6. SAFETY ELEMENT

A. PUBLIC SAFETY SERVICES

6.1 POLICE PROTECTION AND CRIME PREVENTION

6.1.1. Background

Since 1984, in accordance with an annual police services contract, the Riverside County Sheriff's Department provides police protection and crime prevention services for Moreno Valley. The Sheriff's Department provides services under the name of Moreno Valley Police Department. All patrol vehicles bear the City's seal or logo and name. The Sheriff's Department also provides law enforcement services at the Riverside County Regional Medical Center and schools within Moreno Valley.

Commencing in 2002, the Moreno Valley Police Department operates out of the Public Safety Building located at 22850 Calle San Juan de Los Lagos. The Department also uses satellite offices in strategic business locations throughout the city. Satellite offices provide a place for officers to write reports, make phone calls and tend to other needs without leaving the field. Landlords supply these offices without rental charges.

Protection and prevention services provided include: general law enforcement, traffic enforcement, investigations, and routine support services such as communications, evidence collection, analysis and preservation, training, administration, and records. There are many specialized teams such as Hazardous Devices Team, Hostage Negotiations Team and Special Enforcement Team, K9 units (including narcotic detection), Crime Prevention Programs, Problem Oriented Policing, Career Criminal Apprehension Team, Bicycle Team, School Resource Officers, Gang and Narcotic Investigations Units and aviation. Several of the specialized functions described above are available, as needed, from the Sheriff's Department. In addition, a large number of officers are available from neighboring Sheriff's stations in the event of a major emergency.

The Moreno Valley Police Department (MVPD) has 162 sworn officers who provide field services in the City. The current officer to population ratio for MVPD is 0.9 officers per 1,000 population. The average total response time for the period of January 01 to December 31, 2004, was over 7 minutes for Priority 1 or emergency calls as shown in Table 6-1 below:

Table 6-1

1,899 Priority1 (P1) Calls For Service January through December 2004		
Frequencies		
Statistics	Delay Time	Total Response Time
Mean (Average)	2.23	7.13
Median (mid value)	0.63	4.95
Percentiles: 25%	0.40	3.04
50%	0.63	4.95
75%	1.08	7.88
90%	2.40	12.56

Source: Moreno Valley Police Department.

As shown in Table 6-2, Moreno Valley enjoys a lower crime rate relative to some Southern California cities with over 100,000 people that report crime statistics to the Department of Justice/Uniform Crime Report (UCR).

Table 6-2
Part 1 Crimes - City Comparisons

Cities	Population	Total Part 1 Crimes	Part 1 Crimes Per 1,000 Population
San Bernardino	199,803	14,014	70
Riverside	285,537	14,448	51
Ontario	170,373	8,150	48
Moreno Valley	165,328	6,991	42
Pomona	160,815	6,409	40
Fullerton	135,672	5,056	37
Chula Vista	217,543	8,078	37
Corona	144,070	4,853	34

Source: Dept. of Justice / Uniform Crime Report 2004

Table 6-3 summarizes incidents reported to the Department of Justice Uniform Crime Reports (UCR), by the Moreno Valley Police Department for 2003/04. Larceny/Theft was the most frequent crime reported during this period, accounting for approximately 49.9 percent of all crimes.

Burglary was the second most frequent crime, accounting for approximately 22.3 percent of all crimes. In general, criminal acts in Moreno Valley are aimed at property, rather than at persons. Only 11.4 percent of all actual incidents were crimes against persons.

Table 6-3

UNIFORM CRIME REPORT STATISTICS – PART 1 CRIMES

	Actual Incidents 2003	Actual Incidents 2004	Increase / (Decrease) 2003 vs. 2004	% Change
FBI Crime Index Total:	6,506	6,998	485	7.5%
Violent Crimes Against Persons:				
Homicide	4	9	5	N/A*
Robbery	271	355	84	31%
Forcible Rape	67	50	(17)	(25.4%)
Aggravated Assault	468	389	(79)	(16.9%)
Total	**810**	**803**	**(7)**	**(0.9%)**
Crimes Against Property:				
Burglary	1,481	1,561	80	5.4%
Motor Vehicle Theft	979	1,118	139	14.2%
Larceny/Theft	3,214	3,492	278	8.6%
Arson	22	14	(5)	(22.7%)
Total	**5,696**	**6,185**	**219**	**8.9%**

Source: Department of Justice (DOJ) Uniform Crime Report 2004.

Note: Using the most recent crime statistics published in the FBI's Uniform Crime Report (UCR) as of December 2004.

Note: Shown above is the net change and percent (%) of net change for 2004 vs. 2003.

N/A* = Not applicable.

6.1.2 Patrol Division

The patrol division provides first responders to crimes in progress and a wide variety of other calls for service. Patrol officers are deployed in 10-hour shifts to provide maximum coverage during the busiest times. Table 6-4 illustrates the average daily deployment of officers. The City is divided into thirteen beats, which are flexible to meet the daily deployment needs.

Table 6-4
Deployment of Patrol Officers

Watch	Hours	Average # Units
1	10 p.m. – 8 a.m.	8
2	7 a.m. – 5 p.m.	11
3	1 p.m. - 11 p.m.	9
4	5 p.m. – 3 a.m.	8

Reserve officers volunteer their time to augment patrol operations. They work flexible schedules that permit them to vary the shifts and days they work. The officers work an average of two shifts per month. The Police Department had 16 reserve officers who collectively volunteered an average of more than 250 hours per month.

6.1.3 Administrative Division

Crime Prevention: Crime Prevention programs consisted of Anti-Graffiti, Neighborhood Watch, Business Watch, Volunteer Academy, Youth Court, and Citizen's Patrol. One officer works directly with builders and city planning staff to promote development that is less susceptible to crime and easier to protect. The community service unit also works with more than 100 volunteers.

Volunteer programs augment station operations and relieve officers engaged in duties that do not require a sworn officer. The volunteer programs fall under five general categories. Those areas are, Reserve Officers, Police Explorers, Anti-Graffiti Patrol, Citizen's Patrol, and Station Volunteers.

Explorer Scouts are young men and women between the ages of 14-21 who are interested in law enforcement careers. They assist with various community events that take place in the city such as the 4th of July festivities, and the air show. They provide assistance in a variety of ways that range from directing traffic to providing security for parking at events or crowd control at parades etc. They also assist with crime prevention programs at elementary schools and neighborhood clean up programs. Explorers average over 240 hours of activity per month with 25 active explorers in Moreno Valley.

Anti-Graffiti Patrol (AGP) volunteers primarily conduct covert observations assisted by a uniformed officer to apprehend graffiti vandals. AGP volunteers often aid with programs to apprehend robbery suspects, burglary suspects, or assist with other surveillance operations. They averaged several programs and over 50 hours per month. An average of 15 members participated.

Citizen's Patrol handles a variety of assignments as well as emergency callouts. They conduct vacation checks, business checks, area checks, handicap parking citation programs, neighborhood patrols, traffic control, and perimeter control for crime scenes and traffic accidents. The program has about 25 volunteers that contributed over 300 hours per month. Additionally, they staff, stock, deploy, and maintain the Mobile Command Post.

Station volunteers contribute over 300 hours per month between an average of 10 active volunteers. They perform a variety of clerical and logistical tasks at the station which allowed officers to focus on patrol duties.

Accounting/Finance Unit: The Accounting/Finance Unit assists in the budget preparation and budget tracking for

the entire police department. It is also responsible for all the financial operations of the police department which includes accounts payable, accounts receivable, purchasing, and payroll processing.

Records/Business Unit: The Records/Business Unit provided assistance for about 2,000 public inquiries per month at the front counter and 7,000 telephone calls per month. The unit maintains all records for the police department, including police reports, activity logs, dispatch logs, subpoena records, citations, and various other records generated by the police department.

6.1.4 Special Enforcement Teams

Traffic Unit: The Traffic Unit is responsible for traffic safety issues within the City. The Traffic Unit has a Traffic Reconstruction Team, an Accident Investigations Team and a Motor Officer Team. Traffic enforcement has been a police department responsibility since January 1986. The traffic unit includes ten motorcycle officers, seven accident investigators and three non-sworn traffic investigators. Traffic enforcement units are not assigned to specific areas, but move where traffic activity needs attention.

Table 6-5 shows traffic collision and citation statistics:

Table 6-5
Traffic Collisions and Citations

Traffic Incident Category	Number of Incidents
Collisions:	
Fatal	11
Injury	567
Non-injury	1,330
Citations:	
Hazardous Citations	19,086
Non-hazardous Citations	2,350
Parking Citations	1,295

Source: Moreno Valley Police Department

POP Team: The Problem Oriented Policing (POP) Team addresses quality of life issues and problems that need long-term resolutions. They provide proactive law enforcement with off-road motorcycle and bicycle patrols, and specific programs such as Nuisance and Squatter Abatement, Safe Streets Now, and Crime Free Multi-Housing.

S.E.T. Team: The Special Enforcement Team consists of the Narcotics Enforcement Unit, the Career Criminal Apprehension (C-CAT) Team and the Gang Enforcement Team. They track career criminals, gang members, narcotics violations, parolees and probationers. The S.E.T. Team conducts proactive enforcement by serving arrest and search warrants. They also conduct probation and parole searches for felony and misdemeanor criminal activities.

6.1.5 Detective Division

Detective Unit: The Detective Unit focuses on follow up investigations relating to complex and major crimes, which are too involved or specialized for the Patrol Division to handle. Detectives are trained to handle cases involving homicides, suspicious deaths, child abuse, sex crimes, elder abuse, robbery, assaults, batteries, identity theft, computer crimes, frauds, and auto theft.

The Detective Unit monitors sexual assault registrants, conducts internet crime investigations involving attempts to molest children, and develops programs used to combat these types of crimes. The Detective Unit regulates the licensing of massage parlors, bingo permits and pawnshops. The Detective Unit also conducts ongoing training of officers assigned to other units of the Police Department.

School Resources Officers Unit: The School Resource Officers (SRO) Unit serves all 45 schools and over 54,513 students who attended these schools in Moreno Valley. Their mission is to build and maintain a positive school environment, free of drugs,

intimidation and fear, and to create harmony in which teachers and students can feel safe and secure while learning.

Riverside County Regional Medical Center The Riverside County Regional Medical Center is located in the southeast portion of Moreno Valley. The management and supervision of officers assigned to provide security for the facility is the responsibility of personnel assigned to the Moreno Valley Police Department. The security unit is responsible for providing law enforcement for the interior and surrounding grounds 24 hours / 7 days a week.

Crime Analysis Unit: The Crime Analysis Unit was comprises of two crime analysts who perform crime analysis and provides administrative, analytical and technical support to police management. This is accomplished by turning raw data into vital information that will enhance and focus the organization's efforts towards crime prevention, suppression, and apprehension of criminals in Moreno Valley.

6.1.6 Issues and Opportunities

Future development within the city of Moreno Valley area will require additional officers to maintain the officer-to-population ratio at a desirable level. In addition, depending upon the future distribution of development, one or more police facilities may be necessary.

Burglary is the second most reported crime in Moreno Valley. Burglaries and other crimes can be discouraged through strategic use of design. This is commonly referred to as the "defensible space" concept, which is a part of the Crime Prevention Through Environmental Design (CPTED) concept. Defensible space permits the identification of suspicious occurrences or persons, in part by increasing visibility and recognition by neighbors. Where a space is defensible, it is evident to a potential criminal that a crime could be observed and the criminal easily apprehended. Good lighting is a key ingredient of defensible space.

In addition to the previous design measures aimed at creating defensible developments, road improvements can be designed in a manner that reduces the number of traffic and parking violations. Uniform road widths and signalized intersections can minimize the potential for moving violations.

6.2 FIRE AND EMERGENCY SERVICES

6.2.1 Background

The City of Moreno Valley Fire Service contracts with the Riverside County Fire Department for services. The Riverside County Fire Department is administered and operated by the California Department of Forestry and Fire Protection under an agreement with the County of Riverside.

The City's authority and responsibilities for the formation and operation of a fire department are found in the Government Code section 36501, 38611, and 54981. These code sections provide for establishing a fire department, requiring the appointment of a chief, and authorizing the contracting for service.

Since incorporation, the Riverside County Fire Department provided the City's fire protection, fire prevention, and emergency medical services through a cooperative contractual agreement. Originally, the City was protected by three fire stations. In keeping with the city's desire to continually improve service delivery the City has increased its fire station coverage to six.

There are a total of five first line municipal fire engines, three-second line municipal fire engines, one wildland fire engine, two aerial ladder trucks, five rescue squads, and a breathing support unit. The first line municipal fire engines are staffed with three firefighters and the two truck companies had

four firefighters each. The staffing on these units is continuous 24 hours per day, seven days per week by 53 firefighters. The on duty daily minimum staffing is 23 fire fighters. Two Battalion Chiefs supervise the battalion. The City also has one Battalion Chief Fire Marshal and a Fire Chief.

Staffing of second line engines, the rescue squad and breathing support unit is provided by the Moreno Valley Volunteer Fire Company on an as needed/when available basis. The Moreno Valley Volunteer Fire Company was established in 1955, and provides vital backup and augmentation for emergency incidents. They also are available to provide services to special events, thereby relieving the need for use of the city's professional resources at these events. The company's membership size fluctuates generally in the neighborhood of 30 members.

Moreno Valley is served by six fire stations. Figure 6-1 identifies the location of stations within the study area, and also illustrates the response radius for these stations. A five-minute response time is considered to be the maximum time standard for serving urban and suburban uses. Figure 6-1 shows the location of five proposed fire stations that will be needed at build out. The following fire stations are in operation:

Station No. 2 was relocated from Sunnymead Boulevard to a new facility on Hemlock Street just west of Perris Blvd on November 14, 2001. As of that date, the station was staffed by seven career firefighters. The station housed one first line 1000gpm engine, one truck company and one rescue squad unit.

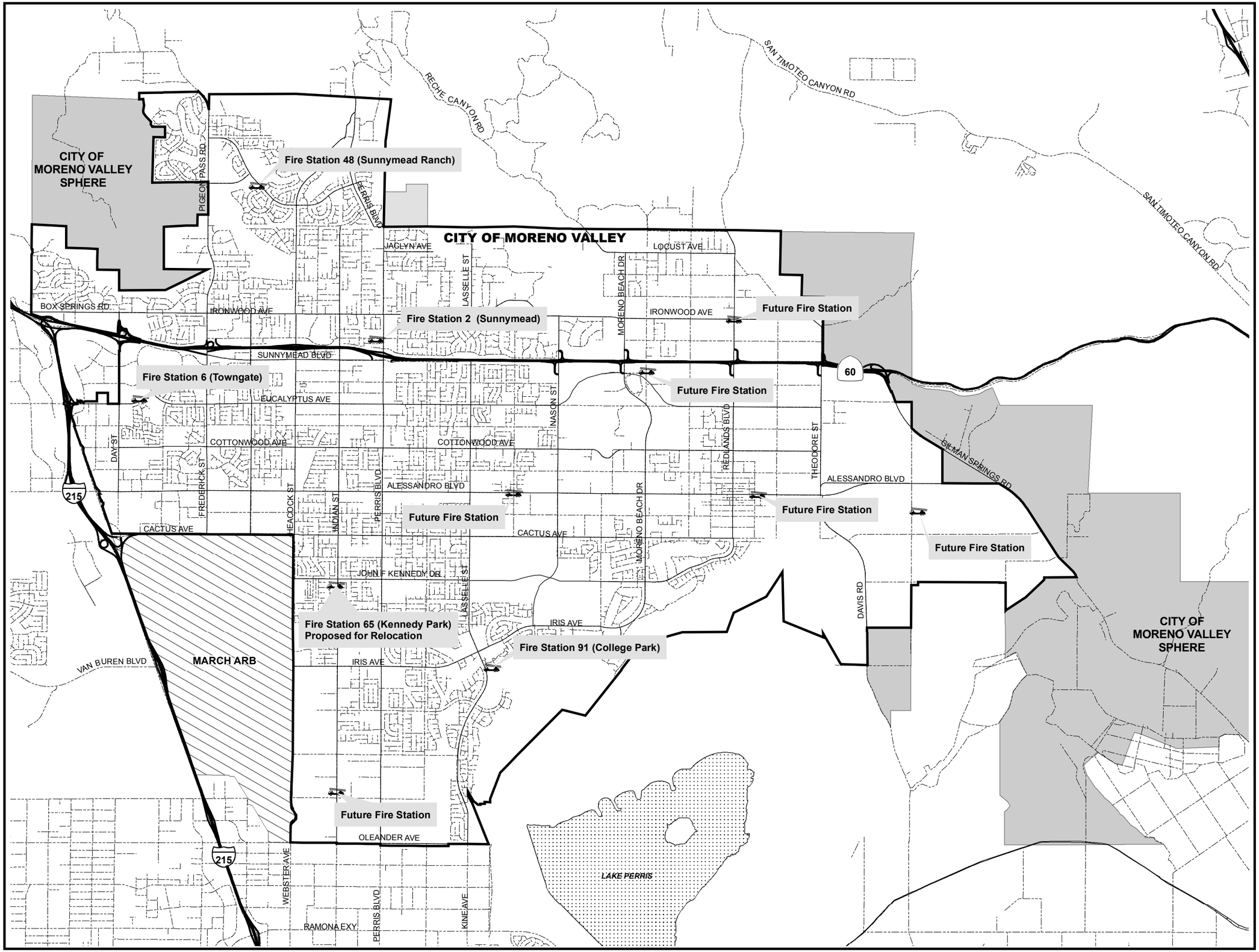
Station No. 6 is a joint fire station with the City of Riverside. It is staffed with three career firefighters on the City of Moreno Valley engine and three career firefighters on the City of Riverside engine. The station housed one 1,250 gpm first line engine and rescue squad. The City of Riverside notified Moreno Valley that intends to build their own fire station and vacate this facility in 2007.

Fire Station No. 6

Station No. 48 is located at the intersection of Village Road and Sunnymead Ranch Parkway. The station is staffed by three career firefighters. The station housed one 1,500 GPM first line engine, one 1,000 GPM engine and one rescue squad.

Station No. 58 is a temporary station located at Moreno Beach Drive and Bay Street serving eastern Moreno Valley. The station is staffed by three career fighters. It housed one 1,500 gallon per minute engine company, one brush engine one rescue squad. The permanent station is to commence construction in 2006 on Eucalyptus, east of Moreno Beach.

Station No. 65 was completed in 1986 and serves the southwest area of the City. It is located at John F. Kennedy Drive and Indian Avenue. The station housed one 1,250 GPM first line engine, one second line engine and one rescue squad.



MORENO VALLEY

FIGURE 6-1
FIRE STATIONS

- Fire Stations
- Streets
- Major Streets
- Highways
- Moreno Valley
- Moreno Valley Sphere
- March ARB
- Waterbodies

**** Future Fire Station locations are conceptual and subject to change***

N

5,000 2,500 0 5,000 Feet

0.5 0.25 0 0.5 1 Miles

Date: July 11, 2006
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\fire_stations.mxd

GEOGRAPHIC INFORMATION SYSTEMS

Station No. 91 is located on Lasselle Street, adjacent to the Riverside Community College - Moreno Valley campus and was opened in 2003. The station houses one 75-foot ladder truck, one second line engine and a breathing support.

6.2.2 Fire Prevention

The City of Moreno Valley has experienced decreases in the rate of fires. These decreases have occurred while the jurisdiction has grown in every aspect -- population, land area, number of structures, etc.

It was not possible to correlate the decreasing fire rate with any variable (such as increased level of inspections or decreasing percentage of population under age 25). Yet, the decreasing rate is likely due to the complex interaction of such factors as (1) stronger fire codes, (2) increased use of smoke detectors and automatic suppression systems, (3) increased public education programs, (4) increased public awareness of fire dangers and (5) aggressive weed abatement.

The conclusion is that fire prevention programs have proven to be effective in preventing fires and the severity of fires that do occur. The Fire Protection Services Master Plan includes an aggressive fire prevention effort utilizing citizens who support and are committed to the prevention of fire.

6.2.3 Fire Suppression

The Fire Protection Services Plan includes several objectives related to the location of fire stations and speed of response. The objectives vary by land use characteristics.

The basic objective of the Moreno Valley Fire Protection Services Master Plan is to establish and maintain a standard of the first unit arriving on the scene of a fire within five minutes of dispatch and the remainder of the first alarm assignment on scene within eight minutes at least 90% of the time. This standard indicates the number and location of fire stations and corresponding apparatus and personnel.

The fundamental point of this objective is to initiate evacuation and suppression operations as rapidly as practical. It is particularly important to initiate operations prior to "flashover." Flashover is a point in the development of a structure fire where the fire rapidly expands throughout a room. Flashover generally occurs within 6-12 minutes from ignition.

The importance of rapid response is reflected in the ISO Rating Schedule requirement for distribution of companies. The ISO Rating Schedule states that "the built-upon area of the City should have a first-due engine company within 1½ miles." In the International City Management Association manual, Managing Fire Services, the following recommendation is presented. "For all structural fires, to deploy one engine company within five (5) minutes." The NFPA Fire Protection Handbook states, "It is generally considered that the first arriving piece of apparatus should be at the emergency scene within five minutes of the sounding of the alarm."

6.2.4 Emergency Medical Services

Response time is also critical for the provision of emergency medical services. For example, a report by the Los Angeles County Fire Department, Fire Protection and Emergency Medical Service Delivery System (April 15, 1980), states: "Another study conducted by the American Heart Association showed that the amount of time to initiation of basic life support was critical to overall survival rate.

Specific time requirements are specified in the American Academy of Orthopedic Surgeon's report, Emergency Care and Transportation of Sick and Injured (Chicago,

1981): "There must be a maximal sense of urgency in starting basic life support. Time is critical. If the brain is deprived of oxygen for four to six minutes, brain damage is likely to occur. After six minutes without oxygen, brain damage is extremely likely".

Information from the American Red Cross document, Cardiopulmonary Resuscitation (Washington, D.C., 1974) also establishes the need for rapid response to strokes, heart attacks, airway obstruction, and serious bleeding incidents.

Thus, the number and location of stations and companies are dictated by emergency medical services response time objectives, in addition to the response requirements for evacuation and suppression.

The Fire Department responds to medical aid calls with advanced life support services. American Medical Response provided support paramedics and ambulance transportation under contract with the County of Riverside.

6.2.5 Emergency Management

The Moreno Valley Fire Department is very involved in emergency management. The Fire Department will be the incident commander, or be working in a unified command with other responding agencies depending on the nature of the emergency. The objective of the Fire Department is to mitigate emergencies and disasters by keeping loss of life, property, and environment to a minimum. The Fire Department maintains a clear understanding of the statutory responsibility and authority it has depending upon the emergency; along with a working knowledge of the Incident Command System, California Disaster and Civil Defense Master Mutual Aid Agreement, and SEMS.

6.2.6 Public Assistance

The Moreno Valley Fire Department has a large inventory of skills and resources that can be of significant benefit to the residents of the city in many important, but non-emergency, situations. Examples of such services include: blood pressure screening, gaining entry for persons locked out of cars/homes, etc.

6.2.7 Fire Prevention Codes

Codes prescribe regulations to safeguard life and property from the hazards of fire, explosion, and other dangerous conditions and to assist emergency response personnel.

A jurisdiction is mandated by State Statue to adopt Title 24, of the California Code of Regulations. A jurisdiction has the ability to amend the code, to be more restrictive through the filing of facts process.

Enforcement of fire and life safety codes protects lives and reduces injuries (for both civilians and firefighters); as well as, significantly reduce direct and indirect economic losses. Direct losses refer to the structure and its contents. Indirect losses include loss of business income; wages or entire businesses.

6.2.8 Wildland Urban Interface

Natural topography, terrain, volatile fuel types, and local climatic conditions have provided the necessary components that have resulted in, and will continue to result in large and damaging wildfires.

The potential for a large and damaging fire is present throughout much of the year. During the months when the Santa Ana winds blow, the potential for a large and damaging wildland fire is increased significantly. It is imperative these considerations are addressed during the planning phase of development. Mitigation

measures must be taken to reduce the potential life safety and monetary consequences of these types of fires.

6.2.9 Smoke Detectors

Smoke detectors are proven life savers and can also significantly reduce fire losses. All new or remodeled residential dwelling units will have detectors installed during construction as required by Title 19 & 24.

6.2.10 Automatic Fire Suppression Systems

Requirements for use of automatic sprinkler systems in new and existing structures is the single most important action that can be taken to control future demand for fire protection services, and to reduce fire losses. Insurance costs can be significantly reduced through the use of such systems, e.g., up to 15% for residences and from 50-80% for commercial/industrial occupancies.

Numerous studies have proven the tremendous value of automatic systems. For example a study of 117 fires showed that "there might have been approximately a 90 per cent reduction in both lives lost and injuries sustained if fire protection systems had been installed. Also, property losses would have been decreased by a factor of about three with the automatic smoke detector system, by a factor of about four with the monitored alarm system, and by a factor of about seven with the suppression system." The water damage resulting from the presence of a sprinkler system is less than 1% of the fire damage that would have resulted (from a fire) if the sprinkler system had not been present.

6.2.11 Inspection and Enforcement

In addition to reducing fires and fire losses, a proactive inspection and enforcement program will directly benefit business even without the occurrence of fire. Business fire insurance premiums can be increased by up to 150% if fire code violations are identified and not corrected, and premium reductions can be cancelled if sprinkler systems are not inspected and maintained.

State regulated occupancies must be inspected annually (Licensed Care Facilities, and schools) as required by California statute. All other occupancies should be inspected on an annual basis.

A fire permit program as prescribed by the California Fire Code provides the mechanism to maintain fire and life safety within buildings that have conditions hazardous to life or property. These inspections need to be done by trained fire prevention personnel as these inspections require a higher level of knowledge. Hazardous materials, flammable and combustible liquids, and high piled storage, are just a few examples of the hazardous conditions that may be encountered inside a building.

Fire Services conducts safety inspections of businesses with fire engine company personnel and Fire Prevention Bureau personnel for specialized inspections.

6.2.12 Public Education

The Fire Protection Services Master Plan includes an objective for all residents over the age of six to receive basic fire safety education. Public education covering fire and life safety, and emergency medical issues is considered to be the foundation of a community fire protection/emergency medical program. Such a program, especially if started at the school level, could produce numerous benefits, including:

1) Creating an awareness of fire danger.

2) Establishing a skill level among citizens that permits individuals to take appropriate immediate action in

case of fire or medical emergency (for self or others).

3) Building an inherent consciousness of the causes of fire, fire spread, and fire loss, so that such causes are not permitted to occur.

6.2.13 Emergency/Disaster Preparation and Response

Moreno Valley has a system for responding to emergency and disaster situations. The system includes the following phases: preparedness, response, recovery and mitigation.

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

The response phase includes increased readiness, initial response and extended response activities. During an extended response, the City would generally activate its Emergency Operations Center (EOC). The EOC would normally be manned 24-hours a day by both public safety and other City personnel to coordinate emergency response activities. The EOC was located at the Public Safety Building and the alternate EOC was in City Hall.

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

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

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

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

6.3 ANIMAL SERVICES

6.3.1 Background

Animal Services became a city operation in 1991. Prior to 1991, a private party performed animal services under contract to the city. The City of Moreno Valley operated a 17,000 square foot animal shelter at 14041 Elsworth Street.

Animal services is responsible for reducing the incidence of rabies and other animal-borne diseases, reducing the number of animal bites and minimizing the number of unwanted and lost pets. Toward that end, animal services staff enforce a number of state and local laws concerning the care and treatment of animals.

Animal services operates licensing, identification, spay, neutering and vaccination programs. Animal services shelters lost and unwanted pets, returns lost pets to their rightful owners and provides for the adoption of unwanted pets. The responsible care and treatment of animals is

also promoted by way of educational programs.

Between July of 2004 and June of 2005, animal services staff responded to 17,077 calls for service. Animal services also returned 1,290 lost pets to their owners and arranged for the adoption of 2,034 pets.

Moreno Valley Animal Shelter

6.3.2 Issues and Opportunities

Irrespective of the efforts of Animal Services and other organizations dedicated to reducing the population of unwanted pets, a large number of unwanted pets are produced every year. Unfortunately, the number of unwanted animals far surpasses the capacity of the shelter and the number of good homes available for adoption.

The need for animal services is expected to grow in proportion to the rate of growth in the local community.

B. ENVIRONMENTAL SAFETY

6.4 NOISE

6.4.1 Background

Noise has long been an accepted part of modern civilization, but excessive noise has become an important environmental concern. Excessive noise can disturb the peace and quiet of neighborhoods. Excessive noise can cause physical and psychological responses. Temporary reactions include, but are not limited to, constriction of blood vessels, secretion of saliva and gastric fluids, changes in heart rate and a feeling of anxiety and discomfort.

Three effects of noise that are of particular concern are interference with speech, interruption of sleep and hearing loss. Sleep interruption can occur when the intruding noise exceeds 45 decibels. Speech interference becomes a problem when the intruding noise is above 60 decibels. Hearing loss can begin to occur with sustained noise levels above 75 decibels.

Section 1092 of Title 25, Chapter 1, Subchapter 1, Article 4, of the California Administrative Code includes noise insulation standards for new multi-family structures (hotels, motels, apartments, condominiums, and other attached dwellings) located within the 60 CNEL contour adjacent to roads, railroads, rapid transit lines, airports or industrial areas. An acoustic analysis is required showing that these multi-family units have been designed to limit interior noise levels with doors and windows closed to 45 CNEL in any habitable room. Title 21 of the California Administration Code (Subchapter 6, Article 2, Section 5014) also specifies that noise levels in all habitable rooms do not exceed 45 CNEL.

6.4.2 Noise Fundamentals

Noise levels are measured on a logarithmic scale in decibels. The measurements are then weighted and added over a specified time period to reflect not only the magnitude of the sound, but also its duration, frequencyand time of occurrence. In this manner, various acoustical scales and units of measurement have been developed such as: equivalent sound levels (Leq), day-night average sound levels (Ldn), Community Noise Equivalent Levels (CNEL's), and

Single Event Noise Exposure Levels (SENEL's).

A-weighted decibels (dBA) approximate the subjective response of the human ear to noise by discriminating against the very low and high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies audible to the human ear. The decibel scale has a value of 1.0 dBA at the threshold of hearing and 140 dBA at the threshold of pain. Each increase of 10 decibels indicates a ten-fold sound energy increase, which is perceived by the human ear as being roughly twice as loud.

Examples of the decibel level of various noise sources are the quiet rustle of leaves (10 dBA), a soft whisper (20 to 30 dBA) and the hum of a small electric clock (40 dBA). Additional examples include the ambient noise in a house kitchen (50dBA), normal conversation at 5 feet (55 dBA) and a busy street at 50 feet (75 dBA).

Day-night average sound levels (Ldn) are a measure of cumulative noise exposure. The Ldn value results from a summation of hourly noise levels over a 24-hour time period with an increased weighting factor applied to the period between 10:00 PM and 7:00 AM. This takes into account the fact that noise that occurs during normal sleeping hours is more annoying. Community Noise Equivalent Levels (CNEL's) is a measure similar to Ldn except it includes an additional penalty for noise that occurs between 7 p.m. and 10 p.m. CNEL values are typically less than one decibel higher than Ldn values.

The Single Event Noise Exposure Level (SENEL) is the appropriate rating scale for a single noise occurrence. The SENEL, given in decibels, is the noise exposure level of a single event measured over the time interval between the initial and final times for which it exceeds the threshold noise level.

For a "line source" of noise such as a heavily traveled roadway, the noise level drops off at a nominal rate of 3.0 decibels for each doubling of distance between the noise source and noise receiver. Environmental factors such as the wind, temperature, the characteristics of the ground (hard or soft) and the air (relative humidity), the presence of grass, shrubs and trees, combine to increase the actual attenuation achieved outside laboratory conditions to 4.5 decibels per doubling of distance. Thus, a noise level of 74.5 decibels at 50 feet from the highway centerline would attenuate to 70.0 decibels at 100 feet, 65.5 decibels at 200 feet, and so forth.

In an area, which is relatively flat and free of barriers, the sound level resulting from a single "point source" drops by 6 decibels for each doubling of distance. This applies to fixed noise sources such as industrial sources and mobile noise sources that are temporarily stationary such as idling trucks.

Important noise sources within the study area include industrial and utility uses, mechanical equipment, loud speakers, aircraft and motor vehicles. Noise levels adjacent to roadways vary with the volume of traffic, the mean vehicular speed, the truck mix and the road cross-section. High traffic volumes and speed along State route 60 and arterial roadways contribute to high noise levels. Noise levels due to air traffic from the joint-use airport at March depend on aircraft characteristics, the number, path, elevation and duration of flights as well as the time of day that flights take place.

The results of the noise analysis prepared for the environmental impact report for the General Plan Update is shown in Figure 6-2. Figure 6-2 can be used as a general guide to determine potential "worst case" future noise levels for planning and design purposes.

6.4.3 Community Responses to Noise

People in general cannot perceive an increase or decrease of 1.0 dBA except in carefully controlled laboratory experiments. A

MORENO VALLEY
People • Pride • Progress

Box Springs Mountain Park

Riverside County

San Timoteo Canyon

City of Riverside

March Air Reserve Base

The Badlands

San Jacinto Wildlife Preserve

Lake Perris State Recreation Area

Lake Perris

City of Perris

Riverside County

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

60 65 70 75 80

LEGEND

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

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

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

North

Buildout Noise Contours

Figure 6-2

City of Moreno Valley
June 2005

3.0 dBA increase is considered noticeable outside of the laboratory. An increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e. complaints) would be expected.

Studies have shown that people respond to changes in long-term noise levels. About 10 percent of the people exposed to traffic noise of 60 Ldn will report being highly annoyed with the noise and 2 percent more people become highly annoyed with each unit of Ldn increase in traffic noise. When traffic noise exceeds 60 Ldn or aircraft noise exceeds 55 Ldn, people begin complaining. Group and legal actions to stop the noise may occur at traffic noise levels near 70 Ldn and aircraft noise levels near 65 Ldn.

Approximately 10 percent of the population has such a low tolerance for noise that they object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected.

6.4.4. Planning and Design Considerations

There are many mechanisms available to control noise in the community. A noise ordinance can be adopted to control noise sources, but the best way to minimize the adverse effects of noise is through planning and design.

Planning noise compatible land uses near existing or projected high noise levels is an effective technique. Certain land uses are more compatible with noise than others. Schools, hospitals, churches and single-family residences are relatively sensitive to noise. Multiple-family residential uses are less sensitive to noise than single-family residential uses. Commercial, office and industrial uses are relatively noise tolerant. Where possible, the land use plan places noise tolerant uses within areas impacted by noise from State Route 60, arterial streets and aircraft over flights. The historical land use pattern and other community needs made it impractical to avoid all noise conflicts through land use planning.

Acoustic site planning, architectural design, acoustic construction techniques and noise barriers are effective methods for reducing noise impacts. Acoustic site planning involves the arrangement of lots, buildings, berms and walls to minimize noise conflicts and impacts. Sound walls and berming are often used as sound barriers between residential uses and nonresidential noise sources, such as commercial uses, industrial uses, freeways and other major roadways.

Acoustic architectural design involves the incorporation of noise attenuation strategies in the design of individual structures. Building heights, room arrangements, window size and placement, balcony and courtyard design can be adjusted to shield noise sensitive activities from intrusive sound levels.
Acoustic construction is the treatment of various parts of a building to reduce interior noise levels. Acoustic wall design, doors, ceilings and floors, as well as dense building materials and acoustic windows (double-paned, thick, non-openable, or small windows) are all available options.

6.5 GEOLOGIC HAZARDS

6.5.1 Background

Most of the Moreno Valley study area lies at the eastern margin of a block of the earth's crust known as the “Perris Block.” The Perris Block is a mass of granitic rock, generally bounded by the San Jacinto fault, the Elsinore fault, and the Santa Ana River. The Perris Block has had an apparent history of vertical land movements of several thousand feet.

The Badlands range is located east of the Perris Block. It is comprised of deposits of what was once an inland sea. The Badlands were later elevated above the water and deformed by geologic processes, before becoming severely eroded to its present state. This area is made up of quaternary alluvium, consisting of folded sedimentary sandstone, siltstone, and shale rock.

The granitic mountains areas of the Perris Block, including the Box Springs Mountains and the Mount Russell area, have underlying bedrock consisting essentially of quartz diorite. They display many rock outcrops and large weathered boulders. Earth materials on the valley floor are Pliocene-Pleistocene alluvium ranging from relatively thin to intermediate thickness, overlying primarily granitic bedrock.

The geologic and seismic setting of the Moreno Valley is dominated by the close proximity of the "active" San Jacinto fault, which runs along the eastern city limits (see Figure 6-3).

The major potential for earthquake damage to Moreno Valley is from activity along the San Jacinto Fault Zone. The San Jacinto Fault Zone is composed of several parallel faults that together constitute the zone.

There are three branches of the San Jacinto Fault in the southeast corner of the study area. The western branch is sometimes referred to as the Casa Loma Fault; the eastern branch, the Claremont Fault.

The Farm Road Fault was identified in 1992 in the southeastern portion of the study area. Insufficient information is available to determine if the fault is active.

Other faults in the region that could affect the study area are the San Andreas and Elsinore faults. The San Andreas is an active fault located approximately 15 miles northeast of the study area. The Elsinore fault is also considered active, and is approximately 17 miles southwest of the study area. The San Jacinto fault poses the greatest seismic threat because it is close to Moreno Valley and it is considered to be the most active fault in Southern California.

6.5.2 Issues and Opportunities

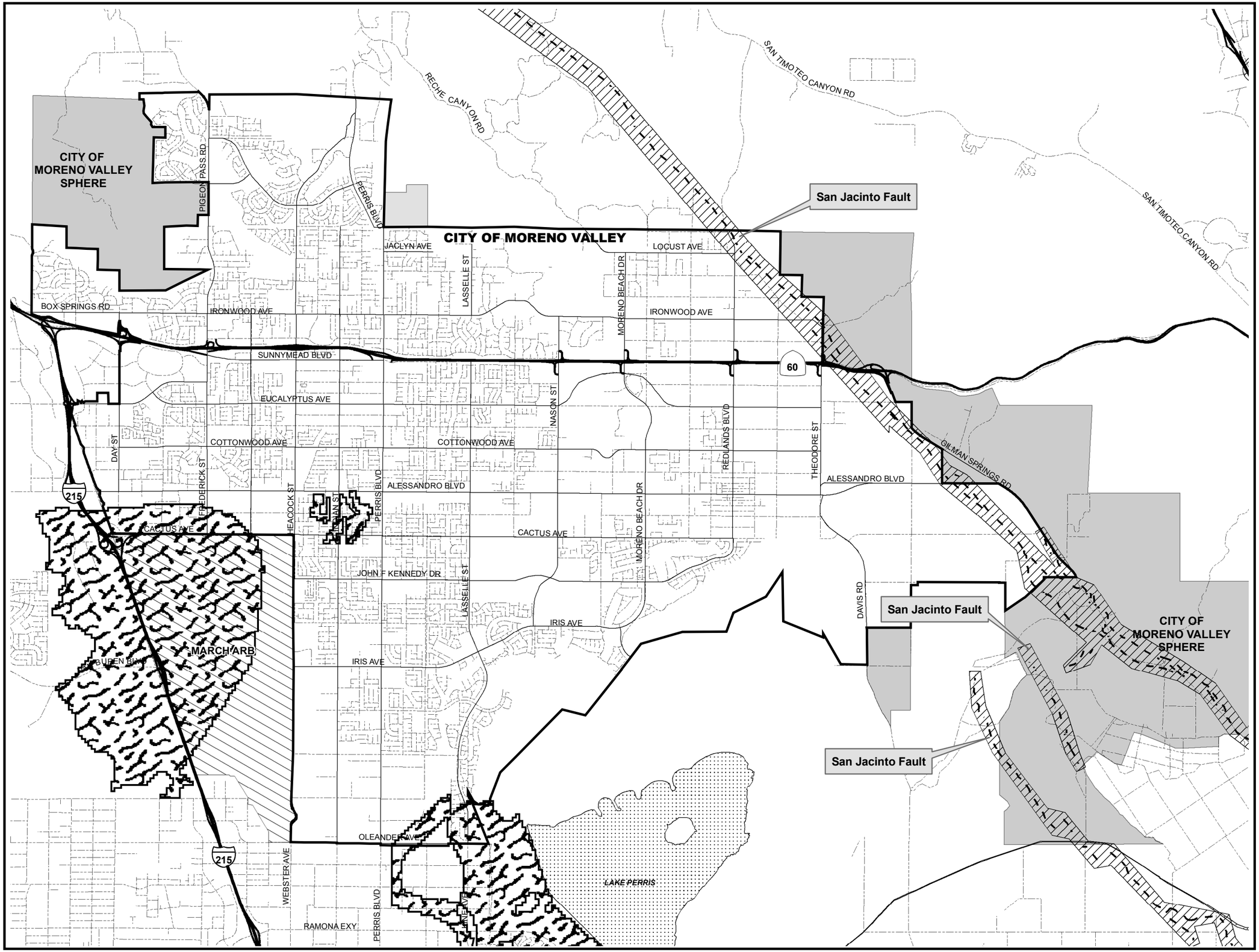
The primary seismic hazards facing the area are ground rupture and seismic shaking. Ground rupture refers to the displacement that occurs during an earthquake. Such displacement of the earth's surface may be vertical, horizontal, or both. Pipelines and roads are particularly vulnerable to damage where they cross faults as a result of ground rupture.

The State Geologist has mapped a "Special Studies Zone" along the San Jacinto Fault Zone in accordance with the Alquist-Priolo Special Studies Zone Act (see Figure 6-3). Under this act, prior to approval of structures for human occupancy within a special study zone, a geologic study must be undertaken to determine the precise location and necessary set backs from identified faults.

Ground shaking is the greatest cause of damage in an earthquake. The intensity of ground shaking in an earthquake depends on several factors including the magnitude of the earthquake, distance from the earthquake epicenter, and soil conditions.

In general, the larger the magnitude of an earthquake and the closer a site is to the epicenter of the event, the greater will be the effects. However, soil conditions can also amplify earthquake shock waves. Generally, the shock waves remain unchanged in bedrock, are amplified in thick alluvium and are greatly amplified in thin alluvium.

There are several scales used to measure earthquakes. The most well known scale is the Richter Scale, which measures the energy released in an earthquake.



MORENO VALLEY

FIGURE 6-3
GEOLOGIC FAULTS & LIQUEFACTION

- Streets
- Major Streets
- Highways
- Faults
- Fault Zones
- Potential Liquefaction
- Moreno Valley
- Moreno Valley Sphere
- March ARB
- Waterbodies

N

5,000 2,500 0 5,000 Feet

0.5 0.25 0 0.5 1 Miles

Date: July 11, 2006
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\geologic.mxd

GEOGRAPHIC INFORMATION SYSTEMS

The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

The Richter Scale is a logarithmic scale where an increase of 1.0 on the scale represents an increase of 10 in the amplitude of the recorded wave, and an increase of about 32 in the energy release. Thus, a 6.0 magnitude earthquake releases 32 times as much energy as a 5.0 magnitude event. An earthquake along the San Jacinto fault with a magnitude of 7 or more is likely to cause extensive damage. The Uniform Building Code requires new construction to be reinforced and braced to resist earthquake forces, but would not provide 100 percent damage protection from a major earthquake in close proximity to Moreno Valley. The building code requirements have increased over time. As such, older structures are generally more susceptible to earthquake damage than newer structures.

Secondary seismic hazards that may be triggered by an earthquake include liquefaction, land settlement, landslides, and seiches. Liquefaction is not considered to be a local hazard since groundwater levels in Moreno Valley are far below the surface. A shallow water table is necessary for liquefaction to occur. There are isolated instances of collapsible soils. Soil engineers routinely evaluate the potential for land settlement when conducting foundation investigations.

Loose rocks might roll down mountain slopes during strong ground shaking, specifically the granitic boulders on the mountains located at the northern and southern margins of the study area. There is some potential for landslides in the Badlands because the slopes are steep and the underlying geologic material is poorly consolidated.

Seiching is water movement caused by ground shaking. Seiching may present a hazard during an earthquake at Poorman Reservoir, Sunnymead Lake, and Lake Perris if the seiching in conjunction with ground shaking resulted in dam failure. Dam rupture could endanger inhabitants and property within the path of the resulting flow of water. Specific dam failure hazards are discussed in the Flood Hazards section of the General Plan. Water storage tanks are also susceptible to seiching. However, water tanks are designed to safely detain and direct the flow of water in the event of failure or leakage.

6.6 AIR QUALITY

6.6.1 Background

Air pollution is a serious local, national and global problem. It is a health hazard. Cancer, lung damage, asthma and other respiratory ailments have been linked to air pollution. Air pollution also damages plants and property and obscures views. Two primary factors influence air quality: the climate and the amount of pollutants emitted into the air.

The Moreno Valley study area is located near the eastern edge of the South Coast Air Basin. This Basin includes most of the counties of Los Angeles and Orange, as well as the western portions of Riverside and San Bernardino Counties. The South Coast Air Basin has a Mediterranean climate with hot, dry summers and mild, moist winters. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. Moreno Valley has an annual average mean temperature for January and July of 51 and 76 degrees Fahrenheit, respectively. The maximum summer temperature reaches more than 100 degrees Fahrenheit.

Wind has an important effect on air quality. Low wind speeds and the mountains bordering the South Coast Air Basin limit the dispersal of air pollutants. The daytime winds typically originate off the coast and carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion to the eastern portion of the air basin. This influx of pollution from the western part of the air

basin is the primary air quality problem in Moreno Valley.

Atmospheric temperature inversions that occur above the South Coast Air Basin also affect local air quality. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. Inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions that create ozone, a particularly harmful air pollutant.

Ozone, carbon monoxide, fine particulate matter, nitrogen dioxide, sulfur dioxide and lead are pollutants for which the federal and state governments have established ambient outdoor air quality standards. Air quality standards are designed to protect public health. There are also federal and state regulations concerning toxic pollutants and global warming and ozone-depleting gases.

Ozone is formed by the reaction of volatile organic compounds and reactive organic gases, both of which are by-products of vehicular and industrial emissions. Carbon monoxide from motor vehicle emissions can reach high levels near congested roadways. Fine particulate matter is a pollutant that consists of very small particles derived from soil surface dust, diesel soot and other sources. Nitrogen dioxide, a by-product of motor vehicle and industrial emissions, sulfur dioxide and lead are found at levels below the federal and state standards.

Air quality data is obtained from monitoring stations operated by the South Coast Air Quality Management District (AQMD). The Perris Valley station is the closest and most representative of the study area. The Perris Valley station monitors fine particulate matter and ozone, Moreno Valley's primary air quality problem.

Although Moreno Valley's air quality is greatly shaped by pollutants transported from other portions of the Basin, Moreno Valley has both stationary and mobile sources of emissions. Stationary sources include residences, dry cleaning establishments, gas stations and various manufacturing enterprises.

Mobile sources include automobiles, trucks, buses and aircraft traveling within or through the study area. Mobile source emissions are regulated to some degree at the state and federal levels by emission standards for auto manufacturers and by the state mandatory automobile inspection program.

The SCAQMD is the regional agency created to achieve and maintain healthful air in the region in accordance with federal and state mandates. SCAQMD must adopt, update and implement an Air Quality Management Plan (AQMP) pursuant to the California Clean Air Act and the federal Clean Air Act. The AQMP must demonstrate compliance with state and federal air quality standards.

Implementation of air pollution control measures dramatically improved air quality in the region since the early 1970's. Reflecting a long-term trend of improved air quality between 1985 and 1999, there was a 75 percent reduction in the number of days of unhealthful air. In 1985, there were nearly 160 unhealthful air days, days when the federal standard for ozone (0.12 parts per million) was exceeded. There were 41 days of unhealthful air in 1999.

6.6.2. Issues and Opportunities

Future development within the study area will create air pollutant emissions from three sources: construction, mobile, and stationary. Construction impacts are temporary, and include dust and gaseous emissions resulting from the disturbance of soil during clearing and grading as well as the combustion of fuels from heavy equipment.

Upon completion of construction, significant increases of automobile and truck traffic will occur, with associated increases in emissions. The third source of pollutant emissions is from stationary sources, primarily resulting from industrial processes. Additionally, energy demands for new development require the combustion of fossil fuels for space heating and power generation. This will create emissions locally and at distant power plants.

Clearing, grading, and travel on unpaved roads will generate fugitive dust. The amount of dust can generally be reduced through the application of control measures such as regular watering. Other potential fugitive dust reduction measures include soil compaction; early paving, sealing, or oiling of access routes; and enforcement of maximum speed limits within unpaved portions of construction areas.

Fugitive dust will generally settle out on nearby horizontal surfaces such as foliage, vehicles, and buildings. Smaller dust particles will be carried by the prevailing winds to more distant locations. Fugitive dust particles are usually inert sillicates, and are large enough to be filtered by human breathing passages. Such dust may contribute to the degradation of visibility in the area, but typically will not have adverse health effects, as would the very small, complex organic aerosols of urban air pollution.

In addition to fugitive dust, emissions from heavy equipment and trucks will add to local air pollution. The impacts of construction activities are temporary and are primarily a nuisance factor.

The most local air emissions will result from additional vehicle miles traveled due to new local development, as well as from increases in regional traffic along State Route 60 and Interstate 215. Compared to the hundreds of millions of vehicle miles already traveled in the South Coast Air Basin, the effect of Moreno Valley area growth will be minimal. However, on a local scale, there may be micro-scale air quality problems, such as carbon monoxide concentrations.

The number and length of trips occurring within the city can be reduced by encouraging a balance between employment and housing. A jobs/housing balance would reduce emissions from long commutes. Zoning property along transit routes to allow high-density residential, commercial and employment-intensive land uses could also reduce vehicle trips and miles traveled.

Another source of emissions is derived from the consumption of electricity and natural gas. Compared to mobile source emissions and regional stationary source emissions, local impacts will be minimal. It should also be noted that much of the stationary source emissions would be generated at distant power plants.

Industrial processes also create stationary source emissions. The type and quantities of these emissions are highly variable depending on the specific industrial process, materials used and production level.

6.7 WATER QUALITY

6.7.1. Background

a. Groundwater Quality.

Although groundwater provides a fraction of the local water supply, groundwater is a valuable natural resource that should be protected. Groundwater aquifers are natural storage tanks that can store water for use during drought periods. Agricultural chemicals, domestic sewage and chemical spills are potential sources of groundwater pollution in the study area.

While agricultural operations are no longer a major source of water pollution, past operations contributed to concentrations of salts and dissolved solids that created

limitations for domestic use.

Nitrate concentrations have also been a problem. As recently as the 1990's, groundwater pumped by local water companies contained nitrate levels that exceeded state drinking water standards. Water companies had to blend groundwater with imported water purchased from the Eastern Municipal Water District.

Groundwater concentrations of fluoride and boron are relatively high near the San Jacinto Fault Zone. The occurrence of high fluoride and boron concentrations is often associated with geologic faults.

In the 1980's, a plume of contaminated groundwater was identified within and immediately east of March Air Reserve Base. Improper handling of waste fuel, oil and spent solvents was the cause of the contamination. The predominant pollutants are tetrachloroethylene and trichloroethylene. The Air Force operated wells and facilities to clean and monitor the plume of contaminated groundwater.

b. Surface Water Quality

The majority of the surface runoff from the study area drains into the San Jacinto River; some of which initially flows southeast into the San Jacinto Valley and some southwest into the Perris Valley Storm Drain. The remainder of the study area drains to the west and north into various tributaries of the Santa Ana River, including Sycamore Canyon, Reche Canyon and San Timoteo Canyon.

The San Jacinto River drains to the southwest into Canyon Lake and Lake Elsinore and then northwest into Temescal Wash and the Santa Ana River. Canyon Lake occasionally discharges into Lake Elsinore. Lake Elsinore occasionally discharges into Temescal Wash, a tributary of the Santa Ana River. Discharges from the lakes are so rare that they are essentially closed systems. As such, they are particularly susceptible to water quality problems.

Lake Elsinore and Canyon Lake did not meet state water quality standards adopted pursuant to the Federal Water Pollution Control Act (Clean Water Act). Lake Elsinore experienced algae growth, oxygen depletion and fish kills due to sediment, nitrogen and phosphorus compounds and toxicity.

The Santa Ana Regional Water Quality Control Board adopted a nutrient Total Maximum Daily Load (TMDL) for Canyon Lake and Lake Elsinore. The TMDL when implemented will reduce nutrients in the surface waters tributary to the lakes to levels that will protect their designated uses.

Storm water runoff from the study area could further degrade downstream water quality. Some of the pollutants of concern include, but are not limited to, sediment, oil, petroleum products, debris and litter, human and animal waste, fertilizers, pesticides, antifreeze, tire and brake particles, detergents and toxic substances.

The pollutants found in urban storm runoff originate from diverse sources. Sediments originate from soil erosion. Automobile use is responsible for the deposition of contaminants such as asbestos from brake linings, tire particles, antifreeze, oil and grease that accumulate on streets and parking surfaces. Fertilizer, organic matter and deposits of air pollutants are sources of nitrogen and phosphorous in runoff.

6.7.2. Issues and Opportunities

a. Groundwater Quality.

There are many programs in place to preserve the quality of groundwater. Examples include the following:

- Well Drilling and Abandonment

Standards - Riverside County and California State guidelines for the construction and closure of water wells.

- Underground Storage Tanks - County and State regulations for placement, construction, and maintenance of underground storage tanks.

- Subsurface Sewage Disposal Systems - City, County and Santa Ana Regional Water Quality Control Board standards for construction, placement, and use of septic tanks and soil leaching systems.

- Hazardous Wastes - City, County, State, and Federal guidelines and procedures for the storage, transportation, and disposal of hazardous waste material.

- Groundwater cleanup and monitoring at MARB –Federal cleanup and monitoring of groundwater on and adjacent to March Air Reserve Base due to contamination associated with past aircraft maintenance operations.

- Review of Sewer Systems – EMWD and City of Moreno Valley standard procedures for the construction and maintenance of sewer systems.

- Water Reclamation/Sewage Treatment - EMWD, State, Santa Ana Regional Water Quality Control Board and Federal guidelines for sewage treatment and disposal or use of treated water and sewage sludge.

- Sanitary Landfills - Riverside County guidelines, standards, and monitoring of wastes that enter landfills.

b. Surface Water Quality

Storm water discharges from new developments are prohibited unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The Santa Ana Regional Water Quality Control Board issued a NPDES permit for the Santa Ana River watershed pursuant to the Clean Water Act and Environmental Protection Agency guidelines. The City, along with other jurisdictions, is a party to the Santa Ana NPDES Municipal Stormwater Permit. The Santa Ana Regional Water Quality Control Board issued a separate storm water permit for the San Jacinto River portion of the watershed.

The NPDES permit includes a storm water management plan that describes a program for reducing the discharge of water pollutants to the maximum extent practical. The program assigns responsibilities for implementing best management practices, monitoring of storm water runoff, training, public education and reporting activities. The NPDES permit requires water quality impacts from new developments to be addressed as part of the environmental review process and the implementation of mitigation measures to improve the quality of runoff from new development.

6.8 FLOOD HAZARDS

6.8.1. Background

Regional flood control planning and facilities are under the jurisdiction of the Riverside County Flood Control and Water Conservation District (RCFCWCD). The City of Moreno Valley, however, has the responsibility for design, construction, and maintenance of local drainage facilities. Road curb and gutter and roadside ditches supplement the flood control system.

A small portion of the study area is subject to flooding during and immediately after heavy rainfall. Several portions of the study area are subject to a 100-year flood, meaning a flood that might occur once in one hundred years; in other words, a flood with a one percent chance of occurring in any given year.

Four types of actual and potential flooding conditions exist within the Moreno Valley study area: flooding in defined watercourses, ponding, sheet flow, and dam inundation. Flooding within defined watercourses occurs within drainage channels and immediately adjacent floodplains. Ponding occurs when water flow is obstructed due to manmade obstacles such as the embankments of State Route 60 and other roadways where they cross-defined watercourses. Sheet flow occurs when capacities of defined watercourses are exceeded and water flows over broad areas.

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

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

RCFCWCD prepared four "Master Drainage Plans" for the area. These documents analyze drainage flows and make recommendations for improvements.

The Moreno Area Drainage Plan is generally bounded by Nason Street on the west and Theodore Street on the east. The mountain range to the north and the Mount Russell area foothills to the south, define the northern and southern boundaries of the drainage area. The plan includes two retention basins north of State Route 60 and a network of open channels and underground storm drains. The system will carry storm runoff to a channel system and a retention basin in the Moreno Valley Ranch area that drains into the Perris Valley Storm Drain.

The Sunnymead Area Drainage Plan is generally bounded by Frederick Street and March Air Reserve Base on the west, the Perris Valley Storm Drain on the south and Lasselle Street on the east. The plan consists of several retention basins, open channels and a network of underground storm drains. Poorman Reservoir is the major flood basin in the area. The system will carry storm runoff south to the Perris Valley Storm Drain.

The West End Area Drainage Plan is roughly bounded by the Box Springs Mountains to the north, Old Highway 215 on the west, Alessandro Boulevard on the south, and Frederick Street on the east.

The master plan calls for a system of open concrete lined channels and underground storm drains, which in conjunction with streets, will allow for the safe passage of storm flows through the developed area. The system discharges storm runoff through a culvert on Old Highway 215 and into Sycamore Canyon.

Sunnymead Storm Channel

The Perris Valley Area Drainage Plan includes parts of Moreno Valley, Perris and unincorporated parts of Riverside County, including March Air Reserve Base. The portion of the master plan within Moreno Valley is predominantly within the Moreno Valley Industrial Area. It extends between Heacock Street on the west to the Perris Valley Storm Drain on the east, from Lateral A to Lateral B of the Perris Valley Storm Drain. The master plan consists of a retention basin and a system of open channels and underground storm drains.

No master drainage plan has been completed for the area east of Theodore Street. Storm water runoff in the eastern portion of the study area generally flows in a southerly direction through existing natural floodways and manmade agricultural and roadside ditches. Runoff drains through the San Jacinto Valley and ultimately flows into Mystic Lake and the San Jacinto River.

The Federal Government, alarmed by rising costs of disaster relief, passed the National Flood Insurance Rate Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large public expenditures for flood control works and flood relief by identifying and restricting development within floodplains.

The Federal Emergency Management Agency administers the National Flood Insurance Program (NFIP). The NFIP offers flood insurance within communities that comply with minimum floodplain management guidelines. For example, communities are required to use the Flood Insurance Rate Maps (FIRM) published by the FEMA. The City of Moreno Valley has joined the NFIP program and the Community Rating System (CRS) programs. As such, residents and businesses in Moreno Valley qualify for discounts on their flood insurance premiums.

6.8.2. Issues and Opportunities

According to the RCFCWCD, improved methods to determine flood hazards, along with rapid development and land use changes resulted in the need to revise portions of the existing master plans. Revisions may be necessary from time to time as land use changes are made that change the characteristics of the watershed.

The current main trunk facilities (primary open channels) were designed to protect anticipated development in a 100-year flood. The combined collector line and surface street network feeding the study area's system was designed to accommodate 10-year flood flows. Much of the system remains to be installed.

As development within Moreno Valley proceeds, land developers will continue contributing to the flood control system. Developers not only install local drainage facilities on their property, but they also install major drainage facilities and/or pay drainage fees to the RCFCWCD for the completion of the major flood control facilities.

RCFCWCD has been collecting development fees to finance drainage improvements. However, there has traditionally been a lapse between (1) the time development fees are collected and, (2) the time sufficient fees have been collected

Flood Zones

Zones Inundated by 100 Year Flood

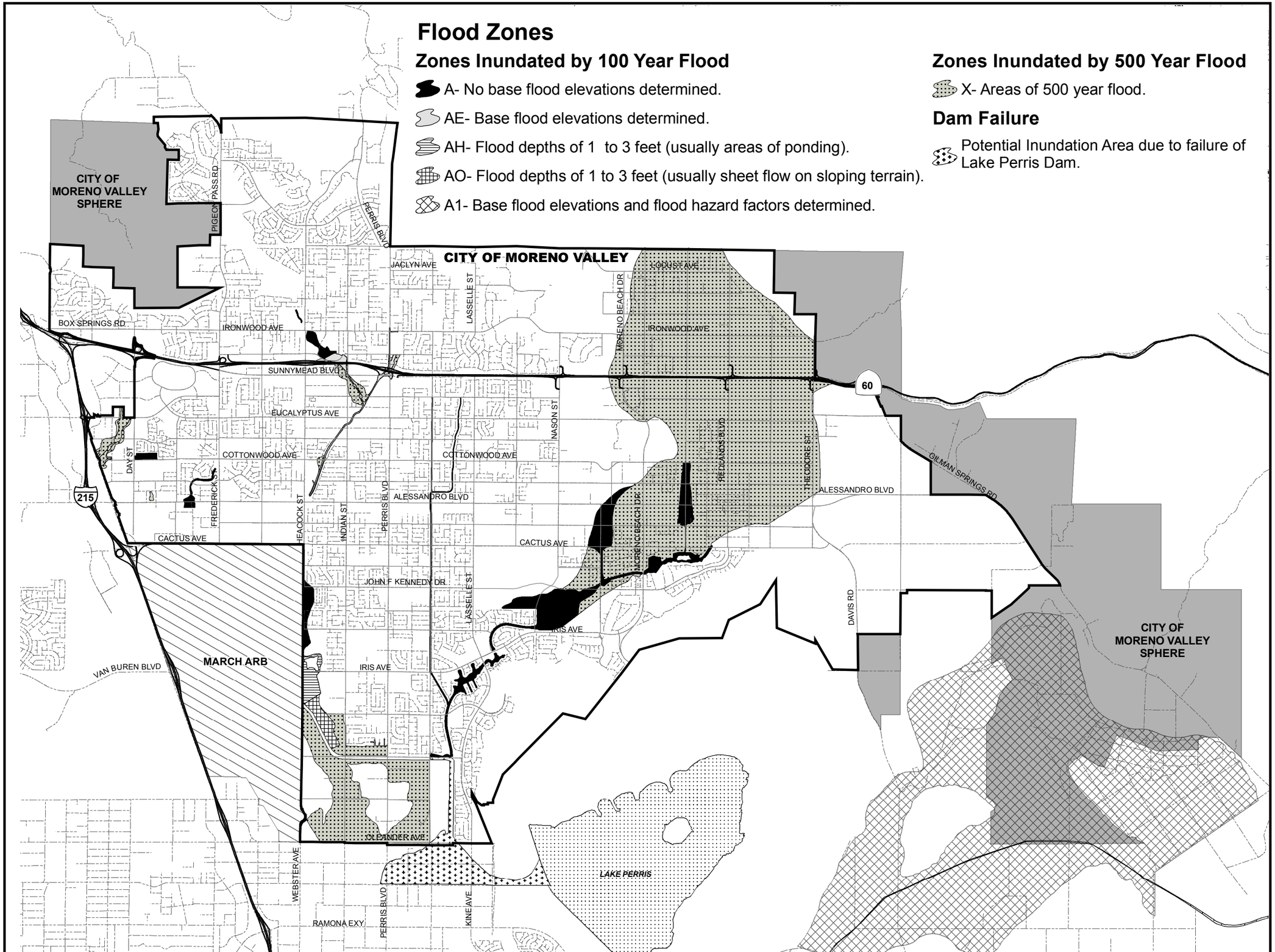
- A- No base flood elevations determined.
- AE- Base flood elevations determined.
- AH- Flood depths of 1 to 3 feet (usually areas of ponding).
- AO- Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain).
- A1- Base flood elevations and flood hazard factors determined.

Zones Inundated by 500 Year Flood

- X- Areas of 500 year flood.

Dam Failure

- Potential Inundation Area due to failure of Lake Perris Dam.



MORENO VALLEY

FIGURE 6-4
FLOOD HAZARDS

- Streets
- Major Roads
- Highways
- Moreno Valley
- Moreno Valley Sphere
- March ARB
- Waterbodies

N

0 2,500 5,000 7,500 10,000 Feet

0 0.5 1 1.5 2 Miles

Date: July 11, 2006
State Plane NAD83 Zone 6
File: G:\ArcMap\Planning\flood_hazard.mxd

GEOGRAPHIC INFORMATION SYSTEMS

to allow for construction of a portion of the system. Thus, although master drainage plans are in place, and are being implemented, drainage problems remain, and can be expected to continue into the future until the entire drainage system has been completed.

6.9 HAZARDOUS MATERIALS

6.9.1 Background

Modern society is dependent on many materials that, because of their characteristics, pose a risk to human health and safety or the environment because of improper handling, storage or disposal. These substances are known as hazardous materials. Hazardous materials include both hazardous products intended for use and hazardous wastes for which no use or reuse is intended. Hazardous materials include toxic, corrosive, infectious, flammable, explosive and radioactive substances.

The use of hazardous materials is well known with regard to manufacturing and agricultural activities, but it is also associated with commercial, institutional, residential and recreational uses. Because of their widespread use, it can be assumed that each type of hazardous material is transported, used or stored to some degree within the study area.

Federal, state and local governments have enacted a variety of laws and established programs to deal with the transport, use, storage, and disposal of hazardous materials to reduce the risks to public health and the environment.

These laws and programs supplement existing regulations designed to control the contamination of air and water resources.

There are no active landfills operating in Riverside County that accept hazardous wastes. Hazardous wastes generated within the County are disposed of at distant "Class I" landfills. The California Health Services Department regulates companies that haul hazardous waste. The California Highway Patrol (CHP) is responsible for the inspection of motor carriers that haul hazardous wastes. Inspections are made on roadways, at freeway truck scales and truck yards.

The shipment of hazardous materials by truck or rail is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. Federal safety standards are also included in the California Administrative Code, Environmental Health Division.

The Environmental Protection Agency (EPA) ensures that containers of hazardous materials are properly labeled with instructions for use. The U. S. Department of Agriculture and California Department of Food and Agriculture and the Department of Industrial Relations regulate pesticide dealers and users to insure that hazardous agricultural chemicals are properly used. The California Department of Industrial Relations, Cal-OSHA Division regulates the use of hazardous materials in the workplace. Regulations governing the storage and use of hazardous materials are also contained in the Uniform Building Code and the Uniform Fire Code.

The Hazardous Materials Branch (HMB) of the Environmental Health Services Division of the Riverside County Health Department operates a hazardous waste program. The HMB inspects those involved in generating, hauling, storage, treating and disposing of these wastes. The HMB also operates mobile household hazardous waste roundups and checks loads at local landfills for hazardous wastes.

Past improper disposal of hazardous wastes throughout the state and the nation left a legacy of problems that prompted legislation to encourage better management and disposal of hazardous waste. Assembly Bill 2948, Tanner, was adopted in 1986 to ensure

that adequate hazardous waste facilities will be available in the future. AB 2948, as amended, authorized counties and cities to prepare and adopt plans for the siting of facilities for the treatment, storage and disposal of hazardous waste.

The City of Moreno Valley Hazardous Waste Management Plan (adopted in 1991) was prepared and adopted to meet the requirements of AB2948. The Hazardous Waste Management Plan, as may be amended from time to time, has been incorporated into the General Plan by reference.

The California Waste Management Act of 1989, as amended, required each city in the State of California to make provisions to handle solid waste, including household hazardous waste. Household hazardous waste includes small quantities of a variety of household products such as paint, pesticides, fertilizers, used oil, batteries and other automotive products, aerosols, cleaners, swimming pool chemicals, dyes and other personal care products. The State required each city to adopt a household hazardous waste element in conjunction with its solid waste management program. The City adopted its "Household Hazardous Waste Element" in 1992.

6.9.2. Issues and Opportunities

Hazardous materials are an integral part of modern life and cannot be eliminated entirely. There are many federal, state and local regulations and programs that substantially reduce the risks associated with hazardous materials.

The City has the ability to encourage "clean" industries rather than industries where large amounts of hazardous materials are used. The City also has the ability to establish a land use pattern that minimizes the hazards associated with the use, storage and transport of hazardous materials.

The Household Hazardous Waste Element and the Hazardous Waste Management Plan for the City of Moreno Valley contain programs for the reduction of hazardous waste and criteria for the siting of hazardous waste facilities. These plans should be updated from time to time to reflect changing conditions.

6.10 AIR CRASH HAZARDS

6.10.1. Background

There is an airfield located southwest of the city limits. The airfield is operated by two entities: March Air Reserve Base and the March Inland Port Airport Authority. The flight operations present a potential, albeit minor, risk for air crashes. The risk is greatest immediately under the takeoff and landing zone located at either end of the runway(s).

Air crash hazards and land use compatibility associated with the airfield at March were analyzed in the Air Installation Compatibility Use Zone report prepared by the Air Force in 1998. The report mapped areas of relative potential for crashes into various categories: areas on or adjacent to the runway; areas within the clear zone; Accident Potential Zone (APZ) I; and Accident Potential Zone (APZ) II.

The area on or adjacent to the runway is within the boundaries of the joint-use airport. It is outside of the study area. The accident potential within the clear zone, which extends 3,000 feet from each end of the runway, is considered to be of such high risk that few uses are acceptable. A small area at the extreme southwest corner of the City is within the clear zone.

The accident potential within APZ I and APZ II are considered to be significant enough to warrant special attention. APZ1 extends 5,000 feet past the clear zone along Old Highway 215 south of Alessandro Boulevard.

APZ II extends an additional 7,000 feet beyond APZ I along Old Highway 215.

The AICUZ Report provided land use recommendations for each accident potential zone. The main objective has been to restrict people-intensive uses because there is a greater public safety risk in these areas. The basic criteria for APZ I and APZ II land use guidelines is the prevention of uses which:

- have high residential density characteristics;
- are labor intensive;
- promote concentrations or extended duration of concentration of people, in particular, of people who are unable to respond to emergency situations such as children, elderly, handicapped;
- involve utilities and services required for the area to which disruption would have a significant adverse impact (e.g. electrical substations, telephone switching stations, etc.); or pose hazards to aircraft operations.

Precise maps of the air crash hazard areas (safety zones) in the vicinity of March were prepared to reflect the actual flight pattern for departures. Departing aircraft turn to the west shortly after takeoff. The resulting air crash hazard areas, shown on Figure 6-5, slant to the west of the accident potential zones shown in the 1998 AICUZ Report.

Tall structures are also an issue in the vicinity of airports. Federal Aviation Regulations (FAR) Part 77 recommends that local jurisdictions institute height controls to limit tall structures that might present hazards to aircraft operations. Part 77 defines the navigable airspace around airports to help local jurisdictions determine if a proposed tall structure might interfere with air operations.

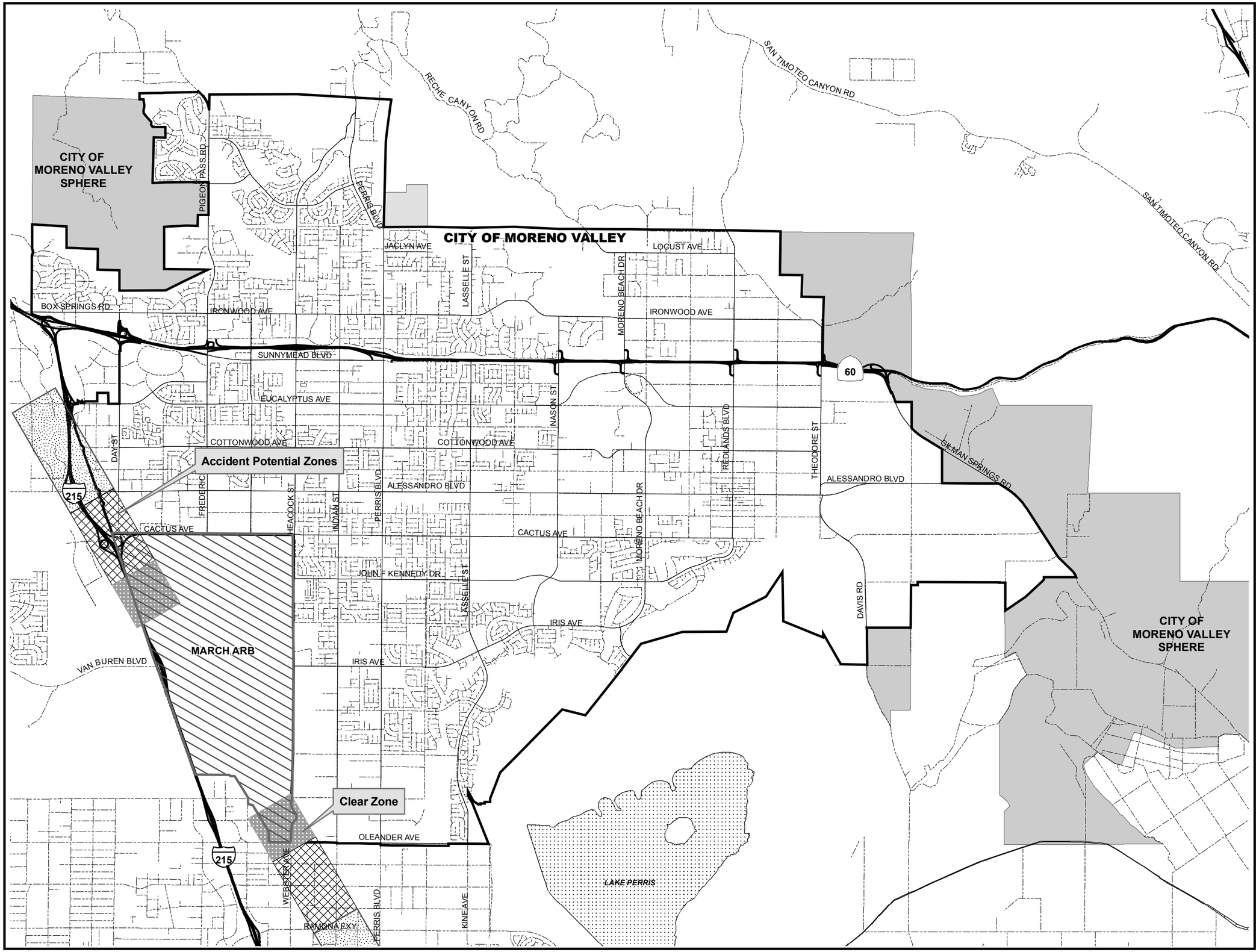
Commencing 2002, March was undergoing a transition from a military airport to a joint military and civilian airport. The Public Resources Code of the State of California requires the Airport Land Use Commission for Riverside County to prepare a comprehensive land use plan for each public airport.

Such plans are intended to allow for orderly growth of each airport and the area around each airport while safeguarding the public welfare.

6.10.2. Issues and Opportunities

The establishment of tall structures around airports and inappropriate uses in areas subject to air crash hazards could substantially increase the risk for loss of lives and property. As such, land use restrictions are needed in these areas in the interest of public safety. Such restrictions are also needed to ensure the long-term viability of the airport.

Potential complaints and litigation brought by people who live or work in these areas could force restrictions on flight operations and even closure of the airport. Therefore, it is in the economic interest of the region to discourage incompatible uses where there is a high potential for aircraft accidents.



MORENO VALLEY

FIGURE 6-5
AIR CRASH HAZARDS

- Streets
- Major Streets
- Highways
- March ARB
- Accident Potential Zone I
- Accident Potential Zone II
- Clear Zone
- Moreno Valley
- Moreno Valley Sphere
- Waterbodies

N

5,000 2,500 0 5,000 Feet

0.5 0.25 0 0.5 1 Miles

Date: July 11, 2006
State Plane NAD83 Zone 6
File: G:\arcmap\planning\gen_plan_updates\air_crash.mxd
*Air Accident Zone data provided by MARB

GEOGRAPHIC INFORMATION SYSTEMS