

City of Redlands High Fire Hazard Zone

San Bernardino County Fire Safety Overlay Districts FR-1 Fire Safety Review Area 1.

San Bernardino County Fire Safety Overlay Districts FR-2 Fire Safety Review Area 2.

(Map depicts districts/zones within Planning Area only.)

Source: Redlands Fire Dept., May 1998, San Bernardino County Hazard Overlay Mapping

Redlands Planning Area
GP Figure 8.1

Conceptual Fire Hazard Area

SMITH, PERONI & FOX
BLAVNEY, DYETT, GREENBERG
ESRI

- 8.30g** All projects proposed in areas that are at risk from wildfire shall adhere to requirements under Redlands Fire Department Prevention Standard "Fire Safety Modification, Zones 1 and 2".

The "Fire Safety Modification Standard" was updated by the Redlands Fire Department in May of 1995. This standard is subject to periodic review and update by the Redlands Fire Department.

8.40 Drainage and Flooding

The primary purpose of major flood control projects to be constructed in or near the Planning Area is to protect development to the west. However, Redlands' vulnerability to raging Santa Ana River and Mill Creek Zanja flood waters was demonstrated by the destructive floods of 1862, 1938, and 1969. Since then, numerous improvements have reduced hazards to lives and property. Additional flood improvements underway in 1991 include the Seven Oaks Dam (located to the northeast of the Planning Area, on the Santa Ana River), Mill Creek levee renovation, and final design of San Timoteo Canyon channel and debris basins.

The potential severity of flooding events requires careful long-range planning, and balancing uses. Growing environmental consciousness has led to a new understanding of the types of flood control measures appropriate to Southern California. Costs of an unmitigated disaster must be weighed against costs of land, construction, and maintenance, and balanced with long-range environmental concerns, such as groundwater recharge and habitat preservation. Flood and drainageways also have regional significance as areas of mineral resources (Section 7.40) and recreational uses (Section 7.10).

Guiding Policies: Drainage and Flooding

- 8.40a** Protect lives and property and ensure that structures proposed for sites located on flood plains subject to the 100-year flood are provided adequate protection from floods.

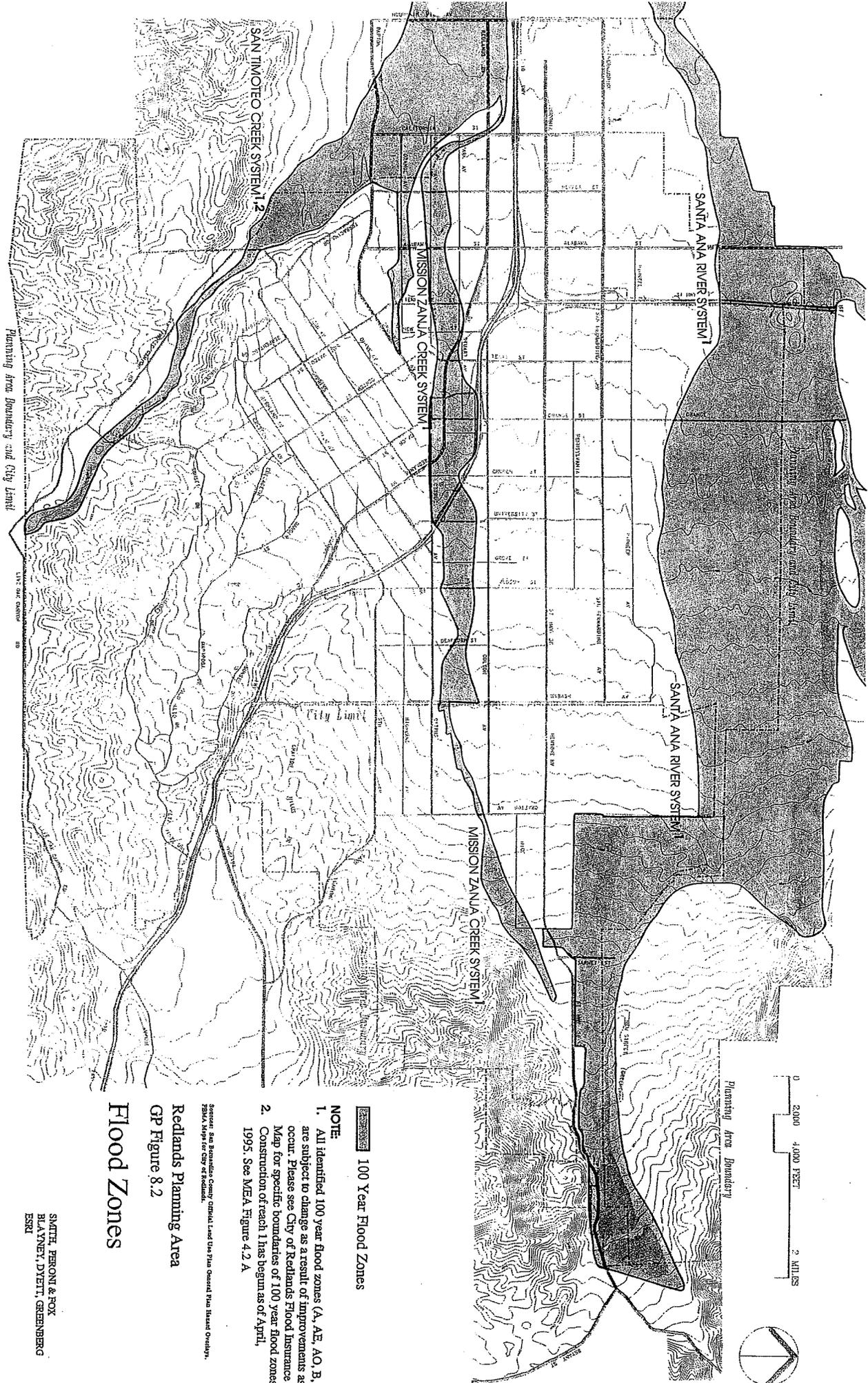
100-year flood boundaries are shown on GP Figure 8.2. Common methods of floodproofing an existing structure include constructing a small, encircling levee or floodwall, elevating the structure, or sealing it for watertightness.

- 8.40b** Preserve as open space those areas which cannot be mitigated for flood hazard.

Acceptable types of uses for flood prone areas classified as part of the Flood Plain District under Section 31.60 of the Redlands Zoning Ordinance include flood-control related uses, various types of agricultural uses, wildlife or habitat preserves and, with a conditional use permit, mineral resource excavation and removal, recreation and park areas, and parking lots.

- 8.40c** Support a multi-use concept of flood plains, flood-related facilities, and waterways, including, where appropriate, the following uses:

- ▶ flood control
- ▶ groundwater recharge
- ▶ mineral extraction
- ▶ open space
- ▶ nature study
- ▶ habitat preservation
- ▶ pedestrian, equestrian, and bicycle circulation
- ▶ outdoor sports and recreation.



100 Year Flood Zones

- NOTE:**
1. All identified 100 year flood zones (A, AE, AO, B, X) are subject to change as a result of improvements as they occur. Please see City of Redlands Flood Insurance Risk Map for specific boundaries of 100 year flood zones. Construction of reach 1 has begun as of April, 1995. See MIA Figure 4.2 A
 - 2.

Source: San Bernardino County Official Land Use Plan General Plan Island Overlay, dated 1995 for city of Redlands.

Redlands Planning Area
 GP Figure 8.2

Flood Zones

SMITH, PERONI & FOX
 BLAVNEY, DYETT, GREENBERG
 ESRI

Balancing flood control with other uses involves prioritizing among uses, and must be an ongoing process. For example, implementation of the Santa Ana River Trail Master Plan will require close coordination between the City and several other agencies, including the County Flood Control District, to ensure that flood protection is not compromised by trail use, and vice versa.

- 8.40d** Where feasible given flood control requirements, maintain the natural condition of waterways and flood plains to ensure adequate groundwater recharge and water quality, preservation of habitat, and access to mineral resources.
- 8.40e** Coordinate with the U.S. Army Corps of Engineers and San Bernardino County throughout construction, mitigation, and operation of the various components/projects that make-up the "Santa Ana River Mainstem Project" that will directly affect the Planning Area. These projects include the following: the Seven Oaks Dam, the improvements to the Mill Creek levees (completed), and the planned improvements along the three reaches of the San Timoteo Creek Project. In addition to the coordinated effort on the projects mentioned above between the U.S. Army Corps of Engineers and San Bernardino County Flood Control District, the City of Redlands Public Works Department must be actively included in the development of any/all proposed flood control facilities along the reaches of the Mission Zanja Creek System.

The Santa Ana River Mainstem project, which involves U.S. Army Corps work on the areas mentioned in this policy, is expected to continue for several years. San Bernardino County Flood Control District, on behalf of the project sponsors and in conjunction with the Army Corps, has begun implementation of biological mitigation in the Santa Ana River Wash. The Seven Oaks Dam will be operated by San Bernardino County Flood Control District.

- 8.40f** Support the intent of the County of San Bernardino's flood control policies as specified in the County General Plan.

The County's detailed flood policies specify a range of protective measures, encourage coordination among jurisdictions, and acknowledge the need for a multi-use concept of streams and creeks.

- 8.40g** Cooperate with all public and private agencies involved to ensure that flood control improvements do not disrupt environmentally sensitive areas beyond a level of mitigability.

While the California Environmental Quality Act (CEQA) provides protection to special status species, "habitats" per se are not recognized nor protected under CEQA. In addition, some species which are known locally to be sensitive may not be listed by the State or Federal governments as rare, threatened, or endangered. Mitigation for construction of the Seven Oaks Dam may involve preservation and enhancement of portions of the Santa Ana River Wash. (See Section 7.21, Biotic Resources.)

Implementing Policies: Drainage and Flooding

- 8.40h** Prepare a Master Drainage Plan for the Planning Area based on buildout of the General Plan.

This plan would allow compilation of information from the Water Master Plan, consultant flood and drainage studies, recently-completed (1994) Army Corps of Engineers' studies associated with the Santa Ana River Mainstem project, and projects associated with the Mission Zanja Creek System into an integrated whole.

- 8.40i** Prior to project approval in the vicinity of a waterway or drainage course, consult Flood Insurance Rate Maps on file with the Community Development Department to identify areas which have not been subject to detailed study; if the project falls within an area which has not been studied, require studies and, if necessary, require mitigation or restrictions on development.

Since Federal Emergency Management Agency (FEMA) flood studies of uninhabited areas are frequently not as detailed as those done for inhabited areas, sparsely populated areas slated for further development may need additional study to determine the historical extent of flooding.

- 8.40j** Work with the San Bernardino County Flood Control District to construct a detention basin in the Crafton area (Crafton Detention Basin) and/or other associated facilities to provide 100-year flood protection along the Mission Zanja Creek System, to reduce or eliminate downstream flooding.

- 8.40k** Prior to construction of the Crafton Detention Basin or other comprehensive drainage solution, consider proposed development within the 100-year flood plain of the Mission Zanja drainage system on a case-by-case basis, to determine whether flood-related mitigation is to be required.

Since the Crafton Detention Basin is not yet funded, its construction could occur at any time during the twenty-year General Plan horizon. Prior to its construction, people and property in the 100-year flood plain may be at risk. New development should be considered carefully in these areas. See related policy regarding park use in this area, in Section 7.10, Open Space and Conservation Element. Additional downtown drainage improvements are under consideration by the City.

- 8.40l** Implement stormwater facilities for the Mission Zanja and Morey Arroyo channels as specified in the Final EIR on the *East Valley Corridor Specific Plan*.

These improvements will be necessary to accommodate the significant increase in stormwater flows expected as a result of development in the Specific Plan Area.

- 8.40m** Prior to construction of the Crafton Detention Basin, identify critical facilities in flood hazard areas, and improve their level of protection, if necessary.

Critical facilities include fire and emergency service facilities, utility lifeline facilities such as water, electricity, and gas supply, sewage disposal, and communications and transportation facilities. Various measures may be employed to upgrade protection of critical facilities.

- 8.40n** Implement or work with other agencies to implement improvements that will provide the vicinity of the University of Redlands with 100-year flood protection.

The 1986 Mill Creek Zanja Detention Basin Study notes that construction of a Crafton Detention Basin would not control the 100-year storm event in the vicinity of the University of Redlands. This area requires additional consideration. The Comprehensive Drainage Study currently in progress will analyze potential solutions to this issue.

- 8.40o** Reduce the effects of surface runoff in developing areas by the use of extensive landscaping with an emphasis on native and drought-resistant species, minimizing impervious surfaces, and providing for recharge.

- 8.40p** Encourage timely FEMA map changes and annually incorporate mapped revisions to the 100-year flood zone into City hazards maps.

With completion of flood improvements throughout the City, the boundary of the 100-year flood zone will change. These changes should be promptly incorporated into existing maps.

- 8.40q** To reduce the possibility of significant changes in climate and regional hydrology that could lead to local flooding, support national and international efforts to protect the Earth's ozone layer, including policy to minimize or prevent the release of chlorofluorocarbons and similar gases.

Although flooding impacts on the Redlands Planning Area due to sea level rise or climatic change are not immediately obvious, noticeable changes in sea level or climate would be expected to significantly alter regional hydrology. Individual efforts to prevent the release of gases which contribute to the "Greenhouse Effect" might make only a tiny difference, but many individuals acting together could make a significant collective difference. Estimates for future rates of sea level rise vary widely, from about four inches over the next 50 years to estimates of up to 10 feet over the next 100 years.

- 8.40r** In the event of dam failure on the Seven Oaks or Bear Valley dams, implement emergency measures consistent with the City's Emergency Plan.

Dam failure, while considered unlikely, is among the hazards mentioned in the Emergency Plan.

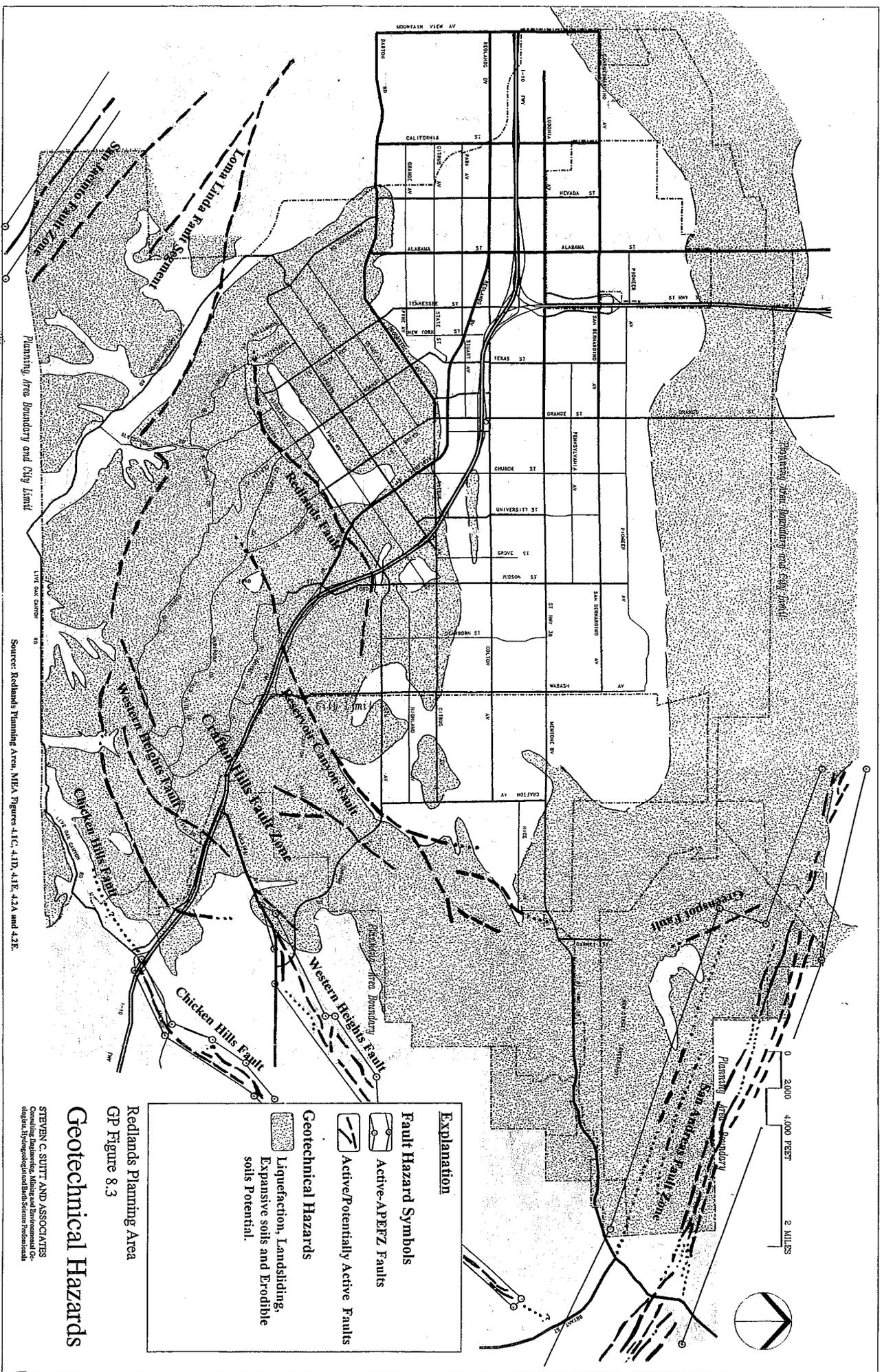
- 8.40s** The City of Redlands will continue to coordinate with Crafton Hills Water District, the Bear Valley Mutual Water Company, the San Bernardino County Flood Control District, the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and any other public or private agencies affected by drainage to ensure the compatible use of these facilities.

8.50 Seismicity, Geology, and Soils

As in all of Southern California, safety planning efforts in Redlands center on potential impacts of earthquakes. The Planning Area lies between the best-known fault in California, the San Andreas, and the State's most active fault, the San Jacinto. According to the Southern California Earthquake Center (SCEC), the 30 year probability for M7.3 earthquakes on the San Jacinto and San Andreas faults within the Planning Area is 37 and 28 percent, respectively. Maximum horizontal ground accelerations from these 30 year probable earthquakes are anticipated to substantially exceed 0.4g, which is the current maximum Uniform Building Code design value. Other faults within or adjacent to the Planning Area may also be active. Environmental hazards including active faults, potentially active faults, liquefaction, landsliding, expansive and erodable soils are shown on GP Figure 8.3, Geotechnical Hazards.

The dangers of living on an alluvial plain or steep hillsides in a seismically active region range from the effects of fault rupture to the many manifestations of severe shaking: landslides and slope collapse, subsidence, liquefaction, and dam failure. General Plan policies stress avoidance of construction in active fault zones, geotechnical study prior to construction in hazard areas, and public awareness and education. Plan policy supports the continued use of the City's building inspection program to identify and upgrade high-risk unreinforced masonry buildings.

The Planning Area is framed to the north, south and east by slopes subject to erosion and non-seismically initiated landslides, mudslides, or slope collapse. Subsidence may occur in steep or flat portions of the Planning Area that experience excessive groundwater withdrawal. Soils in the Planning Area are also



Explanation

Fault Hazard Symbols

- Active-APPEZ Faults
- Active/Potentially Active Faults

Geotechnical Hazards

- Liquefaction, Landsliding, Expansive soils and Erodible soils Potential.

Redlands Planning Area
GP Figure 8.3

Geotechnical Hazards

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Source: Redlands Planning Area, MHA Figures 41C, 41D, 41E, 42A and 42B

subject to collapse, hydroconsolidation and expansive soil concerns. Geologic and soils policies and Zoning Ordinance provisions seek to minimize occupation of steep or unstable lands. Steep slopes are shown on GP Figure 8.4, Slope.

Soil types within the Planning Area range from no development restrictions to severe limitations for construction. It is important for the City to recognize the potential development/construction limitations of these soil types.

Guiding Policies: Seismicity, Geology, and Soils

- 8.50a** Investigate and mitigate geologic and seismic hazards, or locate development away from such hazards, in order to preserve life and protect property.

Areas of unmitigable hazards should be preserved as open space.

- 8.50b** Support implementation of San Bernardino County General Plan policies relating to geologic and seismic hazards, and consult with the San Bernardino County Geologist where conflicting information exists or where no published information is available.

To some extent sources vary or present incomplete coverage of the locations of faults and areas subject to liquefaction and landslides. The County Geologist, as well as USGS and the State Division of Mines and Geology (DMG), can provide a resolution to some of these issues, or references to the latest sources of information.

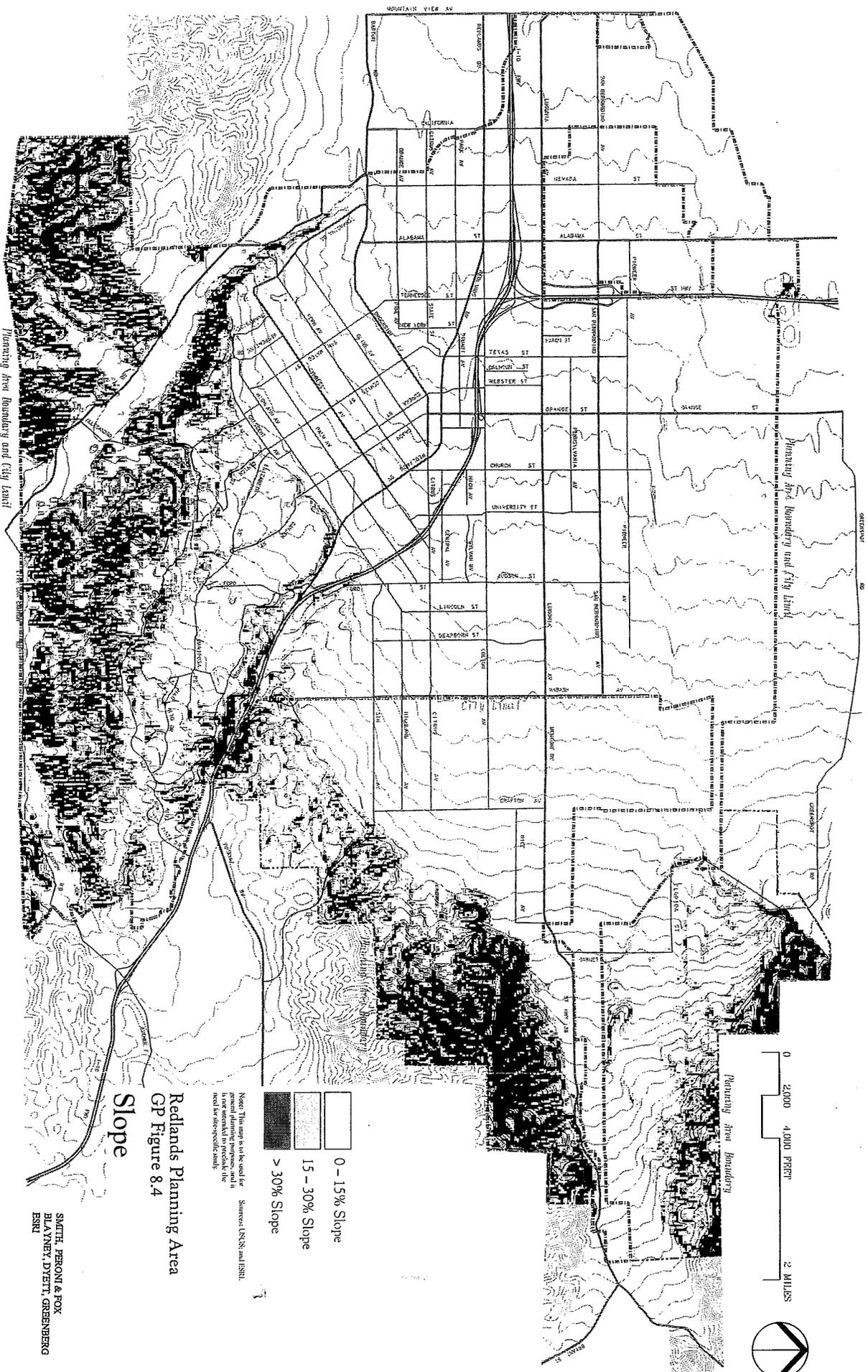
Implementing Policies: Seismicity, Geology, and Soils

- 8.50c** Continue to restrict development within Alquist-Priolo Earthquake Fault Zones and other active/potentially active faults which have not yet received Alquist-Priolo classification.

California's Alquist-Priolo Earthquake Fault Zoning Act went into effect in 1973, and has been amended several times. The purpose of this Act is to prohibit the location of most structures for human occupancy across the traces of active faults and to thereby mitigate the hazard of fault rupture. Under the Act, the Division of Mines and Geology (DMG) has delineated Earthquake Fault Zones along active faults in California and jurisdictions containing these zones must then regulate certain types of development within these zones. The San Andreas and San Jacinto faults, which bound the Planning Area, as well as the less-well-known Western Heights and Chicken Hill fault zones east of the Planning Area, have been classified as Earthquake Fault Zones under the Alquist-Priolo Earthquake Fault Zoning Act. These areas are identified on GP Figure 8.3.

- 8.50d** Consult with the Division of Mines and Geology if there are issues or questions concerning fault alignment. Evaluate and, if necessary, perform site specific investigation for development proposed on or near Alquist-Priolo Earthquake Fault Zones as well as within 500' of other active/potentially active faults as depicted on GP Figure 8.1.

- 8.50e** Require areas identified as having significant liquefaction potential (including secondary seismic hazards such as differential compaction, lateral spreading, settlement, rockfall, and landslide) to undergo geotechnical study prior to development; mitigate the potential hazard to a level of insignificance; if mitigation is not possible, preserve these areas as open space or agriculture.



Planning Area Boundary and City Limit

Planning Area Boundary and City Limit

Planning Area Boundary



- 0 - 15% Slope
- 15 - 30% Slope
- > 30% Slope

Note: This map is to be used for general planning purposes, and is not for site-specific work. Sources: USGS and ESRI.

Redlands Planning Area
GP Figure 8.4

Slope

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ESRI

The San Bernardino County Geologic Hazard Overlay map shows the Santa Ana River Wash and portions of adjacent areas as having a high susceptibility to liquefaction, on a generalized basis. The liquefaction information on the County map is based on USGS data (1991).

- 8.50f** Monitor studies related to induced seismicity; if further studies establish a conclusive relationship between reservoir drawdown, refilling, and seismic activity, encourage San Bernardino County to manage the Seven Oaks Dam water regime to reduce risk.

Evidence thus far suggests a relationship between reservoir drawdown, refill, and subsequent seismic activity, as seen in the 1975 Cleveland Hill earthquake, thought to have occurred after unprecedented drawdown and refilling of Lake Oroville in Northern California.

- 8.50g** Use the building inspection program to inventory and evaluate earthquake hazards in existing buildings using the most current seismic design standards and hazard reduction measures, and continue the program for the systematic upgrading of seismically unsafe buildings. Continue to explore measures to induce building owners to upgrade and retrofit structures to render them seismically safe.

Unreinforced masonry buildings are clustered in the downtown area and pose the greatest earthquake hazard. About 15 percent of these buildings have recognized historic value.

- 8.50h** Develop a City-based public awareness/earthquake preparedness program, to educate the public about seismic hazards, and what to do in the event of an earthquake.

Seismic hazard education could take the form of distributing an information pamphlet through libraries, schools, or utilities bills, and community-wide simulations. The City should coordinate with the San Bernardino geologic educational program, which covers hazards, abatements, and emergency plans and procedures.

- 8.50i** Continue to regulate development on slopes greater than 15 percent (15 foot rise in 100 feet run) to minimize soil erosion, landslides, water runoff, flood hazards, loss of habitat, and wildfire hazards. Designate land exceeding 30 percent slope as Resource Conservation on the General Plan Diagram and limit development to one housing unit per 10 acres or one housing unit per parcel existing on the date of adoption of the General Plan if under 10 acres. Transferring densities from steeper areas to flatter portions of the site is desirable and preferred.

This policy is designed to preserve natural landforms and vegetation, prevent mass grading, and reduce landslide risks. Density limitations specified in the Zoning Ordinance also serve these functions and ensure the efficient expenditure of funds for public facilities and services. See also Section 4.40 in Residential Land Use, Land Use Element.

- 8.50j** Consider amendment of the Zoning Ordinance to include restrictions for soil types with developmental constraints similar to those on the Saugus Sandy Loam series as follows:

1. Any proposed development must consider the potential for soil erosion, both during and after construction.
2. Since these soils are prone to hydrocollapse, the City should require developers to hire a geotechnical engineer to conduct site-specific studies and recommend remedial measures, if needed.
3. If on-site sewage disposal systems (septic tanks) are to be used, the developer must demonstrate that the soils have sufficient percolation capacity; and

4. There are existing natural landslides in this area, and development can create new landslides. Therefore, the City should require all developers retain a geotechnical engineer and an engineering geologist to assess the impact of a proposed development on the stability of slopes.

Saugus and similar soils are shown on GP Figure 8.1. Other soil types recognized by the Soil Conservation Service as having severe limitations for construction of dwellings within the Planning Area are the Cieneba-Friant sandy loams and eroded Ramona sandy loams on 15 to 30 percent slopes. Maps of these soils' distribution are on file with the City.

- 8.50k** For new construction and exterior building expansions including multi story additions or lateral expansions as deemed appropriate by the City Building Department, require the preparation of a geotechnical/soils/geologic report by a registered civil geotechnical/soils engineer and a certified engineering geologist. This report shall address erodible, expansive and collapsible soils, existing or potential landslides, areas with unsuitable percolation characteristics, large scale subsidence, non rippable bedrock areas, ground motion parameters, active/potentially active faulting, liquefaction, and any other geotechnical concepts as appropriate and make recommendations for mitigating any potential adverse impacts.

- 8.50l** Require soil erosion mitigation during construction.

See also Policy 8.20o.

- 8.50m** Adopt revisions of the Uniform Building Code which incorporate the most current seismic design standards and hazard reduction measures recommended by the Applied Technology Council (ATC) the Structural Engineers Association of California (SEAOC), the Earthquake Engineering Research Institute (EERI), the Seismic Safety Commission, and the Southern California Earthquake Center.

- 8.50n** Ensure that the Emergency Management Plan addresses seismic hazards, including hazardous materials incidents, hazardous buildings, critical facilities (i.e., schools, hospitals), emergency response preparedness and recovery with consideration to evacuation routes, peak load water supply requirements and minimum road width/clearance around structures.

8.60 Wind Hazards

Redlands, like most of San Bernardino County, is subject to periodic high winds, particularly those known as the Santa Anas. Named for the mountains and canyons through which they pass, these winds typically occur several times per year, often between September and December, and have been measured throughout the County at speeds approaching or exceeding 100 mph. The Santa Anas have been blamed for traffic accidents, power outages due to downed power lines, deaths due to airborne debris, wind erosion, high levels of particulate matter in the air and, perhaps most significantly, devastating fires.

The California Department of Forestry and Fire Protection has identified these winds as a critical weather element in the start and spread of uncontrolled fires. Winds supply fresh oxygen to fires, quicken their spread by carrying burning fire brands, and bending flames forward while further increasing air temperatures and dehydrating both the air and available fuels. Turbulent and erratic winds exemplified by a Santa Ana condition also hinder firefighters on the ground by causing unpredictable fire fronts and rendering the use of aircraft difficult or impossible.

Although measurements have not been made, observers have noted that Redlands generally seems to be spared the full impacts of the Santa Anas by the buffering presence of the San Bernardino Mountains. There can be great differences in wind impacts over short distances, however, due to topographic variation, and what is true

for much of the Planning Area may not be true elsewhere. In particular, undeveloped portions of the Planning Area may have been subject to less scrutiny, since observers may not be present to experience or report on wind intensities.

Guiding Policy: Wind Hazards

8.60a Protect people and property from the adverse impacts of high winds.

Implementing Policies: Wind Hazards

8.60b Identify areas susceptible to high winds, if any, as data become available.

County wind hazard policies specify the future mapping of wind hazard areas. While recognizing the dearth of mapped information on wind hazards, County policies provide for future mapping of high wind areas as data become available, adoption of protective design measures for critical, essential, and high occupancy structures, upgrading for susceptible facilities, and various measures to reduce wind-induced erosion. The neighboring City of San Bernardino has mapped areas of high wind hazard, and applies stringent conditions for the construction of buildings and public facilities. Identification of hazard areas should be based on wind speed measurements and reports of damage.

8.60c Ensure that buildings and public infrastructure are constructed and sited to withstand high wind velocities, as data becomes available.

Implementation of this policy requires that areas of high wind velocity are identified first, in accordance with Policy 8.60b above.

8.70 Electromagnetic Fields

After several years of analysis of dozens of studies exploring a possible connection between cancer and extremely low frequency (ELF) electromagnetic fields, the EPA has concluded that a growing body of data suggests a causal link. Although measurable, the intensity of electromagnetic fields is not related to any yet-established health standards, and effects on human tissue are subtle, complex, and poorly understood. Some independent researchers state that cancer or other types of health risk may be associated with long-term residence close to high-voltage power lines and substations. Congressional bills that would boost Federal funds for research into the biological effects of electromagnetic fields, including fields from high voltage power lines in residential areas, are under consideration. Southern California Edison's 220 kilovolt transmission lines traversing from the southwest to the northwest corner of the Planning Area are remote from existing housing.

Guiding Policy: Electromagnetic Fields

8.70a Support research on the health effects of electromagnetic fields generated by power transmission lines and other sources, and take appropriate action, if warranted, to reduce hazardous exposure.

If causal links are better established between high-voltage power lines or substations and health impacts, protective measures might include maintaining setbacks from potential future transmission lines and substations or undergrounding transmission lines.

8.70b Insist on adequate setbacks from schools, housing, and care facilities for any additional high voltage power lines or substations to be constructed in the Planning Area.

The California State Department of Education, School Facilities Planning Division, maintains standards for distance from schools according to voltage.

8.75 High Pressure Fuel Lines

High pressure gas lines (greater than 60 pounds) run along Mountain View Avenue on the western edge of the Planning Area, turning southeast at Mission Road. At California Street the lines jog north, continuing east and south along Orange Avenue to Tennessee Street, State Street, Eureka Street, Redlands Boulevard, Reservoir Road, Wabash Avenue, Panorama Drive, and entering Yucaipa along Hampton Road and Dunlap Boulevard. Another high pressure gas line stretches along Sand Canyon Road and Crafton Avenue. Smaller gas lines carried in pipe ranging from three to eight inches are distributed throughout most of the Planning Area. These facilities are shown on maps on file with the City of Redlands.

A high pressure 20" petroleum line extends through Redlands in San Timoteo Canyon within the Santa Fe Pacific Railroad right-of-way. Multiple types of petroleum products to include oil, gasoline and jet fuels are being transported through this line which extends from El Segundo in the Los Angeles basin to Phoenix, Arizona and Las Vegas, Nevada.

Guiding Policy: High Pressure Fuel Lines

8.75a Protect residents from the potential dangers of broken or damaged fuel lines.

Implementing Policies:

8.75b Develop an emergency response plan that adequately addresses the impacts of a broken natural gas or petroleum line in the City. Coordination is needed between the Police and Fire Departments and Southern California Gas Company and Santa Fe Pacific Pipelines.

8.75c Provide sufficient setbacks from schools, housing, and care facilities for fuel lines which are existing or to be constructed in the Planning Area.

8.80 Airport Safety

The Redlands Municipal Airport Land Use Compatibility Plan was adopted by the City Council on February 18, 1997 (Resolution 5344). This plan addresses airport land use compatibility concerns in the following areas:

Exposure to aircraft noise;
Land use safety with respect both to people and property on the ground and the occupants of the aircraft;
Protection of airport airspace; and
General concerns related to aircraft overflights

The Redlands Municipal Airport Land Use Compatibility Plan established land use compatibility zones based on airport traffic patterns, existing land uses, distinct geographic features, and other factors unique to the Redlands Municipal Airport and its environs. Potential land use development is to be judged compatible with the airport based on criteria set forth in the Primary Compatibility Criteria Matrix contained in the Airport Land Use Compatibility Plan (ALUCP).

Guiding Policy: Airport/Aviation Safety

8.80a Implement the policies and standards of the Redlands Municipal Airport Land Use Compatibility Plan.

Implementing Policy: Airport/Aviation Safety

8.80b All projects within the Compatibility Zone Boundaries established by the Redlands Municipal Airport Land Use Compatibility Plan shall be reviewed by the city for conformity to the criteria set forth in the Primary Compatibility Criteria Matrix of the Airport Land Use Compatibility Plan (ALUCP).

8.90 Emergency Management

City Emergency Plan. The City of Redlands Emergency Plan is the guiding document in the event of emergencies in the Planning Area. According to the Emergency Disaster Plan, which is continually updated every two years, the potential for a major calamity increases with the urbanization of previously unpopulated areas, and with the advent of industrial processes using hazardous materials. The Emergency Disaster Plan notes that the impact of disasters such as earthquakes, fires, and floods has become magnified as more high-risk land in the region is developed in response to pressure of urban growth. In addition, the unprecedented use of hazardous chemicals in industry and agriculture increases the potential for disaster. Transportation accidents can almost instantaneously produce mass casualties. Social unrest can grow to major proportions and erupt into riots, resulting in loss of life and destruction of property.

The Emergency Plan identifies numerous hazardous situations to which the City will respond. Of these, earthquake, flood, dam failure, and fire are addressed in other sections, and their impacts are intended to be minimized through implementation of General Plan policies. (See Section 8.50 for earthquakes, 8.40 for flood and dam failure, and 8.30 for fire.) Additional calamities covered by the Emergency Plan include war, terrorist acts, transportation accidents, industrial accidents, civil disturbance, storms, pollution, epidemic, and hazardous or radiological materials spills, major gas line ruptures, drought, and extreme heat.

Evacuation routes. The Emergency Disaster Plan identifies specific evacuation routes within the Planning Area. The San Bernardino County General Plan (1993) designates potential evacuation routes in the event of an emergency. Within the San Bernardino Valley, the major routes out of the County are Interstates 10, 15, and 215, along with State Highways 30, 31, 60, 66, 71, and numerous major and secondary highways. This list is not intended to be comprehensive, and specific evacuation routes would be designated during a specific emergency, since earthquakes, floods, fires, or other disasters may make certain routes impassable.

In addition to the above potential evacuation routes, Caltrans has identified a number of possible evacuation routes in the San Bernardino Valley. These roads have the least number of bridges, and may be among the safest roads to travel in the event of a major earthquake. In the East Valley, those roads which connect with the Planning Area include:

- ▶ Hospitality Drive from Tippecanoe Avenue to Waterman Avenue
- ▶ Coulston Street from Mountain View Avenue to Tippecanoe Avenue
- ▶ Lugonia Avenue from Orange Street to Mountain View Avenue
- ▶ Redlands Boulevard from Orange Street to Waterman Avenue

Routes leading away from the Planning Area and crossing through the City of San Bernardino rely on parts of Barton Road, Waterman Avenue, Mill Street, E Street, Kendall Drive, La Cadena Drive, Mt. Vernon Avenue, Highland Avenue, and Cajon Boulevard. Throughout the Planning Area, a system of recreational use trails may be used for emergency evacuation routes.

Cooperative efforts. In the event of an emergency, the City would, to the extent possible, coordinate efforts with San Bernardino County, surrounding jurisdictions, the State of California Office of Emergency Services, and the Federal Emergency Management Agency (FEMA). Redlands also cooperates with surrounding police and fire departments under formal mutual aid pacts. The City of Redlands also comes

under the purview

of the California Emergency Services Act, which provides for mutual aid in any functional area. The American Red Cross and other professional volunteer organizations provide assistance during natural disasters, operating independently of, but in cooperation with local government.

Activation of Emergency Plan. The City of Redlands Emergency Disaster Plan becomes operative automatically by the existence of a State of War Emergency as defined by the California Emergency Services Act, or when the Governor has proclaimed a State of Emergency in an area including the City, or on the orders of the City Council, in accordance with local ordinance. The City would also be included in an emergency declaration of the County, unless stipulated otherwise.

Local Hazard Mitigation Plan. Pursuant to California Government Code Section 65302.6, a city, county, or a city and county may adopt with its safety element pursuant to subdivision (g) of Section 65302 a local hazard mitigation plan (HMP) specified in the federal Disaster Mitigation Act of 2000. The hazard mitigation plan should include all of the elements called for in the federal act requirements. The City of Redlands Local Hazard Mitigation Plan includes these elements and is designed to be a guiding document that describes the process for identifying hazards, risks and vulnerabilities, identify and prioritize mitigation actions, encourage the development of local mitigation and provide technical support for those efforts.

Guiding Policies: Emergency Management

8.90a Use the City of Redlands Emergency Disaster Plan as the guide for disaster planning in the Redlands Planning Area.

8.90b Aim for City-level self-sufficiency in emergency response.

While multijurisdictional planning is an ideal, in the event of a regionwide disaster the emergency services of the County, State, and Federal agencies and of adjacent locales may be severely strained. Slippage on the San Andreas or San Jacinto faults, for example, could interrupt communication with outside emergency services, or cut off certain evacuation routes. This type of severe disaster may require the City to handle the crisis in relative isolation.

8.90c Use the City of Redlands Local Hazard Mitigation Plan as the guide for identifying hazard risks and vulnerabilities, identifying and prioritizing mitigation actions, encourage the development of local mitigation and provide technical support for these efforts.

Implementing Policies: Emergency Management

8.90d Continue to update and revise the Emergency Disaster Plan as needed, to reflect changes in the Planning Area and changes in emergency management techniques.

Addition of population and ongoing construction may necessitate revision of details of the Emergency Plan.

8.90e Continue to update and revise the Local Hazard Mitigation Plan as needed, to reflect changes in the Planning Area .

8.90f Establish community programs to train volunteers to assist police, fire, and civil defense personnel during and after a major earthquake, fire, flood, or other major disaster.

The City can encourage this training by publicizing courses available to the public in

standard CPR and First Aid, as well as disaster-oriented training. The Emergency Plan should specify locations to which volunteers can report during an emergency, and should include listings of appropriate jobs for volunteers. The City's Personnel Section and the San Bernardino County American Red Cross should coordinate their efforts in the recruitment and training of volunteers.

- 8.90g** Initiate planning for long-term recovery from disaster. Coordinate with on-going planning efforts in San Bernardino County.

The long-term recovery process may continue for a period up to 10 years.

9.0 NOISE ELEMENT
REDLANDS GENERAL PLAN

9.0 NOISE ELEMENT

The Noise Element provides a comprehensive program to achieve and maintain land use compatibility with environmental noise levels. It identifies noise sources and noise sensitive land uses, and defines in the text or on a map areas of noise impact for the purpose of developing programs to ensure that Redlands residents will be protected from excessive noise intrusion, both now and in the future. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud).

The Noise Element follows State guidelines in the State Government Code Section 653021(g) and Section 46050.1 of the Health and Safety Code. The text, GP Figure 9.1, Projected Noise, Buildout, tables, and illustration which comprise the Element quantify the long-term community noise environment based on traffic projections at buildout. A Technical Appendix published within the Master Environmental Assessment (including MEA Figure 14.1 showing baseline 1994 noise levels within the Planning Area) contains a more comprehensive inventory of current and forecast noise conditions, background information on noise, health effects of noise, methodology, measurement and modeling results, and bibliography.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From those known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. This criteria is based on such known effects of noise on people as hearing loss (not generally a factor with community noise), communication interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts are briefly discussed below:

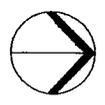
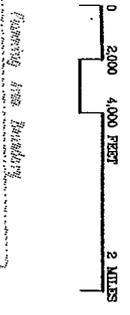
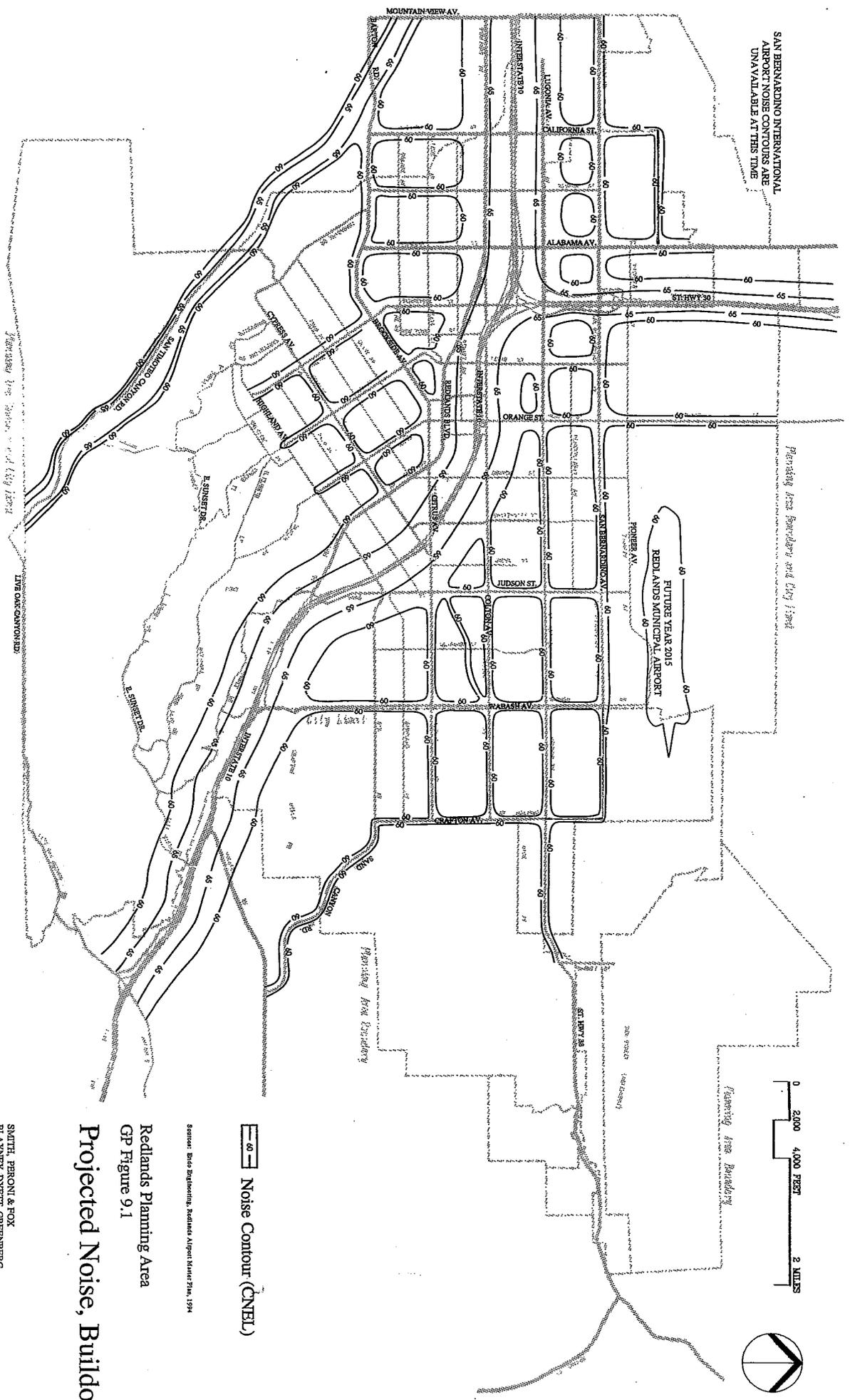
Hearing Loss. Hearing loss is not, in general, a concern in community noise problems. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments with long-term exposure. The Occupational Safety and Health Administration (OSHA) identifies a noise exposure limit of 90 dBA for 8 hours per day to protect from hearing loss. Noise in neighborhoods, even in very noisy airport environments near major international airports, is not sufficiently loud to cause hearing loss.

Communication Interference is one of the primary concerns in environmental noise problems. Communication interference includes speech interference and interference of activities such as watching television. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level. GP Figure 9.2, Speech Communications as a Function of Background Noise Level, shows the percent of sentence intelligibility with respect to various noise levels.

Sleep Interference is a major noise concern in noise assessment and, of course, is most critical during nighttime hours. Sleep disturbance is one of the major causes of annoyance due to community noise. Noise can make it difficult to fall asleep, create momentary disturbances of natural sleep patterns by causing shifts from deep to lighter stages and cause awakening. Noise may even cause awakening that a person may or may not be able to recall.

Extensive research has been conducted on the effect of noise on sleep disturbance. Recommended values for desired sound levels in residential bedroom space range from 25 to 45 dBA with 35 to 40 dBA being the norm. The National Association of Noise Control Officials has published data on the probability of sleep disturbance with various single event noise levels. Based on experimental sleep data as related to noise exposure, a 75 dBA interior noise level event will cause noise induced awakening in 30 percent of the cases.

SAN BERNARDINO INTERNATIONAL AIRPORT NOISE CONTOURS ARE UNAVAILABLE AT THIS TIME



40 Noise Contour (CNEL)

Source: Bird Engineering, Redlands Airport Status, 7/26, 1984

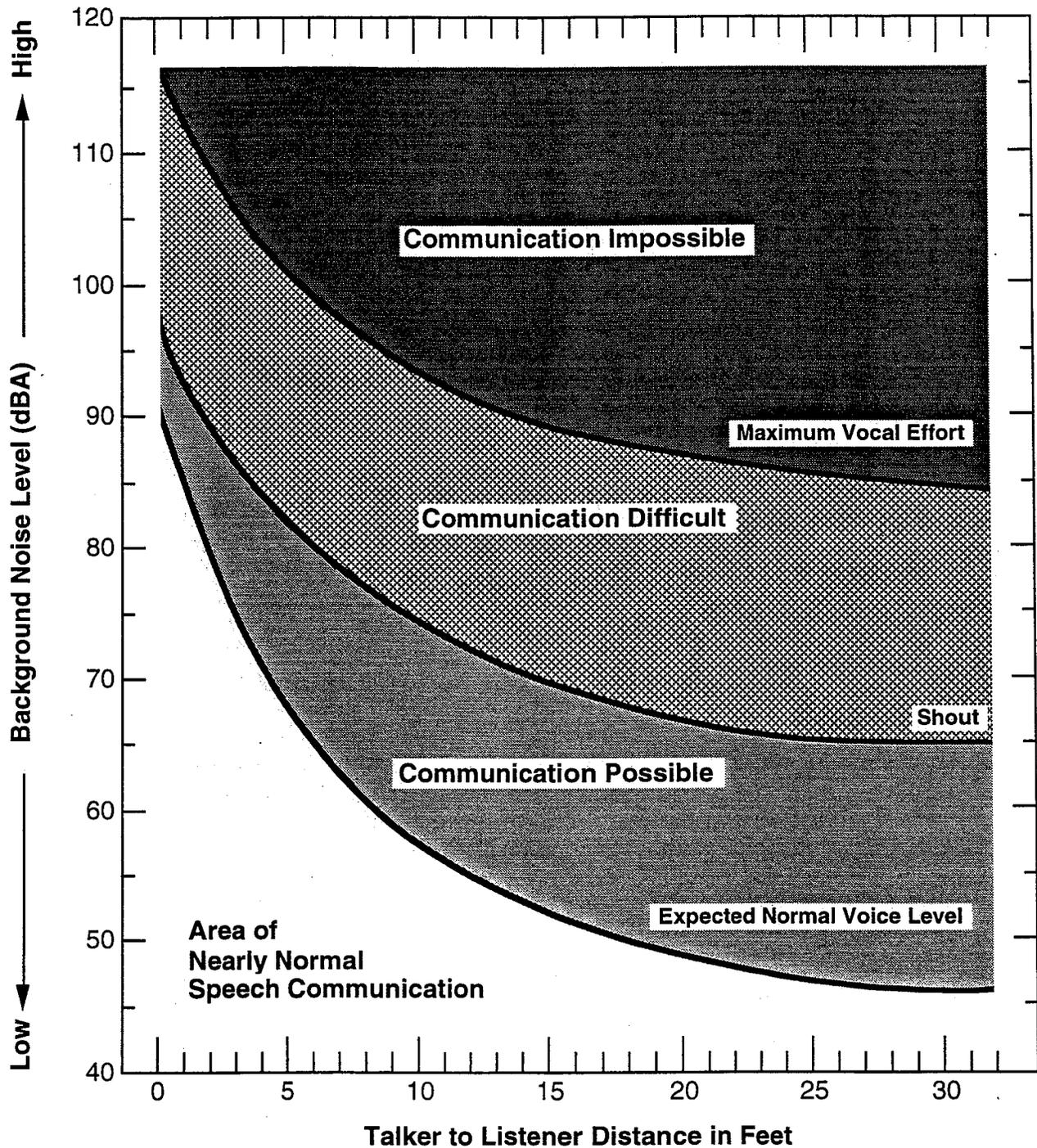
Redlands Planning Area
GP Figure 9.1

Projected Noise, Buildout

SMITH, PERONI & FOX
BLAVNEY, DYETT, GREENBERG
ES&I

GP Figure 9.2

Speech Communication as a Function of Background Noise Level



Source: Miller, "Effects of Noise on People", Journal of Acoustical Society of America, V.56, No.3, 9/74

Physiological Responses are those measurable effects of noise on people which are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are signs of harm. Generally, physiological responses are a reaction to a loud short term noise such as a rifle shot or a very loud jet overflight.

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability. The level of annoyance, of course, depends on the characteristics of the noise (i.e., loudness, frequency, spectra, time, and duration), and how much activity interference (e.g., speech interference and sleep interference) results from the noise. However, the level of annoyance is also a function of the attitude of the receiver. Personal sensitivity to noise varies widely. It has been estimated that 2 to 10 percent of the population is highly susceptible to noise not of their own making, while approximately 20 percent are unaffected by noise. Attitudes are affected by the relationship between the person and the noise source. (Is it our dog or the neighbor's?) Whether we believe that someone is trying to abate the noise will also affect our level of annoyance.

Noise Sources and Receptors

The predominant noise sources in Redlands are motor vehicles, aircraft, and trains. Freeways and a number of arterials expose nearby areas to significant noise levels. Aircraft from Redlands Municipal Airport and other aircraft overflights impact the Planning Area. Although military use of Norton Air Force Base has ended, aircraft occasionally use the airport. Depending on the eventual reuse of that facility, the level of aircraft flights (and, therefore, noise) generated at the airport can be expected to increase, affecting areas within Redlands. The Southern Pacific railroad mainline runs through San Timoteo Canyon. The Santa Fe line runs through downtown Redlands and the residential areas to the east before turning north through Mentone. To a lesser degree, Redlands is also exposed to noise emanating from sources such as industrial and commercial facilities, and from construction and human activities.

Noise affects all types of human activities and land uses, although some land uses are more sensitive to high noise levels than others. Land uses in Redlands identified as noise sensitive include residences of all types, hospitals, rest homes, convalescent hospitals, churches and schools. The most highly impacted areas in Redlands are the residences located adjacent to the I-10 freeway, especially where freeway sections are elevated above the adjacent land uses. An elevated noise source is much harder to mitigate than one that is at or below the grade of the adjacent land uses unless a noise barrier is constructed at the edge of the elevated roadway. Locations of highly impacted areas may be found on the noise contour maps, as described below.

Noise Contour Maps

Community Noise Equivalent Level (CNEL) is a 24-hour average describing a noise environment consisting of a variety of single events. To account for increased sensitivity to noise during nighttime hours, the CNEL calculation penalizes evening and night sound levels. The decibel (dB) scale is logarithmic; a 3 dB difference is barely discernible to most people, and a 10 dB increase is subjectively heard as a doubling of noise. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

A "noise contour map" shows as closed contours those areas subject to the same noise levels, much as a topographic map shows as closed contours those areas of similar elevation. Noise contours for 1994 conditions are reproduced in the MEA as MEA Figure 14.1, Existing Noise, 1994. The number of homes exposed to roadway noise levels greater than 60 CNEL in the future will increase due to future residential construction and traffic volume increases. The number of homes exposed to aircraft noise is anticipated to increase or decrease depending upon the reuse of Norton Air Force Base. In order to protect residents from excessive noise from aircraft overflights, the City Council has maintained a policy of restricting residential development under the 65

CNEL airport noise contour. The General Plan proposes no new residential units within the Airport 65 CNEL Contour. Railroad-related noise is anticipated to stay about the same (with an average 28 daily train operations) and will subject new homes within 600 feet of the track in San Timoteo Canyon to noise levels exceeding 60 CNEL.

GP Figure 9.1, Projected Noise Buildout, shows noise levels projected for buildout conditions. Contours represent the dB CNEL noise level measured from the street centerline, and do not include the mitigating effect of noise barriers or topography.

The 60 dB CNEL contours are shown on both MEA Figure 14.1 and GP Figure 9.1. The 60 dB CNEL contour represents the outer boundary of the Noise Referral Zone, within which any proposed noise sensitive land use should be evaluated on a project-specific basis and may require mitigation to meet City or State (Title 24) standards. The 65 CNEL contours are also shown on the figures where they are far enough from a roadway to allow them to be seen at this scale.

The 60 CNEL contour represents the level for which any new residential development that is not shielded will require mitigation in order to comply with local noise standards. It is easily seen on MEA Figure 14.1 and GP Figure 9.1 that some residential areas are and will be exposed to noise levels that exceed 60 CNEL.

Existing noise contours, based upon noise measurements taken throughout the City, were used as a guide for establishing a pattern of land uses that minimizes noise exposure to the community.

Policy Approach to Mitigation

State and federal agencies regulate vehicle noise emission from the source, but local governments have little direct control of transportation noise at the source. The most effective methods available to the City to mitigate transportation noise are locating sensitive uses away from noise sources, construction of noise barriers, and site design review.

GP Table 9.1, Land Use Compatibility for Community Noise Environments, may be used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for specific Noise Standards. These standards, shown in GP Table 9.2, Interior and Exterior Noise Standards, are the General Plan policy for acceptable noise exposure. They are the primary tools that allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

Mitigation through the design and construction of a noise barrier (wall, berm, or combination wall/berm) is the most common way of alleviating traffic noise impacts. A noise barrier effect occurs when the "line of sight" between the source and receiver is penetrated by the barrier. The greater the penetration, the greater the noise reduction.

The most effective method to control community noise impacts from non-transportation noise sources is through application of a Community Noise Ordinance. A Noise Ordinance is designed to protect residential areas from stationary noise sources. The noise levels encouraged by the ordinance are typical of a quiet residential area. The City will consider a new Community Noise Ordinance, as noted below in Policy 9.0L.

Guiding Policies: Noise

- 9.0a** Protect public health and welfare by eliminating existing noise problems where feasible and by preventing significant degradation of the future acoustic environment.
- 9.0b** Incorporate noise considerations into land use planning decisions.

GP Table 9.1 Noise/Land Use Compatibility Matrix								
Land Use Categories		Community Noise Equivalent Level CNEL						
Categories	Uses	< 60	65	70	75	80	85	>
RESIDENTIAL	Single Family, Duplex Multiple Family	A	C	C	C	D	D	D
RESIDENTIAL	Mobile Homes	A	C	C	C	D	D	D
COMMERCIAL Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Building, Research & Dev., Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation INSTITUTIONAL Civic Center	Amphitheater, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL Recreation	Childrens Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	A	B	B	B
COMMERCIAL General, Special INDUSTRIAL, INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL General	Hospital, Church, Library, Schools Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

Continued on next page

**GP Table 9.1
Interpretation**

**ZONE A
CLEARLY COMPATIBLE**

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

**ZONE B
NORMALLY COMPATIBLE**

New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

**ZONE C
NORMALLY INCOMPATIBLE**

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

**ZONE D
CLEARLY INCOMPATIBLE**

New construction or development should generally not be undertaken.

Source: Mestre Greve Associates; Guidelines for the Preparation and Content of the Noise Element of the General Plan, prepared by the California Department of Health Services in coordination with The Governor's Office of Planning and Research. Adapted to the City of Redlands' standards.

GP Table 9.2 Interior and Exterior Noise Standards			
LAND USE CATEGORIES Categories		COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) ENERGY AVERAGE CNEL	
		Interior ¹	Exterior ²
Uses			
RESIDENTIAL	Single Family, Duplex, Multiple Family	45 ³	60
	Mobile Home	---	60 ⁴
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Hotel, Motel, Transient Lodging	45	65 ⁵
	Commercial Retail, Bank Restaurant	55	---
	Office Building, Research & Development, Professional Offices, City Office Building	50	---
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	---
	Gymnasium (Multipurpose)	50	---
	Sports Club	55	---
	Manufacturing, Warehousing, Wholesale, Utilities	60	---
	Movie Theaters	45	---
	INSTITUTIONAL	Hospital, Schools classrooms	45
OPEN SPACE	Parks	---	60

GP Table 9.2
Interior and Exterior Noise Standards
Interpretation

* CNEL (Community Noise Equivalent Level) - The average equivalent A-weighted sound level during a 24 hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 pm to 10 pm and ten decibels to sound levels at night after 10 pm and before 7 am.

¹ Indoor environment excluding bathrooms, toilets, closets, corridors.

² Outdoor environment limited to private yard of single family as measured at the property line; multifamily private patio or balcony which is served by a means of exit from inside; mobile home park; hospital patio; park picnic area; school playground; hotel and recreational area.

³ Noise level requirement with open windows, if they are used to meet natural ventilation requirement.

⁴ Exterior noise level should be such that interior level will not exceed 45 CNEL.

⁵ Except those areas affected by aircraft noise.

See also Policy 9-s.

Source: Mestre Greve Associates.

- 9.0c** Support measures to reduce noise emissions by motor vehicles, aircraft, and trains.

The most efficient and effective means of controlling noise from transportation systems is reducing noise at the source. However, the City has little direct control over source noise levels because of State and federal preemption (i.e., State Motor Vehicle Noise Standards). Cooperative efforts with State and federal offices are essential.

- 9.0d** Adopt and enforce a Community Noise Ordinance to control non-transportation noise impacts.

Implementing Policies: Noise

Introduction: In addition to the provisions of the following sections 9.0e through 9.0z, it is the policy of the City of Redlands that no land use adjacent to existing residential land shall generate noise in excess of the residential CNEL levels specified in Table 9.1 and Table 9.2 of this Noise Element unless appropriate mitigation measures are imposed to reduce the noise level on adjacent residential property to the standards set forth in Tables 9.1 and 9.2.

- 9.0e** Use the criteria specified in GP Table 9.1 to assess the compatibility of proposed land uses with the projected noise environment, and apply the noise standards in GP Table 9.2, which prescribe interior and exterior noise standards in relation to specific land uses. Do not approve projects that would not comply with the standards in GP Table 9.2.

These tables are the primary tools which allow the City to ensure noise-integrated planning for compatibility between land uses and outdoor noise.

- 9.0f** Require a noise impact evaluation based on noise measurements at the site for all projects in Noise Referral Zones (B, C, or D) as shown on GP Table 9.1 and on GP Figure 9.1 or as determined from tables in the Appendix, as part of the project review process. Should measurements indicate that unacceptable noise levels will be created or experienced, require mitigation measures based on a detailed technical study prepared by a qualified acoustical engineer (i.e., a Registered Professional Engineer in the State of California with a minimum of three years experience in acoustics).

- 9.0g** Consider establishing a periodic noise monitoring program to identify progress in achieving noise abatement objectives and to perform necessary updating of the Noise Element and community noise standards.

The California Department of Health Services recommended that noise elements be updated every five years.

- 9.0h** Minimize potential transportation noise through proper design of street circulation, coordination of routing, and other traffic control measures.

- 9.0i** Require construction of barriers to mitigate sound emissions where necessary or where feasible, and encourage use of walls and berms to protect residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

- 9.0j** Require the inclusion of noise mitigation measures in the design of new roadway projects.

- 9.0k** Ensure the effective enforcement of City, State and federal noise levels by all appropriate City departments.

- 9.0l** Adopt and enforce a new Community Noise Ordinance to mitigate noise conflicts between adjacent land uses, to ensure that City residents are not exposed to excessive noise levels from existing and new stationary noise sources, and to educate the public regarding noise issues.

A Community Noise Ordinance establishes noise limits, typical of a quiet residential area, that can not be exceeded at the property line of the noise-creating use. The types of noise to be controlled include sources such as amplified sound, street sales, animals, construction and demolition, vibration, powered model vehicles, emergency signaling devices, power tools, air conditioning, and vehicles on private property.

- 9.0m** Designate one agency or department in the City to act as the noise control coordinator, to ensure the continued operation of the City's noise enforcement efforts, and to establish and maintain coordination among the City agencies involved in noise abatement.

- 9.0n** Ensure the effective enforcement of City, State, and federal noise levels by all appropriate City departments, and provide quick response to complaints and rapid abatement of noise nuisances within the scope of the City's police power.

- 9.0o** Establish noise guidelines for City purchasing policy to take advantage of federal regulations and labeling requirements.

- 9.0p** Coordinate with the California Occupational Safety and Health Administration (Cal-OSHA) to provide information on and enforcement of occupational noise requirements within the City.

- 9.0q** Provide for continued evaluation of truck movements in the City to provide effective separation from residential or other noise sensitive land uses.

- 9.0r** Encourage the enforcement of State Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Redlands Police Department.

- 9.0s** Require mitigation to ensure that indoor noise levels for residential living spaces not exceed 45 dB LDN/CNEL due to the combined effect of all exterior noise sources.

The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that "Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room." The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings.

Policy 9-s sets the maximum acceptable interior noise level at 45 CNEL. The Noise Referral Zones (65 CNEL) delineate areas within which tests to ensure compliance are to be required for new structures.

- 9.0t** Require proposed commercial projects near existing residential land use to demonstrate compliance with the Community Noise Ordinance prior to approval of the project.

- 9.0u** Require all new residential projects or replacement dwellings to be constructed near existing sources of non-transportation noise (including but not limited to commercial facilities or public parks with sports activities) to demonstrate via an acoustical study conducted by a Registered Engineer that the indoor noise levels will be consistent with the limits contained in the Community Noise Ordinance.
- 9.0v** Consider the following impacts as possibly "significant":

 - ▶ An increase in exposure of four or more dB if the resulting noise level would exceed that described as clearly compatible for the affected land use, as established in GP Table 9.1 and GP Table 9.2;
 - ▶ Any increase of six dB or more, due to the potential for adverse community response.
- 9.0w** Limit hours for all construction or demolition work where site-related noise is audible beyond the site boundary.
- 9.0x** Work with Caltrans to establish sound walls along freeways where appropriate.
- 9.0y** Minimize impacts of loud trucks by requiring that maximum noise levels due to single events be controlled to 50 dB in bedrooms and 55 dB in other habitable spaces.
- 9.0z** Coordinate with the San Bernardino International Airport Authority to minimize potential noise impacts to the City of Redlands which may result from overflights as specific airport operations and flight patterns are established.

10.0 HUMAN SERVICES ELEMENT

REDLANDS GENERAL PLAN

10.0 HUMAN SERVICES ELEMENT

Surveys for the *Redlands 2000* report (1988) revealed a need for a coordinated effort to ensure equitable distribution of human services and increase public awareness about the availability of human services. As with the rest of California, Redlands' population is becoming more diverse, the shares of old and young are increasing, and there are fewer stay-at-home mothers. There continues to be an increase in single-parent families and in teenage parents. These trends accentuate the need for effective human services for all ages to maintain a healthy community.

10.10 Human Services Coordination**Guiding Policies: Human Services Coordination**

10.10a Establish a centralized organization to coordinate and direct human services provided by the public and private sectors and perform the functions listed in implementing policies below.

A coordinated effort is necessary in order to maintain or increase the quality of human services without significantly increasing the tax burden on City residents, ensure the equitable distribution of human services and increase public awareness about the availability of human services.

10.10b Establish guidelines for planning, coordinating and evaluating current and proposed programs.

10.10c Support processes which ensure that those who are most affected by human services programs are centrally involved in the formation, implementation and evaluation of policies.

10.10d Advocate human rights and support services in the community for individuals, families, and homeless people.

10.10e Provide a communications network for human services agencies.

10.10f Assist community organizations in strengthening the service delivery system and encourage cooperation among the agencies to prevent unnecessary duplication of human services.

10.10g Maintain a human services directory.

10.10h Develop and maintain a community demographic profile to identify changing needs in the community.

10.10i Educate the public about human services needs and policies.

10.10j Develop a transportation network for health, nutritional and recreational needs.

Policies related to transportation may be found in Section 5, Circulation.

Implementing Policies: Human Services Coordination

10.10k Evaluate and consider the creation of an Office of Human Services and Relations.

10.10l Evaluate and consider the creation of a Human Services Advisory Commission.

10.10m Actively pursue and utilize governmental programs which address human services needs.

10.20 Family Needs**Guiding Policies: Family Needs**

10.20a Ensure that the City will consider and respect the impact that its plans, codes, regulations, and ordinances will have on the family.

It is in the interest of the City to nurture the family unit and to be aware of the effect of City policies on day care, housing, recreation, health and schools.

10.20b Make the City a model for other employers by maintaining personnel policies which support the family needs of its employees.

Implementing Policies: Family Needs

10.20c Develop and adopt a family policy for the City of Redlands.

10.20d Develop a plan for partnership with public and private entities to ensure adequate family support programs and recreational opportunities which are affordable and accessible.

10.30 Day Care**Guiding Policies: Day Care**

10.30a Integrate day care needs for children and frail elderly citizens in multigenerational settings into the planning processes of the City.

10.30b Identify and seek sources of funding for child and adult day care.

10.30c Assist the private sector in the development and coordination of day care for mildly ill children, handicapped family members, and dependent adults.

10.30d Assist the private sector in the development and coordination of day care facilities which provide services on a 24-hour basis.

10.30e Facilitate the development and acquisition of space for day care.

Implementing Policies: Day Care

10.30f Develop procedures which will expedite the necessary approvals and permits required for construction of day care facilities for children and frail elderly citizens.

10.30g Provide incentives to developers who include day care in their plans.

10.30h Develop plans to ensure that new day care centers are located in areas of the community where service is not currently or adequately provided.

10.40 Recreation**Guiding Policy: Recreation**

10.40a Maximize the availability of recreational facilities and activities throughout the City.

- ▶ Maximize the availability of recreational facilities;

Implementing Policies: Recreation

10.40b Evaluate and strive to ensure that all areas of the community have equal access to recreational facilities and activities.

10.40c Seek partnerships with schools and private entities to provide more recreational opportunities for citizens.

10.40d Evaluate and consider expanding after-school recreation programs.

10.40e Require that the recreational needs of children and adults be addressed in development plans.

See related policies in Section 7.10, Parks and Recreational Open Space.

10.50 Health**Guiding Policies: Health**

10.50a Promote health programs for the prevention of mental and physical illness.

10.50b Assist the private sector in developing programs to help frail elderly people and the disabled to receive the types of services that foster independence and integration into the community.

Implementing Policies: Health

10.50c Establish and coordinate community-wide education programs in the areas of substance abuse, sex education and communicable diseases.

10.50d Coordinate efforts to expand free clinic services and loaned personal medical equipment.

10.50e Support the provision of nutrition services in the City.

10.50f Establish a plan to retrofit public facilities to make them accessible to the disabled.

10.60 Education**Guiding Policies: Education**

10.60a Develop and implement programs to assist youth in making successful transitions to adulthood.

10.60b Improve and increase educational opportunities for all citizens.

10.60c Utilize cable television services to the greatest extent.

10.60d Support and cooperate with the Redlands Unified School District and the University of Redlands.

See related policies in Sections 4.91 and 4.92.

Implementing Policies: Education

10.60e Provide an emergency alert system and community programming through the cable television system.

10.60f Encourage the cable television system to provide mobile broadcast capability to cover municipal functions. City Council meetings and other community events.

10.60g Expand library services in cooperation with the Redlands Unified School District.

10.60h Coordinate and assist in the environmental education program that teaches about recycling, hazardous waste, landfills, anti-littering and water conservation.

10.60i Communicate with the Redlands Unified School District to allow for an open and effective exchange of information.

Policies concerning Redlands Unified School District may be found in Section 4.91.

11.0 ECONOMIC DEVELOPMENT ELEMENT
REDLANDS GENERAL PLAN

11.0 ECONOMIC DEVELOPMENT ELEMENT

The Economic Development Element is a source of information and a statement of public policy to aid citizens, business and industrial firms, the Planning Commission, other agencies and the City staff in making their recommendations for economic development. Further, it provides a framework to assist the City Council in developing and adopting policies and actions affecting the City's economy.

Business and industry, the major sources of jobs, personal income, and tax revenues, perform vital roles in the health of any local economy. A successful business economy can expand to meet the growing employment needs of a region's population, and, through tax contributions, enables local government to provide a wider range of public services.

City governmental policies can have important direct and indirect impacts on business and industrial decisions and operations. Transportation facilities, land use regulations, building codes, and environmental regulations are a few areas which impact the business community. Because a healthy business economy is essential to the quality of life in the City of Redlands, the General Plan will attempt to set a framework where business and industry can continue to profitably operate and expand, while minimizing any adverse effects on the community.

The Economic Development Element is specifically concerned with the creation of an overall strategy to identify development potentials that will broaden and stabilize the City's economic base.

By including an Economic Development Element in a city's General Plan, the city is in a position to regulate the type of future development envisioned for the community. It also ensures that fiscal impact is and will be included in a city's long-range policy setting relating to land use, public services, population, and growth. Economic development plans cannot be separated from the assets and values of the community and its citizens. Healthy and quality economic development may well be the mechanism by which the community goals become reality and by which the quality of life in Redlands will be maintained or enhanced.

Given the average annual population rate (3.16% per year) at which the City has been growing between 1980-1990, the economic future of the City could be questionable due to diminished residential growth and the improvements and City services provided by that type of development. It is essential, therefore, that the City maintain an aggressive role in attracting new businesses and industries, as well as retaining existing ones, that can help to fill any potential economic void, while at the same time providing local employment.

Studies indicate that currently some 40 to 50 percent of the workforce commutes outside this area for employment. Bringing jobs closer to home can mean improved air quality by reducing total vehicle miles traveled. It has been established that people shop for 20 to 30 percent of their needs in the near vicinity of their workplace. It is important, therefore to expand Redlands' employment base and thereby secure a larger daytime population in the City.

City policies on economic development deal with the needs of the existing business community, efforts to attract new employers into the City and actions needed to maintain an educated and skilled labor force to meet industry needs.

Guiding Policies: Economic Development

- 11.0a** Promote a climate conducive to economic growth and rejuvenation to enhance employment and investment opportunities without sacrificing environmental standards.
- 11.0b** Seek varied, convenient, high quality office and other commercial uses appropriate to Redlands to support the projected population.

- 11.0c Adhere to sound development standards to protect the investment of existing and future commercial and industrial areas.
- 11.0d Encourage coordination and balance between economic development and all other aspects of community life.
- 11.0e Attract business and industry by providing a wide range of urban amenities and services throughout the City.
- 11.0f Establish the appropriate organizational structure for fostering balanced economic development in the City of Redlands.

Implementing Policies: Economic Development

- 11.0g Assist in the expansion and retention of existing businesses and industries.
- 11.0h Encourage and attract specific types of businesses.
- 11.0i Anticipate the demand for commercial and industrial growth and employ governmental mechanisms to maintain a choice of sites, including large parcels, as an attraction to major employers.
- 11.0j Through cooperation and support, encourage development of a labor force with skills to meet the needs of the area's businesses and industries.
- 11.0k Promote redevelopment and rehabilitation of older commercial and industrial areas to make them more efficient, accessible, aesthetically appealing, and economically viable.
- 11.0l Encourage the location of commercial centers according to function and scale of the particular development so that centers of different scales complement one another and each is accessible to the primary market it is designed to serve.
- 11.0m Discourage independent commercial development extending along street frontages characterized by multiple curb cuts, proliferation of free-standing signs, congested traffic movement, and poor design features.
- 11.0n Strengthen and coordinate the City's economic development information and share this information within the Inland Empire as part of an enhanced effort to improve the competitive positions of both the City and the region.

Industrial and business locational decisions are based in large part on information concerning individual sites (zoning, access, development process, utilities), and the region (labor force, housing, schools, amenities). To compete with other metropolitan areas, the region needs an accurate and coordinated data base to provide this information.
- 11.0o Support and assist the long-term development of Redlands Airport and promote complementary land uses surrounding the airport.
- 11.0p Support design and development of a transportation system to service the business and industrial needs of the Planning Area in order to minimize congestion and circuitous travel.

APPENDICES

REDLANDS GENERAL PLAN

APPENDIX A - GLOSSARY

Acoustical Engineer	An engineer specializing in the measurement and physical properties of sound. In environmental review, the acoustical engineer measures noise impacts of proposed projects and designs measures to reduce those impacts.
Acre-Foot	The volume of water that would cover one acre to a depth of one foot. An acre-foot is equal to 326,000 gallons, about the amount of water used each year in and around the home by an average California family.
Acre, Net	See Net Acre.
ADT	Average daily traffic, a two-directional 24-hour traffic volume.
Affordable Housing	Dwelling units for which the housing payment is not more than 30 percent of household gross income for a specified income group.
AIC	Archaeological Information Center, housed in the San Bernardino County Museum.
Airport Land Use Commission (ALUC)	The county-level body, established pursuant to the State ALUC law, responsible for developing plans for achieving land use compatibility between airports and their environs. Assembly Bill 2831, September 19, 1994, allows alternatives to the formation of an ALUC if certain conditions are met.
Alluvium	A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material deposited during comparatively recent geologic time by a stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its flood plain or delta, or as a cone or fan at the base of a mountain slope.
Alquist-Priolo Earthquake Fault Zones	A seismic hazard zone designated by the State of California within which specialized geologic investigations must be prepared prior to approval of certain new development.
APZ	Accident Potential Zone.
AQMP	Air Quality Management Plan.
Army Corps of Engineers	A federal agency responsible for the design and implementation of publicly-supported engineering projects; any construction activity that involves filling a watercourse, pond, lake (natural or man-made), or wetlands (including seasonal wetlands and vernal pools), may require an Army Corps permit.
Arterials	Arterials provide circulation between major activity centers and residential areas, and also provide access to freeways. They are further subdivided into two categories, major and minor arterials, as described in GP Section 5.30.

Artificial

Groundwater Recharge	The process whereby water in an aquifer (a waterbearing stratum of permeable rock, sand, or gravel) is artificially replenished.
Avigation Easement	A recorded right to overfly a parcel granted to an airport owner.
Base Flood Elevation	The highest elevation, expressed in feet above sea level, of the level of flood waters occurring in the regulatory base flood. The base flood elevation represents the worst flooding experience in a community or an area.
Bedrock	The solid rock underlying unconsolidated surface materials.
Bike Lane	A corridor expressly reserved by markings for bicycles, existing on a street or roadway in addition to any lanes for use by motorized vehicles (Class II Bikeway).
Bike Path	A paved route not on a street or roadway, expressly reserved for bicycles. Bike paths may parallel roads but typically are separated from them by landscaping (Class I Bikeway).
Bike Route	A facility shared with motorists and identified only by signs. A bike route may or may not have pavement markings or lane stripes (Class III Bikeway).
BMR	Below Market Rate. BMR housing is subsidized to make it available to households that cannot afford current market price.
Borings	The process of making a hole in the earth and extracting material for analysis of its composition. By generalizing a finding over a wider area, it is possible to determine the relative stability of a site.
Buildout	That level of urban development characterized by full occupancy of all developable sites in accordance with the General Plan; the maximum level of development envisioned by the General Plan. Buildout does not assume that each parcel is developed to include all floor area or housing units possible under zoning regulations.
Caltrans	California Department of Transportation.
CALUP	Comprehensive Airport Land Use Plan.
Capital Improvement Program (CIP)	The multi-year scheduling of public physical improvements based on studies of fiscal resources available and the choice of specific improvements to be constructed.
CARB	California Air Resources Board.
Carbon Monoxide (CO)	An odorless, colorless gas formed by the incomplete combustion of fuels; roughly 80 percent of Bay Area CO emissions are estimated to be from motor vehicles.
CDBG	Federal Community Development Block Grant.
CDFFP	California Division of Forestry and Fire Protection.
CEQA	California Environmental Quality Act.

City	The City of Redlands.
Class I Bikeway	See Bike Path.
Class II Bikeway	See Bike Lane.
Class III Bikeway	See Bike Route.
Class I Disposal Site	Sites at which complete protection for the quality of groundwaters, surface waters, public health, and wildlife resources is provided for all time from wastes deposited therein. These sites are designated as capable of accepting for disposal Group 1, 2, and 3 wastes.
Class II Disposal Site	Sites at which protection to groundwaters, surface waters, public health, and wildlife resources is provided from Group 2 and 3 wastes.
Class III Disposal Site	Sites at which protection to water quality is provided from Group 3 wastes by location, construction, and operation which prevent erosion of deposited material.
CMP	Congestion Management Program, mandated by State Law.
CNDDB	California Natural Diversity Data Base, Department of Fish and Game.
Collectors	Collectors have the important function of collecting traffic from residential and commercial areas and channeling it to arterials. They are typically fronted by residences, commercial, or public activities. Collectors are usually two-lane streets, and maximum acceptable volumes are dictated by resident concerns about intrusion rather than traffic capacity considerations.
Commercial Strip	A retail and service commercial area extending along an arterial street.
Community Noise Equivalent Level (CNEL)	A 24-hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and 10 dB applied to the evening (7:00 to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods, respectively, to allow for the greater sensitivity to noise during those hours. An alternative measure is day-night average sound level (Ldn). The A-weighted average sound level for a given area (measured in decibels) during a 24-hour period with a 10dB weighting applied to nighttime sound levels. The Ldn is approximately numerically equal to the CNEL for most environmental settings.
Conservation	The management of natural resources to prevent waste, destruction, or neglect.
Critical Facility	Facilities having a vital role in a potential emergency, the failure of which might prove catastrophic.

- Culvert** A drain, ditch or conduit not incorporated in a closed system that carries drainage water under a driveway, roadway, railroad, pedestrian walk or public way. Culverts are often built to channelize streams and as part of flood control systems.
- Curb Cut** The opening along the curb line at which point vehicles or other wheeled forms of transportation may enter or leave the roadway. Curb cuts are essential at street corners for handicap use.
- DBCP** Dibromochloropropane, a syrupy toxin added to citrus water over 30 years ago for treatment of nematodes, and banned by the EPA in 1979.
- Decibel (dB)** A unit used to express the relative intensity of a sound as it is heard by the human ear. The decibel measuring scale is logarithmic. Zero (0 dB) on the scale is the lowest sound level that a normal ear can detect under very quiet ("laboratory") conditions and is referred to as the "threshold" of human hearing. On the logarithmic scale, 10 decibels are 10 times more intense, 20 decibels are 100 times more intense, and 30 decibels are 1,000 times more intense than 1 decibel. See also Decibel "A-Weighted."
- Decibel "A-Weighted" (dBA)** The scale for measuring sound in decibels that weights or reduces the effects of low and high frequencies in order to simulate human hearing. See also Decibel.
- DEIR** Draft Environmental Impact Report.
- Density, Base** The allowable residential density range for a General Plan land use classification, excluding any density bonus.
- Density Bonus** An increase in allowable density above base density granted in exchange for providing affordable or senior housing.
- Density, Gross** The number of housing units on a site divided by the total developable area of the site exclusive of drainages, power transmission easements, or other public or semipublic uses, measured to the centerline of abutting streets having a right-of-way of 100 feet or less. Streets having a right-of-way exceeding 100 feet are assumed to be 100 feet wide for the purpose of density calculation. Streets, whether public or private, within a site to be developed are included within gross acreage.
- Density, Net** The number of dwelling units per acre of developable residential land in a site, exclusive of public and private streets, drainage, power-transmission-line easements, or other public and semipublic uses.
- Density, Transfer** The transfer of density calculated as suitable if applied to all developable portions of a site is transferred to allow development of the same number of housing units on a portion of the site with remaining site area restricted as permanent open space.
- Design Review** The process whereby projects are reviewed for compliance with established design guidelines.
- Development Fees** Direct charges or dedications collected on a one-time basis for a service provided or as a condition of approval being granted by the local government. The purpose of the fee or exaction must directly relate to the need created by the development. In addition, its amount must be proportional to the cost of the service or improvement. Fees can be broken down into two major classes: 1) service charges such as permit fees covering the cost of processing development plans, connection or standby fees for installing utilities or application fees for reviewing and considering development proposals; and 2) "impact"

fees levied on new development to cover the cost of infrastructure or facilities necessitated by development.

DFG	State of California, Department of Fish and Game.
DHS	State of California, Department of Health Services.
DMG	State of California, Division of Mines and Geology.
Dwelling Unit (du)	A building or portion of a building containing one or more rooms, designed for or used by one family for living or sleeping purposes, and having a separate bathroom and only one kitchen or kitchenette. See Housing Unit.
Ecotone	A transition area between two adjacent ecological communities usually exhibiting competition between organisms common to both; often a rich biological area.
Effluent	A liquid discharged as waste, such as the outflow from a sewage treatment facility or storm sewer.
EIR (Environmental Impact Report)	A report on the effect of a proposed development proposal or other major action which would significantly affect the environment. The report consists of an inventory of existing environmental conditions, projected impacts of development, and mitigation for significant adverse impacts, as required by CEQA. A General Plan EIR is necessarily more general than a site-specific EIR.
ELF	Extremely low frequency electromagnetic fields.
Endangered Species, California	A native species or sub-species of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all or a significant portion of its range, due to one or more factors, including loss in habitat, change in habitat, over-exploitation, predation, competition, or disease. The status is determined by the State Department of Fish and Game together with the State Fish and Game Commission.
Endangered Species, Federal	A species which is in danger of extinction throughout all or a significant portion of its range, other than the species of the Class Insecta determined to constitute a pest whose protection under the provisions of the 1973 Endangered Species Act, as amended, would present an overwhelming and overriding risk to humans. The status is determined by the U.S. Fish and Wildlife Service and the Department of the Interior.
EPA	Environmental Protection Agency.
Epicenter	That point on the Earth's surface which is directly above the focus of an earthquake.
Erosion	The process by which soil and rock are detached and moved by running water, wind, ice, and gravity.
EVC	East Valley Corridor.
FAR	Floor Area Ratio. The ratio between gross floor area of structures on a site and gross site area. Thus, a two-story building covering 50 percent of its site would have a FAR

of 1.0.

Fault A surface or zone of rock fracture along which there has been displacement, from a few centimeters to a few kilometers in scale.

Federal Candidate

Species, Category 1

(Candidate 1) Species for which the U.S. Fish and Wildlife Service has sufficient biological information to support a proposal to list as Endangered or Threatened.

Federal Candidate

Species, Category 2

(Candidate 2) Species for which existing information indicates that these species may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

Federal Flood

Insurance

Affordable flood insurance offered by the federal government to property owners whose communities participate in the National Flood Insurance Program. Redlands is a participant.

FEIR

Final Environmental Impact Report.

FEMA

Federal Emergency Management Agency.

500-year flood A flood which has a 0.2 percent chance of occurrence in any given year.

Floor Area, Gross

The total horizontal area in square feet of all floors within the exterior walls of a building, but not including the area of unroofed inner courts or shaft enclosures.

Freeways

Freeways are high speed, high capacity limited access facilities serving intercity and regional travel.

General Plan

A comprehensive, long-term plan mandated by State Planning Law for the physical development of a city or county and any land outside its boundaries which, in its judgment, bears relation to its planning. The plan shall consist of seven required elements: land use, circulation, open space, conservation, housing, safety, and noise. The plan must include a statement of development policies and a diagram or diagrams illustrating the policies.

Greenhouse Effect

The gradual warming of the Earth's atmosphere attributed to the accumulation of gases caused by industrial and agricultural activities. Associated phenomena include the melting of the polar ice caps and rising sea levels.

Group 1 Wastes

Consist of or contain toxic substances and substances which could significantly impair the quality of usable waters. Examples are acids, alkalies, pesticides, and chemical toilet wastes.

Group 2 Wastes	Consist of or contain chemically or biologically decomposable material, which does not include toxic substances nor those capable of significantly impairing the quality of usable waters. Examples are garbage, rubbish, street refuse, dead animals, and agricultural crop residues.
Group 3 Wastes	Consist entirely of nonwater soluble, nondecomposable inert solids. Examples are dirt, rock, concrete, and asphalt.
Guiding Policies	The City's statements of its goals and philosophy.
Habitat	The natural environment of a plant or animal.
Hardscape	Rigid portions of the urban landscape, including the surfaces of streets and sidewalks, structures, and underground utilities.
Hazardous Waste	Waste which requires special handling to avoid illness or injury to persons or damage to property. Includes, but is not limited to, inorganic mineral acids of sulfur, fluorine, chlorine, nitrogen, chromium, phosphorous, selenium and arsenic and their common salts; lead, nickel, and mercury and their inorganic salts or metallo-organic derivatives; coal, tar acids such as phenol and cresols and their salts; and all radioactive materials.
High Occupancy Vehicle Lanes (HOV)	Traffic lanes that are permanently or periodically restricted by law to vehicles with two, three, or more occupants.
Historic and Scenic District	A significant neighborhood, agricultural or passive recreational open space, enclave or collection of historical buildings that may have been part of one settlement, architectural period, or era of development.
Historic or Scenic Thematic Collection	A historic or scenic thematic collection is a collection of significant sites or buildings which are not necessarily located together in the same geographical area, but are linked by a historical or architectural theme.
Historic Property	A historic property is a structure or site that has significant historic, architectural, or cultural value.
Household	Person or persons living in one dwelling unit.
Housing Payment	For ownership housing, this is defined as the mortgage payment, property taxes, insurance and utilities. For rental housing this is defined as rent and utilities.
Housing Unit, Multifamily	A dwelling unit in a structure designed and/or used to house three or more families living independently of each other.
Housing Unit, Single Family Detached	A dwelling unit that is structurally independent from any other residential unit.

Housing Unit, Single Family Attached	A dwelling unit that is separated from one or more adjoining dwelling units by a structural wall extending from ground level to the roof and having a separate heating system. This housing type includes duplexes, triplexes, townhouses, and condominiums. (This definition is adapted from the U.S. Census.)
Implementing Policies	The City's statements of its commitments to consistent actions.
Impervious Surface	Any material which reduces or prevents absorption of water into land.
Income, Above- Moderate	A household whose income exceeds 120 percent of the county median.
Income, Low	A household whose income does not exceed 80 percent of the county median.
Income, Median	The county-wide median income for a four-person household, as defined by the United States Department of Housing and Urban Development and the California Department of Housing and Community Development.
Income, Moderate	A household whose income is between 81 and 120 percent of the median family income for the county.
Income, Very-Low	A household whose income does not exceed 50 percent of the median family income for the county.
Infill	The development of new housing or other buildings on scattered vacant lots in a built-up area or on new building parcels created by permitted lot splits.
Inversion	Temperature inversions limit the amount of vertical mixing of air and thus trap pollutants in the lower atmosphere where people breathe. Inversions are characterized by a layer of warmer air above a layer of cooler air, a reversal of the normal decline in temperature with increasing altitude.
Jobs-Housing Balance	A ratio used to describe the adequacy of the housing supply within a defined area to meet the needs of persons working within the same area. The General Plan uses SCAG's definition which is a job total equal to 1.2 times the number of housing units within the area under consideration.
Landmark	Defined as a building, site, or area with exceptional character or exceptional historic or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the City, State, or Nation.
Landslide	The downslope movement of soil and rock.
Leachate	A solution obtained by leaching; e.g., water that has percolated through soil containing soluble substances and that contains certain amounts of substances in solution.
Liquefaction	A sudden large decrease in the shearing resistance of a cohesionless soil, caused by a collapse of the structure by shock or strain, and associated with a sudden but temporary increase of the pore fluid pressure.

Local Streets	Local streets have the sole function of providing access to adjoining land uses. All streets not depicted on the circulation plan are local streets.
LOS	Traffic Level of Service calculated on the basis of a volume-to-capacity ratio of an intersection.
MEA	Master Environmental Assessment.
Measure N/ Proposition R	Redlands' initiative Measure N, passed in November 1987, is a zoning ordinance amending Proposition R, which purports to set specific limits on residential density and the rate of residential growth in Redlands. As amended by Measure N, Proposition R, a zoning ordinance, allows a maximum 400 dwelling units to be added to the City each year, with no carry-over for unused allocation. Up to 50 of the units are to be single-family homes on existing lots, with the remainder to be allocated according to a point system. Sewer or water service may be extended to an additional 150 units per year (no carry-over) within the Sphere of Influence, consistent with the City's General Plan. No land designated by the current General Plan as urban reserve is to be redesignated for a higher density than one dwelling unit per 14,000 square feet of net site area, except by a four-fifths vote of the City Council with findings. The City must prepare a plan for the ultimate development of the Sphere of Influence and may approve annexations only if they are consistent with the Plan.
Mitigation	A specific action taken to reduce environmental impacts. Mitigation measures are required as a component of an environmental impact report (EIR) if significant impacts are identified.
MRZ	Mineral Resource Zone.
Net Acre	(See also Density, Net.) As used to calculate Floor Area Ratio (FAR), the area of a lot exclusive of land used or to be used for public or private streets or other rights-of-way, and land restricted to open space use by means other than transfer of FAR.
Nitrogen Dioxide (NO₂)	A reddish brown gas that is a byproduct of the combustion process and is a key to the ozone production process.
Noise Contour(s)	Isolines (a line on a map or chart along which there is a constant value) representing noise, measured in decibels. See also Community Noise Equivalent Level.
Non-point Source	A pollutant source introduced from dispersed points and lacking a single, identifiable origin. Examples include automobile emissions or urban run-off.
NPSC Program	Non-point source control program.
Omnitrans	The transit agency which serves the SANBAG area, including the City of Redlands.
100-year Flood	That flood event which has a 1-percent chance of occurrence in any one year.
Open Space	Any parcel or area of land or water devoted or committed to an open-space use as defined in the General Plan.
Oxidant	The production of photochemical reactions in the atmosphere between reactive organic gases and oxides of nitrogen.
Ozone	An oxidant, O ₃ , that makes up the largest single portion of smog.

Parcel	A lot or tract of land.
Particulate Matter	Minute, separate airborne solid or liquid particles including smoke, dust, aerosols, metallic oxides, and pollen.
PCB	Polychlorinated biphenyl, a highly toxic, petroleum-based compound used in the past as an insulating and lubricating product.
Peak Hour Traffic	The number of vehicles passing over a designated section of a street during the busiest one-hour period during a 24-hour period.
Planning Sector	The Redlands Planning Area is divided into seven planning sectors to facilitate description. Planning sectors are aggregations of the 73 Traffic Area Zones (TAZs), and are shown on GP Figure 1.4.
Point Source	A source of pollutants which may be traced to a point of emissions.
Population Holding Capacity	The population that would result if all vacant land designated for residential use within the City were built at the average density for the designated General Plan density category.
Proposition R	See "Measure N"
Reclaimed Wastewater	Treated sewage or excess irrigation water with chlorine or other chemical disinfectants added.
Response Time	The amount of time for an emergency services response, measured from the time of the distress call until arrival on the scene.
Retention Area	A pond, pool, lagoon, or detention basin used for the storage of water runoff.
Right-of-Way	A strip of land acquired by reservation, dedication, forced dedication, prescription or condemnation, and intended to be occupied or actually occupied by a road, crosswalk, railroad, electric transmission lines, oil or gas pipeline, water line, sanitary storm sewer or other similar use.
Riparian Habitat	Land and plants bordering a water course.
RIVSAN	Riverside-San Bernardino County traffic model.
RWQCB	Regional Water Quality Control Board.
SANBAG	San Bernardino Associated Governments.
SBCAPCD	San Bernardino County Air Pollution Control District.
SBVMWD	San Bernardino Valley Municipal Water District.
SCAG	Southern California Association of Governments.
SCAQMD	South Coast Air Quality Management District.

SCS	United States Department of Agriculture, Soil Conservation Service.
Seiche	Oscillation of the surface of an enclosed body of water owing to earthquake shaking.
Sensitive Receptors	Members of the population who are most sensitive to air quality include children, the elderly, the acutely ill, and the chronically ill. The term "sensitive receptors" can also refer to the land use categories where these people live or spend a significant amount of time. Such areas include residences, schools, playgrounds, child care centers, hospitals, retirement homes, and convalescent homes.
Siltation	The process of silt deposition. Silt is a loose sedimentary material composed of finely divided particles of soil or rock, often carried in cloudy suspension in water.
SMARA	Surface Mining and Reclamation Act of 1975.
Solid Waste	Unwanted or discarded material, including garbage, with insufficient liquid content to be free flowing.
Specific Plan	<p>A detailed plan that includes the text and maps or diagrams generally specifying the following for a portion of the area covered by the General Plan:</p> <ol style="list-style-type: none"> 1. Land use; 2. Distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and +other essential facilities; 3. Standards and criteria by which development will proceed; and 4. A program of implementation measures including regulations, programs, public-works projects, and financing measures. <p>A specific plan must be consistent with the General Plan.</p>
SSZ	Special Studies Zones, as defined under the Alquist-Priolo Special Studies Zone Act, 1973.
Subdivision	The division of a lot, tract, or parcel of land into two or more lots, tracts, parcels, or other divisions of land for sale, development, or lease.
Subsidence	The gradual sinking of land as a result of natural or man-made causes.
Substrate; Substratum	The material of which something is made and from which it derives its special qualities.
SWP	State Water Project.
TAZ	Traffic Analysis Zone. Data units used for land use and traffic analysis.
TCE	Trichloroethylene, an organic compound formerly used as an industrial solvent and heat-transfer medium.
TDM	Travel demand management.
The "Project"	In the EIR, the "Project" is "buildout in accord with Redlands General Plan."

The "No Project" Alternative	In the EIR, the "No Project" alternative evaluates existing conditions in the City.
Threatened Species, California	A native species or sub-species of a bird, mammal, fish, amphibian, reptile, or plant that, although not currently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts required by Chapter 1.5 of the State Department of Fish and Game Code.
Threatened Species, Federal	A species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
Transit	Public transportation provided by van, bus, or rail vehicle.
Trip	A one-way journey that proceeds from one origin to one destination. Each trip has two trip ends.
Trip-Generation Rate	The number of vehicle trips per acre, per 1,000 square feet of floor area, per housing unit or other unit of measure during a stated period. Measured trip-generation rates are used to project the impact of development on the traffic circulation system and as a basis for regulating the intensity of development.
TSM	Transportation Systems Management measures to reduce the number of single-occupant vehicle trips during peak hours.
Urban Conservation District	An urban conservation district is a residential or commercial neighborhood which meets the designation criteria, but contains a significant proportion of non-historic properties, and which the City wishes to maintain and revitalize.
USDA	United States Department of Agriculture.
USFS	United States Fish and Wildlife Service.
USGS	United States Geological Survey.
USGS Quadrangles	A U.S. Geological Survey-produced map showing natural and cultural features for an area extending across 15 minutes of longitude and 7.5 minutes of latitude.
Volume to Capacity (V/C) Ratio	A measure of the operating capacity of a roadway or intersection, in terms of the number of vehicles passing through, divided by the number of vehicles that theoretically could pass through when the roadway or intersection is operating at its designed capacity.
Waste Stream	All solid, semisolid and liquid wastes including garbage, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes.

- Waterway** A natural waterway can support its own environment of vegetation, fowl, fish, and reptiles, and appears natural.
- Wetlands** Transitional areas between terrestrial and aquatic systems, where the water table is usually at or near the surface, or the land is covered by shallow water. Under a unified methodology now used by Federal agencies, wetlands are defined as "those areas meeting certain criteria for hydrology, vegetation, and soils."
- Williamson Act** Known formally as the *California Land Conservation Act of 1965*, it was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a ten-year contract between the City or County and an owner of land whereby the land is taxed on the basis of its agricultural use rather than its market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.
- Xeric** Vegetation requiring only a small amount of moisture.
- Zanja** Known locally as the "Sankee," this canal was excavated by Native Americans in the 19th century, under the direction of missionaries. The channel receives water from Mill Creek and traverses the City of Redlands.
- Zoning District** A specifically delineated area on a zoning map within which regulations and requirements uniformly govern the use, placement, spacing, and size of buildings, open spaces, and other facilities.
- Zoning Ordinance** The City ordinance which divides Redlands into districts and establishes regulations governing the use, placement, spacing, and size of buildings, open spaces, and other facilities.