ENVIRONMENTAL HAZARD/SAFETY ELEMENT

The Environmental Hazard/Safety Element of the Coachella General Plan identifies the City's policy relative to the reduction and mitigation of natural and manmade hazards to increase the public safety of its citizens. The purposes of the element is to establish official City policy which:

- Identifies the types of natural or manmade hazards which significantly impact the City.
- Identifies standards to reduce loss of life and property damage associated with these hazards.
- Identifies desired courses of action/strategies to guide and enhance recovery from significant hazardous events.

EXISTING SETTING

GEOLOGIC/SEISMIC HAZARDS - The General Plan Area lies within the Coachella Valley, which is the lowland area lying west of the Indio and Mecca Hills and Orocopia Mountains and east of the Santa Rosa Mountains. This valley is actually very young (geologic time scale) and is a direct product of the extensional tectonics related to the Mid-Tertiary Salton Sea-Trough detachment fault, the Orocopia detachment system and the more modern San Andreas fault system. Detachment faulting associated with this extensional deformation, along with strike-slip faulting of the San Andreas formed these basin bounding mountains and low lying hills. Erosion of these elevated areas along with deposition from the Gulf of California and Colorado River have provided as much as 12,000 feet of sediments to fill this low land basin area.

Several active faults that either transect or are in close proximity to the Planning Area have been listed by the California Division of Mines and Geology (CDMG) as Alquist-Priolo Earthquake Fault Hazard Zones (APEFHZ) or County Fault Hazard Zones. These faults include:

- the San Andreas fault zone
- Painted Canyon fault zone
- Skeleton Canyon fault zone
- Indio Hills fault zone
- Coachella Fan fault zone

Other active/potentially active faults that have not yet been included as APEFHZ also transect the Planning Area. These faults include:

- the southeasterly fault segments or extensions of the Coachella Fan fault zone and Indio Hills fault
- the northwesterly extensions of the Painted Canyon and Skeleton Canyon fault zones

The above fault zone extensions are considered segments of the San Andreas fault zone and are not presently listed in APEFHZ or Riverside County Fault zones. However, based on currently available literature, they should be considered active, or at a minimum, potentially active.

The San Andreas and other fault zones within close proximity to the Planning Area are seismically active and are capable of generating strong ground shaking throughout the Coachella area. Maximum horizontal ground accelerations from 100 year probable earthquakes on these faults are anticipated to substantially exceed 0.4 g, which is the current maximum Uniform Building Code design value.

HYDROGEOLOGIC HAZARDS - There are two main, water bearing aquifers in the Coachella area including a shallow (or semi-perched) water table to within several feet or inches of the ground surface due to a restrictive clay layer and a deep ground water aquifer hundreds of feet below the surface.

The deep water aquifer of the Thermal Subarea of the Coachella Valley Groundwater Basin contains significant groundwater resources and is the principal source of potable water for Coachella and the other desert communities. An overdraft situation presently exists in this aquifer which the Coachella Valley Water District is managing through groundwater recharge programs.

Typically, as water is withdrawn from the lower aquifer and utilized for domestic, commercial and agricultural uses, excess runoff tends to recharge the shallow groundwater table. Historic shallow

groundwater levels have been generally less than 10 feet below the ground surface.

Potential for hydrogeologic hazards is associated with both shallow and deep water aquifers. With the extraction of large volumes of groundwater, there is the potential for subsidence (i.e. the sinking or downward settling of the earth's surface). While subsidence has not been documented as a significant concern in the Coachella area, the current ground water withdrawal practices and geologic conditions are similar to areas of Riverside County experiencing subsidence problems.

In combination with unconsolidated soils and seismic shaking, the perched aquifer creates a high potential for liquefaction throughout the study area. Liquefaction causes differential settlement, sand boils, lateral spreading, and lurching type failures and often results in the settling or overturning of heavy structures as well as the rising to the surface of buried tanks or other buoyant infrastructure.

SOIL HAZARDS - The majority of soils found in the Coachella General Plan Area are developed from alluvial fans, valley fill, or lacustrine (lake) basins within the Coachella Valley. The remaining soils were developed over the hilly terrain such as the Mecca Hills and on old terraces such as those found at the base of Santa Rosa Mountains. The soils on alluvial fans and valley fill range from fine sands in dune areas; to gravely, cobbly, or stony sands adjacent to hillsides; and to sandy loams in the central portion of the Plan Area. Those soils formed within lacustrine basins in the southern portion of the Planning Area are generally loams that can have a clay, silt, and/or sandy component to their character. Finally, those soils situated on hilly terrain and terraces range from sands to loams and can exhibit gravely, cobbly, and/or clayey matrix.

Soils or soil series associations developed on alluvial fans, valley fill, and lacustrine basins within the Coachella General Plan Area include: 1) Carsitas-Myoma-Carrizo, 2) Myoma-Indio-Gilman, 3) Gilman-Coachella-Indio, and 4) Salton-Indio-Gilman-Imperial associations. Soils or soil series associations developed on alluvial fans, old terraces and hilly terrain rimming the Coachella General Plan Area include: 1) Chuckwalla-Badland, and 2) the Badland-Carsitas associations.

While soils form a comparatively thin layer over the underlying geology, they can pose certain hazards themselves such as high susceptibility to wind erosion and blowsand with associated scouring and pitting damage to structures and vehicles, water erosion of soil which results in increased downstream sedimentation, slope instability including landslides and rockfalls, as well as expansive and collapsible soil hazards which can cause foundations, masonry walls and swimming pools to crack.

FLOOD HAZARDS - The General Plan Study Area lies within the lower end of the Coachella Hydrological Unit which encompasses approximately 1,600 square miles. This area is also referred to as the Whitewater River Basin in which all surface waters ultimately discharge into the Salton Sea. The Whitewater River originates in the San Bernardino Mountains and continues generally southward where it typically disappears into the sand west of Palm Springs. The dry watercourse then continues for about 50 miles through the Coachella Valley where it intercepts various other tributaries including Chino Creek, Tahquitz Creek, Palm Canyon Creek and Deep Creek before terminating at the Salton Sea. Only during seasonal storms does the watercourse convey significant flows and it has been channelized as the Coachella Valley Stormwater Channel along the lower branch, including that portion which passes through the City of Coachella, to control regional storm events.

Because the Coachella Valley Storm Channel effectively controls regional storm flows, flood hazards within the Coachella area are generally limited to the potential for seismically induced breach of the All-American Canal, and the Coachella Stormwater Channel as well as isolated areas of localized nuisance flooding.

FIRE HAZARDS

NEED CITY INPUT ON EXISTING FIRE CONDITIONS, HISTORY, LOCAL ISSUES, ETC.

HAZARDOUS MATERIALS

NEED CITY INPUT ON EXISTING HAZARDOUS MATERIALS SITES, HISTORY, LOCAL ISSUES ETC.

SUMMARY OF KEY ENVIRONMENTAL HAZARD/SAFETY ISSUES

- The San Andreas Fault runs along the base of the Mecca Hills with numerous smaller faults occurring throughout the Mecca Hills themselves. Fault locations should be determined and standards for development should be carefully regulated in this area to minimize structural damage and loss of life.

- Depth to groundwater is very shallow in much of Coachella. In combination with unconsolidated sediments and the potential for seismic shaking, liquefaction is a major concern throughout the study area and should be addressed through appropriate structural design requirements.

- Regional flooding in the Coachella area is effectively controlled by the Coachella Valley Stormwater Channel. There appears to be some revision/clarification needed regarding FEMA flood zones to remove some areas from designation and study/designate others.

- Some areas of local flooding exist within the study area. In particular, minor flooding occurs approximately once every two years on downtown streets which contribute flows to Shady Lane and Avenue 53. The City has developed engineering plans and is seeking funding to construct facilities which will alleviate this condition. Areas of periodic localized flooding also occur within the unincorporated area south of Coachella but, because of the rural/agricultural character of this area and the fact that flooding serves to complement irrigation, there are presently no plans to alleviate minor flooding in this area.

- Several high pressure gas lines cross the study area following the railroad right-of way which should be evaluated for conflict/damage due to train derailments. The relatively straight track alignment and flat terrain through Coachella would tend to reduce the likelihood of this type of incident.

ENVIRONMENTAL HAZARD/SAFETY VISION STATEMENT

An environmental hazard/safety vision statement, based on the key environmental hazards affecting the City as well as the desires of the citizens of Coachella and their elected officials is presented below. The goals, objectives, and policies described in this chapter are designed to make this vision statement a reality.

The City of Coachella's vision for the future concerning environmental hazards focuses on protecting the public from loss of life, health, or property damage due to the effects of natural and manmade hazards. Only when potential hazards are addressed can the citizens of Coachella anticipate a safe and secure future and high quality of life for themselves and their children.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

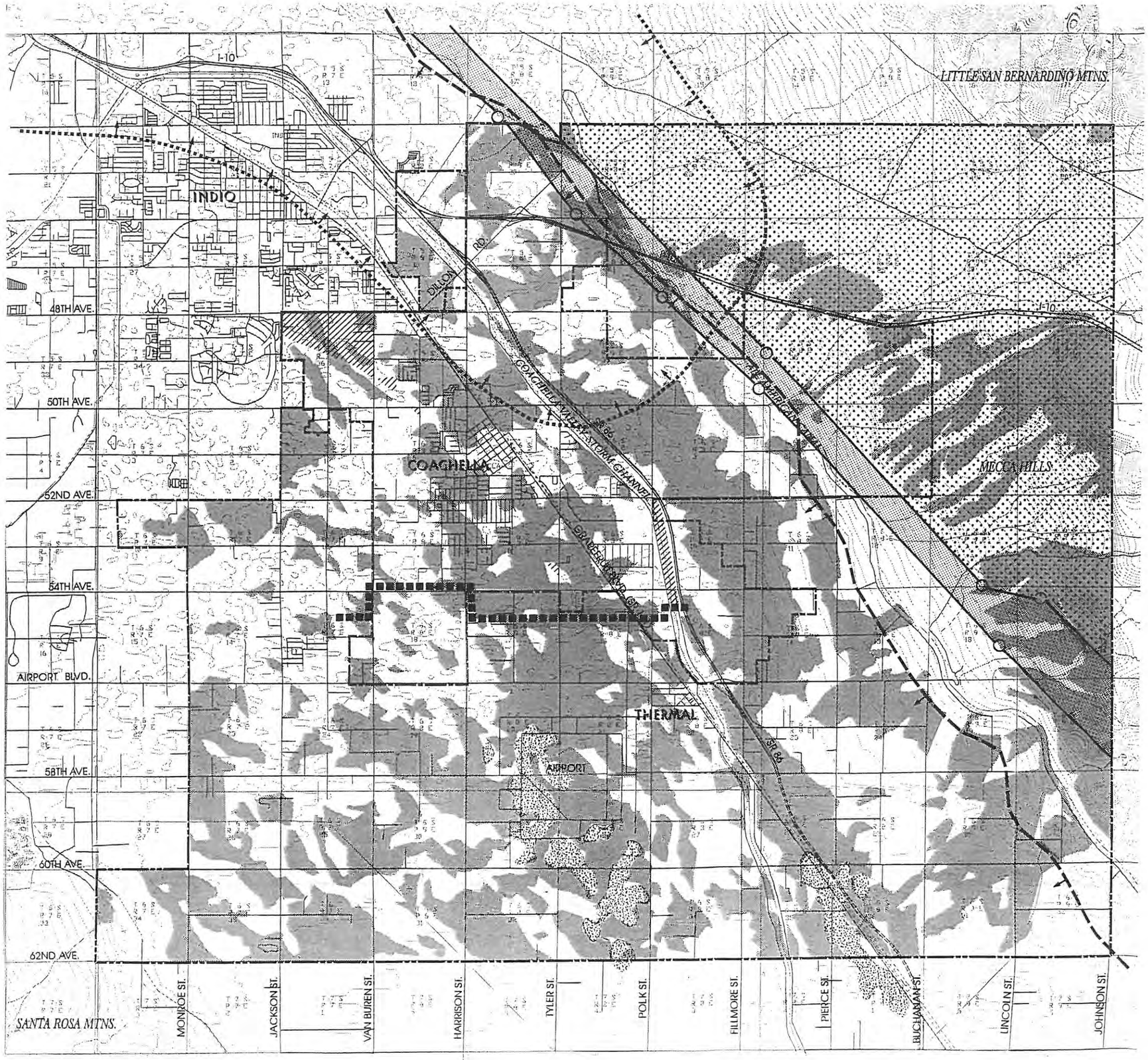
The Environmental Hazard/Safety Element is one of eleven interrelated elements in the Coachella General Plan. The Environmental Hazard/Safety Element is most closely related to the Land Use, Infrastructure and Public Services, Conservation, and Open Space Elements. The goals, objectives, and policies of the Environmental Hazards Element shall relate directly to and shall be consistent with all other elements of the Coachella General Plan.

OVERVIEW OF THE ENVIRONMENTAL HAZARDS POLICY DIAGRAM

The graphic depiction of the City of Coachella's official policy relative to environmental hazards is presented on Figure ___, Environmental Hazards Policy Diagram. This diagram illustrates the areas of the City impacted by natural and manmade hazards that must be reduced to attain the highest level of public safety possible at buildout of the community. The environmental hazards illustrated on the Environmental Hazards Policy Diagram include existing seismic hazards, soil hazards, wind hazards, and flood hazards that impact the community. These hazards are identified to call attention to the naturally occurring hazards which must be mitigated in order to reduce the level of risk to life and property in the City. The City's official policy relative to noise hazards is presented on Figure ___, _____. This diagram illustrates the areas of the City impacted by excessive noise hazards generated by vehicular traffic. Appropriate mitigation measures to reduce these impacts should be taken in these areas.

The development policies and standards described in the Environmental Hazards Element are the basis for Figures ___ and ___. The Environmental Hazards Policy Diagram should be used as a

general guide for the identification and location of naturally occurring or manmade hazard areas in the City. Figure ___, Predicted CNEL Noise Levels, should be used as a general guide to determine measurable criteria to minimize excessive noise exposure to City residents. These diagrams should be used in combination with the written development policies, standards and other guidelines in the text of the Environmental Hazards Element.



CITY OF COACHELLA GENERAL PLAN

Environmental Hazards Policy Diagram

Seismic Hazards

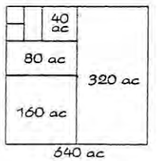
- San Andreas Fault (Alquist Priolo Earthquake Fault Zone)
- Other Potential Fault Areas

Soil Hazards

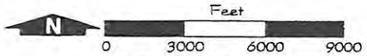
- Potential Liquefaction Area
- Soils With Expansion Potential
- Soils With Erosion Potential
- Active Blowsand Zone (Riverside County Planning Dept.)
- Potential Landslide Area

Flood Hazards

- Areas with 100 Year Flood Plain designation (FJRM Zone A, AO)
- Limit of FJRM Study



Note: Refer to EJR for more specific delineation of hazards shown on this diagram.



Smith, Peroni & Fox, Planning Consultants, Inc.
225 S. Civic Dr. Suite 1-3 Palm Springs, CA 92262

Figure

Predicted CNEL Noise Levels,

ENVIRONMENTAL HAZARDS ELEMENT GOALS, OBJECTIVES AND POLICIES

Goal

Eliminate injury, loss of life, property damage, and economic and social disruption caused by geologic and seismic events and unstable soil conditions

Objective

The City shall utilize a variety of alternative means to ensure that loss of life and damage to property are minimized as a result of geologic and unstable soils

Policy

The City shall continue to regulate development within Alquist-Priolo and other active/potentially active fault zones. Structures shall be set back 50 feet from each side of a mapped active fault or fault zone unless a geologic report that includes fault trenching recommends reduction of this setback.

Policy

Where active/potentially active faults have not been mapped, the City will consult with the Division of Mines and Geology regarding questions concerning fault alignment. The City shall require evaluation and, if necessary, site specific investigation for development proposed within 500 feet of active/potentially active faults to ensure protection of human life and property.

Policy

The City shall discourage land uses that are considered critical from locating in areas subject to geologic hazards. No emergency or critical use facility such as a hospital, school, fire and police station, utility facility, and communication facility shall be located within an active/potentially active earthquake fault zone.

Policy

Erosion control, foundation design, and landscape design plans shall be prepared in accordance with City and County guidelines prior to development activities within the planning area. These plans shall include proper methods to mitigate collapsible soils, expansive soils, and slope protection on newly graded slopes.

Policy

The City shall continually review new seismic studies, geologic studies, soils reports and any other pertinent information to update and refine the City's understanding of geologic and/or soils hazards within the study area.

Policy

The City shall cooperate with the Coachella Valley Association of Governments (CVAG) to reduce the hazards (i.e., respiratory and visibility) associated with airborne fugitive dust and blowsand within the City.

Policy

All grading and land form modifications in the planning area shall be carried out under guidelines set forth in Chapter 70 of the Uniform Building Code (as a minimum), state-of-the-practice design/construction standards, and/or guidelines established by the City, County or other responsible regulatory agency as appropriate. These should include slope design that addresses the worst case effects of fluctuating or perched ground water levels.

Policy

The City shall develop a comprehensive hillside safety program that involves slope stability incentives/disincentives for private property owners and provisions addressing post-development stability problems.

Policy

The City shall cooperate with the Coachella Valley Water District to prevent or mitigate subsidence due to groundwater extraction in the Coachella Valley alluvial basin.

Policy

The City shall require adequate building setbacks and structural mitigation to provide the most effective strategy of preventing loss of life and property from debris flows and earthquake-induced slope failures.

Policy

Where appropriate, the City shall require the preparation of geotechnical investigations by both a professional soils /geotechnical engineer and a certified engineering geologist to address geotechnical hazards (i.e. 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, etc.) for new construction, multi-story addition and lateral expansion projects.

Policy

The City shall prepare a comprehensive hillside conservation ordinance which regulates hillside development in order to minimize impacts due to soil erosion, landslide, flood, and wildland fires.

Policy

The City shall continually monitor and amend it's zoning code, building code, and engineering design standards to incorporate the most recent seismic Uniform Building and Safety Code as well as 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 (SSC), and the Southern California Earthquake Center (SCEC). All structures within the City shall be constructed to these standards.

Policy

The City shall assess the potential impacts of geotechnical hazards on major transportation lifelines (i.e. freeways, State highways, railroads, and airports). If impacts are suspected, the City shall encourage and support the seismically resistant upgrading of major transportation lifelines within the City and surrounding connected communities.

Policy

The City shall assess the potential impacts of liquefaction on existing critical facilities. If impacts are suspected, the City shall encourage and support precautionary measures (i.e. groundwater monitoring, dewatering, treatment of soil materials, and/or liquefaction resistant foundations and frames) in addressing high ground water conditions.

Policy

The City shall develop a blowsand mitigation program that uses native vegetation buffers and other means to reduce blowsand impacts on urban uses and transportation corridors. The effects of mitigation on native flora and fauna that require blowsand habitat for survival should also be considered.

Policy

The City shall require two points of vehicular access for emergency response in hillside areas susceptible to geologic hazards.

Policy

The City shall encourage the preservation and sensitive reuse of seismically vulnerable historic buildings in a manner that incorporates seismic mitigations and does not endanger public safety.

Goal

Eliminate injury, loss of life, property damage, and economic and social disruption caused by flood and inundation hazards.

Objective

The City shall utilize a variety of alternative means to control stormwater flooding in the City.

Policy

The City shall not approve development projects which are subject to localized flooding, seismically induced flooding or other high-risk inundation areas (i.e. adjacent to canals) unless flood and inundation hazards are mitigated to the satisfaction of the City and other responsible agencies.

Policy

The City shall coordinate with the Coachella Valley Water District (CVWD) to reduce the boundaries of the unprotected 100-year floodplain (Zone A and Zone AO) through the provision of stormwater collection and conveyance facilities pursuant to the recommendations of the Comprehensive Drainage Master Plan.

Policy

All areas designated within the 100-year floodplain, as denoted by the Federal Emergency Management Agency (FEMA), shall be identified in the City Comprehensive Drainage Master Plan.

Policy

The City shall coordinate with the CVWD and FEMA to remove remnant areas of 100 year flood plain from the Flood Insurance Rate Map where no true flood hazard exists and to delineate the City's 100-year flood plain in areas outside of FEMA's current "limits of study". The FIRM maps presently cover the incorporated City and northern portions of the study area but terminate at Avenue 58.

Policy

Major water courses and flood control facilities shall be designated as Transportation/Open Space (T/OS) land uses on the Land Use Policy Diagram. These areas shall be utilized only for recreational or open space purposes.

Policy

The City shall require that all drainage facilities identified in the City's Drainage Master Plan be constructed in accordance with the standards of the City and CVWD.

Policy

The City shall require the proper design of street stormwater facilities to avoid nuisance water ponding and the breeding of mosquitoes.

Objective

The City shall coordinate with local water agencies to protect the public from flash flood or other inundation hazards caused by structural failure and/or breaching of water storage tanks, canals, debris basins, or other reservoir facilities.

Policy

The City shall require appropriate flood plain management measures in high-risk inundation areas (i.e. adjacent to Whitewater River) and shall require development projects to be floodproofed and secured to minimize potential flood damage.

Policy

The City shall coordinate with local water agencies in the siting of water tanks or reservoirs. Anchoring of above-ground or placement of water tanks underground or in areas that will not impact downstream properties or structures in the event of a tank or reservoir failure is preferred.

Policy

The City shall coordinate with local water agencies in assessing the potential of seismically induced flooding from the All American Canal and the Coachella Valley Stormwater Channel. If impacts are identified, the City shall promote the seismically resistant upgrading of these facilities.

Goal

No loss of life or damage to property from wildland or urban fire hazards.

Objective

The city shall ensure that adequate fire protection facilities are utilized to provide the City with comprehensive fire protection and that the City is prepared to respond to emergencies produced by a variety of hazards.

Policy

The City shall continue to coordinate fire fighting efforts with Federal, State, and local agencies; and review and update mutual and automatic aid agreements between the City and other fire protection agencies.

Policy

The City shall coordinate with the Riverside County Fire Department to forecast fire personnel and facilities necessary to adequately serve the City at full buildout.

Policy

The City shall identify buildings and other facilities which increase the threat of structural fire hazards and determine whether rehabilitation or removal is necessary to protect public safety.

Objective

The City shall utilize a variety of mechanisms to reduce the threat of fire upon human life and structures in the City.

Policy

The City shall continue to review, publicize and update as appropriate its MHFP to ensure comprehensive emergency procedures are enacted in response to the threat of major structural fires.

Policy

The City shall investigate the creation of a benefit assessment district to assist the Riverside County Fire Department in financing new fire suppression facilities and staff necessary to protect the City.

Policy

The City shall consider adopting a comprehensive sprinkler ordinance for all new buildings or modifications to existing facilities, to include an approved automatic fire sprinkler system to reduce damage caused by structural fires.

Policy

The City shall evaluate its adopted Uniform Fire Code with Fire Protection Ordinance to determine the benefits and liabilities of existing County policies and enforcement procedures.

Policy

The City shall encourage use of fire retardant plants and expand and improve vegetation management efforts in wildland fire hazard areas.

Goal

A clean environment free of hazardous waste and municipal refuse.

Objective

The City shall ensure that land uses not negatively impact the natural environment of the City.

Policy

The City shall develop an inventory of existing and proposed hazardous materials facilities, generators and storage sites and evaluate their safety with regards to seismically induced ground motion.

Policy

The City shall not approve development proposals which involve the generation or storage of hazardous materials which cannot properly mitigate seismically induced hazards or unacceptable threats to public health and safety to the satisfaction of the City or other responsible agencies.

Policy

The City shall carefully review development projects located in the City to ensure that noxious fumes or hazardous materials are not directly or indirectly produced that would jeopardize the health of its citizens or the quality of its environment.

Policy

The City shall coordinate with the Southern Pacific Railroad and the Southern California Gas Company to assess the potential for railroad derailment and appropriate procedures for the prevention of hazardous material spills and/or gasline ruptures.

Objective

The City shall ensure that municipal refuse is properly disposed to minimize the risk of disease to City residents.

Policy

The City shall coordinate with the waste hauler to provide frequent municipal refuse collection service in the City and transfer service to the landfills serving the City.

Objective

The City shall coordinate with Riverside County to ensure that hazardous wastes are properly collected, transported and disposed of to minimize the risk to City residents.

Policy

The City shall require that the storage and transport of industrial chemicals and hazardous materials conform to City, State and Federal regulations.

Policy

The City shall encourage businesses and organizations which store and use hazardous materials to implement safe management and transportation procedures.

Policy

The City shall encourage timely communications between businesses and emergency response agencies regarding hazardous materials/waste incidents.

Goal

Strengthen City of Coachella short-term emergency response and long-term recovery capability.

Objective

The City shall use a variety of means to promote preparation for and rapid recovery from hazardous events.

Policy

The City shall develop a public awareness/ earthquake preparedness program to educate the public about emergency response and preparedness procedures.

Policy

The City shall coordinate with regulatory agencies including FEMA, CVWD, Riverside County, the Coachella Valley Water District, the Imperial Irrigation District, the General Telephone Company, the Southern California Gas Company, and the California Department of Transportation to establish, update and implement a Multi Hazard Functional Plan (MFHP) which addresses seismic, flood, fire and other hazards, including hazardous material incidents, hazardous buildings, critical facilities, emergency response preparedness and recovery with consideration to evacuation routes, peak load water supply requirements and minimum road width/clearance around structures.

Policy

The City shall encourage community involvement and promote improved cooperation with nonprofit and private sector organizations for emergency response and recovery.

Policy

The City shall seek to strengthen coordination capabilities with other County agencies to effectively respond to earthquake and non-earthquake induced emergencies.

Policy

The City shall encourage critical facilities to maintain and regularly update emergency response plans identifying safety procedures, disaster control capabilities, and evacuation methods.

Policy

The City shall seek to obtain and distribute information on Federal and State legislation regarding earthquake insurance programs.

Policy

The City shall encourage legislation that provides for improvement of earthquake hazard prediction and early warning capability.

Policy

The City shall seek to strengthen emergency communication systems and promote cooperation between the media and emergency response agencies.

Goal

Promote research on and mapping of natural and urban hazards; and improve safety information systems for planning, emergency response management and hazard mitigation.

Policy

The City shall promote improved public knowledge of hazards and emergency response procedures through public meetings, the Internet and other available media.

Policy

The City shall encourage research that will lead to the detailed mapping of seismic hazards including ground shaking resulting from earthquakes.

Policy

The City shall encourage legislation that provides early warning and disaster prediction research, and support application of the research results to emergency preparedness operations.

Policy

The City shall promote public awareness of the existing emergency response plan and facilities.

Policy

The City shall promote the construction of a Visitor Information Center or other educational facility in cooperation with other regulatory agencies that would promote public awareness of seismic hazards and emergency response procedures.

NOISE

Goal

An environment free from the negative effects of noise.

Objective

The City shall establish measurable criteria for noise levels from transportation and other sources to minimize excessive noise exposure to City residents.

Policy

The City shall support the enforcement of state motor vehicle noise laws.

Policy

The City shall generally designate major arterial roadways along _____ alignments to reduce

vehicular generated noise for interior residential parcels.

Policy

The City shall develop a truck route plan to keep truck traffic on designated roadways.

Policy

The City shall reduce the potential generation of vehicle noise at roadway intersections through its approval of intersection control devices (i.e., stop signs, traffic signals) where existing levels of service warrant such measures.

Policy

The City shall evaluate the realignment/redesign or new construction of major arterial, primary arterial and secondary arterial roadways to minimize the impacts of vehicle generated noise upon residential and other noise sensitive land uses.

Objective

The City shall ensure that measurable criteria for noise levels impacting adjacent land uses generated by stationary or mobile sources are identified in the General Plan to minimize excessive noise exposure to City residents.

Policy

The City shall prepare and adopt a noise control ordinance with quantified noise threshholds.

Policy

The City shall train and equip its staff to enforce the noise control ordinance.

Policy

The City shall adopt noise impact and attenuation standards, consistent with state insulation standards for different land use types to protect its citizens from potentially incompatible land uses and proximity to transportation corridors.

Policy

The City shall require noise control plans for new development located within 3,400 feet of the centerline of major arterial roadways and 2,800 feet of the centerline of primary arterial roadways.

Policy

At the discretion of the City, a noise analysis shall be required for all non-residential uses located within 1,000 feet of residential uses.

Policy

The City shall adopt design standards for sound barriers to minimize their visual impact and to permit visual access to gated communities.

Policy

The City may require remedial noise control plans for areas experiencing noise in excess of adopted City standards.

Policy

The City shall utilize the standards presented on Table ___, Noise Standards for Land Use Compatibility, as a guide regarding permissible interior and exterior noise levels, as well as treatment provisions in areas exceeding 60 db CNEL.

Policy

The City shall utilize Figure ____, Predicted CNEL Noise Levels to illustrate areas in the City which may be impacted by excessive noise in the City at buildout. Appropriate mitigation measures to reduce vehicular generated noise impacts shall be implemented

ENVIRONMENTAL HAZARDS ELEMENT IMPLEMENTATION MEASURES

The various actions, programs and strategies the City should take to implement the goals, objectives and policies of the Environmental Hazards Element are presented on Table ____, the City of Coachella Environmental Hazards Element Implementation Measures.

- Implementation Measure - Includes a description of the action program and/or strategy which implements the infrastructure and public services development policies.

- Purpose - Identifies the intent and purpose of accomplishing the implementation measure.

- Key Participants - Identifies the appropriate public and/or private body, agencies, group, individuals or volunteers responsible to complete the implementation measure.

FIGURE

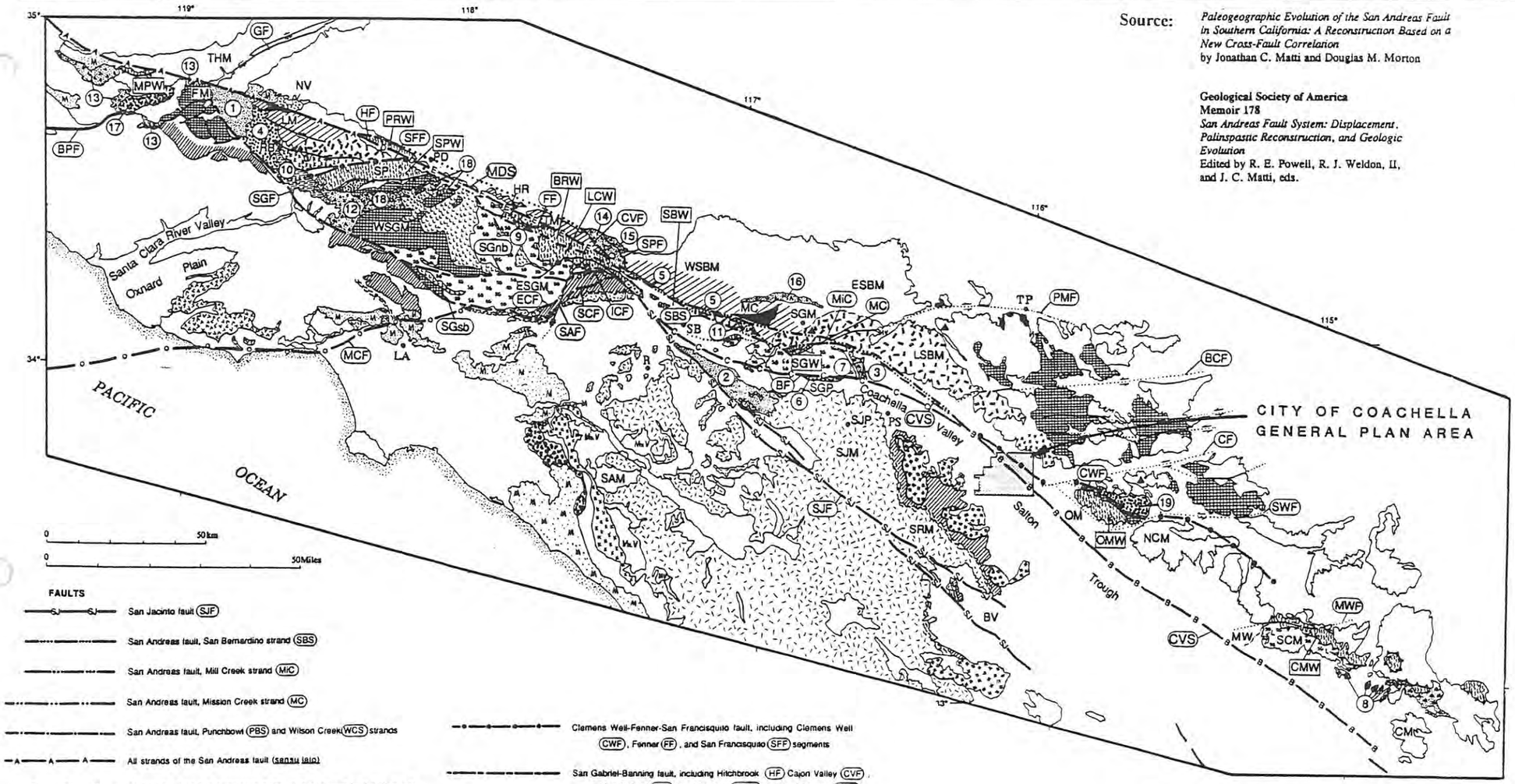
CITY OF COACHELLA ENVIRONMENTAL HAZARDS ELEMENT IMPLEMENTATION MEASURE

Implementation Measures	Purpose	Key Participants
Establish a program to determine definitive locations where Seismic Faults and Soils Hazard exist	To identify areas in the City where development hazards could cause structural damage of loss of human life	Ca. Div. Of Mines & Geology Soil Conservation Service Planning Department
Evaluate enhanced construction standards for development above potentially hazardous soils	To minimize the risk for structural damage and loss of life during seismic events	City Council Engineering Department Planning Department Building Department
Review, publicize and update the City's Multi-Hazard Functional Plan	To define the appropriate emergency procedures to minimize damage and loss of life in the event of extraordinary emergency situations (i.e. earthquake, flooding, hazardous materials event)	All City Departments
Prepare a structural and fire hazard building analysis for the City	To determine the extent and location of structurally deficient buildings and/or buildings which are fire hazards	Engineering Department Planning Department Building Department Riv. County Fire Department
Evaluate the establishment of a benefit assessment district	To finance new fire suppression facilities and staff to protect the City and reduce fire insurance premiums	City Council Finance Department Riv. County Fire Department
Establish a Comprehensive Sprinkler Ordinance	To reduce property damage, amount of suppression facilities, personnel requirements and fire insurance premiums	City Council Planning Commission Planning Department Building Department Riv. County Fire Department
Evaluate and consider for adoption the Existing County Fire Protection Ordinance	To create consistent policies and enforcement procedures between Riverside County and City	City Council Planning Commission Planning Department Building Department
Evaluate the benefits of removing remnant A and AO Designated Areas from FEMA mapping	To remove appropriate parcels from the need to pay unnecessarily high flood insurance premiums	CVWD Engineering Department
Prepare and implementation program for the Waste Stream Source Reduction and Recycling Plan	To maximize the life of the existing landfills	Planning Department CVAG County of Riverside

Implementation Measures	Purpose	Key Participants
Establish a Comprehensive Hazardous Materials Transport Notification Procedure	To work with Riverside County to establish a proper notification procedure to alert the City, County Sheriff and Fire Department to provide escort and public protection from exposure or contamination	Coachella Police Department Riv. County Fire Department
Prepare and adopt a Truck Route Plan	To restrict truck traffic and associated noise to routes with compatible land uses or noise protection measures	City Council Planning Commission Planning Department Engineering Department Coachella Police Department Business Community Trucking Industry
Prepare and adopt a Noise Control Ordinance	To establish a quantifiable noise limit which can be enforced to reduce conflicts between land uses and individuals	City Council Planning Commission Planning Department
Prepare and adopt Noise Impact and Attenuation Standards	To provide the basis for the determination of compatability between land uses and noise levels allowing preventative actions before conflict occurs	City Council Planning Commission Planning Department
Prepare and adopt design standards for Noise barriers	To provide for cost effective noise mitigation, compatability with urban design objectives and guidance for the development of the community	City Council Planning Commission Planning Department Engineering Department
Enforce state motor vehicle noise laws	To effect responsible vehicle maintenance and operations by reducing noise emissions	Coachella Police Department Planning Department
Include noise impacts as criteria within the City's street functional classification system	To minimize noise levels within residential neighborhoods	City Council Engineering Department Planning Department
Include noise impacts as criteria for the use of intersection traffic control devices	To minimize traffic flow interruptions which contribute to vehicular braking and acceleration noise	City Council Coachella Police Department Planning Department Engineering Department
Evaluate all arterial street realignment/redesign and new construction projects	To incorporate noise mitigation measures prior to construction where necessary to attain noise standards	Engineering Department Planning Department
Train and equip staff for noise control	To effectively enforce its noise control ordinance, specialized equipment and staff are needed	City staff

Implementation Measures	Purpose	Key Participants
Require noise control plans for all projects within 3,400' of major arterials and 2,800' of primary arterials	To incorporate, prior to approval where necessary, noise attenuation design measures to attain noise standards	City Council Planning Commission Planning Department

Implementation Measures	Purpose	Key Participants
Require noise analysis for all non-residential uses within 1,000' of residences	To incorporate, prior to approval, where necessary, noise attenuating design measures to minimize conflict between land uses and attain noise standards	City Council Planning Commission Planning Department
Require remedial noise control plans for areas exceeding noise standards	To initiate a process to address existing noise problem areas, resulting in maintenance of environmentally healthy neighborhoods	City Council Planning Commission Planning Department
AIR QUALITY ELEMENT IMPLEMENTATION MEASURES		
Maintain Active City participation in the Coachella Valley PM10 Technical Working Group	To continue to represent the interests and promote the objectives of the City in the Working Group's formulation of implementation measures relative to the control of PM10 emissions and to illuminate local PM10 related planning with the regional perspective represented by other group participants	City Council Planning Commission Planning Department
Establish guidelines for assessing air quality impacts through the City Traffic Impact Report process	To insure that the potential for significant air quality impacts resulting from new development is considered and to validate air quality objectives as justification for mitigation of traffic impacts	City Council Planning Commission Engineering Department Planning Department
Incorporate maintenance of air quality objectives as an additional goal and justification for roadway and intersection improvements within the City's Critical Intersection Plan and Traffic Monitoring Program	To establish maintenance of air quality a*a valid justification of roadway and intersection improvements	City Council Planning Commission Engineering Department Planning Department
Explore the feasibility of replacing existing City vehicles with alternate vehicles which operate on clean-burning fuels	To determine the feasibility and possible approaches to reducing automobile polluntant emissions by replacing retired City vehicles with vehicles which operate on clean-burning fuels such as natural gas, methanol, propane, or electricity	City Council Planning Department Engineering Department Finance Department
Prepare Development Site Design Guidelines which promote Air Quality Objectives	To identify and encourage the incorporation of site design features in new development which contribute to the reduction of automobile emissions by facilitating the use of alternative travel modes and which reduce parking lot and internal circulation travel, vehicle idling time and promote pedestrian travel	City Council Planning Department Engineering Department



FAULTS

- San Jacinto fault (SJF)
- San Andreas fault, San Bernardino strand (SBS)
- San Andreas fault, Mill Creek strand (MiC)
- San Andreas fault, Mission Creek strand (MC)
- San Andreas fault, Punchbowl (PBS) and Wilson Creek (WCS) strands
- All strands of the San Andreas fault (sensu lato)
- All strands of the San Andreas fault (sensu lato) except for the Clemens Well-Fenner-San Francisquito fault and the San Jacinto fault.
- Banning fault + San Gabriel fault + eastern segments of the Malibu Coast-Raymond fault
- All strands of the San Andreas fault (sensu stricto), including the Punchbowl-Wilson Creek, Mission Creek, Mill Creek, and San Bernardino strands
- All strands of the San Andreas fault (sensu stricto) except for the Punchbowl-Wilson Creek strand
- Clemens Well-Fenner-San Francisquito fault, including Clemens Well (CWF), Fenner (FF), and San Francisquito (SFF) segments
- San Gabriel-Banning fault, including Hitchbrook (HF) Cajon Valley (CVF), San Gabriel (SGF) [north branch (SGnb) and south branch (SGsb)], Icehouse Canyon (ICF) Stoddard Canyon (SCF), and Banning (BF) segments
- Malibu Coast fault (MCF), including Santa Monica, Raymond, Evey Canyon (ECF), Icehouse Canyon (ICF), and Banning (BF) segments
- Eastern Peninsular Ranges mylonite zone of Sharp (1979) and Erskine (1985.
- Thrust fault, including Squaw Peak fault (SPF) and faults placing crystalline rock over Pelona Schist in the San Gabriel and San Bernardino Mountains (Vincent Thrust) and over Orocopia Schist in the Orocopia Mts. (Orocopia thrust) and southern Chocolate Mts. (Chocolate Mountains thrust)

Source: *Paleogeographic Evolution of the San Andreas Fault in Southern California: A Reconstruction Based on a New Cross-Fault Correlation*
by Jonathan C. Matti and Douglas M. Morton

Geological Society of America
Memoir 178
San Andreas Fault System: Displacement, Palinspastic Reconstruction, and Geologic Evolution
Edited by R. E. Powell, R. J. Weldon, II, and J. C. Matti, eds.

CITY OF COACHELLA GENERAL PLAN AREA

Generalized geologic map of southern California

BCF = Blue Cut fault; BV = Borrego Valley region; CF = Chiriaco fault; CM = Cargo Muchacho Mountains; CP = Cajon Pass region; CVS = Coachella Valley segment, San Andreas fault; ESBM = eastern San Bernardino Mountains; ESGM = eastern San Gabriel Mountains; FM = Frazier Mountain region; GF = Garlock fault; HR = Holcomb Ridge; LA = Los Angeles; LC = Lytle Creek; LM = Liebre Mountain block; LSBM = Little San Bernardino Mountains; MC = Mill Creek region; MDS = Mojave Desert segment, San Andreas fault; MV = Morongo Valley; MW = Mammoth Wash; MWF = Mammoth Wash fault; MZV = Mesozoic volcanic rocks; NCM = northern Chocolate Mountains; NV = Neenach Volcanics; OM = Orocopia Mountains; PD = Palmdale; PMF = Pinto Mountain fault; PS = Palm Springs; R = Riverside; RB = Ridge Basin; SB = San Bernardino; SAF = San Antonio fault; SAM = Santa Ana Mountains; SCM = southern Chocolate Mountains; SGM = San Gorgonio Mountain; SGP = San Gorgonio Pass; SJM = San Jacinto Mountains; SJP = San Jacinto Peak; SP = Sierra Pelona; SRM = Santa Rosa Mountains; SW = Salton Wash; SWF = Salton Wash fault; THM = Tehachapi Mountains; TM = Table Mountain; TP = Twentynine Palms; V = Valyermo; WSBM = western San Bernardino Mountains; WSGM = western San Gabriel Mountains.

EXPLANATION

Mostly Pliocene nonmarine sedimentary rocks, including:
(1) Hungry Valley Formation of Crowell (1950)
(2) San Timoteo and Eden beds and Potrero Creek deposits of Frick (1921)
(3) Imperial Formation and Painted Hill Formation of Allen (1957)

Upper Miocene nonmarine sedimentary rocks, including:
(4) Ridge Basin Group of Crowell (1954a,b)
(5) Unnamed nonmarine rocks of Morton and Miller (1975)
(6) Hathaway Formation of Allen (1957)
(9) Punchbowl Formation

Upper Miocene marine sedimentary rocks, including:
(10) Castaic Formation of Crowell (1954a,b)

Middle and upper Miocene nonmarine sedimentary rocks including:
(7) Coachella Fanglomerate of Vaughan (1922) as used by Allen (1957) and Peterson (1975)
(8) Fanglomerate of Bear Canyon of Dillon (1975)
(11) Mill Creek Formation of Gibson (1971)
(12) Mint Canyon Formation
(13) Caliente Formation
(14) Punchbowl Formation of Cajon Valley of Woodburne and Golz (1972) referred to as Cajon beds in this report
(15) Crowder Formation of Meisling and Weldon (1989)
(16) Santa Ana Sandstone of Vaughan (1922) as used by Sadler and Demirer (1988)

Undifferentiated Miocene marine and nonmarine sedimentary rocks

Lower Miocene and upper Oligocene nonmarine sedimentary and volcanic rocks, including:
(17) Plush Ranch Formation of Carman (1964)
(18) Vasquez Formation
(19) Diligencia Formation of Crowell (1975b)

Undifferentiated Tertiary volcanic rocks and shallow-level plutonic rocks

Paleocene and upper Cretaceous marine rocks of the San Francisquito Formation and correlative rocks of the Santa Ana Mountains

Pelona Schist and Orocopia Schist, including the following windows:
BRW Blue Ridge window; PRW Portal Ridge window; CMW Chocolate Mts. window; SBW San Bernardino Valley window; LCW Lytle Creek window; SGW San Gorgonio window; MPW Mount Pinos window; SPW Sierra Pelona window; OMW Orocopia Mts. window

Crystalline rocks of San Gabriel Mountains-type, including Mesozoic granitoid rocks intrusive into Proterozoic orthogneiss and Paleozoic and/or Proterozoic metasedimentary rocks; includes small bodies of the Joshua Tree and San Gabriel terranes of Powell (1982a,b)

Granitoid and metasedimentary rocks of Peninsular Ranges-type structurally beneath the Eastern Peninsular Ranges mylonite zone of Sharp (1979)

Granitoid and metasedimentary rocks of Peninsular Ranges-type structurally above the Eastern Peninsular Ranges mylonite zone of Sharp (1979)

Granitoid rocks in the Santa Rosa Mountains bottomed by low-angle faults mapped by Sharp (1979), Matti and others (1983b), and Erskine (1985)

Mesozoic and pre-Mesozoic crystalline rocks of San Bernardino Mountains-type in the San Bernardino Mountains, Liebre Mountain block, and Table Mountain-Holcomb Ridge slice. These rocks are generally similar to each other, and in these slices they form a coherent province after displacements on the San Gabriel and San Andreas faults are reconstructed

Mesozoic and pre-Mesozoic crystalline rocks of the Little San Bernardino Mountains and rocks in the Liebre Mountain, Wilson Creek, and Pinyon Ridge blocks that we propose are comparable

Mesozoic granitoid rocks of the southern Little San Bernardino Mountains proposed by Smith (1977) and by Joseph and others (1982b) to be comparable with rocks in the La Panza Range

Triassic granodiorite and monzogranite of the Lowe igneous pluton of Joseph and others (1982a)

Triassic megaporphyritic monzogranite and quartz monzonite of Frizzell and others (1986), including similar-appearing rocks in the Little San Bernardino Mountains mapped by Trent (1984) as the porphyritic quartz monzonite of Twentynine Palms

Proterozoic rocks of San Gabriel Mountains-type, including orthogneiss, anorthosite, syenite-manganese, and gabbro (San Gabriel terrane of Powell, 1982a,b) and metaquartzite, pelitic gneiss and schist, and marble nonconformably overlying orthogneiss (Joshua Tree terrane of Powell, 1982a,b)

▲ Occurrences of aluminous granitoid rock (polka-dot granite of Ehrig and Joseph.

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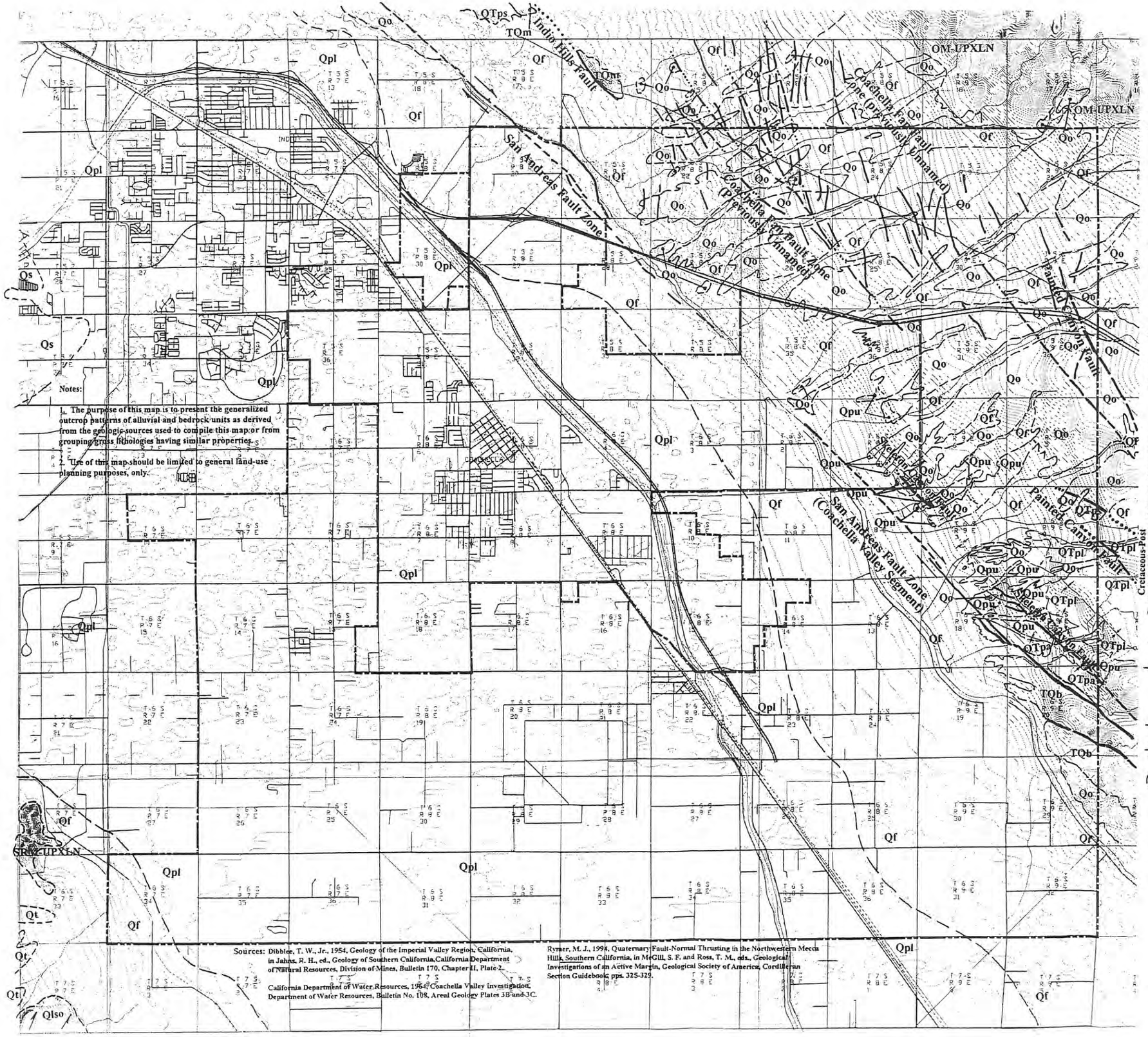
Coachella General Plan Area

Figure

Regional Generalized Geologic Map



CITY OF COACHELLA GENERAL PLAN

EXPLANATION

Geologic Units

Qs - Dune Sand
Qf - Alluvial Fan and Stream Deposits within Mountain or Hill Areas
Qpl - Alluvial Plain and Lake Deposits (includes Active Channel Deposits)
Qt - Older Alluvial Fan and Terrace Deposits
Qlso - Landslide Deposits, older
Qo - Ocotillo Conglomerate
Qpu - Upper Palm Springs Formation

Pleistocene-Recent

QTpa - Arkosic facies of the Palm Springs Formation
QTpl - Lower Palm Springs Formation
QTps - Undifferentiated Palm Springs Formation
TQb - Borrego Formation
TQm - Mecca Formation

Pliocene-Pleistocene

SRM-UPXLN - Upper Plate Crystalline (Granitic) Rocks of the Santa Rosa Mountains Detachment Fault Complex
OM-UPXLN - Upper Plate Crystalline (Granitic) Rocks of the Orocopia Mountains Detachment Fault Complex

Cretaceous (Miocene?)-Post Cretaceous-(Miocene?)

Geologic Symbols

Contact, Dashed Where Inferred and Questionable

Fault, Dashed Where Approximately Located, Dotted Where Concealed or Inferred, Arrows Indicate Direction of Relative Lateral Movement

Anticline, Dashed Where Approximately Located

Syncline, Dashed Where Approximately Located

Landslide Areas, Arrows Indicate Direction of Movement

Coachella General Plan Area

Figure

Generalized Geologic Map

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CITY OF COACHELLA
GENERAL PLAN

Explanation

Erosion Potential

High to Very High; includes Coachella and Myoma Soil Series (primarily blow sand), and Badlands areas east of the Coachella Canal (water erosion).

High; includes Indio Soil Series (primarily wind erosion).

Active Blow Sand Area Boundary (Riverside County Planning Department)

Notes:

1. The wind and water erosion potential depicted on this map is based on information obtained from the Soil Conservation Service for the Planning Area. Some soils series have been grouped together based on common characteristics. In this regard, the use of this figure should be limited to general land-use planning purposes, only.

Source:

1. Knecht, A., 1980, Soil Survey of Riverside County, Coachella Valley Area, USDA, Soil Conservation Service.

2. Riverside Planning Department, 1983 (revised 1988), Seismic-Geologic Map, Riverside County Comprehensive General Plan.

Coachella General Plan Area

Figure

Generalized Erosion Potential

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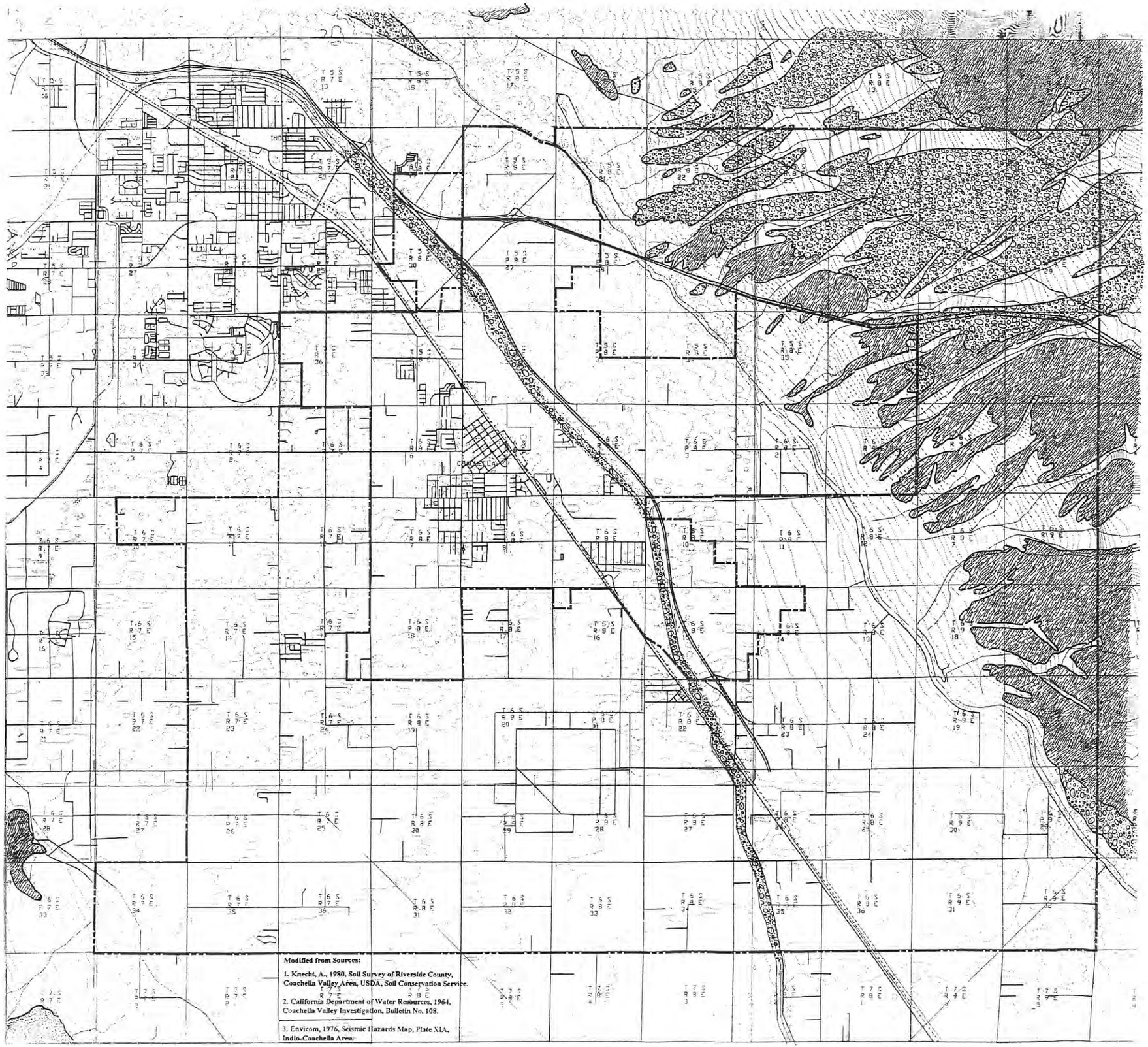

CITY OF COACHELLA
GENERAL PLAN

Explanation

Generalized Landslide Potential

- Low to Moderate
- Moderate to High
- Mapped, Existing Landslide

Notes:

1. In general, landslide potential is based on soil type, rock type and slope gradient. Most landslides in the Planning Area will occur in the form of stream channel bank failures and debris flows; primarily easterly of the Coachella Canal.

2. Hillside areas with few or no existing landslides or landslide potential may reflect the status of landslide mapping or the presence of landslides less than five acres. This map does not preclude the existence of existing landslides or the potential for slope failures outside of landslide prone areas as compiled.

3. Use of this map should be limited to general land-use planning purposes.

Coachella General Plan Area

Figure

Landslide Potential

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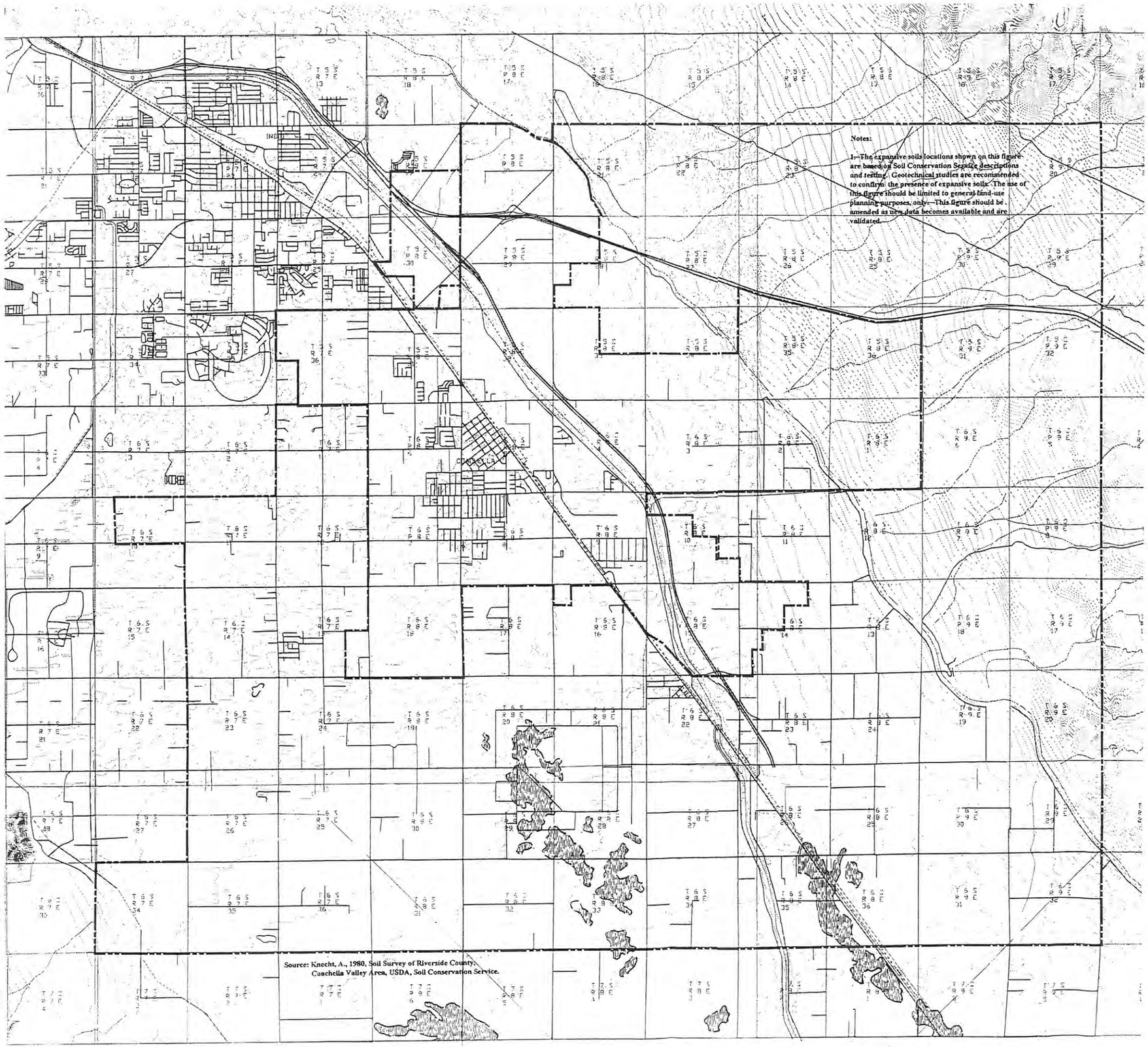

Notes:

1--The expansive soils locations shown on this figure are based on Soil Conservation Service descriptions and testing. Geotechnical studies are recommended to confirm the presence of expansive soils. The use of this figure should be limited to general land-use planning purposes, only. This figure should be amended as new data becomes available and are validated.

Source: Knecht, A., 1980, Soil Survey of Riverside County, Coachella Valley Area, USDA, Soil Conservation Service.

CITY OF COACHELLA GENERAL PLAN

Explanation

Generalized Expansion Potential

Low to High Expansion Potential; includes soil series classified as Imperial and Salton.

Coachella General Plan Area

Figure

Expansion Potential

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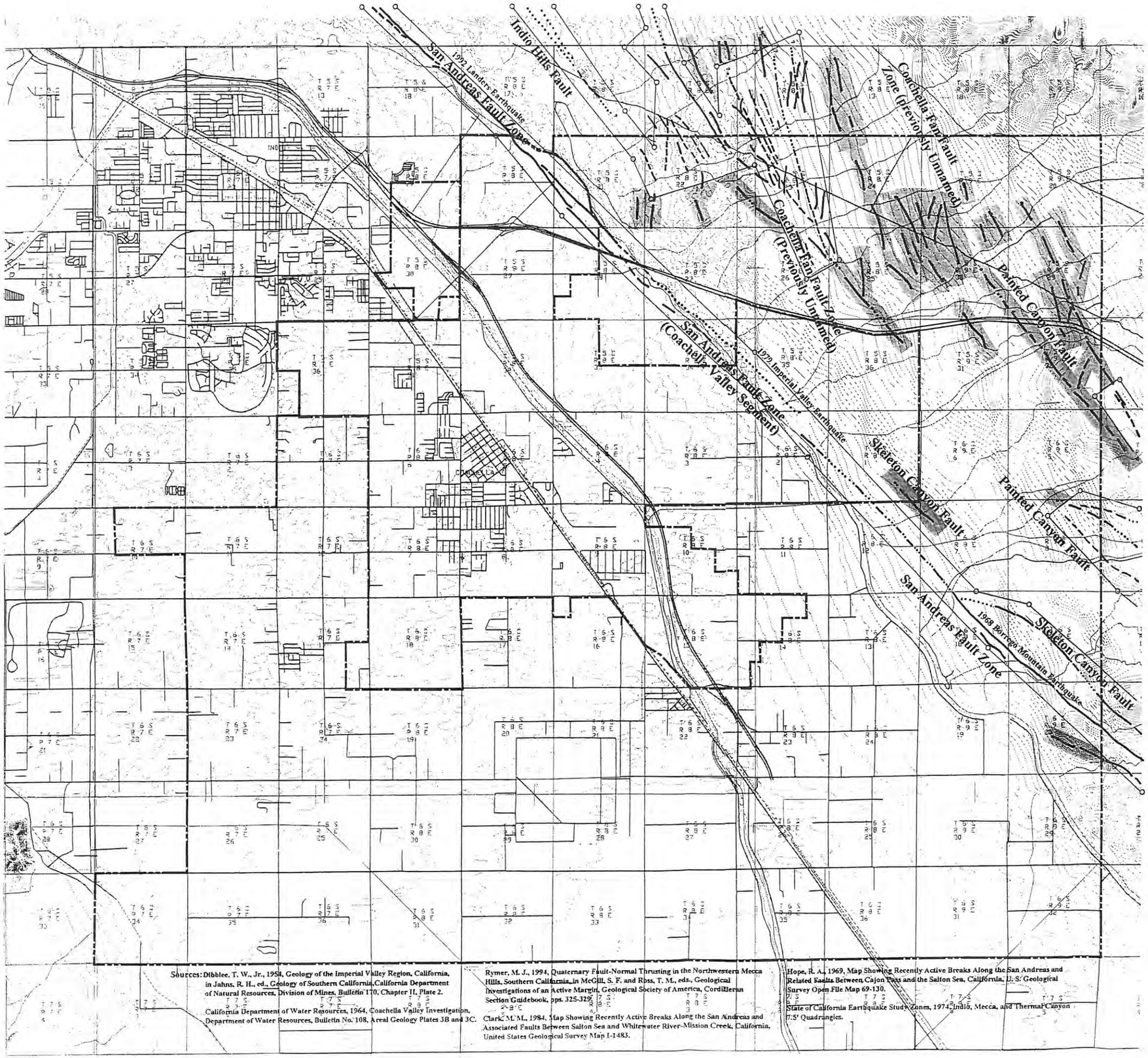

Sources: Dibblee, T. W., Jr., 1954, Geology of the Imperial Valley Region, California, in Jahns, R. H., ed., Geology of Southern California, California Department of Natural Resources, Division of Mines, Bulletin 170, Chapter II, Plate 2.

California Department of Water Resources, 1964, Coachella Valley Investigation, Department of Water Resources, Bulletin No. 108, Areal Geology Plates 3B and 3C.

Rymer, M. J., 1994, Quaternary Fault-Normal Thrusting in the Northwestern Mecca Hills, Southern California, in McGill, S. F. and Ross, T. M., eds., Geological Investigations of an Active Margin, Geological Society of America, Cordilleran Section Guidebook, pps. 325-329.

Clark, M. M., 1984, Map Showing Recently Active Breaks Along the San Andreas and Associated Faults Between Salton Sea and Whitewater River-Mission Creek, California, United States Geological Survey Map I-1483.

Hope, R. A., 1969, Map Showing Recently Active Breaks Along the San Andreas and Related Faults Between Cajon Pass and the Salton Sea, California, U. S. Geological Survey Open File Map 69-130.

State of California Earthquake Study Zones, 1974, Indio, Mecca, and Thermal Canyon 7.5' Quadrangles.

CITY OF COACHELLA GENERAL PLAN

Fault Explanation

Fault Management Symbols

Active-APEFZ
0-11,000 years BP (Before Present) — Evidence of historic offset indicated by year of earthquake-associated event.

Active/Potentially Active
0-750,000 years BP

Fault Map Symbols

Fault, approx. located.

Fault, approx. located-concealed.

Notes:

1. The main objective of this map is to delineate fault hazards recognized by the CDMG-mandated Alquist-Priolo Earthquake Fault Zone Act (APEFZA). Additional faults inferred to be active or potentially active are included on this map because there is published information or scientific opinion by staffs of authoritative agencies that indicate that there is a reason to consider them active. Their inclusion is not intended to prohibit development, but to ensure that proposed projects are supported by geological/ seismic investigations that will provide the most accurate obtainable data on the presence or absence of a hazard, and identify necessary mitigation measures.

2. The fault locations on this map are based on published information. Detailed geological investigations, including trenching studies, make it possible to refine the location and activity status of faults. The use of this figure should be limited to general land-use planning purposes only, and should be amended as new data becomes available and are validated.

3. The width of the fault shading does not define a special study limit. Fault shading is used solely to differentiate active faults and non-APEFZ faults from non-active faults. The width of the shaded zone and fault locations should not be used in lieu of site-specific investigations, evaluations and design.

Coachella General Plan Area

Figure

Fault Rupture Hazards

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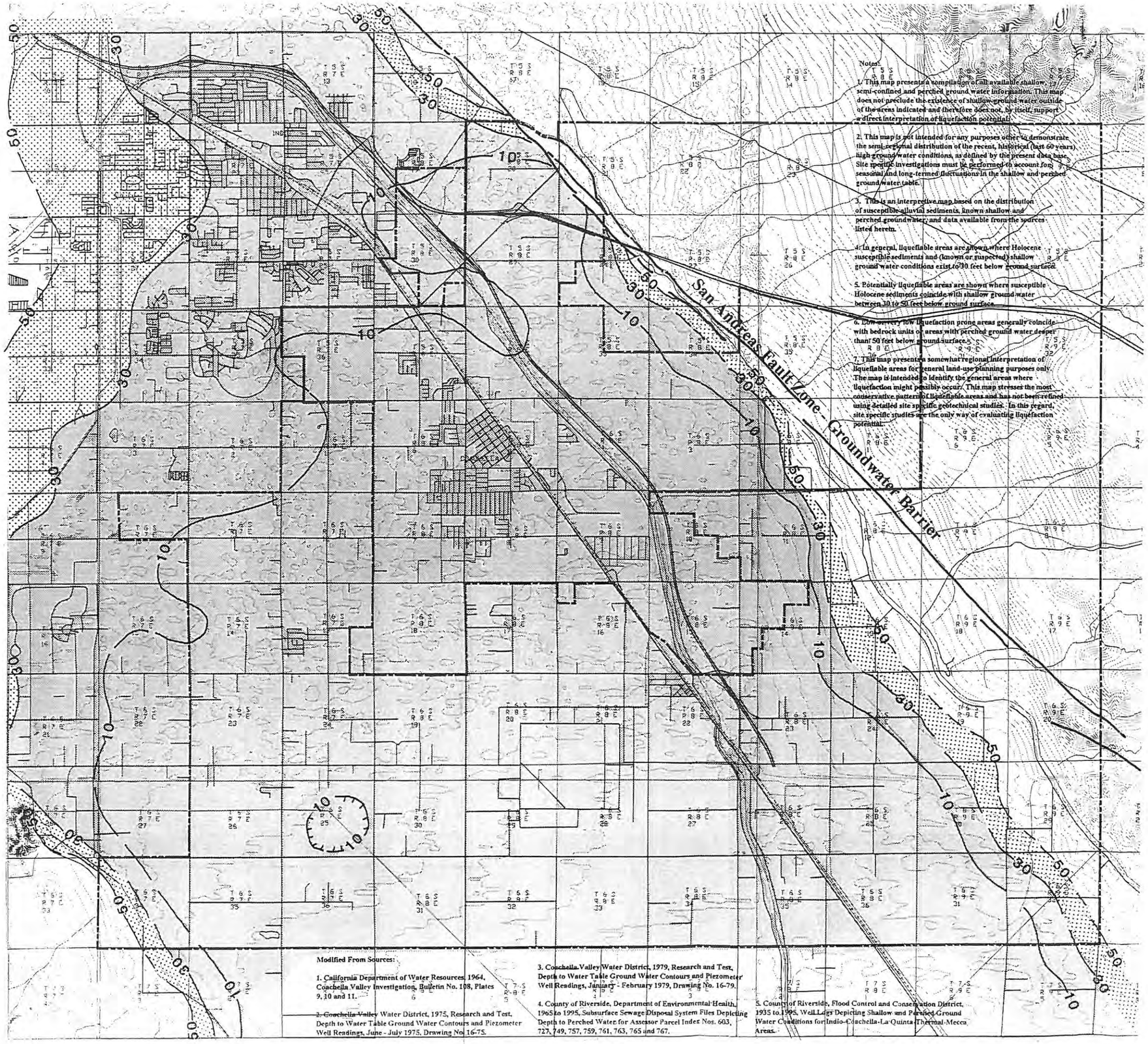

Notes:

1. This map presents a compilation of all available shallow, semi-confined and perched ground water information. This map does not preclude the existence of shallow ground water outside of the areas indicated and therefore does not, by itself, support a direct interpretation of liquefaction potential.

2. This map is not intended for any purposes other to demonstrate the semi-regional distribution of the recent, historical (last 60 years) high ground water conditions, as defined by the present data base. Site specific investigations must be performed to account for seasonal and long-termed fluctuations in the shallow and perched ground water table.

3. This is an interpretive map based on the distribution of susceptible alluvial sediments, known shallow and perched groundwater, and data available from the sources listed herein.

4. In general, liquefiable areas are shown where Holocene susceptible sediments and (known or suspected) shallow ground water conditions exist to 30 feet below ground surface.

5. Potentially liquefiable areas are shown where susceptible Holocene sediments coincide with shallow ground water between 30 to 50 feet below ground surface.

6. Low-severity low liquefaction prone areas generally coincide with bedrock units or areas with perched ground water deeper than 50 feet below ground surface.

7. This map presents a somewhat regional interpretation of liquefiable areas for general land-use planning purposes only. The map is intended to identify the general areas where liquefaction might possibly occur. This map stresses the most conservative patterns of liquefiable areas and has not been refined using detailed site specific geotechnical studies. In this regard, site specific studies are the only way of evaluating liquefaction potential.

Modified From Sources:

1. California Department of Water Resources, 1964, Coachella Valley Investigation, Bulletin No. 108, Plates 9, 10 and 11.

2. Coachella Valley Water District, 1975, Research and Test, Depth to Water Table Ground Water Contours and Piezometer Well Readings, June - July 1975, Drawing No. 16-75.

3. Coachella Valley Water District, 1979, Research and Test, Depth to Water Table Ground Water Contours and Piezometer Well Readings, January - February 1979, Drawing No. 16-79.

4. County of Riverside, Department of Environmental Health, 1965 to 1995, Subsurface Sewage Disposal System Files Depicting Depth to Perched Water for Assessor Parcel Index Nos. 603, 727, 749, 757, 759, 761, 763, 765 and 767.

5. County of Riverside, Flood Control and Conservation District, 1935 to 1995, Well Logs Depicting Shallow and Perched Ground Water Conditions for Indio-Coachella-La Quinta-Thermal-Mecca Areas.

CITY OF COACHELLA GENERAL PLAN

Explanation
Shallow and Perched Ground Water

- 10 — Depth to Ground Water - Shallow Well Determined
- 50 — Depth to Ground Water - Approximately Located

Explanation
Generalized Liquefaction Potential

- Liquefiable Area
- Potentially Liquefiable Areas
- Low to Very Low Liquefaction Potential

Coachella General Plan Area

Figure

Shallow and Perched Ground Water and Generalized Liquefaction Potential

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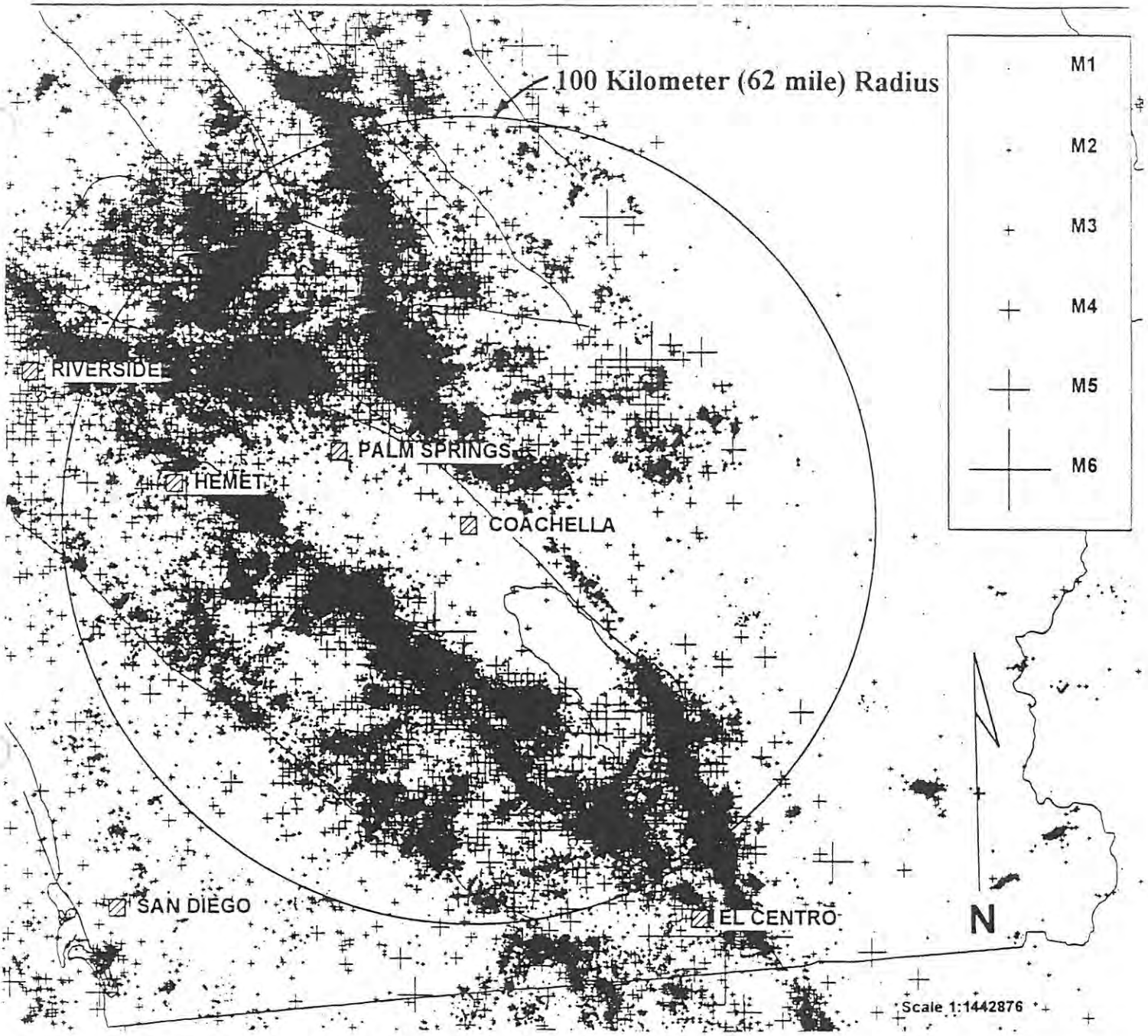

EPICENTER SEARCH DATA SHEET

SITE LOCATION: 33.657 LAT. -116.172 LONG.

SCALE 1: 1442876

TIME PERIOD: 1932-1995

MAGNITUDE RANGE: 0.0- 8.9

DEPTH RANGE: -5 - 50 (km)

MINIMUM LOCATION QUALITY: C (+- 5 km)

TOTAL # OF EVENTS ON PLOT: 157901

SEARCH RADIUS: 100 KILOMETERS

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 111315

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS.

0.0- 9 : 21917
1.0- 1.9 : 63080
2.0- 2.9 : 21128
3.0- 3.9 : 4536
4.0- 4.9 : 584
5.0- 5.9 : 61
6.0- 6.9 : 8
7.0- 7.9 : 1
8.0- 8.9 : 0

CLOSEST EVENT: 3.0 ON SUNDAY, MARCH 01, 1942 LOCATED APPROX. 1.1 KILOMETERS FROM THE SITE

LARGEST 5 EVENTS:
7.4 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 65 KILOMETERS NORTHWEST OF THE SITE
6.5 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 38 KILOMETERS NORTHWEST OF THE SITE
6.5 ON WEDNESDAY, OCTOBER 21, 1942 LOCATED APPROX. 78 KILOMETERS SOUTH OF THE SITE
5.4 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 85 KILOMETERS NORTHWEST OF THE SITE
5.4 ON TUESDAY, APRIL 09, 1968 LOCATED APPROX. 52 KILOMETERS SOUTH OF THE SITE

Seismicity 1932-1995 (Magnitude 0.0+) 100 kilometer radius

Coachella General Plan Area

Figure

Seismicity Map

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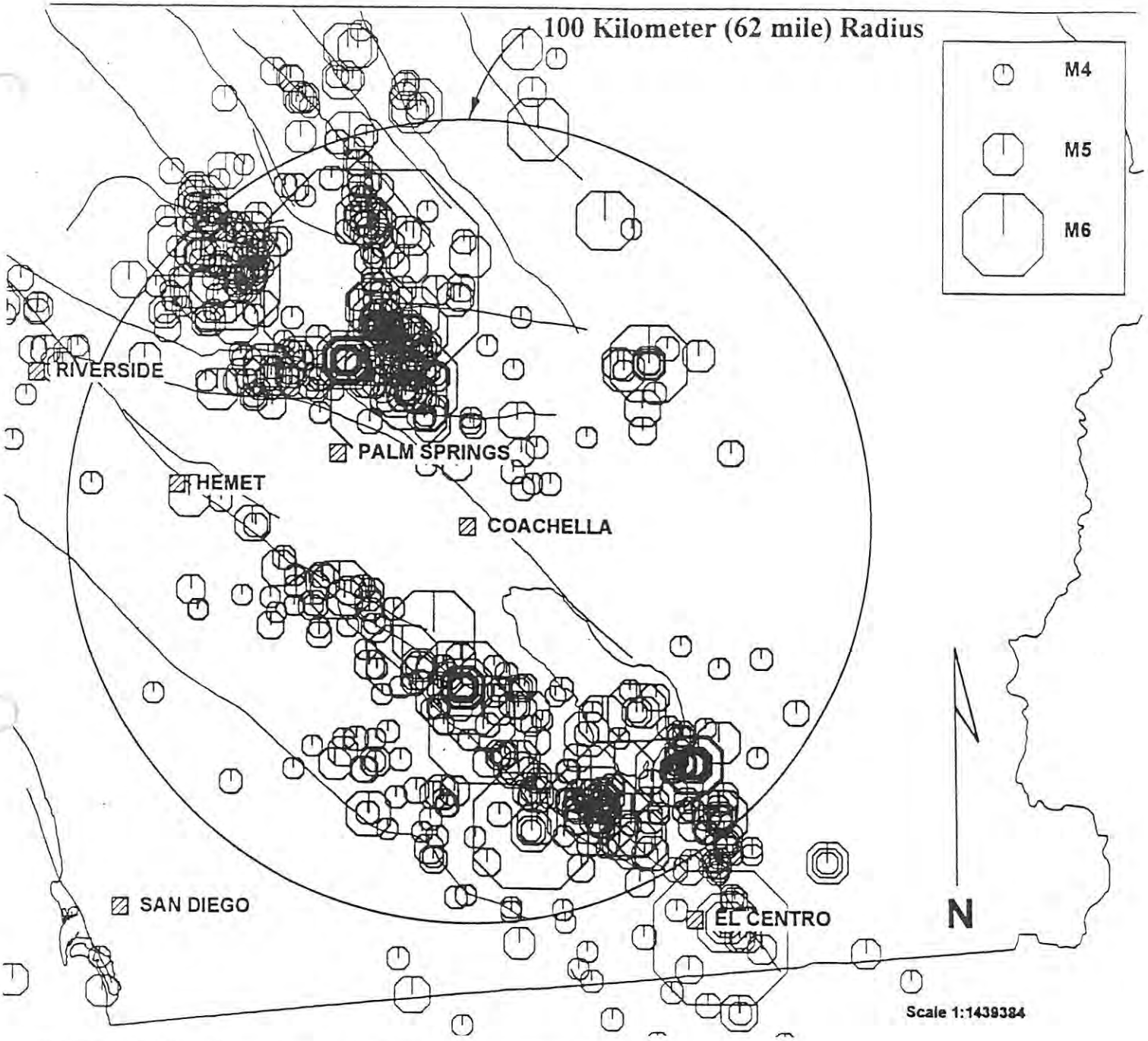


EPICENTER SEARCH DATA SHEET

SITE LOCATION: 33.657 LAT. -116.172 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1047

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 652

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0-4.9 : 583
5.0-5.9 : 60
6.0-6.9 : 8
7.0-7.9 : 1
8.0-8.9 : 0

CLOSEST EVENT: 4.5 ON SUNDAY, OCTOBER 31, 1943 LOCATED APPROX. 9 MILES FROM THE SITE

LARGEST 5 EVENTS:

7.4 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 40 MILES NORTHWEST OF THE SITE
6.5 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 22 MILES NORTHWEST OF THE SITE
6.5 ON WEDNESDAY, OCTOBER 21, 1942 LOCATED APPROX. 48 MILES SOUTH OF THE SITE
6.4 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 53 MILES NORTHWEST OF THE SITE
6.4 ON TUESDAY, APRIL 09, 1968 LOCATED APPROX. 32 MILES SOUTH OF THE SITE

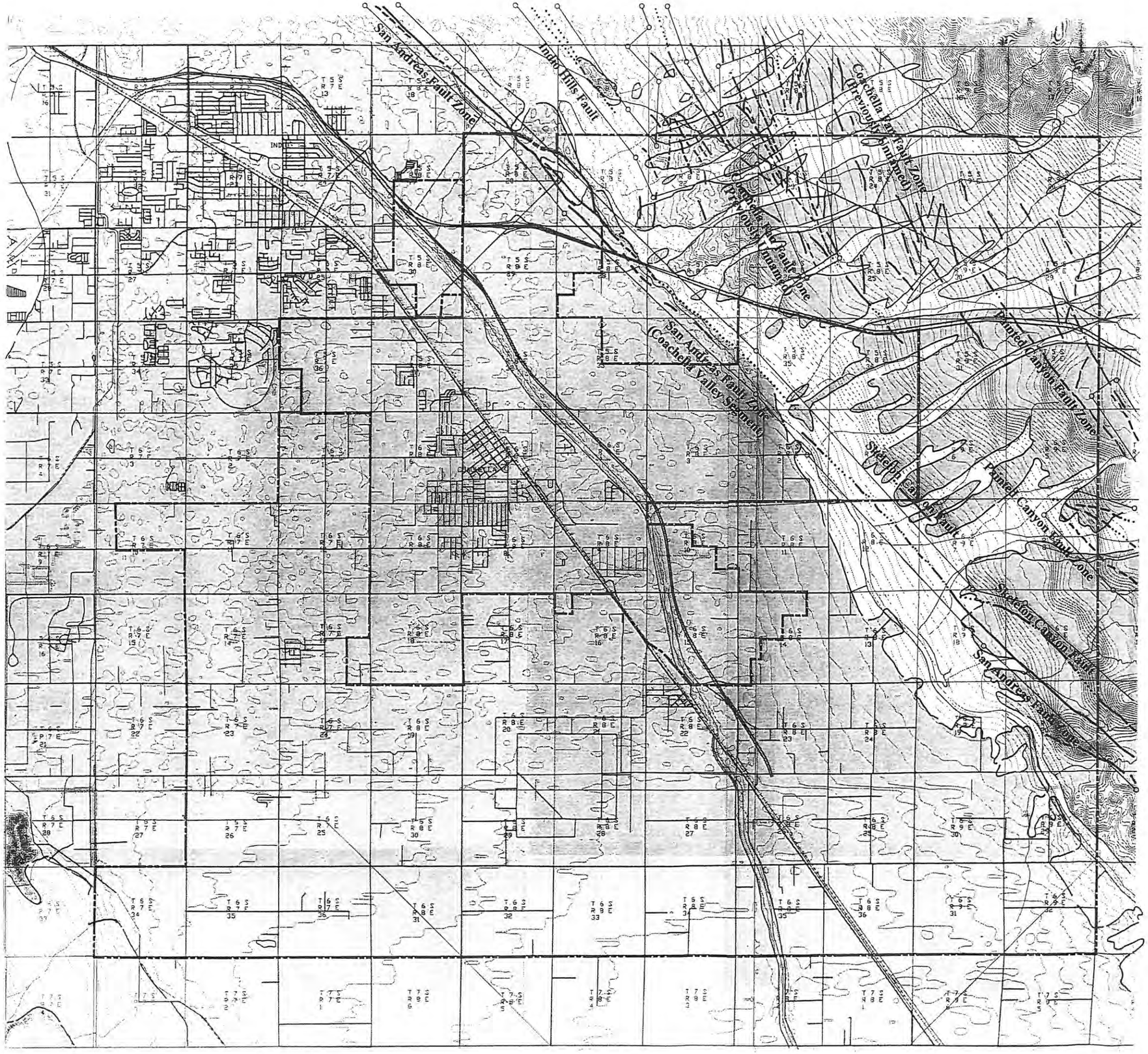
Seismicity 1932-1995 (Magnitude 4.0+) 62 mile (100 kilometer) radius

Coachella General Plan Area

Figure

Steven C. Suitt and Associates
Consulting Engineering, Mining and Environmental Geologists, Hydrogeologists and Earth Science Professionals

M4.0 or Greater Seismicity Map



CITY OF COACHELLA GENERAL PLAN

Explanation

Fault Hazard Symbols

- Active-APEFZ Faults
- Active/PotentiallyActive Faults

Geotechnical Hazards

- Liquefaction, Landsliding, Expansive Soils, and Wind and Water Erodible Soils Potential.

Coachella General Plan Area

Figure

Geotechnical Hazards Summary

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