of the CEQA Guidelines, the "no project" analysis shall discuss, " . . . what is reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." This alternative assumes that the Moreno Valley planning area would be developed according to the land use and circulation plans as well as the other policies and programs of the existing General Plan.

Description of Alternative

The No Project/Existing General Plan alternative considers the environmental impact associated with development per the City's existing General Plan. This alternative would also leave the existing General Plan in place as the City's primary policy document. The No Project/Existing General Plan Alternative has been analyzed throughout the EIR as Alternative 1. Therefore, no further discussion of this Alternative is needed in this section.

6.2 INCREASED PRESERVATION OF AGRICULTURAL LAND

Description of Alternative

This alternative is analyzed within this EIR as a means of preserving an increased amount of the remaining agricultural land (as compared to any of the proposed three General Plan alternatives) with the planning area, thereby reducing the impacts to agricultural resources. Preservation of some of the remaining agricultural land is also assumed to result in less population, and less residential and non-residential development. This alternative would implement other policies, plans and implementation programs of the proposed General Plan.

Comparison of Environmental Impacts of Increased Agricultural Land Preservation Alternative to Proposed Project Alternatives 1, 2, and 3

Land Use and Planning

Implementation of this alternative would not reduce nor avoid a significant impact to land use and planning as no significant land use and planning impact has been identified with the implementation of any of the proposed General Plan Alternatives 1, 2 or 3.

Traffic/Circulation

Implementation of this alternative would result in less development than would occur under any of the proposed three General Plan alternatives since more of the remaining agricultural land would be preserved. Therefore, this alternative would result in less daily trips within the planning area and less local traffic compared to any of the three proposed General Plan Alternatives 1, 2, or 3. However, prohibiting development on agricultural land could prohibit the construction of needed road improvements across the agricultural property and make it difficult to finance needed road improvements in other areas. While this alternative may generate less traffic on some streets, it would not generate less traffic for other streets and on a regional level. It would create a greater imbalance between local jobs and local households at buildout. Therefore, more workers would be commuting into Moreno Valley from surrounding areas. Preservation of agricultural land also would contribute to sprawl because growth, housing growth in particular, would be diverted to more remote parts of the region. Sprawl leads to greater dependence on automobiles, longer commutes, more freeway traffic and the associated air emissions and fuel consumption. Implementation of this alternative would not eliminate nor reduce the traffic impacts to a level less than significant.

Air Quality

Less development would occur and fewer local daily trips would be generated within the planning area than would be under any of the three proposed General Plan alternatives. The reduced number of daily trips and reduction in urban development would result in less local air emissions. While this alternative may generate less air pollution on a local level, it would not affect regional air quality. Preservation of agricultural land would contribute to sprawl because growth would be diverted to other parts of the region. Sprawl leads to greater dependence on automobiles, longer commutes, more freeway traffic and associated increases in air emissions. Agricultural operations would also continue to impact the air quality within the planning area in terms of dust from the fields and the use of farming machinery. Therefore, implementation of this alternative would result in a similar air quality impact as would any of the three proposed General Plan alternatives. This alternative would not eliminate or reduce the air quality impact to a level less than significant.

Noise

Generally, the primary noise sources within the City associated with urban developed areas include vehicular traffic along roadways, commercial and industrial centers, construction noise, and property maintenance activities. Since this alternative would result in preservation of all remaining agricultural land within the planning area, this alternative would generate less local traffic than any of the three proposed General Plan alternatives would. The noise sources associated with agricultural activities would include the use of farming machinery. Therefore, implementation of this alternative would result in less of a noise impact than would occur under any of the three proposed General Plan alternatives.

Hazards and Hazardous Materials

Implementation of this alternative would not eliminate nor reduce a hazards and hazardous materials impact as no significant hazards and hazardous materials impact has been identified with the implementation of any of the proposed three General Plan alternatives.

Geology and Soils

Implementation of this alternative would result in preservation of more agricultural land within the planning area as compared to any of the three proposed General Plan alternatives. As a result, this alternative would result in fewer structures and people exposed to geologic hazards. This alternative would result in less of an impact associated with geology and soils than would occur under any of the three proposed General Plan alternatives.

Hydrology and Water Quality

This alternative would result in less urbanization and impervious surfaces than would occur under any of the three proposed General Plan alternatives since this alternative would preserve more agricultural land. However, agricultural practices can introduce as much sediment, fertilizers and other chemicals into the drainage systems as urban uses. This alternative would result in a similar hydrology and water quality impact as Alternatives 1, 2, and 3.

Agricultural Resources

Under this alternative more agricultural land would be preserved as compared to any of the proposed three General Plan alternatives. However, some agricultural land would still be allowed to be developed. Under any of the other three proposed General Plan alternatives, all of the remaining agricultural land would be eventually developed. Therefore, this alternative would result in less of an impact associated with agricultural resources than would occur under any of the three proposed General Plan alternatives.

Biological Resources

This alternative would not result in any more preservation of natural habitat than would occur under any of the three proposed General Plan alternatives. However, under this alternative, more agricultural land would be preserved. Some of the preserved agricultural lands would serve as a buffer between wildlands and urban uses. Agricultural lands can also benefit some of the native plant and animal species residing on lands adjacent to the agricultural lands by offering open space and foraging areas, thereby increasing the likelihood of their long-term survival. Overall, implementation of this alternative would result in a less of an impact to biological resources than would occur under any of the three proposed General Plan alternatives. However, implementation of this alternative would not eliminate nor reduce the biological resources impacts to a level less than significant.

Cultural Resources

Under this alternative, more agricultural land would be preserved as compared to any of the proposed three General Plan alternatives. Although, no urban development would occur on these lands, the continued agricultural activities could also uncover buried cultural resources potentially occurring on those lands. Therefore, implementation of this alternative is anticipated to result in a similar cultural resources impact than would occur under any of the three proposed General Plan alternatives. As a result, this alternative would not eliminate or reduce the cultural resources impact to a level less than significant.

Aesthetics

Implementation of this alternative would result in preservation of more agricultural land when compared to any of the proposed three General Plan alternatives. This alternative would result in more aesthetically valuable open space than would occur under any of the three proposed General Plan alternatives. Therefore, this alternative would result in a less of an aesthetic impact than would occur under any of the three proposed General Plan alternatives. However, implementation of this alternative would not eliminate nor reduce the aesthetics impacts of to a level less than significant.

Population and Housing

Implementation of this alternative would not eliminate nor reduce any population and housing impact because no significant population and housing impact was identified with the implementation of any of the proposed three General Plan alternatives.

Public Services and Utilities

Under this alternative, more agricultural land would be preserved within the planning area as compared to any of the proposed three General Plan alternatives. Since the agricultural lands would not be developed, the need for public services and utilities on those lands would be minimal. As a result, this alternative would result in a less of a public services and utilities impact than would occur under any of the three proposed General Plan alternatives. However, implementation of this alternative would not eliminate nor reduce the public services and utilities impacts to a level less than significant.

Mineral Resources

Implementation of this alternative would not eliminate nor reduce any mineral resources impact because no significant mineral resources impact was identified with the implementation of any of the proposed three General Plan alternatives.

Conclusion

Implementation of the Increased Agricultural Land Preservation Alternative would result in: less impacts to local traffic, noise, geology and soils, hydrology, agricultural resources, biological resources, public services and utilities, and aesthetics; and similar impacts to air quality, water quality, and cultural resources. This alternative would also result in greater regional traffic impacts. Overall, this alternative is environmentally superior to the proposed project; however, it would not reduce any of the project alternative impacts to a level less than significant. This alternative would also result in less development, less economic activity and less local tax revenue. This alternative does not further the General Plan goals to achieve a community with "an orderly and

balanced land use pattern", "a healthy economic climate" and that "conserves natural resources while accommodating growth and development."

6.3 REDUCED DENSITY ALTERNATIVE

Description of Alternative

This alternative is analyzed within this EIR as a means of reducing the residential density on all residential lands in order to reduce population. This alternative would result in an approximately ten percent reduction in population compared to Alternative 2. With this alternative, the same amount of acres would be developed; however, the density of the development would be reduced. This alternative would implement the objectives, policies, and programs of the proposed General Plan.

Comparison of Environmental Impacts of the Reduced Density Alternative to Proposed Project Alternatives 1, 2, and 3

Land Use and Planning

Implementation of this alternative would not eliminate nor reduce a land use and planning impact as no significant land use and planning impact has been identified with the implementation of any of the proposed three General Plan alternatives.

Traffic/Circulation

Implementation of this alternative would result in less dense residential development than would occur under any of the proposed three General Plan alternatives. Therefore, this alternative would also result in fewer housing units and fewer daily local trips. As a result, this alternative would create less local traffic in some parts of the City compared to any of the three proposed General Plan alternatives. While this alternative may generate less traffic on some streets, it would generate more traffic on other streets and on a regional level. Reduced residential density would create a greater imbalance between local jobs and local households at buildout. Therefore, more workers would be commuting into Moreno Valley from surrounding areas. Reduced residential density would also contribute to sprawl because housing growth would be diverted to more remote parts of the region. Sprawl leads to greater dependence on automobiles, longer commutes, more freeway traffic and the associated air emissions and fuel consumption. Implementation of this alternative would not eliminate nor reduce the traffic impacts to a level less than significant.

Air Quality

Under this alternative all residential land would be developed with less dense residential development than would occur under any of the proposed three General Plan alternatives. Since this alternative would result in fewer housing units, fewer daily trips would be generated within the planning area. While this alternative may generate less traffic and air pollution on a local level, it would not positively affect regional air quality. Reduced residential density would contribute to sprawl because growth would be diverted to other parts of the region. Sprawl leads to greater dependence on automobiles, longer commutes, more freeway traffic and associated air emissions. Therefore, implementation of this alternative would result in an air quality impact similar to that of any of the three proposed General Plan alternatives. Implementation of this alternative would not eliminate of reduce the air quality impact to a level less than significant.

Noise

Generally, the primary noise sources associated with urban developed areas include vehicular traffic, commercial and industrial centers, construction noise, and property maintenance activities. Implementation of this alternative would result in less dense residential development than would occur under any of the proposed three General Plan alternatives. Therefore, this alternative would also result in fewer housing units and fewer daily trips within the planning area. As a result, implementation of this alternative would result in less noise than would occur under any of the three proposed General Plan alternatives. However, this alternative would not eliminate nor reduce the noise impacts to level less than significant.

Hazards and Hazardous Materials

Implementation of this alternative would not eliminate nor reduce a hazards and hazardous materials impact as no significant hazards and hazardous materials impact has been identified with the implementation of any of the proposed three General Plan alternatives.

Geology and Soils

Implementation of this alternative would result in less dense residential development than would occur under the any of the three proposed General Plan Alternatives. Therefore, fewer residential structures and people would be exposed to geologic hazards. This alternative would result in less of an impact associated with geology and soils than would occur under the proposed General Plan alternatives (with the exception of Alternative 2). However, this alternative would not eliminate nor reduce the geology and soils impacts to level less than significant.

Hydrology and Water Quality

Generally, this alternative would result in the same amount of land disturbance as would occur under any of the three proposed General Plan alternatives. This alternative would not reduce the area of residential development. As a result, this alternative would result in a similar hydrology/water quality impact as would occur under any of the three proposed General Plan alternatives. Implementation of this alternative would not eliminate or reduce the hydrology and water quality impact to a level less than significant.

Agricultural Resources

This alternative would not result in preservation of any more agricultural land than would occur under any of the three proposed General Plan alternatives. As with the three proposed General Plan alternatives, this alternative would allow the remaining agricultural land to be developed with urban uses. Therefore, this alternative would result in a similar impact associated with agricultural resources than would occur under other proposed General Plan alternatives (with the exception of Alternative 2). Implementation of this alternative would not eliminate or reduce the agricultural resources impact to a level less than significant.

Biological Resources

This alternative would not preserve any more biological habitat or agricultural areas used for foraging than would occur under any of the three proposed General Plan alternatives. Therefore, implementation of this alternative would result in a similar impact associated with biological resources to that occurring under any of the proposed General Plan alternatives (with the exception of Alternative 2). As a result, implementation of this alternative would not eliminate or reduce the biological resources impact to a level less than significant.

Cultural Resources

Generally, this alternative would result in the same amount of grading and land disturbance than would occur under any of the three proposed General Plan alternatives. This alternative would not reduce the area of residential development. As a result, this alternative would result in a similar cultural resources impact to that occurring under any of the three proposed General Plan alternatives. Implementation of this alternative would not eliminate or reduce the cultural resources impact to a level less than significant.

Aesthetics

This alternative would result in less dense residential development throughout the planning area than would occur under any of the three proposed General Plan alternatives. However, the allowed residential development would still cover the same

areas as with any of the three proposed General Plan alternatives. Therefore, this alternative is considered to result in a similar aesthetics impact as would occur under any of the three proposed General Plan alternatives. Implementation of this alternative would not eliminate nor reduce the aesthetics impacts to level less than significant.

Population and Housing

Implementation of this alternative would not eliminate nor reduce any population and housing impact because no significant population and housing impact was identified with the implementation of any of the proposed three General Plan alternatives.

Public Services and Utilities

Under this alternative, all residential land would be developed less densely than would occur under any of the proposed three General Plan alternatives. The reduction in population would in turn lessen the need for public services and utilities. Therefore, this alternative would result in a less of a public services and utilities impact than would occur under any of the proposed General Plan alternatives (with the exception of Alternative 2). However, this alternative would not eliminate nor reduce the public services and utilities impacts to a level less than significant.

Mineral Resources

Implementation of this alternative would not eliminate nor reduce any mineral resources impact because no significant mineral resources impact was identified with the implementation of any of the proposed three General Plan alternatives.

Conclusion

Implementation of the Reduced Density Alternative would result in: less impacts to noise, and geology and soils (with Alternative 1); similar impacts to traffic, air quality, hydrology and water quality, agricultural resources (with Alternative 1), biological resources (with Alternative 1), cultural resources, aesthetics, and public services and utilities. A reduction of residential density would reduce many of the impacts locally; however, implementation of this alternative could ultimately create development pressure and impacts on areas surrounding the City. This alternative is likely to result in greater regional traffic impacts. Overall, this alternative is not environmentally superior to the proposed three General Plan alternatives. The Reduced Density Alternative would also result in a greater imbalance between jobs and housing, less economic activity and less local tax revenue. This alternative does not further the General Plan goals to achieve a community "with an orderly and balanced land use pattern" and "a healthy economic climate."

7.0 CUMULATIVE IMPACTS

The California Environmental Quality Act requires the discussion of the cumulative impacts, growth-inducing impacts, and long-term impacts of proposed projects. The following sections address these issues as they relate to implementation of the City of Moreno Valley General Plan.

7.1 Cumulative Impacts

The California Environmental Quality Act Guidelines define cumulative effects as "two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts." The Guidelines further state that the individual effects can be the various changes related to a single project or the changes involved in a number of other closely related past, present, and reasonably foreseeable future projects (Section 15335). The Guidelines allow for the use of two alternative methods to determine the scope of projects for the cumulative impact analysis:

- List Method - A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.

- Regional Growth Projections Method - A summary of projects contained in an adopted general plan or related planning document or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact (Section 15130).

The Moreno Valley General Plan establishes policy to guide future development within the City and implementation is long-term in nature. The Regional Growth Projections Method is appropriate methodology in evaluating cumulative impacts because it provides general growth projections for the region and considers long-term growth. However, the pending general plan amendments described in *Section 3.0 Project Description* are also assumed in the cumulative analysis.

Regional Growth Projections

The Southern California Association of Governments (SCAG) estimates regional growth for the Riverside County area for the purposes of planning and public policy development. The most recent set of growth projections are provided in the *2004 Regional Transportation Plan (RTP) Growth Forecast*, an extensive analysis of the regional economic and demographic conditions. The *2001 RTP Growth Forecast*

provides estimates and forecasts of employment, population, and housing for the period between 2000 and 2030. According to SCAG projections (**Table 7-1**), the population of Moreno Valley is expected to increase by about 96,000 persons or approximately 67 percent between 2000 and 2030 to approximately 238,703 persons. The population of Riverside County is projected to increase by 1.29 million persons or approximately 70 percent between 2000 and 2030 to approximately 3,143,468 persons. The number of households is estimated to increase approximately 69 percent in Moreno Valley and 121 percent in Riverside County in the 2000 to 2030 period.

TABLE 7-1
PROJECTIONS FOR MORENO VALLEY
AND RIVERSIDE COUNTY, 2000 AND 2030

	Total Population		Households	
	2000	**2030**	**2000**	**2030**
City of Moreno Valley	142,655	238,703	39,264	71,619
Riverside County	1,850,231	3,143468	509,311	1,127,780

Source: SCAG, 2004 RTP Growth Forecast.

The following is a discussion of the cumulative impacts of the proposed General Plan. Implementation of the mitigation measures identified in the previous sections of this EIR will reduce the cumulative impact of the project to the extent feasible. In many cases, the mitigation measures result in reducing the project's cumulative impact to a less than significant level. For other impacts, the implementation of the identified mitigation measures will not avoid a significant cumulative impact. The following section also identifies those significant, unavoidable cumulative impacts that will not be reduced to a less than significant level by implementation of the identified mitigation measures.

Land Use and Planning

Development under any of the three General Plan alternatives will occur according to the recommended distribution and intensity identified in the Land Use Element. Future development will comply with adopted land use standards, policies, and ordinances and will be compatible with land uses in surrounding areas. The proposed General Plan will not result in any land uses or circulation routes that would physically divide established communities either within the City or in Riverside County. In addition, the General Plan contains policies and implementation programs intended to ensure that development is compatible with existing regional development plans. Therefore, implementation of any of the proposed General Plan alternatives will not contribute to a significant cumulative land use impact.

Traffic/Circulation

The combined effect of the City's proposed land use and transportation polices would reduce traffic volumes on most freeway and major arterial facilities within the City of Moreno Valley. In addition, pursuant to Section 15130(a)(3) of the CEQA Guidelines, a

project's contribution is less than cumulatively significant if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The City already has in place the Transportation Uniform Mitigation Fee Program (TUMF) and the Development Impact Fee Program (DIF), discussed in Section 5.2. The purpose of these fees is to establish a fair share contribution for new development in order to facilitate build-out of the planned circulation systems. Therefore, implementation of any of the three proposed General Plan alternatives would not contribute to a significant cumulative traffic impact in the region.

Air Quality

The South Coast Air Basin has some of the worst air quality problems in the nation. Despite implementing many strict controls, the basin still fails to meet state and federal air quality standards for four of the criteria pollutants including ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), and fine particulate matter (PM_{10}). Because the state and federal standards are not achieved, the basin is considered a "non-attainment" area for those pollutants. In accordance with federal Clean Air Act requirements, the State of California must submit a State Implementation Plan (SIP) to demonstrate how non-attainment areas will meet a number of federal health-based standards by specific deadlines. To bring the South Coast Air Basin in compliance with the SIP, the South Coast Air Quality Management District (SCAQMD) and Southern California Association of Governments (SCAG) adopted a revised Air Quality Management Plan (AQMP).

The development forecasted for the region will generate increased emissions levels from transportation and stationary sources. As described in *Section 5.3*, Alternative 1 is anticipated to generate over 57,838 pounds per day of PM_{10}, 26,196 pounds per day of ROG, 11,738 pounds per day of NO_X, and 116,908 pounds per day of CO. Similarly, Alternative 2 is anticipated to generate over 52,535 pounds per day of PM_{10}, 26,776 pounds per day of ROG, 10,814 pounds per day of NO_X, and 107,699 pounds per day of CO. Additionally, implementation of Alternative 3 would generate over 52,535 pounds per day of PM_{10}, 26,776 pounds per day of ROG, 10,814 pounds per day of NO_x, and 107,699 pounds per day of CO. Potential cumulative air quality impacts will be partially reduced by implementation and achievement of emissions levels identified in the Air Quality Management Plan (AQMP), County of Riverside General Plan, and General Plans of local jurisdictions. However, combined emissions from Moreno Valley and surrounding areas in the South Coast Air Basin are expected to continue to exceed state and federal standards for the foreseeable future. Therefore, cumulative impact to air quality is significant and unavoidable.

Noise

Anticipated regional development will increase traffic volumes and associated noise levels in the region. High noise levels already occur along many of the region's transportation corridors and implementation of any of the three proposed General Plan alternatives will generate additional vehicular traffic that would result in an incremental

increase in noise levels along these corridors. However, the incremental impact of the project is so small it would make only a negligible contribution to the cumulative impact with the region. Therefore, implementation of any of the three proposed General Plan alternatives would not contribute to a significant cumulative noise impact in the region.

Hazards and Hazardous Materials

As future development occurs within the City and the surrounding region, the population and activity level will rise and the number of people exposed to hazards related to the transport of hazardous materials will increase. However, the incremental impact of the project is so small it would make only a negligible contribution to the cumulative impact with the region. Enforcement of federal, state, county, and local hazardous material regulations will reduce public health hazards to a level less than significant. Other types of hazards would not compound or increase in combination with past, present or future projects. Therefore, implementation of any of the three proposed General Plan alternatives will not contribute to a significant cumulative hazards impact.

Geology and Soils

Future development in the region will increase the number of people exposed to seismic and geologic hazards. Erosion rates will be accelerated by earthwork for new construction. Such impacts are site specific and do not compound or increase in combination with past, present or future projects. Moreover, impacts related to these geologic conditions can be mitigated by implementation and enforcement of the local grading ordinance, standard structural regulations adopted and enforced by the City, and public safety policies and programs adopted by other jurisdictions. Geotechnical studies will be required for any future development projects to identify constraints and develop engineering parameters at a project-specific level. Therefore, implementation of any of the three proposed General Plan alternatives would not contribute to a significant cumulative impact associated with geology and soils.

Hydrology and Water Quality

The Santa Ana Regional Water Quality Control Board Basin Plan (Basin Plan) establishes water quality standards for all the ground and surface waters of the region. As development proceeds in the region, the total amount of pollutants entering downstream rivers and water bodies will increase. Cumulative impacts can be mitigated by implementing Best Management Practices in accordance with the National Pollutant Discharge Elimination Stormwater Permit. In accordance with Section 15064(i)(3) of the CEQA Guidelines, the projects' incremental contribution to the drainage system and water quality impacts is not cumulatively considerable because the project must comply with the joint NPDES permit from the Regional Water Quality Control Board, which includes specific requirements to substantially reduce the problem. Flood control and infrastructure maintenance needs can be met by the application of standard engineering practices. Therefore, implementation of any of the three proposed General Plan

alternatives would not contribute to a significant cumulative impact on hydrology/water quality.

Agricultural Resources

As of 2002, Riverside County has a total of 596,369 acres of agricultural land, of which 469,482 acres are considered important farmland (i.e., Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance). As Riverside County continues to develop, the existing agricultural land will continue to be converted to urban and non-agricultural uses. Future development within the planning area pursuant to the land uses under any of the three proposed General Plan alternatives would result in the eventual development of designated important farmland. Approximately 12,800 acres of land within the planning area is designated as important farmland, which is about 2 percent of the total within Riverside County. The possible conversion of the planning area's important farmland would result in a project-level significant impact. As a result, implementation of any of the three Moreno Valley General Plan alternatives will add to a significant, unavoidable, cumulative impact on agricultural resources within Riverside County.

Biological Resources

The proposed three Land Use Alternatives would increase the likelihood that the native and semi-native vegetation communities will be reduced within the western Riverside County region. Riversidean Sage Scrub and Riversidean Alluvial Fan Scrub have been diminished by past development throughout the region. These past habitat losses coupled with the potential future habitat loss in Moreno Valley would result in cumulatively considerable biological impacts in the MSHCP plan area.

Many Moreno Valley Non-native Grasslands and Field/Croplands support significant wintering raptor populations. Under the proposed project there is potential for losses of this wildlife resource in all of the project sections. Native grasslands have been severely diminished throughout California, increasing the use of Non-native Grasslands by raptors. More recently, Non-native Grasslands have come under increased development pressure, as they frequently occur on relatively level, developable lands. The high value of this resource, coupled with the historic and recent regional losses and potential for large-scale losses under the proposed Land Use Alternatives would result in cumulatively considerable raptor wintering and foraging impacts. Where Non-native Grasslands occur in smaller patches and can be demonstrated to lack significant raptor foraging value their loss would not be individually or cumulatively significant.
Cumulatively considerable impacts to sensitive species within the planning area may also occur and could be cumulatively considerable.

The MSHCP has been designed to compensate for the loss of biological resources throughout western Riverside County, and cumulative impacts to existing biological resources resulting through increased future development have been addressed in the

MSHCP Final EIR/EIS dated June 17, 2003. Therefore, future development projects within the planning area that conform to the MSHCP would not result in cumulatively considerable impacts for those biological resources adequately covered by the MSHCP. Implementation of Mitigation Measures identified in the Biological Resources section would provide for further environmental review to ensure conformance with the MSHCP and future implementing plans/ordinances at the project-specific level.

For resources not covered adequately by the MSHCP, additional mitigation may be necessary. Any impacts to wetlands are cumulatively considerable. Compliance with federal and state regulations (implementation of Mitigation Measures identified in the Biological Resources section) is expected to reduce these impacts to a level below significance or less than cumulatively considerable. Impacts to non-covered sensitive species or resources resulting from the Land Use Alternatives are not expected to be cumulatively considerable.

Cultural Resources

Impacts to cultural resources would not compound or increase in combination with past, present or future projects in the region. Moreover, impacts can be reduced to a less than significant level through retaining historic structures, archaeological, and paleontological resources or mitigating the impact. Mitigation will occur by implementing County and local cultural resource protection policies. Development proposals will be assessed for impacts according to CEQA and site-specific mitigation measures will be required where necessary. Mitigation and/or avoidance of impacts to cultural resources at the project-level will avoid a cumulatively significant impact. As a result, Implementation of any of the three proposed General Plan alternatives would not result in a cumulatively significant impact on cultural resources.

Aesthetics

Development within the planning area and the region would reduce the aesthetic value of these areas, as well as increase the amount of additional light and glare in the region. However, incremental amount of light and glare due to the project is so small it would make a minimal contribution to the cumulative impact in the region. Implementation of none of the General Plan alternatives would result in a cumulatively significant impact on aesthetics impact within the Riverside region. Most areas of the region are not visible from the planning area and the planning area is not visible from most of the region. The surrounding hills are planned for low density or open space uses which means that their aesthetic character should not change substantially.

Population and Housing

While any of the three General Plan alternatives would allow for an increase in the population of the planning area, none would induce a greater rate of growth, nor would it do so in combination with past, present or future projects in the region. As a result,

implementation of any of the three General Plan alternatives would not result in a significant impact to housing and population. Implementation of any of the three proposed General Plan alternatives would not result in the displacement of substantial numbers of existing housing units or persons since the majority of the land designated for future development consists of vacant land, agricultural, or redevelopment of non-residential land. Any displacement that might occur is so incremental that it would make a minimal contribution to any cumulative impact that might occur in the region. Therefore, the implementation of none of the three proposed General Plan alternatives would contribute to a significant cumulative impact on housing and population.

Public Services

Future regional growth will result in increased demand for police protection, fire protection and emergency services, schools, libraries, parks and recreation facilities, water services, sewer services, flood control, energy, and solid waste services. Service providers must continue to build or expand facilities to provide acceptable levels of service. The incremental effects of the project are not cumulatively considerable for police, fire, school, library, flood control, park, recreation and sewer facilities. Such facilities serve the immediate area that requires the service. The incremental impacts due to the construction of new water, energy and solid waste facilities are so small that they are not cumulatively considerable. They would make a minimal contribution to any cumulative impact caused by other projects in the region. Therefore, implementation of any of the three proposed General Plan alternatives will not contribute to a significant cumulative public services and utilities impact.

Mineral Resources

No regionally or statewide significant mineral resources are located within the City of Moreno Valley planning area. Implementation of any of the three proposed General Plan alternatives would not result in the loss of availability of a significant mineral resource, and no significant impact to mineral resources would occur. Both the City and the County have adopted SMARA regulations governing the extraction of mineral resources and eventual reclamation of mining operations. Continued implementation of these regulations will allow for the mining of locally-important mineral resources, as identified in the County of Riverside General Plan. As a result, implementation of any of the three proposed General Plan alternatives would not contribute to a significant cumulative mineral resources impact.

7.2 Growth Inducing Impacts

CEQA Guidelines Section 15126.2(d) requires that an EIR discuss the growth-inducing impact of the proposed project. Growth-inducement includes, "…ways in which the proposed project could foster economic or population growth, or the construction of

additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas)."

All three General Plan Alternatives provide capacity for residential and non-residential growth. The associated increase in population and employment generating uses allowed under the General Plan has the potential to induce growth in areas outside of the planning area. Population increases would induce commercial development. Employment generated by industrial development would stimulate the development of housing for new employees. The vacant portions of the City have the greatest potential to experience significant growth-inducement as these areas are primarily rural and undeveloped, and future growth in these areas would be influenced by the increases in housing, population and employment generating uses expected in the City. New residential developments in the eastern portion of the City will require the installation of additional infrastructure such as new roadways, water systems, and sewage disposal to serve these areas. Even though the extension of this infrastructure would be confined to the planning area, the additional utilities may also induce growth beyond the boundaries of the planning area. Therefore, implementation of the General Plan could cause a significant growth-inducing impact to areas surrounding the planning area. Section 7.1 of this EIR provides a detailed analysis of the anticipated cumulative impacts expected from growth in the Riverside County region.

7.3 Significant Irreversible Environmental Changes

Development allowed according to any of the three General Plan alternatives will result in the consumption of non-renewable energy resources, which will have an irreversible effect on such resources. All three proposed General Plan alternatives would result in development of urban uses in areas that are currently vacant. Once developed, reverting to a less urban use or open space is highly infeasible. Development in the planning area according to any of the three proposed General Plan alternatives would also constrain future land use options.

Several irreversible commitments of limited resources would result from implementation of any of the three proposed General Plan alternatives. The resources include, but are not limited to the following: lumber and other related forest products; sand, gravel, and concrete; asphalt; petrochemical construction materials; steel, copper, lead and other metals; and water consumption. Buildout according to any of the three General Plan alternatives represents a long-term commitment to the consumption of fossil fuel oil, natural gas and gasoline. These increased energy demands relate to construction, lighting, heating and cooling of residences, and transportation of people within, to and from the planning area.

7.4 Unavoidable Significant Environmental Impacts

Implementation of any of the three proposed General Plan alternatives will result in the following significant, project level and cumulative unavoidable impacts:

- Air Quality
- Agricultural Resources

7.5 Areas of No Significant Impact

The following areas are analyzed as part of this EIR and were found to have no significant project level or cumulative impact.

- Land Use and Planning
- Population and Housing
- Mineral Resources

Mitigation measures will reduce impacts to less than significant levels with respect to the following environmental effects:

- Traffic
- Noise
- Hazards
- Geology and Soils
- Hydrology and Water Quality
- Biological Resources
- Cultural Resources
- Aesthetics
- Public Services and Utilities

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8.0 REFERENCES

PERSONS RESPONSIBLE FOR PREPARATION OF THE EIR

Lead Agency

City of Moreno Valley
14177 Frederick Street
P.O. Box 88005
Moreno Cynthia Kinser, Principal Planner

Preparers of the EIR

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San Diego, California 92108
(619) 291-1347

800 E. Colorado Blvd., Suite 270
Pasadena, California 91101
(626) 304-0102

3840 Rosin Court, Suite 130
Sacramento, California 95834-1639
(916) 649-0196

Primary Preparers:

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Yara Fisher, AICP, Project Manager
Mira Ruotsalainen-Cook, Project Environmental Analyst
Rick Brady, Project Environmental Analyst
Tin Cheung, Air Quality Analysis
Jose Rodriguez, Graphics
Paul Levinson, Graphics

Responsibility: Overall preparation and coordination of EIR.

Subconsultants:

Carleton Waters, P.E.
Urban Crossroads, Inc.
41 Corporate Park, Suite 300
Irvine, CA 92060
(949) 660-1994

Responsibility: Preparation of Traffic Impact Analysis, June, 2004.

Dave Wieland
Wieland & Associates
23276 South Pointe Drive, Suite 114
Laguna Hills, CA 92653

Responsibility: Preparation of Noise Impact Analysis

Melissa Booker
Merkel & Associates, Inc.
5434 Ruffin Road
San Diego, CA 92123

Responsibility: Preparation of Biological Resources Report, September 2004.

PERSONS AND AGENCIES CONTACTED

In addition to those persons and agencies that were sent a copy of the Notice of Preparation and Initial Study prepared for this EIR, the following persons and agencies were consulted during the preparation of this document:

1. Amy Mora, Environmental Compliance Analyst, Eastern Municipal Water District, September 12, 2003.

2. Henry Johnson, Superintendent, Box Springs Mutual Water Company, August 7, 2003.

3. Sung Key Ma, Planner, Riverside County Waste Management District, July 14, 2003.

4. Michael W. Garner, Resource Development Administrator, Eastern Municipal Water District, July 30, 2003.

5. Paul Baird, Facilities, Moreno Valley Unified School District, July 16, 2003.

6. Janet Mehrl, Facilities, Val Verde Unified School District, July 1, 2003.

7. Lisa Smethusrt, City of Moreno Valley, Parks and Recreation Department, June 26, 2003.

8. Tony Heatherman, City of Moreno Valley, Parks and Recreation Department, August 11, 2003.

9. Dallas Tehmurasp, Moreno Valley Police Department, July 14, 2003.

10. Andrew Bennett, Fire Marshal, July 23, 2003.

DOCUMENTS

1. City of Moreno Valley. *General Plan Program.* September 20, 1988.

2. City of Moreno Valley. *Moreno Valley Field Station Specific Plan Draft EIR.* April 30, 1997.

3. City of Moreno Valley. *Stoneridge Centre Specific Plan Final EIR.* April 1989.

4. City of Moreno Valley. *Moreno Valley Ranch Specific Plan Subsequent EIR.* January 1987.

5. County of Riverside. Wayne Harrison, County Geologist. Telephone conversations. March and April 2001.

6. Morton, Douglas M. *Surface Deformation in Part of the San Jacinto Valley, Southern California*, Journal Research U.S. Geological Survey, Vol. 5, No. 1, p. 117-124. January-February 1977.

7. Zip Code Tabulations for Selected Items from the 1997 Census of Agriculture. US Department of Agriculture.

8. 2002 Important Farmland Map. California Department of Conservation.

9. Farmland Conversion Report 1998-2000. California Department of Conservation, 2003.

10. South Coast Air Quality Management District. http://www.arb.ca.gov. Highest 4 Daily Measurements 1998 through 2002 – Tables.

11. South Coast Air Quality Management District. *CEQA Air Quality Handbook.* April 1993.

12. South Coast Air Quality Management District. *URBEMIS 2002 for Windows.* 2002.

13. Eastern Municipal Water District. *2002 Annual Report on the Status of the Groundwater Subbasins,* May 2003.

9.0 RESPONSES TO COMMENTS

The Moreno Valley General Plan Draft EIR was circulated for public review for a period of 45 days extending from June 16, 2005 to August 1, 2005. The Draft EIR was distributed to a variety of public agencies and individuals.

In accordance with CEQA Guidelines Section 15088, the City of Moreno Valley has evaluated the comments on environmental issues received from those agencies/parties and has prepared written responses to each pertinent comment relating to the adequacy of the environmental analysis contained in the Draft EIR. There has been good faith, reasoned analysis in response to comments, rather than conclusionary statements unsupported by factual information.

The agencies, organizations, and interested persons listed on the "Response to Comments Index" submitted comments on the Draft EIR during the public review period. Each comment submitted in writing is included, along with a written response where determined necessary. Each comment letter is identified with a letter in the upper right corner of the first page of the letter. The individual comments have been given reference numbers, which appear in the right margin next to the bracketed comment. For example, Letter A will have comment numbers A1, A2, etc.

In response to comments received, certain revisions have been made in the EIR. These revisions to the EIR are generally minor text changes that do not constitute significant additional information that changes the outcome of the environmental analysis or require recirculation of the document (Guidelines Section 15088.5). All such changes are noted in the responses to comments. Very minor text changes are generally noted and summarized, while more involved textual changes are reproduced in these responses to comments in ~~strikeout~~/<u>underline</u> format as a courtesy to the commenter.

The agencies, organizations, and individuals that submitted comments on the Draft EIR are identified in Table 9-1 Responses to Comments Index. The comment letters and responses are provided on the following pages.

Table 9-1
Responses to Comments Index

Name	Address	Letter Date	Letter Descriptor	Comment References
Southern California Gas Company	1981 W. Lugonia Avenue, Redlands, California 92374-9720	June 23, 2005	A	A1
State of California Health and Human Services Agency Department of Health Services	1616 Capitol Avenue, MS 7418, P.O. Box 997413, Sacramento, California 95899-7413	June 28, 2005	B	B1
Morongo Band of Mission Indians	245 N. Murray Street, Suite C, Banning, California 92220	August 16, 2005	C	C1-C8
Friends of the Northern San Jacinto Valley (Letter 1)	P.O. Box 9097, Moreno Valley, California, 92552-9097	July 14, 2005	D	D1-D2
Sierra Club, San Gorgonio Chapter (Letter 1)	4079 Mission Inn Avenue, Riverside, California, 92501	July 15, 2005	E	E1-E4
Riverside County Flood Control and Water Conservation District	1995 Market Street, Riverside, California, 92501	July 18, 2005	F	F1-F10
Riverside County Transportation Commission (RCTC)	4080 Lemon Street, 3rd Floor, Riverside, California, 92502	July 19, 2005	G	G1-G7
Department of Conservation California Geological Survey	801 K Street, MS 12-32, Sacramento, California 95814-3531	July 29, 2005	H	H1-H15
Center for Biological Diversity	1095 Market Street, Suite 511, San Francisco, CA 94103	August 1, 2005	I	I1-I24
Friends of the Northern San Jacinto Valley (Letter 2)	P.O. Box 9097, Moreno Valley, California, 92552-9097	August 1, 2005	J	J1-J7
Southern California Association of Governments (SCAG)	818 West Seventh Street, 12th Floor, Los Angeles, California, 90017-3435	July 27, 2005	K	K1
State of California Department of Fish and Game, Eastern Sierra-Inland Deserts Region	3602 Inland Empire Blvd., Suite C-220, Ontario, California 91764	August 1, 2005	L	L1-l7
Gerald M. Budlong (Letter 1)	24821 Metric Drive, Moreno Valley, California 92557	July 27, 2005	M	M1-M6
Gerald M. Budlong (Letter 2)	24821 Metric Drive, Moreno Valley, California 92557	August 1, 2005	N	N1-N21
San Bernardino Valley Audubon Society	P.O. Box 10973 San Bernardino, California 92423	July 27, 2005	O	O1-O4
State of California Department of Parks and Recreation, Inland Empire District	17801 Lake Perris Drive, Perris, California, 92571	August 1, 2005	P	P1
California Regional Water Quality Control Board, Santa Ana Region	3737 Main Street, Suite 500 Riverside, California, 92501	July 29, 2005	Q	Q1-Q9
City of Riverside	3900 Main Street, Riverside, California, 92522	July 27, 2005	R	R1-R3
Sierra Club, San Gorgonio Chapter (Letter 2)	4079 Mission Inn Avenue, Riverside, California, 92501	July 25, 2005	S	S1-S29

Table 9-1
Responses to Comments Index

Riverside Transit Agency	1825 Third Street, P.O. Box 59968, Riverside, California, 92517	July 27, 2005	T	T1-T20
Pete and Arlene Weaver	11630 Redlands Blvd., Moreno Valley, California, 92555	July 25, 2005	U	U1
Margie Breitkreuz	None given	July 27, 2005	V	V1-V7
Michael A. McKibben, Ph.	23296 Sonnet Drive, Moreno Valley, California, 92557	July 28, 2005	W	W1-W12
State of California Governor's Office of Planning and Research	1400 Tenth Street, P.O. Box 3044, Sacramento, California 95812	August 2, 2005	X	X1
Department of California Highway Patrol, Riverside Area	8118 Lincoln Avenue, Riverside, California, 92504	July 21, 2005	Y	Y1

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Letter A

RECEIVED
JUL 05 2005
CEDD

The Gas Company

A Sempra Energy company

Southern California Gas Company
1981 W. Lugonia Avenue
Redlands, CA 92374-9720

Mailing Address:
PO Box 3003, SC8031
Redlands, CA 92373-0306

June 23, 2005

City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92552

Attention: Cynthia Kinser

Re: City of Moreno Valley General Plan – Northwest Riverside County
City of Moreno Valley

Thank you for the opportunity to respond to the above-referenced project. Please note that Southern California Gas Company has facilities in the area where the above named project is proposed. Gas service to the project could be provided without any significant impact on the environment. The service would be in accordance with the Company's policies and extension rules on file with the California Public Utilities Commission at the time contractual arrangements are made.

A-1

You should be aware that this letter is not to be interpreted as a contractual commitment to serve the proposed project, but only as an informational service. The availability of natural gas service, as set forth in this letter, is based upon present conditions of gas supply and regulatory policies. As a public utility, The Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. We can also be affected by actions of federal regulatory agencies. Should these agencies take any action, which affects gas supply, or the conditions under which service is available, gas service will be provided in accordance with revised conditions.

Typical demand use for:

a.	Residential	(System Area Average/Use Per Meter) Yearly
	Single Family	799 therms/year dwelling unit
	Multi-Family 4 or less units	482 therms/year dwelling unit
	Multi-Family 5 or more units	483 therms/year dwelling unit

These averages are based on total gas consumption in residential units served by Southern California Gas Company, and it should not be implied that any particular home, apartment or tract of homes will use these amounts of energy.

A-1
(cont.)

b. Commercial

Due to the fact that construction varies so widely (a glass building vs. a heavily insulated building) and there is such a wide variation in types of materials and , a typical demand figure is not available for this type of construction. Calculations would need to be made after the building has been designed.

We have Demand Side Management programs available to commercial/industrial customers to provide assistance in selecting the most effective applications of energy of our energy conservation programs, please contact our Commercial/Industrial Support Center at 1-800-GAS-2000.

Sincerely,

Bryan P. Wilkie
Technical Supervisor

DW/ocf

State of California—Health and Human Services Agency
Department of Health Services

California Department of Health Services

SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

Letter B

June 28, 2005

City of Moreno Valley
Ms. Cynthia Kinser
14177 Frederick Street
Moreno Valley, CA 92553

RE: Moreno Valley General Plan Update

The California Department of Health Services (CDHS) is in receipt of the Draft Environmental Impact Report for the above project.

B-1 If the City of Moreno plans to develop a new water supply well or make modifications to the existing domestic water treatment system to serve the Moreno Valley General Plan project, an application to amend the water system permit must be reviewed and approved by the CDHS Riverside District Office. These future developments may be subject to separate environmental review.

Please contact Steve Williams of the Riverside office at (619) 525-4159 for further information.

Sincerely,

Bridget Binning

Bridget Binning
California Department of Health Services
Environmental Review Unit

Division of Drinking Water and Environmental Management
Environmental Review Unit/State Revolving Fund/Prop 50
1616 Capitol Avenue, MS 7418, P.O. Box 997413, Sacramento CA 95899-7413
(916) 449-5600 Fax: (916) 446-5656
Internet Address: www.dhs.ca.gov/ps/ddwem

cc:

Steve Williams, District Engineer
CDHS Riverside
1350 Front Street, Room 2050
San Diego, CA 92101

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

MORONGO BAND OF MISSION INDIANS

A SOVEREIGN NATION

August 16, 2005

Ms. Cynthia Kinser
Principal Planner
City of Moreno Valley
14177 Frederick St.
Moreno Valley, CA 92553

Re: Draft EIR, Moreno Valley General Plan Update

Dear Cynthia,

Thank you for sending the Notice of Availability on the above referenced project and taking the time to speak with me today concerning it.

As we discussed, because this action started before the SB18 March 1, 2005 "trigger date", the Tribe will not be formally consulting on the city's general plan update (although the law is somewhat confusing – it reads: Prior to the adoption....of a city...general plan, proposed on or after March 1, 2005, the city shall conduct consultations..." One could argue that Moreno Valley is proposing to adopt a general plan after March 1, 2005 and, therefore, subject to SB18. At this point, absent case law, nobody knows what "proposed" means in the legislation. The law, unfortunately, provides no further clarification.) The Tribe would, however, like to provide the following comments on the draft EIR:

- Executive Summary, Page 2-12: Consider adding the following Mitigation Measures (or similar language):
  - "Pursuant to Government Code §65352.3, the city will be consulting with Native American Heritage Commission identified tribes, on all future general plan or specific plan actions. This action will ensure that Native American interests are considered in those type of applications." **C-1**
  - "The City shall require cultural resource reports/surveys in the "prehistoric site complex" areas of the city for development proposals." (perhaps this is covered under the City proposed mitigation measure that states the "City will assess potential impacts to significant historic, prehistoric archaeological....." ; however a positive statement that cultural resource surveys will be required is preferable to the Tribe.)
- Section 5.10, Cultural Resources:
  - Page 5.10-1: First paragraph under "History of Moreno Valley" states that the Luiseño most recently held the territory that is now Moreno Valley. I think most archaeologists also consider it Cahuilla territory (see page 5-10-6, Prehistoric Archaeology, that mentions Cahuilla people). The Tribe suggests that you add Cahuilla people to the "History of Moreno Valley" section; or at least a statement **C-2**

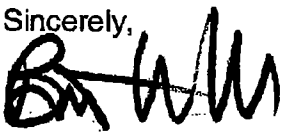
245 N. MURRAY STREET, SUITE C - BANNING, CA 92220 - 951-849-8807 - FAX: 951-922-8146

C-2 (cont.) that other groups (e.g. Serrano, Cahuilla) were also in the area (see page 2 of the Cultural Resources Analysis, Appendix F).

- C-3 Page 5-10-7: Concerning the Pigeon Pass Valley Complex, please revise the last sentence of that paragraph to read: "The camp lies about half way up the valley."
- C-4 Page 5.10-9, last paragraph, Lasselle & Brodiaea: The Tribe requests that the sentence be revised to read: "Located near the intersection of Lasselle St. and Brodiaea Ave....."
- C-5 Page 5.10-10, Human Remains: Suggest adding statement that in accordance with State law, the County Coroner will be contacted if human remains are inadvertently discovered.
- C-6 Page 5.10-15, Middle of page paragraph, beneath bullets, begins with "Implementation of any of the .....": The end of the sentence appears to be a clerical error in that it refers to "buildings and structures". The Tribe recommends that that language be removed and the following language inserted: "prehistoric archaeological sites in the city" which is consistent with the topic of this section.
- C-7 Page 5.10-16, Mitigation Measures: As noted above in the comment about the Executive Summary, the Tribe recommends adding language regarding SB18 (Govt. Code §65352.3) and requiring cultural resources reports/surveys in high sensitivity areas.
- C-8 The Tribe asks that Appendix F, Cultural Resource Analysis, be removed from public viewing/access.

Thank you for the opportunity to provide comments on the Draft EIR. If you have any questions or need any further information, please contact me at (951) 755-5206 or Britt_wilson@morongo.org

Sincerely,



Britt W. Wilson
Project Manager & Cultural Resources Coordinator

c. Ernest H. Siva, Tribal Historian, MBMI
Thomas E. Linton, Director, Planning & Econ. Dev. Dept., MBMI

Letter D

FRIENDS OF THE NORTHERN SAN JACINTO VALLEY
P.O. Box 9097
Moreno Valley, CA 92552-9097

July 14, 2005

Cynthia Kinser, Principal Planner
Planning Division
City of Moreno Valley
P.O. Box 88005
Moreno Valley, CA 92552-0805

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Re: Draft Environmental Impact Report for the proposed Moreno Valley General Plan Update, SCH Number 2000091075

Dear Ms. Kinser:

D-1

Since its formation in 1991, the Friends of the Northern San Jacinto Valley have worked to protect the San Jacinto Wildlife Area. One of its first acts was as a plaintiff in a lawsuit against the city regarding the Moreno Highlands Specific Plan (MHSP). Since that time, the State of California Department of Fish and Game has acquired about 1,000 acres of the original 3,000 acre MHSP area. The lands acquired by the state were included within the boundary of the 10,000 acre Davis Road Unit of the SJWA. We have requested several times that the maps in the DEIR for the Moreno Valley General Plan Update reflect this acquisition. However, in the DEIR issued in June of 2005, only one map out of the over twenty maps reflects that the MHSP has been significantly reduced in size and altered.

We are once again requesting that all the maps and text in the DEIR reflect that approximately 1,000 acres of the Moreno Highlands Specific Plan area is now under state ownership. <u>All land in state ownership for wildlife habitat must immediately be re-zoned as "Open Space, Wildlife Conservation".</u>

All of the maps and text must reflect the state ownership so the public can make accurate and rational comments on the DEIR. In addition, this significant change in the Moreno Highlands Specific Plan requires that the City of Moreno Valley do new traffic, air, water, jobs/housing ratio studies and other analysis reflecting the removal of these 1,000 acres from the MHSP.

D-2

We are formally requesting that the city:

1) Redraft the DEIR for the Update of the Moreno Valley General Plan
2) All maps need to reflect state ownership of the above mentioned 1,000 acres acquired by the State of California, Department of Fish and Game.
3) A new document with accurate text and maps needs to be reissued and distributed to all interested parties
4) Once the new document is issued the Formal Comment Period needs to be extended to reflect a new 30 day comment period.

Unless these vital changes are made to the draft document, the final environmental impact report will be inaccurate and invalid.

Sincerely,

Susan L. Nash

Susan L. Nash
Board Member
Tel: 951-928-3698
e-mail: snash22@earthlink.net

Copies to:

Mayor Richard Stewart
Councilmember William H. Batey, II
Councilmember Bonnie Flickinger
Councilmember Frank West
Councilmember Charles R. White
Linda Guillis, Director, Community & Economic Development
Gene Rogers, City Manager

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Regional Groups Serving Riverside and San Bernardino Counties: Big Bear, Los Serranos, Mojave, Moreno Valley, Mountains, Tahquitz.

Letter E

July 15, 2005

Ms. Cynthia Kinser
Principal Planner
Community Development Department
14177 Frederick Street
Moreno Valley, California 92553

Dear Ms. Kinser:

Re: Adequacies of the Draft Environmental Impact Report (DEIR)
for the City of Moreno Valley's General Plan (June 2005)

It appears throughout the document that much of it was written four or five years ago, when you first began the process – at least the data/maps used reflect this concern.

E-1 As indicated in newspaper articles as well as Sierra Club letters to and conversations with you and other sources, the City is well aware that the Department of Fish and Game purchased 1,000 acres of the original Moreno Highlands project. I believe San Diego Gas and Electric also bought a large number of acres. In spite of this, the City's maps for Alternatives 1, 2 and 3 (Figures 3-2, 3-3, 3-4) keep the high density housing on these 1000+ acres. In addition it appears that, with the exception of one map in the biological section (Figure 5.9-4), all other (more than 20) maps also misinform the public and agencies about these acres. I also believe that the disks with no hard copy of the maps such as Figure 5.9-4 make adequate analysis and valid comments too difficult.

E-2 There are also problems with old data, like Tables 5.2-2 and 5.2-3 concerning traffic in the year 2000 and the 1988 data on potential earthquakes (Table 5.6-1). You do not even acknowledge the Casa Loma fault or the Old Farm Road fault, which was included in a ten-year-old University of California paper. You have been told about the Old Farm Road fault several times since its location was identified in the eastern part of our city. If you take the time, you will find other areas where old data is used.

E-3 It appears that the EIR process was begun five year ago then stopped or significantly slowed so different projects could be approved which would prejudice the outcome of the approved alternative. The City then failed to update much of the data/maps – such as the purchase of 1000+ acres for open space instead of high-density housing -- while the process was on hold. The analysis, which should be revised throughout the documents for all three alternatives, appears to be lacking such information as circulation and is therefore misleading for all readers, which in turn will produce an inadequate Final EIR.

E-4 The Sierra Club therefore strongly recommends that the Draft EIR be revised and updated with the appropriate maps for all alternatives, or we will be left to believe that you are deliberately misleading all responders or potential responders about the true impacts and thus also misleading them about the best alternative.

Sincerely,

George Hague
Conservation Chair
Moreno Valley Group of the Sierra Club
26711 Ironwood Avenue
Moreno Valley, California 92555-1906
Phone: 951-924-0816
Fax: 951-924-4185

P.S. Where, within this document, do you fully address the environmetal justice issues of transit-oriented development and sustainable development? We believe this also must be included in your revised Draft EIR so those commenting have an adequate document on which to base their decision regarding the three alternatives.

WARREN D. WILLIAMS
ieneral Manager-Chief Engineer

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RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

July 18, 2005

Letter F

Ms. Cynthia Kinser, Principal Planner
City of Moreno Valley
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553

Dear Ms. Kinser:

Re: Notice of Availability of a Draft Environmental Impact Report for the Moreno Valley General Plan Update

F-1 This letter is written in response to the Notice of Availability of a Draft Environmental Impact Report (DEIR) for the Moreno Valley General Plan Update. The General Plan is a comprehensive plan for the physical development of the City that contains maps, goals, objectives, policies and programs covering a range of topics, including land use, circulation, safety, conservation, economic development, housing, noise, open space and public facilities. The proposed project area is located in northwestern Riverside County, east of the city of Riverside and north of the city of Perris, and includes the city of Moreno Valley's sphere of influence in addition to its corporate boundaries.

The Riverside County Flood Control and Water Conservation District (District) has the following comments/concerns that should be addressed in the DEIR:

F-2 1. Under "Master Drainage Plans" on Page 5.5-6 of the DEIR, it is correctly stated that portions of the planning area are located within the District's Master Drainage Plans (MDPs) for the West End, Sunnymead and Moreno Valley areas; however, it incorrectly states that the District has prepared MDPs for "all cities in Riverside County". Please be advised that the District's jurisdiction does not include the eastern portion of Riverside County. Generally, MDPs are prepared either at the request of cities or in unincorporated areas where drainage infrastructure is necessary for existing and planned development. Additionally, MDPs boundaries are based on watershed areas rather than city limits. Consequently, it is common that MDP boundaries do not cover entire city areas or extend beyond city limits and into unincorporated areas. The DEIR should be revised accordingly.

F-3 It should also be noted in the DEIR that a portion of the planning area is within the District's MDP for the Perris Valley area. When fully implemented, MDP facilities will provide adequate drainage outlets and will relieve those areas within the MDP boundaries of the most serious flooding problems. The District's MDP facility maps can be viewed online at http://www.floodcontrol.co.riverside.ca.us/mdp.asp. To obtain further information on the MDPs and proposed District facilities, contact Art Diaz of the District's Planning Section at 951.955.1345.

F-4

2. Under "Flooding" on Page 5.5-12, a reference is made to a program with the District for ensuring regularly scheduled maintenance and repair of flood control facilities within the City. It should be clarified in the DEIR that the District generally maintains and operates only those facilities under District ownership. Further, the maintenance and repair schedule for District facilities proceeds on an as needed basis as determined by the District.

F-5

3. Under "Environmental Setting" on Page 5.13-27, the following statement is made: "Several portions of the planning area are subject to a 100-year flood, meaning a flood that might occur once in one hundred years; in other words, a flood with a one percent chance of occurring in any given year." It should be clarified in the DEIR that the 100-year flood designation in no way reflects potential frequency outside of any single given year, as it is correctly stated in the second half of the statement above. The reference to "a flood that might occur once in one hundred years" should be deleted from the DEIR.

F-6

Further in this section it is noted that a MDP has not been developed for the planning area east of Theodore Street and that development can not occur there until one is adopted. Please be advised that the District does not currently have plans to develop a MDP for this area. However, it should be clarified that development is not precluded based solely on the absence of a MDP, though any development that may occur should be coordinated with the District.

F-7

4. Under "Existing Laws and Regulations" on Page 5.13-27, it is stated that flood control improvements in stream channels would require permits from the U.S. Army Corps of Engineers and the California Department of Fish and Game. Additionally, it should be noted that a Section 401 Water Quality Certification from the State Water Resources Control Board (SWRCB) may also be required for flood control improvements in stream channels.

F-8

5. In general, connections of new stormwater facilities to existing District facilities should be included as part of the CEQA analysis, review and approval process for the associated development. Any work that involves District right of way, easements or facilities will require an encroachment permit from the District. The construction of facilities within road right of way that may impact District storm drains should also be coordinated with us. To obtain further information on encroachment permits or existing facilities, contact Ed Lotz of the District's Encroachment Permit Section at 951.955.1266.

F-9

6. Construction projects that result in the disturbance of one or more acre of land (or less than one acre if part of an overall plan of common development) may require coverage under the SWRCB's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (Construction Activity General Permit). Additionally, development in portions of the planning area within the San Jacinto River Watershed may be required to obtain coverage under the Watershed-Wide Waste Discharge Requirements for Storm Water Discharges in the San Jacinto Watershed (Order No. 01-34) issued by the Regional Water Quality Control Board - Santa Ana Region. More information regarding these permits may be obtained on the SWRCB website at www.swrcb.ca.gov.

F-10

Thank you for the opportunity to review the DEIR. Please forward any subsequent environmental documents regarding the project to my attention at this office. Any further questions concerning this letter may be referred to Marc Mintz at 951.955.4643 or me at 951.955.1233.

Very truly yours,

TERESA TUNG
Senior Civil Engineer

c: David Mares
Steve Thomas
Art Diaz
Ed Lotz

MAM:mcv
P8\100376

Riverside County
Transportation Commission

Riverside County Regional Complex
4080 Lemon Street, 3rd Floor • Riverside, California
Mailing Address: Post Office Box 12008 • Riverside, California 92502-2208
Phone (951) 787-7141 • Fax (951) 787-7920 • www.rctc.org

Letter G

July 19, 2005

Ms. Cynthia Kinser
Principal Planner
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92553

Subject: Comments to the City of Moreno Valley Draft Environmental Impact Report (DEIR) for General Plan Update

Dear Ms. Kinser:

Thank you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the City of Moreno Valley General Plan (GP) (SCH# 2000091075). The Riverside County Transportation Commission (RCTC) has the following comments concerning the GP Update DEIR:

G-1 1. State Route 60 (SR-60) is an extremely important highway recently widened through the City of Moreno Valley, by RCTC and Caltrans. A new High Occupancy Vehicle (HOV) was constructed in each direction. Improvements to Interstate 215 (I-215) are also currently being developed by RCTC and Caltrans. RCTC is concerned about any additional traffic increases generated by the GP that might affect these facilities. Please ensure that all necessary measures are included in the GP DEIR that would mitigate any traffic impact.

G-2 2. Theodore Street has an Interchange (IC) with SR-60 and provides north-south access within the easterly portion of the Moreno Valley GP area. Table 5.2-4 shows Theodore Street as being downsized from a Divided Major Arterial (6-lanes) to a Minor Arterial (4-lanes). No further mention of Theodore Street is found within the Traffic & Circulation (T&C) text. Why was Theodore Street downsized? Won't a larger Theodore Street become necessary as development within Moreno Valley expands easterly? It is logical to assume that traffic using Theodore Street would only increase because of its IC with SR-60.

G-3 3. On page 5.3-31 the T&C mentions that one of the goals (Goal #2) is to "provide alternatives to Single Occupancy Vehicles (SOV)". In the GP DEIR text, on page 5.2-14 a "Transit Oasis" system concept is described as supporting a "Transit Center" being developed by the March JPA at Alessandro Blvd. Is the Transit Oasis concept an integral part of the Moreno Valley GP and how might it reduce SOV use and support a Transit Center? Also, is the March JPA site the only Transit Center being considered for the Moreno Valley area? T&C Goal #2 is the only

G-3 (cont.) transportation goal mentioned in the GP DEIR. Do other T&C goals promote the development of transit?

4. RCTC owns the rail line mentioned on page 5.2-14. Please refer to the existing facility as the San Jacinto Branch Line (SJBL). The SJBL currently provides Burlington Northern & Santa Fe (BNSF) freight service to the region. Also, the commuter rail serving the future Alessandro Blvd. train station should be identified as the Metrolink Perris Valley Line (PVL). **G-4**

5. Section 7 Cumulative Impact, page 7-2, states that the "combined effect (GP Amendments and mitigation measures) would reduce traffic volumes on most freeway and major arterial facilities within the City of Moreno Valley". Please explain how volumes would be reduced on freeways (SR-60 & I-215). Implementation of signalization, lane widening, turning lanes and channelization might provide some congestion relief on City arterials but mainline freeway volumes for SR-60 & I-215 are projected to increase significantly by 2025 due to overall region wide growth. **G-5**

6. RCTC supports the City of Moreno Valley's commitment to the Traffic Uniform Mitigation Fee (TUMF) and Development Impact Fee (DIF) programs as described in the GP DEIR. RCTC would like the GP to also emphasize preservation of corridors and locations for future roadways and transit facilities. **G-6**

7. Only one Mitigation Measure (TR-1) is listed on the last page of the T&C section. TR-1 requires "Study of roadways to determine if additional improvements are necessary to maintain Level-of-Service (LOS)". With the implementation of the GP Amendments and mitigation measures, including TR-1, the GP DEIR acknowledges that traffic impacts would be significant even after mitigation. What other mitigation measures are being considered to reduce traffic impacts? **G-7**

This concludes RCTC's comments concerning the City of Moreno Valley GP Update DEIR. Thank you for your consideration. Should you have any questions or require additional information, please contact Gustavo Quintero at (951) 787-7935.

Sincerely,

Hideo Sugita, Deputy Executive Director
Riverside County Transportation Commission

cc: Cathy Bechtel (RCTC)
Bill Hughes, Mike Davis, Gustavo Quintero (Bechtel)
Project Files

Department of Conservation

CALIFORNIA GEOLOGICAL SURVEY

801 K Street • Mail Stop 12-32 • Sacramento, CA 95814-3531

telephone 916-323-4399 • TDD 916-324-2555 • Web Site: conservation.ca.gov/cgs

Letter H

Ms. Cynthia S. Kinser, *Principal Planner*
Community Development Department
City of Moreno Valley
14177 Frederick Street cynthiak@moval.org
Moreno Valley, CA 92553 ☎ 951-413-3222

July 29, 2005

Subject: Geology & Seismology Review of draft Safety Element within the draft General Plan & its draft Environmental Impact Report
City of Moreno Valley **State Clearinghouse #2000-091075**

Dear Ms. Kinser:

The California Geological Survey has performed a review of the draft Safety Element within the proposed update of the General Plan for Moreno Valley, Riverside County. This is in accordance with §65302g of the Government Code, which instructs the California Geological Survey to review draft Safety Elements of local governments.

There are several significant difficulties with the geologic hazards section within the draft Safety Element. Basically, this draft does *not* reflect current seismology and geology work that has been published in the past two decades years by the California Geological Survey and the U.S. Geological Survey (with offices on the UC Riverside campus). This draft should *not* go forward to final edition; there are many scientific errors. **H-1**

It is understood that Moreno Valley is undergoing rapid growth of residential tracts, with perhaps 10,000 future homes. However, the geologic hazards in Moreno Valley are among the highest of the 476 cities in California. These geologic hazards include: active faulting, severe to violent earthquake shaking, landslides, liquefaction, subsidence, and coseismic deformation of the ground during earthquakes.

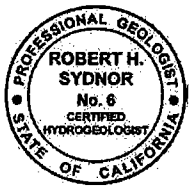
In 1993, the California Geological Survey prepared CGS Special Publication 102, an earthquake planning scenario for the Moreno Valley –Riverside-San Bernardino area. We are concerned that this 219-page publication was not even used or referenced by your consulting planning firm.

On the attached pages, please find a complete geology and seismology bibliography for Moreno Valley, the computation of the earthquake ground motion for Moreno Valley, and detailed commentary why the draft Safety Element does not currently meet minimum state standards. Because Moreno Valley has significant geologic hazards, it is recommended to be prepared by a professional geologist (a California Certified Engineering Geologist).

The California Geological Survey is available to review the second edition of the City's Safety Element. We will provide useful scientific counsel within the seismic-safety planning process.

Please telephone me at 916-323-4399 for further assistance. We look forward to working with you and other officials of the City of Moreno Valley for seismic safety planning.

Respectfully submitted,



Robert H. Sydnor, PG 3267, CHG 6, CPG 4496, CEG 968
LM-AEG, LM-AGU, M-EERI, LM-SSA, M-ASCE, M-GSA, LM-AGI
Senior Engineering Geologist
California Geological Survey

attachments

Geologic Review Comments and Suggestions
by the California Geological Survey
California Department of Conservation, The Resources Agency
regarding the draft Safety Element
within the draft General Plan for the City of Moreno Valley
July 29, 2005
State Clearinghouse # 2000-091075

H-2

Lack of citation and use of CGS Special Publication 102.

In 1993, the California Geological Survey prepared a comprehensive 219-page seismic-safety planning document for the Inland Empire (Riverside-San Bernardino greater metropolitan area). The fast-growing Inland Empire has significant geologic hazards that adversely affect all of the infrastructure. This comprehensive earthquake planning scenario was publicly released to all the cities and county governments. We previously sent you copies of SP-102 in 1993. Your sub-consulting planners can purchase additional copies from our website www.conservation.ca.gov/cgs

In the past 12 years, it has been widely used by dozens of cities in the Inland Empire for seismic-safety planning within their respective Safety Elements. It contains extensive colored plates and a good bibliography of geology and seismology.

CGS Recommendation: Moreno Valley extract and adapt as much information as possible from CGS Special Publication 102.

H-3

Lack of Geology and Seismology Bibliography for Moreno Valley

The current draft documents lack proper references to published seismology and geology reports and maps. Citizens of Moreno Valley, city officials, consulting planners for various future EIRs, developers, and consulting geologists: all of these rely on comprehensive and up-to-date geologic maps regarding seismic hazards. The USGS geologic map of the Sunnymead Quadrangle (Morton, 2001, USGS OFR 01-450) was not used or referenced. The page-sized geologic map that was provided has numerous graphic errors and cannot be read or used.

CGS Recommendation: a comprehensive 14-page bibliography has been prepared by this reviewer to assist the City of Moreno Valley. It is meant to be used unchanged in the Appendix of the Safety Element (not retyped, not parsed, not edited for brevity by sub-consultants).

The new 14-page bibliography is divided into convenient sections: ① Regional Geology of Moreno Valley; ②Landslides; ③Seismic Safety, Land-Use Planning, Building Codes; ④Homeowner Information on Seismic Safety; ⑤ Seismology & Earthquake Engineering; ⑥ Geotechnical Engineering (including liquefaction) & ASTM tests for earthwork, and ⑦ Lifelines.

The purpose of a comprehensive bibliography is to convey this body of scientific knowledge to a wide spectrum of users, to keep the Safety Element in a concise format, and lastly, to set a minimum threshold for "adequacy" of future planning documents and consulting geologic reports for subsequent residential tract development.

H-4

Lack of Description of Geologic Units

The geologic units and formations of Moreno Valley are entirely omitted. Instead the planning documents confuse agricultural soils with geologic formations. Future earthquakes will shake the granitic rocks of the Lakeview Pluton much differently from sedimentary rocks of the San Timoteo Badlands, and the deep soft alluvium of the San Jacinto graben. Agricultural soils maps should be used for farmland mapping, not seismic safety.

H-4 (cont.)

CGS Recommendations: The text of the Safety Element should use the geologic formations shown in Morton (2001, Sunnymead Quadrangle); and Morton (1999, Santa Ana 30×60 minute Quadrangle, a beautiful regional geologic map at 1:100,000-scale. Dr. Douglas Morton, USGS emeritus, can be occasionally reached at his US Geological Survey offices in the Department of Earth Sciences, University of California at Riverside. He is honorably retired after 40 years of dedicated service, but still visits his USGS office from time-to-time. His USGS geologic maps can be freely downloaded from the Internet www.usgs.gov and consultants are expected to obtain their own digital versions, which then can be printed on-demand by a local vendor. Reference copies can be viewed at the Physical Sciences Library of the University of California, Riverside.

Improper Evaluation of Earthquake Ground-Motion

H-5

Moreno Valley is situated astride the active San Jacinto Fault, and nearby active seismogenic faults include the San Andreas Fault and the Elsinore Fault. The Safety Element and the draft EIR dismiss the exposure to earthquake shaking. Modern comprehensive maps, such as CGS Map Sheet 48, are not even referenced or extracted. The draft EIR (written by unqualified persons; not professional geologists or seismologists) is greatly mistaken that earthquake shaking is "not significant." On the contrary, the earthquake shaking for Moreno Valley is among the highest in California.

To correct this misinformation, the California Geological Survey has performed a complete seismology calculation of the earthquake ground motion for Moreno Valley. We selected an arbitrary centroid of the city at the corner of Alessandro Boulevard and Redlands Boulevard. This intersection of two major boulevards is well-known to residents of Moreno Valley. The calculated ground motion will be higher in the eastward direction towards the San Jacinto Fault, and slightly lower in the westward direction (towards March Air Force Base).

The results of our CGS seismology calculations are attached in three pages: a spectral diagram, a table of spectral values, and a table that shows Moreno Valley in relation to other levels of shaking, acceleration, and intensity. These pages are suggested to be included in the text of the Safety Element.

If ordinary default values from the Building Code are used, then the ground motion is taken at Peak Ground Acceleration, **PGA 0.55*g*** at this location. If Moreno Valley is like other California cities in Seismic Zone 4, it can be inferred that the City Building Official is possibly accepting these low default values --- without realizing that the *computed* earthquake ground-motion is actually *much higher:* **PGA ≈ 0.86*g*** for the Design Basis Earthquake ground-motion. It is a "significant" difference for the Structural Engineer to design buildings (such as residential tract homes) to PGA ≈ 0.86*g*. In the northeastern area of Moreno Valley, the ground-motion near the San Jacinto Fault zone is even higher.

CGS Recommendations: Include the 3 pages of calculated ground motion in the Safety Element. Change the CEQA finding in the EIR for earthquake shaking to "significant." It is recommended that the City retain a consulting Certified Engineering Geologist who is experienced in seismic hazards to plan-check the in-coming geologic reports for various residential and commercial structures. This would be a "significant" new cost for the city — hiring additional technical staff — but the costs would be passed through from incoming building-permit fees. Ten-thousand new homes should not be built in a city with high exposure to severe geologic hazards — without adequate oversight and scrutiny from a California Certified Engineering

H-5 (cont.)

Geologist retained by the city. The city plan-check counter is "where-the-rubber-meets-the-road" for seismic safety planning and effective Code enforcement.

Note that earthquake ground-motion can also be readily calculated for a dozen other locations in Moreno Valley that would be representative of different geologic subgrade. This new seismology information could then be used for smaller projects (such as a garage or patio), and voluntary seismic retrofit upgrades for existing older homes.

Alquist-Priolo Earthquake Fault Zoning Act

H-6

The existing draft Safety Element and draft EIR mistakenly uses the older name of this act. The name was changed 11 years ago in 1994 by Senator Alfred Alquist. Your consulting planners have evidently not kept abreast in the past decade. Dozens of references to the "special studies" zones should be editorially changed to the new legal name. Extracts of the Alquist-Priolo Earthquake Fault Zones should be shown at full scale 1:24,000 (as a strip map) in the text of the Safety Element, not reduced or stylized. The three official quadrangles are Sunnymead (1974), El Casco (revised 1995), and Lakeview (revised 1988). It is recommended that the Safety Element state that citizens can obtain ozalid copies of the official quadrangles from the City of Moreno Community Planning Department. The California Geological Survey has not yet zoned the "Farm Road strand" of Park and others (1995) as an active fault. As an interim measure, the Safety Element of Moreno Valley can emulate the work of Riverside County and show this secondary fault on the city planning map. Consulting Engineering Geologists for various residential developers should continue to evaluate the "Farm Road strand" because there is reported evidence from Dr. Douglas M. Morton, USGS @ UCR, of tectonic bulging (uplift) on Alessandro Boulevard.

Liquefaction and Seismic Settlement

H-7

The draft Safety Element and the draft EIR dismisses any potential for seismically-induced liquefaction in the City of Moreno Valley and its extended sphere of influence. This is not correct. The California Geological Survey has zoned about 120+ quadrangles for seismically-induced liquefaction in southern California and the Bay Area. Unfortunately, we were restricted by provisions of the Stafford Act to use the FEMA funding only in counties that had suffered damage from the 1994 Northridge Earthquake and the 1989 Loma Prieta Earthquake. We have recently begun work in the Inland Empire and are presently zoning liquefaction potential along the nearby Elsinore Fault.

CGS Recommendations: The Moreno Valley Safety Element should cite and reference Special Publication 117 and 118 (see attached bibliography). Historic-high water table will be used for zonation purposes. The city should follow the liquefaction zoning that is outlined in the Riverside County Safety Element. A complete list of current liquefaction references is provided in the attached bibliography (under Geotechnical Engineering). The city should begin requiring calculations for seismic settlement for all alluvial sites, regardless of the depth of the water table.

Lack of congruence with the new 2003 General Plan of Riverside County.

H-8 The new Safety Element for Moreno Valley is significantly different from the new Safety Element for Riverside County (legally adopted October 7, 2003). The new County Safety Element took a professional consulting geology firm several years to compile using GIS mapping for geologic hazards. It is a wealth of reliable scientific information regarding active faults, basic geologic mapping, landslides, liquefaction, and earthquake shaking. The geologic consulting firm who prepared the suite of geologic hazard maps for Riverside County Planning Department was Earth Consultants International, Tustin (Tania Gonzalez, CEG 1859, ☎714-412-2654).

CGS Recommendation: It is recommended that the consulting planners for Moreno Valley obtain the new 2003 Riverside County General Plan. Much of this can be readily adapted for Moreno Valley, with the same format and the same analysis for the city's Safety Element.

Subsidence and Fissuring in the San Jacinto Graben

H-9 Mapping by USGS geologist Dr. Douglas Morton indicates a zone of fissuring and surface deformation. He first published this in 1977, with subsequent mapping in 1999 (see attached references). This subsidence and fissuring is apparently due to a combination of ground-water conditions and tectonic faulting. This information should be faithfully copied to the base maps of the City of Moreno Valley, and incorporated into the planning process as a geologic hazard

CGS Recommendation: Prudent city zoning would create a green-belt along this zone of subsidence and fissuring, with emphasis on parks, open-space, athletic fields, hiking trails, and equestrian stables. This deformation zone would also have required investigations by the consulting Certified Engineering Geologist for residential tract developers. The City Building Official might inspect existing homes and confer with homeowners for a voluntary seismic retrofit and strengthening (underpinning) of structural foundations.

Landslides

H-10 Landslides are abundant in the San Timoteo Badlands in the northeastern sector of the sphere of influence of the City of Moreno Valley. Refer to extensive landslide publications in the attached bibliography. The landslide hazard in Moreno Valley includes both debris-flows and mudslides (particularly after wildfires and intense rains), and seismically-induced landslides. The current draft of the Safety Element incorrectly downplays the hazard of landslides. They are significant, but can be mitigated — provided a Certified Engineering Geologist and Registered Geotechnical Engineer utilizes procedures outlined in CGS Special Publication 117; and Blake, Hollingsworth, and Stewart (2002) as shown in attached references.

CGS Recommendation: The Safety Element should show existing landslides and designate areas of steep terrain within weak sedimentary rocks that are susceptible to landslides.

Lifelines

H-11 Moreno Valley is highly unusual inasmuch as numerous lifelines cross the San Jacinto Fault in an east-west direction (roughly parallel to Highway 60) and bisect the city. These lifelines include high-pressure natural gas transmission lines that are expected to explode and burn from 3 to 4 meters of direct rupture on the plane of the San Jacinto Fault. Natural gas-transmission lines have automatic shut-off valves planned for these fault crossings, but it is important for the fault crossing area to be a permanent green-belt. Green belts only happen if adroit planning is undertaken by the City of Moreno Valley.

A relevant example of a fault-crossing is the Questar Southern Trails natural gas-transmission line that brings gas from the Four-Corners area across Utah and Arizona, and then into California. It cuts across the San Jacinto Fault south of Highway 60, through Moreno Valley, north of March AFB, then through Santa Ana Canyon where it crosses the active Elsinore-Whittier Fault. The western terminus of Quester Southern Trails pipeline is Long Beach. For further information, refer to Map Sheets 6 and 7 of the Questar Southern Trails pipeline atlas; this is found in FERC Docket CP99-163-00 and California State Clearinghouse # 99041103 The Final EIR was certified by the State Lands Commission in July 2000 after extensive hearings. There were adverse geologic review comments by the California Geological Survey regarding crossings of active faults. To resolve the impasse, Utah-based Questar subsequently hired an excellent Tustin-based consulting engineering geology firm (with California Certified Engineering Geologists) to re-evaluate their pipeline where it crossed active faults 17 times through Southern California.

H-11 (cont.)

CGS Recommendation: The Moreno Valley Safety Element should have a special map atlas of all lifelines in relation to known geologic hazards (fault crossings, landslides, co-seismic deformation, fissuring, subsidence). Appropriate prudent zoning should be undertaken by the city (depending on the type of lifeline). City planners should confer with the major utilities; then using GIS methods, convert utility lifeline atlas pages to the city basemap. Underground Service Alert (USA) signs should be posted along sensitive lifelines (such as natural-gas transmission lines).

Please note that CCR Title 5, Education Code, §17213 prohibits the acquisition of a school site by a school district if the site "contains one or more pipelines, situated underground or above ground, which carried hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood." The California Public Resources Code §21151.8 uses the same language about gas pipelines with reference to approval of environmental impact reports or negative declarations. (See CCR Title 5, §14010h.). Natural gas transmission lines (with >80 psi) should not be within a 1,500 foot radius of any public school campus. Prudent advance zoning by the City of Moreno Valley can preclude these kinds of predicaments. It is suggested that both the school district and the utility companies work with the Moreno Valley planners for appropriate zonation of lifeline corridors.

City Geologist for the City of Moreno Valley

The current draft Safety Element and the remainder of the General Plan does not consider the full impact of the addition of ±10,000 homes to the workload of the staff of the city. Moreno Valley has significant geologic hazards. It is inferred that current plan-check officials within the Building Department and the Community Development Department do not have a scientific background in seismology, engineering geology, and geotechnical engineering.

H-12

CGS Recommendation: The City of Moreno Valley should plan for the internal addition of a California Certified Engineering Geologist to be part of the plan-check process for grading permits and residential development of extensive new tracts. This could either be a part-time consultant, and evolve gradually into a full-time civil servant position (depending on the growth rate of the city). The City Geologist would be in close professional contact with the Riverside County Geologist, the California Geological Survey, the U.S. Geological Survey, and the geology department at the University of California, Riverside. It would be a win-win situation for both the citizens of Moreno Valley and the developers — effective implementation of prudent seismic safety planning, with proper earthwork and grading.

Seismic Retrofit for Homeowners

H-13 The draft Safety Element does not adequately address the problem of existing older structures in Moreno Valley. Many of these probably need seismic retrofit for the coming earthquake, and prudent owners would voluntarily do so — if they only knew the specifics.

CGS Recommendation: Our bibliography provides the new retrofit booklet for homeowners written by the California Seismic Safety Commission. Copies can be made available in Moreno City offices, and at local building suppliers and public libraries. Citizens can freely download this from the internet. www.seismic.ca.gov

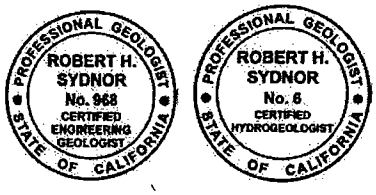
Closure

H-14 The California Geological Survey appreciates this opportunity to comment on the draft Safety Element within the draft General Plan for the City of Moreno Valley. We have performed this review under authority of §65302g of the Government Code. The current draft does not meet minimum standards, but we are optimistic that it can be properly rewritten by a professional geologist. When you have prepared the subsequent draft of the Safety Element, please send it directly to us at the address below. There is a substantial time-delay if it is sent through the State Clearinghouse.

The trend in Safety Elements is to provide a concise summary of geologic hazards, then lead the reader to the proper geologic maps, appropriate Code sections, and hyperlinks to technical engineering geology and seismology information (often free or low-cost).

The California Geological Survey is pleased to provide assistance to the 476 cities and 58 counties in California to achieve our mutual goal of seismic safety planning and reduction of losses due to earthquakes and related geologic hazards. Please call me if there are any questions about this geologic review.

Respectfully submitted,



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APPENDIX TO LETTER H

Earthquake Ground Motion

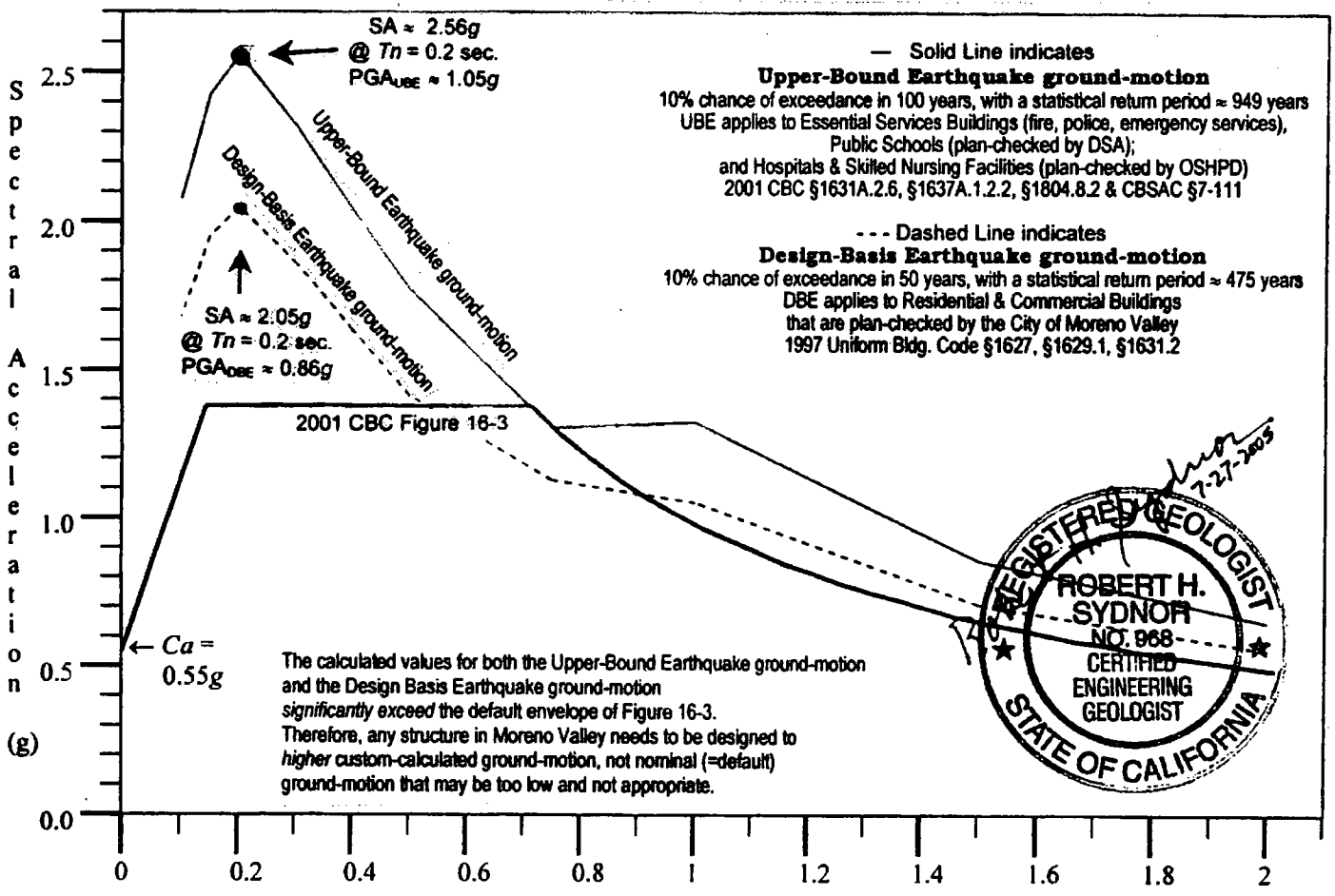
for the City of Moreno Valley

July 2005

Normalized Response Spectra

Seismic Zone 4

Site Coordinates: **33.9175°N** Latitude and **117.1566° W** Longitude
Approximately the intersection of Alessandro Boulevard and Redlands Boulevard,
near the center of the City of Moreno Valley.
Coordinates are from the Sunnymead USGS 7½-minute Quadrangle, Riverside County



Quaternary alluvium of Moreno Valley
Geologic Subgrade Type S_D, stiff soil

2001 CBC Site Class S_D geologic subgrade is defined in Code as
Shear-Wave Velocity, *Vs* = 180 to 360 meters/second or 590 to 1181 feet/second for upper 30 meters.
Reference: 2001 CBC Table 16A-J and §1636A.

Prepared July 27, 2005 in cooperation with the City of Moreno Valley
by Robert H. Sydnor, RG 3267, CHG 6, CPG 4496, CEG 968, *Senior Engineering Geologist*
California Geological Survey
www.conservation.ca.gov/cgs

using the 2002 CGS state-wide ground-motion model
with $\zeta = 5$ percent viscous damping for spectral acceleration

Relationships Between Peak Ground Acceleration, Peak Ground Velocity, and Instrumental Intensity

for the City of Moreno Valley, Riverside County

a summary table prepared July 27, 2005 by the California Geological Survey for the seismic safety portion of the Safety Element within the General Plan of Moreno Valley

adapted from a seismology publication by USGS and Caltech seismologists David J. Wald, V. Quintoriano, Thomas H. Heaton, & H. Kanamori published in EERI *Earthquake Spectra*, vol. 15, no. 3, Aug. 1999, p. 557-564; Earthquake Engineering Research Institute < www.eeri.org >

Perceived Shaking	Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	**Violent**	Extreme
Damage Potential	None	None	None	Very Light	Light	Moderate	Moderate to Heavy	**Heavy**	Very Heavy
Peak Acceleration (*g* = gravity)	<0.0017*g*	0.0017*g* – 0.014*g*	0.014g – 0.039*g*	0.039*g* – 0.092*g*	0.092*g* –0.18*g*	0.18*g* – 0.34*g*	0.34*g* – 0.65*g*	**0.65*g* – 1.24*g***	> 1.24*g*
Peak Velocity (cm/sec)	< 0.1	0.1 to 1.1	1.1 to 3.4	3.4 to 8.1	8.1 to 16	16 to 31	31 to 60	**60 to 116**	>116
Instrumental Intensity	I	II-III	IV	V	VI	VII	VIII	**IX Moreno Valley**	X

Design-Basis Earthquake Ground Motion for "regular" commercial and residential structures. Defined in 1997 UBC §1627 as 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

For Residential and Commercial Buildings — Peak Ground Acceleration, **PGA ≈ 0.86*g***; Instrumental Intensity ≈ **IX**

Upper-Bound Earthquake Ground Motion for public schools, hospitals, skilled nursing facilities, essential services buildings (police stations, fire stations, city hall, emergency communication centers). Defined in 2001 CBC §1631A.2.6 as 10 percent chance of exceedance in 100 years, with a statistical return period of 949 years.

For Public Schools and Hospitals — Peak Ground Acceleration, **PGA ≈ 1.05*g***; Instrumental Intensity ≈ **IX**

Moreno Valley is located in **Seismic Zone 4** (reference : 1997 Uniform Bldg Code, Figure 16-2). Ground motion will be highest in sandy alluvium and slightly lower on hills underlain by granitic rock. The earthquake ground-motion shown is calculated alluvial subgrade at the intersection of Alessandro and Redlands Boulevards, near the center of Moreno Valley. Earthquake ground-motion will increase eastward — in the direction toward the active San Jacinto Fault.

Prepared July 27, 2005 under provisions of California Government Code § 65302(g)
by Robert H. Sydnor, *Senior Engineering Geologist,* RG 3267, CHG 6, CEG 968, CPG 4496 Robert.Sydnor@conservation.ca.gov
California Geological Survey, 801 K Street, M.S. 12-32, Sacramento, CA 95814-3531

For public information from the state's geological survey, geologic maps, Alquist-Priolo earthquake fault zone maps, seismic hazards zone maps, landslide maps, mineral resource maps, and geologic reports, telephone **(916) 445-5716**. Please visit our homepage for geologic information, down-loadable maps, and a list of geology publications:
www.conservation.ca.gov/cgs

Spectra Values of Earthquake Ground Motion

City of Moreno Valley

Riverside County

33.9175° North Latitude, -117.1566° West Longitude
taken at the corner of Alessandro & Redlands Boulevards
Sunnymead 7½-minute USGS Quadrangle
ζ = 5 percent viscous damping
Seismic Zone 4, so coefficient $Z = 0.4$
Geologic Subgrade from Table 16-J: Type $S_D \approx$ alluvium

Oscillator Period *in seconds*	**Design-Basis Earthquake Ground Motion** 10% chance of exceedance in 50 years Statistical Return Period ≅ 475 years *for Residential & Commercial Buildings*	**Upper-Bound Earthquake Ground Motion** 10% chance of exceedance in 100 years Statistical Return Period ≅ 949 years *for Hospitals and Public Schools*
0.10	1.68*g*	2.08*g*
0.15	1.95*g*	2.42*g*
0.20	**2.05*g*** *peak SA*	**2.56*g*** *peak SA*
0.30	1.86*g*	2.32*g*
0.40	1.64*g*	2.04*g*
0.50	1.41*g*	1.77*g*
0.75	1.12*g*	1.32*g*
1.00	1.05*g*	1.30*g*
1.50	0.71*g*	0.86*g*
2.00	0.55*g*	0.65*g*
Peak Ground Acceleration	**0.86*g***	**1.05*g***

Computed in July 2005 by Robert H. Sydnor, CEG 968, *Senior Engineering Geologist*
California Geological Survey
using the CGS state-wide seismology model of 2002.
The CGS state-wide model may be downloaded at: < www.conservation.ca.gov/cgs >

APPENDIX TO LETTER H (cont.)

Engineering Geology and Seismic Safety Bibliography for the City of Moreno Valley

Riverside County, California

Compilation on July 29, 2005 by the

California Geological Survey

California Department of Conservation, The Resources Agency of California

in cooperation with the City of Moreno Valley

for use within the Safety Element of the General Plan

This is an abbreviated list with concise focus on newer publications in engineering geology, seismology, geotechnical engineering, and seismic safety planning for the City of Moreno Valley. This bibliography has been parsed and adapted for the geology of City of Moreno Valley, so it is not appropriate to extrapolate it for other cities in Riverside County that have different geologic conditions.

It is recommended to use GeoRef and GeoScience World bibliographic search engines for a comprehensive bibliography, including unpublished thesis work from the University of California at Riverside. Numerous unpublished consulting geology reports for individual parcels and residences cannot be included since they have never been submitted to GeoRef for formal indexing in library science and are not publicly available. Refer to archives of city building permits for geological reports on specific projects.

Especially useful published references are marked with a star ★ symbol to assist the reader. Inclusion within this bibliography does not imply official endorsement, and omission from this concise list does not imply lack of suitability. This abbreviated list will need to be updated periodically to include new publications in engineering geology and seismic safety for the City of Moreno Valley.

Regional Geology for Moreno Valley

★Albright, L. Barry, 1997, Magnetostratigraphy and biochronology of the San Timoteo badlands, southern California, with implications for local Pliocene–Pleistocene tectonic and depositional patterns: *Geological Society of America Bulletin*, vol. 111, p. 1265–1293.
This geologic mapping is within the sphere of influence for the City of Moreno Valley, so it is considered an essential reference. Dr. Albright received his PhD on the geology and paleontology of the San Timoteo badlands from the University of California at Riverside.

Albright, L. Barry, 1999, Biostratigraphy and vertebrate paleontology of the San Timoteo Badlands, Southern California: *University of California Publications in the Geological Sciences*, vol. 144, 121 p. *This is the northeastern portion of the City of Moreno Valley sphere of influence on the El Casco Quadrangle.*

Anderson, Megan, Matti, Jonathan C., and Jachens, Robert, 2004, Structural model of the San Bernardino basin, California, from analysis of gravity, aeromagnetic, and seismicity data: AGU *Journal of Geophysical Research*, vol. 109, B04404, published on–line April 6, 2004.

Apoian, Mark D., 1997 Spatial variability in hydrochemistry in the Moreno, Perris, and San Jacinto valleys, western Riverside County, California: University of California, Riverside, unpublished Master of Science thesis, 110 p.

Bennett, Richard A., Friedrich, Anke M., and Furlong, Kevin P., 2004, Codependent histories of the San Andreas and San Jacinto fault zones from inversion of fault displacement rates: *Geology*, vol. 32, no. 11, November 2004 issue, p. 961-964.

Bent, Allison L., and Helmberger, Donald V., 1991, A reexamination of historic earthquakes in the San Jacinto fault zone, California: *Bulletin of the Seismological Society of America*, vol. 81, no. 6, p. 2289-2309.

Biasi, Glenn P., Weldon, Ray J., Fumal, Thomas E., and Seitz, Gordon G., 2002, Paleoseismic event dating and the conditional probability of large earthquakes on the southern San Andreas Fault, California: *Bulletin of the Seismological Society of America*, vol. 92, no. 7, October 2002 issue.

Blythe, Ann E., House, Martha A., and Spotila, James A., 2002, Low–temperature thermochronology of the San Gabriel and San Bernardino Mountains, southern California: constraining structural evolution, *in* Barth, Andrew, *editor*, Contributions to Crustal Evolution of the Southwestern United States – the Perry Lawrence Ehlig memorial volume: Geological Society of America, Special Paper 365, p. 231–250.

Cao, Tianqing, Bryant, William A., Rowshandel, B., Branum, David, and Wills, Christopher J., 2003, The revised 2002 California probabilistic seismic hazards maps: California Geological Survey, posted as .pdf on CGS website, June 2003: www.conservation.ca.gov/cgs/rghm/psha

- Report, 11 p., with Appendix A (Type A, B, C faults):
- Table of Type A Faults, 2 p.
- Table of Type B Faults, 15 p.
- Table of Type C Faults (= area sources), 1 p.
- References for 2002 California Fault Parameters, 9 p.

This is the new 2002 statewide seismotectonic model used in probabilistic seismic hazard analysis by the California Geological Survey. CCR Title 24 projects (hospitals and schools) will be measured and evaluated against this PSHA model and its fault data–base that reflects a broad consensus of the seismology and engineering geology profession. This report updates and supersedes Petersen and others, CGS Open–File Report 96–08, which was the 1996 statewide consensus model. CGS OFR 96–08 contains 33 pages of text that remains as a pertinent explanation of PSHA methodology for California. The notable upgrade from 1996 to 2002 is the revised database of seismogenic faults (particularly slip–rates, Mmax, recurrence intervals, and fault segmentation).

Cotton, William R., Dickey, Robert H., and Edwards, S., 1973, Activity of the Reiche Canyon Fault, Moreno Valley, Riverside County: Association of Engineering Geologists, *AEG Bulletin*, vol. 16, p. 30 (annual meeting abstract).

Eppes, Martha C., McFadden, Leslie D., Matti, Jonathan C., and Powell, Robert, 2002, Influence of soil development on the geomorphic evolution of landscapes — an example from the Transverse Ranges of California: *Geology*, vol. 30, p. 195-198.

Fumal, Thomas E., and Tinsley, John C., III, 1985, Mapping Quaternary sedimentary deposits for areal variations in shaking response, *in* Ziony, J.I., *editor*, 1985, Evaluating earthquake hazards in the Los Angeles region: U. S. Geological Survey Professional Paper 1360, 505 p. *Refer to p. 111 for Moreno Valley*

Harden, Jennifer W., and Matti, Jonathan C., 1989, Holocene and Pleistocene slip–rates on the San Andreas Fault in Yucaipa, California using displaced alluvial–fan deposits and soil chronology: *Geological Society of American Bulletin*, vol. 101, no. 9, p. 1107–1117.

Hart, Earl W., and Bryant, William A., 1997, Fault–rupture hazard zones in California: California Geological Survey, Special Publication 42, 1997 edition with 1999 supplements, 38 p. *The active San Jacinto Fault has been legally zoned under the Alquist-Priolo Earthquake Fault Zoning Act. SP-42 is the definitive official CGS publication to cite for the Sunnymead, El Casco, and Lakeview Quadrangles that are covered by the City of Moreno Valley and its sphere of influence. Do not confuse Alquist-Priolo Earthquake Fault Zoning Act with the Seismic Hazards Zoning Act (landslides and liquefaction).*

Jennings, C.W., 1994, Fault activity map of California and adjacent areas: California Division of Mines and Geology, Geologic Data Map No. 6, scale 1:750,000.

Kendrick, Katherine J., and McFadden, Leslie D., 1996, Comparison and contrast of processes of soil formation in the San Timoteo Badlands with chronosequences in California: *Quaternary Research*, vol. 46, no. 2, p. 149-160.

★Kendrick, Katherine J., and Graham, Robert C., 2004, Pedogenic silica accumulation in chronosequence soils, southern California: *Soil Science Society of America Journal*, vol. 68, p. 1295-1303. *The field localities are the San Timoteo Badlands and Cajon Pass. These geologists are at the US Geological Survey and University of California Riverside.*

★Kendrick, Katherine J., Morton, Douglas M., Wells, Stephen G., and Simpson, Robert W., 2002, Spatial and temporal deformation along the northern San Jacinto Fault, southern California: implications for slip rates: *Bulletin of the Seismological Society of America*, vol. 92, no. 7, October 2002 issue, p. 2782–2802.

Kendrick, Kathryn J., McFadden, Les, and Morton, D.M., 1994, Soils and slip rates along the northern San Jacinto Fault, *in* McGill, Sally F., and Ross, Timothy M., *editors*, Geological Investigations of an Active Margin: Geological Society of America, Cordilleran Section Guidebook, 27th Annual Meeting, San Bernardino, pages 146-151.

Magistrale, Harold, and Sanders, C., 1996, Evidence from precise earthquake hypocenters for segmentation of the San Andreas Fault in San Gorgonio Pass: *Journal of Geophysical Research*, vol. 101, p. 3031–3044.

Marquis, Samuel A., Jr., and Stewart, Edward, 1994, The delineation of wellhead protection areas in fractured bedrock terrains using groundwater flow models: Proceedings of the 8th National Outdoor Action Conference & Exposition, *Ground Water Management*, vol. 18, p. 327-343. *The study area is the Moreno Valley.*

Matti, Jonathan C., Morton, Douglas M., Cox, Brett F., Carson, Scott E., and Yetter, T.J., 2003, Geologic map and digital database of the Yucaipa 7½–minute quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey, Open File Report 03–301, map scale 1:24,000.

Matti, Jonathan C., Morton, Douglas M. and Cox, Brett F., 1992, The San Andreas fault system in the vicinity of the central Transverse Ranges province, southern California: U.S. Geological Survey Open–File Report 92–354, 62 p.

May, Steven R., and Repenning, Charles A., 1982, New evidence for the age of the Mount Eden fauna, southern California: *Journal of Vertebrate Paleontology*, vol. 2, no. 1, p. 109-113.

Merrifield, Paul M., and Lamar, Donald L., 1984, Possible strain events reflected in water-levels in wells along the San Jacinto Fault zone, southern California: Pure and Applied Geophysics, vol. 122, no. 2-4, p. 245-254. *Dr. Merrifield and Dr. Lamar spent many years in the late 1970s and early 1980s carefully monitoring water wells in the Moreno Valley-San Jacinto graben. They prepared annual reports of their studies (as Open-File Reports by the USGS). This published journal article conveniently summarizes their entire project.*

★Morton, Douglas M., 2001, Geologic map of the **Sunnymead 7½-minute Quadrangle**, Riverside County, California: U.S. Geological Survey Open-File Report 01-450, map scale 1:24,000. www.usgs.gov

★Morton, Douglas M., 1999, Preliminary digital geologic map of the Santa Ana 30×60–minute quadrangle, southern California: U.S. Geological Survey Open–File Report 99–172, map scale 1:100,000. *Covers the City of Moreno Valley — this geologic map should be used for a page-sized regional planning map that is then keyed to the Sunnymead Quadrangle at 1:24,000-scale.*

★Morton, Douglas M., 1977, Surface deformation in part of the San Jacinto Valley, southern California: *Journal of Research of the U.S. Geological Survey*, vol. 5, no. 1, p. 117-124.

★Morton, Douglas M., and Matti, Jonathan C., 1993, Extension and contraction within an evolving divergent strike-slip fault complex: the San Andreas and San Jacinto fault zones at their convergence in southern California, *in* Powell, R.E., Weldon, R.J.II, and Matti, J.C., *editors*, The San Andreas fault system: displacement, palinspastic reconstruction, and geologic evolution: Geological Society of America, Memoir 178, p. 217-230.

Morton, Douglas M., and Matti, Jonathan C., 1989, A vanished late Pliocene to early Pleistocene alluvial-fan complex in the northern Perris Block, southern California, *in* Colburn, I.P., Abbott, P.L., and Minch, J.A., *editors*, Conglomerates in Basin Analysis, the A.O. Woodford memorial volume: Society of Economic Paleontologists and Mineralogists, Pacific Section SEPM, vol. 62, p. 73-80.

Morton, Douglas M., Alvarez, R.M., and Campbell, Russell H., 2003, Preliminary soil–slip susceptibility maps, southwestern California: U.S. Geological Survey, Open–File Report 03–17.

Nicholson, C., Seeber, L., Williams, P., and Sykes, L.R., 1986, Seismicity and fault kinematics through the eastern Transverse Ranges, California: block rotation, strike-slip faulting, and low-angle thrusting: *Journal of Geophysical Research*, v. 91, p. 4891-4908.

Norton-Hehn, Victoria, MacFadden, Bruce J., Albright, L.Barry, and Woodburne, Michael O., 1996, Magnetic polarity, stratigraphy, and possible differential tectonic rotation of the Miocene-Pliocene mammal-bearing San Timoteo Badlands, southern California: *Earth & Planetary Science Letters*, vol. 141, no. 1-4, p. 35-49.

★Park, Stephen K., Pendergraft, Darin, Stephenson, William J., Shedlock, Kaye M., and Lee, Tien Chang, 1995, Delineation of intrabasin structure in a dilational jog of the San Jacinto Fault Zone, southern California: *Journal of Geophysical Research*, vol. 100, no. B-1, p. 691-702.

★Petersen, Mark D., Beeby, D.J., Bryant, W.A., Cao, C., Cramer, C.H., Davis, J.F., Reichle, M., Saucedo, G., Tan, S., Taylor, G., Toppozada, T., Treiman, J., and Wills, C.J., 1999, Seismic shaking hazard maps of California: California Geological Survey, Map Sheet 48, published July 1, 1999, approximate scale ≅ 1:2,127,600 www.conservation.ca.gov/cgs

This statewide shaking map is recommended for use by the Moreno Valley Planning Department. It shows that the ground-motion within Moreno Valley is among the highest in California.

Powell, Robert E., Weldon, Ray J., II, and Matti, Jonathan C., *editors*, 1993, The San Andreas fault system: displacement, palinspastic reconstruction, and geologic evolution: Geological Society of America, *Memoir 178*, 10 papers, 8 plates in map case, 332 p.

Proctor, Richard James, Geologic features of a section across the Casa Loma Fault (a branch of the San Jacinto Fault), exposed in an aqueduct trench near San Jacinto, California: *Bulletin of the Geological Society of America*, vol. 73, no. 10, p. 1293-1295.

Reynolds, Robert E., and Reeder, Wessly A., 1986, Age and fossil assemblages of the San Timoteo Formation, Riverside County, California, *in* Kooser, M.A., and Reynolds, R.E., *editors*, Geology around the Margins of the eastern San Bernardino Mountains: *Publications of the Inland Geological Society*, vol. 1, p. 51-56.
The San Timoteo Badlands on the northeastern side of Moreno Valley contain a rich faunal assemblage. Also refer to the paleontology report by Albright (1999). Because the fossils may affect land-use development, they need to be discussed and evaluated in the General Plan for the City of Moreno Valley.

Sadler, Peter M., Kooser, Marilyn A., Renfrew, James M., Hillenbrand, John M., 1989, Conglomerates and the reconstruction of strike-slip fault zones; lessons from the Transverse Ranges, southern California, *in* Colburn, I.P., Abbott, P.L., and Minch, J.A., *editors*, Conglomerates in Basin Analysis, the A.O. Woodford memorial volume: Society of Economic Paleontologists and Mineralogists, Pacific Section SEPM, vol. 62, p. 33-52.

★Sadler, Peter M., and Morton, Douglas M., *editors*, 1989, Landslides in a semi-arid environment, with emphasis on the inland valleys of southern California: University of California, Riverside, *Publications of the Inland Geological Society*, vol. 2, 386 pages.

★Sanders, Christopher, and Magistrale, Harold, 1997, Segmentation of the northern San Jacinto fault zone, southern California: Journal of Geophysical Research, v. 102, no. B-12, p. 27,453 - 27,467.

Schlehuber, Michael J., Lee, Tien Chang, and Hall, Bradley S., 1989, Groundwater level and hydrochemistry in the San Jacinto Basin, Riverside County, California: *Journal of Hydrology*, vol. 106, no. 1-2, p. 79-98.

Seeber, Leonardo and Armbruster, J.G., 1995, The San Andreas Fault system through the Transverse Ranges as illuminated by earthquakes: *Journal of Geophysical Research*, v. 100, no. B5, p. 8285–8310.

Sharp, Robert Victor, 1967, San Jacinto fault zone in the Peninsular Ranges of southern California: *Bulletin of the Geological Society of America*, vol. 78, no. 6, p. 705-729. *This Caltech PhD dissertation is the seminal work on the San Jacinto Fault.*

Sieh, Kerry E., 1996, The repetition of large-earthquake ruptures, *in* Knopoff, L., Aki, K., Allen, C.R., Rice, J.R., and Sykes, L.R., *convenors*, Earthquake Prediction – the scientific challenge: *Proceedings of the National Academy of Sciences*, v. 93, p. 3764-3771, April 1996.

Sieh, Kerry E., and Matti, Jonathan C., 1992, Earthquake geology, San Andreas Fault System, Palm Springs to Palmdale: Association of Engineering Geologists, 35th Annual Mtg. in Long Beach, field trip guidebook & reprint volume published by So. Calif. Section of AEG, 165 pages of reprinted papers.

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Lifelines that may be ruptured by the active San Jacinto Fault in eastern Moreno Valley

Natural Gas Transmission – Colorado Aqueduct – Highway 60
Water Mains – Electric Power Pylons – Telecommunications
Fiber Optics Cable – Sewage

The City of Moreno Valley is unusually vulnerable to explosions, fires, and loss of lifelines because a large number of lifelines cross the active San Jacinto Fault on the eastern side of Moreno Valley. New housing tracts and developments on the eastern and northeastern side of Moreno Valley need safe and reliable lifelines that have shut-off valves and minimize the number of active fault crossings. Proper greenbelts for utility corridors, automatic shut-off valves, and structural set-backs of homes from the location of likely fault rupture are recommended. These references will assist with seismic safety planning by the City of Moreno Valley.

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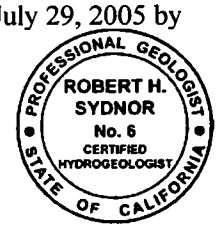

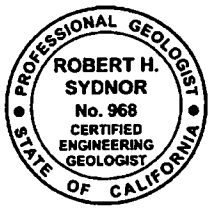

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Letter I

CENTER FOR BIOLOGICAL DIVERSITY

CALIFORNIA AND PACIFIC OFFICE

protecting and restoring natural ecosystems and imperiled species through science, education, policy, and environmental law

August 1, 2005

VIA ELECTRONIC MAIL (without exhibits) and CERTIFIED MAIL (with exhibits)

Ms. Cynthia Kinser
Principal Planner
Community Development Department
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generalplan@moval.org

RE: General Plan Update Draft Program Environmental Impact Report for the City of Moreno Valley

Dear Ms. Kinser,

I. INTRODUCTION

These comments are submitted on behalf of the Center for Biological Diversity ("Center") on the Draft Program Environmental Impact Report ("DEIR") for the City of Moreno Valley General Plan ("the project"). The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 14,000 members throughout California and the western United States, including in Riverside County where the project is located. The Center submits the following comments on behalf of our members, staff, and members of the public with an interest in protecting the native species and habitats of the project area.

I-1

The Center has numerous concerns regarding the inadequacy of the current environmental documentation for the project. The DEIR has failed to identify and adequately analyze several potential environmental impacts of the project, including impacts to biological and agricultural resources and air quality, and has failed to fully analyze a range of alternatives, including alternatives that would avoid significant impacts or include enforceable mitigation measures to minimize those impacts. The DEIR also fails to provide an updated, accurate

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I-1 (cont.) environmental baseline. The EIR for the Moreno Valley General Plan update can only be adopted when adequate environmental review is completed. The Center hopes and expects that the City of Moreno Valley will give full consideration to all comments submitted regarding this project.

II. THE DEIR FAILS TO MEET THE REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

I-2 An EIR is a detailed statement, prepared under the California Environmental Quality Act, Public Resources Code §§ 21000-21178 ("CEQA"), describing and analyzing the significant environmental effects of a project and discussing ways of avoiding or mitigating those effects. 14 Cal Code Regs § 15362. The purposes of an EIR are to provide decision-making bodies and the public with detailed information about the effects a proposed project is likely to have on the environment, to list ways in which the significant effects of a project might be minimized, and to indicate alternatives to the project. Pub. Res. Code § 21061; 14 Cal Code Regs. § 15002. The following purposes have also been enumerated by California Courts: an EIR should provide disclosure of all relevant facts; should provide a balancing mechanism whereby decision makers and the public can weigh the costs and benefits of a project; should provide a means for public participation; should provide increased public awareness of environmental issues; should provide for agency accountability; and should provide substantive environmental protection. Because of the shortcomings discussed below, the DEIR for the project is inadequate to meet both the procedural and substantive mandates of CEQA.

A. The DEIR Fails To Analyze A Meaningful Range of Feasible Alternatives.

I-3 An EIR must describe a range of reasonable alternatives to the project, which would feasibly attain most of its basic objectives but would avoid or substantially lessen its significant environmental effects. Cal. Code Regs § 15126.6(a). The City has a substantive duty to adopt feasible, environmentally superior alternatives. Pub. Res. Code § 21002, Cal. Code Regs §§ 15002(a)(3), 15021(a)(2). A lead agency cannot abdicate this duty unless substantial evidence supports a finding that the alternative is infeasible. *See, e.g., Citizens of Goleta Valley v. Board of Supervisors*, 197 Cal. App. 3d 1167, 1181 (1988). The DEIR analyzes only two action alternatives aside from the No Project/Existing General Plan alternative, and while each alternative would entail a different *level* of development, all three alternatives (including the existing General Plan) provide for the development of the *same* 18,800 acres of vacant lands. DEIR at 5.7-11. Thus, the DEIR fails to include a reasonable range of alternatives because it does not analyze an alternative that reduces the absolute amount of acreage to be subject to urban development (below the levels of urbanization authorized in the existing general plan). The DEIR also considers but impermissibly rejects one alternative that was environmentally superior to all the other action alternatives: the Increased Preservation of Agricultural Lands (6.2). The DEIR concludes that this alternative could result in fewer local impacts but more regional impacts on traffic and circulation and air quality because more urban development would be built elsewhere, leading to increased sprawl in more remote areas. This reasoning is based on the

entirely speculative assumption that development actually would be authorized in those remote areas, rather than located in infill within existing cities such as Riverside. The DEIR also implies that development within Moreno Valley is not itself "sprawl." Much of the land within the boundaries of the City of Moreno Valley has extremely high biological and agricultural value, particularly that abutting large blocks of open space such as Lake Perris/San Jacinto Wildlife Area and the Badlands. Locating tract housing and industrial parks in these areas (as proposed in General Plan Alternatives 1,2, and 3) is the very definition of urban sprawl.

I-3 (cont.)

The DEIR discloses that the impacts of all the General Plan Land Use alternatives on agricultural resources are significant and unavoidable. DEIR at 5.8-10. The DEIR admits that the Increased Preservation of Agricultural Lands alternative would have fewer impacts than the General Plan Land Use alternatives on agricultural and biological resources, as well as on local air quality and traffic, but concludes that the impacts would still be significant and therefore this alternative adds nothing to conservation. Because the DEIR claims that this alternative would generate less economic activity, it was rejected from further analysis. However, the DEIR utterly fails to take into account the vast economic *benefits* of open space and agricultural uses when considering this alternative (see Exhibit A, Bank of America 1996; *Beyond Sprawl: New Patterns of Growth to Fit the New California* and Exhibit B, Hanak and Baldassare 2005; *California 2025: Taking on the Future*). Because the DEIR clearly shows that the Increased Preservation of Agricultural Lands alternative actually is a feasible and environmentally superior alternative, this alternative should have been thoroughly analyzed alongside the General Plan Land Use alternatives.

I-4

Additionally, the DEIR failed to analyze an alternative that would avoid significant impacts to the San Jacinto Wildlife Area. In fact, each of the General Plan Land Use alternatives would include commercial designation along the eastern boundary of the San Jacinto Core Reserve. DEIR at 5.9-87. The San Jacinto Wildlife Area is a world-class ecological reserve supporting a rich diversity of plant and animal species, including important populations of Stephen's kangaroo rat, Los Angeles little pocket mouse, San Jacinto Valley crownscale, thread-leaved brodiaea, and other federally and state protected species. It is a Core Reserve under the Western Riverside Multiple Species Habitat Conservation Plan ("MSHCP") whose purpose is to authorize take in exchange for creating a conservation plan that would support viable populations of covered species and contribute to the recovery of those species. The San Jacinto reserve was established as mitigation for take of federally protected plants and animals throughout the Riverside County, and to compromise the biotic integrity of this reserve would violate the stipulations of prior plans. The DEIR should analyze a feasible alternative that avoids significant impacts to the San Jacinto Core Reserve by zoning the lands surrounding the reserve as open space and/or agricultural, among other protections.

I-5

The DEIR acknowledges that the project will result in significant unavoidable effects including loss of open space, degradation of air quality, fragmentation and loss of extensive areas of natural habitats and associated biological resources (including harm to listed species such as the Stephens' kangaroo rat and Nevin's barberry, and other sensitive plants and animals),

I-6

impacts to water resource availability, and increased traffic and congestion. DEIR Table 2-2. Nevertheless, the DEIR fails to identify and/or analyze feasible alternatives to the proposed project that would focus on protection of biological and agricultural resources, including building town houses and clustered development around shopping and transportation hubs without sacrificing the high-ecological-value agricultural lands and open space within the planning area. Such transit-based, high-density development could go a long way towards mitigating the impacts of the project to both air quality and biological and agricultural resources and providing a high quality of life for the residents of Moreno Valley.

I-6 (cont.)

B. The DEIR's Description of the Environmental Setting and Environmental Baseline are Inadequate.

The DEIR relies on the use of outdated information, thus precluding the ability of decision-makers to adequately weigh the costs and benefits of the project. For example, the map of existing land uses (Figure 5-1) is based on data from the year 2000, and the latest data on air quality are from the year 2002 (DEIR at 5.3-6 to 5.3-9). Furthermore, the DEIR's biological resources analysis is not based on current species-specific surveys for any of the threatened, endangered and sensitive plants and animals in the planning area. The only information provided in the analysis on biological resources include broad, general descriptions of species and their habitats taken from the Western Riverside MSHCP (see Tables Table 5.9-5 and 5.9-8.), rather than updated species-specific surveys and locational data within the planning area. In fact, the DEIR provides literally no data on the population status of any threatened, endangered and sensitive species within the planning area. This lack of critical information ensures that the DEIR fails to provide even a basic foundation on which to properly quantify how urban development will impact biological resources and precludes informed decision-making. Unless and until the EIR provides adequate data regarding the current status of threatened, endangered, and sensitive species in the planning area, based on current surveys, it is premature to discuss how development will impact these species.

I-7

C. The DEIR Improperly Defers CEQA Mandated Environmental Review and Mitigation.

Many of the inadequacies of the DEIR identified in these comments can be attributed to the fact that the DEIR improperly defers analysis of many of the project's impacts, as well as formulation of mitigation measures, to a later time when development of specific projects is considered. This deferral frustrates informed decision-making and violates CEQA. "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 takes account of environmental consequences." CEQA Guidelines § 15151. *See Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Association*, 42 Cal. 3d 929 (1986) ("the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions."); *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners*, 91 Cal.App.4th 1344 (2001); *Stanislaus Natural Heritage Project v. County of Stanislaus*, 48 Cal. App. 4th 182 (1996). While

I-8

I-8 (cont.) the level of detail required in a program-level EIR is not the same as that required in an EIR for a specific development project, a lead agency is required to "use its best efforts to find out and disclose all it reasonably can." CEQA Guidelines §15144. In addition, "[a]n EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption or amendment." CEQA Guidelines §15146. The DEIR fails on both counts.

I-9 The DEIR has impermissibly deferred analysis of a number of environmental impacts, perhaps most egregiously with respect to biological resources. Despite the inclusion of page after page of general, unspecific, descriptive information about the biological resources of the planning area (*see* DEIR section 5.9), it is clear that the DEIR ultimately defers *all* analysis of impacts to threatened, endangered, and sensitive species and habitats to the implementation of the SKR HCP and Western Riverside MSHCP. The DEIR provides only four "mitigation" measures for biological resources that would ostensibly reduce impacts to less than significant. One mitigation measure is to state that, *where feasible*, projects will be designed to avoid sensitive habitat, and another is to require that alterations of watercourses and wetlands obtain all required permits. DEIR at 5.9-90. These general measures are already required by law, and are essentially meaningless in the context of CEQA in this case, as they defer all analyses and mitigation to a future time, with no assurance that sensitive habitats actually will be protected.

The remaining two mitigation measures for biological resources identified in the DEIR entail simply complying with the SKR HCP and the MSHCP. However, the MSHCP itself requires site-specific analyses of impacts – the very analyses that this DEIR is attempting to direct back to the MSHCP. This circular reasoning ensures that virtually no meaningful analysis of the impacts of development on biological resources of the planning area will ever be conducted. Basing the analyses of the project's impacts to threatened, endangered, and sensitive species on analyses from the MSHCP poses two major problems: 1) the MSHCP does not legally substitute for project-level CEQA review, avoidance, minimization, and mitigation of impacts, and 2) the MSHCP's species analyses themselves were fundamentally flawed.

First, the analysis of environmental impacts in the MSHCP was programmatic, and as such the implementation of the MSHCP does not eliminate the requirement under CEQA to conduct and disclose project-level, species-specific analyses in an EIR. The Endangered Species Act ("ESA") standards and definitions are not analogous to the CEQA standards for review, public disclosure, analysis of alternatives, and analysis of cumulative impacts. As the Center has pointed out in our comments to Riverside County, the MSHCP cannot substitute for CEQA review or provide assurances to agencies or project applicants that disclosure, analysis, avoidance, and mitigation will not be required for direct, indirect, and cumulative impacts under CEQA.

I-10 Secondly, the DEIR's analyses of impacts to biological resources – and implementation of mitigation measures – rely on fundamentally flawed analyses contained in the MSHCP. As such, the EIR's reliance upon implementation of the MSHCP to satisfy its requirements to avoid,

minimize, and mitigate impacts to special-status species will not ensure the conservation of these species in the planning area during project-level analyses. The MSHCP contains numerous deficiencies, including but not limited to: (1) failure to adequately describe the environmental baseline; (2) failure to adequately disclose and analyze the project's direct, indirect, and cumulative impacts to biological and other resources; (3) failure to incorporate all feasible mitigation (and inadequacy of proposed mitigation measures, including reserve design, size and funding); and (4) failure to analyze and adopt feasible environmentally-superior alternatives, such as an alternative with a larger reserve system or an alternative with an assured reserve. As detailed in the Center's many previous comment letters to Riverside County, the MSHCP is not biologically or legally adequate to conserve species or fulfill its functions under the ESA. Nor is the MSHCP biologically or legally adequate to "substitute" for CEQA disclosure, analysis, avoidance, and mitigation of impacts. The MSHCP does not even meet the most rudimentary requirements for environmental review that would be required by CEQA. In essence, the levels of take outlined in the MSHCP's Species Conservation Analyses could be severely underestimated, whereas CEQA requires analysis at the project-by-project level and, therefore, if adequate CEQA review is provided, the take of the species would be known. In the MSHCP, levels of take are truly unknown.

I-10 (cont.)

The deferral of analysis and mitigation in the DEIR constitutes a serious evasion of the thorough, quantitative analysis of impacts to plant and animal populations within the planning area that is required by CEQA. Site-specific impacts must be disclosed and analyzed and adequate mitigation measures proposed before the General Plan update is approved:

> By deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process....Environmental problems should be considered at a point in the planning process where "genuine flexibility remains." A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA.

I-11

Sundstrom v. County of Mendocino (1988) 202 Cal. App. 3d 296, 306-7 (emphasis added).

The DEIR also has not demonstrated that the formulation of mitigation measures now for the project as a whole is infeasible. Nor has the City adopted specific design criteria or performance standards as mitigation measures for this project and ensured no environmental harm will occur until such design criteria are met. *See, e.g., Sacramento Old City Association et al. v. City Council of Sacramento,* 229 Cal. App. 3d 1011, 1028-9 (1991); *Laurel Heights Improvement Assn. v. Regents of University of California,* 47 Cal. 3d 375, 418 (1988). This lack of analysis and deferral is contrary to CEQA.

I-12

Unfortunately, the DEIR contains numerous examples of impacts that are mentioned in only the most cursory fashion, and subsequently left both unanalyzed and unmitigated. For example, Table 5.9-8 lists the species with potential to occur in the project area, and potential impacts to the species are described typically in one or two sentences in an extremely general manner, but any actual quantitative analyses of those impacts are left to future EIRs, and discussion of mitigation for lost habitat is likewise limited. The DEIR will allow development adjacent to the Badlands and the San Jacinto Wildlife Area Core Reserve, resulting in fragmentation of open space that provides movement habitat to many species as wildlife corridors, but completely fails to adopt any specific feasible mitigation measures or design criteria that will ensure continuous wildlife corridors are preserved or that direct, indirect, and cumulative impacts to rare, threatened and endangered species and their habitat will be adequately mitigated (other than to referring to the MSHCP).

Feasible mitigation measures that should be discussed in the EIR include but are not limited to: (1) buffer zones between housing, streets, driveways and open space to reduce noise and light impacts; (2) limits on outdoor night lighting and street lighting to reduce impacts, including specific criteria for positioning, directing, and shielding lighting to avoid light spill into open space and sensitive habitat; (3) restrictions on off-leash dogs in open spaces; (4) walls or fences that will inhibit domestic animals from harassing and harming native species including "cat-proof" fencing to prevent house cats from accessing sensitive habitat; (5) identification and purchase of mitigation habitat of equal or greater quality *before* any grading or construction may begin on any project within natural open spaces including but not limited to construction of any infrastructure, streets, or housing; (6) securing adequate dedicated wildlife corridors throughout the planning area *before* any site specific approvals can be considered including, but not limited to, construction of any infrastructure, streets, or housing; (7) mitigation of at least 3:1 for all habitat loss to reflect the cumulative impacts of the loss of a large contiguous area of open space and habitat; (8) erecting educational signs that indicate the importance of the open space and sensitive habitat areas, prohibiting pet access, motorized vehicle use, and all activities that may harm or significantly disturb wildlife; (9) providing educational materials to all local schools regarding the importance of the open space and sensitive habitat areas and the connection between species survival and habitat conservation; (10) requiring gates to restrict access to lands set aside for habitat preservation by animals and motorized vehicles; (11) requiring the use of native vegetation for all development adjacent to Core Reserves in the planning area, and requiring that native seeds be collected on-site prior to grading and used for landscaping; and (12) buffering the lands adjacent to the Core Reserves by zoning them agricultural or open space.

I-13

Deferral of detailed environmental analysis to project-specific EIRs fails to understand the significance of a Program EIR. In this instance, well over 1,000 acres of grassland and agricultural lands will be opened to development under all the General Plan Land Use alternatives, including lands adjacent to Core Reserves. DEIR at 5.9-64. The City's duty to provide a detailed analysis of environmental impacts of the proposed project and to impose enforceable mitigation measures cannot be shifted to the future, therefore the DEIR's repeated

reliance on general background law, general plan standards, and other local planning standards is misplaced.

I-13 (cont.)

The City's duty to provide as much detail as possible in its environmental review, including identification and analysis of the direct, indirect, and cumulative impacts of the proposed project as a whole, identification and analysis of alternatives that will avoid those impacts, and adoption of enforceable mitigation measures, must be met before the general plan can be amended or updated.

D. The FEIR Fails To Properly Identify The Full Range Of Direct, Indirect, And Cumulative Impacts To Biological Resources And to Avoid or Mitigate Those Impacts.

I-14

As described elsewhere in this comment letter, the DEIR does not provide baseline data on the population status of species within the planning area, and refers to the MSHCP as mitigation for impacts without providing any site-specific information on local populations. Thus, it is very nearly impossible to adequately assess the environmental impacts of the project on special-status species. The DEIR admits that all the General Plan Land Use alternatives would result in significant impacts to numerous species including the Stephens' kangaroo rat, Los Angeles pocket mouse, San Diego pocket mouse, tricolored blackbird, mountain lion, slender-horned spineflower, San Diego thorn mint, Munz's onion, Nevin's barberry, and others. Table 5.9-8. However all "analyses" were entirely descriptive and qualitative. The DEIR only makes brief mention of potential impacts such as loss of habitat connectivity, edge effects due to noise, lighting, etc., and direct loss of habitat, and provides literally no measurable quantitative analyses of the effects of the project.

The DEIR does not fully analyze how the proposed zoning changes will contribute to habitat fragmentation and destruction. The DEIR also fails to require that all mitigation lands be secured *before* and grading or destruction of habitat. Mitigation that is delayed by months or years is *not* of equal quality and value to the species that depend on it, this is particularly true for nesting habitat and other breeding areas for special-status species. Where terrestrial species such as the Stephens' kangaroo rat may be found, the DEIR provides no measures for preservation of individuals or any requirements that grading and other land disturbing activities avoid breeding seasons. For migratory species such as Least Bell's vireo which return to the same area to nest each year, the DEIR provides no measures to avoid breeding season or ensure that any replacement habitat to mitigate lost occupied habitat is secured before the next breeding season.

Unfortunately the DEIR improperly defers identification and analysis of these impacts. The Program DEIR is precisely the stage at which the City is required to consider landscape-wide impacts from the potential loss of critical habitat and fragmentation of large areas of contiguous habitat.

E. The FEIR Fails To Identify And Analyze The Full Range Of Direct, Indirect, And Cumulative Impacts To Water Resources and Water Quality And To Avoid or Mitigate Those Impacts.

Surface waters in the planning area drain into the Santa Ana River, San Jacinto River, Canyon Lake Reservoir, and Lake Elsinore. The DEIR acknowledges that the project will cause significant impacts to these water resources but utterly fails to adequately identify or analyze the actual impacts that may occur. DEIR at 5.7-11. The DEIR simply notes that pollutants will be introduced into the water supply, without quantifying the potential amounts of such pollutants and their effects on biological resources within the drainage system. The DEIR concludes that that merely incorporating Best Management Practices and complying with permit provisions pursuant to the National Pollutant Discharge Elimination System ("NPDES") permit, and maintaining a storm system that conforms to Riverside County Flood Control and Water Conservation District drainage master plans, will reduce the impacts on water resources to less than significant. *Id.* However, NPDES permitting does not account for all potential pollutants that may impact water quality, and nothing in the NPDES permitting requirements provides an exemption from CEQA's requirements that all potential impacts of the project be identified, analyzed, and avoided or mitigated.

I-15

Another glaring omission in the DEIR is the complete failure to identify or analyze the direct, indirect, and cumulative impacts to the biological resources dependent on the surface water, in either the water resources section or the biological resources section. Because the DEIR fails to properly identify, analyze, avoid or mitigate impacts to water resources with respect to biological resources, the EIR must be revised. For example, the DEIR fails to properly identify and analyze the direct, indirect, and cumulative impacts from increased run-off created by development and increased impermeable surfaces in the area. Build-out of the project will also decrease recharge of native groundwater basins and reduce water available to plants and animals in the planning area, but the DEIR completely fails discuss these impacts.

I-16

CEQA requires that the City identify the source of water for development allowed by the project and examine the environmental impacts that may result if that water supply is tapped for the build-out of the project. *See Santiago County Water Dist. v. County of Orange*, 118 Cal. App. 3d 818 (1981); *Stanislaus Natural Heritage Project v. County of Stanislaus*, 48 Cal. App. 4th 182 (1996). Nowhere is this information divulged in the DEIR. Moreover, where the water supply is uncertain and a shortfall in those supplies theoretically available is likely, the EIR must evaluate that issue, identify other potential sources, and identify and analyze the environmental consequences of tapping those resources. *Santa Clarita Org. for Planning the Environment v. County of Los Angeles*, 106 Cal. App. 4th 715 (2003); *Napa Citizens for Honest Government v. Napa County Bd. Of Supervisors*, 91 Cal. App. 4th 342, 371 (2001). Where there is remaining uncertainty that the water supply will be available, the EIR must provide mitigation measures that will prevent development until water supply is secured. *See Napa Citizens*, 91 Cal. App. 4th at 374. The DEIR fails on all counts.

I-17

F. The FEIR Fails to Adequately Identify And Analyze Impacts to Air Quality, and To Avoid or Mitigate Those Impacts.

The DEIR's air quality section falls far short of CEQA's requirements. The project is located in the South Coast Air Basin ("SoCAB"), which has one of the most severe air quality problems in California and the nation. The DEIR discusses in detail the impacts of various pollutants and explains the state and federal Clean Air Act regulatory framework at some length, but then fails to conduct a complete analysis of the project's air quality impacts. The fact that
I-18 other agencies have regulatory control over some aspects of air pollution pursuant to other statutes in no way lessens the City's responsibility to fully disclose, analyze, avoid, minimize, and mitigate all air quality impacts of the proposed project. The past failure of many agencies to do so has been a major contributing factor to the SoCAB's current air quality crisis.

The DEIR looks at several criteria pollutants that are regulated by the California Air Resources Board (CARB) under the California Clean Air Act, including carbon monoxide (CO), oxides of nitrogen (NOx), oxides of sulfur (SOx), ozone (O_3), particulate matter (PM), sulfates, lead, vinyl chloride, hydrogen sulfide, and visibility (a measure of air quality rather than a pollutant). DEIR Table 5.3-1. However a range of other Hazardous Air Pollutants (HAPs), also called Toxic Air Pollutants (TACs) under California law should also be evaluated. The federal Clean Air Act requires the U.S. EPA to develop new regulations for 189 such toxic substances, in an effort to protect human health and decrease cancer risk. The U.S. EPA considers that an "acceptable" cancer risk caused by HAPs is a one-in-one million chance of contracting cancer over the course of an average person's lifetime. The CARB currently monitors and assesses the health risks of 10 HAPs in California, including Acetaldehyde, Benzene, 1,3 Butadiene, Carbon Tetrachloride, Chromium (Hexavalent), para-Dichlorobenzen, Formaldehyde, Methylene chloride, Perchloroethylene, and diesel particulates. The DEIR contains no description of these HAPs and no analysis of the project's impacts. The project's generation of HAPs during both the construction and operation phases of the project must be fully disclosed, analyzed, avoided, minimized, and mitigated in an EIR.

A wealth of information on the environmental and health ramifications of the SoCAB's poor air quality is readily available. These reports contain critical information on the serious health and environmental impacts of poor air quality. One study found that in San Bernardino County alone, 486 deaths per year are due to current $PM_{2.5}$ levels, and 231 deaths and 34,127 asthma attacks per year are due to current PM_{10} levels. Exhibit C, *Particle Civics, How Cleaner Air in California Will Save Lives and Save Money*, at 19. The DEIR's failure to include even the most basic information on the link between air quality, health impacts, and impacts to biological resources, let alone avoid and mitigate these impacts, renders it inadequate and is nothing short of a travesty in our highly polluted region.

I-19 The Air Quality Section of Appendix G of the CEQA Guidelines (Environmental Checklist Form) specifically calls out a project's potential to conflict with or obstruct implementation of any applicable air quality plan as an impact to be discussed. The DEIR

I-19 (cont.) contains no discussion of the proposed project's contribution to this problem. Failure to meet regulatory deadlines have serious economic, environmental, and health ramifications for the SoCAB, all of which should be discussed.

I-20 The DEIR also fails to address the proposed project's contribution to excess nitrogen deposition. This phenomenon is impacting vegetation in southern California and in particular causing losses of coastal sage scrub, a rare and threatened plant community that supports many threatened, endangered, and sensitive species. Exhibit C, Allen, et al., *Nitrogen Deposition Effects on Coastal Sage Vegetation of Southern California*, 1998. This impact must be disclosed and analyzed in a revised EIR.

I-21 The DEIR does not adequately explore mitigation measures to reduce air quality impacts. The DEIR finds that the project will have significant long-term impacts on air quality but fails to avoid or mitigate those impacts below the level of significance. Most of the measures relate only to construction impacts to air quality and none of the long-term operational mitigation measures identified are enforceable conditions of the project approval other than those measures which require adherence to existing laws and regulations—which is already required by law. DEIR at 5.3-17 to 5.3-18. Most of the operational mitigation measures are entirely voluntary, rely on implementation strategies of other agencies, and "encourage" changes in energy use and alternative materials rather than require such measures. None of the measures adequately address vehicular traffic or alternative transportation. The City's duty cannot be shifted onto other agencies, therefore its reliance on federal, state, or regional planning standards is misplaced. For example, the DEIR fails to adequately identify and analyze the direct, indirect and cumulative impacts to water and air quality that may occur due to build-out of housing within the planning area. Rather, the DEIR attempts to rely on standard conditions, such as conforming to SCAQMD rules during construction to fully mitigate any impacts from project construction (policy 6.7.4) and "encouraging" use of mass transit. As the City is well aware, mitigation measures should be *required* in order for the City to rely on them to reduce a project's impacts to the environment.

I-22 The DEIR has also essentially omitted any meaningful discussion of the project's long term cumulative air quality impacts. Air quality is an area where the always important cumulative impacts analysis is particularly crucial, because major air quality problems are created by a vast number of small sources which may appear individually insignificant. A revised EIR must be circulated that contains an adequate cumulative impacts analysis for each criteria pollutant and HAP and addresses topics including human health, and impacts to biological resources, including nitrogen deposition.

III. THE EIR SHOULD BE REVISED AND RECIRCULATED FOR PUBLIC REVIEW AND COMMENT.

I-23 A lead agency must recirculate an EIR for further public comment under any of four circumstances:

(1) When the new information shows a new, substantial environmental impact resulting either from the project or from a mitigation measure;

(2) When the new information shows a substantial increase in the severity of an environmental impact, except that recirculation would not be required if mitigation that reduces the impact to insignificance is adopted;

I-23 (cont.)

(3) When the new information shows a feasible alternative or mitigation measure that clearly would lessen the environmental impacts of a project and the project proponent declines to adopt the mitigation measure; or

(4) When the draft EIR was "so fundamentally and basically inadequate and conclusory in nature" that public comment on the draft EIR was essentially meaningless.

Guidelines §15088.5.

Based on the comments above, it is clear that the EIR must be re-drafted and recirculated. Conditions (1), (2) and (3) above will be met by meaningful and adequate discussion of the project description, impacts, mitigation measures, and cumulative impacts. The combined effect of these omissions makes it clear that the fourth condition has also been met.

IV. CONCLUSION

The Draft Program EIR for the Moreno Valley General Plan Update fails to adequately disclose, analyze, avoid, minimize, and mitigate the environmental impacts of the proposed general plan update. As detailed above, the DEIR fails to comply with CEQA and fails to provide necessary information about the impacts of the project in many areas including biological resources, open space, and air and water quality.

I-24

Neither decision makers nor the public can make informed decisions about the costs to the environment of the proposed general plan update based on this fundamentally flawed and cursory environmental review. The DEIR must address these issues and conduct adequate environmental review. The Center looks forward to reviewing a revised Draft EIR that takes into account the issues raised in this comment letter and in letters provided by the Sierra Club and others.

Sincerely,

Monica L. Bond

Monica Bond, M.S.
Center for Biological Diversity

List of Exhibits

Exhibit A: Bank of America, 1996; *Beyond Sprawl: New Patterns of Growth to Fit the New California.*

Exhibit B: Hanak, E. and M. Baldassare. 2005. *California 2025: Taking on the Future.*

Exhibit C: Sharp and Walker, *Particle Civics, How Cleaner Air in California Will Save Lives and Save Money*, Environmental Working Group.

Exhibit C: Allen, E.B, A. Bytnerowocz, R. Minnich, P.E. Padgett, *Nitrogen Deposition Effects on Coastal Sage Vegetation of Southern California,* USDA Forest Service Gen. Tech. Rep. PSW-GTR-166, 1998.

CC: (via U.S. mail, without exhibits)

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APPENDICES TO LETTER I

Beyond Sprawl: New Patterns of Growth to Fit the New California

Table of Contents:

Sponsor's Note:

This report suggests new ideas about how California can continue to grow while still fostering the economic vitality and quality of life that makes it such a vibrant place to live and work. It is sponsored by a diverse coalition—the California Resources Agency, a government conservation agency; Bank of America, California's largest bank; Greenbelt Alliance, the Bay Area's citizen conservation and planning organization; and the Low Income Housing Fund, a non-profit organization dedicated to low-income housing.

The fact that such a diverse group has reached consensus on the ideas in this report reflects how important the issue of growth is to all Californians. We hope this report will make a meaningful contribution to the public dialogue about the quality and direction of California's growth in the 21st century.

EXECUTIVE SUMMARY

California is at a unique and unprecedented point in its history—a point at which we face profound questions about our future growth that will determine the state's economic vitality and quality of life for the next generation and beyond.

One of the most fundamental questions we face is whether California can afford to support the pattern of urban and suburban development, often referred to as "sprawl," that has characterized its growth since World War II.

There is no question that this pattern of growth has helped fuel California's unparalleled economic and population boom, and that it has enabled millions of Californians to realize the enduring dream of home ownership. But as we approach the 21st century, it is clear that sprawl has created enormous costs that California can no longer afford. Ironically, unchecked sprawl has shifted from an engine of California's growth to a force that now threatens to inhibit growth and degrade the quality of our life.

This report, sponsored by a diverse coalition of organizations, is meant to serve as a call for California to move beyond sprawl and rethink the way we will grow in the future. This is not a new idea, but it is one that has never been more critical or urgent.

Despite dramatic changes in California over the last decade, traditional development patterns have accelerated. Urban job centres have decentralized to the suburbs. New housing tracts have moved even deeper into agricultural and environmentally sensitive areas. Private auto use continues to rise.

This acceleration of sprawl has surfaced enormous social, environmental and economic costs, which until now have been hidden, ignored, or quietly borne by society. The burden of these costs is becoming very clear. Businesses suffer from higher costs, a loss in worker productivity, and under-utilised investments in older communities.

California's business climate becomes less attractive than surrounding states. Suburban residents pay a heavy price in taxation and automobile expenses, while residents of older cities and suburbs lose access to jobs, social stability, and political power. Agriculture and ecosystems also suffer.

There is a fundamental dynamic to growth, whether it be the growth of a community or a corporation, that evolves from expansion to maturity. The early stages of growth are often exuberant and unchecked—that has certainly been the case in post-World War II California. But unchecked growth cannot be sustained forever. At some point this initial surge must mature into more managed, strategic growth. This is the point where we now stand in California.

We can no longer afford the luxury of sprawl. Our demographics are shifting in dramatic ways. Our economy is restructuring. Our environment is under increasing stress. We cannot shape California's future successfully unless we move beyond sprawl.

This is not a call for limiting growth, but a call for California to be smarter about how it grows—to invent ways we can create compact and efficient growth patterns that are responsive to the needs of people at all income levels, and also help maintain California's quality of life and economic competitiveness.

It is a tall order—one that calls for us to rise above our occasional isolation as individuals and interest groups, and address these profound challenges as a community. All of us—government agencies, businesses, community organizations and citizens—play a role. Our actions should be guided by the following goals:

- To provide more certainty in determining where new development should and should not occur.
- To make more efficient use of land that has already been developed, including a strong focus on job creation and housing in established urban areas.
- To establish a legal and procedural framework that will create the desired certainty and send the right economic signals to investors.
- To build a broad-based constituency to combat sprawl that includes environmentalists, community organizations, businesses, farmers, government leaders and others.

Californians are already taking some of these steps. We have attempted in this report to not only point out the obstacles to sustained growth, but also to highlight the positive actions that are occurring to better manage growth. Our fundamental message is that we must build on these early successes and take more comprehensive and decisive steps over the next few years to meet this challenge. To build a strong, vibrant economy and ensure a high quality of life for the 21st century, we must move beyond sprawl in the few remaining years of the 20th century.

INTRODUCTION

California is at the crossroads of change.

Our economy is emerging from its worst downturn in 60 years—a downturn that has required nearly all of the state's major industries to retool for greater competitiveness in a global marketplace. Our demographic profile is changing dramatically. New racial and immigration patterns are rapidly producing a truly multicultural society, creating a variety of related social and economic issues. At the same time, California has emerged as one of the most urbanized states in the union, as our metropolitan areas continue to grow in population and scale.

In the face of this change, California remains shackled to costly patterns of suburban sprawl. Even as our economy and our society are being reinvented daily, we continue to abandon people and investments in older communities as development leapfrogs out to fringe areas to accommodate another generation of low-density living. And we continue to create communities that rely almost exclusively on automobiles for transportation. In short, the "new" California—with 32 million people and counting—is using land and other resources in much the same fashion as the "old" California, with only 10 million people.

We cannot afford another generation of sprawl. As the Governor's Growth Management Council stated in a recent report: "What may have been possible with 10 or even 20 million people is simply not sustainable for a population of twice that much in the same space." Continued sprawl may seem inexpensive for a new homebuyer or a growing business on the suburban fringe, but the ultimate cost—to those homeowners, to the government, and to society at large—is potentially crippling. Allowing sprawl may be politically expedient in the short run, but in the long run it will make California economically uncompetitive and create social, environmental and political problems we may not be able to solve.

At a time when economic growth is slow and social tensions are high, it is easy to dismiss an issue like suburban sprawl as superfluous. Yet it lies at the heart of the very economic, social and environmental issues that we face today. Rapid population growth and economic change are occurring in a state increasingly characterized by a limited supply of developable land, environmental stress at the metropolitan fringe, and older communities in transition. With the onset of economic recovery, the next few years will give rise to land-use decisions of fundamental importance. They will help determine whether our state can succeed in re-establishing the economic and social vitality that have made it such a successful place to live and work for more than 140 years.

Suburban Sprawl and the "Old" California

In the decades after World War II, California emerged as an economic and political powerhouse, providing jobs, housing and prosperity for most of its rapidly growing population.

Underlying this success was a development pattern that emphasized expanding metropolitan areas, conversion of farmland and natural areas to residential use, and heavy use of the automobile. In the postwar era, this way of life worked for California. With a prosperous and land-rich state, most families were able to rise to the middle class and achieve the dream of home ownership. Government agencies and private businesses were able to provide the infrastructure of growth—new homes, roads, schools, water systems, sewage treatment facilities, and extensions of gas and electric distribution.

Within the last generation, however, this post-war formula for success has become overwhelmed by its own consequences. Since the 1970s, housing has become more expensive, roads have become more congested, the supply of developable land has dwindled, and, because of increasing costs, government agencies have not been able to keep up with the demand for public services.

Since the late 1970s, several efforts have been initiated to address the question of how to manage California's growth, but all have failed—some for lack of consensus, some for lack of engaged constituency, some simply because of bad timing.

The Challenge of the "New" California

In the 1990s, California is undergoing change of such scale and significance that it will literally redefine the state. To succeed, the new California must recognize and build upon the following changes in positive ways.

Population Growth

California's population continues to grow at a remarkably fast pace. Today's total of approximately 32 million people represents a doubling of the population since the mid-1960s, when California became the nation's most populous state.

During the boom years of the 1980s, California added more than 6 million new residents, a population larger than all but a few of the 49 other states. Even during the bust years of the early 1990s, the state's population grew at a rate of almost a half-million people per year—in effect, adding another Oakland or Fresno every year—even as we have suffered a net loss in the number of jobs.

This continuing surge in population puts pressure on both existing communities and on the remaining supply of undeveloped land, making it extremely difficult for traditional suburban patterns to accommodate more people.

Changing Demographics

While growing rapidly, California's population is also changing in significant ways. The demographic changes are well documented. Latinos—whose roots extend to Mexico, Central America, South America, and the Caribbean—are growing rapidly in number and may outnumber Anglos a generation from now. Californians of Asian ancestry now make up almost 10 percent of the population. African-Americans remain an important racial group, and the state's mosaic is rounded out by Native Americans, immigrants from South Asia and

the Middle East, and others wh[redacted]ing great diversity to the state. California [redacted]uly one of the world's most multicultural societies.

Underneath the racial diversity lies another important change in the state's population patterns that will have a profound effect on California's attitudes toward growth over the next generation.

Traditionally, the popular perception has been that California's population grows because of migration from other parts of the United States. However popular, this perception is no longer true. Most new Californians now come from other countries, principally in Latin America and Asia.

The birth rate is also an increasing source of population growth. During the 1990s recession, "natural increase"—the net total of births over deaths—has accounted for almost 400,000 new people each year. Tomorrow's California will include—for the first time—a vast pool of people who are Californians from birth. They will want what Californians before them have wanted—education, jobs and housing. Most will expect the state to find a way to accommodate them. But their numbers are so huge that they probably cannot be sustained by traditional suburban development patterns.

Economic Change

During the recession, California has undergone an unprecedented economic restructuring. The state has lost 400,000 manufacturing jobs since 1990, causing businesses and workers alike to rethink old assumptions about how to ensure prosperity.

Traditional foundations of the state's economy, such as aerospace and defence, have been drastically reduced and will probably never return, at least not in their previous form. Others—such as entertainment, technology, the garment industry and agriculture—remain just as important as ever. But they too have undergone tremendous change, becoming leaner and more efficient in response to global competition. And small businesses remain the largest source of new job creation. In the near future, the impact of the North American Free Trade Agreement will begin to be felt.

These economic changes are also putting pressure on the state's land-use patterns. The loss of manufacturing jobs is emptying out the state's long-established industrial areas, usually located in older communities. Downsizing and technological change in other industries is also rendering older buildings obsolete and creating a demand for new buildings—often in new suburbs—that are both inexpensive and flexible. The closure of many military bases is bringing a huge amount of land to the real estate market that will either extend sprawl or encourage new development patterns, depending on how that land is used.

Spreading Urbanization

In response to both demographic and economic pressure, California has become the most urbanized state in the union. According to the 1990 Census, more than 80 percent of all Californians live in metropolitan areas of 1 million people or more, with 30 percent of the state's population living in Los Angeles County alone.

This large-scale urbanization means that California's people and businesses compete intensely with each other for space to live and work. The edges of metropolitan areas continue to grow to accommodate expansion of population and economic activity, while some neglected inner-city areas are left behind. These patterns increase the stress of daily life while, at the same time, put more pressure on land and environmental resources at the metropolitan fringe.

SPRAWL AND ITS CAUSES

All of these factors—a growing population, a changing economy, and increased urbanization—have been present in California for many years. But they have accelerated in the 1990s, while traditional suburban development patterns have continued. In a state with such powerful growth dynamics, the results are astonishing. The following trends are typical of the effects of sprawl over the last 10 to 20 years:

- Employment centres have decentralized dramatically. While jobs used to be concentrated in central cities, most are now created in the newer suburbs. For example, the complex of office centres

around John Wayne Airport in Orange County—built on land that was until a generation ago, cultivated for lima beans—recently surpassed downtown San Francisco as the second-largest employment centre in the state.

- New housing tracts have pushed deeper into agricultural and environmentally sensitive areas. Job centres in suburban San Jose and the East Bay area have opened up Tracy, Manteca, Modesto, and other Central Valley towns as "bedroom suburbs," while job growth in the San Fernando Valley has stimulated housing construction 40 miles to the north in the Antelope Valley. This development has created metropolises virtually unmanageable in size.
- Dependence on the automobile has increased. According to the California Energy Commission, between 1970 and 1990 the state's population grew by 50 percent, but the total number of miles travelled by cars and trucks grew by 100 percent.
- Isolation of older communities, including central cities and "first wave" suburbs built in the 1940s and 1950s, has increased. Easy mobility for the middle class has caused them to abandon many older neighbourhoods, disrupting social stability and increasing the economic disparity between older communities and newer suburbs. The decentralization of jobs has hit older neighbourhoods especially hard, because new jobs are now virtually inaccessible to the poor and the working class. Also left behind are infrastructure investments, which are tremendously expensive to replicate in new suburbs.

Even though the consequences of sprawl have been understood for at least two decades, attempts to combat it have been fragmented and ineffective. The engine of sprawl is fuelled by a mix of individual choices, market forces, and government policies, most of which have only become more entrenched over time. These forces include:

- A perception that new suburbs are safer and more desirable than existing communities. Many people believe that suburbs provide them with good value—safe streets, neighbourhood schools, a "small-town" atmosphere, close proximity to their local governments, and new (though not necessarily better) community infrastructure.
- A perception that suburbs are cheaper than urban alternatives. Owning a starter home in a distant new suburb is still within the financial reach of a typical family, despite the increased commuting costs. The family's financial equation, however, does not take into account the larger cost to society of far-flung suburbs—a cost the family will eventually share in paying.
- A belief that suburban communities will give businesses more flexibility to grow. Businesses welcome the tax incentives and freedom from heavy regulation that are often provided in newer suburban communities trying to develop a strong business base. Businesses also view suburban locations as safer—a view reflected in the cost of insurance—and they perceive they will have access to a better-educated work force.
- Technological changes that have decentralized employment away from traditional centres. This phenomenon permits dispersal of both jobs and houses across a huge area. The emergence of the "information superhighway" may accelerate this trend.
- Highway and automobile subsidies that have traditionally fuelled suburban growth remain in place today. Since the 1950s, automobile use has been encouraged by government-financed road-building programs, and for the most part the "external costs" of automobile use (i.e., air pollution) have not been the direct financial responsibility of the individual motorist.
- Local land-use policies that inadvertently cause sprawl. In many older suburban communities, "slow-growth" attitudes restrict new development, pushing employment and housing growth to the metropolitan fringe. With a lack of regional planning, each community pursues its own self-interests, regardless of costs imposed on other communities.
- Fiscal incentives that encourage local governments to "cherry-pick" land uses based on tax considerations. Under Proposition 13's property-tax limitations, there is little fiscal incentive for many communities to accept affordable housing—and when such housing is built, developers must usually pay heavy development fees. Meanwhile, because communities must raise revenues to provide mandated services, auto dealers and retailers, both big sales-tax producers, receive subsidies to locate in communities.

The result of all these factors is a severe regional imbalance. Housing, jobs, shopping, and other activities are scattered across a huge area and long auto trips are often required to connect them. Such a development pattern imposes a considerable cost on all who use it, though the costs are often hidden and those who pay them are not always aware of it.

THE COST OF SPRAWL

The cost and consequences of sprawl have been documented among academics and planning experts for more than two decades. In the early 1970s, planning consultants Lawrence Livingston and John Blayney produced a landmark study showing that in some cases, a California community would be better off financially if it used a combination of zoning and land acquisition instead of permitting development of low-density subdivisions. A few years later, the U. S. Council on Environmental Quality produced its landmark report, The Cost of Sprawl—the first comprehensive analysis of sprawl's true expense to society. As fiscal and cost-benefit analysis techniques have become more refined, the true cost of sprawl has become much more apparent.

Today, no one in California is unaffected by the cost of sprawl. Its consequences spread across all groups, regardless of geography, race, income, or political status.

Taxpayers

Sprawling suburbs may be cheaper in the short-term for individuals and families who buy houses in new communities, but their "hidden" costs may ultimately be passed on to taxpayers in a variety of ways.

- The cost of building and maintaining highways and other major infrastructure improvements to serve distant suburbs.
- The cost of dealing with social problems that fester in older neighbourhoods when they are neglected or abandoned.
- The cost of solving environmental problems (wetlands, endangered species, air pollution, water pollution) caused by development of virgin land on the metropolitan fringe.
  Taken together, it is clear that all these costs have contributed to California s dire fiscal situation during the 1990s, which has strained state and local government budgets to the breaking point.

Businesses

Many businesses benefit from suburban locations. But all businesses, both small and large, also bear many of the following costs.

- Adverse impacts on the state's business climate. By reducing the quality of life, sprawl has made California a less desirable location for business owners and potential employees. By increasing suburban resistance to further growth, sprawl has made it difficult for businesses to relocate and expand in California. Both these trends increase the attractiveness of neighbouring states such as Arizona, Nevada, and Utah. For example, a major film studio recently decided to relocate its animation facility to Arizona, principally because of lower housing prices and less traffic congestion.
- Higher direct business costs and taxes to offset the side effects of sprawl. This can include the cost of new business infrastructure or of mitigating transportation and environmental problems. For example, in many metropolitan areas, air-quality regulators have forced businesses to take the lead in fighting air pollution by initiating carpooling programs for their employees.
- A geographical mismatch between workers and jobs, leading to higher labour costs and a loss in worker productivity. Many workers must now commute long distances to their jobs, which takes a significant toll on their personal, family and professional life. Many other workers are removed from large portions of the job market simply because they cannot get to where the new jobs are.
- Abandoned investments in older communities, which become economically uncompetitive because of sprawl and its associated subsidies. This is especially true of the state's utility companies, whose investments in gas, electric and water infrastructure are literally rooted in established communities.

Residents of New Suburbs

There is no question that new suburban residents are, in many ways, the principal beneficiaries of suburban sprawl. They often live in new and affordable neighbourhoods which they perceive as safe and prosperous. Yet many suburban residents are becoming increasingly aware that they pay a high price for these benefits in the following ways.

- The cost of automobiles. The average Californian spends one dollar out of every five on buying and maintaining their cars. As a consequence they have less to invest or spend on other items.
- Time lost commuting to work and other destinations. A huge number of Californians now spend an hour or more per day in their car, and the number continues to rise. A recent survey by the Walnut Creek-based Contra Costa Times showed that the commute times for residents of 10 cities in Alameda and Contra Costa counties had increased an average of 13 percent between 1980 and 1990.
- The cost of new suburban infrastructure. Suburbs are often perceived as "low-tax" locations, when, in fact, most new suburban homebuyers in California must pay additional taxes (usually Mello-Roos taxes) to cover the massive cost of new roads, schools, and other infrastructure required in new communities. These additional taxes often have the effect of doubling a new homeowner's property tax bill.

Residents of Central Cities and Older Suburbs

Residents of central cities and older suburbs are among the biggest losers in the sprawl process. Once they were among the most fortunate of metropolitan dwellers, because their central location provided access to jobs, shopping, and other amenities. However, sprawl has penalized them by creating or accelerating the following trends:

- Loss of jobs and access to jobs. Residents of older neighbourhoods no longer have convenient access to most jobs. This is especially difficult for poor and working-class citizens who must rely on public transportation, because it is difficult to commute to most suburban jobs without a car.
- Economic segregation and loss of social stability. By luring middle-class residents from older neighbourhoods, sprawl creates destructive economic segregation and robs those neighbourhoods of the social stability that will keep them viable. The distribution of income becomes more skewed, and it becomes increasingly difficult for low-income people to escape poverty.
- Under-utilised or abandoned investments. Businesses are not the only entities whose investments can become stranded when city neighbourhoods decline. Individual homeowners and small shop owners can also see a stagnation or decline in property values. And this trend is not only visible in the inner city. Huge investments in older suburban shopping centres, for example, are now threatened because these centres are perceived as uncompetitive.
- Shifts in political power and government services. By removing the middle class of all races from older communities, sprawl makes it easier for that middle class to ignore the political and social problems left behind. Thus, revenues fall and it becomes more difficult for older neighbourhoods—urban or suburban—to maintain government services, and the incentive for home ownership required to provide the foundation for prosperity.

Farmers

Agriculture remains one of California's leading industries. Yet sprawl continues to take a heavy toll on California agriculture in the following ways.

- A permanent loss of agricultural land. Between 1982 and 1987, the Central Valley—California's leading agricultural region—lost almost a half-million acres of productive farmland. Some of this land can be replaced by bringing new land into agricultural production, but often at a high economic and environmental cost. Also, many of California's microclimates support unique agricultural products that cannot be replaced by land in other areas. Highly productive coastal agricultural lands lost to sprawl cannot be replaced at any cost.
- A loss in productivity due to pollution. Sprawl-induced ozone pollution alone can reduce crop yields by as much as 30 percent. According to the Agricultural Issues Center at UC Davis, pollution-induced costs to agriculture exceed $200 million per year.
- A decline in farm communities. As sprawl has eroded agricultural production, the effect on farm communities has been devastating. In some cases, rural communities have been transformed into bedroom suburbs, creating destructive commuting patterns while destroying agriculture infrastructure and productivity.
- Long-term uncertainty. Sprawl destabilizes agriculture by creating the temptation to "sell out." The prospect of eventual sale to a developer reduces incentives for farmers to make long-term capital investments. In many cases, farmers stay afloat financially only by borrowing against the speculative

value of their farm for development—creating a self-fulfilling prophecy of sprawl. Another uncertainty for farmers arises from increased demand for water for urban uses driven by sprawl patterns.

The Environment

Traditional development patterns have taken a massive toll on all three basic elements of the natural environment: land, air, and water.

- Land: After 50 years of sprawl, California's metropolitan areas are enormous, reaching deep into natural ecosystems that were thriving even a generation ago. Some 95 percent of the state's wetlands have been destroyed over the last 200 years, and the few wetlands that remain are threatened. Also, California now has the highest number of candidate and listed endangered species of any state—partly because sprawl is affecting the state's unmatched diversity of biological systems. Sprawl makes it more difficult to resolve these land conservation issues by putting tremendous development pressure on the supply of remaining open land. Finally, sprawl compromises one of the most essential assets of California—the beauty and drama of its landscape. Far from being just a luxury, this value of open space is an important component in the state's ability to attract and hold workers and investors.
- Air: California has the worst air quality in the nation, and air pollution experts estimate that a third of all air pollution emissions are traceable to car and truck emissions exacerbated by longer commutes and higher auto use. The South Coast Air Quality Management District, which has the strictest air-pollution regulations in the country, estimates that air pollution in the four-county Los Angeles area costs $7.4 billion per year, or about $600 per resident. Dramatic gains in pollution technology are likely to be offset by further sprawl. According to air pollution expert J. V. Hall, "The benefits of pollution-reduction technology can easily be overwhelmed by our choices about where to live and work, about modes of travel, and about how many miles we drive."
- Water: Sprawl takes a serious toll on California's water supply. Forty of the state's 350 groundwater basins are seriously over drafted, and water planners predict that by 2020 the state will face a water supply deficit of between 2 million and 8 million acre-feet. Though not the sole cause, fringe development does make the water issue more expensive and complicated to manage.

BEYOND SPRAWL

In the post-war era, the continuous cycle of suburban sprawl—counterproductive as it was in many ways—actually helped to fuel California's prosperity, as consumption of new houses and new cars became one of the bases of our prosperity. It is clear, however, that the new California cannot sustain old patterns of urban development, if the state is to prosper in the future.

The sponsors of this report—Bank of America, the California Resources Agency, Greenbelt Alliance, and the Low Income Housing Fund—firmly believe that California cannot succeed unless the state moves beyond sprawl. Strong policy direction from our political leaders on both the state and local level is essential. But government policies alone will not help California move forward. Our businesses, our community groups, and our citizens must also take the initiative. We must understand how sprawl affects each of us individually, how it impedes the state's progress, and how it could make a prosperous future more difficult to achieve.

Population growth will require some degree of development on the suburban fringe. The question is whether we will be able to use existing urban and suburban land more efficiently in order to minimize sprawl and protect valuable open spaces. The answers will lie in our ability to attract housing and businesses to older urban and suburban areas and to channel development on the fringe to achieve the desired protection and economic benefits.

California businesses cannot compete globally when they are burdened with the costs of sprawl. An attractive business climate cannot be sustained if the quality of life continues to decline and the cost of financing real estate development escalates. People in central cities and older suburbs cannot become part of the broader economy if sprawl continues to encourage disinvestment, and the state can neither afford to ignore nor fully subsidize these neglected areas.

California must find a new development model. We must create more compact and efficient development patterns that accommodate growth, yet help maintain California's environmental balance and its economic competitiveness. And we must encourage everyone in California to propose and create solutions to sprawl.

A do-nothing approach, in effect, constitutes a policy decision in favour of the status quo. This, in fact, has been the de facto direction for the last generation. While the state and the regions have created a leadership void in this area, many local governments have stepped in with their own policies, which often have served to promote sprawl rather than prevent it. Recent research has shown that individual local growth-control policies do not stop development, but merely deflect it—often to another area further out on the metropolitan fringe, where the cost of development is even greater. The question is not whether to address sprawl. The question is how to address it.

In the early 1990's, the California Legislature convened a consensus project on growth management, and in 1991 Governor Wilson formed a cabinet-level council charged with developing a plan on how the state should address the challenge. A great deal of good work was done and agreement was reached in some areas. These processes did not result in legislative action, but a good foundation of understanding has been established.

As was stated at the outset, this report is not meant to be a manual or a tactical "how-to" on changing development patterns in California. Rather, it is meant as a wake-up call to all Californians that the sprawl issue has a new urgency in the state, and that all of us can play a role in addressing the problem.

To succeed, we will have to set aside individual interests, build on the foundation that has been laid, and work for the good of the whole. We need to address sprawl through community action, public policy, private business practices, and individual behaviour. It is our intent that the ideas and examples that follow will be used as a basis for further refinement and concerted action.

First, more certainty is needed in delineating where new development should and should not occur. Sprawl occurs partly because current policy constrains the real estate market by rewarding "leapfrog" development driven by cheaper and more easily developed land on the metropolitan and suburban fringe. The alternative is to be more explicit about conservation and development priorities, targeting actions and policies for better integration of the two.

Using this approach means utilizing land at the suburban fringe more efficiently and encouraging the reuse of land and other development opportunities in already developed areas. It does not mean stopping growth at the fringe, but doing it at density levels that will not promote further sprawl. To succeed, this approach needs more effective public policies encouraging such compact growth and removing barriers to it.

However, the other side of certainty for developers requires commitments to conserve ecologically important habitats and other open space. Accelerating state-wide planning efforts such as Natural Communities Conservation Planning (NCCP), which involves voluntary action at the local level and requires consensus among development, environmental, community and local government interests, will enhance our ability to provide greater environmental and economic certainty regarding new development. With its emphasis on biological assessment, ecosystem protection and compatible economic development, NCCP can provide much greater certainty to both those who want to develop their property and those who want to protect the natural environment. Broader use of mitigation banks can facilitate market-based compensation to landowners who choose to help protect ecologically valuable land.

Conservation of other habitat and open space, such as prime agricultural land, will also require us to find creative approaches like the NCCP process. The newly established California Environmental Resources Evaluation System (CERES) will help this process by expanding access to data about important resources in the state.

Regardless of the methods used, much of the leadership for providing greater certainty for conservation and development must come from the state, regional agencies, and local governments working together. But private businesses also have a critical role. Especially in difficult economic times, real estate developers and their lenders know that certainty of approval and availability of infrastructure, rather than speculative leapfrogging, will reduce costs and reduce processing time. Thus, new real estate developments can be

brought to market more quickly and cheaply within areas where effective consensus plans for conservation and development have been created.

Second, we should make more efficient use of land that has already been developed. Older urban and suburban neighbourhoods should be reinforced as good places to live and do business, and the process should take place without displacing low-income residents. Sprawl occurs partly because of the perception that older neighbourhoods are dangerous, expensive, obsolete, unpleasant, or otherwise unacceptable to those who have the option of leaving. The result is a tragic neglect of both people and capital investments.

Older neighbourhoods must be maintained and improved so they are again desirable places to live and work. Old Town Pasadena, the South of Market area in San Francisco, and the train depot reconstruction in Sacramento are all prime examples of successful restoration projects. Better school systems, job training and access to capital for small businesses are prerequisites. These efforts require a combination of government policy initiatives, active business investment, and special efforts by individuals and community groups.

Attracting jobs is absolutely critical. State and local governments should adopt land-use and transportation policies that reinforce investments in older neighbourhoods. Incentives must be developed for job-creating businesses, homebuyers, and others willing to invest in older neighbourhoods. For example, Superfund laws can be made more sensible so existing industrial sites can be recycled into new uses. Investors can make more aggressive use of low-income housing tax credits. Wider use can be made of Enterprise Zones. And tax credits or other incentives can be established for lending and equity investments that support small businesses and job growth. Development on the fringe imposes infrastructure, pollution and social costs well in excess of assessed development fees. If we rationalize development and control the costs of sprawl, it will free up capital that can be reinvested into existing cities and suburbs.

Older communities themselves need to make their neighbourhoods attractive to job-creating and housing investments. Individuals and community groups in those areas should redouble their efforts to improve the quality of urban life in small ways, for example, by forming community-based crime prevention groups and supporting local community development efforts that will enhance their neighbourhoods.

Home ownership at all income levels needs to be encouraged. In general, those who own homes have the greatest interest in maintaining neighbourhood vitality. Public policy should support methods of keeping low-income people from displacement through development of affordable housing (both home ownership and rental) and provision of supportive services. Also if developers are to provide quality housing in existing neighbourhoods, they need protection from frivolous environmental and product liability suits.

The closing of military bases in California offers interesting potential for development. Bases have substantial potential as alternatives to building houses and job centres on the suburban fringe. While there are problems associated with redeveloping many bases, they also have excellent potential for showcasing how to resolve difficult urban rebuilding strategies.

Third, a legal and procedural framework should be established to create the desired certainty and send the right economic signals to investors. Four elements are needed.

(a) Where development is allowed, state and local permitting should be streamlined. This is critical to encouraging development in urban and older suburban areas. It may require changes to legislation that relates to permitting.

(b) Development at the metropolitan fringe should be required to pay the full marginal cost of development. Housing and business space on the metropolitan fringe is often inexpensive because those developments pay for local infrastructure, but do not pay the full cost of constructing roads, developing water supplies, mitigating environmental problems, and creating regional imbalances. Imposing such costs on those developments would discourage sprawl. For example, the city of Lancaster adopted an innovative program that requires new development to pay capital and operating costs of infrastructure. Development further out pays its full cost, while development that is closer to the city's centre pays much less, since it is tied in to existing city services.

Again, this is a task that requires the active participation of both government and business. For example, many government agencies, such as water suppliers, subsidize development on the metropolitan fringe by spreading the cost of their infrastructure across all users, new and old. Changing such policies would discourage sprawl.

Failing to levy the full marginal cost gives leapfrog development an unfair competitive advantage over projects in existing urban areas, where transactions are made more difficult and expensive by toxic waste and other environmental liability issues. Expanding environmental audits to include wetlands, endangered species, and other issues—a practice that is already beginning—would also discourage sprawl by including the full assessment of environmental cost in private real estate transactions.

(c) California's local governments should encourage more efficient and coordinated local land-use policies. Sprawl has been encouraged by tax revenue competition among local governments for some land uses, such as retail centres, and by slow-growth policies that discourage other land uses, such as housing.

Development patterns that are now truly regional are being created almost completely by an accumulation of local decisions. But some local governments are beginning to show that it is possible to work together toward consistent land-use policies when given the incentive to do so. In planning for the reuse of closed military bases, for example, local governments are forming "joint powers authorities" in which many jurisdictions work together toward a common goal.

The vast majority of Californians choose to locate in large metropolitan areas. But most of these people live in small, politically independent suburban jurisdictions. These local governments must work together toward a consistent set of land-use policies—such as discouraging development on the metropolitan fringe and reinforcing investments in transit systems—that will enhance economic opportunity and quality of life across the entire metropolitan area. Joint powers authorities, such as those created for military base reuse, should be viewed as one model for cooperative planning, and others are needed.

(d) Technological change should be used to combat sprawl rather than encourage it. In the past, technological advancements (such as automobiles and government-sponsored freeways) have supported sprawl, requiring expensive after-the-fact government action of questionable value (such as ridesharing requirements). Today we stand at the threshold of a new technological era that offers the opportunity to have more work done at home and in local communities. We must take advantage of the opportunities presented by the information superhighway to improve our land-use patterns rather than further destroy them.

For example, the information superhighway could end up encouraging a further decentralization of jobs to the metropolitan fringe. Freed of a daily commute to a large employment centre, some individuals and small businesses will seek to locate in distant suburbs and travel back to older urban centres to do business as needed. This trend could put more pressure on land at the fringe.

However, the telecommunications revolution can also hold the potential for reviving economically troubled areas. Because of its locational flexibility, telecommunications can provide new job prospects for older urban neighbourhoods and for rural towns. Both government policy and private business practice should encourage the use of telecommunications to reinforce existing communities rather than further dissipate them.

Fourth, we should forge a constituency to build sustainable communities. Past efforts to reduce sprawl have been hampered because little constituency exists beyond groups of government reformers, some local government leaders, community groups, and conservationists. But, as this report suggests, many other players in California's future will also find themselves increasingly stifled by sprawl. Political alliances must be forged between environmentalists, inner-city community advocates, business leaders, government experts, farmers, and suburbanites to improve the quality of life in all our existing communities and protect our resources.

This will not be an easy task. Most of these groups are focused on their specific agendas and often harbour animosity toward each other even though alliances make long-term strategic sense.

But it is possible. For example, environmentalists concerned about development at the suburban fringe have tremendous opportunities to work with governments and community organizations seeking to increase

investment in more central urban areas. Farmers seeking a long-term future in agriculture near an urban area can form very effective alliances with those working to protect resources. Community groups, government agencies, and builders can explore new marketing and funding options that support home-building closer to major transit lines, taking advantage of the huge demand for housing created by the state's dramatically changing demographics. Taxpayers concerned about the inefficiency of governmental expenditures can join with those working to make better use of infrastructure in existing urban areas. There are literally dozens of such alliances waiting to be created.

We must act now. The decisions we make in the next few years will determine California's future course—and its chances for success. To build a strong economy and retain a good quality of life for the 21st Century, we must move beyond sprawl to a new vision of community in the few remaining years of the 20th Century.

Acknowledgments

All of the report's conclusions may not be endorsed in their entirety by each of the four sponsors. At the same time, each of the organizations believes that the time to act is now and that this report can help advance the public dialogue about California's growth and development.

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California 2025: Taking on the Future

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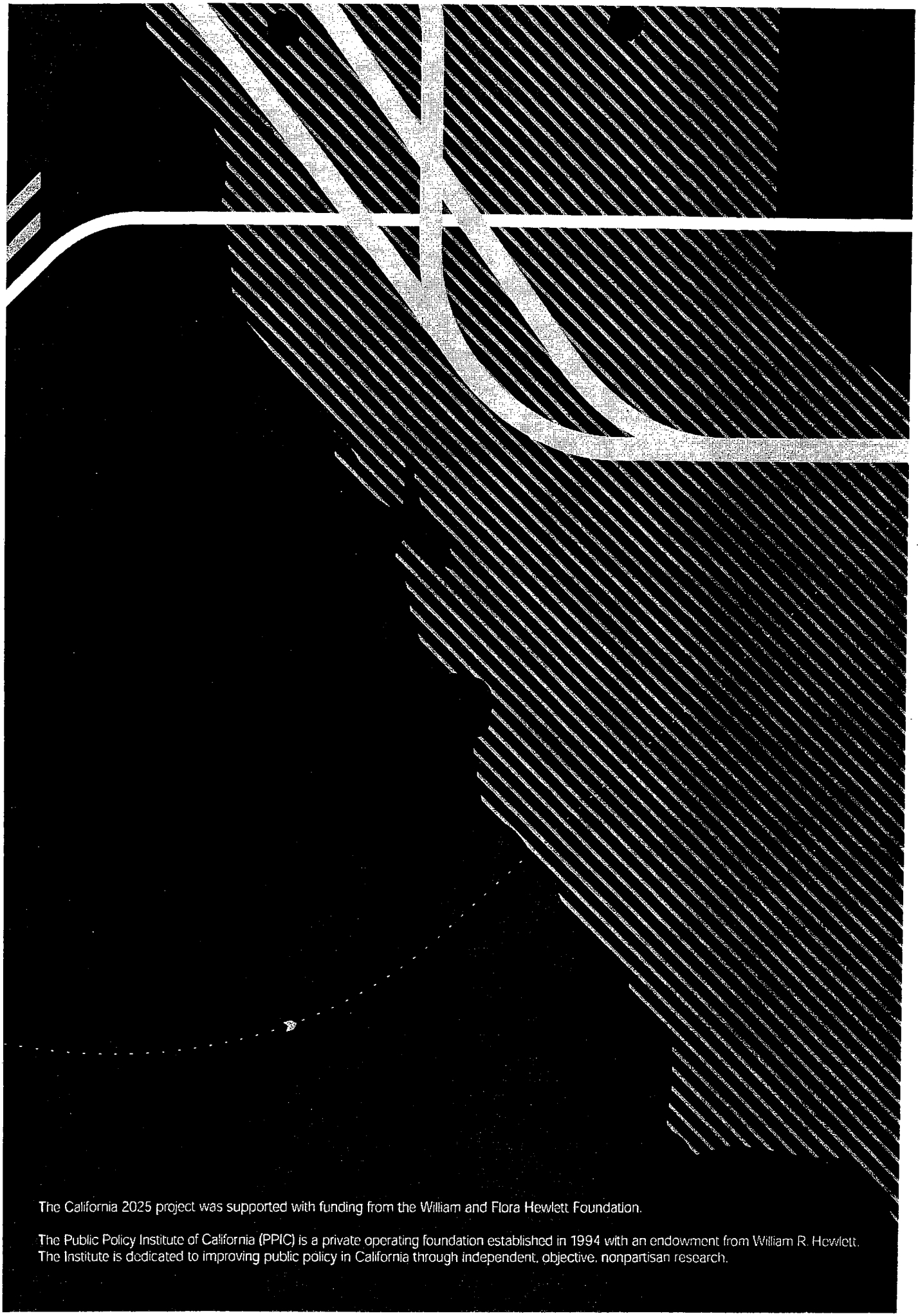

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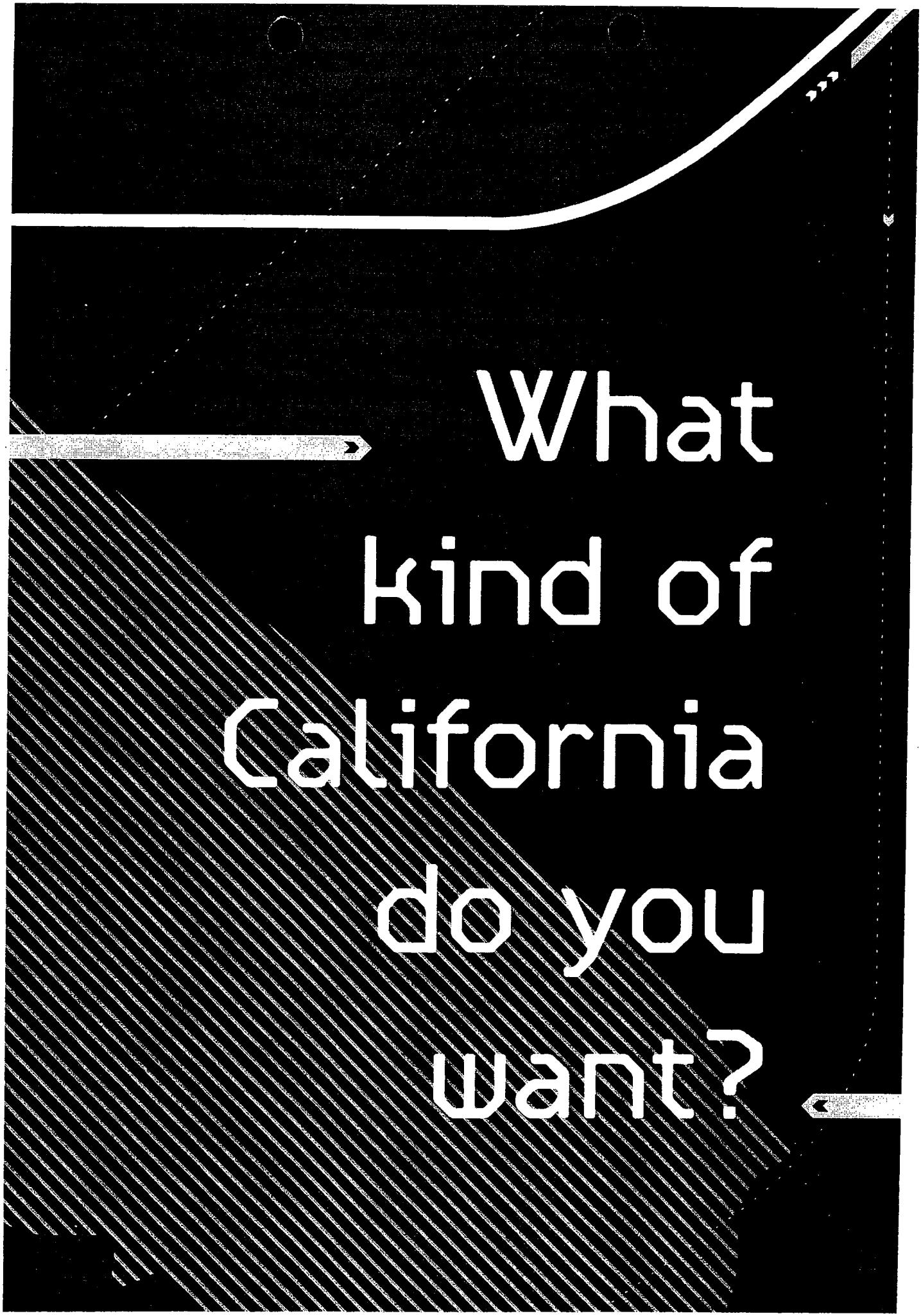

What
kind of
California
do you
want?


The Challenge

California is being reshaped by a changing population, a globalizing economy, and fantastic new technologies that are redefining our relationships and our sense of geography. The grand universities, highways, and water systems that fueled prosperity for recent generations are now stretched beyond their capacities. The reforms most critically needed are threatened by major obstacles in leadership and governance, finance and equity, influence and participation.

We haven't reached a crisis point, but trends and forces are gathering that could seriously erode the quality of life in California in the next two decades. Thoughtful, systematic action is needed. If we don't make careful choices now, the future we get by default may not be our worst nightmare, but it probably won't be the brightest dream for ourselves, our children, and our grandchildren.

We should make no mistake — this isn't someone else's problem or responsibility. All Californians have a stake in this. And all Californians with the ability to influence the policies and programs needed to secure our future must understand the problems and options and make their voices heard.

CA2025: It's Your Choice is a starting point. It describes facts about our population, our economy, and our physical structures so that we can start a discussion about the future from the same page, beginning with this question: What kind of California do you want?

It's a simple question that is extremely hard to answer. To reach a common future that reflects our regional, financial, and ethnic differences will require tough choices about sacrifices to be made and higher prices to pay. Not least important, the long-range view of California's future presented here helps illustrate how short-term gains for one group today can jeopardize long-term opportunities for all groups in the future.

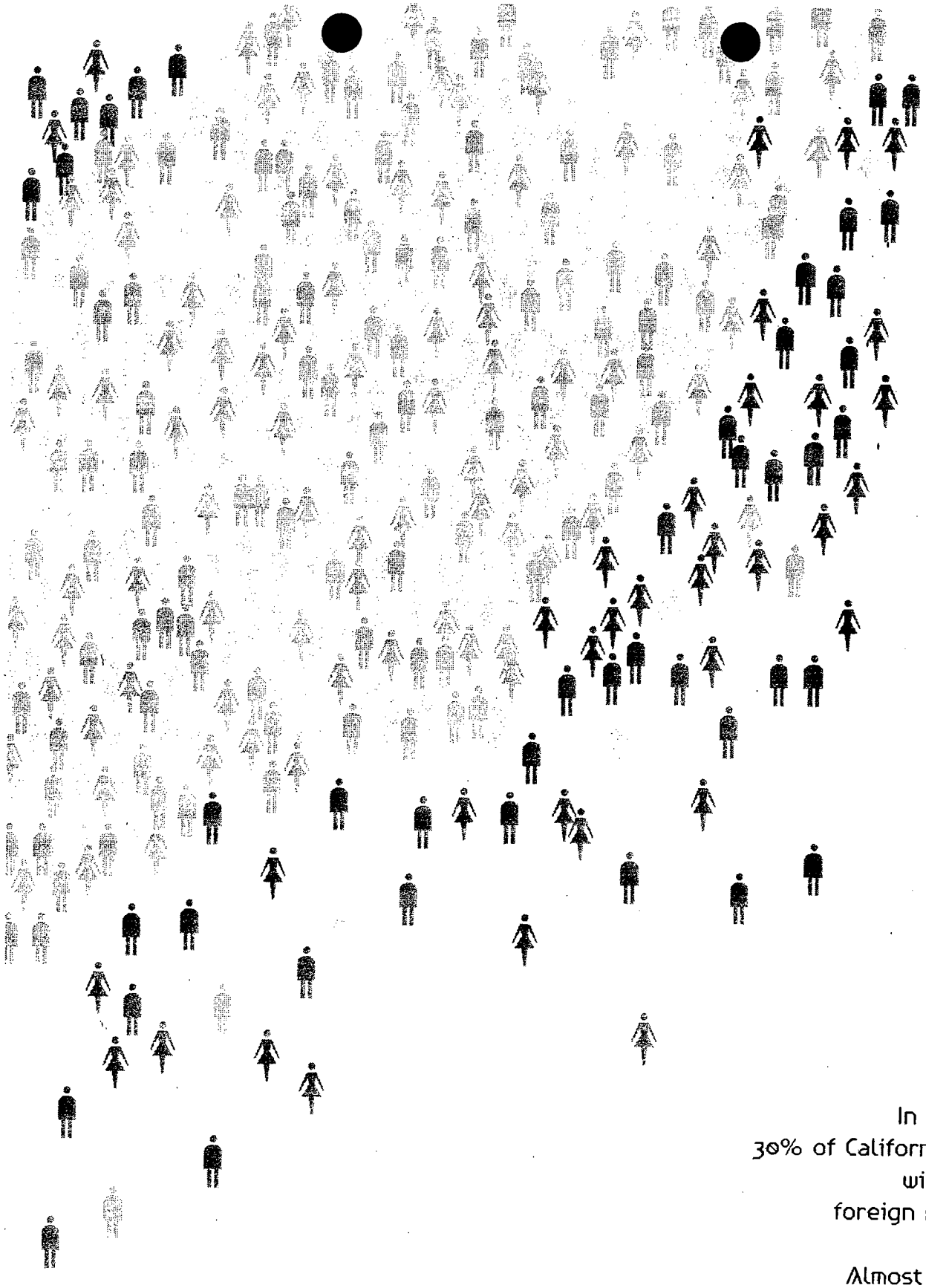
A larger, more diverse population

Looking ahead, the critical issues about California's population will continue to be its size and diversity. In terms of size, the most rapid change has already occurred. But the population continues to change based on trends set in motion in recent years.

Since 1960, the state's population has more than doubled, reaching 36.5 million by mid-2004. During the 20th century, no other developed region of the world experienced population growth rates as great as California's. Indeed, California's growth rates more closely resemble those of a less-developed country. Meeting the first-world demands of a population with such rapid growth rates presents a formidable challenge.

Equally remarkable? The diversity of California's population growth. Today, California is home to sizable immigrant communities from more than 60 different countries, arguably making California's population the most diverse in the world. Whites, who represented 80 percent of the population in 1970, are just under half today and will be about a third by 2025. Latinos, meanwhile, will represent nearly half of the state by 2025. (fig. 1)

Another significant demographic change is the aging of California's population. Demographers project that the number of seniors in California will more than double in a little more than a generation. By 2025, about one in every seven Californians will be over the age of 65. At the other age extreme, and of even greater importance



FACT
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In 2025,
30% of Californians
will be
foreign born.

Almost half
will be Latino.

One in seven
will be over 65.

because of education expenditures, the child population of California is expected to change very little over the next 10 years.

While the population continues to increase, the days of its exploding growth may be over. Experts have recently scaled back their predictions for California's growth, with important implications for schools, highways, housing, and other infrastructure categories.

All of the state's major university and government researchers made the same recalculations after determining that fertility rates for California women are dropping faster than expected and that immigration has subsided. In hindsight, they find that California's unusually high population growth rate actually peaked in 1989 and is expected to be closer to the national average in the future. Today, most demographers predict California's population will be between 44 million and 48 million in 2025. (fig. 2)

But the growth in the state will not be the same everywhere, meaning that some regions will have much greater infrastructure needs than others. Many inland counties from Riverside to Sacramento are expected to grow by 50 percent between 2005 and 2025. One of the fastest growing metropolitan areas in the United States, the Inland Empire, now has a larger population than metropolitan St. Louis or Denver. In coming years, growth rates in the northern San Joaquin Valley are expected to equal the experience in the Inland Empire.

Meanwhile, more than 60 percent of the state's population will continue to live in coastal areas, as cities like Los Angeles and San Francisco keep growing, although not as fast as the inland counties.

Even though growth will not be as phenomenal as in the past, it is still daunting to consider the planning and construction needed over the next 20 years to add a population about the size of Ohio — the nation's sixth largest state. And the demand for infrastructure is not driven only by future growth. The state's systems are still catching up with the backlog of demands generated by the population explosion of the 1970s and 1980s.

FIGURE 1.
POPULATION PROJECTIONS BY ETHNICITY

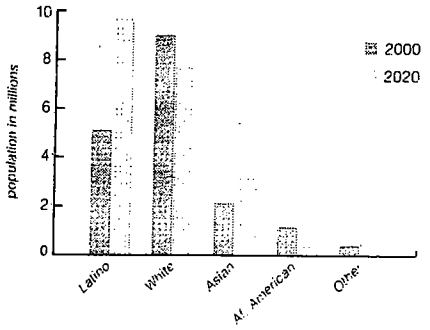


FIGURE 2.
POPULATION PROJECTIONS FOR CALIFORNIA

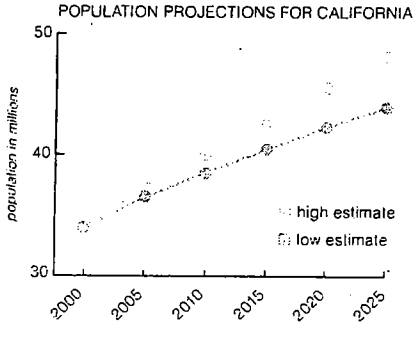
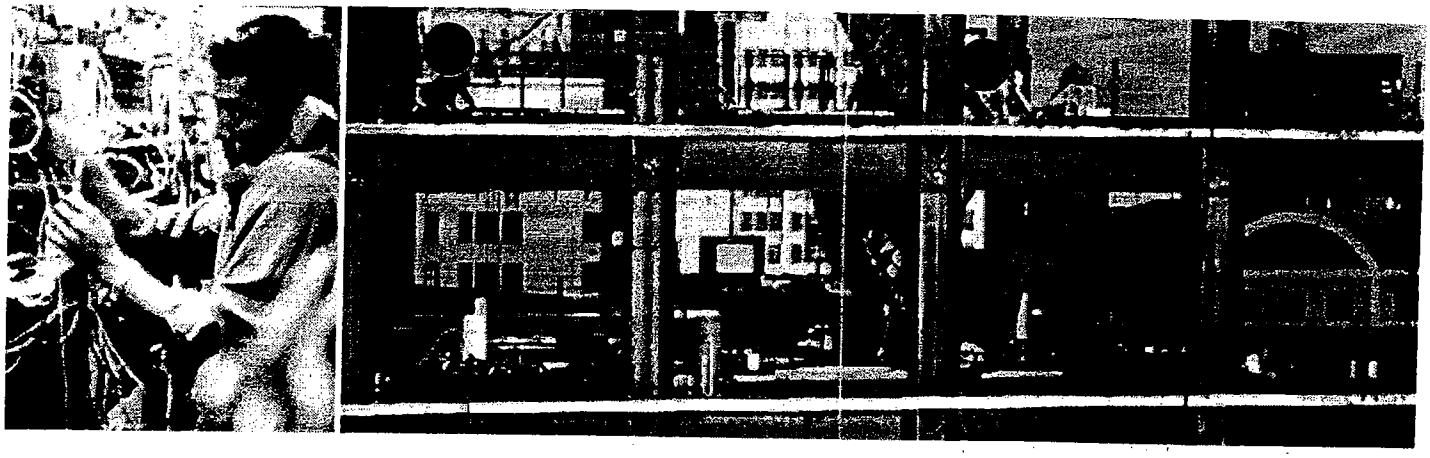


Figure 1
California's population will become increasingly diverse

Figure 2.
By 2025, California will have between 7 million and 11 million more people than today.



Population projections are based on current trends, and experts warn that the state's long-term demographic profile remains volatile. There are questions about the state's demographic future that will be determined by trends in the economy — for example, availability and quality of jobs. During the 1990s, recession slowed foreign immigration and caused so many residents to leave the state that New York City actually grew faster than Los Angeles for the first time in nearly 150 years.

Now, the key question for prognosticators is whether California will become the next demographic New York — a place of slow population growth in which thousands of international migrants arrive each year while thousands of domestic migrants leave. Or will California return to the population growth patterns that have characterized so much of its history, attracting migrants both internationally and domestically?

A new economy

The answer to that question is likely to be determined by the shape of the state's future economy. California's economic engine is expected to grow and change remarkably. The state is already ranked by many as the fifth largest economy in the world. Between 2000 and 2020, the workforce is projected to grow by more than 30 percent, to a total of roughly 20 million jobs.

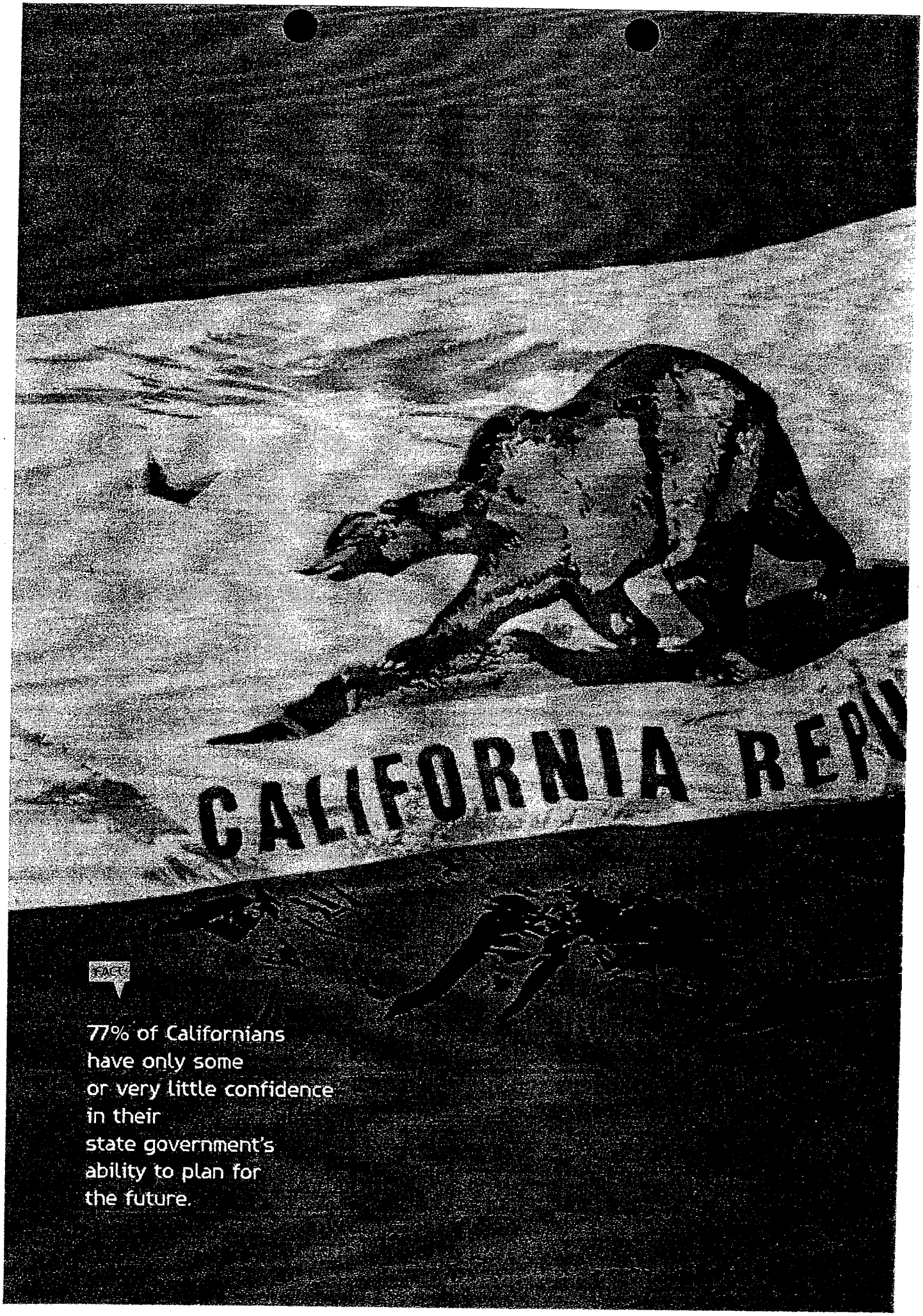
Almost 1 million new workers will be added in the Bay Area and perhaps 2–3 million more around Los Angeles, which will be home to half the state's workforce. In percentage terms, the growth rate could even be higher in San Diego and the Central Valley.

California will also continue its shift from a manufacturing jobs base to one driven by services industries. By 2020, a sizeable majority of workers in California will be employed in service-oriented industries. At the same time, manufacturing jobs, as a share of state employment, will drop by at least 25 percent. (fig. 3)

Although services put less burden than manufacturing on roads, water facilities, and physical structures, this economic shift poses a crucial challenge for the future. Many people, if not most, see service-oriented industries as the domain of less-educated, low-wage workers. But service employment includes business, professional, entertainment, recreation, health, and educational activities. Compared to manufacturing, these require higher levels of education.

FACT

02



FACT

77% of Californians have only some or very little confidence in their state government's ability to plan for the future.

FIGURE 3.
INDUSTRY PROJECTIONS FOR CALIFORNIA

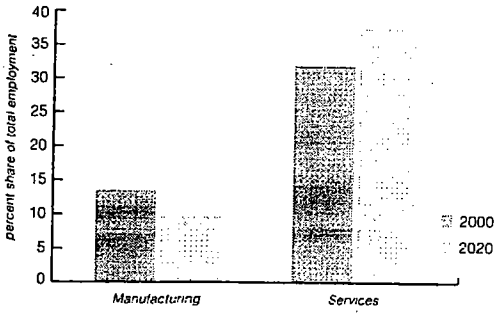


Figure 3. Future job growth will be driven by the services sector as manufacturing declines.

The critical question is whether California can produce or attract the educated workforce this shift requires. The changing demographic mix of the population could work in the other direction because most population growth will be among groups that have historically had less education.

A changing context for planning

Besides the size of the population, another major challenge is its mindset. A very large proportion of Californians deeply distrust government and those who govern. They have little faith in either the good faith or the competence of their elected officials.

That distrust and a growing fiscal conservatism have produced a host of changes: Proposition 13 and its progeny; super-majority requirements for raising revenues; anti-tax sentiment in general; term limits; and a belief in and growing use of the initiative process, which allows a disenchanted public to exercise its preference for making policy at the ballot box.

All these things make consensus building and planning for the future much more difficult than they were during the great building years of the mid-20th century. Those who believe that what California needs to meet future challenges is another great leader, a reincarnation of Governor Pat Brown, if you will, are not realistic about how the context of governance and planning has changed.

If we don't have the educated workforce we need, we're potentially in a double bind: Where will the tax revenues come from to fund the transfer programs or to keep roads repaired, water clean and flowing, and schools running? Is it likely that the growing proportion of older people will be a source of high tax revenues?

It is particularly ironic that as the state seeks to cope with its budget woes, we may be limiting access to our public institutions of higher education, thereby potentially limiting the source of higher tax revenues from the working population in the future.

Besides these concerns, if California cannot provide the educated workforce required, companies might leave the state to meet their requirements or may be forced to hire increasingly from outside the state. Or key industries may falter, leaving business and workers at risk.

Reversing the trend will test the public's commitment to education. And Californians have shown strong support for education. Schools have been at or near the top of the priority list for California voters during the past several years. They've pressured lawmakers to make dramatic reforms and have also lowered the threshold for approval of local school bonds from two-thirds to 55 percent. As a result, since 2000, an unprecedented $42 billion in state and local borrowing has been directed at K–12 schools.

Although these bond funds will go a long way toward meeting the backlog of unmet needs and making room for growth, more funds are likely to be required to provide a decent learning environment for all California's children. Some state bond funds are earmarked to school districts facing hardships. However, more could be done to address their special problems.

In higher education, thanks to state and local bonds and private contributions, the money for buildings and classroom space is adequate for much of the expansion required over the next decade. But because of recent budget cuts, universities are left without enough operating funds to teach all of the eligible students. In 2004, 7,000 youth were initially turned away from the University of California. Had they not been admitted eventually, this would have been the first ever violation of the Master Plan for Education adopted in 1960. Spending cuts and fee hikes have also led to enrollment drops in the California Community Colleges, which serve the most economically vulnerable populations.

A failure of California's education system to deliver the workforce it needs is the most critical threat to the future, but there is also considerable work necessary to expand water and transportation facilities and make more efficient use of the facilities in place. Infrastructure needs are also not spread evenly. Part of the challenge for the future is to balance demographic and social trends against the fair distribution of resources.

Shrinking resources and growing demand

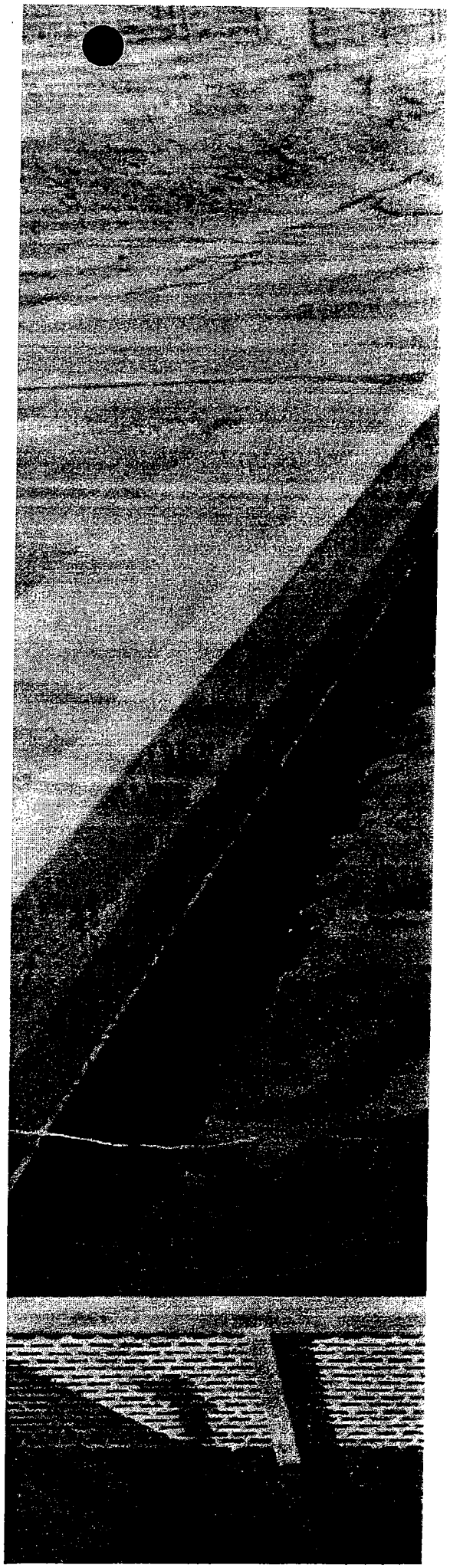
Experts have scaled back their forecasts for the state's water needs because of lower population projections and an expected reduction in agriculture as Central Valley farms give way to new homes.

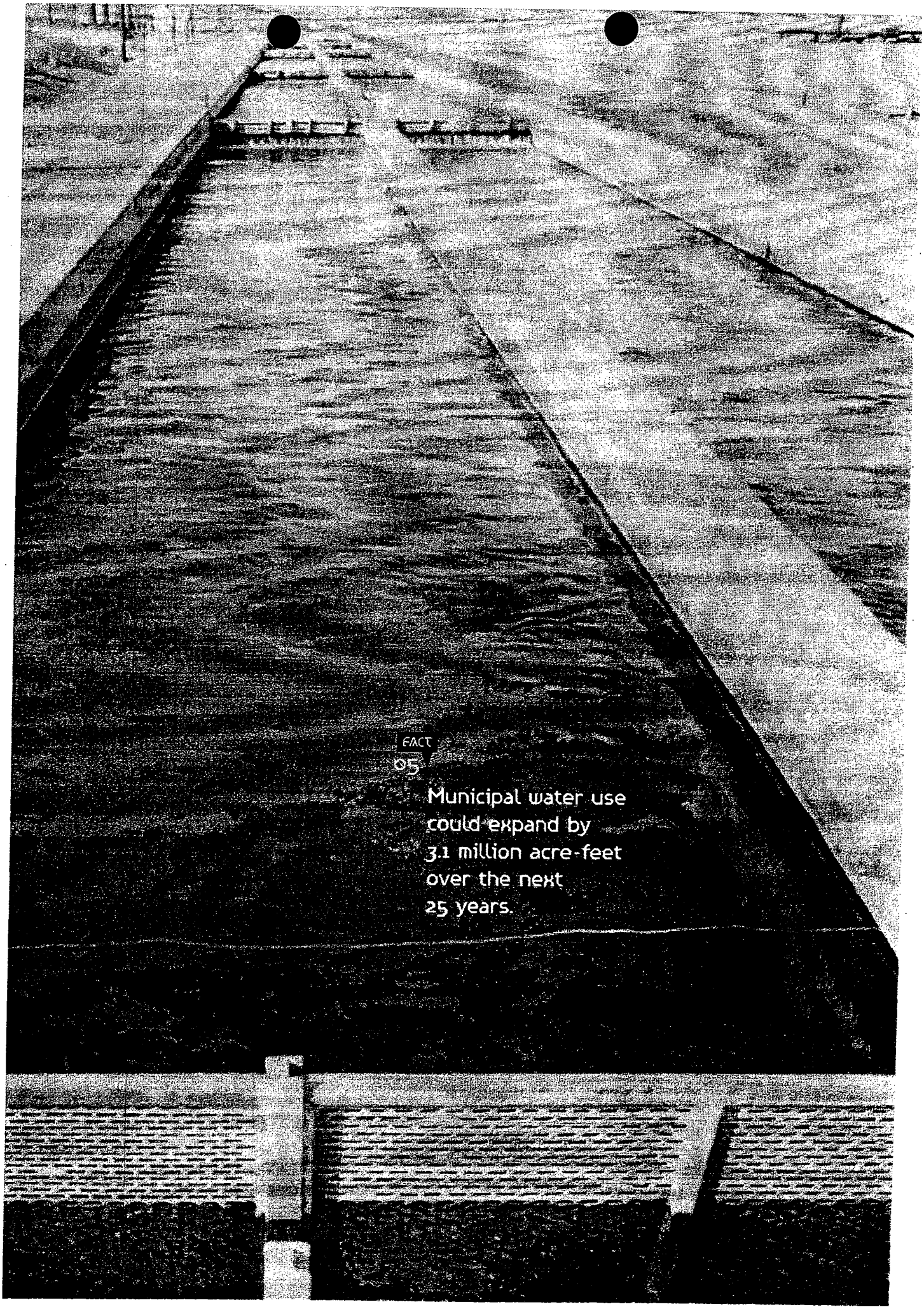
Still, the demand is going up and the supply is actually shrinking. In 2000, roughly one acre-foot of water would supply four Californians for a year. With current trends, experts say the state needs about 3.1 million acre-feet of new water by 2030 to accommodate the expected population growth. Some additional resources are needed to support endangered wildlife and to make up for cutbacks in California's use of the Colorado River, as some neighboring states begin to use their full share.

To reverse the trends, experts say water conservation is essential. Water metering and other policies could actually resolve up to half of the need for new water sources. These and other innovative solutions, including desalination, wastewater recycling, and the sale of some farm water to cities, may offer more promise than building large new water storage facilities — the predominant model of the 20th century.

Fuel efficiency and outdated policies

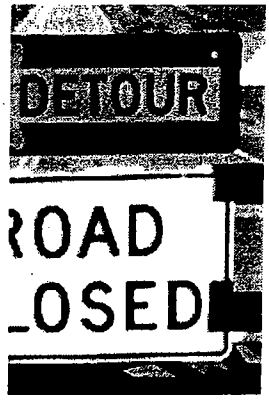
Fuel-efficient cars like hybrids could improve the future in California by cutting air pollution and reducing the economy's dependence on fuel prices. Ironically, however, absent effective policy response, greater fuel economy could have ominous consequences for transportation investments. (Fig. 5)





FACT
05

Municipal water use could expand by 3.1 million acre-feet over the next 25 years.



FACT

Congestion will cause travel time in the state to increase by 48%.

FIGURE 5.
GROWTH IN POPULATION AND VEHICLE MILES TRAVELED ON STATE HIGHWAYS IN CALIFORNIA

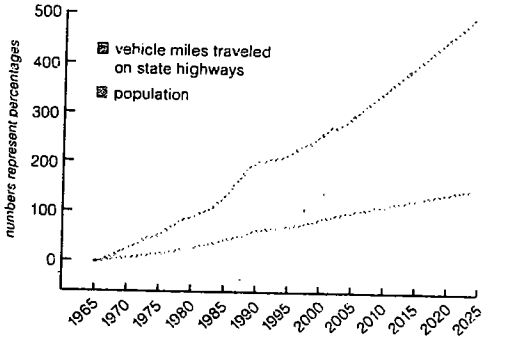


Figure 5. Miles traveled will outstrip population growth putting greater strain on roads and highways.

Historically, California has relied heavily on fuel taxes — in effect, a fee for using roads — as the major source of funding for highway and road construction and maintenance. But inflation and rising fuel efficiency have eroded this revenue source. Today, per vehicle mile, the gas tax produces about one-third of the revenues it produced in 1970.

Partly as a result, California spent about one-third less on capital outlay per person on roads and highways in 2002 than it did 35 years earlier. Moreover, the higher costs for rights-of-way, environmental mitigation, and modern design standards mean that these dollars do not go as far as they once did. Even after adjusting for inflation, it costs over three times more to build a highway lane mile than it did in 1960.

Slow roadway expansion, combined with increasing car use, has earned California's coastal metropolitan areas the dubious distinction of ranking among the most congested places in the nation. The state also ranks second for the roughest roadways.

The low investment in roads is a major concern as the state prepares for its future population growth and increases in economic activity.

Planning for future road and highway work is poor because of multiple sources of funds, layers of authority, and a variety of planning procedures. In addition, the money is harder to come by today. Federal funds are not the dependable source they once were. Unlike local school bonds, local transportation sales taxes still require a two-thirds majority for passage. Attempts to raise the gas tax have proven unpopular. And while voters in 2002 approved a dedicated revenue stream for roads, the change has been all but ignored during the recent budget shortfall.

Uneven jobs and population growth

The concept of "smart growth" is based on the proximity of people to jobs. In other words, if the population of workers in one area exceeds the jobs available, many are forced to make longer commutes, placing greater burden on roads, air quality, and lifestyles.

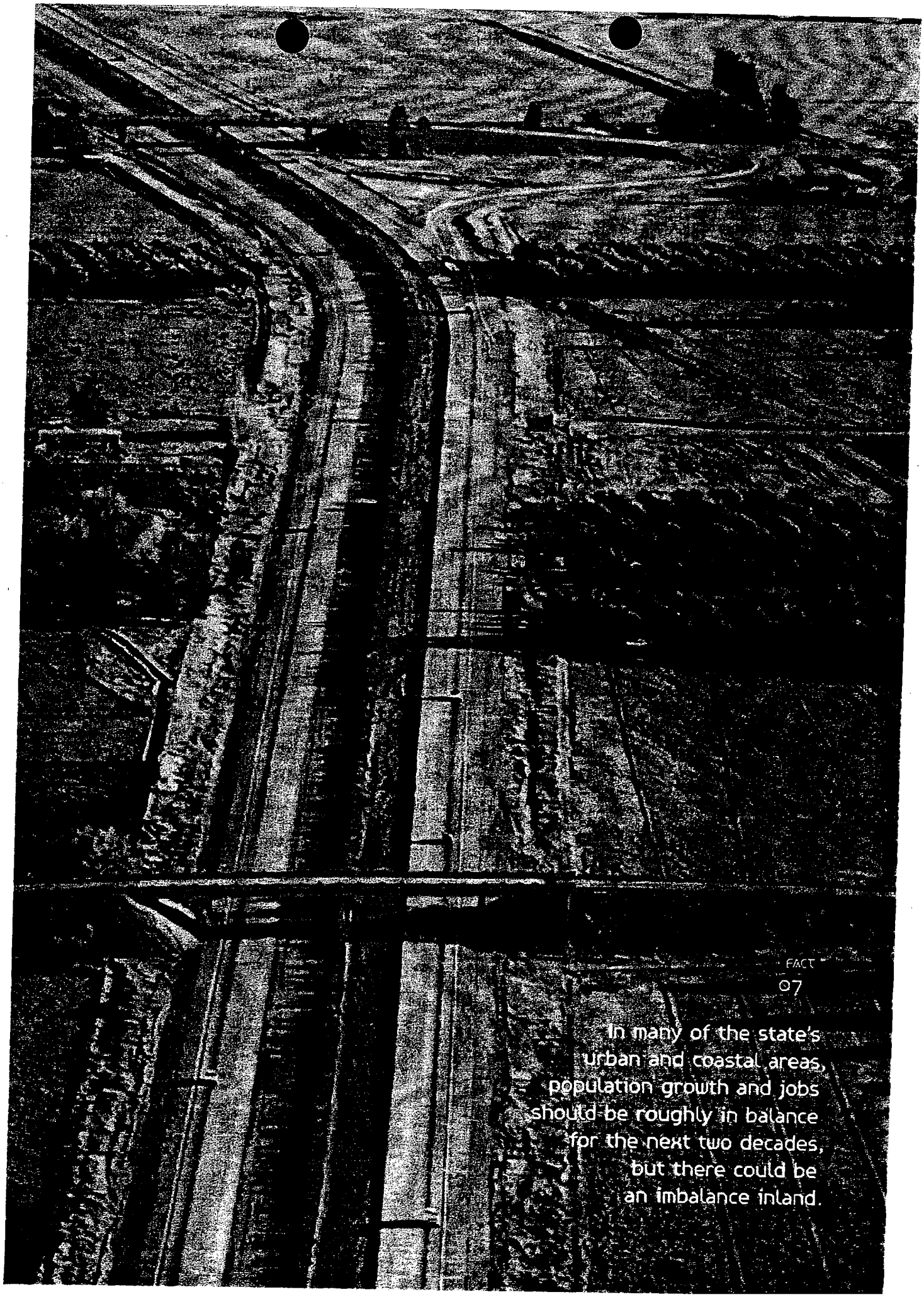
While all of California's major urban areas are working toward "smart growth" plans, it is a difficult challenge. For one thing, it takes an extremely high population density before public transit becomes a popular mode of transportation. That kind of density is highly unlikely outside the state's urban core — particularly with Californians' strong preference for single-family homes.

Affordability presents another challenge. California has nine of the 10 most unaffordable housing markets in the nation. That forces many homebuyers to search farther from job centers. And developers are encouraged to build in outlying areas. The consequences are long commutes for workers and the rise of "bedroom communities" and tenuous local economies.

Competition or consensus

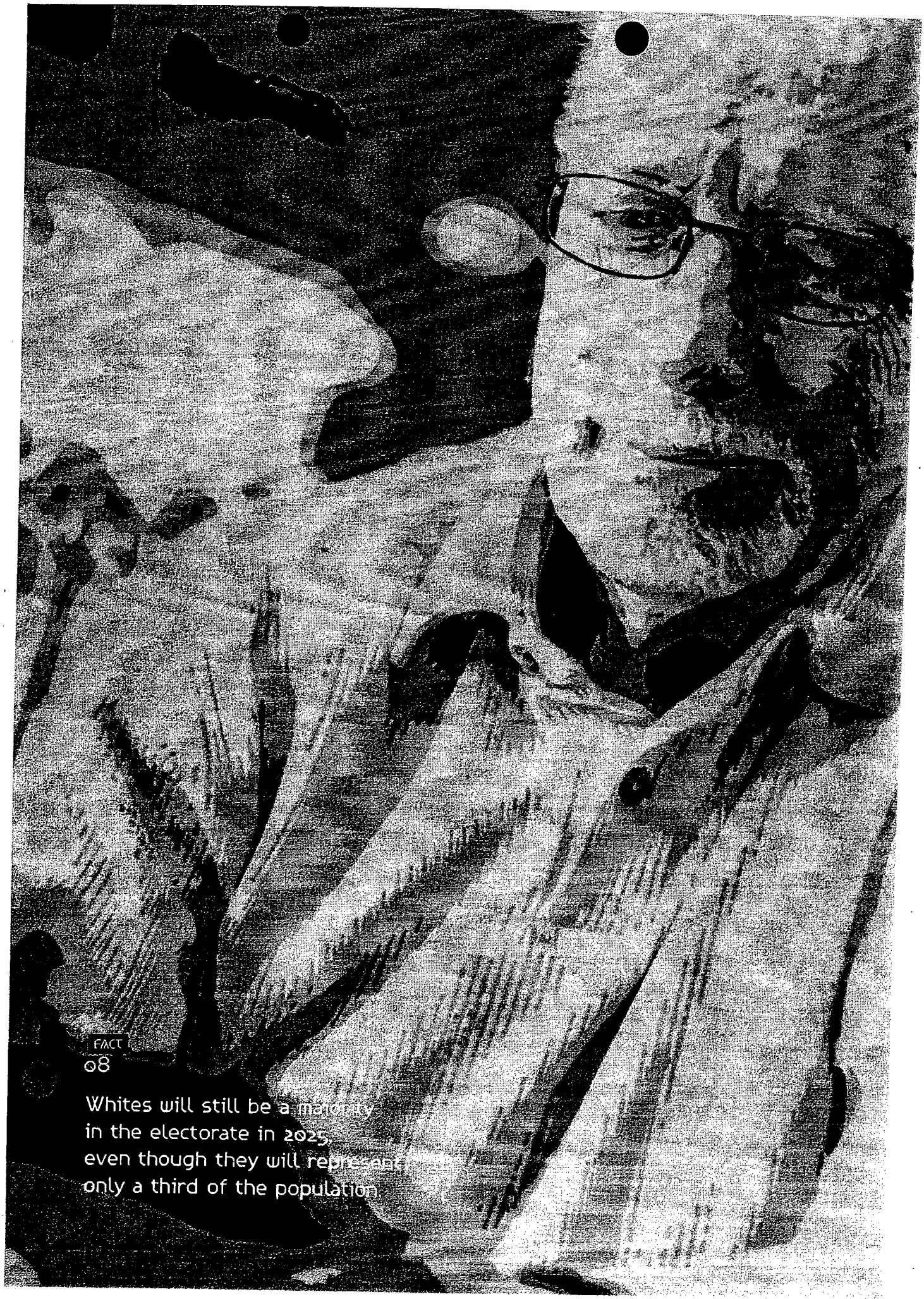
Differences between various constituencies in California are growing, posing the risk of emotional and divisive battles about the state's future course and the use of its limited resources. The imbalance between population and job growth, for example, could create rivalries among regions of the state. Most leadership positions in state government today are held by lawmakers from major population centers. Yet, the fastest growth — and the greatest need for infrastructure spending — will be in the state's interior.

The phenomenal growth of California's senior population will also have economic, social, and political consequences. Between 2000 and 2030, the number of seniors in California is expected to double. In 2025, there will be 65 non-working children and seniors for every 100 working-age adults, an increase of 10 percent.



FACT
07

In many of the state's urban and coastal areas, population growth and jobs should be roughly in balance for the next two decades, but there could be an imbalance inland.



FACT
08

Whites will still be a majority
in the electorate in 2025,
even though they will represent
only a third of the population

FIGURE 6.
INEQUITY IN EDUCATION AND ATTITUDES

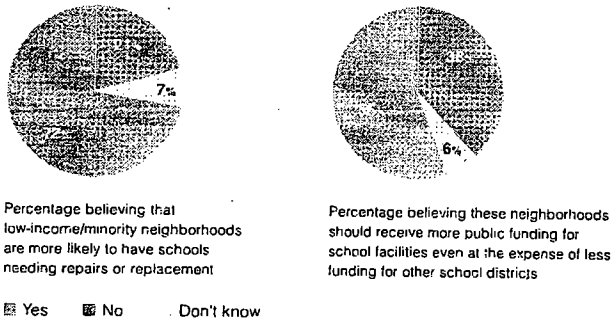


Figure 6. Many Californians believe education resources aren't fairly distributed, but fewer are in favor of adjusting the balance.

That shift will increase the demand for taxpayer-paid services even as the share of taxpayers is shrinking. Besides that, the fair distribution of state resources could be problematical because of the increasing share of seniors. Some commentators have expressed concern that this demographic shift could erode political support for programs targeting younger Californians, such as eduction. Seniors are more likely than younger residents to vote and to participate in socially influential organizations.

The state's electorate is also increasingly out of synch with the population because Latino and Asian American citizens are not as likely as whites to vote. In 2004, for example, whites represented just under half of the state's population but roughly two-thirds of its electorate. Based on current trends, studies suggest whites will still be a majority of the electorate in 2025, even though they will represent about a third of the population.

Finally, as in the United States as a whole, the gap between rich and poor in California has grown significantly. In fact, income inequality here is among the highest in the nation. Some of the trends that have created this gap are likely to continue — the globalization of our economy that has brought worldwide demand for goods and services by skilled workers and the growing international competition less-skilled workers face in manufacturing and production. As they do, it will be even more crucial to consider investments to improve the education of traditionally less-educated groups and to make other infrastructure improvements to create opportunities for those that have been left behind by economic growth. (Fig. 6)


Making Choices

We've seen the trends.

We've considered where they may lead.

Where do we go from here?

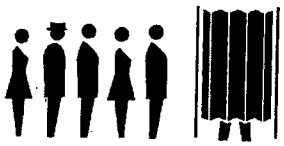
The trends and their potential consequences raise a host of issues, questions, policy options, and strong feelings among various constituencies. Above all, they underscore the urgency of making informed choices — sooner, rather than later — if we don't want to lose control over California's future.

We cannot consider every issue, question, or option here. Nor do we have a list of quick and easy solutions to offer. There are choices to be made by Californians and their elected leaders, and selecting a course of action will involve tradeoffs. But we can prime the pump of policy debate by highlighting selected options — some suggested by the trends and directions we've been discussing, some by other concerned commentators on the state's future. Here are some examples identified by issues we have raised.

Invest in education now, given the potential shortage of college-educated workers in the future economy

Over the last year, as they attempted to cope with California's big budget problems without raising taxes, policymakers have given K–16 education short financial shrift in various ways. The trends indicate that this is short-term temporizing that will shoot California in the foot — economically and socially. This is one area for which the public has said it is willing to accept higher taxes. Does the political will exist in Sacramento to ask the public to ante up?

Greatly increase voter registration efforts to make voters more representative of the state's population



This isn't pious idealism. If California wants to treat all its citizens equitably, level important playing fields, and preserve representative government, we need to get out the vote. The voice of the voter should represent all Californians proportional to their presence in the population. The state has monies for voter registration that aren't being used for that purpose. It's also a cause that foundations could appropriately espouse and support.

Make a priority of investment in low-income areas

Are Californians willing to assure equity for all or will they tolerate poverty-perpetuating conditions for some? Critical overcrowding and low academic performance are more common in schools serving low-income, African American, and Latino children. In their neighborhoods, access to decent jobs, housing, medical facilities, parks and recreation, and stores and shopping is often limited. Surveys show that Californians are aware of the inequities and would support steps to resolve them. For example, 56 percent think the state should give more money to schools in such communities — even at the cost of giving less to more prosperous ones. Is the leadership in Sacramento willing to make investments in lower-income areas their priority?

If federal monies aren't available or dry up, one place to look for infrastructure funding is through public-private partnerships. The University of California provides a compelling example of the effectiveness of such partnerships to find infrastructure funding. In partnership with private companies, UC Irvine, for example has created a 1,100-unit housing development on the campus. Its UC Irvine Research Park is leased to the Irvine Corporation, which leases sites to research-oriented companies that are interested in linking up with university researchers, participating in university research projects, and offering internships to UCI students. The trend to university-private industry partnerships is growing across the state. Then-Governor Davis created an initiative that would establish four new science institutes at four UC campuses by leveraging state funding with private investment. This is a model the state could use in other areas of infrastructure building.

04

Use public-private partnerships for new infrastructure

Californians resist more building to meet the projected demands of a growing population on at least two grounds: They don't want their taxes raised and they don't want facilities built in their backyards. Borrowing is one alternative to raising taxes. But California already has such a high debt load that General Fund revenues devoted to debt service rose from 3 percent in 2002 to 7 percent in 2005 — a percentage considered financially dangerous by some experts.

Under the circumstances, the most feasible alternative is to manage demand and encourage conservation, as well as increasing supply strategically. Examples of demand management would be fostering water conservation in the urban and agricultural sectors; implementing road pricing to mitigate traffic congestion; and encouraging carpooling, off-peak travel, mass transit, and other forms of travel besides driving alone. In the case of higher education, operating year-round could increase the number of students accommodated by as much as one-third, saving billions of dollars. Students might also move more briskly through college if student loans were more costly or fees were higher for those who don't finish in reasonable time.

Rely on demand management and conservation for maintaining infrastructure

06

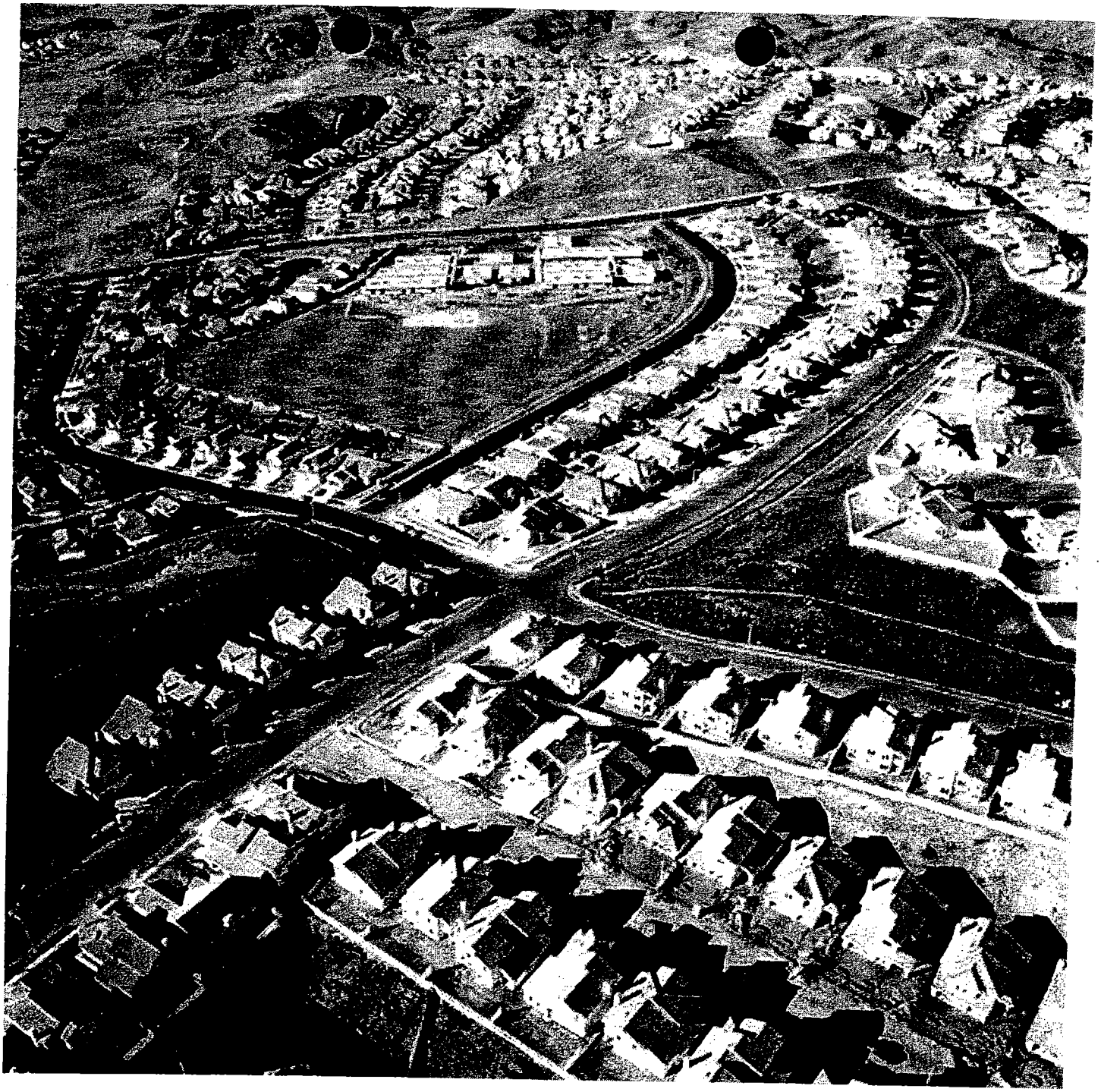
Extend term limits to change the context of long-term planning in the legislature

One thing that makes long-term planning difficult for lawmakers is that it requires spending money or making sacrifices today for benefits that may not be realized until term limits force the lawmaker out of office. The decisions also require leadership that can articulate a vision and inspire support for it. Partisanship and lack of public trust for elected officials make that job exceedingly hard. Under term limits, lawmakers are less experienced and special interests are more powerful than before.

07

Encourage localities to think and act regionally

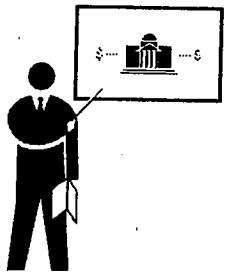
On some dimensions, planning to meet population growth is the prisoner of competing authorities at the state, local, and regional level. Local government determines the best development for its community. Regional organizations coordinate housing, transportation, and jobs. State authorities seek a fair distribution of affordable housing, infrastructure, and costs. But instead of collaborating, state and local governments today are adversarial, and regional groups have little authority. The result is a lack of planning and enforcement of, for example, housing goals. To encourage regional planning and action, the state could help align local and regional objectives, planning mechanisms, and incentives. It could also create incentives by rewarding jurisdictions that promote the objectives. Effective "carrots" could be preferential access to loans, grants, or infrastructure improvements and new revenue-raising authority to fund improvements.



Without the landmark 1978 initiative that capped property tax hikes, many homeowners today might be forced to move as the value of their homes skyrockets. But Proposition 13 had many unintended fiscal consequences. One reason for the skyrocketing home prices is that property tax reduction discourages local government from approving new home development. It costs them more in service provision for households than they can realize in taxes. Some critics also contend that the supporters of Proposition 13 did not intend to put the same constrictions on corporate property tax that they imposed on residential property tax.

Revisit Proposition 13

Increase the transparency and accountability of the state-local fiscal system



The current state-local fiscal system needs overhauling — if for no other reason than making local residents aware of where their property tax dollars go and what their local governments can actually provide in the way of infrastructure and other services. County governments are tasked with providing much of this. Yet, Proposition 13 and its progeny have severely limited their ability to raise revenues to cover the cost. The counties' ability to cope has been further eroded as the federal government devolved more responsibility to the state and the state to the counties. In both cases, funds earmarked to cover mandated responsibilities are often inadequate. Reforming the state-local fiscal system could provide greater certainty about who will pay for what and how it will be delivered to the public most efficiently and effectively. Greater fiscal certainty and transparency might also go far in reducing public distrust.

Reduce the supermajority requirements for local revenue raising

Local governments are responsible for funding many of the investments necessary to support California's growth. Yet the two-thirds supermajority requirement for local taxes and bonds severely limits their authority to raise new revenues. Lowering that requirement could also take off some of the pressure for funding from the state caused by declines in federal funding. When the threshold for passing local school bonds was lowered to 55 percent in 2000, it generated an additional $10 billion for K–12 construction and nearly $7 billion for community colleges.

The options we've laid out here could create a more enabling context for policymaking, save money in some cases, and generate more in others. And more options have been broached or could be developed. Many of them, however, require sacrifices, changes in cultures and lifestyle, and an ability to look beyond immediate needs and comforts for the sake of the state's future. Nobody said it was going to be easy. The crucial question is whether Californians care enough to make the effort.

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How Cleaner Air in California Will Save Lives & Save Money

Renee Sharp
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Environmental Working Group

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Executive Summary

Airborne soot and dust, technically known as particulate air pollution, causes or contributes to the deaths of more Californians than car accidents, murder and AIDS combined. State health officials are proposing new air pollution rules that could save or extend more than 6,500 lives a year, but the proposal faces strong and well-financed opposition from major oil companies and automakers.

Tougher state standards for particulate air pollution could save more than 6,500 lives and half a billion dollars a year.

In California, respiratory illnesses caused or made worse by airborne particulate matter (PM) are responsible for 9,300 deaths, 16,000 hospital visits, 600,000 asthma attacks and five million lost work days each year. By saving lives and preventing illnesses, tougher standards could save more than half a billion dollars a year.

In recent years, hundreds of studies worldwide have shown that PM pollution kills people. Both short- and long-term exposure to particulate pollution at levels lower than the levels currently experienced by millions of California residents can cause death. The proposed new PM standards are the first new regulations developed in response to a landmark 1999 state law requiring that air pollution standards must be adequate to protect children's health.

Statewide, total PM emissions are on the rise, and the great majority of Californians are exposed to potentially harmful levels. The worst particulate pollution in the state is found in Imperial County. But far more Californians are affected by the severe problems in the South Coast Air Basin, covering greater Los Angeles, which has the highest PM levels of any U.S. metro area, and the eight-county San Joaquin Valley, which is among the six worst areas in the nation. EWG estimates that the proposed new standards could save more than 4,200 lives a year in the South Coast Air Basin, and more than 800 lives a year in the San Joaquin Valley.

EWG urges the Air Resources Board to resist pressure from polluters and adopt the PM standards recommended by state scientists. Exemptions for agriculture should be eliminated. To further protect children and other sensitive populations, ARB should also set eight-hour PM standards, as it has for ozone. Finally, the state PM standards must be more rigorously enforced.

A Life and Death Decision

Particulate air pollution causes or contributes to the deaths of more Californians than car accidents, murder and AIDS combined, according to an analysis of state data by Environmental Working Group. EWG's investigation found that state health officials are proposing new air pollution rules that could save or extend more than 6,500 lives a year, but the safer standards face entrenched opposition from a deep-pockets alliance of major oil companies and automakers.

Airborne microscopic particles, much smaller than the width of a human hair, are known as particulate matter, or PM. (The smallest particles are often called "fine" particulates; the larger ones, still very tiny, are called "coarse" particulates.) California Department of Health Services (DHS) data shows that respiratory illnesses caused or made worse by PM pollution are responsible for the deaths of more than 9,300 Californians a year. That is three times more than are killed in car accidents, 4.6 times more than those who are victims of homicide and six times the number who die of AIDS. (Table 1.) What's more, even this number is an underestimate of the total number of PM-related deaths each year since it includes all deaths due to long-term exposure but only includes some of those due to short-term exposure to particulate air pollution[1].

The air polluters' lobby tries to divert attention from the overwhelming evidence that particulate matter is deadly by arguing that compliance with the "impossibly stringent" proposed new standards would be too costly and would not produce

Cause of Death	Number of Deaths in 1999
Particulate air pollution	9,340
Motor vehicle accidents	3,140
Suicide	3,047
Accidental poisonings	2,221
Homicide	2,042
HIV/AIDS	1,558
Accidental falls	1,202
Drownings	397

Source: EWG, from California Department of Health Services 1999.

Table 1. Particulate air pollution in California causes or contributes to more than 9,000 deaths each year.

"any greater protection of public health than the current California standards." (Ford 2002, AAM 2002.) But EWG's five-month review of hundreds of state, national and international studies found just the opposite: By saving lives and preventing illnesses, tougher PM standards could save the state and its citizens more than half a billion dollars a year.

The price tag: $1 billion a year

Each year, PM pollution is responsible for more than 16,000 hospital or emergency room admissions, at an estimated health care cost of $132 million. PM-triggered illnesses also cause Californians to miss almost five million work days a year, a loss to the state's economy of more than $880 million[2]. More difficult to put a price tag on are the thousands of less severe illnesses that result every year from PM pollution, including 600,000 asthma attacks and 13,500 cases of chronic bronchitis in California. (Tables 2, 3.)

Particulates, which are taken deep into the lungs by inhalation, have been linked with a long list of respiratory ailments such as chronic cough, chest pain, breathlessness, wheezing, phlegm, chronic bronchitis, decreased lung growth, decreased lung function, and the exacerbation of asthma symptoms.

Table 2. Proposed new standards would prevent hundreds of thousands of illnesses each year.

	Ages Considered	Cases at Current PM Levels	Cases Under Proposed Standards	Cases Avoided	Cases Reduced by
Long-term Mortality	30+	9390	2865	6525	69%
Short-term Mortality	All	4063	1772	2291	56%
Chronic Bronchitis	27+	13530	5696	7835	58%
Chronic Obstructive Pulmonary Disease Hospital Admissions	65+	2115	923	1192	56%
Pneumonia Hospital Admissions	65+	3061	1340	1721	56%
Cardiovascular Disease Hospital Admissions	65+	5452	2395	3057	56%
Asthma Hospital Admissions	64-	1624	692	933	57%
Asthma Emergency Room Visits	64-	3992	1691	2301	58%
Asthma Attacks	All	592736	254466	338270	57%

Notes: In this table, the long-term mortality values are for PM2.5 and the short-term mortality values are for PM10. Long-term mortality is deaths from long-term exposure to particulates, while short-term is deaths from short-term exposure. Because the estimates of long-term mortality include some but not all short-term deaths, the two cannot be added together to get an estimate of total mortality.

Source: EWG, from ARB/OEHHA 2001, EWG 2002.

PM concentrations have also been shown to be associated with hospital admissions for a wide variety of cardiovascular and pulmonary diseases, including asthma. Groups particularly at risk include children, the elderly, people who already suffer from respiratory illness, and those of low socioeconomic status, who tend to live in areas where particulate pollution is most severe.

In recent years, a major international scientific effort has produced a flood of studies that has clearly established that PM pollution can kill people. Epidemiological studies have been conducted in over 200 cities worldwide, examining the effects of different exposure durations, and accounting for contributing factors including age, smoking habits, weather, and other pollutants. The results have been remarkably consistent: Both short- and long-term exposure to particulate pollution at levels lower than currently experienced by millions of California residents can cause death. Compared to just a few years ago, scientists today are much more likely to say plainly that PM kills, than that it contributes to death.

Hundreds of studies worldwide confirm that exposure to particulate pollution at levels lower than millions of Californians breathe can cause death.

California's current PM standards were set in 1982. New standards proposed by scientists at the state Air Resources Board (ARB) and Office of Environmental Health Hazard Assessment (OEHHA) would reduce the number of PM-triggered deaths and illnesses dramatically. The scientists say cutting allowable levels of PM to recommended levels will reduce deaths by at least 69 percent, asthma attacks by 57 percent, hospital visits by 56 percent and cases of chronic bronchitis by 58 percent. (Table 2.) Statewide, the recommended standards would result in an annual reduction of about 3 percent of all mortality in the population above age 30. (ARB/OEHHA 2001.) EWG estimates that these new PM-standards would also result in savings of state direct and indirect costs of more than $580 million a year. (Table 3.)

The Children's Environmental Health Act

Gov. Gray Davis' appointed ARB directors are scheduled to vote on the proposed new standards in June 2002. Their decision is being watched closely by health and environmental officials and researchers across the country. In 1999, California enacted the landmark Children's Environmental Health Act (SB 25), the first law anywhere in the U.S. to require that air pollution standards must be stringent enough to protect children – as opposed to almost all other environmental regulations designed to protect the average adult male. SB 25 required the ARB to review all of the state's air pollution standards to determine whether they adequately protect children. A preliminary review determined that the current PM standards were inadequate and that revising them should be ARB's highest priority. Other standards determined to be inadequate must be revised at a rate of one a year[3]. The proposed PM standards could again make California the national leader in air quality standards to protect public health – but not if the air polluters' lobby gets its way.

The Western States Petroleum Association, the Alliance of Auto Manufacturers, the Engine Manufacturers Association and other industry groups and individual companies have mounted a well-financed major campaign against the proposed

Table 3. Costs Associated With PM10-related Illness in California.

	Ages Considered	Number at Current PM10 Level	Cost at Current PM10 Level (1999 $)	Number Avoided Under Proposed New Standards	Savings Under Proposed New Standards
Chronic Obstructive Pulmonary Disease Hospital Admissions [1]	65+	2,115	$24,792,990	1,192	$13,972,624
Pneumonia Hospital Admissions [2]	65+	3,061	$42,639,263	1,721	$23,971,809
Cardiovascular Disease Hospital Admissions [3]	65+	5,452	$34,362,621	3,057	$19,268,271
Asthma Hospital Admissions [4]	64-	1,624	$28,904,937	933	$16,601,802
Asthma Emergency Room Visits [5]	64-	3,992	$1,193,527	2,301	$687,999
Work Loss Days [6]	64-	4,910,652	$883,917,360	2,814,815	$506,666,700
Total		4,926,896	$1,015,810,698	2,824,019	$581,169,205

Notes:
1) Hospital charge cost only. Mean hospital stay is 6.02 days with a mean charge of $11,722 (1999 dollars). (Abt 2000)
2) Hospital charge cost only. Mean hospital stay is 7.01 days with a mean charge of $13,929 (1999 dollars). (Abt 2000)
3) Hospital charge cost only. Mean hospital stay is 5.44 days with a mean charge of $17,794 (1999 dollars). (Abt 2000)
4) Hospital charge cost only. Mean hospital stay is 3.03 days with a mean charge of $6,303 (1999 dollars). (Abt 2000)
5) The average asthma ER visit cost is $299 (1999 dollars). (Abt 2000)
6) The median per-day income of California residents in the year 2000 was $180. (US Census 2002)

Source: ARB/OEHHA 2001, EWG 2002, Abt 2000, U.S. Census 2000.

standards. Their tactics are familiar: carping on minor inconsistencies between scientific studies, exaggerating uncertainties although PM is perhaps the most-studied type of air pollutant, and drawing on industry-funded studies to dispute the overwhelming consensus of peer-reviewed academic and government research. If their campaign, for which a small army of lobbyists in Sacramento has millions of dollars to spend, is only partly successful in watering down the proposed standards, thousands more Californians will die from dirty air each year.

Unlike most other air pollutants, particulates are regulated by size. Particles with diameters less than or equal to 10 microns are called PM10 and are often referred to as "coarse particles." Particulates with diameters less than or equal

to 2.5 microns are called PM2.5 and are often referred to as "fine particles." (A single human hair has a diameter of 50 to 100 microns.) California's current standards regulate only PM10, but the proposed new standards would also cover PM2.5.

PM contains heavy metals, nitrates, sulfates, aerosols and other toxic chemicals, as well as ordinary soot, soil, dust and smoke from both man-made and natural sources, including cars, industrial pollution and unpaved roads. Recent research suggests that PM from industrial and other man-made sources is more harmful to human health than dust from natural sources. (See Chapter 3.) The makeup of PM pollution varies considerably among different locations and at different times of the year (or even day) in the same location. As a result, two areas in California with the same level of particulates in the air may have distinctly different PM problems, and within counties where overall PM levels are relatively low, individual cities or neighborhoods may be exposed to high levels. Although annual average PM levels have declined in recent years, only small, mostly rural Lake County is in full compliance with current state standards. Statewide, total PM emissions are on the rise, and the great majority of Californians are exposed to potentially harmful levels:

The Los Angeles–Riverside metro area has the worst particulate air pollution in the U.S., and the San Joaquin Valley's problem is also among the worst.

- Over 99 percent of Californians breathe air that violates the current PM10 standards during at least part of the year. (ARB/ OEHHA 2000.)

- Fifty-five of fifty-eight counties have average annual PM10 concentrations that exceed the proposed standards and fourteen counties (or portions of counties) have average annual concentrations that are at least twice as high, based on the last three years of ARB monitoring data[4]. (Table 4.)

- Forty-three counties (or portions of counties) have average annual PM2.5 concentrations that exceed the proposed standards, based on the last two years of ARB monitoring data[5]. (Table 4.)

Preventing deaths and asthma

The worst particulate pollution in the state is found in Imperial County (and an adjoining part of Riverside County). But far more Californians are affected by the severe problems in the South Coast Air Basin (Los Angeles, Orange, Riverside and San Bernardino counties) which consistently records the highest PM levels of any U.S. metro area, and the eight-county San Joaquin Valley, which ranks among the six worst air basins in the country for particulate pollution. (Grossi 2002, Table 4.) Considering the same factors state scientists used in calculating statewide PM-related deaths and illnesses, EWG estimates that the proposed new standards could prevent or delay more than 4,200 deaths a year in the South Coast Air Basin, and more than 800 deaths a year in

Table 4.
55 of California's 58 counties are not in full compliance with existing PM standards.

Source: EWG, from ARB/ OEHHA 2001.

County	Portion of County*	PM10 Annual Average (ug/m3)**	PM2.5 Annual Average (ug/m3)***
Alameda		21.7	15.8
Alpine		16.7	8.5
Amador		23.0	16.6
Butte		24.5	12.3
Calveras		23.0	16.6
Colusa		24.5	12.3
Contra Costa		21.7	15.8
Del Norte		17.5	7.5
El Dorado	Lake Tahoe Basin	20.8	7.5
El Dorado	Mountain Counties Basin	23.0	16.6
Fresno		39.5	22.3
Glenn		24.5	12.3
Humbolt		17.5	7.5
Imperial		70.2	13.1
Inyo		16.7	8.5
Kern	Mojave Basin	21.6	10
Kern	San Joaquin Basin	39.5	22.3
Kings		39.5	22.3
Lake		10.8	≤ 5
Lassen		13.0	≤ 5
Los Angeles	Mojave Basin	21.6	10
Los Angeles	South Coast Basin	40.7	22.2
Madera		39.5	22.3
Marin		21.7	15.8
Mariposa		23.0	16.6
Mendocino		17.5	7.5
Merced		39.5	22.3
Modoc		13.0	≤ 5
Mono		16.7	8.5
Monterey		24.2	7.5
Napa		21.7	15.8
Nevada		23.0	16.6
Orange		40.7	22.2
Placer	Lake Tahoe Basin	20.8	7.5
Placer	Sac Valley Basin	24.5	12.3
Plumas		23.0	16.6
Riverside	Mojave Basin	21.6	10
Riverside	Salton Sea Basin	70.2	13.1
Riverside	South Coast Basin	40.7	22.2
Sacramento		24.5	12.3
San Benito		24.2	7.5
San Bernardino	Mojave Basin	21.6	10
San Bernardino	South Coast Basin	40.7	22.2
San Diego		28.8	15.6
San Francisco		21.7	15.8
San Joaquin		39.5	22.3
San Luis Obispo		23.0	11.8
San Mateo		21.7	15.8
Santa Barbara		23.0	11.8
Santa Clara		21.7	15.8
Santa Cruz		24.2	7.5
Shasta		24.5	12.3
Sierra		23.0	16.6
Siskiyou		13.0	≤ 5
Solano	Sac Valley Basin	24.5	12.3
Solano	San Francisco Basin	21.7	15.8
Sonoma	North Coast Basin	17.5	7.5
Sonoma	San Francisco Basin	21.7	15.8
Stanislaus		39.5	22.3
Sutter		24.5	12.3
Tehama		24.5	12.3
Trinity		17.5	7.5
Tulare		39.5	22.3
Tuolumne		23.0	16.6
Ventura		23.0	11.8
Yolo		24.5	12.3
Yuba		24.5	12.3

the San Joaquin Valley. Each year, more than 76,000 asthma attacks could be averted in Riverside and San Bernardino counties alone. (Table 5.)

In December 2001, ARB and OEHHA staff scientists proposed that California's annual PM10 standard be lowered by one-third, from 30 micrograms per cubic meter of air ($\mu g/m^3$) to 20 micrograms, and that an annual state PM2.5 standard be set at 12 $\mu g/m^3$. But the agencies also had to decide about standards for short-term (24-hour) exposures to PM. They proposed to leave the short-term standard for PM10 unchanged at 50 $\mu g/m^3$. They at first opted not to propose a state short-term standard for PM2.5, continuing to rely on the federal level of 65 $\mu g/m^3$. After criticism from an external scientific review panel and pressure from state environmental advocates, however, ARB and OEHHA decided a state short-term PM2.5 standard was necessary, and in March 2002 proposed a level of 25 $\mu g/m^3$. (Figures 1 and 2.)

When the ARB directors meet to set the final standards, the stakes are high. If the annual PM10 standard is strengthened only slightly to 28 $\mu g/m^3$, and the PM2.5 standard is set at the federal level of 15 $\mu g/m^3$, as the oil companies and automakers advocate, the result would be 3,000 more premature deaths, 3,000 more hospital admissions, 1,000 more emergency room visits for asthma, 3,500 more cases of chronic bronchitis, and 150,000 more asthma attacks each year than if the standards were set at the proposed levels. For thousands of Californians, it will be literally a life-and-death decision.

Gov. Davis' air quality board should adopt the tougher regulations recommended by state scientists, and enforce them rigorously.

Recommendations

- Directors of the Air Resources Board should resist pressure from polluters and adopt both the annual and short-term PM10 and PM2.5 standards recommended by state scientists.
- The *de facto* state exemption from PM regulations for most agricultural activities – a major source of particulate pollution in California – should be eliminated.
- To further protect children and other sensitive populations from acute levels of particulates, ARB should also set shorter-term standards for PM10 and PM2.5, on the model of the state's eight-hour standard for ozone air pollution.
- The PM standards adopted by the state should be rigorously enforced. Currently the standards are non-binding, making enforcement inconsistent and ineffective.

Footnotes

[1] This figure is for estimated mortality due to long-term exposures to PM2.5 air pollution. It is difficult to arrive at an absolute number of PM-related deaths because of overlap in various estimates. For instance, the figures for long-term mortality are believed to encompass some but not all short-term deaths, and therefore estimates of short and long-term mortality can not be simply added together to get an estimate of total mortality.

[2] The median per-day income of California residents in the year 2000 was $180 (=46,802 dollars per year / 260 work days per year). (U.S. Census Bureau 2000.) The actual number of work days lost to PM10-related illness is 4,910,652. (OEHHA/ARB 2001.) The estimated cost to the state's economy is the product of these two numbers.

[3] OEHHA categorized the air pollutants under review into two tiers based on the agency's assessments of potential risks to public health. The first tier includes PM, ozone and nitrogen dioxide. The second tier includes lead, carbon monoxide, and hydrogen sulfide.' (OEHHA/ARB 2001.)

[4] Average PM10 levels were calculated by ARB using the last three years of data available (1998-2000). (OEHHA/ARB 2001.)

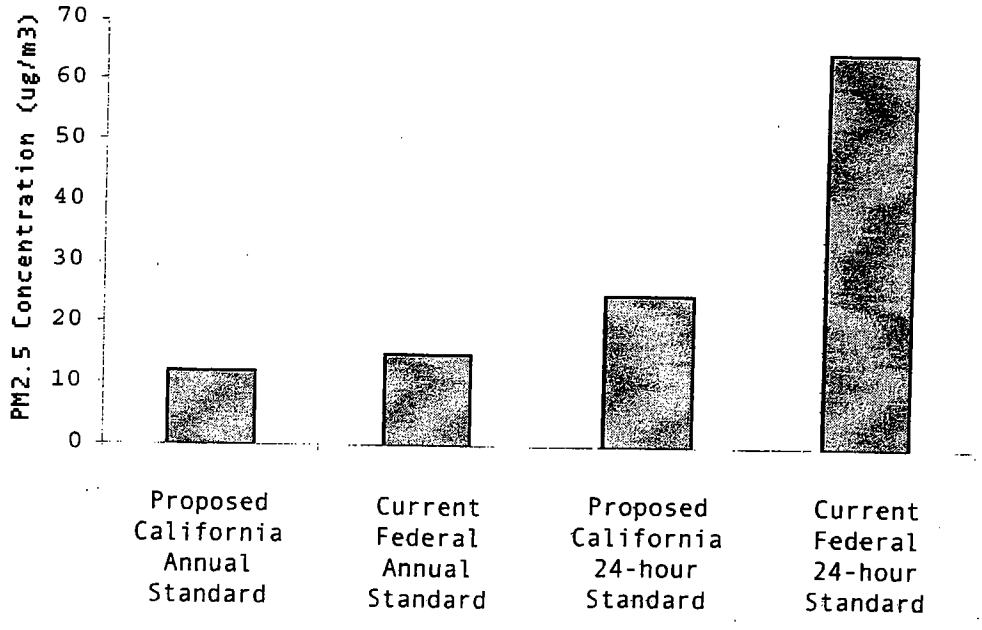
[5] Average PM2.5 levels were calculated by ARB using the last two years of data (1999-2000), which is all the monitoring data available. (OEHHA/ARB 2001.)

California's Particulate Problem

Emissions of particulates have been increasing in California for decades, from 2,017 tons of PM10 per day in 1980, to 2,240 tons per day in 1990, to 2,312 tons per day in 2000. (ARB 2001.) However, the increase has been far from uniform across the state. During this period, PM10 emissions in some counties have remained relatively steady or declined, while other counties have seen a marked increase. For instance, between 1975 and 2000, emissions in San Bernardino County increased by 93 percent and in San Diego County by 70 percent. (ARB 2001.) The increase in emissions comes from many sources, but one clear cause is the ever-growing dependence on automobiles: From 1975 to 2000 the number of vehicle miles traveled in California more than doubled, from 351 million miles per day to 800 million. (ARB 2001.)

While the total *amount* of emissions continues to rise, concentrations of PM10 *measured* by air quality monitors have actually declined. Statewide, annual mean concentrations measured by the state's 250 air monitors dropped 20

Figure 1. Proposed and Existing PM2.5 Standards



percent between 1988 and 1999, from about 80 μg/m³ to 60. A big reason for this apparent discrepancy is that most of the monitors are in the South Coast Air Basin, where in recent years progress has been made in reducing PM emissions. Since the current PM standards were adopted in 1982, improvements in air quality have been achieved statewide, but today all counties except Lake County still fail to meet the state's short-term PM10 standard. (Lassen, Modoc and Siskyou counties lack enough data to measure compliance.) Twenty counties fail to meet even the considerably weaker federal short-term PM10 standard.' (Table 4.)

Problem areas

In most areas of the state with elevated PM levels, the problem is not limited to short-term spikes in concentration but is a year-round concern. By far the highest levels are found in Imperial County and an adjacent portion of Riverside County, with an annual average of 70 μg/m³ of PM10 – almost 3.5 times the proposed state standard. But annual levels of 40 μg/m³ or more of PM10 – twice the proposed standard-- are recorded in twelve other counties or portions of counties: Fresno, Kern, Kings, Los Angeles, Madera, Merced, Orange, Riverside, San Bernardino, Stanislaus, San Joaquin and Tulare. (Table 4.)

PM differs from many other types of air pollution in that it is not a single compound, but rather a highly complex mixture of small solid particles and

Figure 2. Proposed and Existing PM10 Standards.

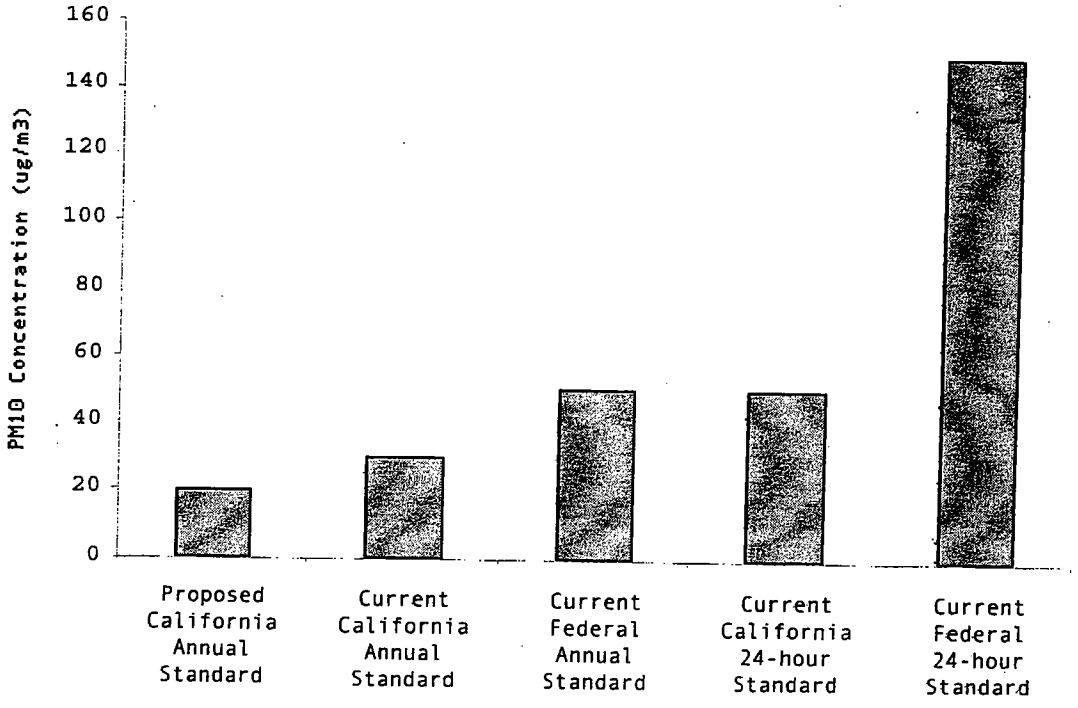


Table 5. Consequences of PM exposure, by county.

	Long-term mortality		Short-term mortality		Asthma Hospital Admissions		Asthma Emergency Room Visits		Asthma Attacks		Work Loss Days	
County	Deaths Due to PM2.5 at Current Levels	Fewer Deaths if Proposed Standards Achieved	Deaths Due to PM10 at Current Levels	Fewer Deaths if Proposed Standards Achieved	Admissions due to PM10 at Current Levels	Fewer Admissions if Proposed Standards Achieved	Visits Due to PM10 at Current Levels	Fewer Visits if Proposed Standards Achieved	Attacks Due to PM10 at Current Levels	Fewer Attacks if Proposed Standards Achieved	Days lost due to PM10 at current levels	Fewer Days Lost if Proposed Standards Achieved
Alameda	317	178	92	13	36	5	89	13	12,944	1,861	142,140	15,940
Alpine	0	0	0	0	0	0	0	0	6	0	93	0
Amador	12	7	4	1	1	0	2	1	349	80	3,334	626
Butte	32	3	24	8	6	2	14	5	2,257	704	21,072	5,629
Calveras	14	9	5	1	1	0	3	1	404	93	3,845	723
Colusa	2	0	1	0	1	0	1	0	209	65	2,053	548
Contra Costa	197	111	63	9	23	3	58	8	8,507	1,223	92,286	10,349
Del Norte	0	0	2	0	0	0	1	0	160	0	2,156	0
El Dorado	85	52	13	2	4	1	10	2	1,503	304	15,576	2,534
Fresno	311	243	126	83	49	33	121	81	17,894	11,905	138,277	99,442
Glenn	4	0	2	1	1	0	2	1	294	92	2,835	757
Humbolt	0	0	7	0	2	0	5	0	735	0	9,922	0
Imperial	15	4	38	32	17	15	41	35	6,370	5,348	40,840	42,511
Inyo	0	0	1	0	0	0	1	0	93	0	1,242	0
Kern	223	172	98	61	37	23	90	57	13,296	8,317	106,695	69,919
Kings	40	31	16	11	8	5	20	14	2,898	1,928	23,021	16,556
Lake	0	0	0	0	0	0	0	0	38	0	2,639	0
Lassen	0	0	0	0	0	0	1	0	78	0	2,061	0
Los Angeles	3555	2,759	1,387	930	599	405	1,469	997	217,366	146,105	1,672,103	1,220,537
Madera	50	39	21	14	7	5	18	12	2,756	1,833	21,026	15,121
Marin	55	31	16	2	6	1	15	2	2,217	319	23,452	2,630
Mariposa	6	4	2	0	0	0	1	0	170	39	1,644	309
Mendocino	0	0	5	0	1	0	3	0	501	0	6,680	0
Merced	79	62	32	21	13	9	32	22	4,713	3,136	36,585	26,310
Modoc		0	0	0	0	0	0	0	22	0	521	0
Mono	0	0	0	0	0	0	0	0	67	0	1,016	0
Monterey	0	0	27	8	12	4	30	9	4,391	1,318	44,102	11,262
Napa	37	21	11	2	3	0	7	1	1,114	160	11,536	1,294
Nevada	30	18	9	2	2	1	6	1	916	211	8,804	1,655
Orange	956	744	410	277	182	124	447	306	66,218	44,928	506,007	374,751
Placer	25	2	21	6	7	2	19	6	2,733	832	26,429	6,869
Plumas	7	4	2	0	1	0	1	0	207	48	1,981	372
Riverside	583	431	353	256	112	82	272	200	42,149	30,675	296,622	243,660
Sacramento	132	12	106	33	37	12	92	29	13,594	4,238	133,938	35,779
San Benito	0	0	3	1	2	0	4	1	582	175	5,969	1,524
San Bernardino	486	370	231	144	95	60	234	147	34,127	21,263	276,676	180,041
San Diego	560	308	279	131	110	52	273	130	40,465	19,074	358,663	159,824
San Francisco	203	114	60	9	19	3	46	7	6,964	1,001	73,543	8,247
San Joaquin	251	196	101	67	34	23	84	57	12,616	8,393	96,729	69,562
San Luis Obispo	26	0	21	5	7	2	16	4	2,471	581	24,534	4,727
San Mateo	150	84	45	6	17	2	42	6	6,340	912	67,890	7,613
Santa Barbara	37	0	29	7	11	3	27	6	4,000	940	40,532	7,809
Santa Clara	271	152	82	12	42	6	104	15	15,085	2,169	166,914	18,718
Santa Cruz	0	0	20	6	8	2	19	6	2,793	838	28,076	7,170
Shasta	25	2	19	6	5	1	12	4	1,814	566	17,043	4,553
Sierra	1	1	1	0	0	0	0	0	35	8	339	64
Siskiyou		0	0	0	0	0	1	0	102	0	2,428	0
Solano	60	29	23	5	11	2	26	5	3,790	773	40,655	6,672
Sonoma	99	56	35	4	11	1	26	4	3,938	520	42,970	4,336
Stanislaus	193	150	79	52	27	18	67	45	10,006	6,657	76,857	55,272
Sutter	9	1	7	2	2	1	6	2	877	273	8,519	2,276
Tehama	9	1	7	2	2	1	4	1	623	194	5,802	1,550
Trinity	0	0	0	0	0	0	0	0	76	0	966	0
Tulare	145	113	58	38	23	15	56	37	8,238	5,481	63,764	45,855
Tuolumne	18	11	5	1	1	0	3	1	542	125	5,148	968
Ventura	57	0	47	11	21	5	52	12	7,544	1,773	78,649	15,153
Yolo	15	1	13	4	5	2	13	4	1,874	584	18,826	5,029
Yuba	8	1	6	2	2	1	5	1	669	209	6626	1,770
Total	9,390	6,525	4,063	2,791	1,624	934	3,992	2,801	592,736	438,270	4,910,662	2,814,815

Source: EWG, from ARB/OEHHA 2001.

liquid droplets suspended in air. These particles may be emitted directly into the air or they may form in the atmosphere from "precursor" chemicals such as sulfur and nitrogen compounds. Substances that comprise PM range from soot, soil, organics, dust, and smoke to heavy metals, aerosols, nitrates, and sulfates. The makeup of PM pollution varies considerably among different locations and at different times of the year (or even day) in the same location. The diverse composition and distribution of particulate pollution makes it especially difficult to assess and control.

Particulate pollution comes from both natural and human sources. The five leading sources of PM10 emissions in California are in the catchall category of "dust" – unpaved road dust, paved road dust, and windblown dust together comprise about 55 percent of the total, with construction and agriculture each contributing another 9 percent. (Table 6.) Other significant human sources of PM10 emissions are industrial pollution and fuel combustion (6 percent combined), fireplaces and wood stoves (6 percent), burning waste (6 percent) and vehicle exhaust (5 percent). (ARB 2000a.)

Unlike most air pollutants, which are regulated based on their chemical composition, particles are regulated based on their size: those with diameters greater than 10 microns, those with diameters less than or equal to 10 microns (PM10), and those with diameters equal to or less than 2.5 microns (PM2.5). (One micron is one millionth of a meter, and a single human hair has a diameter of 50 to 100 microns.) The human respiratory system can filter out most particles larger than 10 microns. But as the particles get smaller they are

Table 6.
Sources of PM10 pollution in California.

PM10 Source	Tons of PM10 Emitted per Year	Percent of Total
Unpaved road dust	235,060	27%
Paved road dust	140,890	16%
Windblown dust	106,945	12%
Construction	74,825	9%
Farming	79,935	9%
Woodstoves & fireplaces	51,465	6%
Waste burning	50,735	6%
Mobile vehicles*	45,625	5%
Wildfires	31,755	4%
Industrial	32,485	4%
Fuel combustion	15,695	2%
Other	11,315	1%
Total	876,730	100%

* includes cars, trucks, airplanes, trains, and boats

Source: EWG, from ARB 2000.

Table 7. Comparison of PM2.5 (Fine Particles) and PM10 (Coarse Particles).

	FINE	COARSE
Formed from	Gases	Large solids/droplets
Formed by	Chemical reaction Nucleation Condensation Coagulation Evaporation	Mechanical disruption (crushing, grinding, etc.) Evaporation of sprays Suspension of dusts
Composed of	Sulfate Nitrate Ammonium Hydrogen ion Elemental carbon Organic compounds Metals Particle-bound water	Resuspended dusts Soil, dust, street dust Oxides of crustal elements Sea salt, calcium carbonate Pollen, mold, fungal spores Plant/animal fragments Tire wear debris
Solubility	Largely soluble	Largely insoluble
Sources	Combusiton of coal, oil, gasoline, diesel, wood Atmospheric transformation products of nitrogen oxides, sulfur dioxide, and organics High temperature processes, smelters, steel mills, etc.	Resuspension of industrial dust and soil tracked onto roads and streets Suspension from disturbed soil, e.g. farming, mining Biological sources Construction Coal and oil combustion Ocean spray
Lifetime	Days to weeks	Minutes to hours
Travel distance	100s to 1000s of kilometers	<1 to 10s of kilometers

Source: EWG, from US EPA 1996.

able to penetrate deeper into the lungs, and are harder for the body to remove. Therefore, over the past two decades, researchers and regulators have focused on ever-smaller inhalable particles. The U.S. Environmental Protection Agency first set standards for PM10 in 1987 and set standards for PM2.5 in 1997.

PM10 and PM2.5 also differ in their sources, how they are formed, composition, and lifetime in the atmosphere. Fine particulates are generated from fossil fuel combustion and other high-temperature processes, are formed from gases which then react and coagulate in the atmosphere and persist in the air for days or weeks. Coarse particulates are usually generated from the suspension of dust from natural or man-made sources, are composed of very small particles or droplets rather than gases, and remain in the air for minutes to hours. (Table 7.) (U.S. EPA 1996.)

Dust in the wind

More than 70 percent of PM10 emissions in the state are from "dust," which includes wind-blown dust from paved and unpaved roads, farming and ranching, and construction sites. Agriculture is a major source of PM10, but its impact is somewhat hidden because ag-related emissions fall into a number of different categories: farming operations, windblown dust, waste burning, industrial processes and farm vehicles. All told, California agriculture produces 459 tons of PM10 a day, or more than 167,500 tons a year. The farm-related particulates problem is so severe in the San Joaquin Valley that the region has repeatedly been unable to meet federal PM standards, and stands to lose more than $2 billion in federal highway funds if the eight counties can't achieve a five percent annual reduction in particulate levels – the only air basin in the country to be hit with such sanctions.

Yet the agricultural industry is exempt from most air pollution laws. The federal Clean Air Act exempts emissions from farm equipment of less than 175

Table 8. Leading Industrial Sources of PM10 Pollution in California.

Facility Name	City	Tons of PM10 Emitted per Year
ADM Inc (Wood Products)	Benicia	1,376
US Borax	Boron	614
Kern Oil & Refining	Bakersfield	544
IMC Chemicals	Trona	526
Mitsubishi Cement	Lucerne Valley	472
Chevron	El Segundo	472
Arco	Carson	452
Ampine (Wood Products)	Martell	447
Port of Stockton	Stockton	436
Martinez Refining Company	Martinez	433

Source: EWG, from ARB 2001.

horsepower. Strictly speaking, California doesn't exempt farm sources from air pollution *regulations*, but does exempt farm operations from having to obtain an air pollution *permit* – and without the conditions attached to a permit, there is no effective control on emissions. The EPA has announced that it will commission the National Academy of Sciences to study agricultural sources of air pollution, which could lead to full-scale regulation of air pollution from farming operations.

Dirty diesels

"Mobile" sources (vehicles) contribute about 5 percent of California's annual PM10 emissions. Passenger cars and light trucks are responsible for about a quarter of this pollution, with most of the rest coming from heavy duty trucks, farm and construction and both commercial and recreational boats. But the bad actor of the category is diesel fuel. Even though diesel-fueled vehicles make up only 4 percent of the 31 million vehicles on the road in California, diesels are responsible for 53 percent of all auto-related PM emissions in California. (ARB 2000b.) And in addition to the adverse health effects associated with all other sources of particulate matter, diesel PM contains many known carcinogens. ARB estimates that diesel-derived PM is responsible for 900 excess cases of cancer per 1 million people exposed over a 70-year lifetime, accounting for 70 percent of the known statewide cancer risk from outdoor air toxics. (ARB 2000b.)

Agriculture is the largest industry in California and a major source of particulates, but is exempt from most air pollution rules.

Industrial emissions account for about 4 percent of California's PM10 pollution. The list of the leading industrial polluters includes petrochemical companies like Chevron, Arco and other refiners, but by far the worst offender is ADM Inc., a manufacturer of wood products in Benicia, Solano County, with more than 1,300 tons emitted in 2000. (Table 8.) Collectively, the ten worst industrial PM polluters in the state emitted 5,300 tons of PM10 in 2000.

Air Pollution, Illness, and Death

Scientists began investigating the link between air pollution, illness and death in response to a number of severe air pollution episodes that sickened and killed thousands of residents in the United States, England and Belgium between 1930 and 1952. Most of the early research looked the effects of very high pollution levels, but more recent inquiry has focused on how low-to-moderate levels of particulates and other air pollutants affect human health. In the past decade the amount of research in this area has exploded, as literally hundreds of studies have been conducted just on the relationship between particulates and death. The scientific consensus is undebatable: Particulates are significantly more harmful than previously realized, and levels well below current state and federal air quality standards can cause or contribute to death.

Relatively small increases in airbone particulates can significantly increase the incidence of respiratory disease and death.

PM pollution has been linked to an array of respiratory ailments in children and adults, including chronic cough, chest pain, breathlessness, wheezing, phlegm, and chronic bronchitis. (Abbey et al. 1995a,b, Pope and Dockery 1991, Braun-Fahulander et al. 1992, Hruba et al. 2001, Zemp et al. 1999.) PM also affects overall lung functioning. Researchers have found that levels of PM commonly experienced by Californians are associated with small but significant decreases in the ability of both children and adults to take and hold deep breaths. (Hoek et al., 1998, Raizenne et al. 1996, Ackerman-Liebrich et al. 1997.)

Kids + PM = Damaged lungs

More troubling, PM can also retard the growth of children's lungs. The Children's Health Study, a long-term investigation of the health effects of air pollution conducted on more than 3,500 children from 12 communities in Southern California, found that PM10 and PM2.5 exposure was associated with decreases in both lung function and lung growth. (Peters et al. 1999, Gauderman et al. 2000.) A follow-up study found that children who moved to areas with lower PM levels showed increased lung growth and functioning, while lung growth and function continued to decline in those who moved to areas with even higher PM levels. (Avol et al. 2001.)

Wherever the link has been investigated, including many studies conducted in California, the results have been consistent: For every 10 micrograms of PM10 added to every cubic meter of air, symptoms of respiratory illness increase, with some studies showing increases of up to 40 percent. State scientists estimate that more than 13,500 current cases of chronic bronchitis in Californians

over the age of 27 are due to particulate air pollution. PM is also responsible for upper respiratory symptoms in an estimated 418,000 California children between the ages of 9 and 11, for lower respiratory symptoms in almost 400,000 children between the ages of 7 and 14, and almost five million lost days of work each year for PM-related illnesses[1]. (ARB/OEHHA 2001.)

Between 1980 and 1994 the prevalence of asthma in the United States increased by more than 75 percent. (Mannino et al., 1998.) Asthma now affects more than 10 million adults and almost five million children. While the current scientific consensus holds that PM pollution does not cause asthma, studies in California and elsewhere have repeatedly found that PM can significantly exacerbate the disease.

The state's proposed 24-hour particulate standards may not cover a short enough exposure period to fully protect public health.

Both PM2.5 and PM10 are associated with many different measures of the severity of asthma, including frequency of attacks, increased use of medication, emergency room visits and hospitalization. (Ostro 2001, Delfino 1998, Pope and Dockery 1992, Yu et al. 2000, Gielen et al. 1997.) A study of asthmatic African-American children in Los Angeles found that one-hour maximum levels, 24-hour averages, and multi-day averages of PM10 were all associated with increases in asthmatic symptoms. (Ostro et al 2001.) State scientists estimate that almost 600,000 asthma attacks, almost 4,000 emergency room visits and more than 1,600 hospital admissions each year are linked to PM-induced asthma.

PM is also associated with increased hospital visits for illnesses other than asthma. Research in dozens of cities in California and other states has consistently found that short-term PM10 and PM2.5 exposures are associated with hospital admissions for cardiovascular and pulmonary diseases such as heart attack, congestive heart failure, cardiac arrhythmia and chronic obstructive pulmonary disease. (Linn et al 2000, Moolgavkar 2000 a,b, Samet et al 2000a, Sheppard et al 1999, among others). Overall, these studies have found that for each 10-microgram increase in PM10 levels in a cubic meter of air, hospital admissions for cardiovascular and respiratory diseases rose by 1.25 to 5 percent. (ARB/OEHHA 2001.) This holds true in locations where PM10 pollution was at low to moderate levels, as well as where levels were high. Data for PM2.5 is more sparse, but suggests that incremental increases in fine particulates may be associated with even greater increases in hospital admissions.

State scientists estimate each year PM10 pollution is responsible for 2,100 hospital admissions for chronic obstructive pulmonary disease, 3,000 admissions for pneumonia and 5,500 admissions for cardiovascular diseases. These estimates account *only* for people age 65 and older, but research has found increases in hospital admissions for these illnesses among younger people as well. (Table 9.)

Common sense says that breathing polluted air daily over an extended period of time is more dangerous than exposure for a few hours or days. Observed increases in mortality from short-term PM exposures are three to four times lower than those from long-term exposures. (ARB/OEHHA 2001.) Yet the impact of short-term PM exposures on public health cannot be ignored. ARB cautions that annual PM averages "do not give an accurate indication of the

seasonal nature of emissions." (ARB 2001.) Averaging means that an area could meet annual standards but have significantly higher PM levels for part of the year, and acutely high levels for a few days of the year.

Shorter-term standard may be needed

A 24-hour standard may actually not be short *enough* to protect public health, as there is evidence that exposure to high levels of particulates over shorter time periods can have significant health effects. One study found that exposure for only two hours was associated with the onset of heart attack symptoms. (Peters et al. 2001.) ARB says it may consider shorter-term standards in the future.

In 1993, Harvard researchers published the results of a 16-year study of 8,000 people in six cities, which found that residents of the city with the highest levels of particulates had a 26 percent higher death rate than the people living in the least polluted city. (Dockery et al. 1993.) An even more extensive seven-year study conducted of more than 550,000 people in 151 metropolitan areas found that residents of cities with the highest PM10 had a 17 percent higher mortality rate than those residing in cities with the lowest levels. (Pope et al. 1995.) These long-term studies have convincingly shown that chronic exposure to particulate matter increases death rates, but recent research shows that short-term PM exposure also is associated with increased mortality.

"The evidence in support of an association between the concentration of particulate air pollution and the mortality rate is consistent."

– Dr. James Ware, Harvard School of Public Health.

Studies in over 200 cities worldwide – cities with significantly different climates, racial profiles, weather patterns, pollution sources and pollution severity – have found a consistent connection between *daily* PM levels and *daily* mortality rates. These studies accounted for numerous other factors such as smoking, age, poverty, weather and other pollutants. Dr. James Ware of the Harvard School of Public Health summarized the findings: "The evidence in support of an association between the concentration of particulate air pollution and the mortality rate is consistent, is not affected by differences in statistical methods, and can be generalized." (Ware 2000.)

In assessing the health risks of a given pollutant, the standard scientific assumption is that risks decrease as exposure rates decrease, and that no harmful effects occur below a certain threshold. But PM does not fit this model. Studies show that the relationship between PM concentration and death is not a tapering curve but a straight line – that is, the health effects of particulates are directly proportional to the level of exposure. No exposure level, including levels below current state and federal standards, has been found at which PM does not have a measurable effect on mortality. (Pope 2000, Daniels et al. 2000.) This has important implications for the development of state air quality standards, which are required to determine the level above which a pollutant is known to harm sensitive populations and incorporate a margin of safety to protect them. (ARB/OEHHA 2001.)

Environmental pollutants do not affect everyone equally, but have greater impact on the very young, the very old, the poor, and those with pre-existing illnesses. The highest rates of PM-related death are among the elderly, especially those with heart or lung diseases.

PM and SIDS

But research into PM's effects on infants and children has found links to pre-term birth or Sudden Infant Death Syndrome (crib death). Most of these studies have been conducted outside the U.S., but indicate a 2 to 4 percent increase in mortality for each 10 micrograms of PM10 in a cubic meter of air. (Loomis et al. 1999, Ostro et al. 1999a.) A study of 98,000 newborns in Southern California born between 1989 and 1993 concluded that the likelihood of pre-term birth was significantly associated with elevated PM levels during the six weeks before birth. (Ritz 2000.)

Some critics argue that PM-related mortality is not a major public health concern, because most deaths are of people who are already ill and only shorten life by days or weeks. Yet in recent years scientists who have thoroughly investigated this notion found it wasn't true. For instance, studies have found that out-of-hospital deaths are between two and four times more strongly related to PM pollution than in-hospital deaths. This indicates that it is not just the critically ill who are more likely to die on days of high PM exposure. (Schwartz 2000, 2001b.) Addressing this issue, the ARB and OEHHA say PM-related mortality is "not the result of just a few days of life shortening . . . it appears that significant reductions in life expectancy may be involved." (ARB/OEHHA 2001.)

Not all particles are created equal. Research indicates that people are much less sensitive to dust and particulates from other natural sources than industrial emissions and auto exhaust. Two studies have found that exposure to particles derived from motor vehicles, coal combustion, and iron and steel manufacturing was significantly associated with daily mortality, while exposure to particles from soil was either not associated or less significantly associated with increased mortality. (Laden et al. 2000, Ozkaynak and Thurston 1987.) Another study was conducted after researchers in Utah noted that hospital admissions and deaths declined following the temporary shutdown of a local steel mill. (Pope 1989.) Scientists then exposed rats to a constant amount of particulates collected before, during and after the mill's closure and found that animals exposed to particulates collected while the mill was closed showed much lower rates of lung damage and related symptoms. (Dye et al. 2001.) The policy implications are clear: The largest sources of particulates, such as road dust, may not be as harmful as particulates from smaller sources such industrial emissions or auto exhaust.

PM-related illnesses carry significant economic impacts. For example, hospital visits for PM-induced COPD, pneumonia and cardiovascular diseases in the population aged 65 and over and visits for pollution-induced asthma in the population under 65 total $132 million a year (Table 3). PM-related illnesses cause Californians to miss almost 5 million work days a year, costing the state's economy more than $880 million[2]. Considering just these costs, the

price of PM air pollution in California exceeds $1 billion a year. (Table 3.) This does not take into consideration many hospital and non-hospital costs of other minor and serious PM-related illnesses.

If California's air quality met the proposed PM standards, an estimated $584 million could be saved each year, cutting the costs of particulate air pollution by more than half. (Table 3.) And if lower standards were reached, these costs would be reduced even further. By achieving a mean ambient PM10 level of 15 micrograms per cubic meter – just 5 micrograms less than the proposed standards – an additional $200 million would be saved each year.

Proposed state standards would prevent hundreds of thousands of asthma attacks each year.

Footnotes

[1] The studies on which OEHHA based their estimates of PM-related illnesses only looked at certain age groups. OEHHA/ARB decided not to extrapolate the results to other age groups and, instead, estimated the illness figures for only these same age groups.

[2] The median per-day income of California residents in the year 2000 was $180 (=46,802 / 260). (US Census Bureau 2000) The actual number of work days lost to PM10-related illness is 4,910,652. (OEHHA/ARB 2001) The estimated cost to the state's economy is the product of these two numbers.

Particle Civics

California has long been a national and global leader in pioneering efforts to improve air quality to protect public health. California developed the nation's first vehicle emission control program in 1963, instituted the nation's first heavy-duty diesel truck standards in 1973, and was the first state to sell unleaded gasoline in 1976. California has also been a trendsetter in developing health-based ambient air quality standards that reflect the most current science available. The existing PM10 standards are a perfect example.

California is the first state to require that air pollution standards be tough enough to protect children, rather than adult males.

In the late 1970s, ARB scientists were among the first to recognize that particulates with diameters of 10 microns or less (PM10) posed more of a human health risk than those with larger diameters. At that time, state and federal air quality standards treated this highly diverse group of compounds as one category called total solid particulates (TSP). But the ARB determined that separate standards were needed for PM10, which took effect in 1982. It took five more years for the U.S. EPA to follow suit, but the federal standards were set 1.5 to three times weaker than the state standards.

Since then, entire libraries of research on particulates and health have been published. There is no disagreement in the scientific and regulatory committees: PM has more profound negative effects on human health than ever before realized, and these effects are measurable at concentrations at or below current air quality standards. This research has established that particles with diameters less than 2.5 microns, or PM2.5, may be particularly hazardous to human health, making the need for tougher and more comprehensive standards more urgent.

Priority: Protecting kids

The need for a revision of California's particulate standards was highlighted with the passage of the Children's Environmental Health Protection Act of 1999 (SB 25 by State Sen. Martha Escutia.) As part of the Act, the ARB and OEHHA were required to review all existing health-based ambient air quality standards in California to determine whether they protected infants and children, as well as other sensitive populations, with a sufficient margin of safety. During this review, it became clear that the current levels of particulate matter in California were responsible for significant and measurable health effects, not

only on children but the public as a whole. As result, the agencies made PM standards the top priority for revision.

In December of 2001 the agencies proposed that California's annual mean PM10 standard be lowered by a third, and added a new standard for PM2.5 that is slightly more stringent than the corresponding federal standard. They recommended leaving the short-term standard for PM10 at current levels, and opted not to recommend establishment of a short-term standard for PM2.5. However, after criticism from an independent scientific review panel and pressure from the environmental community, ARB and OEHHA proposed a short-term standard for PM2.5 that is more than twice as stringent as the existing federal standard. (Figures 1 and 2.)

How many people will California allow to die or become ill each year from the very air they breathe?

The proposed annual standards would dramatically reduce the number of air pollution-related health problems in California. If these standards were attained, thousands of deaths and injuries would be prevented each year: 6,525 premature deaths, 6,903 hospital admissions for respiratory illness, 2,301 emergency room visits for asthma, 7,835 cases of chronic bronchitis, and 338,270 asthma attacks. **(Table 9.)** Overall, the number of PM10-induced illnesses and deaths would decrease by an average of 60 percent, and PM2.5 illnesses and deaths would be cut in half. Because these figures account only for certain illnesses and age groups, the actual health benefits of reducing PM levels would be even greater.

How many will die?

If the standards were set at levels slightly more stringent than those being proposed by the ARB, even more lives would be saved and illnesses avoided. For example, if California met an annual mean PM10 standard of 15 $\mu g/m^3$ and an annual mean PM2.5 standard of 10 $\mu g/m^3$ an additional 1,900 premature deaths, 2,700 respiratory hospital admissions, 850 emergency room visits for asthma, 3,000 cases of chronic bronchitis, and 127,000 asthma attacks could be avoided each year. Overall, PM-induced deaths and illnesses would drop by almost 80 percent.

The consequences of moving in the other direction, toward less stringent standards advocated by the oil and auto industries, would be deadly. EWG analysis shows that if the annual PM10 standard was weakened only slightly from proposed levels, to 28 $\mu g/m^3$, and the annual PM2.5 standard was set to correspond with the federal standard of 15 $\mu g/m^3$, there would be 4,000 more premature deaths, 3,000 more hospital admissions, 1,000 more emergency room visits for asthma, 3,500 more cases of chronic bronchitis, and 150,000 more asthma attacks each year. The question facing the ARB board next month is grim: How many people will California allow to die or become ill each year from the very air they breathe?

Table 9. Savings from Reducing PM-related Illnesses.

PM2.5

	Ages Considered	Number at current annual average PM2.5 level	Cost at current level (1999 $)	Number if proposed standard achieved	Number fewer if proposed standard was achieved	Percent fewer	Dollars saved if proposed standard was achieved	Additional number saved if proposed standard was tightened to 10 ug/m3	Additional dollars saved if standard was tightened to 10 ug/m3
Long-term Mortality [1]	30+	9,390	-	2,865	6,525	69%	-	1,895	-
Short-term Mortality	All	4,011	-	2,066	1,945	48%	-	573	-
Chronic Bronchitis [2]	27+	11,409	N/A	5,660	5,749	50%	N/A	1,612	N/A
Chronic Obstructive Pulmonary Disease Hospital Admissions [3]	65+	1,243	$14,575,966	642	601	48%	$7,529,519	179	$2,098,238
Pneumonia Hospital Admissions [4]	65+	1,791	$24,947,738	927	864	48%	$12,914,520	258	$3,593,682
Cardiovascular Disease Hospital Admissions [5]	65+	3,173	$19,999,436	1,646	1,527	48%	$10,376,736	456	$2,874,168
Asthma Hospital Admissions [6]	64-	950	$16,912,004	481	470	49%	$8,550,392	133	$2,366,602
Asthma Emergency Room Visits [7]	64-	2,352	$703,156	1,185	1,167	50%	$348,933	330	$98,670
Work Loss Days [8]	64-	2,923,535	$526,236,300	175,151	1,445,535	49%	$260,196,300	354,479	$63,806,290
Total			$603,374,599				$299,916,400		$74,837,650

PM10

	Ages Considered	Number at current annual average PM10 level	Cost at current level (1999 $)	Number if proposed standard achieved	Number fewer if proposed standard was achieved	Percent fewer	Dollars saved if proposed standard was achieved	Additional number saved if proposed standard was tightened to 15 ug/m3	Additional dollars saved if standard was tightened to 15 ug/m3
Long-term Mortality [9]	30+	7,470	-	978	6,492	87%	-	N/A	-
Short-term Mortality	All	4,063	-	1,772	2,291	56%	-	N/A	-
Chronic Bronchitis [10]	27+	13,530	N/A	5,696	7,835	58%	N/A	2,902	N/A
Chronic Obstructive Pulmonary Disease Hospital Admissions [11]	65+	2,115	$24,792,990	923	1,192	56%	$10,815,492	463	$5,427,286
Pneumonia Hospital Admissions [12]	65+	3,061	$42,639,263	1,340	1,721	56%	$18,664,007	671	$9,346,359
Cardiovascular Disease Hospital Admissions [13]	65+	5,452	$34,362,621	2,395	3,057	56%	$15,096,981	1,195	$7,532,085
Asthma Hospital Admissions [15]	64-	1,624	$28,904,937	692	933	57%	$12,311,563	346	$6,156,724
Asthma Emergency Room Visits [15]	64-	3,992	$1,193,527	1,691	2,301	58%	$687,999	850	$254,150
Work Loss Days [16]	64-	4,910,652	$883,917,360	254,466	2,814,815	57%	$506,666,700	953,659	$171,658,534
Total			$1,015,810,698				$564,242,742		$200,375,138

Source: ARB/OEHHA 2001, EWG 2002, Abt 2000, US Census 2000.

Notes - Table 9

1) The reason why the number of PM2.5-related deaths is higher than the number of PM10-related deaths even though PM2.5 particles are a subset of PM10 particles is related to the study which ARB/OEHHA based their calculations of long-term mortality. This study (Krewski et al. 2000) found long-term mortality to be assocaited only with the fine (PM2.5) fraction of PM10. Although the other major long-term mortality study (Dockery et al. 1993) did find an association between chronic exposure and mortality, ARB/OEHHA decided to based their calculations on the Krewski et al. (2000) study. See ARB/OEHHA 2001 for futher details.

2) The costs related to chronic bronchitis could not be calculated.

3) Hospital charge cost only. Mean hospital stay is 6.02 days with a mean charge of $11,722 (1999 dollars). (Abt 2000)

4) Hospital charge cost only. Mean hospital stay is 7.01 days with a mean charge of $13,929 (1999 dollars). (Abt 2000)

5) Hospital charge cost only. Mean hospital stay is 5.44 days with a mean charge of $17,794 (1999 dollars). (Abt 2000)

6) Hospital charge cost only. Mean hospital stay is 3.03 days with a mean charge of $6,303 (1999 dollars). (Abt 2000)

7) The average asthma ER visit cost is $299 (1999 dollars). (Abt 2000)

8) The median per-day income of California residents in the year 2000 was $180. (US Census 2002)

9) The number of PM10 related deaths at an annual average of 15 ug/m3 was not calculated because no studies have been done on mortality where PM10 is less than 18; as a result OEHHA/ARB uses 18 ug/m3 as background level.

10) The costs related to chronic bronchitis could not be calculated.

11) Hospital charge cost only. Mean hospital stay is 6.02 days with a mean charge of $11,722 (1999 dollars). (Abt 2000)

12) Hospital charge cost only. Mean hospital stay is 7.01 days with a mean charge of $13,929 (1999 dollars). (Abt 2000)

13) Hospital charge cost only. Mean hospital stay is 5.44 days with a mean charge of $17,794 (1999 dollars). (Abt 2000)

14) Hospital charge cost only. Mean hospital stay is 3.03 days with a mean charge of $6,303 (1999 dollars). (Abt 2000)

15) The average asthma ER visit cost is $299 (1999 dollars). (Abt 2000)

16) The median per-day income of California residents in the year 2000 was $180. (US Census 2002)

Who's Against Clean Air?

Lobbyists for the petrochemical industry, automakers and engine manufacturers have mounted a major campaign against the PM standards proposed by the Air Resources Board and Office of Environmental Health Hazard Assessment. The dirty-air lobby includes the Alliance of Auto Manufacturers, representing 13 U.S. and international automakers; Western States Petroleum Association, representing 36 oil companies; and the Engine Manufacturers Association, representing 27 companies. Individual corporations include ExxonMobil, General Electric and BP (formerly British Petroleum) ranked by *Forbes* as the second, third and fourth most powerful corporations in the world.

Oil companies and automakers opposed to cleaner air gave Gov. Davis $175,000 in the current election cycle.

According to records filed with the California Secretary of State, 22 industry associations and individual companies opposed to tougher particulate standards spent more than $7.5 million in 2001 on lobbying at the State Capitol. (Table 10.) Most of these associations and companies have full-time lobbyists in Sacramento or are represented by one or more lobbying firms, some of whom employ whole teams of lobbyists. Their lobbying activity is in addition to hundreds of thousands of dollars in campaign contributions to state politicians made by the associations and companies each year. Just three members of the Western States Petroleum Association – BP, Occidental Petroleum and Chevron Texaco-- collectively gave $175,000 to Gov. Gray Davis in 2000-2001. (Cal-Access 2002.)

The truth behind the smokescreen

Here's a sampling of their arguments against cleaner air, and the truth behind the smokescreen:

- The Alliance of Auto Manufacturers and Engine Manufacturers Association claim the proposed tougher standards will not "result in any greater protection of public health than the current California standards." (AAM 2002.) But the peer-reviewed risk assessment by state scientists found that attaining the "recommended standards would result in a reduction of . . . about 3 percent of all mortality in the population above age 30." (ARB/OEHHA 2001.)

- According to the Western States Petroleum Association, "as much or more public health benefit would be gained from uniform reduction targets than from a single statewide standard." (WSPA

2002.) But because the heaviest particulate pollution is found in lower-income communities of color, such a policy would perpetuate existing environmental inequities"– as if people who live in highly polluted areas have less right to clean air.

- Ford Motor Co. says the proposed standards are "impossibly stringent . . . with practically no hope of attainment." (Ford 2002.) It is hard to take this claim seriously when the auto industry's estimates of the cost of complying with other recent air quality regulations have been inflated by a factor of 14. (Browner 1997.)

Residents of communities of color, who are more likely to breathe dangerous levels of particulate pollution, would benefit most from cleaner air.

The attack on California's proposed particulate standards is a rerun of the same special interests' efforts to derail tough standards at the federal level.

In 1996, the U.S. EPA proposed for the first time to regulate PM2.5, after research had shown strong links between fine particles and death. The EPA proposed to cut allowable levels of PM2.5 in half, saving an estimated 35,000 lives a year nationwide. In California those standards would have saved an estimated 2,500 lives. In reviewing the EPA's 1997 proposal, the Air Resources Board went further, recommending an even tougher PM2.5 standard that would have saved an estimated 3,000 to 4,000 additional lives in the state.

Even before the EPA and ARB announced their proposals, more than 650 industry associations and companies banded together as the Air Quality Standards Coalition. The coalition included the National Association of Manufacturers, American Petroleum Institute, American Automobile Manufacturers Association, Chemical Manufacturers Association, Edison Electric Institute, National Mining Association, American Forest and Paper Association, and American Trucking Association.

Goodbye to barbecues?

The coalition spent $1.5 million on a nationwide lobbying and misinformation campaign, and millions more on industry-funded "sound science" to undermine the peer-reviewed science relied on by the EPA. They spread exaggerated claims about how the proposed standards would impact the American way of life –for example, forcing an end to backyard barbecues. (Skrzycki 1996) A fake "grassroots" group called Citizens for a Sound Democracy targeted African-Americans and Latinos, warning that the cost of new standards was too high for small minority-owned businesses. (Washington Post 1996.)

To the contrary, in 1997 EWG found that residents of communities of color in California would benefit the most from tougher PM standards, because people in communities of color were nearly three times more likely to breathe dangerous levels of PM pollution than Californians living in predominantly white communities. Based on then-current population and pollution data, residents of communities of color had a 54 percent chance of breathing unsafe levels of particulates, compared to a 19 percent chance for predominantly white communities. (EWG 1997a.)

After the standards were adopted by the Clinton Administration, the American Trucking Association challenged them in court, claiming that EPA had overstepped its authority in setting the regulations and that the agency should consider the cost of compliance as well as the benefits to public health. ATA's arguments were dismissed by the U.S. Supreme Court in 2001. The ruling stated that the law clearly established the agency's right to set standards and that the Act "unambiguously bars cost considerations." But the Supreme Court also sent parts of the case back to the U.S. Court of Appeals for clarification. In March 2002 the appeals court affirmed its ruling that "EPA must err on the side of caution – setting the [standards] at whatever level it deems necessary and sufficient to protect the public health with an adequate margin of safety, taking into account both the available evidence and the inevitable scientific uncertainties."

The unanimous appeals court ruling ended five years of counterattack by the opponents of cleaner air. In that period, according to EPA's estimates, 175,000 Americans died from PM pollution whose lives would have been saved or extended if air quality goals represented by the proposed standards had been achieved.

Table 10. Opponents of new PM standards spent almost $7.5 million to lobby against cleaner air in 2001.

	Lobbying Expenditures 2001	Contributions to Gov. Davis, current election cycle
Western States Petroleum Association	$2,137,100	
BP America	$1,253,634	$80,000
Chevron Texaco	$760,456	$35,000
General Motors Corporation	$549,434	
Equilon Enterprises	$521,600	
Ford Motor Company	$418,742	
Phillips Petroleum	$396,143	
General Electric	$255,774	
Nuevo Energy Company	$174,207	
Alliance of Automobile Manufacturers, Inc.	$161,790	
Aera Energy LLC	$151,466	
Occidental Petroleum	$135,225	$60,000
Ultramar Diamond Shamrock Corp.	$120,983	
Exxon Mobil	$112,937	
Toyota Motor Sales, U.S.A., Inc.	$85,673	
DaimlerChrysler Corporation	$51,213	
Kinder Morgan Energy Enterprises	$44,921	
Caterpillar Inc.	$41,735	
Deere and Company	$36,348	
Nissan North America	$25,156	
Venoco Inc.	$3,000	
TOTAL	$7,437,537	$175,000

Source: Compiled from lobbying and campaign finance reports as filed with the California Secretary of State. Available at http://CAL-ACCESS.ss.ca.gov

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Nitrogen Deposition Effects on Coastal Sage Vegetation of Southern California[1]

Edith B. Allen,[2] Pamela E. Padgett,[2] Andrzej Bytnerowicz,[3] Richard Minnich[4]

Abstract

*The coastal sage scrub (CSS) vegetation of southern California has been declining in land area and in shrub density over the past 60 years or more, and is being replaced by Mediterranean annual grasses in many areas. Although much of this loss is attributable to agriculture, grazing, urbanization and frequent fire, even protected areas have experienced a loss in native shrub cover. Nitrogen (N) deposition has not previously been examined as a contributor to CSS decline, but up to 45 kg/ha/yr are deposited in the Los Angeles Air Basin. Several mechanisms were examined by which atmospheric N deposition might affect the shrubs and promote growth of weeds. Field nitrogen fertilization studies at sites of high and low deposition showed that most of the abundant native and introduced species had increased growth after fertilization in the low deposition site, but in a high deposition site only one weedy species, small-podded mustard (*Brassica geniculata *(Desf.) J. Ball), responded to N fertilization. Greenhouse studies showed that both shrubs and weeds had high plasticity in their growth response to N fertilizer, an unexpected result for the shrubs. Preliminary competition studies indicated there was no change in the relative competitive ability of the shrubs or grasses after fertilization. However, negative effects of high N have been detected on the growth and survival of the shrubs. Greenhouse grown California sagebrush (*Artemisia californica *Less.) began to senesce at 6 to 9 months when fertilized with 50 µg N/g soil. This soil N concentration corresponds to extractable N levels in polluted sites, while levels are typically less than 10 µg/g in unpolluted sites. Another source of damage to plants can be cuticular lesions caused by nitric acid, but how nitric acid affects CSS leaves is unknown. Fumigation of pine needles with high ambient levels of nitric acid caused cuticular lesions and stomatal collapse, as well as modifications to nitrogen assimilation pathways. The preliminary evidence suggests that CSS vegetation may decline due to elevated nitrate levels in the soil, and additional studies are need to test effects of ambient nitric acid on CSS leaves.*

Introduction

The coastal sage scrub (CSS) vegetation of southern California has been declining in land area and in shrub density over the past 60 years or more, and is being replaced by Mediterranean annual grasses (Davis 1994, Freudenberger and others 1987, Minnich and Dezzani [In press], O'Leary and others 1992, Zink and others 1995). Although much of this loss is attributable to agriculture, grazing, urbanization and frequent fire, even protected areas have experienced a substantial loss in native shrub cover (Minnich and Dezzani [In press]). Nitrogen (N) deposition has not previously been examined as a contributor to CSS decline, but up to 45 kg/ha/yr are deposited in the Los Angeles Air Basin (Bytnerowicz and Fenn 1996). Nitrogenous compounds in polluted air affect even those tracts of land that have been set aside as reserves, which are in many cases surrounded by urbanization in southern California (O'Leary and others 1992). The coastal sage scrub is of particular interest to conservationists because it supports some 200 sensitive plant species and several federally listed animal species (DiSimone 1995, O'Leary 1989). We need to understand how to manage lands that are influenced by urban air pollution, and whether the biotic communities of these lands can be preserved.

Nitrogen deposition is known to cause vegetation type conversions in other countries, notably the Netherlands (Bobbink and Willems 1987), which have up to 85 kg/ha/yr of N deposited, the highest measured in the world. Nitrogen deposition to reserves is a conservation problem in the Netherlands, where heathlands and species-rich pastures are turning into species-poor grasslands (Asman and others 1989, Bobbink and Willems 1987). The high rates of N deposition in southern California have caused increased soil fertility and surface litter decomposition rates in mixed conifer forests (Fenn 1991), but less is known about

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vegetation change with elevated N deposition in this region. The coniferous forests of the San Bernardino Mountains exhibit symptoms of N saturation, such as high N:P ratios in leaf tissue, high soil N, high rates of N loss from the ecosystem, and others (Fenn and others [In press]). If the relatively productive forests of the Los Angeles Air Basin are N-saturated, then less productive vegetation such as CSS that is receiving similar levels of deposition would also surely be saturated. Less productive vegetation may become N saturated more rapidly than highly productive vegetation because the ratio of deposited N to plant biomass is greater, as suggested by Aber and others (1989, 1992) concept of anthropogenic nitrogen saturation. In addition, long-lived trees may respond less rapidly than shorter-lived shrubs, so we may expect to see a more rapid response in vegetation change in CSS than in nearby forests.

Here we examine the mechanisms by which deposited nitrogen might cause CSS shrubs to be replaced by Mediterranean annual grasses. We present three hypotheses with preliminary data to explain how nitrogen deposition may affect CSS species. Stated in the null form they are 1) CSS shrubs are equally plastic in their growth response to N as are introduced grasses, 2) CSS shrubs are equally competitive as the grasses after N fertilization, and 3) CSS shrub growth and mortality are not affected by high N levels.

Effects of N Deposition on Coastal Sage Scrub Vegetation

We have done series of field and greenhouse experiments on the effects of N deposition on CSS species. The field experiments were done along a gradient of atmospheric N concentrations, using one site with relatively high and another with relatively low N air concentrations for intensive measurements (*fig. 1*). The high deposition site is at Box Springs Mountain near the University of California, Riverside at an elevation of 670 m, and the low deposition site is some 60 km to the south at the Lake Skinner Reserve, elevation 540 m. Longterm climate data are not available at either site, but the city of Riverside, adjacent to Box Springs Mountain, receives 280 mm precipitation annually. We are still working out the actual deposition rates, which are likely lower than the estimated high values of 30 kg N/ha and more recently 45 kg N/ha at Camp Paivika on the western end of the

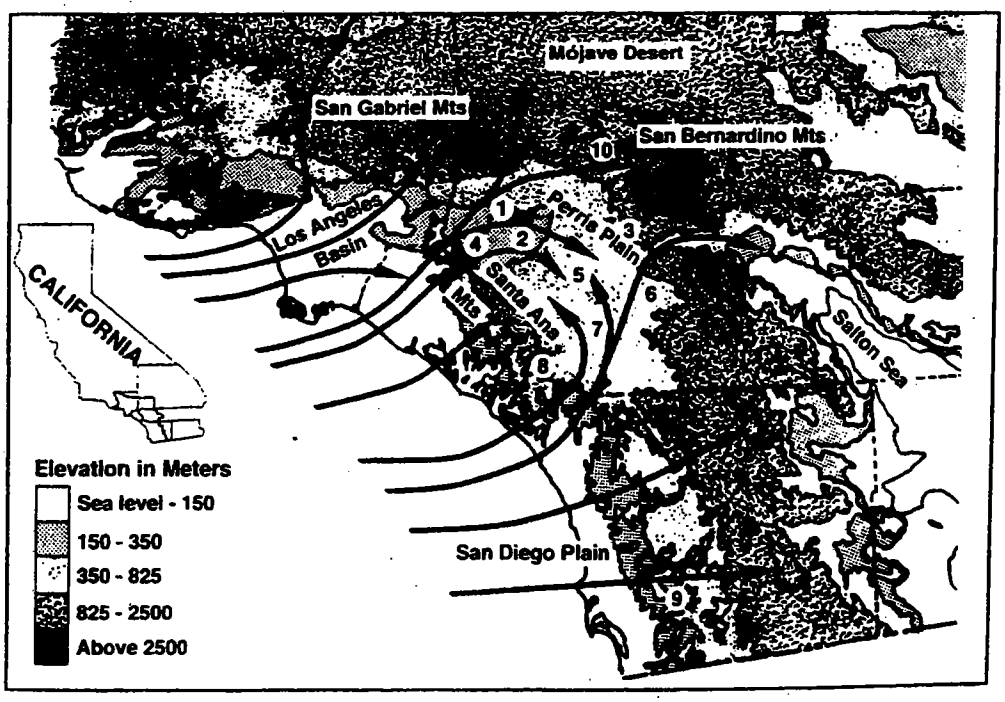

Figure 1 — Sample sites on the Perris Plain referenced in the text. The site of highest measured N deposition is Camp Paivika (10) and the site with lowest air concentrations is (9) at Mission Trails Park in San Diego. Arrows show air flow patterns, with polluted air flowing inland from Los Angeles and cleaner air flowing inland from other coastal sites. A convergence zone of polluted and clean air occurs in the middle of the Perris Plain.
1 = Jurupa Hills,
2 = Mockingbird Reservoir,
3 = Box Springs Mountain,
4 = Lake Matthews,
5 = Motte Rimrock Reserve,
6 = Simpson Park in Hemet,
7 = Lake Skinner,
8 = Santa Margarita Ecological Reserve,
9 = Mission Trails Park in San Diego,
10 = Camp Paivika, San Bernardino Mountains.

San Bernardino Mountains (Bytnerowicz and Fenn 1996, Fenn and Bytnerowicz 1993). Peak air concentrations were measured with an annular denuder system in August, 1994 as 31.0 μg/m³ NO_3^- plus 8.6 μg/m³ NH_4^+ at Box Springs Mt., and 13.9 μg/m³ NO_3^- and 3.9 μg/m³ NH_4^+ at the Lake Skinner Reserve (*fig. 2*). Sulfur was relatively low across the gradient, as is the case in other western air pollution measurements (Bytnerowicz and others 1987). The vegetation at both sites is CSS, with a higher proportion of introduced grasses on Box Springs Mountain than at Lake Skinner (Minnich and Dezzani [In press]). Both sites are on granitic soils. Additional sites were used for less intensive measurements.

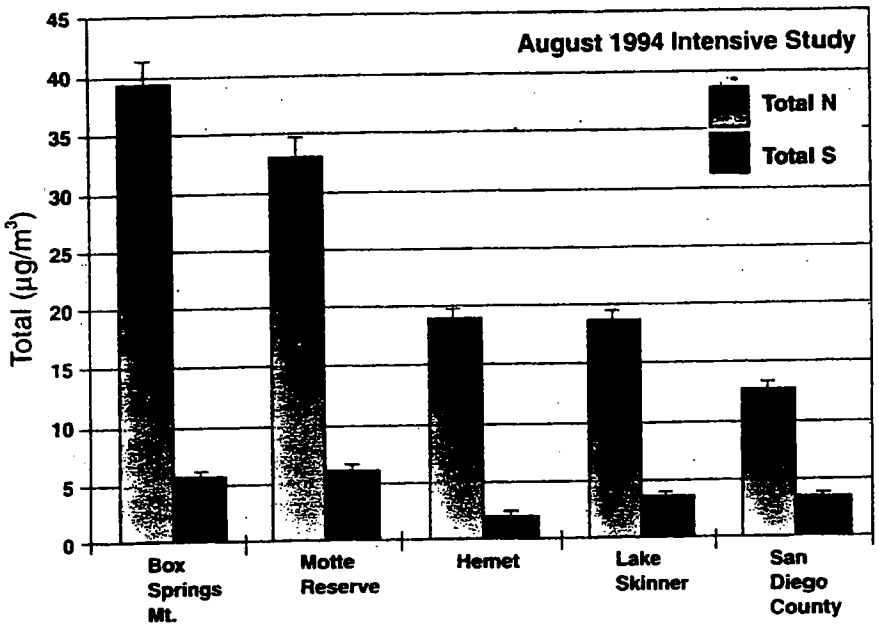

Figure 2 — Nitrogen (NO_3^--N and NH_4^+-N) and total S (SO_4^{2-}-S) concentrations in the atmosphere at five sites representing a gradient of air pollution from Box Springs Mountain in Riverside and southward to San Diego during August 1994. Location of sites is shown in *figure 1*.

In addition to air measurements, soil samples were taken along the gradient of pollution that also included sites to the northwest of Box Springs Mountain (*fig. 3*). The top 2 cm of soils of the Jurupa Hills had as much as 86 μg/g of extractable N in the form of nitrate plus ammonium (*fig. 3*), with nitrate predominating at the more polluted sites. Box Springs Mountain had 44 μg/g, and Lake Skinner had 8 μg/g of extractable N. These soils were collected in September during the dry season, when soil N accumulates because plants have senesced and are no longer taking up N. The soil N measurements confirm the gradient of N pollution by showing that the soils also accumulate N. We do not yet know if the soil N is higher because of accumulated N deposition, or because of increased mineralization that is induced by N deposition (Fenn and Dunn 1989). However, such high concentrations of N in the soil are likely to affect the plant community, which at each of these sites is CSS with an understory of annual grasses. At some sites, such as Box Springs Mountain and the Jurupa Hills, the annual grasses have become dominant with interspersed patches of shrubs. We explore the mechanisms to explain how the vegetation may change from shrubland to grassland after N deposition.

Plasticity Hypothesis

For one species to replace another in a high N soil, it must have a greater response to N, or in other words be more plastic in response to changes in resources (Jennings and Trewavas 1986). To test this hypothesis, we did N fertilization experiments in the field and the greenhouse. In the field, we fertilized plots at the Box Springs Mountain and the Lake Skinner sites. Both sites had burned in November 1993, and the fertilizer treatments included both burned and unburned vegetation. Each site had ten 5 by 5 m² plots and N was applied at a rate of 60 kg N/ha as NH_4NO_3 in two doses of 30 kg/ha each in February and March, 1994. Plant response was

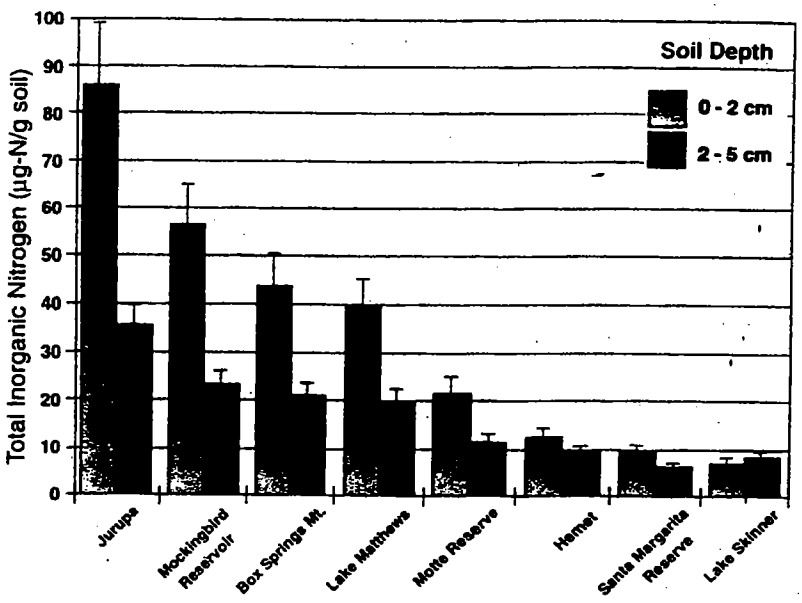

Figure 3 — Extractable soil nitrogen (NO_3^--N and NH_4^+-N) from sites on a nitrogen gradient in September 1995. Soil cores were divided into the upper 2 cm and lower 2 to 5 cm. Location of sites is shown in *figure 1*.

evaluated in May using non-destructive percent cover data. The unburned plots did not respond to fertilizer at either site with one exception described below, so results of fertilization trials are shown only from the burned plots (*table 1*).

At Box Springs Mountain only one introduced forb, small-podded mustard (*Brassica geniculata* [Desf.] J. Ball), responded significantly to N fertilizer on the burned plots, and this was also the only species that responded on the unburned plots (data not shown, but small-podded mustard increased from 17 to 29 percent after N fertilization on unburned plots). None of the other introduced grasses and none of the native species responded significantly at Box Springs Mountain in the burned plots (*table 1*). The introduced grasses included species in the genera wild oats (*Avena*), brome (*Bromus*), fescue (*Vulpia*) and split grass (*Schismus*), while the native species included a diverse mixture of some 70 species.[5] By contrast, at Lake Skinner almost all of the categories of species, both native and introduced, responded to fertilizer, with the exception of the introduced forbs (*table 1*). Small-podded mustard occurred infrequently at Lake Skinner, with < 5 percent cover. The total percent vegetative cover was greater in fertilized plots at both sites, but was higher overall at Box Springs Mountain. These results suggest that the plants are N deficient at Lake Skinner, and N saturated at Box Springs Mountain, with the exception of small-podded mustard, which continued to grow and take up N after fertilization. Leaf tissue N of small-podded mustard increased from 3.2 percent to 4.2 percent after fertilization. This suggests that small-podded mustard may be one of the "winners" in the high N deposition zones, as it can take advantage of additional N, even when soil N is already high. The results from the Lake Skinner site suggest that both native and introduced species are plastic in their responses to N, whereas our original hypothesis was that only the introduced species would be highly responsive to N, or "nitrophilous."

The responses in the field may have been influenced by a number of factors, especially competition in a complex community. To understand the responses of native and weedy plants under more controlled conditions, we performed greenhouse N fertilizer trials of monocultures of three introduced annuals (wild oats [*Avena fatua* L.], red brome [*Bromus rubens* L.], and small-podded mustard), and three native shrubs (California sagebrush (*Artemisia californica* Less.), brittle-bush (*Encelia farinosa* Gray.) and California buckwheat (*Eriogonum fasciculatum* Benth.). The plants were grown in 3.5l pots in native soil amended with 0, 10, 50 and 100 µg/g of N as NH_4NO_3. The soil was collected from the Motte Reserve after scraping off the top 5 cm of soil. After 4 month's growth in the greenhouse, the native shrubs were just as plastic in their responses to N as were the introduced

[5] Unpublished data on file. Department of Botany and Plant Sciences. University of California. Riverside.

annuals (*figs. 4 and 5*). In fact, the annuals tended to saturate at 50 µg/g, while the shrubs had continued increased growth to 100 µg/g. This was an unexpected result, as native wildland species are typically thought to have low responses to nutrient additions compared to weeds and crop plants (Chapin 1980). Clearly the native shrubs are adapted to rapid growth during the brief 4 to 6 month rainy period, at which time they likely take up nutrients as rapidly as possible. The growth period is brief in Mediterranean climates, which have a moist winter and spring but the other seasons are dry. However, in an unpolluted situation, the loading of available N in the soil would not be as great as after N deposition. Our field observations showed that available N built up as high as 86 µg/g in the upper 2 cm of soil (*fig.* 3) during the dry season, an amount that would be available to newly growing seedlings at the beginning of the next rainy season. Both the native shrubs and the introduced grasses are apparently able to take advantage of this high soil N.

These results were unexpected and not only confound our notions of how plants behave in the wild (the paradigm states they should have slow rates of nutrient uptake and growth), the results also do not explain why N deposition would shift the vegetation from a shrub-dominated to a grass-dominated type. An alternative hypothesis is that competition for N occurs between the grasses and shrubs that is skewed in favor of the grasses.

Table 1 — Percent cover of vegetation in nitrogen fertilized and unfertilized treatments in burned plots at the high N (Box Springs) and low N (Lake Skinner) deposition sites.

Species	BOX SPRINGS N Fert.	BOX SPRINGS No N		LAKE SKINNER N Fert.	LAKE SKINNER No N	
Brassica geniculata	17.1	9.0	(1)	0.0	0.0	n.s.
Bromus rubens	15.6	13.5	n.s.[2]	4.5	2.0	P = 0.07
Other exotic grasses	20.1	14.7	n.s.	10.5	4.2	(1)
Other exotic forbs	27.5	26.3	n.s.	19.8	18.9	n.s.
Native forbs	20.7	19.2	n.s.	37.5	22.7	(1)
Native shrubs	0.0	0.1	n.s.	11.1	4.9	(1)

1 Significantly different using a t-test at $P < 0.05$.

2 n.s.=not significantly different.

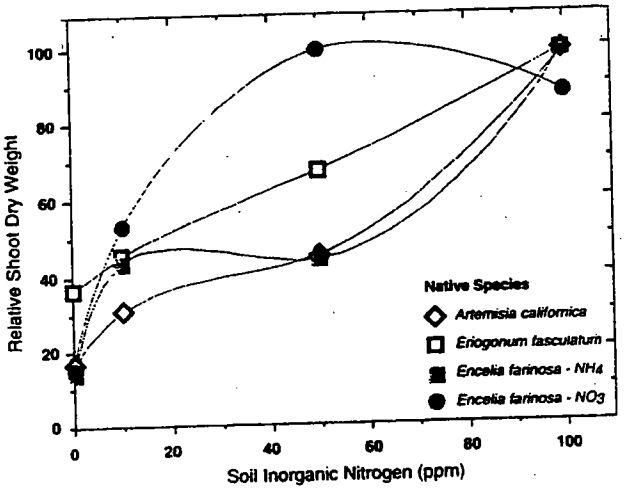

Figure 4 — Relative shoot dry weight of three native shrub species subjected to levels of 0, 10, 50, and 100 µg/g N as NH_4NO_3 in the soil after 4 months of growth. In the case of brittle- bush (*Encelia farinosa*), N was added either as NH_4Cl or as $Ca(NO_3)_2$.

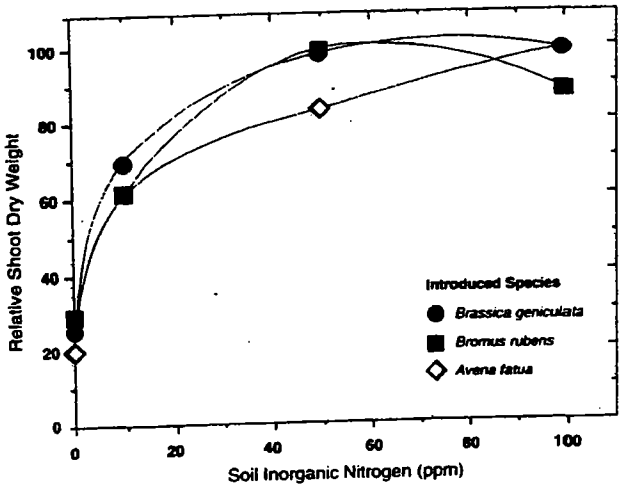

Figure 5 — Relative shoot dry weight of three introduced weed species subjected to levels of 0, 10, 50, and 100 µg/g N as NH_4NO_3 in the soil after 4 months of growth.

Competition Hypothesis

To determine whether N shifts the competitive balance between the grasses and shrubs, we initiated a competition experiment in a patch of introduced grassland that was once dominated by CSS species. This research was done at the Motte Rimrock Reserve about 24 km south of Riverside and intermediate in nitrogen deposition to the Box Springs and Lake Skinner sites. In a blocked experimental design we weeded grasses from ten, 1.2 m^2 plots and left an additional ten plots as controls dominated by the introduced grasses red brome and foxtail fescue (*Vulpia megalura* Rydb.) A few introduced forbs were also present, mainly species of storksbill (*Erodium*), but few native species. One-half of the cleared plots and one-half of the grassy plots were fertilized with two doses of NH_4NO_3 at the rate of 30 kg N/ha each time in spring 1995. Nine seedlings of California sagebrush were planted in each of the plots in a 2 by 2 factorial design to test two levels of N (0 and 60 kg/ha) and two levels of competition (with and without grasses) on the growth of California sagebrush. The seedlings were spaced 30 cm apart, so they did not interfere in aboveground growth during the first growing season. Because we did not wish to harvest seedlings during the first year, we did non-destructive measurements of height and width to calculate shrub volume. Volume was calculated by assuming that the shape of California sagebrush is spheroid.

The grass competition proved overwhelming for California sagebrush, which had only about one-ninth the volume in the grass plots compared to the cleared plots, with or without N fertilizer (*fig. 6*). Nitrogen did not shift the balance of competition in favor or against California sagebrush, it only increased the growth of California sagebrush with and without grass competition. Increased growth of California sagebrush after fertilization should be a benefit, if this means that it can survive competition from the grasses. But in fact most of the California sagebrush seedlings in grass plots died during the normal summer drought that followed these measurements, while many survived in the cleared plots. With or without N the seedlings that experienced grass competition were still tiny, and apparently not large enough, or with roots too shallow, to survive the summer drought. On the basis of this experiment, we cannot expect that areas with N deposition will have greater shrub seedling survival. In fact, we noted mortality of mature shrubs in areas of high N deposition, and proceeded to examine potential negative effects of N on shrub growth.

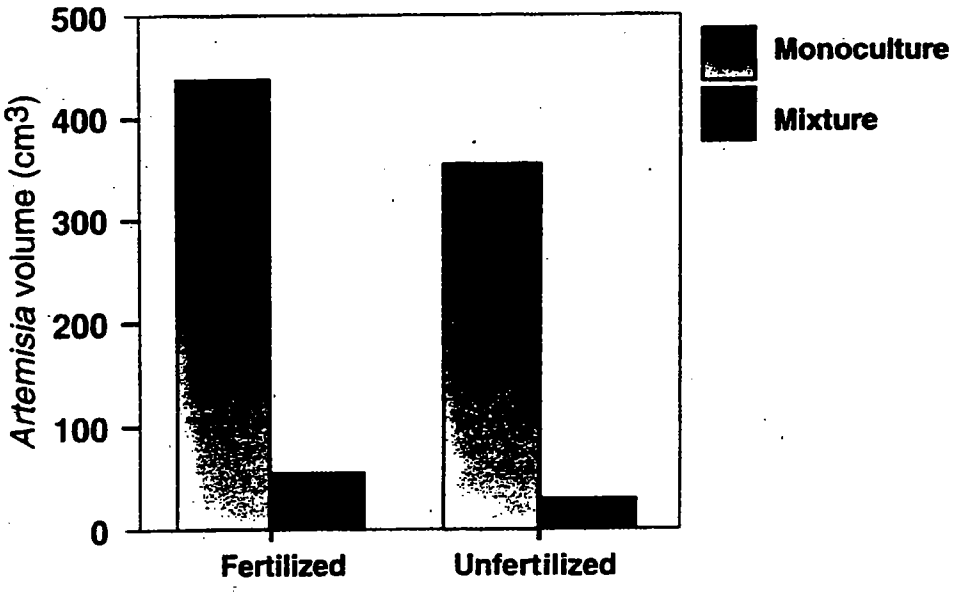

Figure 6 — Volume measurements of California sagebrush (*Artemisia californica*) in weeded (monoculture) and grassy (mixture) plots in the field after 3 months of growth, fertilized with 60 kg/ha N as NH_4NO_3 or unfertilized.

Negative Plant Response to Nitrogen Hypothesis

Because the plasticity and competition hypotheses did not explain why N might cause CSS decline, we continued to test alternative hypotheses. Shrubs in pollution-impacted urban areas have been dying, as can be seen by a walk through Box Springs Mountain County Park and other local reserves. Some 10 percent of the shrubs in the polluted areas that we marked for experimental purposes died during two growing seasons, but we did not experience shrub loss at the Lake Skinner site. We do not yet have an estimate of the rate of mortality on a larger scale, but Minnich and Dezzani [In press] have shown up to a 90 percent loss in shrub cover since the 1930's in urban areas of the Perris Plain (Riverside, California and southward). Shrub loss is lower in the more rural southern Perris Plain. They did their analyses from historic plots in CSS collected by the USDA Forest Service in the 1930's, which they resampled in 1993. Although they showed an increasing pattern of shrub loss toward the urban areas, some factors confounded the results, such as changes in soil type and CSS stand age since the most recent fire at the time of sampling.

Wellburn (1990) explained that N deposition may more frequently harm than fertilize plants, especially in the form of N oxides. We did a series of experiments to determine if elevated N levels might have negative effects on the shrubs. One was a greenhouse fertilization experiment with California sagebrush, where the seedlings were fertilized with 50 µg N/g as NH_4NO_3. Seeds were planted in a soil of low N, and after they were 3 to 4 months old they were fertilized with the 50 µg N/g soil. They were then fertilized every 2 months to maintain high soil N. During the first 6 months the seedlings grew rapidly, as was noted above. Senescence of individual branches at 6 months, and then complete mortality of all seven replicate plants between 6 and 9 months occurred. At 9 months, and even at 1 year, all of the plants that received low N fertilizer levels were still healthy. These negative effects are difficult to explain, as they appear to be a toxic effect. The soil N we maintained in the greenhouse was not as high as the highest levels we measured in the field, up to 86 µg/g in soils of polluted sites during the dry season. The greenhouse experiment was designed to maintain a concentration of 50 µg/g in the soil during the experiment, with two to three fertilizer additions during the 6 to 9 months. In the field, such a high level would build during the dry season and be maintained only until the beginning of the next rainy season. When vegetation begins to grow again in response to rain, the plants take up the available soil N, and our measurements showed that extractable soil N dropped to 10 µg/g even in the most polluted sites.[6] Leaching and denitrification might also remove some of the deposited N from the soil, although both of these are probably minor components of the N cycle in this semiarid shrubland. Such high levels of soil N were not maintained throughout the year, so high soil N would not cause as high a rate of shrub mortality in the field as in the greenhouse. But these results do suggest that, over time, high soil N may be a cause of shrub mortality.

The mechanisms by which shrub mortality occurred under high soil N is not known. Horticulturists have long known that native species from soils of low fertility will have short lifespans in a fertile garden, and advise that low fertilizer levels be used for native California shrubs (Keator 1994). We can discuss a number of alternative explanations for the adverse response of native shrubs to high N. It is likely that California sagebrush was taking up large quantities of N, because it has evolved only to take up this limiting nutrient in the soils, not to exclude it. The metabolic requirements for maintaining and detoxifying N in the tissues (NH_4^+ is toxic in high concentrations) may be expensive, and may lead to a shortened lifespan. Assimilation of NH_4^+ requires that carbon be shunted away from sugar synthesis into amino acid synthesis. This would leave a plant deficient in carbohydrates and consequently energy

[6] Unpublished data on file. Department of Botany and Plant Sciences, University of California, Riverside.

to carry out other biochemical functions. We plan to pursue research on this question, and currently are testing other species of CSS shrubs to determine if this direct effect is generalizable.

Atmospheric N not only causes increased soil N, it results in exposure of vegetation to elevated levels of gaseous and particulate forms of N that may be deposited on leaf surfaces and interact directly with them (Krywult and others 1996). Fumigation experiments have not yet been carried out on CSS species, but they have been done on ponderosa pine (*Pinus ponderosa* Dougl. ex Laws.) and black oak (*Quercus kelloggii* Newb.). Fumigation with ambient peak summer levels of nitric acid (50 $\mu g/m^3$) caused cuticular lesions and stomatal collapse. These adverse responses by leaf surfaces could result in reduced stomatal control and increased exposure of the leaf to other stresses. In addition, nitric acid fumigation caused induction of nitrate reductase and increases in amino acid levels in leaf tissue (Padgett and others 1995). These negative effects can only be postulated for CSS species until similar research is done. Because up to 90 percent of the leaves of CSS shrubs senesce in the summer, there are fewer opportunities for foliar interaction with airborne N at peak summer pollution levels. The CSS plants would be subject to lower spring airborne nitric acid levels.

Conclusions

The decline of CSS vegetation is caused by a combination of complex factors, beginning with direct destruction of CSS for agriculture and urban construction, possibly including past grazing, and also including increased fire frequency in lands that are adjacent to urban areas. But even when these effects are held constant by examining CSS natural reserves that have not been impacted, these shrublands are still declining. The lack of response of the vegetation at Box Springs Mountain to additional N fertilization suggests that it is already N saturated, one response that is cited by Aber and others (1989) as being an indicator of N saturation. However, two forms of air pollution, ozone and N compounds, are likely both central players in the Los Angeles Air Basin and the Perris Plain. We have not discussed ozone in this paper, although it may also play a role in CSS decline. Ozone is known to increase the mortality of conifers in the local mountain ranges (Bytnerowicz and Grulke 1992, Miller and others 1963). Westman (1990) hypothesized that ozone may also be a cause of CSS decline because it reduced the growth of well-watered seedlings in greenhouse experiments at simulated ambient summer concentrations (Stolte 1982). However, during peak summer air pollution conditions stomates of CSS shrubs are closed and many leaves have senesced. Spring ozone concentrations are relatively low, so ozone effects in the field are likely smaller than greenhouse experiments would suggest. The effects of ozone may not be as serious as previously thought in CSS vegetation. However, until our work began, all of the air pollution effects were attributed to ozone and none to N deposition on this vegetation type.

Our studies showed that the annual grasses that replace CSS vegetation are not more nitrophilous than the shrubs, as they have equal plasticity in response to N. However, one species we have tested to date, California sagebrush, suffers a 100 percent mortality rate in the greenhouse in fertilized soils with available N at levels that are no higher than field soils in polluted sites. We are currently conducting experiments with two additional shrub species, brittle-bush and California buckwheat. We have not seen similar results from studies on ozone that would show such a rapid mortality rate. Most studies on ozone report only decreased growth rates at ambient concentrations, not mortality. In addition, the study on toxic effects of nitric acid vapor on pine and oak leaves suggests that more studies of deposited N on CSS shrubs are

needed. Increased mortality of CSS shrubs in N-polluted areas may be a cause of CSS decline in the Los Angeles Air Basin. CSS may be the first vegetation type in the western United States that exhibits stage 3 symptoms of N saturation, which is defined as toxic effects on the vegetation (Aber and others 1989).

Acknowledgments

We thank Shiela Kee, Lucia Vasquez, and Lidia Yoshida for field assistance. This research was funded by National Science Foundation grant no. DEB-9408079 and USDA-National Research Initiative grant no. 9503036. We also thank Laurie Dunn for technical editing of this manuscript.

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FRIENDS OF THE NORTHERN SAN JACINTO VALLEY
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Letter J

RECEIVED
AUG 02 2005
CEDD

August 1, 2005

Cynthia Kinser, Principal Planner
Planning Division
City of Moreno Valley
P.O. Box 88005
Moreno Valley, CA 92552-0805

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Re: Draft Environmental Impact Report for the proposed Moreno Valley General Plan Update, SCH Number 2000091075

Dear Ms. Kinser:

Since its formation in 1991, the Friends of the Northern San Jacinto Valley have worked to protect the San Jacinto Wildlife Area. In addition to our earlier comments, we wish to make these further comments regarding the General Plan DEIR:

J-1 1) It is not clear which lands in the general plan are designated and fall under the Williamson Act contracts and what is the status of those contracts.

J-2 2) The Quail Valley Golf course has been designated as residential large lot by the County. The general plan must show the County's designation, not the city's preferred designation, in the maps and text.

J-3 3) The north-south connectors for the San Bernardino-Moreno Valley Corridor use Pigeon Pass Road which has three schools using Pigeon Pass Road as access. This is an unacceptable public safety hazard. The other proposed connectors will also significantly disrupt established neighborhoods.

J-4 4) Where is the 40 acre park dedicated to non-sporting uses located? How will the city use the Quimby Act to fund parklands?

J-5 5) Tables in traffic studies were done in 2000. This information is not longer accurate and must be updated to make it accurate.

J-6 6) As recommended by the state water plan, the city general plan should have a separate water section. (see public review draft State Water Plan, volume 2, chapter 20) This plan suggests some of the following:

a) Provide incentives to developers to plan and build using more resource efficient development patterns.

J-6 (cont.)

b) Review the Urban water management plans adopted by water agencies within the city. Work with water agencies to show compliance with water code section that require local governments to consider water supply availability when making land use decisions.
c) Prohibit approval of any development which fails to comply with SB 221 & 610 and AB 857 & 901.

AB 857 provides that the city general plan should

- Promote infill development and equity
- Protect environmental and agricultural resources
- Encourage efficient development patterns

SB 221, SB 610 and AB 901 are intended to improve the assessment of water supplies during the local planning process before approval of land use projects that depend on water by

- requiring verification of sufficient water supplies as a condition for approving developments
- compelling urban water suppliers to provide more information on groundwater reliability if used as a supply
- requiring that average and drought year conditions to be addressed.

J-7 Unless these vital changes are made to the draft document, the final environmental impact report will be inaccurate and invalid.

Sincerely,

Susan L. Nash

Susan L. Nash
Board Member
Tel: 951-928-3698
E-mail: snash22@earthlink.net

Copies to:

Mayor Richard Stewart
Councilmember William H. Batey, II
Councilmember Bonnie Flickinger
Councilmember Frank West
Councilmember Charles R. White
Linda Guillis, Director, Community & Economic Development
Gene Rogers, City Manager

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Letter K

27 July 2005

Ms. Cynthia Kinser
City of Moreno Valley
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553

RE: SCAG Comments on the Draft Environmental Impact Report (DEIR) for Moreno Valley General Plan Update
SCAG No. I 20050414

Dear Ms. Kinser:

Thank you for submitting the Draft Environmental Impact Report for the Moreno Valley General Plan Update to the Southern California Association of Governments (SCAG) for review and comment. SCAG's responsibility as the region's clearinghouse per Executive Order 12372 includes the implementation of California Environmental Quality Act (CEQA) §15125 [d]. This legislation requires the review of local plans, projects and programs for consistency with regional plans.

K-1 SCAG staff has evaluated your submission for consistency with the Regional Comprehensive Plan and Guide (RCPG), Regional Transportation Plan (RTP), and the Compass Growth Vision. SCAG appreciates the City of Moreno Valley's efforts to promote and plan for a local jobs-housing balance, a mixture of housing types and densities, and for its support of intensity along transit lines. Based on the information provided in the DEIR, we have no further comments. We would appreciate notification of the Final EIR, especially should a change in project scope occur.

A description of the proposed Project was published in the June 15-30, 2005 Intergovernmental Review Clearinghouse Report for public review and comment.

If you have any questions, please contact me at (213) 236-1851. Thank you.

Sincerely,

Brian Wallace
Associate Regional Planner
Intergovernmental Review

DOCS # 112614v1

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Letter L

August 1, 2005

Cynthia S. Kinser, Principal Planner
City of Moreno Valley
Community Development Department
14177 Frederick Street
P.O. Box 88005
Moreno Valley, CA 92552-0805

Re: Draft Environmental Impact Report, City of Moreno Valley General Plan SCH# 2000091075

Dear Ms. Kinser:

The California Department of Fish and Game (Department) thanks you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the City of Moreno Valley General Plan.

L-1 The Department is responding as a Trustee Agency for fish and wildlife resources and as a Responsible Agency for impacts to jurisdictional waters. The Department has reviewed the DEIR, focusing on two areas of interest: 1) biological resources and the Multiple Species Habitat Conservation Plan (MSHCP) and, 2) jurisdictional waters under the Lake and Streambed Alteration Agreement program.

MSHCP Comments

L-2 The MSHCP provides conservation for Covered Species and habitats. The MSHCP Area Plans provide guidelines for the conservation of quantities of habitat and conservation goals within a particular Area Plan. The Criteria Cells pinpoint the more specific geographic location of conservation lands and include criteria for the amount of land to be conserved within a particular cell or group of cells and the biological reasoning behind the criteria. The species objectives provide guidelines and goals for the conservation of individual plants and animals. The MSHCP also provides policies, such as the "Narrow Endemic Plant Species" (Section 6.1.3), "Database Updates/Additional Surveys" (Section 6.3), "Riparian/Riverine Areas/Vernal Pools" (Section 6.1.2), and "Urban/Wildlands Interface" (Section 6.1.4). These policies provide additional layers of protection to certain habitats and particular species.

The plan area includes many biologically significant areas. The MSHCP Area Plan is divided into Area Plans and Subunits. The Area Plan for the City of Moreno Valley is the "Reche Canyon/Badlands Area Plan." The City of Moreno Valley includes the following Subunits: Subunit 1, Box Springs – East; Subunit 2, Reche Canyon;

L-2 (cont.) Subunit 3, Badlands – North; and, Subunit 4, San Jacinto Wildlife Area/Mystic Lake. The DEIR includes a description of the MSHCP Subunit conservation areas. The MSHCP structure, in general, consists of an interlocking system of Core areas and linkages. In the City of Moreno Valley, these areas include: Constrained Linkage 8, Proposed Linkage 4, Proposed Core 3, and Existing Core H. The DEIR includes a description of the cores and linkages found in the City of Moreno Valley, as well as a listing of plant and animal species found in the area and discussions of sensitive biological resources.

L-3 The DEIR mentions the MSHCP implementation policies listed above on page 5.9-5 but does not give a detailed explanation of these policies and how they will be implemented by the City. The Final EIR (FEIR) should include a more detailed explanation of these policies and how the City will implement them.

L-4 On page 5.9-30 of the DEIR states that although the target acreage for conservation in the Reche Canyon/Badlands Area is 10,520 to 15,610 acres, only 80-130 acres is found within the existing boundary of the City of Moreno Valley. Figure 3-1 of the DEIR shows the existing City Boundary and the Sphere of Influence boundary. The Sphere of Influence includes large blocks of Criteria Cells. The Land Use Maps show land use designations in these areas, however, the DEIR does not indicate whether the City of Moreno Valley includes the entirety of the Reche Canyon/Badlands Area Plan, how many acres of conservation land are in the Sphere of Influence, or how many acres in the City of Moreno Valley are already in conservation. The FEIR should include a table showing these figures. Page 5.1-6 of the DEIR discusses the process of coordination between the County of Riverside and the City of Moreno Valley for lands within the Sphere of Influence. A description of this process and how it relates to the MSHCP should also be included in the FEIR.

L-5 The City of Moreno Valley is a signatory to the Implementing Agreement of the MSHCP. As such, the City has specific responsibilities in the section of the Implementing Agreement entitled "Permittees' Take Authorization and Obligations". The FEIR should include a more detailed description of its responsibilities under the Implementing Agreement, the administrative structure of the MSHCP, and measures it will take to implement the MSHCP.

L-6 The Department is a major landowner in the City through ownership of the San Jacinto Wildlife Area. Therefore, the Department is particularly interested in how the City will address compliance with the MSHCP policies regarding adjacency to conservation areas.

There is a potential discrepancy on maps showing the land use designation of the 1,000 acre expansion of the San Jacinto Wildlife Area. Figure 5.9-4 "Reche Canyon/Badlands Area Plan" shows the Criteria Cell with the correct designation of the 1,000 acre expansion. Other exhibits in the text show a land use not consistent with land purchased by the State for conservation. However, the DEIR states on page 5.9-88 that the area including the 1,000 acres is subject to a development agreement that

L-6 (cont.) precludes the City from unilaterally changing the land use plan. The document further states that the 1,000 acres would not be subject to development because it is owned and operated by the Department for wildlife conservation. The FEIR should clarify, either through a change in land use designation or by clearly showing in all exhibits, that the Department lands do not have the ability to be developed by private interests.

Lake and Streambed Alteration Agreement

L-7 Through Section 1600 of the Fish and Game Code, the Department has jurisdiction over lakes and streams. Measure B4 on page 5.9-90 of the DEIR states that prior to physical disturbance of any natural drainage course or wetland that qualifies as jurisdictional, the applicant shall obtain a Streambed Alteration Agreement and/r permit or written waiver of the requirement for such an agreement or permit. The Department requests that this mitigation measure also be included in the "Hydrology" section of the FEIR. In addition, the FEIR should also include a discussion of the "Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools" policy of the MSHCP.

The Department thanks you for your cooperation and looks forward to working with the City on the implementation of the MSHCP. If you have any questions, please call Robin Maloney-Rames, Environmental Scientist, at (909) 980-3818.

Sincerely,

Scott Dawson
Senior Environmental Scientist
Habitat Conservation Planning

cc: State Clearinghouse
Doreen Stadtlander, USFWS, Carlsbad

Letter M

Gerald M. Budlong
24821 Metric Drive
Moreno Valley, CA 92557
July 27, 2005

City of Moreno Valley City Hall
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553

ATTN: Cynthia Kinser, Principal Planner

Re: Comments on the DEIR for the Moreno Valley General Plan Update

M-1 Dear Ms. Kinser: The following are my personal comments and are not repeated in the comments, which were included in the comments of the Moreno Valley Ecological Protection Advisory Board.

M-2 COMMENT 1. With the exception of the area located within the Gilman Springs Biological Geographic Section, I support Figure 3.3 Land Use Alternative 2. This alternative best reflects my views I had expressed at Planning Commission workshops held during my past term as a Planning Commissioner.

M-3 COMMENT 2. Figure 5.9-1 Planning Area Biological Geographic Sections (BGS) delineates the Gilman Springs BGS and San Jacinto WP-M BGS. During the preparation of the County General Plan, County representatives made several presentations before the Moreno Valley Planning Commission. As a Planning Commissioner at the time, my comments focused on the protection of an existing wildlife corridor, which serves Lake Perris State Park and San Jacinto Wildlife Preserve. The subject wildlife corridor is located in portions of Lake Perris State Park, San Jacinto Wildlife Preserve, San Jacinto WP-M BGS and Gilman Springs BGS. With the exception of Gilman Springs BGS, the remaining land within this wildlife corridor is state owned with land use administered by agencies mandated by the legislature to protect and manage the environmental resources.

M-4 COMMENT 3. The subject wildlife corridor within the Gilman Springs BGS is delineated in the County of Riverside Figure 3-22 entitled Reche Canyon/Badlands Area Plan with Cells, Cell Groups & Subunits keyed to MSHCP Criteria. This figure delineates Public/Quasi-Public Conserved Lands. These lands protect the wildlife corridor.

M-5 COMMENT 4. Land Use Alternatives 1, 2 and 3 within Gilman Springs BGS are all the same with Residential (color code for R2, RR and R3 are too similar to define correct classification; what is the correct Residential classification?) and Commercial classifications.

M-6

The development of land currently vacant into residential and commercial land uses would potentially eliminate portions of the wildlife corridor. The elimination of the wildlife corridor would result in making Lake Perris State Park, San Jacinto Wildlife Preserve and San Jacinto WP-M into a biological island with all the adverse significant impacts associated with biological islands.

How will the significant impacts associated with a creation of a biological island be mitigated to a level on non-significance?

Thank you for the opportunity to comment on the DEIR.

Sincerely,

Gerald M. Budlong

Letter N

Gerald M Budlong
24821 Metric Drive
Moreno Valley, CA 92557
July 31, 2005

City of Moreno Valley City Hall
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553

ATTN: Cynthia Kinser, Principal Planner

RE: Board Member comments DEIR for the Moreno Valley General Plan Update

N-1 Dear Ms Kinser: The following are my member comments made at the Regular May 9, 2005 Meeting of the City of Moreno Valley Ecological Protection Board, Agenda Item 6.2 DEIR for Comprehensive General Plan Update. Micro seismic events occurring since the May 9, meeting are also included to present a more recent sample of seismic events I have attributed to the Casa Loma fault.

Sincerely, Gerald M. Budlong
Board Member, City of Moreno Valley Ecological Protection Board

Attachment: Board Member comments

Letter N

CITY OF MORENO VALLEY ECOLOGICAL PROTECTION BOARD COMMENTS OF MORENO VALLEY GENERAL PLAN PROGRAM EIR FROM GERALD BUDLONG

Chapter 5.5 Hazards

Figure 5.5-1 Hazardous Materials Sites:

N-2

1. The former Lockheed test site located in Laborde Canyon is located approximately one mile east of the eastern-most boundary of the Sphere-of-Influence of Moreno Valley. A former Lockheed test site occupies the environs of Laborde Canyon. This site apparently contains hazardous and toxic wastes generated in the past. It recommend the City of Moreno Valley freeze the eastern boundary at its present sphere of influence eastern boundary so as to avoid this hazardous and toxic waste area.

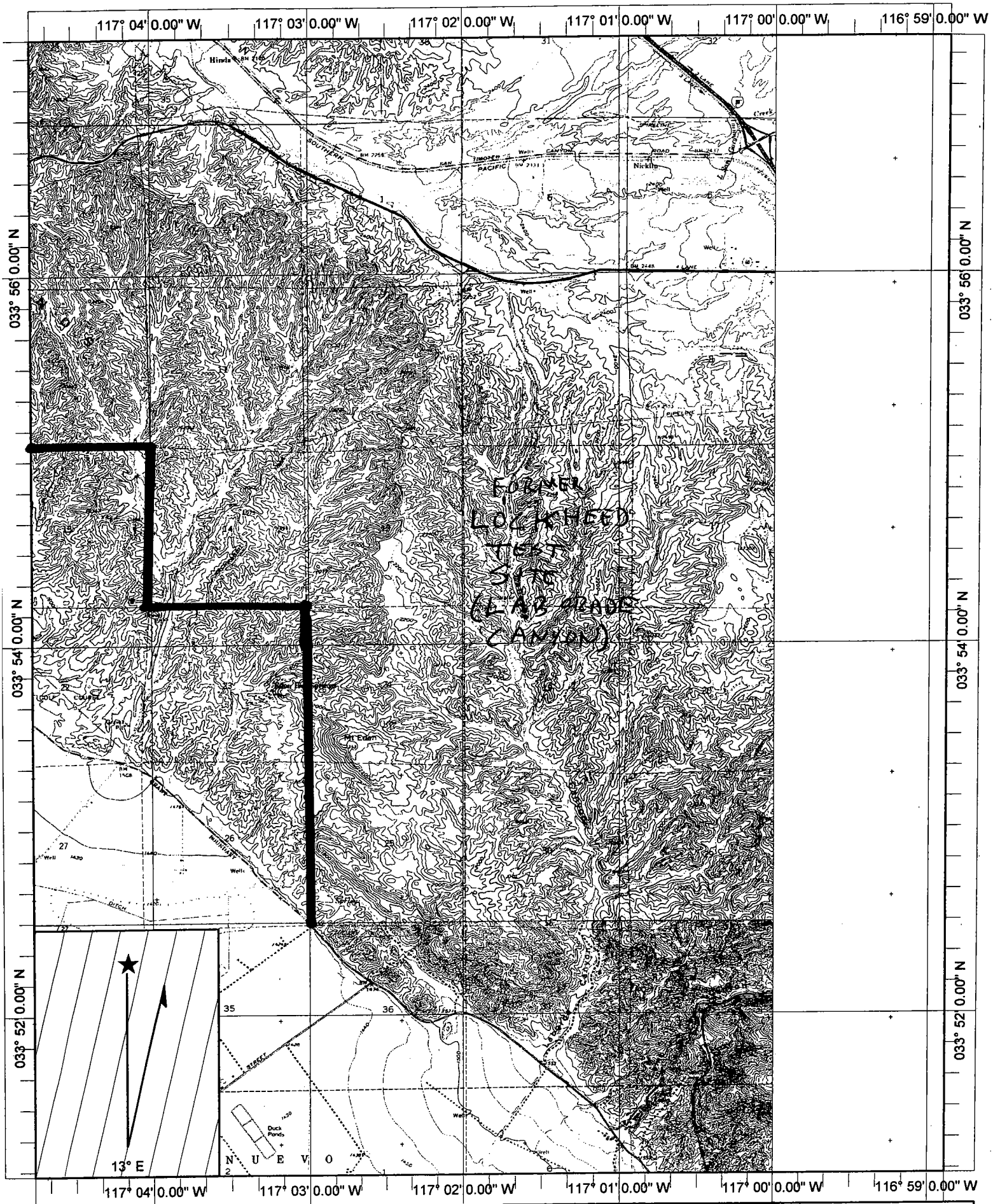
N-3

2. Appendix F: Cultural Resources Analysis on page 18, G. Other Sites, RIV-3272H military target range, describes a site formerly consisting of two target bunkers 320 and 465 feet long and a series of earthen mounds formed rows south of the bunkers, locates north of the intersection of Box Spring Road and Clark Street, now developed. The locality has been developed since the site was recorded in 1983. Prior to development, was this site free of toxic and hazardous wastes normally associated with military target ranges? The U.S. Soil Conservation Publication concerning the soils of Western Riverside County in sheet number 27 has an aerial photograph background, which portrays the subject military target range. The aerial photograph shows evidence of a former military road (future Clark Street) bisects four target berms.

Flooding

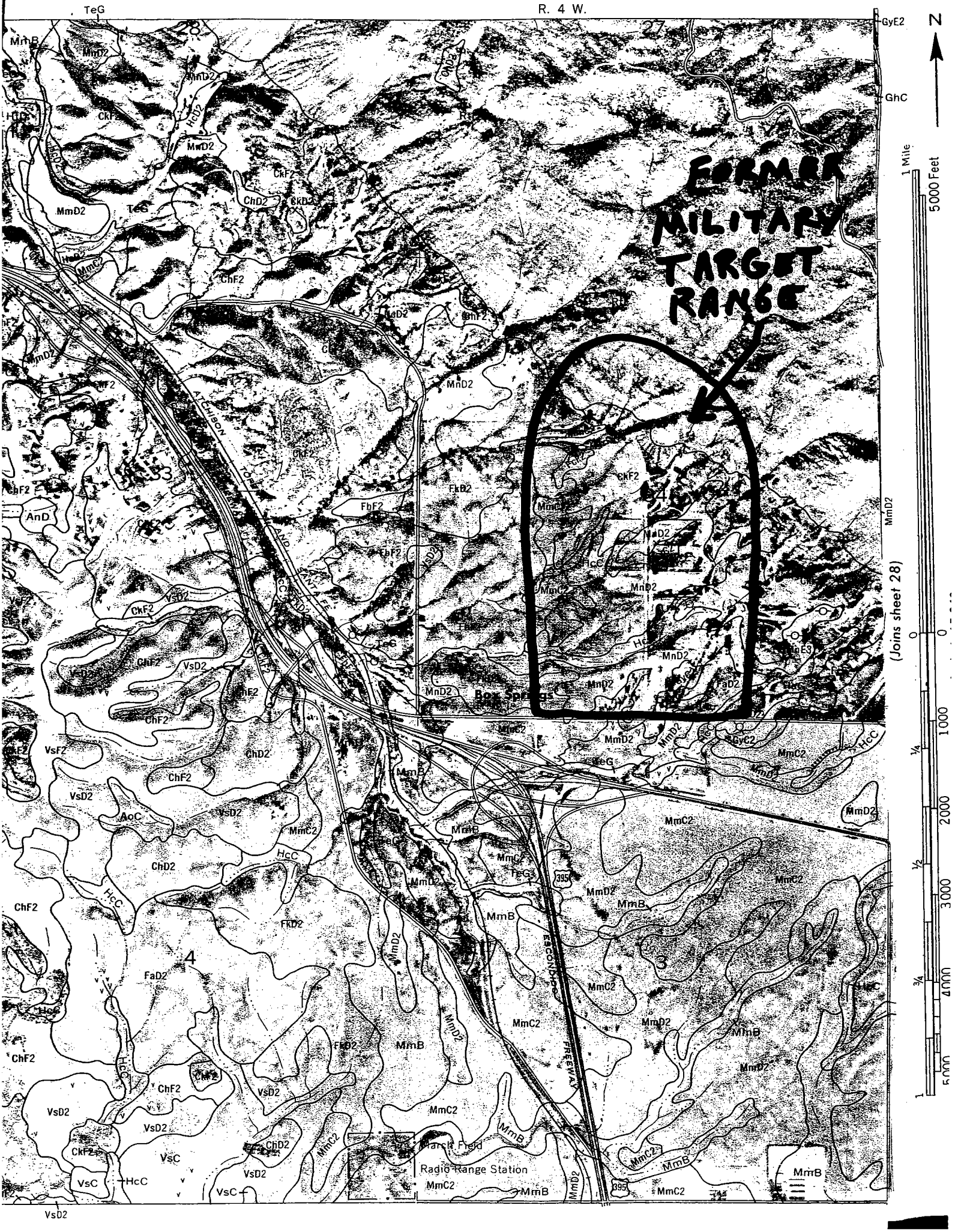
N-4

1. Page 5.5-4, Paragraph 2 "The potential for significant damage to occur within the planning area as a result of failure of Lake Perris Dam is considered remote". Also page 5.5-6 " Dam inundation is a potential, albeit remote, flood hazard through several portions of the planning area. This condition is based on the assumption of instantaneous failure of a dam with the reservoir at or near its full capacity. Two locations of concern exist within the planning area. ... and Lake Perris." What is the source of these conclusions and are they technically correct? To document a different conclusion, Metropolitan Water District's Eastside Reservoir Project DEIR, Chapter 2, Page 2-18, 2.2.4.3 Lake Perris, states "Foundation conditions (seepage) at Lake Perris were a special concern identified in the reconnaissance study, and were addressed in the Phase I study"..."were identified as important issues at Lake Perris". Also 2.2.6.1 Summary of Findings, page 2-42, Lake Perris. "At both capacities, Lake Perris ranked below Domenigoni Valley, Potrero Creek, and Vail Lake on engineering



Name: EL CASCO
Date: 6/28/2005
Scale: 1 inch equals 4000 feet

Location: 033° 54' 12.3" N 117° 01' 49.6" W
Caption: VICINITY OF FORMER LOCKHEED LABORADE TEST AREA TO SPHERE OF INFLUENCE AREA.


R. 4 W.
FORMER MILITARY TARGET RANGE
(Joins sheet 28)
Box Springs
Banning Freeway
Radio Range Station
Beaumont Field
1 Mile
5000 Feet
N

N-4 (cont.) feasibility measures, primarily because of a saturated alluvial foundation with greater potential for liquefaction from ground shaking in the vicinity of the embankment".

N-5 2. Figure 5.5-2 Floodplains and High Fire Hazard Areas, Potential Inundation Area. Are the boundaries of the potential inundation area (Lake Perris) consistent with the official delineated mapped boundaries of the California State Division of Safety of Dams?

Wildland and Urban Fires

N-6 1. Figure 5.5-2 Floodplains and High Fire Hazard Areas. Is the delineation of the High Fire Hazard boundaries north of Manzanita Ave in the Sunnymead Ranch and Hidden Springs technically correct? The development of these projects with the common open space areas are managed professionally, the presence of a manned fire station, a large lake available emergency source of water for water dropping helicopters, and housing stock with fire resistant roofs would seem to preclude much of its classification as a "high fire hazard area". Would the proposed delineation of the High Fire Hazard Areas impose excessively high fire insurance rates unfairly to residents of Sunnymead Ranch and Hidden Springs?

Aircraft Hazards

N-7 1. The draft 2005 AICUZ Report of March ARB and March Inland Port Air port Authority may be available for public review in September 2005. This new draft will in the future replace the present 1998 AICUZ Report. Will the City consider the 2005 AICUZ after its adoption by the Air Force?

N-8 2. Figure 5.5-3 City Areas Affected by Air Craft Hazard Zones and page 5.5-10, paragraph 3 is not drawn precisely. The map delineates the clear zones and accident potential zones (APZs) incorrectly and out of scale. The United States Department of Defense (DOD) regulates the dimensions of a clear zone as a square 3,000 feet by 3,000 feet. The DOD regulations, permits the curving of APZs to be consistent with the average flight patterns. The portrayal of curved APZs is commendable, because it is an important tool in planning land uses compatible with the March ARB flying mission. However the APZs, as with the clear zones are not drawn to scale. DOD regulates the dimensions of an APZ I as 3,000 feet wide and 5,000 feet long and APZ II 3,000 feet wide and 7,000 feet long. Will this figure be revised to accurately delineate the boundaries of the two clear zones and the APZs?

N-9 3. Historically DOD aircraft accidents DOD airfields worldwide cumulatively have experienced approximately 28.8 % of the aircraft accidents occurring with the clear zones; APZ s 7.8 %, and APZ II s 5.8 %.

N-9 (cont.)

Magnitude 2.3, July 6, 2005 near intersection of Cottonwood and Moreno Beach Road; Event ID# ci14160744 Magnitude 1.9, July 6, 2005 on Perris Blvd., between Ironwood and State Route 60; Event ID# ci14163564 Magnitude 1.6, July 18, 2005 near intersection of Perris Blvd and Manzanita in the Sunnymead Ranch; Event ID#ci14166136 Magnitude 1.6, July 26, 2005 near intersection of Perris Blvd and Ironwood; Event ID# ci14166408 Magnitude 1.5, July 27, 2005 at intersection of SR-60/Sunnymead Blvd and Perris Blvd.; Event ID# 14166608 Magnitude 1.5, July 27, near intersection of Dracaea and Perris Blvd.; Event ID# ci10121429 Magnitude 1.6, July 28, 2005 near intersection of SR-60/Elder and Perris Blvd. It would appear that the subject faults rather than being considered "dead" are really "sleeping". What are the geologic studies to date that have been unable to show that the fault extends beyond the Special Studies Zones and is the evidence for the City to eliminate this subject fault hazard zone and policies from the general plan? Are any of these authorities or sources published after 2000? Is it possible for the city to contract a qualified seismologist to fly low level over the assumed trace of the Casa Loma fault at dusk and photograph the land surface for evidence of lineaments, which may present physical evidence of the fault?

6. It seems strange that south and north of Moreno Valley, the Casa Loma and Reche Canyon faults are considered active. Evidence of geologic faulting to the south includes fault creep occurring under the surface of Romona Expressway with associated cracking of the pavement. North of the city, the State Architects Office denied the construction of a new high school in Colton, due to evidence of active faulting. However, in-between these areas, the fault alignment in Moreno Valley is masked by alluvium and the City now considered the fault is "dead". Is the City really going to turn its back to this potential hazard through the removal of the County Fault Hazard Zones classification from the Casa Loma and Reche Canyon faults with the construction of buildings of human occupancy allowed to be built upon land potentially subject to surface rupture?

N-10

Liquefaction

1. Comments and questions are the same as under Flooding above.

N-11

5.7 HYDROLOGY/WATER QUALITY

ENVIRONMENTAL SETTING

N-12

SAN JACINTO RIVER

1. Page 5.7-1, first sentence; Santa River should read Santa Ana River.

GROUNDWATER

1. Figure 5.7-2 Groundwater Basins. The western boundary of the sub area boundary of the Perris Basin is out of date and thus incorrect. The U.S. Air Force March AFB Installation Restoration Program process required the mapping of the underground bedrock to delineate the groundwater resources

N-13

N-13 (cont.)

at March AFB and environs. A deep layer of alluvial deposits buries the bedrock. The bedrock itself crossed by several underground rivers, whose channels are deeply etched into the bedrock. One of these underground river channels is aligned approximately under the surface alignment of the existing runway. The channel extends northward parallel to I-215 north to the top of the Box Springs summit. A surface map and three-dimensional map prepared by Tetra Tech was presented to the City of Moreno Valley Ecological Protection Advisory Committee (now Board), with permission of the Air Force. The Air Force data should be used to revise Figure 5.7-2.

N-14

2. Have copies of Chapter 5.7 Hydrology/Water Quality been given to the Eastern Municipal Water District and Department of the Air Force, 452nd Civil Engineers/CEV, March ARB to conduct technical review of this chapter? If not, it is strongly recommended it be done.

Figure 5.11-1 Major Scenic Resources

N-15

1. This figure identifies the northern area of Moreno Valley "The Foothills". These "foothills" have peaks, which are higher than the Badlands and rival the Box Springs Mountains. Reche Peak is in fact higher than Box Springs Mountain and Olive Hill only slightly less in altitude. The northern end of Moreno Valley is composed of three mountain masses, which dominate the scenic resources of the City. Why does the figure only recognize Box Springs Mountain and doesn't recognize Reche Peak and Olive Hill?

N-16

2. The outstanding scenic resource of Moreno Valley is not addressed at all on this Figure. The snow clad peaks of the San Gabriel Range and the San Bernardino Range to the north and the San Jacinto Range to the east dominate the Moreno Valley sky line and rival the mountain fronts of the Rocky Mountains. Why aren't these scenic resources mentioned in this figure?

Letter O

San Bernardino Valley Audubon Society
P.O. Box 10973
San Bernardino, CA 92423

July 27, 2005

Ms. Cynthia Kinser
Principal Planner
Community Development Department
14177 Frederick Street
Moreno Valley, California 92553

Dear Ms. Kinser,

O-1

The San Bernardino Valley Audubon Society has been closely involved with the formation and expansion of the San Jacinto Wildlife area, including legal action against the proposed Moreno Highland subdivision. Because of this involvement, we are studying the Moreno Valley General Plan Update to ensure that the associated actions do not put the SJWA in jeopardy.

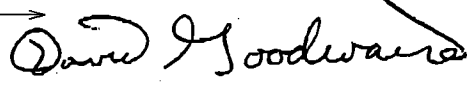
The July article in the Press Enterprise discusses reasons for and against redesignation of the 1,000 acres of the original 3,000 acre Moreno Highlands. We believe redesignation is the logical thing to do, but even if it does not take place, much of the environmental data in the EIR must be adjusted to reflect the fact that those 1,000 acres will not be developed. Traffic, air and water quality, cumulative and growth-inducing impacts, biological resources and virtually all other areas of potential impact will be altered significantly by the acknowledgement that 1,000 acres of Moreno Highlands is off the table for development. Transportation is a major concern, with so many plans to upgrade existing roadways and create new ones. We are concerned that the SJWA will be compromised by transportation changes, and will lose significant buffering from development and transportation projects.

O-2

Geological issues have surfaced again, with disagreement over the extent of the various faults in the area. This is something of great importance that must be resolved with good science and thorough research. If area faults are not completely mapped out, every effort must be made to do so and to include those associated risks in the EIR. Putting homes and public works projects in harms way because of incomplete geological data is simply unacceptable.

O-3 The special value of the SJWA and the surrounding agricultural land is something that Moreno Valley should do everything in its power to protect for the enjoyment of all it's citizens in perpetuity. Few Inland Empire communities can boast of the near proximity of such valuable open space resources as Lake Perris, the SJWA and the new San Timoteo State Park. Areas of high-density housing and transportation corridors should be shifted away from these areas or eliminated from planning consideration.

O-4 The only way the General Plan Update can truly express the future options for this region and allow the public and city officials to make intelligent informed decisions is to produce a supplementary EIR or rewrite the Draft EIR. Too much of the data is outdated or incomplete. It is the function of an EIR to inform the public as accurately as possible as to the environmental impacts of a particular action. In this case, the public is not getting an accurate assessment.



David Goodward
San Bernardino Valley Audubon Society
(909) 783-2417
davegoodward@earthlink.net

State of California • The Resources Agency
Arnold Schwarzenegger, *Governor*

DEPARTMENT OF PARKS AND RECREATION
Ruth Coleman, *Director*
Inland Empire District
17801 Lake Perris Drive
Perris, CA 92571
(951) 657-0676
http://www.parks.ca.gov

Letter P

August 1, 2005

Cynthia S. Kinser
City of Moreno Valley
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92552

Re: Draft Environmental Impact Report for the City of Moreno Valley General Plan Update, SCH# 2000091075

Dear Ms. Kinser:

P-1 The Inland Empire District of the Department of Parks and Recreation (State Parks) appreciates the opportunity to comment on the aforementioned project. State Parks is a trustee agency as defined by the California Environmental Quality Act (CEQA). State Parks' mission in part is to provide for the health, inspiration, and education of the people of California by preserving the state's extraordinary biodiversity and creating opportunities for high quality outdoor recreation. As the office responsible for the stewardship of Lake Perris State Recreation Area, we have an interest and concern about contemplated alterations of land use adjacent to the park.

We identified two topics of interest. First, we suggest identifying the Lake Perris area adjacent to residential development as an area of High Fire Hazard in the text and in Figure 5.5-2. As you may know, this area recently experienced a fire that prompted a significant effort from various fire agencies. Second, we suggest amending Figure 5.7-1 and the related text to reflect the Lake Perris area as a potential source of drainage waters flowing to developed areas.

Again, thank you for the opportunity to review this project. If you have any questions, please feel free to call Enrique Arroyo, District Planner at (951) 940-5664.

Sincerely,

Gary Watts
District Superintendent

cc: Rick Rayburn, DPR
Scott Morgan, SCH
DPLA Environmental Review Unit

Post-it™ Fax Note 7671	Date	# of pages ▶ 1
To Cynthia Kinser	From Enrique Arroyo	
Co./Dept.	Co.	
Phone #	Phone # 951 940-5664	
Fax # 951 413-3210	Fax #	

California Regional Water Quality Control Board
Santa Ana Region

Terry Tamminen
Secretary for Environmental Protection

3737 Main Street, Suite 500, Riverside, California 92501-3348
(951) 782-4130 • Fax (951) 781-6288
http://www.waterboards.ca.gov/santaana

Arnold Schwarzenegger
Governor

Letter Q

July 29, 2005

Cynthia S. Kinser, Principal Planner
City of Moreno Valley Community Development Dept.
P.O. Box 88005
Moreno Valley, CA 92552-0805

RECEIVED
AUG 0 1 2005
CITY OF MORENO VALLEY

DRAFT ENVIRONMENTAL IMPACT REPORT, CITY OF MORENO VALLEY GENERAL PLAN UPDATE, RIVERSIDE COUNTY, STATE CLEARINGHOUSE NUMBER #2000091075

Dear Ms. Kinser:

Staff of the Regional Water Quality Control Board, Santa Ana Region (RWQCB), has reviewed the City's Draft Environmental Impact Report (DEIR) for its General Plan update (project). The City of Moreno Valley (City) is in the process of updating its General Plan for the implementation of development and use of open space within its corporate area and Sphere of Influence (SOI), including probable near-term boundaries. The following comments should be considered for incorporation into the final EIR:

1. The expansion of a city carries incremental effects that are "cumulatively considerable" and pose a "potentially significant impact" on the environment. There is widespread experience that an increase of disturbed, developed, and paved areas has the tendency to substantially impact and impair the beneficial uses of waters of the United States and the state. Aside from the legally required "no project alternative" (Alternative 1, existing General Plan), two land use alternatives (p. 3.3 through 3.14) propose varying levels of City construction throughout its boundaries and SOI: Alternative 2 proposes a higher density of multi-family residential units, offices, and industrial parks than Alternative 3, particularly with regard to expansion in the northeastern portion of the city. The DEIR states that Alternative 3 "is the environmentally superior alternative," and we would concur if lower density construction would also provide more unpaved areas, grassed swales, pervious materials, and natural soft-bottomed channels, thereby facilitating groundwater recharge and riparian habitat among other water quality beneficial uses (p. 5.7-12). The three alternatives should be discussed in the EIR in terms of how they would impact water quality standards, i.e., water quality objectives and beneficial uses, as defined in the RWQCB's Water Quality Control Plan (Basin Plan). Large-scale maps of the areas to be built upon should be included in the final EIR. Antidegradation policies such as the State Water Resources Control Board's (SWRCB) Resolution No. 68-16) and the federal antidegradation policy (40 CFR 131.12) should also be discussed in the EIR.

Q-1

2. Designated San Jacinto River floodplain areas, including Mystic Lake, appear to be avoided by construction. However, water quality standards would be adversely impacted by the flooding of developed areas adjacent to, or in, the zones of potential flooding indicated on Figure 5.5-2 and on Figures 3-2 through 3-4. Although all drainage plans have not been completed according to the DEIR (p. 5.5-6), the DEIR should include some finalized master drainage map demonstrating how runoff will be transmitted.

Q-2

3. The EIR must reflect the City's incorporation into the General Plan the requirements of the Regional Water Quality Control Board's Waste Discharge Requirements for Riverside County (NPDES Permit No. CAS618033, Order No. R8-2002-0011, "Riverside County Flood Control and Water Conservation District, the County of Riverside, and the Incorporated Cities of Riverside County within the Santa Ana Region Areawide Urban Runoff"), also known as the Riverside County municipal separate storm sewer system, or "Riverside County MS4" permit, to the extent necessary to ensure consistent implementation of the MS4 permit within the City and its SOI. The City is a co-permittee in this permit, as generally discussed on p. 5.7-9 of the DEIR. The final EIR should fully reflect that implementation of the MS4 controls on urban runoff will be a crucial part of the City's participation in local municipal compliance with the Regional Board's pending Total Maximum Daily Loads (TMDL) for nutrients (phosphorus and nitrogen) and pathogens (bacteria) entering Canyon Lake. In accordance with Clean Water Act (CWA) Section 303(d), Canyon Lake is listed as impaired by these pollutants, and TMDLs must be established. The nutrient TMDL for Canyon Lake is currently under review by the Regional Board, and Regional Board action on a pathogen TMDL is projected for 2006. Lake Elsinore, to which Canyon Lake is tributary, is 303(d) listed for nutrients, sediment, and unknown toxicity.

Q-3

4. Appropriate Best Management Practices (BMPs) must be developed and implemented to control the discharge of pollutants both during construction and for the life of a project. Post-construction BMPs must address all pollutant loads carried by dry weather runoff and first-flush storm water runoff from an entire project. Measures of this type are, or soon will be, required of new development and redevelopment by the water quality management plan (WQMP) prepared in compliance with the Riverside County MS4 permit. BMPs that utilize the principles of low impact development (LID) should be encouraged by the EIR. No waste material may be discharged to any drainage areas, channels, streambeds, or streams. Spoil sites must not be located within any streams or where spoil material could be washed into a waterbody. BMPs must be deployed around spoils at all times.

Q-4

5. The Plan must include provisions to advise the City's development, construction and business communities of the need to comply with several permit programs, including:

Q-5

a. <u>The General Construction Activity Storm Water Runoff Permit for individual projects occurring on an area of one or more acres.</u> A Notice of Intent (NOI) with the appropriate fees for coverage of the project under this Permit must be submitted to the SWRCB at least 30 days prior to the initiation of construction activity at the site. Information about this permit program can be found at http://www.swrcb.ca.gov/stormwtr/construction.html.

b. <u>A National Pollutant Discharge Elimination System (NPDES) permit</u> (waste discharge requirements) for projects that will have dewatering or other wastewater discharges to surface waters of the state. RWQCB Order No. R8-2003-0061, NPDES No. CAG998001, a regional general *de minimus* permit, is available for most such discharges. Order No. R8-2003-0061 may be reviewed under the Adopted Orders link for 2003 permits at the Region 8 website. Waste discharge requirements may also be required for discharge of wastes to land. Further

information can be obtained by contacting the RWQCB Regulations Section staff at (951) 782-4130.

Q-5 (cont.)

c. A Clean Water Act Section 401 Water Quality Standards Certification from the Regional Board for any project that causes material to be dredged from or filled into waters of the United States, i.e., surface waters or tributaries thereto, where these waters fall under the jurisdiction of the United States Army Corps of Engineers (ACOE) and a a CWA Section 404 permit is be required. **Early consultation with Regional Board staff concerning potential Section 401 certification issues is strongly suggested.** Information concerning Section 401 certification can be found at the Regional Board's website, www.swrcb.ca.gov/rwqcb8/html/401.html. Impacts to water quality standards of channels and other drainages should first and foremost be avoided by development where possible. Where that is not practicable, impacts to these waters should be minimized. Such disturbance requires mitigation (beyond simply the acquisition of permits) that, at a minimum, replaces the full function and value of water quality standards, i.e., beneficial uses and water quality objectives, of the impacted water body through the Section 401 Certification process. Where the ACOE rules that a water body does not fall under their jurisdiction, as with potential cases of vernal pools or other isolated wetlands in the Moreno Valley area, the Regional Board may still determine that waste discharge requirements are necessary for protection of waters of the State. A Streambed Alteration Agreement from the California Department of Fish and Game may be necessary as well.

6. Consider including in the DEIR guidelines or requirements for holding ponds and/or constructed wetlands to capture and naturally treat dry weather urban runoff and the first flush of rainfall runoff, either on a regional scale (preferred) or during project-by-project development. This type of facility is, or soon will be, required of new development and redevelopment by the water quality management plan prepared in compliance with the Riverside County MS4 permit. To provide maximum water quality benefits, these basins should be designed to detain runoff for a minimum time (e.g., 24 hours) in order to settle suspended solids and associated pollutants.

Q-6

7. The WILD and WARM, and possibly RARE, water quality beneficial uses of the Basin Plan are known to be supported by the network of arroyos within the City and SOI, particularly the Big Springs Arroyo and the Box Springs Arroyo. This arroyo network constitutes critical riparian habitat and wildlife corridors to Sycamore Canyon and the Box Springs Mountains on the Riverside border, and it should be avoided by development (see 5.c. above) if not designated for outright protection. To avoid impeding wildlife movement, roadways or pipelines should be carried over ravines, arroyos, and slope drainages by bridges or wide, arched culverts.

Q-7

8. Among other water quality and environmental benefits, native vegetation in riparian areas is effective at reducing slope erosion, filtering runoff, and providing habitat for native animal species. Therefore, native vegetation should be preserved and protected to the maximum extent possible, and clearing should be strictly limited. We encourage the proactive replanting and hydroseeding of native vegetation in most operations.

Q-8

Q-9

9. In order to protect local groundwater subbasins, we believe that the DEIR should reflect City support for the connection of existing septic tanks to sewer and a restrictive policy on developments that propose to rely on onsite subsurface disposal systems for waste disposal (p. 5.7-9).

If you have any questions, please contact me at (951) 782-3234, or Glenn Robertson of my staff at (951) 782-3259.

Sincerely,

Glenn Robertson, for

Mark G. Adelson, Chief
Regional Planning Programs Section

cc: Scott Morgan – State Clearinghouse
Riverside-Corona Resource Conservation District
California Department of Fish and Game

Q: Planning/Groberts/Letters/CEQA/DEIR- City of Moreno Valley General Plan

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CITY OF RIVERSIDE

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Letter R

July 27, 2005

Cynthia Kinser, Principal Planner
Community Development Department
14177 Frederick Street
Moreno Valley, CA 92553

SUBJECT: Draft Environmental Impact Report (DEIR) for the Moreno Valley General Plan Update and Review of the General Plan Update

Dear Ms. Kinser:

The City of Riverside has reviewed the DEIR for the Moreno Valley General Plan Update in addition to the General Plan Update. The DEIR considers three alternative land use approaches and the planning area consists of the City of Moreno Valley and the City's Sphere of Influence. In reviewing the documents staff's only comments pertain to the Land Use, Air Quality, and Hazards sections of the DEIR.

Land Use

R-1 The DEIR indicates that there are three alternatives for land use proposed. All three alternatives propose Hillside Residential in some form or another for the Box Springs Mountain Park and the land to the south of the park. However, there is no description of what is expected in the Hillside Residential land use category either in the DEIR or in the General Plan. This area borders the City's sphere of influence and is visible to the City. The City would recommend that the Box Springs Mountain Park be placed in the Open Space land use designation. As well, additional information should be provided that explains what the Hillside Residential category is intended to preserve and what it will permit in terms of density and grading.

In addition, the City notes that the General Plan Update does not describe any of the land use designations or their intended purpose.

Air Quality

R-2 It is recommended the DEIR include references to the "Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities" prepared by the Regional Air Quality Task Force of the Western Riverside Council of Governments. Moreno Valley was a participating member in this Task Force and the Draft Guidelines were released in February 2005. These Guidelines provide goals that could become additional mitigation measures for the DEIR or policies for the General Plan.

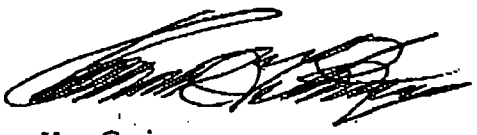
PLANNING AND BUILDING DEPARTMENT
3900 MAIN STREET • RIVERSIDE, CALIFORNIA 92522 • (951) 826-5371
FAX: (951) 826-5981 • www.riversidecа.gov

Hazards

R-3 Under "Aircraft Hazards" it should be noted that a new Airport Land Use Compatibility Plan is being prepared for the March Air Reserve Base/March Inland Port and upon its adoption new standards will become effective.

We thank you for the opportunity to review both the DEIR and the General Plan Update.

Sincerely,



Ken Gutierrez
Planning Director

c: Bradley J. Hudson, City Manager
Michael Beck, Assistant City Manager
Tom DeSantis, Assistant City Manager
Ronald Loveridge, Mayor
Riverside City Council Members

G:\CHRONO\2005\July 05\25MVGeneral_Plan_ldi.wpd

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Letter S

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JUL 29 2005

PLANNING
CITY OF MORENO VALLEY

July 25, 2005

Ms. Cynthia Kinser
Principal Planner
Community Development Department
14177 Frederick Street
Moreno Valley, California 92553

Dear Ms. Kinser:

Re: Comments to the Draft Environmental Impact Report (DEIR) SCH #2000091075

At the public meetings of five years ago, Moreno Valley residents strongly spoke for an alternative similar to number 3. The Sierra Club has found it sad that the City has delayed this process for all this time to push Alternative #2 at every possible opportunity. In the meantime the maps and data have become old and obsolete. This will result in a General Plan that is internally inconsistent and therefore inadequate.

The following are some of our concerns, which we hope will be addressed in the final EIR.

- S-1 The ideas and suggestions found in the letters written in response to the Notice of Preparation (NOP) were not followed through on or responded to in this DEIR.
- S-2 Cumulative impacts from adjacent cities and county projects were not included in your analysis, including those on the drawing boards. The lack of complete cumulative and growth-inducing impacts makes the EIR inadequate.
- S-3 Hazards from toxic plumes at March Air Reserve Base will affect development in what ways?
- S-4 Casa Loma Fault extends further north, potentially north of Highway 60. You need to include the Old Farms Road Fault, as mentioned in NOP letters. What are the appropriate land uses on either side of Gilman Springs Road near the Claremont Strand?
- S-5 When will overpasses and underpasses on Highway 60 be expanded from three lanes to five lanes? What will the Level of Service (LOS) be at buildout at three lanes and at five lanes? Why turn Highway 60 into a parking lot back to the Badlands? Alternative #3 produces 65,000 less trips daily. How can the City approve projects causing more than three lanes on Highway 60 to be necessary or more than 5 lanes to be necessary – the maximum possible?
- S-6 FEIR needs noise contours for holding patters of aircraft.
- S-7 You must factor in single-event noise. Airplane or truck noise averaged out as in CNEL appears fine, but it is not the same as an aircraft flying over your house at 2 a.m. No housing in areas above 65 CNEL. You would not want to go outdoors.
- S-8 Please try to connect Gilman Springs Scenic Roadway with San Timoteo Canyon. (Perhaps Theodore > Highland > Redlands)
- S-9 How will the proposed land use in western Moreno Valley interface with the suggested tunnel through Box Springs Mountain? How close will it come to proposed buildings? What impacts will this have on nearby land uses and residents?

S-10 • The Bi-County Corridor will slice and dice our City. What routes will it take? What routes will you deny them? Pigeon Pass? Heacock? Perris? What will you do to protect school children on their way to and from school as they walk and bicyle along the selected route? Will the plan allow through truck traffic near schools? Which schools? How will this impact those living along the route? Why doesn't the City say NO to this unwanted urbanization of our neighborhoods?

S-11 • What is the hazardous waste handler off Morrison north of Highway 60?

S-12 • Where is the Lake Hemet Dam inundation map?

S-13 • 100- and 500-year flood zones show where very low density should be the land use of choice – Why not?

S-14 • Do not allow solid concrete flood control channels. Why would you want more such ugly things going through our city?

S-15 • Moreno Valley Ranch gave up thousands of acres to Lake Perris and the San Jacinto Wildlife Area to receive the density they are building. What protection are you proposing for the world-class San Jacinto Wildlife Area (SJWA) from any development near its borders? What mitigation measures will the City take to protect each area mentioned in Table 9-6? This same table needs to better reflect the SJWA resources. The Department of Fish and Game designated this valley an Area of Special Biological Importance (p. 5.9-28) because of the diversity and abundance of raptors. What mitigations are proposed to protect this area for continued use by raptors, such as modifying power poles and setting aside more open space?

S-16 • How will you protect our wonderful viewsheds and scenic resources, which ever development seems to destroy?

S-17 • Citizen after citizen for the past five years has spoken for only a two-lane road with turning movements on Moreno Beach Drive north of Ironwood Avenue. Why do we still need to fight to protect our neighborhoods and more rural lifestyles from the urbanization of a major roadway? The City, not RCTC, makes this determination.

S-18 • Alessandro and Cactus do not and cannot pass through the SJWA. Why do you allow this on your maps?

S-19 • Nason must maintain three lanes heading south. This is necessary because of Valley View High School traffic, and it is an emergency route to the hospitals. Northbound doesn't have this need.

S-20 • LOS "C" must be what we maintain and tables 5.2-9 and 5.2-10 must reflect the actual LOS. Alternative #3 produces the least gridlock and indicates that even less intense land use might be appropriate for a more livable city. LOS "C" allows you to get through intersections with one cycle of the signal. LOS "D – F" requires two or three cycles to pass through an intersection.

S-21 • How much longer would it take to travel across our City with intersections at LOS "D – F" as opposed to "C", assuming we get stopped at all signals. Please use the two major east-west routes with the most signals. Please do the sane with the north-south routes and indicate which routes were used.

S-22 • Why produce a plan that conflicts with SCAQMD Air Quality Management Plan and/or SCAG Growth Management Plan?

S-23 • Is the data on air quality old? Is there more recent data available? If so, please use it.

S-24 • Tables 5.3-8 and 5.3-0 show alternative #3 degrades our air quality the least.

S-25 • What are the impacts of PM 10 and PM 2.5 on children and the elderly? What can this plan do to better protect them?

S-26 • Walking should be fostered and trees between roadways and sidewalks should exist on at least one side of each street to encourage this. Why not?

S-27 • Explain why the old Moreno Highlands project still exists on your maps. Why isn't the 1000+ acres purchased by CDFG and San Diego Gas and Electric not shown as open space?

S-28 • Why is the City allowing the development agreement and specific plan to have any validity when one-third of the Moreno Highlands Project is now open space?

S-29 The Sierra Club's letters of August 9, 2004 and July 15, 2005, as well as the Los Angeles Times' article dated Tuesday, March 22, 2005, need to be included as part of this letter.

S-30 The Sierra Club appreciates this opportunity to comment on Moreno Valley's General Plan DEIR. We still believe that it needs to be updated and revised to be considered adequate. We also strongly recommend that hardcopies of all maps be sent along with all disks to allow potential responders the capability of reading and understanding them. Please send hard copies of all future documents and notices of meetings as they relate to our City's General Plan to the address listed below.

Sincerely,

George Hague
Conservation Chair
Moreno Valley Group of the Sierra Club
26711 Ironwood Avenue
Moreno Valley, California 92555-1906
Phone: 951-924-0816
Fax: 951-924-4185

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Appendix to Letter S

July 15, 2005

Ms. Cynthia Kinser
Principal Planner
Community Development Department
14177 Frederick Street
Moreno Valley, California 92553

Dear Ms. Kinser:

Re: Adequacies of the Draft Environmental Impact Report (DEIR)
for the City of Moreno Valley's General Plan (June 2005)

It appears throughout the document that much of it was written four or five years ago, when you first began the process – at least the data/maps used reflect this concern.

As indicated in newspaper articles as well as Sierra Club letters to and conversations with you and other sources, the City is well aware that the Department of Fish and Game purchased 1,000 acres of the original Moreno Highlands project. I believe San Diego Gas and Electric also bought a large number of acres. In spite of this, the City's maps for Alternatives 1, 2 and 3 (Figures 3-2, 3-3, 3-4) keep the high density housing on these 1000+ acres. In addition it appears that, with the exception of one map in the biological section (Figure 5.9-4), all other (more than 20) maps also misinform the public and agencies about these acres. I also believe that the disks with no hard copy of the maps such as Figure 5.9-4 make adequate analysis and valid comments too difficult.

There are also problems with old data, like Tables 5.2-2 and 5.2-3 concerning traffic in the year 2000 and the 1988 data on potential earthquakes (Table 5.6-1). You do not even acknowledge the Casa Loma fault or the Old Farm Road fault, which was included in a ten-year-old University of California paper. You have been told about the Old Farm Road fault several times since its location was identified in the eastern part of our city. If you take the time, you will find other areas where old data is used.

It appears that the EIR process was begun five year ago then stopped or significantly slowed so different projects could be approved which would prejudice the outcome of the approved alternative. The City then failed to update much of the data/maps – such as the purchase of 1000+ acres for open space instead of high-density housing -- while the process was on hold. The analysis, which should be revised throughout the documents for all three alternatives, appears to be lacking such information as circulation and is therefore misleading for all readers, which in turn will produce an inadequate Final EIR.

The Sierra Club therefore strongly recommends that the Draft EIR be revised and updated with the appropriate maps for all alternatives, or we will be left to believe that you are deliberately misleading all responders or potential responders about the true impacts and thus also misleading them about the best alternative.

Sincerely,

George Hague
Conservation Chair
Moreno Valley Group of the Sierra Club
26711 Ironwood Avenue
Moreno Valley, California 92555-1906
Phone: 951-924-0816
Fax: 951-924-4185

P.S. Where, within this document, do you fully address the environmetal justice issues of transit-oriented development and sustainable development? We believe this also must be included in your revised Draft EIR so those commenting have an adequate document on which to base their decision regarding the three alternatives.

Los Angeles Times

Tuesday, March 22, 2005

ENVIRONMENT

Reappearing Mystic Lake attracts birds

Appendix to Letter S

Winter rains fill the ephemeral wetland in the San Jacinto Valley — and with it come waterfowl by the thousands.

By Deborah Sullivan Brennan
Special to The Times

MYSTIC LAKE sweeps across the San Jacinto Valley, lapping at meadows pungent with the scent of wet grass. Hummocks seem to float above steel-gray water. A white-tailed kite hovers overhead while killdeer and greater yellowlegs skim the mud below.

Three months ago this was a dusty salt flat in dairy country, 15 miles southeast of Riverside. But winter storms filled the shallow basin to form an instant wetland.

Fleeting and capricious, Mystic Lake appears every few years at the whims of weather, one of the last of many ephemeral water bodies that once covered 5 million acres of inland California, says Bob McLandress, president of the California Waterfowl Assn.

Today, about 90% of the marshes are gone.

Birds, thousands of them, flock to the lake, attracting bird watchers and hunters who know this spot, which is off Davis Road in the San Jacinto Wildlife Area.

"For many years I thought that Mystic Lake was a hidden haven," says Tom Seward, 50, a sporting goods sales manager from Rancho Cucamonga, who has hunted at the lake since the early 1990s. "Few people knew about it; getting access was hard. But if you did, it was a little slice of heaven."

Mystic Lake pools in a shallow depression of the San Jacinto River after heavy rain. Just 5 or 6 feet deep on average, the lake at its fullest covers more than 3,000 acres, spills over surrounding roads, and floods nearby duck ponds.

Even in dry years the rural San Jacinto Valley is an important stop on the Pacific Flyway. Open grasslands attract raptors while private duck clubs lure waterfowl when the lake is dry.

But when Mystic Lake emerges, it's a naturally shimmering beacon for waterfowl.

"You add water to this place and there can be an amazing bloom of birds," says wildlife biologist Chet McGaugh of Riverside.

On a recent afternoon, a northern harrier swoops over a patch of alkali goldfields, a deep yellow flower common at the lake. Red-tailed hawks circle above; ducks raft on the water, and a flock of curlew flap across nearby ponds.

Tony Metcalf, a biology professor at Cal State San Bernardino, says birders at Mystic Lake counted more than 150 species annually between 1990 and 2003, ranking the lake as a top U.S. monitoring site by the Audubon Society. The lake, though often dry, flooded three times in the 1990s, and was moist for most of the decade.

Hunters describe watching waves of waterfowl roll across the lake, wigeons plunging like hail, or a "teal ball" of greenwings crossing the surface. McGaugh counted four types of geese after a recent storm.

"It's really an outstanding location for birds of prey, especially in wintertime," says Tom Paulek, manager of the San Jacinto Wildlife Area, a state-owned reserve that includes the lake bed and surrounding grasslands.

Twenty-two species, including egrine falcons, six owl species and numerous hawks share the airspace, sometimes launching aerial battles or competing with hunters for their quarry.

"We saw a bald eagle fighting an osprey over a fish" in midair talon lock, says Carl Cupp, 47, of La Palma, a former president of Cazadores Duck Club of Mystic Lake.

Cupp, who enjoys hunting here, describes a common problem: "If you knocked a bird down, you had to get there quick before a harrier got it.... We called that giving one to the bird gods," Cupp says.

The unpredictable nature of the lake has discouraged development.

In 1913, Frank Brown, cofounder of Redlands, erected "Brownlands" along the banks of Mystic Lake, according to author James T. Brown's book "Riverside County." Brown built the community during a dry year, but when the lake flooded, only "a few rooftops above the muddy waves" remained.

At one time, farmers diverted the San Jacinto River into earthen channels to irrigate fields, but the levees burst in storms, and the river reclaimed its natural course.

"The amazing thing is that the valley looks now like it did 100 years ago," says Harold M. Hill, a Redlands physician who has hiked and hunted the Mystic Lake area since the 1930s. He was a founder of the San Bernardino chapter of the Audubon Society and the Mystic Lake Duck Club in the 1950s.

The lake mounts its own defenses against intrusion, veiling its surface in fog and leaving a moat of mud around the shore.

"The mud at that place is brutal," Cupp says. "We got a truck stuck, and we went to get it with a tractor, and got the tractor stuck. The stuff is like glue."

Seward describes fog so dense it blocks all view of the shore, leaving boaters floating aimlessly.

"I've been lost on that lake, spending hours in a fog bank, not knowing exactly where I was," he says.

Because the lake can be inaccessible, locals say it provides solitude and serenity.

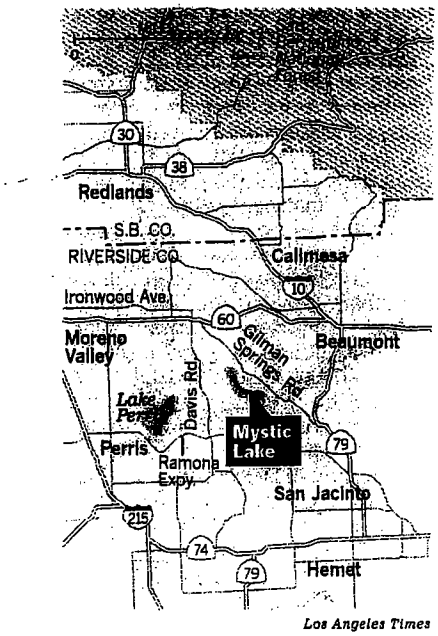
"Some areas are so beautiful ... just knowing that future generations can enjoy it means a lot to me," says Margie Breitkreuz, chairwoman of the Moreno Valley Trails Advisory Board and a regular horse rider at Mystic Lake.

On a quiet morning the lake mirrors snowy Mt. San Jacinto and rolling green hills.

If you squint past power lines and dairy farms, you can almost see the lake as explorer Juan Bautista de Anza did in 1774 when he rode into the San Jacinto Valley and described "a large and pleasing lake, several leagues in circumference and as full

Glenn Koenig *Los Angeles Times*

IT'S BACK: *Tom Paulek, manager of the San Jacinto Wildlife Area, surveys Mystic Lake: "It's really an outstanding location for birds of prey."*



Los Angeles Times

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Appendix to Letter S

August 9, 2004

Cynthia Kinser
Principal Planner
14177 Frederick Street
Moreno Valley, California 92552

Re: Moreno Highlands – old and new

We believe that the purchase of 1,100 acres of the original project by Fish and Game/San Diego Gas and Electric makes very evident the need for a new EIR, Specific Plan and Development Agreement prior to any building activity.

We also believe that you cannot revise any of the old Moreno Highland's roadways/circulation elements without revising the roadways for the entire project. Working on Moreno Highland West without integrating all aspects of the entire project would be segmenting.

The addition of any lands to the SP 212-1 would also trigger the need for a new EIR, Specific Plan and Development Agreement, especially when it is more than 200 acres.

The Sierra Club is also concerned that the City of Moreno Valley is dragging out the General Plan revision to allow this project and others to prejudice the plan's final outcome.

SP 212-1 and the Development Agreement have significant lands for a business park with trigger points to start building the employment base. It is apparent that much of this acreage will no longer be a source of jobs for the area. Since it is known in advance that you are going to significantly change SP 212-1/Development Agreement, we believe that you need a new EIR, Specific Plan and Development Agreement from the very beginning.

The Sierra Club would like to be notified of all meetings open to the public regarding the old and/or new Moreno Highlands project. Please use the address at the bottom of this letter to also notify us all hard-print communications and documents related to the above projects. If this is not possible, let us know how we can help you to make it happen.
Sincerely,

George Hague

George Hague
Conservation Chair
Moreno Valley Group of the Sierra Club
26711 Ironwood Avenue
Moreno Valley, California 92555-1906
Phone: 909-924-0816
Fax: 909-924-4185

Riverside Transit Agency
1825 Third Street
P.O. Box 59968
Riverside, CA 92517-1968
Phone: (951) 565-5000
Fax: (951) 565-5001

Letter T

July 27, 2005

Cynthia Kinser, Principal Planner
Community Development Department
14177 Frederick St
Moreno Valley CA 92553

SUBJECT: Draft EIR, Moreno Valley General Plan Update – Comments from RTA

Dear Ms Kinser

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the General Plan update. A copy of Riverside Transit Agency (RTA) staffs' internal review memo on this project is referenced and is attached for your information, providing more detail and analysis.

T-1

RTA generally supports the content of the General Plan with respect to transit. The following positive policy positions, in particular, are noted:

- The Plan as a whole voices moderate support for transit alternatives;
- It acknowledges a potential for further transit-related development;
- It supports continued coordination between the City of Moreno Valley and RTA;
- It acknowledges the rail commuter opportunity afforded by the extension of Metrolink;

T-2

RTA makes the following suggestions for possible further elaboration in the General Plan. These are only the highlights; more detail is provided in the attached RTA staff memo.

- RTA staff suggests adding a few paragraphs relative to the Bus Rapid Transit or "BRT" routes and stations. This service is set to begin in Moreno Valley in 2009;
- Include discussion of physical and operational characteristics that support BRT;
- Discuss the role of transit centers, transit nodes and transit oases relative to existing and proposed development patterns in Moreno Valley;
- Discuss the role of potential transit corridors in future development patterns;
- Discuss the vital "neighborhood connectivity" issue in community design;
- Mention the RTA-prepared *Design Guidelines for Transit* planning resource, found at http://www.riversidetransit.com/Downloads/RTA%20Design%20Guidelines%20v7.pdf on the RTA internet site.

Riverside Transit Agency
1825 Third Street
P.O. Box 59968
Riverside, CA 92517-1968
Phone: (951) 565-5000
Fax: (951) 565-5001

At this opportunity, RTA would like to commend Moreno Valley's staff and others who have worked with RTA over the last several years in the interests of better bus service.

T-3 In summary, RTA generally supports the Draft EIR and encourages the City of Moreno Valley to go forward with the next steps leading to adoption and implementation of the 2005 Update to the General Plan.

We look forward to receiving a copy of the final documents. If you need additional clarification or if I can be of further assistance, please call me at (951) 565-5164 or contact me online at mmccoy@riversidetransit.com.

Sincerely,

Michael McCoy
Senior Planner

Riverside Transit Agency

July 27, 2005

PLANNING DEPARTMENT MEMO

GENERAL PLAN REVIEW

To: Augustus Ajawara, RTA Director of Planning

From: Michael McCoy, Senior Planner Mike

Subject: **Draft EIR for the Moreno Valley General Plan Update -- RTA Comments**
Bus routes affected: 16, 16E 17, 18, 18A, 19, 20, 41, 35, 208 and potential local and regional future transit routes.

Summary: The City of Moreno Valley Planning Dept has issued the Draft Environmental Impact Report (DEIR) for its 2005 General Plan update. This DEIR will be one of the most important policy documents guiding land use and development decisions in Moreno Valley over the next 20 years. RTA staff has reviewed the printed Plan and the Technical Appendices on the CD with respect to transit and makes the following observations:

T-4

- **From reviewing the text, RTA staff is not sure of the "planning horizon" for this Update. There are references to 'at build out' but no applicable date is found. Many other General Plans in Riverside County are titled "General Plan 2025" or similarly, as it seems to be a common and useful practice.**

- **Overall, RTA staff suggests there could be further elaboration in the Plan and/or Appendices regarding the following transit-related topics:**

T-5

- Provide a more complete, route-by-route description or map of existing RTA transit services;

T-6

- Provide a description and map of the future BusRapid Transit (BRT) system, route and stations in Moreno Valley. A proposed BRT route would connect the Moreno Valley Mall with the RCC campus by means of Day St, a connection to the future Metrolink Station near the I-215 at Alessandro, then a lengthy traverse of the Alessandro corridor to the County Hospital, terminating at the RCC Campus, then returning over the same route. Please contact RTA staff for further information;

T-7

- Certain on-the-street physical components essential to an effective BRT service ought to be reserved in advance for eventual transit use. For example, lengthier two-bay bus turnouts and more spacious adjacent sidewalk areas need to be reserved at selected BRT stations prior to such sites being constrained by new development.

T-8

- Certain operational characteristics essential to an effective BRT service ought to be discussed in the General Plan. For example, implementation of the traffic signal pre-emption concept, queue-jumping lanes at selected locations or the continuation of the green light (signal priority) for BRT vehicles (only) could be made City policy;

T-9

- Please include a discussion and description of concepts such as transit center, transit oasis, transit node, transit corridor, transit-friendly development and transit-oriented development. These components are briefly discussed in paragraph 5.7.4, for example, in the Appendix.

T-10 Provide a basic description and purpose for the City's primary Transit Center in the vicinity of the Moreno Valley Mall. Recent discussions suggest the existing Transit Center near the Home Town Buffet restaurant could be moved to Town Circle;

T-11 Describe potential locations of other lesser *de facto* or proposed Transit Centers or Nodes such as at the RCC Campus, the Moreno Valley City Hall and at the County Medical Center, for example. A minor Transit Center features three or more converging bus routes;

T-12 Transit Centers and Nodes may be tied to such transit-friendly land uses such as mixed-use development, senior citizens housing, medium-to-high density residential uses, employment centers, institutional uses and other similar projects;

T-13 RTA staff commends the General Plan Team for raising the possibility of innovative Transit Oases in Moreno Valley, however – on page 5.2-14 some additional discussion is requested to make a clearer distinction between what exactly is a Transit Oasis and a Transit Center.

T-14 Regarding the March JPA site near the I-215 interchange with Alessandro, RTA staff is not aware of any proposals there that would qualify as a 'transit oasis'. Most of the nearby land has already been designated for conventionally designed commercial and high-quality industrial uses by the surrounding jurisdictions. The Riverside County Transportation Commission is taking the lead on station design along this new 25-mile Metrolink commuter rail route. Any transit center at the proposed "Moreno Valley-March-Alessandro" station would likely be limited to vehicle parking and passenger waiting areas.

T-15 Transit Oases need not always be placed along rail routes. Other potential sites such as adjacent to the 60 Freeway in eastern Moreno Valley or along the BRT corridor could be explored if tied to express-type bus service. About 40 acres is the minimum required for an effective transit oasis. Menifee and Lake Elsinore are nearby communities currently pursuing some form of transit oasis efforts. Now is the time to plan for transit oases in appropriate locations, especially near transit corridors and near central activity areas of some of the larger Specific Plans being proposed around the City. Please contact RTA staff for further information if desired;

T-16 Daily Amtrak long-distance rail passenger services may be accessed from Moreno Valley by means of a connecting dedicated Amtrak bus connecting service that stops at a convenience store at the northeast quadrant of the I-215 and Alessandro freeway interchange. The public is generally unaware of this service. The buses connect primarily with trains to Northern California and the Pacific Northwest;

T-17 Riverside Transit Agency continues to provide advisory services to local governments regarding transit, especially physical planning issues that affect safety, convenience, compatibility and attractiveness of transit stops and adjacent land uses. The City of Moreno Valley stands out as one of the most consistent and effective jurisdictions in the RTA service area that regularly and routinely submits new development projects to RTA staff for review, comment and advisories.

T-18 RTA offers standard "Design Guidelines for Bus Transit" on its internet site at http://www.riversidetransit.com/Downloads/RTA%20Design%20Guidelines%20v7.pdf

T-19 The discussion of transit in the General Plan needs to include mention of the concept of "neighborhood connectivity" to local bus routes. Perhaps this can be addressed in the Objective 5.8 section on pedestrian facilities. Buses usually operate along arterial streets and stop at signalized intersections with other arterials. However, in residential neighborhoods, high walls often block easy access from the interior of the subdivision out to the bus stop. A lengthy hike around the perimeter of the tract then becomes necessary and

T-19 (cont.)

tends to defeat ease of access or even penalize potential bus riders. The solution is to require a pedestrian pathway or cul-de-sac that "touches" the arterial to provide easy access to bus routes in the vicinity of the signalized intersection. The General Plan should state "Through the development review process by the local transit agency, safe and convenient pedestrian access should be provided from the interior of development projects out to the perimeter streets where bus routes occur or are planned".

T-20

Overall, the Draft EIR is generally supportive of improved transit services and access thereto. At this opportunity, RTA staff wants to commend the City of Moreno Valley's elected and appointed officials, their staff, the consultant and the General Plan team as a for their cooperation with RTA over the last several years in the interests of better bus service. It is noted that many important projects in Moreno Valley have been referred to RTA staff for review in the last few years, for which the bus agency is appreciative.

In summary, RTA generally supports the Draft EIR and encourages the City of Moreno Valley to consider the above list of suggested text additions and go forward with adoption and implementation of its General Plan for 2025.

INITIAL REVIEW INFORMATION - Review completed date: July 27, 2005.

Documents received at RTA: June 20, 2005;
Reply-by Date: July 31, 2005
City Council Agenda Date: Probably late 2005;
Thomas Guide Map page grid: Not applicable;
Case Numbers: State Clearinghouse Number is 2000091075;
Contact Planner: Ms Cynthia Kinser, Principal Planner (951) 413-3206
Applicant: City of Moreno Valley, CA
Applicant's Consultant: P & D Consultants of San Diego CA

RTA PLANNING FOLLOW-UP:

___ Standard "Acceptable" letter to jurisdiction without comments

___ Standard "Acceptable" letter to jurisdiction with compliments or positive advisories

√ Letter with advisories re transit issues

Letter sent: Date: 7/27/05

SECOND REVIEW:

Review materials placed in archive files: Date: _____

Letter U

Pete and Arlene Weaver
11630 Redlands Blvd
Moreno Valley Ca 92555
951-924-6603

July 25, 2005

Cynthia Kinser
Principal Planner
Community Development Department
14177 Frederick St.
Moreno Valley Ca 92553

SUBJECT: GENERAL PLAN UPDATE

My name is Peter Weaver I currently reside at 11630 Redlands Blvd. I own approximately 11 acres on the southeast corner of Kalmia Avenue and Redlands Blvd. I write this letter to inform the council members I strongly support alternative plan #2.

I would like to explain the reason why council members should support alternative plan #2.

U-1

On the southwest corner of Kalmia and Redlands, the Mormon Church has built a beautiful building. It is landscaped and well maintained. This is a direct result of development. Controlled development similar to this site enhances the city appearance. The majority of open land in the east end of our city is full of weeds and creates an unsightly appearance.

North of the church on Redlands Blvd. is a large lot, which is, zoned R-1. I am assuming this large lot will soon be another development designed to attract upscale executive type homes on 1-acre lots who would like to own a horse or two. South of the church on Redlands Blvd is zoned the same where Pacific Communities is building new homes on either half or one acre lots.

Directly to the north of my property on Redlands Blvd and Highland Streets are 10 homes all on approximately 1-acre lots. Some of these homes have a horse. Directly to the north of those homes is our city's equestrian center.

Under the cities current general plan my 11 acres of property is zoned RR which is one house for every 2-1/2 acres. Under the current zoning laws if I chose to develop my 11 acres I could effectively split the lots and build no more than four homes. The city would require me to improve the 600 feet along Redlands Blvd and approximately 600 feet on

U-1 (cont.)

the north side of my property on Kalmia. This includes curbs, gutters, lighting and sidewalks.

Costs associated with the improvements would undoubtedly be passed along to the four lots. The costs would be too high to ever consider development thus leaving the 11 acres undeveloped and generally produce weeds.

If you survey the general public the majority of the people do not want a lot more than one acre in size. They are too much too take care of; if you take pride in your property and keep the weeds off. I currently maintain the 600 feet along the front side of my property. I do this because I take pride in my property. I don't want tumbleweeds on my 11 acres of property I don't want trash along the ditch. I take pride in my property. I spray weeds regularly along the road so the general appearance is clean and weed free.

Choosing alternative plan #2 will allow development to take place. It will match the existing zoning laws that currently surround my property. Lots directly to the south, north and west of me are all on 1-acre parcels. Choosing alternative plan #2 makes sense, allows development of one acre lots which could allow horses and match the surrounding lots that border my property lines.

Planned development will assist in preventing the tumbleweeds currently aplenty in the northeast quadron of our city. Allowing homes to be built on either R-1 or R-2 lots allow homeowners to develop lots and have a rural lifestyle at the same time. Leaving the current zoning at RR will prevent development from taking place due to the costs associated with improvement of the roads, gutters, and other required city improvements.

I understand advocates are against the rezoning maintaining a rural lifestyle surrounding the equestrian center. Choosing alternative plan #2 will maintain a rural lifestyle and allow development at the same time. It makes sense and is the best plan for our city.

Changing the general plan to alternative plan #2 will allow development and be compatible with the parcels surrounding my 11 acres. Additionally it will be compatible with the equestrian center and allow controlled development to include homes with lots still large enough to have horses.

I strongly support alternative plan #2 and encourage you to vote in this manner.

Peter and Arlene Weaver

Letter V

TO: Cynthia Kinser, Principal Planner

FROM: Margie Breitkreuz

DATE: July 27, 2005

RE: General Plan Update

The following is presented in response to requests for community input on the general plan. Over the years as the general plan has been reviewed, the city has received input from the community members. I hope these comments are being considered at this time as well.

V-1
- Adopt Option 3 land use map.

V-2
- Rezone the area between Moreno Beach to the west, Quincy to the east, Ironwood to the north to a minimum of one acre parcels. This is an area for animal keeping. There are sufficient one-acre parcels. Larger lot sizes are needed to lower density.

V-3
- Annex all areas in the northern boundary of Moreno Valley including Reche Canyon. Provide for multiuse trails in these areas.

V-4
- Maintain Moreno Beach north of Ironwood to as a two-lane road (one lane each direction). The area is zoned for animal keeping and larger lot sizes. Does not warrant a larger road.

V-5
- Reconsider the elimination of Sinclair as a north/south overpass. When Sinclair was eliminated, it was thought that Moreno Beach would not have a large volume of traffic. The Walmart and other shopping entities, plus apartments has changed the volume of use. Sinclair was to be an overpass with no freeway ingress and egress, connecting north and south portions of the city—available for multiuse traffic (bikes, pedestrians, horseback riders). Similar crossing exists at Indian north of Sunnymead Bouelvard.

V-6
- Areas zoned for animal keeping shall be designated as Primary Animal Keeping Areas which will include the items established by the city's ad hoc committee reviewing animal keeping zoning. (Refer to Mark Gross, city planner.).

V-7
- Establish zoning to respect irreplaceable natural assets which define community character. This would include but not be limited to:

  – *Appropriately zone all hillside areas.*

V-7 (cont.)

- *Hillsides and ridgelines contain appropriate routes for equestrian and pedestrian trails which can be acquired by the city to its greatest advantage through dedication.*
- *Minimize hillside disturbance and potential problems such as construction scars, erosion, increased runoff and downstream flood hazards.*
- *Roadway grades shall not exceed 10 percent.*
- *Ribbon or rolled curbs shall be used except where vertical curbs are deemed necessary for safety or drainage as determined by city.*
- *The location and installation of all utilities shall minimize disruption of the natural terrain and shall not be within designated natural areas.*
- *Site plans shall show preservation of prominent natural features, native vegetation and open space in a manner compatible with the surrounding neighborhood, minimizing alteration of terrain necessary for development.*
- *Site plans for development of property on steep slopes shall take into account the visual impact on surrounding properties.*
- *No grading, engineered slopes, housing construction, streets, utilities, or other man-made features shall be permitted within identified ridgeline areas.*
- *Primary ridgelines are the highest undeveloped and visually dominant ridgelines in a viewshed, recognized by the continuous horizon line formed against the sky. The primary ridgelines are an exhaustible and precious scenic resource of the city and its citizens worthy of preservation for the welfare of all the citizens. As the hillsides continue to be developed, proper planning is necessary to protect primary ridgelines from grading activities.*
- *Parcel maps, building plans, and grading plans for any property with primary ridgelines within its boundaries shall include provisions for the complete preservation of such primary ridgeline areas in their natural state.*
- *Secondary ridgelines provide a significant visual backdrop or landmark at the community or neighborhood level. Secondary ridges are lower "branches" or "fingers" of the primary ridgelines which extend in different directions, or separate lower ridgelines that provide a visual foreground feature for primary ridgelines or form the boundary of a watershed. The character of secondary ridgelines must be maintained through the course of development to protect their importance at a community or neighborhood level.*
- *Tentative tract and parcel maps, building plans, and grading plans for any property with secondary ridgelines within its boundaries shall include provisions for the complete preservation of such secondary ridgeline areas in their natural state.*

Letter W

Cynthia Kinser, Principal Planner
Planning Division
City of Moreno Valley
P.O. Box 88005
Moreno Valley, CA 92552-0805

July 28, 2005

Re: Draft EIR for Moreno Valley General Plan Update (State Clearing House No. 2000091075)

Dear Ms. Kinser:

W-1 Notice of this document (DEIR) was not provided to me by the City, even though I specifically requested to be notified of any documents and updates of the General Plan in my letter of Sept. 28, 2000 (which I attach to this letter, and which is explicitly acknowledged by the City as having been received on page 5.6-3 of the DEIR). I learned of the DEIR's existence only through a third party. Therefore the current review period for this DEIR is invalid under CEQA, and it has to be formally re-issued and extended.

As in 2000, I remain concerned about inadequate analysis of geotechnical issues, their impacts and proposed mitigation in the city's General Plan.

The highly active San Jacinto fault zone occurs in the eastern part of the city (northern San Jacinto Valley and western Badlands). This tectonically active area is the most subject to future development by the city (up to 10,000 homes). My concerns are:

W-2 1) The DEIR relies on Alquist-Priolo maps of the San Jacinto Valley that are over 30 years old (last updated in 1974), but numerous geological studies of the area have appeared in print and online since then.

W-3 2) In 1995 the existence of the new active Farm Road fault in the valley was published (ref. 1 below). It does not appear on the Alquist-Priolo maps, but this fault raises the potential for large earthquake propagation across the valley. Evidence of the active nature of this and other faults in the valley is provided by a growing bulge that has recently appeared on Alessandro Road in the middle of the valley, between Theodore Street and Gilman Springs Road. *This runs contrary to the claim made on p. 5.6-4 of the DEIR that the activity of the fault is not established.*

W-4 3) USGS studies identify high subsidence rates (1 inch per year) and high liquefaction potential in the valley (refs. 2, 3, 4), as well as the establishment of a large, growing ephemeral lake (Mystic Lake) in wet years. *These data contradict statements made on page 5.6-9 of the DEIR that subsidence, shallow groundwater and liquefaction are less than significant impacts.*

W-5 4) A 2000 geological map of the Santa Ana quadrangle (ref. 5) shows an extensive system of active ground fissures and cracks up to 5 feet wide, 80 feet deep and a mile long in the valley, caused by tectonic subsidence and groundwater removal.

W-6 5) A 1995 paper (ref. 6) documents a slow-moving active landslide (creep) along Gilman Springs road on the eastern side of the valley. *The constant repairs necessary to this part of the road testify to its activity, and contradict the doubt implied by the DEIR statement on page 5.6-3 of the DEIR that the landslide "reportedly exists".*

W-7 6) A 1993 State Special Publication on planning scenarios for earthquakes (ref. 7) identifies the eastern part of the city (San Jacinto Valley and Badlands) as having the *highest possible potential for seismic shaking, damage and landslides in Southern California.* This makes that part of the city unique in its seismic hazards, and thus worthy of the highest standard of geotechnical impact analysis.

W-8 7) The potential level of groundshaking during a seismic event is far greater than that assumed in the DEIR. The correct level of seismic shaking can be determined from the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model online at:
http://www.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html
The correct predicted level of groundshaking is extremely high, making the seismic hazard impacts far more significant than are claimed in the DEIR.

W-9 Sadly, the DEIR has only a few inadequate pages discussing geotechnical issues, and fails to address all of the new published data listed above. There is no new, updated geotechnical appendix to support analysis, impact assessment and mitigation claims. Two consulting reports cited on page 5.6-10 of the DEIR [1. Earth Consultants International. *Slope and Soil Instability Hazards-County of Riverside*, August 1, 2000. 3. Martin, Jay and Reeder, Wessly (Gary S. Rasmussen and Associates) "Engineering Geology Investigation; Tentative Tract No. 24721; South of Eucalyptus Avenue, east of Redlands Boulevard; Moreno Valley, CA (1989).] are not included in the DEIR or its technical appendices and thus not made available to the public to use in assessing the adequacy of the DEIR.

W-10 The DEIR claims on pages 2-3, 2-10 and 2-11 that adherence to both the Alquist-Priolo legislation and Uniform Building Code will reduce seismic hazards to a "less than significant level". But this claim is not justifiable and directly contradicts other statements made in the DEIR.

W-11 The DEIR on page 5.6-7 clearly defines the nature of a significant seismic impact:

"*For the purposes of this EIR, a significant impact would occur if implementation of General Plan Alternatives 1, 2, or 3 would:*

• *Expose people or structures to unacceptable risks of major geologic, seismic or*

soils hazards that could not be overcome by using reasonable construction and/or maintenance practices."

W-11 (cont.)

Yet on page 5.6-6 the DEIR states that this impact cannot be mitigated by construction practices:

"However, the UBC does not provide 100 percent protection against seismic damage."

and it also states that exposure to seismic hazards cannot be avoided:

"A major earthquake associated with any of these faults could result in moderate to severe groundshaking in the planning area. Damage to buildings and infrastructure could be expected as a result of groundshaking during a seismic event."

"Table 5.6-1 depicts the seismic data for regional faults that could affect the planning area. As depicted, the maximum credible earthquake from these faults ranges from 6.8 to 7.4."

"Most loss of life and injuries that occur during an earthquake are related to the collapse of buildings and secondary damage. Seismic groundshaking can also result in substantial structural damage and loss of income."

If development is allowed, damage will occur and people will be injured or killed, by the DEIR's own admission. By the DEIR's own criteria, *the proposed mitigation cannot overcome the significance of the impact.* The claim that mitigation of seismic impacts to "less than significant level" has been achieved is invalidated by the DEIR's own statements.

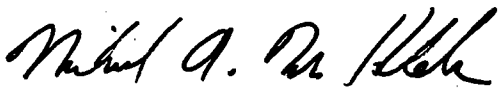
This inconsistency is compounded by the fact that the DEIR assumes erroneously low probabilities of groundshaking, far below those predicted by the current USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model.

The eastern end of the city occurs within the highest possible seismic shaking zone identified by both the state and the county, along the most seismically active fault zone in Southern California, and this coupled with the established liquefaction, collapse and landslide potential in that part of the city (San Jacinto Valley, Badlands) expose *any* structures intended for human habitation to extremely high risk for damage, injury and death, both within and outside of the 30-year-old Alquist-Priolo zones. *The only feasible alterative that would mitigate these hazards to a "less than significant level" would be a complete lack of future residential, commercial, and industrial development in the northern San Jacinto Valley and western Badlands.*

I ask that these comments be incorporated into the public record for review of this general plan, and hereby incorporate all references cited above and below (and their contained references) into the review process for this general plan. I also ask that I be kept informed in writing of all notices, meetings and actions regarding this general plan.

W-12

Sincerely,



Michael A. McKibben, Ph.D.
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1. Park, S.K. et al. 1995, Delineation of intrabasin structure in a dilational jog of the San Jacinto fault zone, southern California; Jour. Geophysical Research, Vol. 100, No. BA, p. 691-702.
2. Morton, D.M., 1977, Surface deformation in part of the San Jacinto Valley, southern California; Jour. Research U. S. Geological Survey, Vol. 5, No. 1, p. 117-124.
3. Morton, D.M., 1992, Subsidence and ground fissures in the San Jacinto basin area, Southern California; U.S.G.S. Subsidence Interest Group Conf., Abstracts, p. 29-31.
4. Morton , D.M., Matti, J.C., 1993, Extension and contraction within an evolving divergent strike-slip fault complex: the San Andreas and San Jacinto fault zones at their convergence in southern California; Memoir Geol Soc. America, 178, p. 217-230.
5. Morton, D.M., 2000, Preliminary Digital Geologic Map of the Santa Ana 30' x 60' Quadrangle, Southern California; U.S.G.S. Open-File Report 99-172. http://wrgis.wr.usgs.gov/open-file/of99-172
6. Morton, D.M., and Sadler, P.M., 1989; Landslides flanking the northeastern Penninsular Ranges and in the San Gorgonio Pass area of southern California; in Sadler, P.M., and Morton, D.M. (Eds.) Landslides in a Semi-Arid Environment; Inland Geological Society Publ., Vol. 2, p 338-355.
7. Toppozada, T.R., et al., 1993, Planning scenario for a major earthquake on the San Jacinto fault in the San Bernardino area; Calif. Dept. of Conservation, Div. Mines and Geology, Special Publ. 102, 250 pp.

Attachment: comment letter of Sept. 28, 2000 requesting notification of availability of DEIR

Sept. 28, 2000

Jeff Specter, Associate Planner
Community and Economic Development Department
City of Moreno Valley
P.O. Box 88005
Moreno Valley, CA 92552-0805

Re: Comments on draft Moreno Valley General Plan

Dear Mr. Specter:

I have been a resident of the city of Moreno Valley since 1985, and a Geologist at UCR since 1984. I would like to identify several technical issues to be included for analysis in the draft Moreno Valley General Plan (as recently outlined at public scoping sessions held in Moreno Valley). My comments comprise seven pages, including a list of published technical literature cited at the end.

The General Plan needs to consider the impacts of Moreno Valley's unique geological features on future development, especially with regard to insuring public safety and

health as well as the City's long-term economic well-being. The major geological features in and near the City are:

1) The San Jacinto fault zone, an Alquist-Priolo fault hazard zone, is the most active earthquake fault zone in all of California. This fault zone lies at the eastern edge of the City, where potential development pressure is the greatest.

2) The San Jacinto Valley, the most rapidly-subsiding sediment-filled basin in California, contains the ephemeral Mystic Lake and is also located at the eastern edge of the City.

General Plan analysis of the impacts of these features on future development must go beyond a simple compilation of the standard state Alquist-Priolo zone maps for seismic hazards, many of which are more than a decade out of date. The analysis also must go beyond simple consideration of FEMA flood zone maps, some of which are also out of date.

These standard hazard maps are out of date because they do not include information from several important *new* studies of seismic and flood hazards in San Jacinto Valley and Reche Canyon, all published in the scientific literature within the past decade.

Public health and safety, especially with regard to the planned construction of schools, hospitals and residential units, cannot be achieved (mitigated to a reasonable level) by a hazard map that is incomplete, inaccurate and seriously out of date. Scientific advances in our knowledge of seismic and other geotechnical hazards occur quickly, and the information in the general plan must be kept up to date with such advances.

In fact, the state's Alquist-Priolo guidelines and legislation require that general and specific plans by lead agencies include analysis based not only on the existing state hazard map zones, but also on all other relevant published information on faults and hazards inside and outside of those map zones (Hart, 1992). This is because many recent deadly and costly seismic events have occurred on faults that were recognized but not yet officially zoned on hazard maps by the state, or were not recognized to be active. The recent Landers, Northridge, Hector Mine and Napa Valley earthquakes are good examples.

Geotechnical Hazards

In particular, there are several specific geotechnical hazards that must be addressed by the City's draft hazard map and general plan:

1) seismic shaking zones and building codes
2) the Casa Loma fault
3) the Farm Road fault
4) a slowly-moving landslide along Gilman Springs Road
5) chronic subsidence and liquefaction in San Jacinto Valley
6) the growing size of Mystic Lake

1) Seismic Shaking Zones

San Jacinto Valley and Reche Canyon lie within at least Riverside County Seismic Hazard Zone IV(B), due to their proximity to the active San Jacinto and San Andreas fault zones. Hazard maps and analysis should depict these shaking zones and their implications for the adherence of development to the Uniform Building Code.

Within this type of hazard zone, the types of land use that may be proposed (including Critical Land Uses (e.g., hospitals), Essential Land Uses (e.g., schools) and Normal to High Risk Land uses (e.g., large apartments)) will potentially encounter levels of ground shaking that exceed the Uniform Building Code by factors of 2 to more than 5.

Such a level of shaking cannot be mitigated to a level of insignificance by any technical means known to humans. Moreover, there is a significant hazard from vertical ground acceleration that is not compensated for by current building codes, and also a large potential for amplification of such energy from even moderate earthquakes within valleys (such as San Jacinto) with thick sediment fill (Mueller, 1994; Seismic Safety Commission, 1995; USGS, 1996). Analysis of these hazards from recent earthquake events needs to be made in light of their constraints on planning within these types of seismic shaking zones.

2) Casa Loma fault

The Casa Loma fault strand of the San Jacinto fault zone has been depicted on previous Riverside County seismic hazard zone maps. It runs up the west side of San Jacinto Valley, almost to Highway 60.

The eastern Claremont strand of the San Jacinto fault zone and the companion parallel western Casa Loma strand are important, especially given that the Farm Road fault runs between them, thereby easing the potential propagation of ground rupture across the entire San Jacinto Valley (Park et al., 1995). This allows for a much larger earthquake event along this part of the San Jacinto fault zone.

Geologic consulting reports filed with both the County and the City of Moreno Valley for the recent gas pipeline project (Southern California Gas Pipeline No. 6900) and the Moreno Highlands Specific Plan must be analyzed for their information on the extent of this and related faults.

3) Farm Road fault

The Farm Road fault was recently discovered in the San Jacinto Valley by Park et al. (1995). Because this active fault runs medial to the major bounding faults of the San Jacinto fault zone, and because this fault runs under a major southwest U.S. natural gas transmission and compression plant located in that valley, analyses of its potential impact on ground rupture propagation and corresponding implications for public health and safety (such as gas line rupture and ignition) must be made.

4) Landslides on Gilman Springs Road

Morton and Sadler (1989) have documented the existence of an active, slowly-moving landslide along Gilman Springs Road in the San Jacinto Valley. This landslide is not shown on the draft seismic hazard maps.

Damage from this creeping landslide forces the frequent repair of this road by the County, and will continue to impact any plans for infrastructure (buildings, roadways, pipelines) along the west side of this valley. Its existence is a reflection of the chronic tectonic subsidence problem that plagues this valley (see next section).

In addition, Morton and Sadler (1989) document the existence of several older and possibly active landslides along Gilman Springs Road.

5) Subsidence and Liquefaction in San Jacinto Valley

The San Jacinto Valley is among the most seismically active of the major strike-slip fault zone valleys in southern California and has a strain rate of 20 mm per year, comparable to the San Andreas fault zone (WGCEP, 1988; Morton and Matti, 1993; Park et al., 1995).

The overproduction of groundwater from the valley's sediment fill causes the sediment aquifer layer to collapse and the valley floor to sink at a rate much faster than the normal tectonic subsidence. Morton (1977, 1992) has reviewed the data on the effects of groundwater withdrawal this century on the valley's overall subsidence, noting that the total land subsidence rate is an astounding 1-2 inches per year. Perhaps the most tangible example of the seriousness of this problem was the abandonment of an MWD dam in the valley in the 1960s, after it sank 2-3 feet (Morton, 1977).

In addition, numerous ground cracks and fissures up to a mile long, 5 feet wide and 80 feet deep have developed in the valley since the 1950s and have grown in length and number. Morton (2000) has just recently published a new geologic map of the ground fissure distribution.

These long-term geologic features are endemic to the valley and therefore cannot be mitigated to a level of insignificance by humans. They will place severe public safety constraints on any infrastructure (buildings, roadways, pipelines, dams) that may be planned for the valley.

6) Growing size of Mystic Lake

The extremely rapid rate of geologic deformation in the San Jacinto Valley has resulted in formation of a strike-slip "pull-apart basin" that has developed along parallel fault strands in the San Jacinto fault zone. Such basins or "holes" in the crystalline basement rock commonly become larger and deeper, developing into topographically low valleys along strike-slip fault zones that are rapidly filled in with sediment and water. Local examples include the Salton Sea (along the San Andreas fault zone) and Lake Elsinore (along the Elsinore fault zone). Mystic Lake is a similar example, forming at the "low spot" in the San Jacinto Valley because of this natural tectonic subsidence along the northern San Jacinto fault zone.

Normally the uninterrupted supply of stream and river sediment into such sinking valleys would nearly keep up with the rate of tectonic subsidence, so that even though the valley's underlying crystalline basement subsides, the growing thickness of infilling sediment acts to compensate for it. Over time, the valley surface would therefore remain at a low but relatively constant elevation. In the case of the San Jacinto Valley, however, two discretionary human activities are preventing this natural geologic compensation from taking place.

The first activity is groundwater withdrawal, as mentioned in the previous section above. The second activity is the non-regulated upstream diversion of the San Jacinto River from its natural

historic course into Mystic Lake (and out through the San Jacinto Wildlife Area). This diversion has cut off the main natural compensating supply of sediment into the subsiding basin and has increased the total land subsidence rate to a level well above that due to tectonic deformation and groundwater withdrawal.

In other words, the northern San Jacinto Valley already has a natural tendency to subside tectonically because of the geologic setting, but groundwater withdrawal and river diversion have exaggerated this tendency, leading quite expectedly to increased flooding problems. A major growing sinkhole is being created by the combination of tectonic deformation and human activities.

Because of these two human activities, Mystic Lake has become deeper and larger in area each time it has formed this century (Doug Morton, U.S.G.S., personal communication), and will continue to enlarge within the valley as long as the activities continue.

The only options to reverse this trend are to stop the diversion of the river and stop the excessive groundwater withdrawal, thus allowing the natural compensation for tectonic subsidence to take place. Planning for this part of the valley must take into consideration these issues and the chronic flooding problems that will occur there.

California's existing emergency response plan for a major earthquake

In 1993, the State of California made a major effort to plan for a major earthquake on the San Jacinto Fault zone (Toppozada et al., 1993). This massive study considered the impact of geology, soil, and human infrastructure on the resulting damage estimates and identifies specific areas of high risk, including areas subject to liquefaction in Riverside County. Impacts on transportation corridors and emergency response networks were also identified.

This major hazard analysis includes large areas covered by the draft Moreno Valley general plan and its data and conclusions must be integrated with the draft general plan. Schools, hospitals, high-density housing, major transportation corridors, and economically significant commercial development projects should not be slated for the areas depicted as high risk by this important State study.

This impact is made even more relevant by the important recent nationwide study by FEMA (2000), which identified the Riverside area as having the second highest potential for monetary damage from earthquakes in all of the United States. This safety and economic risk to Riverside exists because of the proximity of that City's costly development and infrastructure to major faults and sediments that are subject to shaking. The City of Moreno Valley could find itself in a similar position of risk as its development proceeds.

Geological Impacts on Economic Development

The impacts of geological features on the economic development and well-being of the City must be assessed by the general plan. The City cannot afford to allow overly ambitious development plans, and the assumed or promised tax revenues from those projects, to run into serious completion problems because of presently foreseeable geotechnical issues.

The most recent example of this type of planning problem (and consequent unrealized tax revenue) was the Moreno Highlands Specific Plan. The developer for this project suddenly

pulled out, one week after receiving their first soil and geologic trenching reports from their consultants. These trenches apparently identified serious geotechnical problems that would be associated with building out the project, such as active faulting and liquefaction. The amount and cost of geological engineering (e.g., major earthmoving and set-backs) that would be required to address these problems may have been a major impetus for their sudden withdrawal from the project. Both the developer and City were warned about these issues, but chose to ignore their significance. Any future development of the specific plan area will likely encounter similar problems.

Fault Hazards are *Not* The Same Everywhere

It is very common for non-geotechnical persons to assume that southern California is rife with active faults, and that earthquake and liquefaction hazards therefore must exist equally everywhere in the region. "Why should we be worried about earthquake hazards when they are everywhere in southern California?" I have often been asked. Nothing could be farther from the truth!

Such an easy, false philosophy about the pervasiveness of geotechnical hazards is dangerous. Time and again, in places like Loma Prieta, Mexico City, Landers, Northridge and Napa, we have seen that the combination of localized fault zones (with high shaking potential) and unstable (collapsible) soils and sediments can create death and costly damage during earthquakes (Seismic Safety Commission, 1995; USGS, 1996).

Specific localized zones of high risk do exist near major fault zones, and they can be mapped out when sufficient resources are applied to the issue. This is why Alquist-Priolo legislation exists in the first place, explicitly recognizing the importance of local geology and the mapping out of such hazards.

Moreno Valley is indeed unfortunate to exist virtually on top of a major earthquake fault zone and a major sediment-filled valley filled with very unstable soils and sediments. The economic future of the City will partly depend on wise and prudent recognition of this fact, and will benefit from smart planning for the consequences.

Thank you for considering my comments on the draft hazard map for the Moreno Valley General Plan. I ask that these comments be incorporated into the public record for review of this general plan, and hereby incorporate all references cited above and below (and their contained references) into the review process for this general plan. I also ask that I be kept informed in writing of all notices, meetings and actions regarding this general plan.

Sincerely,

Michael A. McKibben, Ph.D.
23296 Sonnet Drive
Moreno Valley, CA 92557

References Cited

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STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

Letter X

August 2, 2005

Cynthia Kinser
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92553

Subject: Moreno Valley General Plan Update
SCH#: 2000091075

Dear Cynthia Kinser:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on August 1, 2005, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

X-1

> "A responsible 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. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

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 the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

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

Document Details Report
State Clearinghouse Data Base

SCH# 2000091075
Project Title Moreno Valley General Plan Update
Lead Agency Moreno Valley, City of

Type EIR Draft EIR

Description The project is an update to the Moreno Valley General Plan - a comprehensive plan for the physical development of the City. It includes maps, goals, objectives, policies, and programs covering a range of topics, including, land use, circulation, safety, conservation, economic development, housing, noise, open space, and public facilities. Three potential land use map alternatives are analyzed in the DEIR. Alternative 1 is the existing General Plan. In comparison to Alternative 1, Alternative 2 includes less land for commercial and office uses to better match the demand for such uses, more land for multiple-family housing to promote a greater variety of housing opportunities and more land for business park/industrial uses to enhance local employment opportunities. Alternative 2 also includes changes to the circulation plan, including addition of a future freeway overpass at Graham Street and elimination of planned overpasses at Quincy Street and Sinclair Street. Alternative 3 would allow more low-density single-family housing (2 or fewer dwellings/acre), less office development, less business park development and less conventional (5 dwellings/acre) single-family housing than Alternative 2. Alternative 1 would create the highest level of environmental impact and Alternative 3 would generate the lowest level of impact.

Lead Agency Contact

Name Cynthia Kinser
Agency City of Moreno Valley
Phone (951) 413-3206 **Fax**
email
Address 14177 Frederick Street
City Moreno Valley **State** CA **Zip** 92553

Project Location

County Riverside
City Moreno Valley
Region
Cross Streets State Route 60 and Perris Boulevard
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways State Route 60, I-215
Airports March ARB
Railways BNSF
Waterways San Jacinto River
Schools Moreno Valley USD, Val Verde USD
Land Use A complete range of uses existing within the planning area and are planned for under the existing general plan and zoning designations.

Project Issues Agricultural Land; Air Quality; Cumulative Effects; Traffic/Circulation

Reviewing Agencies Resources Agency; Regional Water Quality Control Board, Region 8; Department of Parks and Recreation; Native American Heritage Commission; Department of Health Services; Department of Housing and Community Development; Office of Emergency Services; Department of Forestry and Fire Protection; Department of Fish and Game, Region 6; Department of Water Resources; California Highway Patrol; Caltrans, District 8; Caltrans, Division of Aeronautics; Department of Conservation

Date Received 06/16/2005 **Start of Review** 06/16/2005 **End of Review** 08/01/2005

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

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
Riverside Area
8118 Lincoln Avenue
Riverside, CA 92504
909-637-8000
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

Letter Y

July 21, 2005

File No.: 840.11513.11513

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814
Reference: SCH# 2000091075

Dear Sir or Madam:

This letter is in response to the Environmental Impact Report, City of Moreno Valley, General Plan, State Clearinghouse number 2000091705. A review of this plan revealed some of the traffic data used was obsolete and not current.

Y-1 Currently, State Route 60 through the proposed area is a six lane freeway (three lanes in each direction). In order to effectively handle the proposed increase in population growth State Route 60 would need to be widened to support ten lanes of traffic (five in each direction). A review of California Transportation Department's Average Daily Traffic (ADT) Counts for the Riverside Area revealed a 7.1% increase each year over the past three years for all interstate and state routes. This fact is not clearly indicated in the Impact Report.

The Riverside Area respectfully requests the State Clearinghouse consider these issues when reviewing this proposed project.

Please direct any questions to Lieutenant Rick Meier at (951) 637-8000.

F. J. MEIER, Lieutenant
Acting Commander

cc: Inland Division
Special Projects Section

RESPONSE TO LETTER A: SOUTHERN CALIFORNIA GAS COMPANY, JUNE 23, 2005

A1: Comment noted. The City understands that future projects will be provided service in accordance with the policies and extension rules on file with the California PUC and that because Gas Company facilities are in the area, extension of gas service to new developments would not, in itself, be expected to cause a significant effect on the environment. The issues raised by this comment letter do not change the overall analysis, conclusions, or mitigation requirements contained within the EIR. No change to the EIR is required as a result of this comment.

RESPONSE TO LETTER B: STATE OF CALIFORNIA HEALTH AND HUMAN SERVICES AGENCY DEPARTMENT OF HEALTH SERVICES, JUNE 28, 2005

B1: Comment noted. No specific plans to develop a new water supply well or make modifications to the existing domestic water treatment system is proposed at this time. The City understands that any amendments to the water system permit must be reviewed and approved by the CDHS Riverside District Office and that future developments may be subject to separate environmental review. The issues raised by this comment letter do not change the overall analysis, conclusions, or mitigation requirements contained within the EIR. No change to the EIR is required as a result of this comment.

RESPONSE TO LETTER C: MORONGO BAND OF MISSION INDIANS, AUGUST 16, 2005

C1: Mitigation Measure C1 will ensure that projects in areas with the potential for significant historic, prehistoric archaeological, and paleontological resources such as the areas identified in the reports as "prehistoric site complex" areas will be reviewed for impacts to these resources pursuant to the California Environmental Quality Act Guidelines. No change has been made to the project mitigation as a result of this comment.

C2: The referenced paragraph has been revised as follows:

Human occupation of Southern California may date as far back as 10,000 years. However, there is no evidence of human activity in the Moreno Valley region prior to about 2,300 years ago. By the time the Spanish began to explore California, descendents of the Shoshonean people, the Luiseño, held the territory that currently includes the Moreno Valley planning area. However, other groups such as the Serrano and Cahuilla were also in the area. The most important habitation sites in Moreno Valley and the western San Jacinto Valley were at Perris Reservoir.

This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

C3: The referenced paragraph has been revised as suggested. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

C4: The referenced paragraph has been revised as suggested. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

C5: The referenced paragraph has been revised as follows:

No known human remains were identified in the *Study of Historical and Archaeological Resources for the Revised General Plan* report prepared by Archaeological Associates. In accordance with State law, the County Coroner will be contacted if human remains are inadvertently discovered.

This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

C6: The referenced paragraph has been revised as suggested. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

C7: Please see Response C1.

C8: The City will remove Appendix F from publicly-available copies and will not post the appendix on the City's website. However, the report may be made available to other archeological consultants preparing archaeological reports for projects within the Planning Area as determined appropriate by the Planning Director.

RESPONSE TO LETTER D: FRIENDS OF THE NORTHERN SAN JACINTO VALLEY (LETTER 1), JULY 14, 2005

D1: The City respectfully disagrees with this comment. A development agreement remains on the property that protects the rights of the parties of the agreement from such things as the City changing the Specific Plan without the consent of the property owners. Although the State now owns 1,000 acres of the Moreno Highlands Specific Plan (MHSP) and it is unlikely that the land will be built upon, the City does not have the consent from all the parties of the development agreement to change the underlying land uses in the Specific Plan to reflect the MSHCP and the State's purchase. Therefore, the maps in the General Plan and EIR accurately reflect the currently approved Specific Plan for the area. Additionally, because the maps and analysis in the EIR reflect the area consistent with the land uses approved in the MHSP, the EIR provides a worst-case scenario analysis of impacts associated with development of the area. No change to the mapping or analysis in the General Plan EIR is required as a result of this comment. Should all parties of the development agreement consent to the change in land uses in the future, the City will pursue a General Plan Amendment (GPA) and appropriate environmental analysis of the GPA at that time.

D2: As described in Response D1 above, the EIR accurately reflects the land uses in the MSHP area that are identified in an approved Specific Plan and associated development agreement. Although the City agrees that it is unlikely that the area will ever be developed, the inclusion of the area as shown provides a worst-case scenario for the analysis of impacts. No change to the EIR is required and thus no new comment period will be provided.

RESPONSE TO LETTER E: SIERRA CLUB, SAN GORGONIO CHAPTER, JULY 15, 2005

E1: Please see Response D1 regarding the Moreno Highlands project. The general comment that the document must have been written four or five years ago cannot be adequately responded to because no specific examples are given. However, it should be noted that technical studies were prepared in late 2004 through 2005, and the document was largely written and completed in early 2005 to reflect the information and policies contained in the proposed public review Draft General Plan. Existing baseline data from 2000 is established in the EIR consistent with CEQA Guidelines Section 15125(a).

Additionally, although all maps within the document were provided on disk, hard copies of the EIR were also available at the City's Community and Economic Development Department and the Moreno Valley Branch Library. Both of these locations were noted on page 1-2 of the EIR.

E2: As described in Response E1, the Year 2000 was established as the existing baseline conditions consistent with CEQA Guidelines Section 15125(a). The information in Table 5.6-1 is still accurate today, and the Farm Road Fault is identified and discussed on page 5.6-4 of the EIR. As described by the California Geological Survey in Letter H, the California Geological Survey has not yet zoned the "Farm Road strand" as an active fault; therefore, it is not mapped as such on Figure 5.6-2. No change is required to the EIR as a result of this comment.

E3: Please see Response E1 above. No alternative has been approved by the City at this time; rather, this EIR analyzes three alternatives at an equal level of detail throughout the EIR and two additional alternatives in Section 6.0. Additionally, Section 5.2 analyzes traffic/circulation impacts of each of the three alternatives in detail.

E4: No revisions are required to the EIR based on the issues raised in this comment letter.

E5: Nothing in CEQA requires an EIR to analyze the environmental justice issues of a proposed project. However, the proposed General Plan includes policies and programs related to improving transit-oriented development, such that the Riverside Transit Agency (RTA) in its letter dated July 27, 2005 (Letter T) provided general support for the proposed General Plan and minor recommendations for elaborating on some of the policies and programs within the Plan. Sustainable development is a term that covers a variety of issue areas, often addressed on a more regional scale. However, the proposed General Plan includes a variety of programs for conserving and enhancing important resources

that in turn make development more sustainable. No change to the EIR is required as a result of this comment.

RESPONSE TO LETTER F: RIVERSIDE FLOOD CONTROL AND WATER CONSERVATION DISTRICT, JULY 18, 2005

F1: Comment noted. This introduction summarizes the contents and applicability of the proposed General Plan and no further response is required.

F2: The referenced paragraphs have been revised as follows to respond to Comment F2 and F3:

The Riverside County Flood Control and Water Conservation District (RCFCWCD) has prepared Master Drainage Plans for ~~all the cities~~ watershed areas in western Riverside County generally at the request of cities or in unincorporated areas where drainage infrastructure is necessary for existing or planned development. These documents analyze drainage flows and make recommendations for improvements. When fully implemented, MDP facilities will provide adequate drainage outlets and will relieve those areas within the MDP boundaries of the most serious flooding problems.

A flood control system has been constructed within much of Moreno Valley to direct runoff from developed areas and prevent flooding. Flood control deficiencies have been identified and improvements have been proposed in the Master Drainage Plans (West End, Sunnymead Area, Perris Valley and the Moreno Valley Master Drainage Plan). A master drainage plan has not been adopted for the area generally located east of Theodore Street.

These revisions do not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

F3: Please see Response F2 above.

F4: The referenced paragraph has been revised to clarify that the repair and maintenance program refers to RCFCWCD-owned facilities on an as-needed basis.

This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

F5: The reference to "a flood that might occur once in one-hundred years" has been deleted on Page 5.13-27. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

F6: Comment noted. The applicable language has been revised to indicate that development will not be precluded in this area but must coordinate with the District. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

F7: The applicable paragraph on page 5.13-27 has been revised as suggested. This revision does not change the overall analysis, conclusions, or mitigation requirements contained within the EIR.

F8: The extension of infrastructure associated with development allowed pursuant to the General Plan is assumed throughout the EIR at a program-level of analysis. The City agrees that future development projects within rights-of-way may require coordination with the District and/or an encroachment permit if within a District right-of-way. The appropriate CEQA analysis will also have to be part of the approval process associated with the extension of any future infrastructure project.

F9: Comment noted. The Santa Ana Watershed Project Authority and National Pollutant Discharge Elimination System programs are described on pages 5.7-9 and 5.7-10 of the EIR.

F10: Comment noted.

RESPONSE TO LETTER G: RIVERSIDE COUNTY TRANSPORTATION COMMISSION (RCTC), JULY 19, 2005

G1: As discussed in Section 5.2 of the DEIR, General Plan Land Use Alternatives 2 and 3 improve the balance of trip productions to attractions over the existing Circulation Element. This improved trip balance is the result of improved jobs to housing balance, and will result in reduction of total vehicular miles of travel on the state freeway system, inclusive of SR-60. In addition, the proposed Circulation Element promulgates the City's continued participation in a number of regional transportation programs intended to mitigate traffic impacts to the state freeway system. (Please see the proposed Circulation Element programs 5-10 through 5-13.) Consequently, implementation of General Plan Land Use Alternative 2 or 3 will result in a reduction in total number of future trips generated in the City, with consequent benefits to SR-60.

G2: The City of Moreno Valley General Plan Traffic Study (Traffic Study), contained in Volume II Appendix B of the DEIR, forecasts build-out Average Daily Traffic (ADT) on Theodore Street to be no higher 27,500 trips per day. This is the maximum build-out forecast for Theodore Street regardless of the General Plan Land Use Alternative assessed. The design capacity assumed for a Minor Arterial in high employment areas and areas in the vicinity of SR-60 is 22,250-33,750 ADT; and the ultimate design capacity for a Minor Arterial, assuming LOS "E", is 25,000-37,500 ADT. Consequently, a designation of Minor Arterial is considered appropriate for projected ultimate conditions on Theodore Street. As noted in Response G1, the proposed General Plan is expected to result in fewer trips on SR-60.

G3: The proposed Circulation Element promotes convenient, safe and efficient bus and rail transportation systems. Major bus and rail programs addressed through the proposed Circulation Element include: the RTA public bus service; the Transit Oasis, which has been promoted as part of the RCIP; and future commuter rail along the RCTC rail line located west of Moreno Valley, parallel to I-215. The City is an active participant in each of these regionally sponsored programs, each of which are expected to reduce SOV use. Quantification of potential SOV use reductions are not included in the Traffic Study forecasts, noted in response to comment #2, above. However, it is realistic to expect that successful implementation of these transit programs could result in less vehicle trips than projected in the Traffic Study.

As of 2004, a Transit Center in the vicinity west of I-215 and south of Alessandro Boulevard has been the focus of March Joint Powers Authority; however, this does not preclude consideration of alternative Transit Center locations.

The proposed Circulation Element contains two goals. Goal 1 focuses on vehicular circulation, and Goal 2 focuses on alternatives to single occupant

vehicular travel. In support of Goal 2, the proposed Circulation Element promulgates programs 5-10, 5-14 and 5-15, which promote regional activities that support SOV use reduction.

G4: The DEIR states that RCTC owns the rail line located west of Moreno Valley, parallel to I-215. RCTC is requesting that this rail line be referred to as the San Jacinto Branch Line (SJBL), which currently provides Burlington, Northern & Santa Fe (BNSF) freight service to the region. RCTC also requests that the commuter rail serving the future Alessandro Blvd. train station be identified as the Metrolink Perris Valley Line (PVL). This additional information provided by RCTC is incorporated herein as part of the EIR. This revision does not substantially change the overall analysis, impact conclusions, or mitigation requirements of the EIR.

G5: As discussed in the DEIR, the combined effect of the City's proposed land use and transportation polices would be to reduce traffic volumes on most freeway and major arterial facilities within the City of Moreno Valley. Although regional growth and traffic may result in future traffic increases along SR-60 and I-215, the proposed General Plan will result in a reduction in total number of trips generated in the City, which consequently benefits to SR-60 and I-215. In addition, pursuant to Section 15130(a)(3) of the CEQA Guidelines, a project's contribution to traffic is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The City has in place the TUMF and DIF, which establish a fair share contribution for new development in order to facilitate build-out of the planned circulation systems. Consequently, cumulative impacts related to the project are less than considerable, and no mitigation is necessary.

Mitigation TR-1, which as RCTC notes supports implementation of signalization, lane widening, turning lanes and channelization, is proposed to provide congestion relief on City arterials; it is not offered as mitigation for future highway traffic or cumulative impacts. As discussed in the DEIR, the proposed General Plan will not result in significant adverse impacts to highways or significant adverse cumulative impacts. Consequently, no mitigation measures are required to address highway or cumulative impacts.

G6: The proposed Circulation Element includes 21 programs that support its goals to improve vehicular circulation and reduce SOV use. Through these programs, the proposed Circulation Element supports preservation of corridors and locations for future roadways and transit facilities.

G7: Mitigation TR-1 offers a comprehensive program of studies and improvement measures expected to reduce impacts to local roadway levels of service. However, although this mitigation measure is expected to improve local roadway levels of

service, it is not known at this time if these improvements would reduce all local arterial traffic capacity deficiencies to less than significant levels. Consequently, the DEIR concludes that project impacts to local roadway levels of service would be considered significant after mitigation. No other feasible mitigation measures relative to local roadway levels of service have been identified. Regarding other traffic and circulation issues addressed in the DEIR, no mitigation measures were found to be warranted.

RESPONSE TO LETTER H: DEPARTMENT OF CONSERVATION CALIFORNIA GEOLOGICAL SURVEY, JULY 29, 2005

H1: Responses to the detailed comments provided in this comment letter are provided below.

H2: In preparation of the City's General Plan Safety Element and Geology/Soils section of the EIR, staff researched numerous studies regarding geology and seismicity in the region and within Moreno Valley. Four of these reports are noted in the references portion of Section 5.6 of the EIR. The City feels the detail provided in the General Plan and EIR is adequate to allow for future project-specific review of development and mitigation of geologic and seismic hazards in the community. Additionally, the commenter's letter is now part of the Final EIR and thus readily available for future reference by the staff and the public. The information provided in CGS Special Publication 102 is thus noted and will be made available for staff use in the processing of future projects.

H3: According to the commenter in H1, this comment letter addresses the General Plan and not the EIR. Therefore it is unclear to which map or graphical errors the commenter is referring because the Safety Element does not contain a geologic map, per se. The Seismic Hazards Map provided in the General Plan illustrates faults zoned by the CGS. The CGS Recommendations also address the General Plan and not the content or adequacy of the EIR and no further response is required. The bibliography provided by the commenter is part of the Final EIR, and thus readily available to staff and the public.

H4: It is not clear if this comment addresses the General Plan or EIR. The EIR includes Figure 5.6-1, which illustrates the Planning Area geology, and supportive text on page 5.6-3 describing the geologic and soils characteristics.

H5: The Draft EIR describes the potential earthquake scenarios for Moreno Valley along the San Jacinto, Elsinore, and San Andreas faults and assesses the impacts associated with soil and slope stability, subsidence, fault rupture, groundshaking and liquefaction. The impacts associated with soil and slope stability, fault rupture, and groundshaking are considered significant in the EIR. Two mitigation measures are provided to address these significant impacts, one of which requires geologic studies to be performed during the review of future development projects. None of the information provided in this comment letter (hereby incorporated into the Final EIR by reference) substantially changes the significance conclusions or mitigation requirements for geologic and seismic hazards associated with the proposed project.

H6: This comment does not specifically address the content or adequacy of the EIR and no further response is required. However, references to the Alquist Priolo Earthquake Special Studies Zones will be corrected as suggested. The Farm Road

Fault, which has not been officially zoned by the CGS, is not currently mapped in the General Plan. Studies are ongoing regarding this fault and should this fault be zoned by CGS, it will be added to the General Plan map through a General Plan Amendment. The impacts of any such amendment would be assessed at the time the General Plan Amendment is proposed.

H7: Although the City has seen no evidence of liquefaction events occurring in the community nor has any geotechnical report recently submitted to the City identified liquefaction hazards, the Riverside County General Plan does identify a range of liquefaction susceptibility in Moreno Valley ranging from very low with deep groundwater in the northern and eastern portions of the community to very high with shallow groundwater generally west of Perris Boulevard. Because of this conflicting information, the City has decided be conservative and incorporate the County's liquefaction data into the City's General Plan and identify potential risks associated with liquefaction in Section 5.6 of the EIR. The City Engineer routinely requires project proponents to evaluate the potential for land settlement when conducting foundation investigations, which would address this potential impact. Additionally, as suggested by the commenter, the City has modified Mitigation Measure GS1 and Policy 6.1.1 of the General Plan as follows:

> **GS1.** The City shall reduce the fault rupture and liquefaction hazards through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. During the review of future development projects, the City shall require geologic studies and mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act. Additionally, future geotechnical studies shall contain calculations for seismic settlement on all alluvial sites identified as having high or very high liquefaction potential. Should the calculations show a potential for liquefaction, appropriate mitigation shall be identified and implemented. (**Policy 6.1.1**).

The revisions to the analysis of the EIR and the proposed mitigation will reduce any potential liquefaction hazards to a level less than significant. It should also be noted that the area subject to high and very high liquefaction potential according to the County's mapping is largely developed, and the new General Plan policies and land uses will not affect this existing development. Additionally, although new non-residential development may occur in the vacant lands in this area, no new residential development is expected in this area. Therefore, potential impacts to new homes and residents will not occur.

H8: This comment does not address the content or adequacy of the EIR and no further response is required.

H9: The EIR indicated that a portion of the Planning Area has experienced subsidence in the past. However, the area is located within the San Jacinto Wildlife Area or within the designated floodplain, where the risk of injury or loss of life due to subsidence is considered low.

H10: This comment does not address the content or adequacy of the EIR and no further response is required.

H11: This comment does not address the content or adequacy of the EIR and no further response is required.

H12: This comment does not address the content or adequacy of the EIR and no further response is required.

H13: This comment does not address the content or adequacy of the EIR and no further response is required.

H14: This comment does not address the content or adequacy of the EIR and no further response is required.

RESPONSE TO LETTER I: CENTER FOR BIOLOGICAL DIVERSITY, AUGUST 1, 2005

I1: Comment noted. For a response to the specific issues raised in this letter, please see responses I1 through I24.

I2: Comment noted. As described in more detail in the responses below, the City disagrees that the EIR is inadequate to meet either the procedural or substantive mandates of CEQA. For responses to the specific issues raised in this letter, please see the responses below.

I3: The DEIR analyzes a reasonable range of alternatives including three land use alternatives analyzed at an equal level of detail throughout the EIR and two additional alternatives presented and discussed in Section 6.0 Alternatives. The three alternatives analyzed throughout the EIR address the same land area because the General Plan establishes policies and land use designations for lands within the probable long-term physical boundaries of the City, including all lands within its current jurisdictional limits and its existing sphere of influence.

In addition to the alternative land use development scenarios proposed by the three alternatives analyzed throughout the EIR, two additional alternatives were developed. The Increased Preservation of Agricultural Land alternative would result in fewer acres being developed for urban uses, while the Reduced Density Alternative would result in approximately 10 percent fewer homes and population in Moreno Valley yet the same amount of land disturbed for urban development. The EIR does not reject the Increased Preservation of Agricultural Lands alternative for any reason, yet simply notes that the alternative would not reduce any of the project impacts to a level less than significant, nor would it achieve all project goals to the same degree as the preferred alternatives.

Additionally, the EIR found that regional traffic impacts would likely be greater because development may occur in less remote areas if less land is made available for development within Moreno Valley. With the abundance of vacant land in the region, it is likely that developers would prefer large expanses of vacant land to infill parcels, which are more likely to be smaller and more expensive to develop. Therefore, the reasoning within the EIR is sound with regards to this issue.

The EIR does not make any claims with regard to urban sprawl. The Moreno Valley General Plan establishes land use designations consistent with the biological protection goals of the MSHCP and does not propose urban uses within the MSHCP preserve areas. The direct and indirect impacts of new development, including residential and non-residential development located adjacent to preserve areas were analyzed in Section 5.9 Biological Resources of the EIR. The mitigation proposed, including compliance with the MSHCP will reduce these

potentially significant impacts to biological resources to a level less than significant.

Riverside County, including even many of its more urbanized areas, is still actively farmed. Because of this, the EIR addresses impacts to agricultural resources. As described in the EIR, the loss of farmlands as a result of urban development is a significant impact that cannot be fully mitigated at either the project or cumulative level. Should the City Council wish to approve the project and certify the EIR, they will have to adopt a Statement of Overriding Considerations to address this significant and unavoidable impact.

I4: The EIR does not reject the Increased Preservation of Agricultural Lands alternative for any reason, yet simply notes that the alternative would not reduce any of the project impacts to a level less than significant, nor would it achieve all project goals to the same degree as the preferred alternatives. Although not analyzed at an equal level of detail to the three primary alternatives analyzed in the EIR, Section 6.2 provides a full analysis of this alternative in accordance with CEQA. The Council is still free to consider this alternative during the public hearings for the project.

I5: Pages 5.9-32, 5.9-62, 5.9-63, 5.9-87 and 5.9-88 of the EIR identify the conservation goals for the San Jacinto Wildlife Area (SJWA), potential impacts, and mitigation measures for impacts to the SJWA. The EIR concludes that direct impacts would be limited in this area under each of the three Alternatives since a large portion of this area is designated Floodplain or is in State of California Department of Fish and Game ownership and will be maintained in its natural state. Indirect impacts (such as increased lighting, traffic, water runoff, noise, and predatory domestic animals) to sensitive resources are also analyzed in the EIR. As described in the EIR, the MSHCP includes guidelines to reduce the effects of development along the urban/wildlands interface. Due to the biological value of the San Jacinto Core Reserve, MHSCP § 6.1.4, Guidelines Pertaining to the Urban/Wildlands Interface, would apply to any development proposed adjacent to the reserve and would provide protection to the reserve from indirect effects. Implementation of the MSHCP and the proposed mitigation will reduce potential impacts to the SJWA to a level less than significant for each of the alternatives. Because the MSHCP and proposed mitigation adequately addresses this impact, no alternative is required to reduce this impact to a level less than significant.

I6: The EIR identifies significant and unavoidable impacts to traffic, air quality, and agricultural resources, not to loss of open space, fragmentation and loss of natural habitats, or water resource availability. Nothing in the General Plan precludes clustered development of the type suggested by the commenter. Additionally, the General Plan proposes higher density housing around transit hubs and along transit routes. The proposed General Plan also includes policies and programs related to improving transit-oriented development, such that the Riverside Transit

Agency (RTA) in its letter dated July 27, 2005 (Letter T) provided general support for the proposed General Plan and minor recommendations for elaborating on some of the policies and programs within the Plan.

I7: First, the analysis in the EIR provides a comparison of the existing conditions at the time of the issuance of the NOP pursuant to CEQA Guidelines Section 15125(a) to the future conditions associated with each of the General Plan land use alternatives. The air quality analysis is adequate as presented.

In regard to the biological assessment, the EIR's biological resources analysis was compiled using known or potential occurrence of species as determined by existing information, field surveys, and predictions of occurrence based on suitable habitat presence and species range. Experts were consulted where a lack of species-specific information existed. The commenter is generally accurate when they state that the DEIR is not based on species-specific surveys for threatened, endangered, and sensitive plants. However, some field surveys were conducted and the methodology employed for the assessment is typical of a program level biological assessment. Furthermore, extensive efforts were put into collecting information for the development of the MSHCP and that data contributed to the EIR. It would not be practicable to attempt site-specific data collection for the entire study area, nor would that data effectively change the conclusions of the EIR as the General Plan Update as all subsequent discretionary projects within the study area would still be subject to the MSHCP. The United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) concurred with the development of the MSHCP, the MSHCP plan has been through the CEQA review and approval process, and an implementing agreement has been approved; thus, reliance upon the MSHCP's biological data, supplemented with additional site specific data should not be considered a faulted approach. Perhaps most importantly, site-specific data collection is required as part of the MSHCP review and compliance process.

The development application review process requires that development applications be submitted to the City of Moreno Valley (City). The City's planning staff must determine whether the project is consistent with the MSHCP. Any proposed discretionary project must comply with the MSHCP § 6.1.2, measures to protect species associated with riparian/riverine areas and vernal pools; § 6.1.3 protection of narrow endemic plant species; and any additional survey requirements outlined in § 6.3.2. Additionally, indirect effects of projects on the MSHCP Conservation Area shall be addressed per MSHCP § 6.1.4, Guidelines Pertaining to the Urban/Wildlands Interface. For any instance where the MSHCP was deemed to have insufficient information to consider a covered species "adequately conserved", additional data collection is required, specifically habitat suitability assessments. The general development application review process outlined in the MSHCP, has been deemed adequate to allow for take under the plan and provides a sound basis for ensuring adequate future

conservation under the proposed Moreno Valley General Plan Update, as the General Plan policies and EIR mitigation require future development to comply with the MSHCP.

I8: The proposed project is the adoption and implementation of the updated General Plan. No other specific project, development, or activity is proposed at this time. Despite this, the EIR rightfully examines the expected "secondary" effects of adoption of the new plan policies and land use designations, namely the level and type of development that could potentially occur within the planning area by buildout. As an information document, the EIR provides a program-level analysis of impacts to all environmental issue areas required by CEQA. Volume I of the EIR provides more than 400 pages of text (100 pages on biological resources alone), over 60 tables, and about 30 figures analyzing existing and future conditions associated with buildout of the General Plan. Because it is unclear exactly where and when development will occur, site specific analysis is not feasible nor particularly telling at this level of analysis. For these reasons, the EIR is adequate as a program-level disclosure and information document. Because the commenter does not identify any particular issues that are deficient, no more specific response can be provided.

I9: As stated previously, the USFWS and CDFG concurred with the development of the MSHCP, the MSHCP plan has been through the CEQA review and approval process, and an implementing agreement has been approved; thus, reliance upon the MSHCP's biological data, supplemented with additional site specific data should not be considered a faulted approach for a program level review. The comments state that "the MSHCP itself requires site-specific analyses of impacts-the very analyses that this EIR is attempting to direct back to the MSHCP" and goes on to state that this ensures that "no meaningful analysis of the impacts…will ever be conducted". However, nothing in the proposed General Plan Update proposes specific development at this time. In fact, when specific development is proposed, the City will require all projects to comply with the MSHCP compliance, which in turn would require site-specific surveys. As stated within the comment, "the analysis of environmental impacts in the MSHCP was programmatic, and as such the implementation of the MSHCP does not eliminate the requirement under CEQA to conduct and disclose project-level, species specific analyses in an EIR"; similarly, the General Plan Update analysis is programmatic and does not eliminate the requirement under CEQA to conduct and disclose project-level, species specific analyses, on the contrary, it relies upon this. Relying upon the approved and adopted MHSCP is no different than relying upon compliance with existing federal, state, or local regulations to ensure that future, project-specific impacts are assessed and mitigated accordingly, an approach frequently used and accepted in the compilation of CEQA documents.

Also, see response to I-12.

I10: Please see response I9 above.

I11: As previously stated, nothing in the General Plan proposes site specific development at this time. Because it is unclear exactly where and when development will occur, site specific analysis is not feasible nor particularly telling at this level of analysis. Site specific design and mitigation measures for biological resources consistent with the MSHCP will occur at the time specific projects are brought forward. The MSHCP has been designed to achieve regional preservation goals and compliance with the MSHCP will ensure important plant and animal species, including wildlife corridors, are protected. The general development application review process outlined in the MSHCP, has been deemed adequate to allow for take under the plan and provides a sound basis for ensuring adequate future conservation under the proposed Moreno Valley General Plan Update, as the General Plan policies and EIR mitigation require future development to comply with the MSHCP.

I12: As previously stated, nothing in the General Plan proposes site specific development at this time. Because it is unclear exactly where and when development will occur, site specific quantitative analysis is not feasible nor particularly telling at this level of analysis.

Please see response I5 for a discussion of impacts to the San Jacinto Wildlife Area Core Reserve. Like the San Jacinto Wildlife Area, impacts and mitigation measures associated with the Badlands are also discussed throughout section 5.9 Biological Resources of the EIR.

The suggested mitigation measures are repetitive of existing state, local, and federal regulations as well as mitigation goals found within the MSHCP. Because it is unclear exactly where and when development will occur, identifying site specific design requirements and mitigation is not feasible nor particularly telling at this level of analysis. Site specific design requirements and mitigation measures for biological resources consistent with the MSHCP will occur at the time specific projects are brought forward. The general development application review process outlined in the MSHCP, has been deemed adequate to allow for take under the plan and provides a sound basis for ensuring adequate future conservation under the proposed Moreno Valley General Plan Update, as the General Plan policies and EIR mitigation require future development to comply with the MSHCP.

I13: This comment again addresses the lack of site specific, quantitative impact analysis. Volume I of the EIR provides more than 400 pages of text (100 pages on biological resources alone), over 60 tables, and about 30 figures analyzing existing and future conditions associated with buildout of the General Plan. Because it is unclear exactly where and when development will occur, site

specific analysis is not feasible nor particularly telling at this level of analysis. For these reasons, the EIR is adequate as a program-level disclosure and information document.

I14: This comment again addresses the lack of site specific, quantitative impact analysis. Volume I of the EIR provides more than 400 pages of text (100 pages on biological resources alone), over 60 tables, and about 30 figures analyzing existing (baseline) and future conditions associated with buildout of the General Plan. As previously discussed in the above responses to comments, the nature of the proposed project (update/alteration of land use designations), does not allow for any type of quantitative analysis as there are no assurances that subsequent development will take place at an accurately predictable rate or pattern. Therefore, it is required that subsequent projects perform site-specific analysis to ensure that development remains consistent with the MSHCP goals and policies and does not result in take of uncovered sensitive species. The general development application review process outlined in the MSHCP, has been deemed adequate to allow for take under the plan and provides a sound basis for ensuring adequate future conservation of the identified species as the General Plan policies and EIR mitigation require future development to comply with the MSHCP.

Additional portions of this comment were addressed previously under I-12.

I15: As previously discussed in the above responses to comments, the nature of the proposed project (update/alteration of land use designations), does not allow for any type of quantitative analysis as there are no assurances that subsequent development will take place at an accurately predictable rate or pattern. Potential pollutants and runoff impacts vary greatly depending upon the specific type of development proposed, grading required, materials used, etc. None of these factors is known for any particular parcel at this time. Because of this, the City requires that future development projects be reviewed pursuant to CEQA and conform to the City's permit requirements at the time specific projects are brought forward. The commenter is correct in stating that nothing in NPDES provides an exemption from CEQA. Accordingly, all discretionary projects will be reviewed pursuant to CEQA.

I16: Impacts to surface water resources, including drainages and wetlands and their associated plant and animal species, are analyzed both in Section 5.7 Hydrology/Water Quality and 5.9 Biological Resources. Mitigation required in both sections (HW1, HW3, B2, and B4) will reduce potential water quality impacts to a level less than significant. Impacts to groundwater recharge levels and quality are analyzed in Section 5.7 Hydrology/Water Quality. Mitigation Measures HW1 and HW3 will reduce potential groundwater impacts to a level less than significant.

I17: The commenter sites requirements for specific development projects. As previously noted, no specific development is proposed at this time. However, water supply was analyzed in Section 5.13 of the EIR and estimated assumptions for future water demand were given. As described in Section 5.13, future water supplies (including projected demand from the General Plan) should be considered adequate to meet demand. No agency identified an uncertainty for water supply for the area and the City works with the water agencies to conserve water and expand the use of reclaimed water and other acceptable sources of irrigation water.

I18: Impacts associated with Hazardous Air Pollutants (HAPs) are more appropriately analyzed at the project level because they vary greatly depending upon type of use and location with respect to sensitive receptors. Analyzing potential impacts associated with HAPs is infeasible at this level because no specific development project, operational, or construction activity is proposed at this time.

The most relevant health effects of the analyzed air pollutants are summarized in pages 5.3-4 and 5.3-5 as well as discussed throughout Section 5.3. Impacts to sensitive receptors are described on page 5.3-16. Ten mitigation measures are proposed to reduce impacts; however, due to the regional nature of air quality impacts, a significant unavoidable impact was identified as remaining.

I19: The EIR states on page 5.3-16 that " . . .implementation of the General Plan could violate the existing federal, state, and local air quality standard and conflict with the SCAQMD Air Quality Management Plan or SCAG Growth Management Plan." As also stated in the EIR, the City will continue to implement state-mandated air quality regulations, as well as SCAQMD Air Quality Management Plan (AQMP) regulations such as Rule 403. However, as also stated in the EIR, combined emissions from Moreno Valley and surrounding areas are expected to continue to exceed state and federal standards even with continued implementation of the AQMP. This was considered a significant and unavoidable regional air quality impact to which the project contributes.

I20: SCAQMD acknowledges (slightly) O_3 and nitrogen deposition effects on plants and agriculture in their latest air quality guidance handbook. Although high concentrations of O_3 and nitrogen deposition can have negative effects on plants and ecosystem, nitrogen deposition is a regional concern that is being studied by regional, state, and federal air pollution agencies and is not a local issue that the General Plan could have any substantial effect on. No information has been provided by the commenter nor has the City discovered in any research, that nitrogen deposition has any negative effect on human health.

I21: In addition to existing laws and regulations applicable to development in the planning area, the EIR identifies ten mitigation measures addressing operational, vehicular, and construction-related emissions. Seven mitigation measures (AQ7

through AQ10) specifically address reducing vehicular emissions, only three of which are more policy-oriented language supporting transportation and transit improvements region-wide. The City's development review process ensures projects comply with existing laws and regulations as well as specific design and mitigation measures at the time specific projects are proposed. However, because the local and regional impacts of new growth cannot be reduced to a level less than significant, the EIR identified a significant and unavoidable impact to air quality at a project level and in the cumulative scenario. The comment regarding impacts to water quality and supply are discussed in responses I15 through I17 above.

I22: The EIR analyzes air quality impacts to criteria pollutants in light of the cumulative setting and identifies the long-term air quality impact as significant and unavoidable due to cumulative effects in combination with air emissions within the South Coast Air Quality Basin as a whole. This analysis is presented in section 5.3 and 7.1 of the EIR. Please also see responses I18 through I21 above.

I23: As described in the responses above, the commenter has provided no substantial evidence that the EIR is "basically inadequate and conclusory in nature". Because of this, no new information is required to be added to the EIR that meets any of the criteria identified in CEQA Guidelines Section 15088.5. No recirculation of the EIR is required.

I24: For the reasons described in the responses to comments above, the City respectfully disagrees with the commenter's assertions and thus no revised Draft EIR will be issued.

RESPONSE TO LETTER J: FRIENDS OF THE NORTHERN SAN JACINTO VALLEY (LETTER 2), AUGUST 1, 2005

J1: As stated on pages 5.8-6 and 5.8-9 of the EIR, no land within the Planning area is currently under a Williamson Act contract.

J2: The proposed General Plan and the land use alternatives analyzed in the EIR reflect the appropriate City designation based on the existing land use. No change to the General Plan or EIR analysis is required as a result of this comment.

J3: The impacts of the proposed Circulation Plan, including future improvements to the circulation system, are evaluated in the EIR. As described in Section 5.1, no circulation element roadway is anticipated to divide an established community. Potential impacts to residents as a result of the proposed circulation system are mostly associated with air quality and noise, which are addressed in Sections 5.3 and 5.4 of the EIR, respectively. Upon its completion, Pigeon Pass Road and all other connectors to the Bi-County Corridor will meet or exceed all applicable safety standards; the additional traffic will not directly reduce safety. To maintain safety, the City maintains a crossing guard system, supplemented by school-zone signing and markings to notify drivers to use caution.

J4: As described in the EIR, all new development allowed under the General Plan will be required to provide parkland or fees equal to three acres per 1,000 residents, which is consistent with the Quimby Act. The City is unsure of which 40-acre park the commenter is referring so no response is possible.

J5: The traffic study was completed in late 2004 with the traffic analysis in the EIR completed in June 2005, not 2000. The 2000 data identified in Tables 5.2-5.2-2 and 5.2-3 establish the existing conditions, which is consistent with the timing of circulation of the Notice of Preparation for the project, and thus consistent with the intent of CEQA Guidelines Section 15125(a).

J6: This comment does not address the content or adequacy of the EIR and no further response is required. However, the City will comply with State regulations with regard to SB 221, SB610, and AB901 for water supply assessments.

J7: No issues raised within this comment letter provide substantial evidence that the EIR is inaccurate or invalid.

RESPONSE TO LETTER K: SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG), JULY 27, 2005

K1: Comment noted. The City will notify SCAG of the Final EIR.

RESPONSE TO LETTER L: STATE OF CALIFORNIA DEPARTMENT OF FISH AND GAME, EASTERN SIERRA-INLAND DESERTS REGION, AUGUST 1, 2005

L1: Comment noted. Responses to the agency's detailed comments are found below.

L2: Comment noted. This comment accurately represents the MSHCP and EIR contents.

L3: The City as a signatory to the MSHCP will comply with the mitigation requirements and obligations as detailed in the MSHCP and the Implementing Agreement. As noted by the commenter in L5, the City's specific responsibilities are detailed in the section of the Implementing Agreement entitled Permittees' Take Authorization and Obligations. There is no need to duplicate these requirements as they are already listed in a publicly available document.

L4: The requested information is documented in the MSHCP and need not be repeated in this EIR to gain a proper understanding of the project's potential impacts and mitigation requirements. The noted agencies will work together to reduce impacts to sensitive species in accordance with the signatory take authorization and obligations identified in the Implementing Agreement to the MSHCP. Ultimate responsibility will fall to the lead agency as determined through the project process.

L5: Please see response L3 above.

L6: Please see response D1 explaining the development agreement that exists on this property. Notwithstanding that agreement and the perceived inconsistency, text on page 5.9-88 the EIR clearly states that the "land use designation is just a technicality. The SJWA is operated by CDFG for wildlife conservation purposes and Moreno Valley does not have jurisdiction over the area. It would not be subject to development, regardless of the designations or road alignments shown on the Moreno Valley General Plan. Therefore, none of the proposed land use alternatives would have a direct effect on the SJWA".

L7: It is the intent of the City not to duplicate mitigation measures and all measures included in the EIR will be implemented through the Mitigation and Monitoring and Reporting Program (MMRP) adopted by the City. However, the Hydrology/Water Quality section of the EIR will be revised to include reference to Mitigation Measure B4. Please also see L3 above.

RESPONSE TO LETTER M: GERALD M. BUDLONG (LETTER 1), JULY 27, 2005

M1: Comment noted. Please also see response to Letter N.

M2: Comment noted.

M3: Comment noted. This comment does not address the content or adequacy of the City's General Plan or EIR and no further response is required.

M4: Comment noted. This comment does not address the content or adequacy of the City's General Plan or EIR and no further response is required.

M5: This area is designated primarily for Rural Residential with some land designated Commercial as well. Although these designations were clear in the Biological Resources Report in Volume II of the EIR, the land use maps in Volume I will be revised to more clearly distinguish between the designations.

M6: Elimination of the corridor is not anticipated under the proposed DEIR as any subsequent development would be required to comply with the MSHCP, which specifically addresses the corridor described in comments M-2 and M-3 (as Core H and Proposed Core 3) and requires conservation within the appropriate sub unit, cell group, and cell to ensure assembly of the Proposed Core 3 and connectivity to Core H. It is a goal of the MSHCP to avoid creating biological islands; thus, compliance with the plan should avoid such an impact.

RESPONSE TO LETTER N: GERALD M. BUDLONG (LETTER 2), AUGUST 1, 2005

N1: Comment noted. Please see Responses N2 through N21 for detailed responses to these comments.

N2: The sphere of influence (SOI) boundary shown in the General Plan and EIR represents the proposed SOI for the planning period of the General Plan. There are no plans to extend the SOI boundary as far east as Laborde Canyon at this time. Should the SOI be extended in the future, the proposed boundary adjustment would have to undergo separate environmental review pursuant to the California Environmental Quality Act (CEQA) during which time the hazards associated with extending development into any new areas would be analyzed.

N3: This comment does not address the content or adequacy of the EIR. Since the area in question was developed prior to the analysis of the proposed General Plan, it is considered part of the existing setting and is not under the purview of this EIR analysis.

N4: The EIR recognizes that dam inundation is a potential flood hazard throughout several portions of the planning area, however the potential for significant damage to occur as a result of dam failure is remote. As described in the EIR on page 5.5-6 and illustrated on Figure 5.5-2, even with instantaneous failure of Lake Perris Dam with the reservoir at or near capacity, only a very small area south of Nandina Avenue along the Perris Valley Storm Drain and the Mystic Lake area would be subject to dam inundation. This area is proposed primarily for non-residential development by each of the three Land Use Alternatives.

Consistent with the commenter's findings, according to the Division of Dam Safety website, "the Department of Water Resources (DWR), with support from expert consultants, has identified potential seismic safety risks in a section of the foundation of Perris Dam. **There is no imminent threat to life or property** [emphasis DWR's]**.** However, in the interest of ensuring the maximum public safety for those using and living downstream of the lake, the state has determined that it is necessary to lower the water level while additional analysis is performed.

The reservoir level will be lowered over a period of several weeks. When completed, reservoir water storage will be reduced by about 42% (approximately 52,362 acre-feet) and surface reservoir area will be reduced by about 18% (410 acres)." (downloaded by P&D Consultants August 15, 2005) With the lowering of the reservoir, the area subject to inundation will be further reduced during the study period. Once the findings of the studies are known, additional studies could be required to obtain further information about the identified deficiencies or the state may directly proceed to develop repair alternatives. In either case, DWR will be working closely with other involved agencies, including Metropolitan Water

District of Southern California, the California Department of Parks and Recreation, Department of Fish and Game, and the Department of Boating and Waterways, on the appropriate next steps." (Source: Lake Perris and Perris Dam Fact Sheet 2005, California Department of Water Resources downloaded by P&D Consultants August 15, 2005).

Additionally, as further described on page 5.5-4 of the EIR, the City of Moreno Valley is required by Section 8589.5 of the California Government Code to have in place emergency procedures for the evacuation and control of populated areas within the limits of inundation below dams. In addition, real estate disclosure upon sale or transfer of property in the inundation area is required under AB 1195 Chapter 65 passed on June 9, 1998. These existing regulations and City of Moreno Valley policies reduce the potential for significant dam failure flood hazards to a level less than significant.

N5: This map has been modified accordingly. This modification does not change the analysis or conclusions of the EIR.

N6: The stated figure is being update to reflect the conditions cited by the commenter. This modification will not increase any impacts identified in the EIR. In fact less of an area will now be identified as potentially subject to high fire hazards than was identified in the FEIR. Additionally, fiscal effects of the proposed project need not be analyzed in an environmental impact report.

N7: The City will consider the new AICUZ Report when adopted by the Air Force. Any changes to the Plan resulting from the newly adopted AICUZ Report would have to be processed through a General Plan Amendment with the appropriate level of environmental review at that time.

N8: The figure has been revised and is included in the Final EIR. However, this change does not affect the overall analysis, impact conclusions, or mitigation requirements identified in the EIR.

N9: Comment noted. The City proposes land use designations in these areas that include open space or non-residential uses.

N10: All faults currently zoned as active by the California Geological Survey (CGS) (see Letter H) have been identified and analyzed in the General Plan and EIR. The Farm Road Fault, which has not been officially zoned by the CGS, is not currently mapped in the General Plan. Studies are ongoing regarding this fault and should this fault be zoned by CGS, it will be added to the General Plan map through a General Plan Amendment. The impacts of any such amendment would be assessed at the time the General Plan Amendment is proposed.

N11: All faults currently zoned as active by the California Geological Survey (CGS) (see Letter H) have been identified and analyzed in the General Plan and EIR. The Box Springs Fault, has not been officially zoned by the CGS.

N12: The references to eliminating the Casa Loma Fault are unclear as the General Plan and DEIR discuss the Casa Loma Fault (a strand or branch of the San Jacinto Fault), and no references to the fault being "dead" or "eliminated" are contained within either of the city's Draft documents. The County's General Plan eliminates the Casa Loma Fault and Reche Canyon Faults from their maps of Moreno Valley due to lack of evidence. Similarly, these faults have been excluded from the City's exhibits of active faults.

N13: Please see Response N12.

N14: Please see Response N12. Further, the City has not seen or been provided any written evidence by a qualified geologist that the Casa Loma fault does extend beyond the Earthquake Fault Zone.

N15: Please see Response N12.

N16: Please see Responses N4 and N5 above.

N17: Comment noted. This correction has been made to the Final EIR.

N18: Comment noted. Figure 5.7-2 will be revised accordingly. The proposed revision to the basin map does not affect the overall analysis, impact conclusions, or mitigation requirements identified in the EIR.

N19: Copies of these documents were distributed to these agencies and no comment was received from either one.

N20: The shaded areas in Figure 5.11-1, including the northern end of the Planning Area illustrate the dominant scenic resources in or visible to the community. Although they are not specifically identified, Reche Peak and Olive Hill are within the areas shaded on Figure 5.11-1 and generally discussed on page 5.11-1.

N21: Page 5.11-1 discusses the important scenic resource of the San Bernardino and San Gabriel Mountains, including the fact that "winter snows on the mountains often offer a striking view". No change to the General Plan or EIR is proposed in response to this comment.

RESPONSE TO LETTER O: SAN BERNARDINO VALLEY AUDUBON SOCIETY, JULY 27, 2005

O1: Please see Response D1. The direct and indirect impacts to sensitive biological resources and wildlife corridors in the Planning Area are based on the worst-case development scenario presented in the EIR. Future transportation upgrades ultimately will be determined by need based on future specific development projects as they are proposed, not solely based on existing modeled data. As future development and transportation projects are proposed, the impacts of these projects, including direct and indirect impacts to biological resources will be assessed pursuant to CEQA. Additionally, future projects within the Planning Area must comply with the mitigation requirements established by the MSHCP, which provides for buffering of significant biological resources, where appropriate.

O2: All faults currently zoned as active by the California Geological Survey (CGS) (see Letter H) have been identified and analyzed in the General Plan and EIR. The Farm Road Fault, which has not been officially zoned by the CGS, is not currently mapped in the General Plan. Studies are ongoing regarding this fault and should this fault be zoned by CGS, it will be added to the General Plan map through a General Plan Amendment. The impacts of any such amendment would be assessed at the time the General Plan Amendment is proposed.

O3: Pages 5.9-32, 5.9-62, 5.9-63, 5.9-87 and 5.9-88 of the EIR identify the conservation goals for the San Jacinto Wildlife Area (SJWA), potential impacts and mitigation measures for impacts to the SJWA. The EIR concludes that direct impacts would be limited in this area under each of the three Alternatives since a large portion of this area is designated Floodplain or is in State of California Department of Fish and Game ownership and will be maintained in its natural state. Indirect impacts (such as increased lighting, traffic, water runoff, noise, and predatory domestic animals) to sensitive resources are also analyzed in the EIR. Also, as described in the EIR, the MSHCP includes guidelines to reduce the effects of development along the urban/wildlands interface. Implementation of the MSHCP and the proposed mitigation will reduce potential impacts to the SJWA to a level less than significant.

Because the San Timoteo State Park and Lake Perris are outside of the Planning Area, the proposed General Plan does not propose any uses adjacent to these areas.

O4: As explained in Responses O1 through O3 above, nothing in this comment letter provides substantial evidence that the EIR is outdated or incomplete and no revision to this EIR is proposed as a result of this comment letter.

RESPONSE TO LETTER P: STATE OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION, INLAND EMPIRE DISTRICT, AUGUST 1, 2005

P1: Please see Comment N6 in response to the fire hazards figure.

Figure 5.7-1 is not intended to illustrate potential sources of drainage, although Lake Perris is identified on the figure and in the text. The text on page 5.7-1 will be revised to explicitly state that Lake Perris is a potential source of drainage waters flowing to developed areas. This change does not affect the overall analysis, impact conclusions, or mitigation requirements identified in the EIR.

RESPONSE TO LETTER Q: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SANTA ANA REGION, JULY 29, 2005

Q1: The "Environmental Setting" section of the Section 5.7 describes the RWQCB's Basin Plan and Beneficial uses of the project affected watersheds and groundwater basins. A discussion of the RWQCB's Basin Plan and the federal and State antidegradation policies have been added to the "Existing Regulations" section of Section 5.7. Additionally, the impact analysis has been revised slightly to explicitly state the project's potential for impacts associated with the water quality objectives and beneficial uses as defined in the Basin Plan. None of the information added changes any of the impact conclusions or mitigation proposed as the City actively complies with the requirements of the Basin Plan and other applicable State and federal requirements.

Q2: General storm water flows and the City's major drainage facilities are illustrated in Figure 5.7-1. Because no specific development projects are proposed and the and the amount and location of grading to occur is unknown at this time, no more specific drainage plan can be shown. However, please note that mitigation measure HW2 requires the City's storm drain system to conform to the Riverside County Flood Control and Water Conservation District master drainage plans and the requirements of the Federal Emergency Management Agency. This measure will assure the City continues to work to provide an adequate drainage system in the City.

Q3: Mitigation Measure HW3 requires the City to comply with the provisions of its permits issued by the RWQCB for the protection of water quality pursuant to the National Pollutant Discharge Elimination System. This includes permit no. CAS618033. Additionally, as the commenter notes, the DEIR describes the NPDES/MS4 program on pages 5.7-9 and 5.7-10. The water quality impact discussion on page 5.7-11 has been revised to explicitly indicate that implementation of Mitigation Measure HW3 will be a crucial part of the city's participation in local municipal compliance with the Board's pending TMDL for nutrients and pathogens entering Canyon Lake. The project's potential impact to Canyon Lake was previously identified in the DEIR. This comment confirms that the NPDES permits, including the MS4 permit are the primary tools to address potential impacts to surface water quality, including Canyon Lake. This revision does not change the analysis, potential impact or mitigation requirements of the EIR.

Q4: Mitigation Measure HW1 requires the City to implement NPDES Best Management Practices relating to construction of roadways. Pursuant to the provisions of its permits issued by the RWQCB (Mitigation Measure HW1), all future development and significant redevelopment in the Planning Area will be required to implement non-point sources pollution control measures. The analysis on page 5.7-11 has been revised to clarify that BMPS are required both during

construction and for the life of the project. During the city's review of project BMPs and when determined appropriate, the City will encourage BMPs that use the principles of low impact development.

Q5: This comment does not address the content or adequacy of the EIR and no further response is required. However, during the development review process, the City advises applicants of the need to comply with the noted permit programs. The city also has several pages of its website devoted to storm water pollution prevention and the NPDES.

Q6: The City feels that the DEIR is not the appropriate location for detailed guidelines or requirements for holding ponds and constructing wetlands as requirements for these may change over time. During the review of future development projects, the City will comply and ensure applicant compliance with the MS4 permit requirements and recommendations for holding ponds and constructed wetlands, including minimum detention times.

Q7: The City will preserve and protect native vegetation in compliance with the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and associated state and federal permits (Mitigation Measure B2). Mitigation Measure B3 also requires projects, where feasible, to minimize impacts on sensitive habitat. During the review of development and construction projects, the City will consider, where appropriate, carrying roadways or pipelines over ravines, arroyos and slope drainages, rather than through them.

Q8: The City will preserve and protect native vegetation in compliance with the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and associated state and federal permits (Mitigation Measure B2). Mitigation Measure B3 also requires projects, where feasible, to minimize impacts on sensitive habitat, including native vegetation.

Q9: The City's practice is to support the connection or conversion of existing septic systems to sewer when sewer systems are available. Where groundwater subbasins are identified appropriate disposal systems for waste disposal are evaluated.

RESPONSE TO LETTER R: CITY OF RIVERSIDE, JULY 27, 2005

R1: A substantial portion of the Box Springs Mountain Park is designated as Open Space under each of the three alternatives, with the remainder proposed for Hillside Residential. As described in *Chapter 9 Goals and Objectives* of the General Plan, the Hillside Residential category is intended for low density residential development with a maximum density of one dwelling unit per acre. The intent of the designation is to minimize grading in areas with slopes greater than 10 percent. The City feels the current designations are appropriate for the Box Springs Mountain area and no changes to the land use map are proposed in response to this comment.

R2: These comments do not address the content or adequacy of the EIR and the mitigation identified in the EIR is adequate to address the program-level impacts identified. No change to the General Plan or EIR has been made as a result of this comment.

R3: Comment noted. Please refer to Response N7.

RESPONSE TO LETTER S: SIERRA CLUB, SAN GORGONIO CHAPTER (LETTER 2), JULY 25, 2005

S1: It is not clear which ideas and suggestions are referred to by the commenter; therefore, it is not possible to respond in detail to this comment. However, the responses to the NOP were reviewed during preparation of the General Plan and EIR and taken into consideration where appropriate.

S2: It is not clear how the commenter determined that cumulative impacts from adjacent jurisdictions were not included in the EIR analysis. Consistent with CEQA and the program-level nature of the EIR, cumulative impacts from regional growth were accounted for using the regional growth projections method and SCAG forecasts for the region consistent with the 2004 Regional transportation Plan (RTP). The City's traffic model assumes build-out of land near Moreno Valley's limits in accordance with Riverside County and SCAG (Southern California Association of Governments) land-use assumptions; thus, cumulative traffic impacts are accounted for. Growth-inducing impacts of the proposed project are analyzed in section 7.2 of the EIR and were determined significant to areas surrounding the Planning Area.

S3: Potential hazards such as toxic plumes are heavily regulated by several federal, State, and regional agencies and are the responsibility of the hazardous waste generator. Development pursuant to the General Plan will not increase any hazards associated with toxic plumes at March Air Reserve Base. All contaminated wells on and off-base have been closed since 1988 and a groundwater containment system has been installed to prevent off-site groundwater migration. The removal of abandoned underground storage tanks and contaminated soil was completed by the Air Force in 1992. (Source: EPA Website, Region 9, updated February 2, 2005, downloaded by P&D Consultants August 16, 2005). Additionally, with the base realignment and use of only a portion of the site for ongoing reserve activities, ongoing hazards associated with the Reserve Base are further reduced.

S4: The mapping and analysis provided in the EIR is accurate based on currently zoned faults. As described on page 5.6-4 of the EIR, it has been speculated that the Casa Loma Strand might extend northwest of the Alquist Priolo Fault Zone, but geologic studies completed to-date have been unable to show that the fault extends beyond the zone. Additionally, the Farm Road Fault is identified and discussed on page 5.6-4 of the EIR. As described by the California Geological Survey in Letter H, the California Geological Survey has not yet zoned the "Farm Road strand" as an active fault; therefore, it is not mapped as such on Figure 5.6-2. The alternative land use maps identify the uses considered appropriate along Gilman Springs Road within the City's Planning Area. As stated on page 5.6-4 of the EIR, existing state law and city regulations and practices require most development applications within the Alquist-Priolo Zone to include geologic

reports addressing potential surface rupture due to faulting. No structure for human occupancy is permitted to be placed across the trace of an active fault, nor generally within 50 feet of any active fault trace.

No change is required to the EIR as a result of this comment.

S5: State Route 60 is a regional transportation facility; the City controls neither the timing nor the scope of improvements to it. However, city policy is to advocate funding and completion of improvements that enhance connections between Moreno Valley and points west.

S6: Figure 5.4-1 illustrates noise contours associated with aircraft activity at the March Air Reserve Base ARB. The noise contours take into account all aircraft activity at the ARB.

S7: The analysis of single-event noise is not required by CEQA and the noise contours shown reflect a realistic average exposure to noise levels in the Planning Area. Additionally, each of the General Plan land use alternatives proposes either open space or non-habitable Business Park uses within and adjacent to the ARB Noise Impact Area. No homes are proposed within the direct flight path of the ARB.

S8: This comment does not address the content or adequacy of the EIR and no further response is required. However, Eucalyptus Avenue is planned to provide such a connection (Gilman Springs to Eucalyptus to Redlands).

S9: The General Plan does not propose any buildings specifically, but would allow limited Hillside Residential development in the vicinity of the proposed tunnel. The tunnel would be outside Moreno Valley's city limits and would not be planned, designed, or constructed by the City of Moreno Valley. The environmental impacts of the proposed tunnel will have to be evaluated by the agency responsible for constructing the tunnel at the time a specific alignment is chosen and plans for the tunnel move forward.

S10: If constructed, the Bi-County Corridor would skirt the western city limits and tunnel under Box Springs Mountain. It would possibly connect to Pigeon Pass Road and Reche Canyon Road. More information is available from the Riverside County Integrated Plan website (www.rcip.org) or by contacting the Riverside County Transportation and Land Management Agency at (951) 955-1800. As described in Section 5.1, no circulation element roadway is anticipated to divide an established community.

By State law, trucks cannot be prohibited from using the Bi-County Corridor and its connecting facilities, by state law.

The additional traffic would not directly reduce safety near schools. To maintain safety, the City manages a crossing guard program, supplemented by school-zone signing and markings to notify drivers to use caution.

The impacts of the proposed Circulation Plan, including future improvements to the circulation system, are evaluated in the EIR. Potential impacts to residents as a result of the proposed Circulation system are mostly associated with air quality and noise, which are addressed in Sections 5.3 and 5.4 of the EIR, respectively.

S11: The mapping information provides is based on the U.S. EPA Envirofacts database and is meant to show the approximate location of hazardous materials sites. The text on page 5.5-1 describes the number and types of businesses that this may entail. The intent is not to call out one specific business or address out of the 40 or so identified in the EIR.

S12: Figure 5.5-2 of the EIR shows all potential dam inundation areas in the Planning Area. Moreno Valley is not subject to inundation from the Lake Hemet Dam.

S13: This comment does not address the content or adequacy of the EIR. However, a majority of 100-year and 500-year flood plain areas are either designated as Floodplain, Open Space, very low density residential (rural residential categories) or for non-residential development such as Commercial and Business Park. Any development allowed in these areas must comply with existing programs to reduce flood hazards.

S14: It is unclear to where in the EIR or General Plan the commenter is referring as no concrete lined channels are proposed by the project. Because this comment does not address the content or adequacy of the EIR, no further response is required.

S15: The MSHCP determined the appropriate boundaries of the SJWA based on the number and limit of sensitive resources in the area. Surrounding areas and additional areas need not also be kept free from development. As shown in Table 5.9-6, indirect impacts to the San Jacinto Wildlife Area will be limited to field and croplands, which are not generally considered sensitive resources. Also, mitigation for all direct and indirect impacts of future development will be required as described on page 5.9-90 of the EIR. Compliance with the MSHCP and associated State and federal permit requirements will largely ensure protection of the resources identified.

S16: Impacts to viewsheds and scenic resources are analyzed in Section 5.11 Aesthetics. This section recognizes that new development has the potential to impact these resources. Mitigation Measures A1 through A6 are proposed to reduce potential impacts to these resources to a level less than significant.

S17: Regional modeling efforts and the transportation analysis performed for the General Plan and EIR indicated the need for Moreno Beach Boulevard south of the SR-60 as a primarily a 6-lane Divided Major Arterial and north of the SR-60 as a four-lane Arterial. The DEIR has evaluated the impacts of this roadway as such. Riverside County's Circulation Element includes Reche Canyon Road as a Mountain Arterial (which can be two-lane or four-lane). Moreno Beach Drive is intended as a four-lane facility north of State Route 60 to provide a connection to Reche Canyon Road.

S18: Alessandro and Cactus are necessary east-west routes through the City. The Circulation Plan shown on Figure 5.2-1 and in the General Plan show that Alessandro runs north of the SJWA and Cactus loops north at Redlands Boulevard before it hits the western boundary of the SJWA. Neither of these roadways are proposed to pass through the SJWA.

S19: The Moreno Valley Traffic Model predicts acceptable level of service for Nason Street as a four-lane facility between Fir Avenue and Alessandro Boulevard with completion of the preferred land-use plan. Nason Street is planned for six lanes between Alessandro Boulevard and Cactus Avenue, near the hospital.

S20: It is unclear what the commenter means by ". . .Tables 5.2-9 and 5.2-10 must reflect the actual LOS." The City establishes an LOS C or an LOS D as acceptable depending upon roadway type and location. LOS D is commonly established as the acceptable criteria for more urban areas and heavier traveled roadways. As described in Section 5.2, LOS D is applicable to intersections and roadway segments that are adjacent to freeway on/off ramps, and/or adjacent to employment generating land uses. LOS C is applicable to all other intersections and roadway segments. Boundary intersections are assumed to be LOS D.

Tables 5.2-9 and 5.2-10 reflect the roadway design capacities for LOS C and LOS D and the projected volumes and volume to capacity (V/C) ratios, indicating that several roadway segments will exceed the City's LOS standards based on the proposed roadway type and overall circulation plan. It is also not correct to state that LOS D-F requires two to three cycles to pass through an intersection, although it can generally be stated that the worse the LOS, the longer the wait. Additionally, the commenter is generally correct in stating that Alternative 3 is the less intense land use alternative, as shown in Tables 5.2-11 and 5.2-12.

Level of Service 'D' is described by the Transportation Research Board's *Highway Capacity Manual* (2000 Ed.) as follows: 'At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

S21: The requested analysis has not been performed because it would not reflect any potentially "real" conditions in the City. Signals are synchronized such that one would not be stopped at every signal and no route is expected to experience failing (level of service D, E, or F depending upon roadway)for the entire length of the roadway within the Planning Area. No revision to the traffic analysis has been made as a result of this comment. Additionally, the City's level of service standard is "C" except under certain conditions (near freeway interchanges and in high-employment centers).

S22: It is not clear in which way the commenter believes the Plan conflicts with the stated regional plans. However, it should be noted that regional plans and projections such as the SCAQMD AQMP and SCAG Growth Management Plan generally incorporate planning data from a jurisdiction's adopted plans. In this case, the most recent regional plans and projections would have reflected the adopted General Plan (or Alternative 1). Because the project proposes changing the land uses from the adopted General Plan, the proposed land uses and accompanying population assumptions would likely vary from the assumptions for Moreno Valley that are reflected in the SCAQMD and SCAG plans. This is not uncommon when new General Plans are proposed and regional agencies are often updating their plans and projections to reflect such new information.

S23: No specific concern regarding the data is identified by the commenter. The analysis provides a comparison of the existing conditions at the time of the issuance of the NOP pursuant to CEQA Guidelines Section 15125(a) to the future conditions associated with each of the General Plan land use alternatives. The air quality analysis is adequate as presented.

S24: Comment noted.

S25: The impacts of PM 10 and 2.5, including impacts on children and the elderly are identified in Table 5.3-4. The EIR includes 10 mitigation measures intended to address and minimize air quality impacts, including those associated with PM 10 and 2.5. No additional mitigation has been identified by the commenter to further reduce PM 10 and 2.5 impacts.

S26: This comment does not address the content or adequacy of the EIR.

S27: Please see Response D1.

S28: Please see Response D1.

S29: These items are provided as Appendices to this letter for the public record. The letter dated July 15, 2005 has been responded to as Letter E above. The appendices to this Letter S do not raise any issues that have not already been responded to herein or in Letter E.

S30: Nothing raised in this comment letter provides substantial evidence that the DEIR needs to be revised to be considered adequate.

Additionally, although all maps within the document were provided on disk, hard copies of the EIR were also available at the City's Community and Economic Development Department and the Moreno Valley Branch Library. Both of these locations were noted on page 1-2 of the EIR.

The City will keep the Sierra Club notified of actions related to the General Plan and will make hard copies of the Final document available to the public.

RESPONSE TO LETTER T: RIVERSIDE TRANSIT AGENCY, JULY 27, 2005

T1: Comment noted.

T2: This comment does not address the content or adequacy of the EIR and no further response is required. However, Policy 5.8.1, advocates express-bus service, supports deployment of Bus Rapid Transit in Moreno Valley.

T3: Comment noted. The City looks forward to continuing to work with RTA to improve transit service in Moreno Valley.

T4: This comment does not address the content or adequacy of the EIR. The Plan generally provides a twenty year blueprint for growth, although actual buildout according to the proposed land uses will not likely occur within the next twenty year period and perhaps not until about 2050.

Comments T5 through T19 below generally address the content of the General Plan and not the content or adequacy of the EIR. The responses below are provided as a courtesy in response to RTA's review of the General Plan. Nothing in the responses below require the addition of significant new information to the EIR.

T5: A route-by-route map would not suit the purposes of the General Plan document, as bus routes are added, changed, and removed regularly; and thus such a map would quickly be out-of-date. Further, the General Plan is a city policy document, and including such a map may imply the City maintains approval authority over transit lines.

T6: The proposed BRT route alignment should be discussed with City of Moreno Valley staff prior to planning for deployment. Day Street is unimproved between Cottonwood Avenue and Alessandro Boulevard and may not be suitable for BRT buses; specifically, it may be deficient in roadway width, vertical alignment, and/or structural cross-section. Therefore, it is inappropriate to discuss the routing of this line in the General Plan at this time.

T7: In accordance with Policy 5.8.1, Moreno Valley will support reserving future right-of-way for BRT stations. Specific station locations should be proposed to the City and accepted prior to reserving right-of-way.

T8: Policy 5.8.1 serves to support deployment of said BRT-related design features.

T9: This comment does not address the content or adequacy of the EIR and no further response is required. However, please note that Paragraph 5.7.4 in the General Plan Traffic Study appendix is identical to Policy 5.8.1.

T10: An entitlement application for modifications to the Moreno Valley Mall is currently under review; as part of the work, the mall will undertake the transit center relocation as described in the comment. City staff and the project applicant will coordinate the transit center relocation with the RTA. Since this work is still pending, no specific discussion is recommended for inclusion in the General Plan or EIR.

T11: The City will support transit deployment in accordance with all policies under Objective 5.8 (encourage development of an efficient public transportation system for the entire community).

T12: Comment noted.

T13: The General Plan and EIR have been modified to provide this additional clarification. This clarification does not change the analysis, mitigation requirements or conclusions of the EIR.

T14: The General Plan and EIR have been modified to provide this additional clarification. This clarification does not change the analysis, mitigation requirements or conclusions of the EIR.

T15: The City's proposed land-use plan does not include provisions for substantial, dedicated transit centers; however, the City will continue to consider their inclusion as part of larger developments in accordance with policies 5.8.4 and 5.8.5. Also, Section 5.2.4.1 of the General Plan has been edited to specifically define the relationship between a Transit Oasis and commuter transit facilities. It is our understanding, based on reviewing the RCIP documents, that the term 'Transit Oasis' refers to a feeder system of buses rather than a dedicated land use. The revised text reflects this understanding. This change does not affect the analysis, mitigation, or conclusions of the Draft EIR.

T16: Comment noted.

T17: Comment noted.

T18: Comment noted.

T19: RTA's recommended policy is noted. This comment does not address the content or adequacy of the EIR.

T20: Comment noted. The City looks forward to continuing to work with RTA to improve transit service for residents of Moreno Valley.

RESPONSE TO LETTER U: PETE AND ARLENE WEAVER, JULY 27, 2005

U1: Comment noted. The City acknowledges the commenter's general support for Alternative #2, which was analyzed in detail in the Draft EIR. Because this comment does not address the content or adequacy of the EIR, no further response is required.

RESPONSE TO LETTER V: MARGIE BREITKREUZ, JULY 27, 2005

V1: Comment noted. The City acknowledges the commenter's general support for Alternative #3, which was analyzed in detail in the Draft EIR. Because this comment does not address the content or adequacy of the EIR, no further response is required.

V2: This comment does not address the content or adequacy of the EIR, and no further response is required. The area between Moreno Beach Drive and Quincy Street, and between Ironwood and Locust Avenues is partially improved with ½ acre lots and is currently zoned RA2 (Residential Agriculture – 2 dwelling units per acre); this zone permits animal keeping. The General Plan will not impact the animal keeping provisions. The area north of Locust Avenue is proposed to be changed from R2 (2 dwelling units per acre) to R1 (1 dwelling unit per acre).

V3: This comment does not address the content or adequacy of the EIR, and no further response is required.

V4: Please see Response S17.

V5: The Sinclair Street overcrossing of State Route 60 is proposed for removal from the City's Circulation Element primarily because the proposed land-use plan anticipates less commercial and industrial land use (and therefore less traffic) around Sinclair Street than the currently adopted plan. This resulted in the removal recommendation for two reasons: First, were it to be constructed, the traffic model predicts little vehicular traffic would use it (even upon build-out of the City); and second, its elimination is not predicted to cause adjacent facilities (both overcrossings and intersections) to operate below the City's level of service standard. The traffic model that was used to analyze the Circulation Element is closely tied to the proposed land uses, as is required by state law.

V6: This comment addresses Zoning regulations and not the General Plan or General Plan DEIR and no further response is required.

V7: This comment identifies several policy recommendations for the General Plan that if included by the City will not worsen any environmental impacts analyzed in the EIR. The City will consider the proposed recommendations and incorporate the recommendations into the Plan where appropriate and where not already covered by similar policy language. The City will also provide the following policy within the General Plan: Future development in hillside areas shall occur in a manner that will maintain natural open space areas, protect significant landforms and other natural resources, protect views from existing development, retain opportunities for views from development sites, preserve and enhance vistas from public places, and minimize the extent and occurrence of erosion and other potential hazards of development in areas of steep topography.

RESPONSE TO LETTER W: MICHAEL A. MCKIBBEN, PH.D., JULY 28, 2005

W1: The City regrets that the commenter did not receive direct notice of the draft EIR's availability; however, a Notice of Availability was published in The Press Enterprise on June 17, 2005 and copies of the document were provided at the public library and at City Hall. Since no specific extension period was requested and the commenter was clearly able to provide formal written comments a few days prior to the end of the 45-day public review period, no formal extension has been granted by the agency.

W2: Comment noted. The Seismic Hazards map identified in the EIR illustrates all faults currently zoned as active by the California Geological Survey (CGS) (see Letter H). The Farm Road Fault, which has not been officially zoned by the CGS, is not currently mapped in the General Plan. Studies are ongoing regarding this fault and should this fault be zoned by CGS, it will be added to the General Plan map through a General Plan Amendment. The impacts of any such amendment would be assessed at the time the General Plan Amendment is proposed.

W3: Please see Response W2 above.

W4: The EIR identified the potential for subsidence in the Planning Area; however, the area is located within the San Jacinto Wildlife area or within the floodplain where the risk of injury and loss of life is minimal. Please see response H7 regarding liquefaction potential in the Planning Area.

W5: Comment noted. Evidence of subsidence and shallow groundwater were both noted as existing conditions in the Planning Area.

W6: The language used in the EIR was not meant to imply doubt. The term "reportedly" was used because we were referring to a fact reported by another in a specifically footnoted comment (commenter's own letter dated September 28, 2000). The term used does not change the conclusions in the EIR regarding hazards associated with landslides.

W7: As described in Section 5.6 of the EIR, future development in the Planning Area will be subject to geologic studies and mitigation for seismic hazards in accordance with the Alquist Priolo Earthquake Fault Zoning Act and the UBC. Based on the Threshold of Significance established in the EIR, these existing laws will reduce the exposure of people or structures to *unacceptable risks* of major geologic, seismic or soils hazards that could not be overcome by using reasonable construction and/or maintenance practices to a level less than significant. In other words, with implementation of the assumed mitigation, the level of risk in the Planning Area is not expected to be "unacceptable", therefore, the impact is less than significant. Although it is recognized within the EIR that these measures

cannot provide 100 percent protection against seismic damage, the remaining risk is not "unacceptable". Please also see Response W8 in regard to ground shaking.

W8: The three pages of ground motion data provided by CGS in their comment Letter H (see Comment H5) is hereby incorporated by reference into the Final EIR. This information does not change the significance conclusions or proposed mitigation in the EIR. Please also see Response W7 above.

W9: Not all references contained within an EIR need to be provided as appendices to the report. In instances where small portions of a larger report were used as reference materials, a simple bibliography of the note or reference is provided. This is the case with the references in question.

W10: Please see Response W7 above.

W11: Please see Response W7 above.

W12: Comment noted.

RESPONSE TO LETTER X: STATE OF CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, AUGUST 2, 2005

X1: This letter acknowledges that the DEIR complied with the State Clearinghouse review requirements for draft environmental documents. No further response is required.

RESPONSE TO LETTER Y: DEPARTMENT OF CALIFORNIA HIGHWAY PATROL, RIVERSIDE AREA, JULY 21, 2005

Y1: The analysis used to plan the City's circulation system assumes State Route 60 would be a 10-lane facility at build-out. This facility is under the purview of other agencies and thus not discussed in great detail in the City's planning document beyond how it affects the City's land use and planning efforts.