LOCAL HAZARD MITIGATION PLAN

Revised: 2022-23

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PLAN ADOPTION

The City of Moreno Valley Local Hazard Mitigation Plan (LHMP) has been reviewed and approved by the Governor's Office of Emergency Services (Cal OES) and the Federal Emergency Management Agency (FEMA).

U.S. Department of Homeland Security
FEMA Region 9
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

July 25, 2023

Brian MacGavin
Program Director
County of Riverside Emergency Management Department
450 E Alessandro Blvd,
Riverside, CA 92508

Dear Brian MacGavin:

The *County of Riverside Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan 2023* has been amended to include the City of Moreno Valley as an official planning participant. The City of Moreno Valley must submit an adoption resolution to FEMA in order to be considered fully approved.

FEMA's approval of the *County of Riverside Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan 2023* remains for a period of five years from the original approval date of **April 18, 2023** for all approved participants. An updated list of the status of current participating jurisdictions is enclosed with this letter.

Prior to **April 18, 2028**, Riverside County and all participating jurisdictions are required to review and revise the plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval in order to continue to be eligible for mitigation project grant funding.

The continued approval of this plan ensures Riverside County and all participating jurisdictions' continued eligibility for project grants under FEMA's Hazard Mitigation Assistance programs, including the Hazard Mitigation Grant Program, Building Resilient Infrastructure and Communities Program, and Flood Mitigation Assistance Program. All requests for funding, however, will be evaluated individually according to the specific eligibility, and other requirements of the particular program under which applications are submitted.

If you have any questions regarding the planning or review processes, please contact the FEMA Region 9 Hazard Mitigation Planning Team at fema-r9-mitigation-planning@fema.dhs.gov.

Sincerely,

Digitally signed by ALISON KEARNS
Date: 2023.07.25 20:34:17 -07'00'

Alison Kearns
Planning and Implementation Branch Chief
Mitigation Division
FEMA Region 9

RESOLUTION NO. 2023-33

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING THE CITY OF MORENO VALLEY LOCAL HAZARD MITIGATION PLAN AS REQUIRED BY THE FEDERAL DISASTER MITIGATION AND COST REDUCTION ACT OF 2000.

WHEREAS, the Disaster Mitigation and Cost Reduction Act of 2000 (DMA 2000) was signed into law on October 30, 2000, by the President of the United States; and

WHEREAS, the DMA 2000 requires all jurisdictions to be covered by a Local Hazard Mitigation Plan to be eligible for Federal Emergency Management pre and post-disaster funds; and

WHEREAS, the City of Moreno Valley is concerned about mitigating potential losses from natural disasters before they occur, and the Local Hazard Mitigation Plan identifies potentials hazards, potential losses, and potential mitigation measures to limit losses; and

WHEREAS, the Office of Emergency Management for the City of Moreno Valley has updated the Local Hazard Mitigation Plan for 2022 that is specific for Moreno Valley.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. Resolution 2017-55 and all prior enactments on the same subject are hereby repealed.
2. The City of Moreno Valley Local Hazard Mitigation Plan 2022 is adopted effective immediately.

SIGNATURE PAGE FOLLOWS

Moreno Valley Local Hazard Mitigation Plan

APPROVED AND ADOPTED this 16th day of May, 2023.

Ulises Cabrera
Mayor
City of Moreno Valley

ATTEST:

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steven B. Quintanilla, Interim City Attorney

EXECUTIVE SUMMARY

The City of Moreno Valley's Local Hazard Mitigation Plan (LHMP) is designed to identify the City's hazards, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term natural or man-made hazard risks to human life and property for the City and its residents. The City of Moreno Valley LHMP is written so that all stakeholders can understand Moreno Valley's hazard risks and the City's corresponding mitigation strategy. The City's mitigation efforts are continuous with a goal to develop and maintain a viable plan. Hazard mitigation responsibility rests with everyone and the City of Moreno Valley encourages its citizens to do mitigation planning at every level – at home, in the workplace, and in their communities.

The 2022 LHMP is an update to Moreno Valley's 2016-2017 LHMP which the Moreno Valley City council adopted on November 9, 2017 (resolution no. 2017-55).

The City of Moreno Valley LHMP was prepared pursuant to the requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by Section 322 of the Disaster Mitigation Act of 2000 and the 44 Code of Federal Regulations (CFR) Part 201 – Mitigation Planning, to achieve eligibility and potentially secure mitigation funding through Federal Emergency Management Agency (FEMA) Flood Mitigation Assistance, Pre-Disaster Mitigation, and Hazard Mitigation Grant Programs.

The goals of the plan are to: **1) Protect life, property, and the environment**; **2) Provide public awareness**; **3) Protect the continuity of government**; and **4) Improve emergency management, preparedness, collaboration, and outreach**.

The mitigation plan is divided into 3 parts.

- Part 1 provides a profile of the City of Moreno Valley and describes the local planning process, as well as public participation. It also provides a process for monitoring, evaluating, and updating the plan.
- Part 2 provides a detailed assessment of the risks associated with each hazard and historical information on past occurrence. Part 2 also discusses vulnerabilities from each hazard, the impact to Moreno Valley and its citizens and when data is available, it provides information on the potential loss.
- Part 3 provides information about the city's mitigation goals to reduce or avoid long-term vulnerabilities to the hazards that may affect the City of Moreno Valley

and an action plan for those goals, with an emphasis on prioritization and implementation.

The plan will be implemented upon FEMA approval.

PART 1

INTRODUCTION

CHAPTER 1: COMMUNITY PROFILE

1.1 PLANNING AREA DESCRIPTION

The City of Moreno Valley officially incorporated on December 3, 1984, as a California general law municipality. Moreno Valley is comprised of three, once-rural communities (Sunnymead, Edgemont and Moreno Beach) and is located in the northwestern portion of Riverside County, approximately 66 miles east of Los Angeles, 42 miles west of Palm Springs, and 100 miles north of San Diego. Moreno Valley is situated in a crescent of land bounded by the Box Springs Mountains to the north, the hills of the Badlands to the east and the mountains of Lake Perris State Recreation Area to the southeast. The surrounding and adjacent jurisdictions include: the City of Riverside; the City of Perris; March Air Reserve Base; the San Jacinto Wildlife Area; and Lake Perris State Recreation Area.

Moreno Valley is approximately 51.56 square miles and is situated along two major transportation corridors: State Route 60 (SR-60) runs east-west and bisects the city and Interstate 215 (I-215), which runs north-south against the westerly city limits.

The elevation of Moreno Valley ranges from a low of approximately 1,550 feet to a high of 1,800 feet. Moreno Valley gradually slopes to the south and southwest with the higher elevations north of SR-60 and the lower elevations southerly near March Air Reserve Base. The City of Moreno Valley rests primarily on bedrock geology known as the Perris Block, a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, the Santa Ana River, and a non-defined southeast boundary.

There are a few small ponds and lakes scattered throughout the city. In addition, Lake Perris is located south of the City. Moreno Valley is located within the Santa Ana River and the San Jacinto River watersheds, with the majority of the city being within the watershed of the San Jacinto River.

The topography and climate combine to make the air basin an area of high air pollution potential. The basin fails to meet state and federal air quality standards for four of the six criteria pollutants including: ozone; nitrogen dioxide; carbon monoxide; and fine particulate matter.

The natural habitat is largely disturbed by urban development, weed abatement or agricultural activities. The city also supports other native, semi-native and non-native plants. Moreno Valley has a rich diversity of wildlife species located mostly in undeveloped portions of the city including mule deer; coyotes; bobcats; badgers; and gray fox. The city also includes a few species listed under the Endangered Species Act such as: Stephen’s kangaroo rat; the California gnatcatcher; the Least Bell’s Vireo; and the San Bernardino kangaroo rat. Potentially listed species include: the orange throated whiptail; the San Diego horned lizard; and the short-nosed pocket mouse.

1.2 POPULATION/DEMOGRAPHICS

The City of Moreno Valley has a projected annual growth rate of 1.88 in 2022[1]. Moreno Valley is the second most populous city in Riverside County and the 21st largest in the State of California. The 2022 population in Moreno Valley is reported at 225,553[2], thus creating more community exposure to natural and man-made hazards.

TABLE 1-2: POPULATION

Population	
219,640	2021
225,553	Projected in 2022
Source: The Nielsen Company	

The 2010 United States Census reported the racial makeup of Moreno Valley was 80,969 White, 34,889 African American, 1,721 Alaska Native, 11,867 Asian, 1,117 Pacific Islander, 51,741 were from other races and 11,061 were from two or more races. Hispanic or Latino of any race was 105,169. The 2020 Census reports are:

TABLE 1-2.1: ETHNIC BREAKDOWN

2020 Population		
Description	**Total**	**Percent**
White Alone	67,108	32.15%
African American	37,225	17.83%
Native American	920	0.44%
Asian Alone	11,517	5.52%
Pacific Islander	754	0.36%

[1] The World Population Review, 2022

[2] The Nielsen Company (2022), an industry leader in analyzing key population indicators, to provide a comprehensive view of the most relevant demographic trends and projections affecting the city

Some Other Race Alone	79,184	37.93%
Two or More Races	12,043	5.77%
Source: The U.S. Census Bureau		

The median age in Moreno Valley is 30.9, 30.1 years for males, and 31.9 years for females. According to the 2020 Census, Moreno Valley had over 51,545 households. Approximately 84.4% of Moreno Valley's households are made up of families and 15.6% are non-families. The average household size is 4.32.

As part of ongoing business and as part of continual planning process, elements of current and future growth are considered in this and other plans within the City.

1.3 CLIMATE

Moreno Valley is in a semi-arid area of western Riverside County just east of the San Bernardino Mountains and south of the San Gabriel Mountains. Within the Köppen climate classification system, which is a widely used global climate classification system, Moreno Valley is located in the CSA (Mediterranean Climate) class.

The average annual mean temperature for January is 56 degrees. In July, the average mean temperature is 78 degrees. The highest recorded temperature was 117 degrees in September 2016. During the summer, the average high temperature ranges from 90 to 100 degrees Fahrenheit. According to the California Department of Water Resources, annual rainfall can vary greatly from year to year, but averages in the region are from 11 to 14 inches annually.

TABLE 1-3: MORENO VALLEY CLIMATE BY MONTH[3]

Moreno Valley, California Climate Summary

Click on the month for hour-by-hour statistics for a typical day.

Month	High	Low	Average	Precipitation
January	67.9°F (19.9°C)	47.0°F (8.3°C)	56.2°F (13.4°C)	1.96" (49.8 mm)
February	67.6°F (19.8°C)	45.4°F (7.5°C)	55.5°F (13.0°C)	1.50" (38.2 mm)
March	71.9°F (22.1°C)	47.5°F (8.6°C)	58.6°F (14.8°C)	1.15" (29.3 mm)
April	76.9°F (25.0°C)	50.5°F (10.3°C)	62.4°F (16.9°C)	0.69" (17.6 mm)
May	80.4°F (26.9°C)	53.6°F (12.0°C)	65.5°F (18.6°C)	0.27" (6.8 mm)
June	90.1°F (32.3°C)	59.1°F (15.0°C)	73.1°F (22.9°C)	0.02" (0.5 mm)
July	95.8°F (35.4°C)	64.6°F (18.1°C)	78.7°F (26.0°C)	0.25" (6.4 mm)
August	96.8°F (36.0°C)	65.5°F (18.6°C)	79.5°F (26.4°C)	0.15" (3.8 mm)
September	93.4°F (34.1°C)	64.4°F (18.0°C)	77.2°F (25.1°C)	0.19" (4.9 mm)
October	83.5°F (28.6°C)	57.9°F (14.4°C)	69.0°F (20.6°C)	0.45" (11.3 mm)
November	75.2°F (24.0°C)	51.5°F (10.8°C)	61.8°F (16.6°C)	0.79" (20.0 mm)
December	65.6°F (18.7°C)	45.9°F (7.7°C)	54.5°F (12.5°C)	2.70" (68.6 mm)

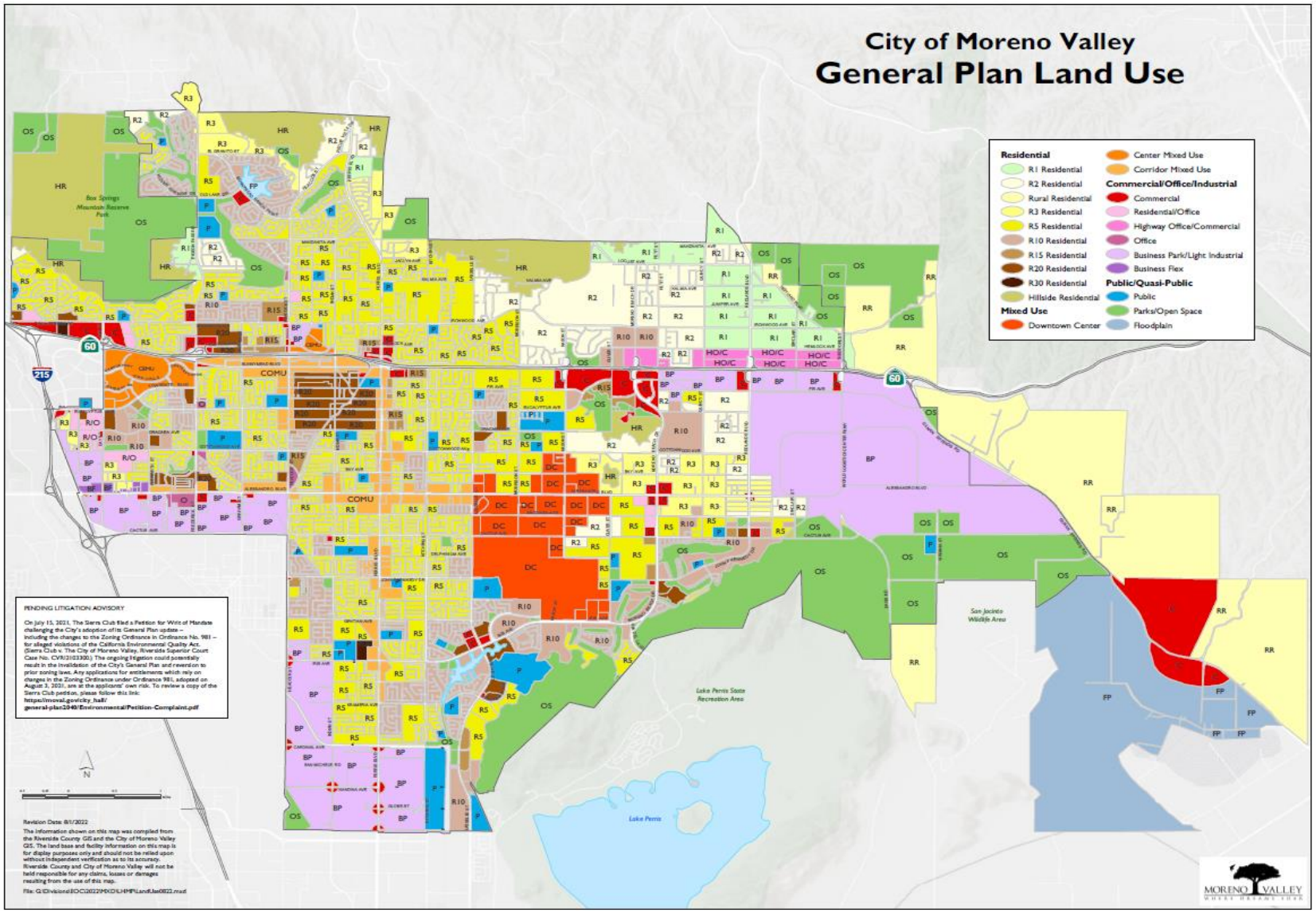
1.4 LAND USE

Land use within Moreno Valley has been primarily residential, which includes approximately 60,000 homes/apartments. Other land uses include commercial and industrial. There are approximately 2,005 commercial businesses, with several planned developments on the horizon which will increase the amount of residential use and commercial business within the city. Current development trends as shown in Appendix C illustrate upcoming development projects which are distributed throughout the city and are situated in various hazard-prone areas. As development continues, it will follow established zoning and land use requirements in accordance with the city's General Plan. Ongoing development will increase the city's vulnerability to identified hazards including, but not limited to earthquakes, landslides, subsidence/settlement, floods, inundation, and wildland fire.

Agricultural production land is concentrated in the eastern portion of the city. A joint civilian and military airport (March Air Reserve Base) is located at the southwestern boundary. The State of California owns and operates two regional recreation and open space areas: the San Jacinto Wildlife Area and the Lake Perris State Recreation Area at the southern boundary. (See Figure 1.4).

Neighboring land uses include the San Jacinto Wildlife Area, which is located near the southeastern boundary of the City of Moreno Valley and was created by the State of California as mitigation for the loss of wildlife habitat. Part of the San Jacinto Wildlife Area is within the historic floodplain of the San Jacinto River and is subject to periodic flooding. The resulting floodwater, known as Mystic Lake, has been known to inundate the area for months or years at a time. The neighboring area of Lake Perris State Recreation Area is situated along the southern boundary of the City. Riverside County operates Box Springs Mountain Park along the northwest city boundary.

FIGURE 1-4 LAND USE MAP 2022 – REVISED 8/1/22



CHAPTER 2: THE PLANNING PROCESS

2.1 PLANNING/COORDINATION

The City of Moreno Valley Fire Department Office of Emergency Management (OEM) staff regularly coordinates and collaborates with city departments, local agencies, neighboring communities, businesses, and other stakeholders. OEM will be the lead division overseeing the plan. OEM will utilize participants on the City's LHMP Planning Team to regularly consult and assist with the update and maintenance of the plan. Although there are documented formal meetings of the City Planning Team, it should be noted that during the update process, OEM regularly connects with and consults various members of the team as well as other departments and stakeholders.

The overall approach to the City of Moreno Valley Local Hazard Mitigation Plan during this update cycle was to develop a review and assess the natural and man-made hazards to the City of Moreno Valley and to determine ways to reduce those risks, and to prioritize and outline potential mitigation strategies. As part of this, each department, or divisions, through their participation, provided subject matter expertise about their discipline and any relative plans, procedures, processes, rules, reports, studies, or other regulations to ensure adherence and inclusion to all.

During the process, OEM staff voluntarily participated in Operational Area Planning Committee (OAPC), a quarterly meeting of all emergency managers and planners within the County. OEM also elected to participate on the Riverside County Operational Area Multi-Jurisdiction Local Hazard Mitigation Plan Subcommittee where participants regularly exchange ideas and plan details. OEM further demonstrated their commitment to the plan update by joining the OA MJLHMP Steering Committee which hosted regular meetings and workshops where the LHMP process was discussed with multiple agencies and non-profits throughout Riverside County.

The dates of these meetings and other planning activities can be seen in the list below and documentation of each of these events can be found in the Appendix C Supporting Documents section of the plan.

- June 2022 City update process started
- June 15, 2022 - Riv. Co. Operational Area Multi-Jurisdictional LHMP Steering Committee Meeting (OA MJLHMP)
- July 6, 2022 - City Executive Team LHMP Briefing & Kickoff Meeting

- July 28, 2022 - Riv. Co. Operational Area Planning Committee
- July 28, 2022 - City LHMP Planning Team Kickoff Meeting
- July – November 2022 - Department Plan Section updates
- August 3, 2022 – OA MJLHMP Steering Committee meeting
- August 8, 2022 – LHMP Process Review Meeting with County EMD
- August 17, 2022 – OA MJLHMP Workshop
- August 25, 2022 – Non-Profit & Faith-Based Organizations Presentation
- September 11-12, 2022 City Employee Community Emergency Response Team Training
- September 2022- Launched updated public-facing LHMP Review & Feedback Site (plan has always been on this site for public viewing and remains open for public comment year-round regardless of plan status)
- October 5, 2022 – OA MJLHMP Steering Committee meeting
- October 11, 2022 - Public Feedback Meeting #1
- October 13, 2022 - Public Feedback Meeting #2
- October 14-16, 2022 -City Community Emergency Response Team Trng.
- January 4, 2023 – OA MJLHMP Steering Committee meeting
- February 8, 2023 – Draft Plan posted on City LHMP Website for public review and comment
- February 8, 2023 – Flyers posted at City Facilities for Community Input and Feedback on the plan
- February 14, 2023 – Will present LHMP update and draft plan to Riv. University Health Systems Medical Center Emergency Management Committee during Open Forum
- March 29, 2023 – Post Cal OES review and findings discussion via TEAMs

The City's LHMP was undertaken and prepared in accordance with FEMA standards and 44 CFR §201.6(d)(3).

In June of 2022, OEM began the process of the five-year update of the LHMP. Key subject-matter-experts (SMEs), department-level contacts, and personnel from city departments were identified for participation in the update process as part of the Citywide LHMP Planning Team. An in-depth review of the existing plan was undertaken to identify areas requiring update.

Further, each plan chapter and section were dissected, and a responsible and appropriate city department was assigned. Consideration was taken to assign the section to the appropriate SME and contact. The task list ultimately became the List of Duties by Department and was used for task assignments and tracking.

On July 6, 2022 OEM presented the LHMP Plan Update Briefing and Kickoff meeting to Executive Leaders within the City to obtain their support of the plan revision process and membership of the City Planning Team. An Attendance Roster is included in Appendix B. Upon acceptance from the Executive Team, OEM then assembled a Citywide LHMP Planning Team which met July 28, 2022. At this meeting OEM hosted the formal LHMP Planning Team Kick-off Meeting. This meeting served to reintroduce the LHMP and outline the List of Duties by Department, expectations, and project deadlines. City Management lent support to OEM staff to help relay the criticality and importance of participation in the update process by all city departments. The Attendance Roster can be found in Appendix B. It should be noted that during the planning process, any internal or external stakeholders not identified on the City Planning Team, were consulted accordingly. The City Planning Team consisted of:

- Emergency Management – Diana Rockot, Division Manager
- Building & Safety – James Verdugo, Division Manager
- Electric Utility – Jeannette Olko, Division Manager
- Fire Dept. (CAL FIRE/Riv. Co. Fire Dept.) – Jesse Park, Fire Chief
- GIS – Janice Nollar-Conrad, GISP, GIS Administrator
- Maintenance & Operations – Joseph Mattox, Division Manager
- Parks & Community Services – Jeremy Bubnick, Director
- Police (Riv. Co. Sheriff's Dept.)
- Planning – Sean Kelleher, Planning Official
- Media – Matthew Bramlett, Public Information Officer

Shortly after the LHMP Planning Kickoff Meeting, the List of Duties by Department was distributed via electronic mail (e-mail) which required team members to review/revise the sections, chapters, narratives, and supplemental information. Revised metrics, timelines, updated maps and narratives were reviewed and implemented into the LHMP accordingly between June and December.

OEM and SMEs continued to collaborate to review hazards, identify and update mitigation strategies. Department updates included history of disasters, mitigation efforts and a ranking of local hazards. Fire Department and Planning reviewed and updated building codes as they relate to hazard mitigation.

Neighboring communities were invited to participate in the update of the city's LHMP during the quarterly Operational Area Planning Committee (OAPC) meeting and the ongoing MJLHMP Steering Committee meetings. Most neighboring communities are in the process of updating their respective LHMP's therefore jurisdictions often share and hear updates and efforts of surrounding partners

which contributes to enhancement of efforts. Interjurisdictional connections were used to ask questions and seek guidance from other jurisdictions.

Public input and feedback were and continues to be sought throughout the planning process and beyond. During the planning process, the City updated its LHMP landing page on its website to make review and feedback of the plan easy for the whole community. The 2017 plan was available from 2017 until October of 2022. In October 2022, the public was again provided an opportunity at the beginning of this plan revision cycle to provide feedback on the current plan so those could be included in the new revision. In February 2023 the new draft plan was placed on this site for public comments. Once the plan is approval and adopted, the plan will remain on the website for public review and comment at all times.

2.2 PUBLIC PARTICIPATION

During the last update cycle of the City's LHMP in 2016-17, the City began advertising the plan and allowing residents to provide feedback year-round on their website at: www.moval.org/oem.

In September 2022, this site was updated to create a City website landing page dedicated to the LHMP. The page is available at: www.moval.org/lhmp. This site will remain active on an ongoing basis to allow residents access to view and comment on the plan at any time. On the site, the community can access the plan and provide feedback via a brief online survey. To date, no public comments have been received on this website.

In addition to website access of the plan year-round for the public, OEM also has participated in a number of various meetings, trainings, and outreach activities to solicit input from the community. Below is a list of the highlights of these activities, however, a complete library of documents supporting attendance at these, and numerous other events is available in Appendix B of this plan.

During Community Emergency Response Team (CERT) trainings that were offered by the City on September 9-11, 2022 and October 14-16, 2022, significant time was spent during module 1: Preparedness, discussing the LHMP elements, the role in plays in the City, and the importance of community feedback. There were several slides dedicated to the City planning update efforts and class participants were provided the link to the online survey or a hard copy of the survey.

On September 12, 2022 OEM conducted a public presentation at the Moreno Valley Senior Center, in English and Spanish, where the LHMP was highlighted

and discussed. Participants were provided information about the plan and were encouraged to visit the website at www.moval.org/lhmp to read the plan and complete the survey.

On September 14, 2022, OEM presented to the Moreno Valley Chamber of Commerce, Business in Action group. An overview of the LHMP was presented during this meeting. Businesses were encouraged to review the plan and to use the plan as an aide in developing business continuity and emergency plans. Once again, participants were encouraged to visit the City LHMP website at: www.moval.org/lhmp to provide input and feedback on the plan.

September 21-22, 2022 City OEM hosted a Community Emergency Response Team (CERT) training for City employees, many of whom also reside in the City. During this course, participants were given an overview of the LHMP, its role, and the importance of community feedback. Participants were provided the website and hard copy survey's and were encouraged to review the plan and complete the survey.

On October 11th and 13th, 2022, Public meetings were conducted to allow residents and members of the community the opportunity to review the existing plan, ask questions of the City Emergency Manager, Planning Official, and the Capital Improvement Engineer. The meetings allowed subject matter experts to engage on various projects and topics as they relate to the LHMP. Documentation of each event is found in Appendix B of this plan. During these meeting, and in an ongoing effort to ensure whole community participation, OEM ensured that at each meeting, a certified American Sign Language interpreter and certified Spanish interpreter were present. During both meetings, the entire meeting was presented in English and American Sign Language. The October 13th meeting required use of the Spanish interpreter, in addition to the Sign Language and English presenters. At both meetings, members of the City Planning & Engineering Department and Capital Projects Team were present to answer questions.

Upon completing the draft of the 2022 LHMP, the updated draft plan was once again placed on the www.moval.org/lhmp website for community input on February 8, 2023. Additionally, flyers advertising the opportunity to provide feedback were provided at the following City facilities that are frequented by and visible to residents, visitors, and stakeholders:

- Public Safety Building (front door)
- City Hall (bulletin board and front desk)
- CRC (brochure/literature holder)
- Cottonwood Golf Center (brochure/literature holder)
- BERC (brochure/literature holder)

- Senior Center (concierge desk)

The flyer was also posted to City social media sites Facebook and Instagram on February 9, 2023. The post will be periodically re-posted until March 1, 2023 and encourages the community to review and provide feedback on the plan.

Any feedback received during the community input period of February 1, 2023 through March 1, 2023, will be reviewed for possible inclusion in the plan prior to submission to FEMA or the City Council for adoption. Then, upon approval of the 2022 LHMP, it will again be posted on the City website for all residents to view and provide feedback on an ongoing basis. Any comments or feedback collected from the website will be incorporated as appropriate during the next revision cycle.

On February 10, 2023, a status update of the draft plan status was provided to City LHMP Planning Team members. This update encouraged departments and divisions to review the plan again and provide any final changes by March 1, 2023.

On February 10, 2023 the draft 2022-23 plan was provided to Operational Area partners for submission to Cal OES Mitigation division for a pre-review. A complete FEMA crosswalk was completed and submitted to Cal OES for their review. On March 9, 2023, the draft plan with four minor findings was provided back to the City. On March 29, 2023, OEM organized a meeting with stakeholders to discuss the necessary steps to address the findings. The plan is expected to be final and ready for City Council adoption by mid-April.

2.3 PLAN MAINTENANCE

The City of Moreno Valley LHMP remains an important tool to reduce the effects of hazards within the city. According to 44 Code of Federal Regulations §201.6(c)(4), the plan must have a maintenance strategy that includes a method and schedule for monitoring, evaluating, and updating the plan; a process for incorporating into existing planning mechanisms; and a strategy for continuing public involvement.

Method/Schedule for Monitoring the Plan:

The LHMP includes mitigation strategies that look to reduce long-term vulnerabilities to the hazards identified. This provides a framework for activities that the city can choose to implement over the next five years. The effectiveness of the plan depends on the incorporation of the action items into existing city plans, policies, and programs.

OEM staff, under direction of the Fire Chief, will assume the lead role of monitoring the mitigation plan and coordinating with City Planning Team members from within the appropriate departments, divisions, and programs to ensure that the identified mitigation goals and actions are incorporated into plans, policies, and existing city programs and that such monitoring includes ensuring positive movement towards accomplishing outlined mitigation strategies and projects.

OEM may confer with city staff to perform annual reviews of the LHMP and its implementation. The goal will be to discuss any hazard events that occurred during the prior year and their impact on the City of Moreno Valley; evaluate the mitigation goals and actions to determine if the timeline is appropriate; determine what plans, policies and procedures need to be updated as a result of the LHMP; and to determine if additional mitigation actions need to be added; and to discuss new mitigation grant funding opportunities.

Evaluating and Updating the Plan:

As required by the 44 Code of Federal Regulations §201.6(d)(3), the City of Moreno Valley will update the LHMP every five years. OEM staff is responsible for the update every five years and will follow the following process during the update:

- OEM will convene the LHMP Planning Team and stakeholders at minimum every five years to update the plan; however, ongoing evaluation will be performed by Planning Team members in the way of continually working on the identified projects and strategies. .
- Using the best available guidance, information and technology, regulatory policies and procedures, each chapter will be reviewed and updated to determine if changes are needed.
- The mitigation strategies will be reviewed and revised to account for any initiatives completed, discontinued and/or changed and to account for changes in the risk assessment or new city policies identified through other planning mechanisms, as appropriate (such as the general plan).
- The draft update will be sent to the hazard mitigation planning committee, SMEs, and other stakeholders for review and comment.
- The public will be given an opportunity to comment on the update prior to adoption. OEM will request the mitigation area of the city website be updated for ease of public review and comments of the draft plan. Other efforts, such as social media posting, etc. will be included to ensure notification to the public of hazard mitigation planning meetings held and inviting them to attend.

- After the public comments have been reviewed and implemented, OEM will forward the revised LHMP to CalOES for pre-review. Upon receiving feedback, OEM will implement required updates and finalize the plan.
- OEM will submit the plan back to Cal OES for final review. OEM will simultaneously submit for City Council adoption and the State will forward the plan to FEMA for approval.

Incorporation into existing planning mechanisms:

The City LHMP serves as a guiding document for many aspects of City planning efforts. Specifically, the LHMP serves as a foundational document for the Moreno Valley Utility (MVU) Wildfire Mitigation Plan. Many elements within this plan are integrated in the MVU plan given the enormous intersection of mitigation and utility services.

The hazard mitigation plan also provides the City of Moreno Valley with an opportunity to review and expand on policies, plans and existing city programs. The LHMP will be provided to those involved in development of the General Plan; Environmental Impact Report; Emergency Operations Plan (EOP); Evacuation, Mass Care, and Terrorism EOP annexes; and city ordinances to insure that consistency is maintained.

Whenever there are substantive changes to the LHMP, those involved in planning mechanisms will be included in the review process. It is the intent of this plan and the personnel within the City LHMP Planning Team to identify local planning mechanisms where hazard mitigation actions can be incorporated. Examples of how these mechanisms are incorporated are demonstrated below:

TABLE 2.3-1 EXAMPLES OF MITIGATION STRATEGY SUPPORTING DOCUMENTS

Regulatory Tool	Comments
General plan	MoVal 2040: Comprehensive General Plan for the City of Moreno Valley (June2021). Utilized Safety Element to incorporate and develop mitigation strategies.
Master Drainage Plan	Planning guide for the location and sizing of local drainage facilities to be constructed by developers and others within the area, updated and adopted October 13, 2015. Utilized for public outreach and educational awareness.

Zoning ordinance	Municipal Code Title 9 Planning and Zoning. Utilized for development trends.
Subdivision ordinance	Municipal Code Title 9, Chapter 9.14 (Land Divisions). Utilized for development trends.
Site plan review requirements	Municipal Code Title 9, Chapter 9.02.030 (Development review process). Utilized for development trends
Floodplain ordinance	Municipal Code Title 8, Chapter 8.12 (Flood damage prevention and implementation of National Flood Insurance Program (NFIP)) includes flood damage prevention and implementation of the national flood insurance program (NFIP). Utilized for public outreach and educational awareness.
Water conservation ordinance	Municipal Code Title 9, Chapter 9.17 (Landscape and Water efficiency requirements) addresses water conservation. Utilized for public outreach and educational awareness.
Stormwater ordinance	Municipal Code Title 8, Chapter 8.10(Storm water/urban runoff management and discharge controls). Utilized for public outreach and educational awareness.
Regulatory Tool	**Comments**
Wildfire ordinance	Municipal Code Title 6, Chapter 6.04 (Abatement of Public Nuisances). Utilized for public outreach and educational awareness.
Building Standards Code	Utilize Approved 2019 California Building Codes; Latest adoption expected late 2019 with effective date of January 1, 2020.
Fire and Safety Standards	Utilize Approved 2019 Fire and Safety Standards; Latest adoption expected late 2019 with effective date of January 1, 2020.
Fire department ISO rating	Rating: class 4 urban/9 rural
Erosion or sediment control program	Municipal Code Title 8, Chapter 8.21.160 (Erosion Control) and Municipal Code Title 9, Chapter 9.17.110 (Erosion Control/Slope Planting). Utilized for public outreach and educational awareness.

Riverside County Flood Control and Water Conservation District Master Drainage Plan	Three (3) master drainage plans (Sunnymead Area, West End, Moreno). Utilized for public outreach and educational awareness.
Regional Water Quality Control Board Regulations	All proposed septic systems must comply; prevents groundwater contamination.
Santa Ana Watershed Project Authority Water Resources Plan	Protects water quality in the Santa Ana watershed. Eastern Municipal Water District (which serves the City of Moreno Valley) is a part of the Santa Ana Watershed.
National Pollutant Discharge Elimination System	Protects water resources from pollutants in runoff.
Capital Improvements Plan	The Capital Improvements Plan (CIP) is updated annually. Utilized to develop project budget, priorities, and develop mitigation strategies.
Economic Development Plan	2-year plan; Utilized for community profile.
Emergency Operations Plan	Emergency Operations Plan, March 2018

Strategy for Continuing Public Involvement:

The City of Moreno Valley continues its public involvement including making the most up to date LHMP available for review on the city website and at the public library; encouraging public comments; and involving the public in the update process. These strategies will include the use of traditional media and social media outlets, such as the city website. Information about the plan, the planning process, importance of resident involvement, are regularly communicated in public meetings, trainings, and other forums. All of these mechanisms will be facilitated by OEM and/or other departments as appropriate. The City website offers easy options for providing input about the plan; residents can call, email, or complete a brief survey.

PART 2

RISK ASSESSMENT

CHAPTER 3: RISK ASSESSMENT OVERVIEW

3.1 INTRODUCTION

A risk assessment provides the factual basis for determining strategies to reduce losses from identified hazards. Conducting a risk assessment can provide information on the location of hazards, the probability, the severity, and the risk to life, property, and the environment. This chapter will provide information about the impact of each hazard and the severity, probability, and potential losses.

3.2 INVENTORY OF ASSETS & BUILDING LIFELINE INVENTORY

To assist in assessing the risks of hazards that may affect the city of Moreno Valley, critical facilities, historical sites, and other assets are identified below. Where possible, HAZUS-MH was utilized. HAZUS-MH is a regional earthquake loss estimation model that was developed by the federal emergency management agency and the national institute of building sciences.

Critical/essential facilities: the impact to critical/essential facilities has the potential to be significant, not only for the financial loss, but also it would severely affect the city's ability to respond to, and recover from, incidents.

Building Inventory
Hazus estimates that there are 56 thousand buildings in the region which have an aggregate total replacement value of 15,595 (millions of dollars).

Transportation and Utility Lifeline Inventory
Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry, and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in Tables 3-2 and 3-2.1.

The total value of the lifeline inventory is over 12,570.00 (millions of dollars). This inventory includes over 1,908 kilometers of highways, 71 bridges, 16,606 kilometers of pipes.

TABLE 3-2: TRANSPORTATION SYSTEM LIFELINE INVENTORY

System	Component	# of Locations/Segments	Replacement value (millions of dollars)
Highway	Bridges	71	111.60
	Segments	658	11824.90
	Tunnels	0	0.00
		Subtotal	**11936.50**
Railways	Bridges	0	0.00
	Facilities	0	0.00
	Segments	174	414.20
	Tunnels	0	0.00
		Subtotal	**414.20**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	8	53.70
	Tunnels	0	0.00
		Subtotal	**53.70**
Bus	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	1	10.70
	Runways	1	38.00
		Subtotal	**48.60**
		Total	**12453.00**

Source: Hazus

TABLE 3-2.1: UTILITY SYSTEM LIFELINE INVENTORY

System	Component	# of Locations	Replacement value (millions of dollars)
Potable Water	Distribution Lines	N/A	166.10
	Facilities	1	39.30
	Pipelines	0	0.00
		Subtotal	**205.40**
Wastewater	Distribution Lines	N/A	99.60
	Facilities	1	78.60
	Pipelines	0	0.00
		Subtotal	**178.20**
Natural Gas	Distribution Lines	N/A	66.40
	Facilities	0	0.00
	Pipelines	0	0.00

		Subtotal	**66.40**
Electric Power	Facilities	0	0.00
		Subtotal	**0.00**
Communicatio n	Facilities	5	0.60
		Subtotal	**0.60**
		Total	**450.60**

Source: Hazus

TABLE 3-2.2: OTHER CRITICAL FACILITIES

Critical/Essential Facility Type	Qty	Value, if known *
City Hall	1	$19,635,865
Emergency Operations Center	1	$2,762,375
Public Safety Building	1	$13,606,557
Conference and Recreation Center (EOC Family Care Center)	1	$12,252,110
Corporate Yard	1	$12,799,244
Animal Shelter	1	$3,324,417
Annex #1	1	$2,579,800
Fire Stations	7	$13,859,620
Electric Utility (MVU)	1	$21,097,778
City Library	1	$3,684,543
Hospitals/Urgent Care/Dialysis	8	N/A
Residential Care Facilities	134	N/A
College	1	N/A
Schools (5 high schools,9 middle schools, 28 elementary schools, 10 charter schools)	61	N/A
Pharmacies	19	N/A
Total:	**239**	**$105,602,309**

* Note: Value estimates are based on insured values which were established through an appraisal conducted by the Public Employer Risk Management Association (PERMA).

FIGURE 3-2: CRITICAL FACILITIES MAP – REVISED AUGUST 1, 2022

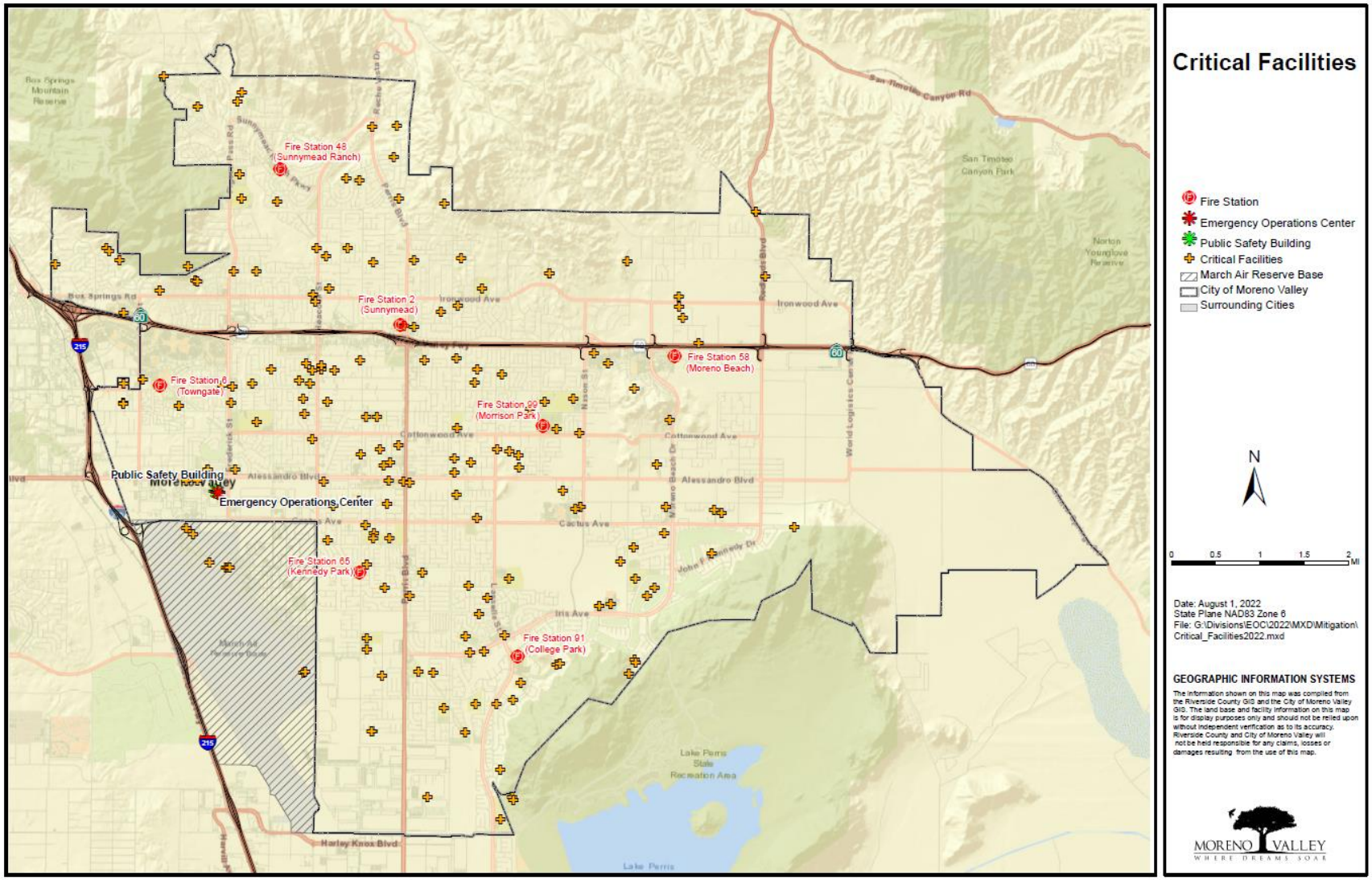


TABLE 3-2.3: MORENO VALLEY HISTORICAL SITES

Historical Site	Approx. Year Built	Description	Value of Structure (Assessor's data)
21730 Bay Ave	1947	A bungalow style house, located on the north side of Bay Avenue, east of Edgemont Street.	$ 32,611.00
21613 Cottonwood Ave	1930	A vernacular wood frame style house that is located on the south side of Cottonwood Avenue and east of the Old I-215 Frontage Road.	$ 15,277.00
21768 Cottonwood Ave	1941	A Moorish style house located at the northeast corner of Cottonwood Avenue and Edgemont Street. This house appears eligible for listing in the California Register of Historical Resources.	$ 128,626.00
13694 Edgemont St	1920	A vernacular wood frame style house that is located on the east side of Edgemont Street between Brill Road and Bay Avenue.	$ 33,282.00
24638 Fir Ave	1915	A vernacular wood frame style house that is located on the north side of Fir Avenue and east of Indian Street next to the flood control channel.	$ 84,290.00
23741 Hemlock Ave	1910	A vernacular wood frame style house that is located on the south side of Hemlock Avenue and east of Graham Street.	$ 384,927.00
24215 Fir Ave	1891	The New English style First Congregational Church thought to be built in 1891 and was relocated to the current address.	$ 178,737.00
28780 Alessandro Blvd	1928	A Mission style structure with wood and stucco siding and arched entry. The former Old Moreno School may be eligible for the California Register of Historical Resources. Renovation of the structure to convert it for use as a private residence was approved by the city in 2004.	$ 753,108.00
27476 Cottonwood Ave	1928	Vernacular adobe style residence that is located on the north side of Cottonwood Avenue, east of Nason Street.	$ 142,563.00
12130 Theodore St.	1920	Vernacular wood frame style house located on the east side of Theodore Street and south of Ironwood Avenue.	$ 32,161.00

12400 Theodore St.	1915	There are three homes on the property that are part of the Anco Ranch, which was built sometime around 1915.	$ 564,555.00
27913 Cottonwood Ave	1885 1937 1940	There are three structures on the property which include a wood frame residence built in 1885, an adobe style block building that was moved to the site in 1937 and a large concrete block building dating from the 1940's. This site was designated as a city landmark by the City's Environmental and Historical Preservation Board on 09/12/11.	No value identified, city owned property.
		TOTAL:	**$564,555.00**

Historical Sites: The potential impact from natural or man-made hazards to historic buildings and structures could be significant. The most important historic structure in Moreno Valley is a Mission St. (Wilyle structure with wood and stucco siding and arched entry. The former Old Moreno School, located at 28780 Alessandro Boulevard, may be eligible for the California Register of Historical Resources. Renovation of the structure to convert it for use as a private residence was approved by the city in 2004. The historical sites in Moreno Valley are valued at a little over 2 million.
Commercial and Residential Properties: The City of Moreno Valley has approximately 43,913 residential homes and apartments, valued at approximately $8,248,802,141. The Nielson Report projects the residential housing in Moreno Valley to increase to 60,191 in 2017. There are approximately 2,005 commercial businesses located in Moreno Valley.

3.3 SUMMARY OF HAZARDS

This section will provide a summary of the hazards that impact the City of Moreno Valley, along with information on the severity and probability of each hazard, as well as the relationships of each hazard to other hazards.
Severity and Probability Methodology
Collaboration between departments, divisions, programs, surrounding agencies, citizens and other stakeholders identified and ranked natural and man-made hazards that would likely affect the City of Moreno Valley (Table 3-3). To assist in ranking the identified hazards, the following scale for rating was utilized:

Severity	Probability
0 – Does not apply	0 – Does not apply
1 – Negligible damage/injuries	1 – Unlikely to happen
2 – Limited damage/injuries	2 – Possible (1%-10% chance in next year)
3 – Critical damage/injuries	3 – Likely (10%-100% chance in next 10 years)
4 – Catastrophic dam.	4 – Highly likely (near 100% in next year)

TABLE 3-3: MORENO VALLEY HAZARD LOCATION, SEVERITY AND PROBABLY

Hazard	Location	Severity (0-4)	Probability (0-4)
Earthquake	Citywide	4	3
Wildland and Urban Fires	Citywide, especially at Box Springs (northwest area), San Timoteo Canyon (north end), Reche Canyon (northeast area)	3	3
Flooding	Citywide, especially on the east end of the city	3	3
Drought	Citywide	2	3
Landslide	Mostly in the eastern portion of the city	2	2
Insect Infestation	Citywide	1	2
Extreme Weather	Citywide	2	3
Severe Wind	Citywide	2	3
Dam Failure/Inundation	Perris Dam inundation southeast corner of Moreno Valley and Pigeon Pass Dam (during periods of extensive flooding along the downstream watercourse)	2	2
Pipeline	Citywide	2	2
Transportation	Citywide and SR-60 and I-215; San Timoteo Canyon, north of city and along I-215; west end, near March Air Reserve Base	2	2
Power Outage	Citywide	3	4
Hazardous Materials	Citywide	3	2
Terrorist Attack	Citywide	4	2
Civil Unrest	Citywide	2	2
Pandemic Flu/Disease	Citywide	3	2

Relationships of Hazards

Table 3-3.1 shows a summary of the relationships between hazards, often called cascading hazards. For example, a flood may trigger other hazards, such as a landslide. A civil disorder may cause fires or may be a cause of terrorism. Another example is earthquakes, which may cause fires, pipeline incidents, hazardous materials incidents, and power outages.

It is worth noting that climate change, although not itself recognized as a stand-alone hazard within this plan, it may be worthy of considering when discussing other hazards and their relationships. It can be difficult to scientifically say whether a hazard is occurring or worsened as a result of “Mother Nature” or climate change. Additionally, it can be difficult to measure whether or not it is or will in the future, affect the outcome of a specific hazard.

TABLE 3-3.1: SUMMARY OF RELATIONSHIPS OF HAZARDS

May Cause → Other Hazards / Hazard Description	Earthquake	Fire	Flooding	Drought	Landslide	Insect Infestation	Extreme Weather	Dam Failure	Pipeline	Transportation	Power Outage	Hazardous Materials	Nuclear	Terrorist Attack	Civil Unrest	Pandemic/Disease
Earthquake	X	X	X		X			X	X	X	X	X			X	
Fire		X	X		X				X	X	X	X			X	
Flooding			X		X	X		X	X	X	X	X			X	X
Drought		X	X	X		X									X	
Landslide			X		X				X	X	X	X				
Insect Infestation						X										X
Extreme Weather							X		X	X	X	X			X	
Dam Failure			X		X			X	X	X	X	X				
Pipeline			X						X	X		X			X	X
Transportation		X								X	X	X			X	
Power Outage										X	X				X	X
Hazardous Materials		X										X			X	
Nuclear													X		X	
Terrorist Attack		X	X			X		X	X	X	X	X	X	X	X	X
Civil Unrest		X	X						X	X	X	X			X	
Pandemic/Disease										X					X	X

Summary of Major Declarations

Table 3-3.2 shows a list of major declarations affecting the City of Moreno Valley and surrounding areas.

TABLE 3-3.2: MAJOR DECLARATIONS[4]

Year	Disaster Type	Federal/State Cost	Riverside County Cost	Moreno Valley Cost	Disaster Programs Given	Categories
2003	Wildfires DR-1498	$133 million	$240,568	N/A	PA, IA & HMGP	A & B
2005	Severe Storms DR-1577	$228 million	$1,327,801	$23,164	PA, IA & HMGP	A-G
2005	Severe Storms DR-1585	$75 million	$1,485,753	$16,275	PA & HMGP	A & G
2007	Severe Freeze DR-1689	$23 million	N/A	N/A	HMGP	
2007	Wildfires DR-1731	$146 million	$264,977	$7,220	PA, IA & HMGP	A & B
2008	Wildfires DR-1810	$59 million	$20,377	N/A	PA, IA & HMGP	A & B
2010	Severe Winter Storms DR-1884	N/A	$452,105	Preliminary Damage Report $195,000	PA, IA & HMGP	A-G
2011[5]	Severe Winter Storms DR-1952	$37 million	$262,945	N/A	PA & HMGP	A-G

[4] https://www.fema.gov/locations/california#declared-disasters Retrieved July 2022

[5] https://www.fema.gov/locations/california#declared-disasters Retrieved July 2022

2020	COVID-19 Pandemic	ONGOING	ONGOING	ONGOING	Coronavirus State and Local Recovery **FUNDS** (SLFRF)	N/A
2021	Fawn Fire (FM-5417-CA)	$25.6 million	N/A	N/A	PA	B & H
2022	Coastal Fire (FM-5439-CA)	$12.07 billion	N/A	N/A	PA & IA	A-G

3.4 PROFILING HAZARDS

Hazard profiles are designed to assist in evaluating the hazards that can impact the Moreno Valley area by comparing a number of hazard factors. Each type of hazard has unique characteristics and the impact associated with a specific hazard can vary depending on the severity and location of each event. Further, the probability of occurrence of a hazard in a given location impacts the priority assigned to that hazard. Beginning in Chapter 4, each identified hazard will be profiled with an overview of the hazard that includes previous occurrences, probability of future events, its impact, and potential losses.

CHAPTER 4: EARTHQUAKE

Moreno Valley Rating: Severity = 4 Probability = 3

4.1 EARTHQUAKE PROFILE – OVERVIEW/LOCATION

There are three major faults/fault zones that directly affect Moreno Valley. They are the southern section of the San Andreas Fault, the San Jacinto Fault Zone, and the Elsinore Fault Zone. The San Jacinto Fault Zone is considered to be the most active fault in Southern California. It is the closest fault to Moreno Valley and runs through the eastern portion of the city, followed by the Elsinore Fault Zone which is located approximately 12-18 miles south of Moreno Valley. The San Andreas Fault Zone is located approximately 15-20 miles north of Moreno Valley (see Figure 4-1.1). The largest earthquake to occur within 100 miles of Moreno Valley was the 7.4 magnitude Hector Mine earthquake in 1999.

San Andreas Fault

The San Andreas Fault Zone is a major geologic feature of North America and consists of several major and numerous minor, branches, especially in southern California. This fault zone runs approximately 4 to 10 miles under the Earth's crust, making earthquakes from the San Andreas Fault Zone more destructive in nature.

The San Andreas Fault Zone enters the Inland Empire through the Cajon Pass, separating the San Gabriel Mountains from the San Bernardino Mountains. The fault becomes extremely complex in this area, dividing into several right-lateral elements that run somewhat parallel to each other. Principal among these, are two fault zones that have a significant impact on Moreno Valley. They are the San Jacinto Fault Zone and the Elsinore Fault Zone. The slip rate on the southern section of the San Andreas Fault Zone, which runs from the Mojave Desert south towards the Salton Sea before reaching the United States border with Mexico, is 24 millimeters per year. Earthquakes along this

section of the San Andreas Fault are typically above 6.0 in magnitude. Geologists estimate that this fault could produce an 8.2 magnitude earthquake.

The last significant earthquake that occurred over the section of the San Andreas Fault that runs south from Cajon Pass was on December 8, 1812. Geologists estimate that the earthquake was over 7.0 in magnitude with an epicenter near the City of Wrightwood. Shortly after that earthquake, in 1857, an earthquake ruptured the San Andreas Fault from Monterey down to the Cajon Pass.

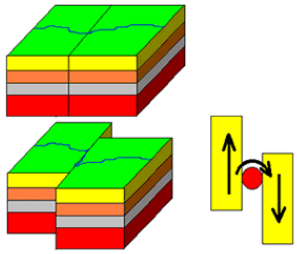
San Jacinto Fault Zone

The San Jacinto Fault Zone extends for 180 miles through the counties of San Bernardino, Riverside, San Diego, and Imperial and is comprised of the very active Imperial and Superstition Hill faults. The San Jacinto Fault Zone is a right lateral strike-slip fault (Figure 4-1) that branches westward from the San Andreas Fault and runs parallel to the Elsinore Fault. It is also considered one of the more seismically active fault zones in Southern California with a slip rate of 12 millimeters per year. Both the San Jacinto fault and Elsinore fault are classified as part of the San Andreas Fault system. The San Jacinto Fault Zone does extend through the eastern part of Moreno Valley and has the potential to host a 7.2 magnitude earthquake.

Elsinore Fault Zone

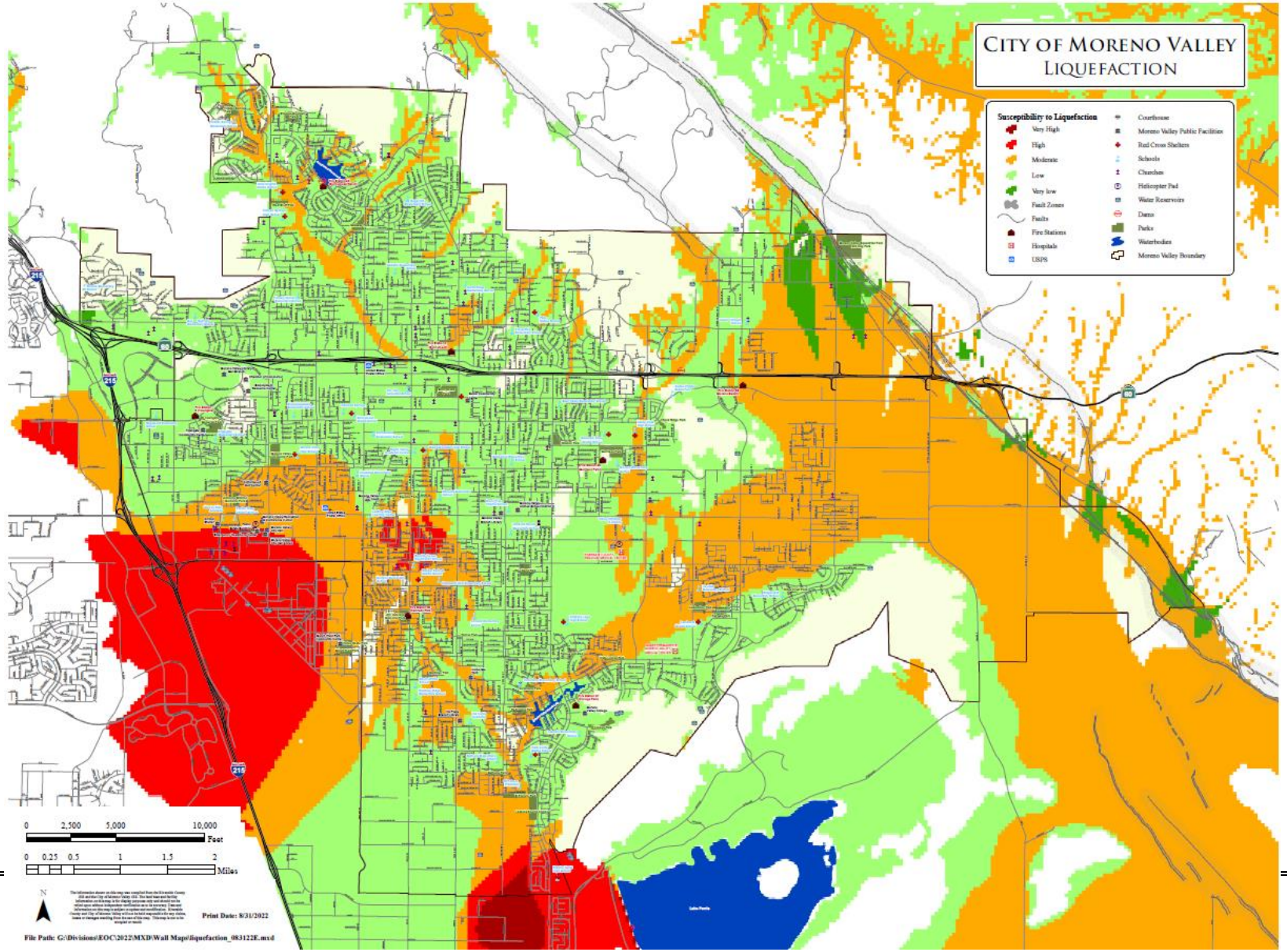
The Elsinore Fault is a large right-lateral strike-slip fault (Figure 4-1) and is part of the trilateral split of the San Andreas Fault and runs parallel to that fault. Though its 111 miles in length makes it one of the larger faults in the area, it is extremely quiet. This fault zone forms a complex series of pull-apart basins, with the largest basin being known as La Laguna. The La Laguna basin is partially filled with water from Lake Elsinore and is the terminus for the San Jacinto River. The slip rate of this fault is 4 millimeters per year and is capable of producing a quake of 6.5 - 7.5 in magnitude. Geologists estimate that the interval between major rupture events on the Elsinore is 250 years. The last known major earthquake occurred northwest of the City of Lake Elsinore in 1910.

FIGURE 4-1: RIGHT-LATERAL STRIKE-SLIP FAULT[6]



[6] US Geological Survey

FIGURE 4-1.1: CITY GEOLOGIC FAULTS AND LIQUEFACTION – REV. AUGUST 31, 2022



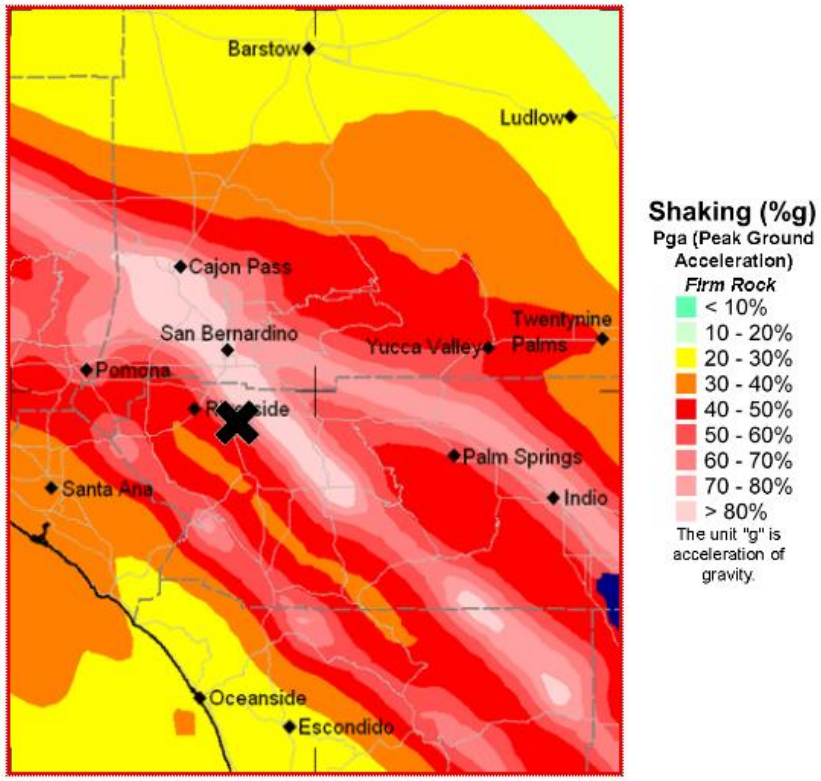
Earthquake Related Hazards

Ground shaking, landslides, liquefaction, and amplification are the specific hazards associated with earthquakes. The severity of these hazards depends on several factors, including soil and slope conditions, proximity to the fault, earthquake magnitude, and the type of earthquake.

Ground Shaking

Ground shaking is the motion felt on the earth's surface caused by seismic waves generated by the earthquake. It is the primary cause of earthquake damage. The strength of ground shaking depends on the magnitude of the earthquake, the type of fault, and distance from the epicenter. Buildings on poorly consolidated and thick soils will typically see more damage than buildings on consolidated soils and bedrock. Figure 4-1.2 shows the shaking intensity for the City of Moreno Valley. The darker shaded areas indicate greater potential for shaking.

FIGURE 4-1.2: MORENO VALLEY AREA GROUND SHAKING MAP[7]



[7] California Department of Conservation Retrieved December 2022

Earthquake-Induced Landslides

Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. They can destroy roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes. The abundant shales and siltstones underlying the Badlands are highly porous in the Moreno Valley area and do not hold together well when wet, which can lead to slope instability and landslides.

Liquefaction

Liquefaction occurs when ground shaking causes surface soils, primarily sands and silts, to become saturated with water and temporarily lose strength, causing it to become sticky liquid. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures. Many communities in Southern California are built on ancient river bottoms and have sandy soil. In some cases, this ground may be subject to liquefaction, depending on the depth of the water table.

Although the city has seen no evidence of liquefaction events occurring in the community nor has any geotechnical report recently submitted to the city identify liquefaction hazards, the Riverside County General Plan has identified a range of liquefaction susceptibility in Moreno Valley from very low with deep groundwater in the northern and eastern portions of the community to very high with shallow groundwater generally west of Perris Boulevard.

Amplification

Soils and soft sedimentary rocks near the earth's surface can modify ground shaking caused by earthquakes. One of these modifications is amplification. Amplification increases the magnitude of the seismic waves generated by the earthquake. The amount of amplification is influenced by the thickness of geologic materials and their physical properties. Buildings and structures built on soft and unconsolidated soils can face greater risk. Amplification can also occur in areas with deep sediment filled basins and on ridge tops.

4.1.1 EARTHQUAKE PROFILE – PREVIOUS OCCURRENCES

Table 4-1 shows some of the more notable earthquakes in the Southern California region, many of which were felt in the City of Moreno Valley.

TABLE 4-1: HISTORY OF MAJOR SO. CALIFORNIA EARTHQUAKES[8]

Year	Richter Scale Magnitude	Description
1890	6.5	Occurred in the same region as the 1890 earthquake.
1899	6.4	San Jacinto earthquake destroys San Jacinto and Hemet and was strongly felt in Moreno Valley.
1910	5.0	Occurred on the Elsinore fault northwest of the City of Lake Elsinore.
1918	6.9	San Jacinto earthquake strikes the same area that was damaged by an earthquake 19 years earlier.
1923	6.3	North San Jacinto Fault earthquake damaged the San Bernardino and Redlands area. This the last known time that this fault, which runs under the I-215/I-10 interchange, ruptured in this area. The epicenter was located just northeast of Moreno Valley in San Timoteo Canyon.
1937	6.0	Terwilliger Valley earthquake was in the same general area as the 1890 earthquake.
1942	6.3	Fish Creek Mountains earthquake was south of the Ocotillo airport.
1954	6.2	Arroyo Salada earthquake was west of the Salton Sea.
1968	6.5	Borrego Mountain Earthquake was northeast of Ocotillo Wells
1987	6.6	Superstition Hills earthquake near the Salton Sea
1992	7.2	Occurred near Landers, California and caused the rupture of five different faults. Those faults were: Johnson Valley, Landers, Homestead Valley, Emerson, and Camp Rock.
1992	7.3	Occurred 3 hours after the Landers Earthquake with an epicenter near Big Bear, CA, just 34.4 miles from Moreno Valley.
1994	6.8	Northridge Earthquake occurs in a neighborhood of the City of Los Angeles and is located 78.8 miles from Moreno Valley
1999	7.4	Hector Mine Earthquake, located 25 miles from the Landers Earthquake and just 61 miles from Moreno Valley

[8] https://www.earthquakeauthority.com/California-Earthquake-Risk/California-Earthquake-History-Timeline Retrieved July 2022

2010	5.4	Borrego Springs earthquake believed by seismologists to have been possibly triggered by the strong earthquake which occurred near Calexico in 2010.
2016	4.3	Cal OES issued an earthquake advisory for all Southern California counties following a series of small magnitude earthquakes that occurred in Bombay Beach (located in Imperial County and south of where the San Andreas fault ends). This swarm included a 4.3 magnitude quake on Sept. 26.
2020	5.8	After a foreshock with a magnitude of 4.6 two days earlier, on June 24, a magnitude 5.8 earthquake struck about 12 miles southeast of Lone Pine, in Inyo County. People felt the shaking as far away as 350 miles northwest in San Francisco and 230 miles east in Las Vegas.
2021	6.0	The quakes were a result of normal faulting and strike slip faults near the Antelope Valley fault, which runs north-south along the Sierra Nevada range front.

4.1.2 EARTHQUAKE PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.

The City of Moreno Valley could be affected by large earthquakes occurring in many parts of the Southern California region. However, the degree to which the earthquakes are felt, and the damages associated with them may vary. At risk from earthquake damage are critical facilities, buildings, bridges, highways, and roads; hazardous materials facilities; sewer, water, and natural gas pipelines; earth dams; petroleum pipelines; and private property located in the city. The relative or secondary earthquake hazards, which are liquefaction, ground shaking, amplification, and earthquake-induced landslides, can be just as devastating as the earthquake.
The USGS estimates that there is a greater than 99% chance of a major earthquake occurring within 31 miles of Moreno Valley within the next 50 years (Figure 4-1-1).

TABLE 4-1.1: EARTHQUAKE PROBABILITY NEAR MORENO VALLEY[9]:

Richter Scale Magnitude	Probability
5.0	99.501%
5.5	94.990%
6.0	87.448%
6.5	76.579%
7.0	54.907%
7.1	50.349%
7.2	45.852%
7.3	40.525%
7.4	34.995%
7.5	28.236%
7.6	20.881%
7.7	14.239%
7.8	9.058%
7.9	5.362%
8.0	2.562%

[9] https://www.earthquakeauthority.com/California-Earthquake-Risk/Faults-By-County Retrieved July 2022

4.2 EARTHQUAKE VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 4, which means that there is a potential for catastrophic damage, causing multiple deaths, complete shutdown of critical facilities for 30 days or more and/or more than 50% of property has a potential to be damaged.

As shown in Figure 4-1.1, the probability of a major earthquake occurring near Moreno Valley within the next 50 years is close to 100%. Even if a major earthquake is located in the surrounding area, it will have a severe impact to the City of Moreno Valley. Seismic shaking and aftershocks associated with the earthquake can cause damage to a wide-spread area. The hazards associated with aftershocks are the same as the main shock and may cause significant damage or disruption as well.

4.2.1 EARTHQUAKE VULNERABILITY – POTENTIAL IMPACT AND LOSSES

Earthquakes can cause devastating injuries and loss of life and damage to infrastructure, structures, personal belongings and more. Earthquakes and its aftershocks can cause other hazards such as pipeline ruptures, dam failures, landslides, soil liquefaction, flooding, fires, power outages, hazardous materials incidents, and civil unrest. There are no known repetitive loss properties.

HAZUS-MH Summary: For purposes of analyzing the impact and estimating potential loss HAZUS-MH was utilized.

The scenario for the HAZUS-MH earthquake risk assessment was an event measuring 6.5 on the Richter magnitude scale occurring on the San Jacinto Fault. The longitude of the scenario epicenter was 33°57'10.8"N 117°08'52.8"W (33.952999, -117.148003). The depth of the scenario event was 10.00 km (6.21 miles), with a rupture length of 18.20 km (11.3 miles).

Current residential count was found using the Riverside County Assessor Parcel Layer. Parcels were overlaid onto the zoning layer. All of the parcels that fell within a residential zone were selected out. From that selection, another query was run to pull all the parcels out with a structure value over $10,000. The final query returned all records that fall within Residential Zoning and have a structure value over $10,000. The count on the residential buildings is 43,913. The structure value is derived from the Assessor Parcel table. The value total for the selected parcels is $8,248,802,141.

The commercial business licenses were found by querying out all records with a location of commercial (Location type = commercial). This resulted in a selection set of data that are identified by the Finance Department as a commercial business. The count of businesses in the city based on the 2022 economic data is 4,500.

The Critical Facilities layer was comprised of the Business License layer and existing Moreno Valley GIS layers. Residential Care Facilities (134), Hospitals (2), Urgent Care (2), and Pharmacies (19) were created from the Business License database. The rest of the Critical Facilities were created from existing GIS layers resulting with a total of 259 facilities.

Four overcrossing bridges on SR-60 were built in 1964 and are outdated. They consist of: SR-60/Indian Street Overcrossing; SR-60/Moreno Beach Drive Overcrossing; SR-60/Redlands Avenue Overcrossing; and SR-60/Theodore Street Overcrossing. All are two-lane bridges over the SR-60 freeway. With respect to federal inspection coding standards, SR-60/Indian and SR-60/Moreno Beach are considered to be structurally deficient, and SR-60/Redlands is considered to be functionally obsolete. The SR-60/Moreno Beach overpass is currently under construction and is set for completion by the end of 2023. All of these structures could experience varying levels of damage in an earthquake event and could severely impact regional traffic. Three of the four structures (SR-60/Moreno, SR-60/Redlands, and SR-60/Theodore) are located in the “severe” area of ground shaking shown on Figure 4-2.1. All four structures have inadequate vertical clearance according to current standards and could severely impact transportation of goods and oversized loads.

Development Trends: Future development of buildings, residential structures, critical facilities, and infrastructure are expected to comply with the most recent Uniform Building Code seismic design standards. New development is shown in Appendix C. This plan and all elements of it, include considerations for the ever-expanding economic and development expansion that is ongoing.

Potential Impact and Losses: On the next several pages, you will find information about the potential impact and losses that may be experienced in the City of Moreno Valley. HAZUS-MH was utilized to analyze the impact and cost.

4.2.2 BUILDING DAMAGE

Building Damage

Hazus estimates that about 8,797 buildings will be at least moderately damaged. This is over 16.00 % of the buildings in the region. There are an estimated 305 buildings that will be damaged beyond repair.

Table 4-2 below summarizes the expected damage by general occupancy for the buildings in the region.

TABLE 4-2: EXPECTED BUILDING DAMAGE BY OCCUPANCY

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	27	0.10	19	0.10	14	0.20	5	0.46	2	0.65
Commercial	729	2.59	425	2.16	385	5.27	141	11.73	34	11.23
Education	45	0.16	27	0.14	19	0.26	6	0.53	1	0.47
Government	19	0.07	9	0.05	7	0.10	3	0.24	1	0.27
Industrial	153	0.54	98	0.50	100	1.37	41	3.38	12	3.80
Other Residential	821	2.91	746	3.79	939	12.89	614	51.10	156	51.23
Religion	72	0.25	41	0.21	32	0.44	12	1.01	3	1.07
Singly Family	26,315	93.38	18,336	93.07	5,794	79.47	379	31.55	96	31.28
Total	**28,181**		**19,700**		**7,290**		**1,202**		**305**	

Source: Hazus

Essential Facility Damage

Before the earthquake, the region had 419 hospital beds available for use. On the day of the earthquake, the model estimates that only 236 hospital beds (56.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 93.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

TABLE 4-2.1: EXPECTED DAMAGE TO ESSENTIAL FACILITIES

Classification	Total	# of Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on Day 1
Hospitals	2	0	0	2
Schools	68	0	0	41
EOCs	0	0	0	0
Police Stations	1	0	0	1
Fire Stations	2	0	0	2

Source: Hazus

Transportation and Utility Lifeline Damage

Table 4-2.2 provides damage estimates for the transportation system.

TABLE 4-2.2 EXPECTED DAMAGE TO THE TRANSPORTATION SYSTEMS

System	Component	Number of Locations				
		Locations /Segment	With at Least Mod. Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Segments	658	0	0	634	634
	Bridges	71	5	0	66	68
	Tunnels	0	0	0	0	0
Railways	Segments	174	0	0	174	174
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	8	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	1	0	0	1	1

Source: Hazus

Tables 4-2.3 through 4-2.5 provide information on the damage to the utility lifeline systems. Table 4-2.3 provides damage to the utility system facilities. Table 4-2.4 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system

performance analysis. Table 4-2.5 provides a summary of the system performance information.

TABLE 4-2.3: EXPECTED UTILITY SYSTEM FACILITY DAMAGE

System	# of Locations				
	Total #	W/ Moderate Damage	Complete Damage	With Functionality > 50%	
				After Day 1	After Day 7
Potable Water	1	1	0	0	1
Wastewater	1	0	0	0	1
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	0	0	0	0	0
Communications	5	0	0	5	5

Source: Hazus

TABLE 4-2.4: EXPECTED UTILITY SYSTEM PIPELINE DAMAGE (SITE SPECIFIC)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	8,303	1296	324
Wastewater	4,982	929	232
Natural Gas	3,321	266	67
Oil	0	0	0

Source: Hazus

Table 4-2.5: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	58,002	6,661	4,545	1,261	0	0
Electric Power		0	0	0	0	0

Source: Hazus

4-2.3 CASUALTIES

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows:

- Severity Level 1: Injuries will require medical attention, but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial, and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 4-2.6 provides a summary of the casualties estimated for this earthquake.

TABLE 4-2.6: CAUSALITY ESTIMATES

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	4	1	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	7	2	0	0
	Other-Residential	60	11	1	2
	Single Family	112	13	0	1
	Total	**184**	**26**	**2**	**3**
2 PM	Commercial	248	58	8	16
	Commuting	0	0	0	0
	Educational	100	22	3	6
	Hotels	0	0	0	0
	Industrial	55	13	2	3

	Other-Residential	13	2	0	0
	Single Family	24	3	0	0
5PM	**Total**	**439**	**98**	**14**	**26**
	Commercial	178	42	6	12
	Commuting	2	3	5	1
	Educational	8	2	0	0
	Hotels	0	0	0	0
	Industrial	34	8	1	2
	Other-Residential	22	4	0	1
	Single Family	43	5	0	0
	Total	**287**	**63**	**12**	**16**

Source: Hazus

4-2.4 ECONOMIC LOSS

The total economic loss estimated for the earthquake is 1,073.70 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 1,040.08 (millions of dollars); 13 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 75 % of the total loss. Table 4-2.7 below provides a summary of the losses associated with the building damage.

TABLE 4-2.7: BUILDING-RELATED ECONOMIC LOSS ESTIMATES (Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loss							
	Wage	0.00	2.21	17.33	1.03	1.14	21.70
	Capital-Related	0.00	0.94	14.58	0.62	0.30	16.44
	Rental	12.75	4.72	7.98	0.31	0.56	26.33
	Relocation	44.86	6.31	12.66	1.35	4.85	70.03
	Subtotal	**57.61**	**14.18**	**52.56**	**3.30**	**6.84**	**134.50**
Capital Stock Losses							
	Structural	70.96	13.01	20.99	5.19	5.77	115.92
	Non-Structural	397.99	71.01	65.54	18.58	18.88	572.00
	Content	141.12	17.37	33.40	12.56	9.62	214.08

	Inventory	0.00	0.00	0.93	2.54	0.11	3.58
	Subtotal	**610.07**	**101.40**	**120.86**	**38.87**	**34.39**	**905.58**
	Total	**667.68**	**115.58**	**173.41**	**42.17**	**41.24**	**1,040.08**

Source: Hazus

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Table 4-2.8 provide a detailed breakdown in the expected lifeline losses.

Hazus estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region.

TABLE 4-2.8: TRANSPORTATION SYSTEM ECONOMIC LOSSES
(Millions of Dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	11,824.90	$0.00	0.00
	Bridges	111.58	$5.37	4.81
	Tunnels	0.00	$0.00	0.00
	Subtotal	**11936.50**	**5.40**	
Railways	Segments	414.23	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**414.20**	**0.00**	
Light Rail	Segments	53.67	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**53.70**	**0.00**	
Bus	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	10.65	$2.33	21.83
	Runways	37.96	$0.00	0.00
	Subtotal	**48.60**	**2.30**	
	Total	**12453.00**	**7.70**	

Source: Hazus

FIGURE 4-2: EARTHQUAKE SCENARIO- CRITICAL FACILITIES– REV. AUGUST 16, 2022

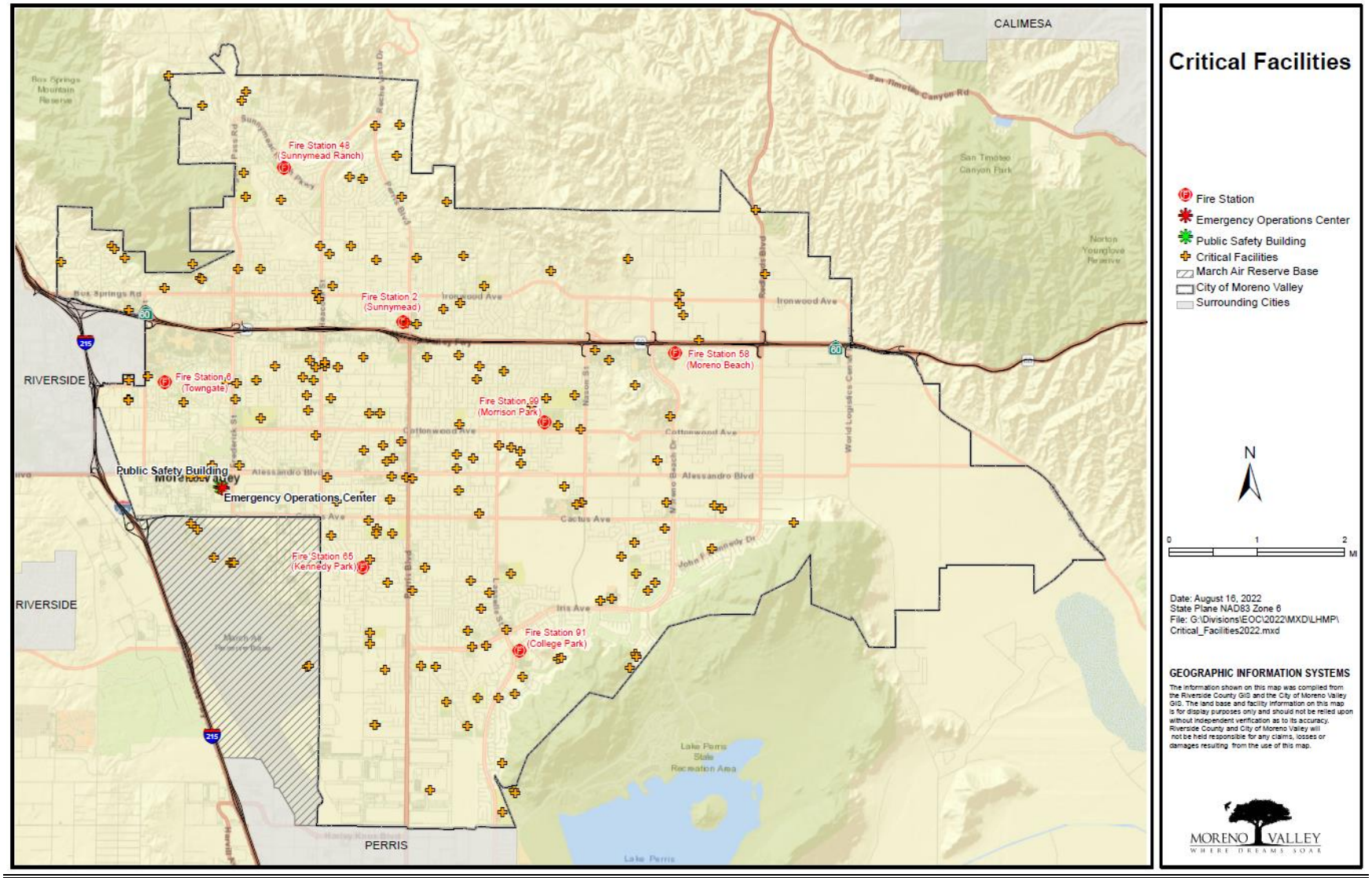


FIGURE 4-2.1: EARTHQUAKE SCENARIO - TRANSPORTATION (RAIL, HIGHWAY, BRIDGES)

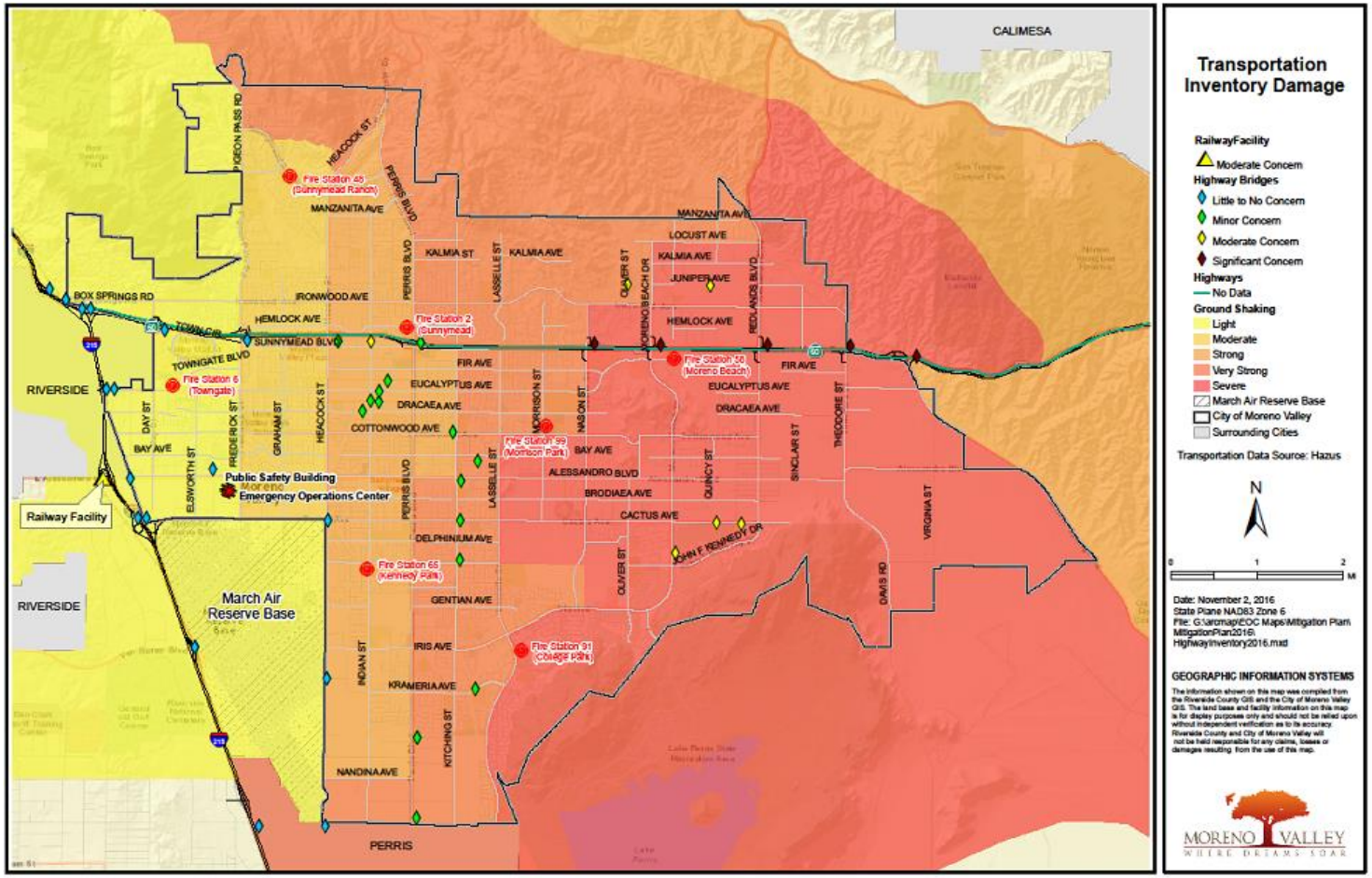


FIGURE 4-2.2: EARTHQUAKE SCENARIO - UTILITY DAMAGE

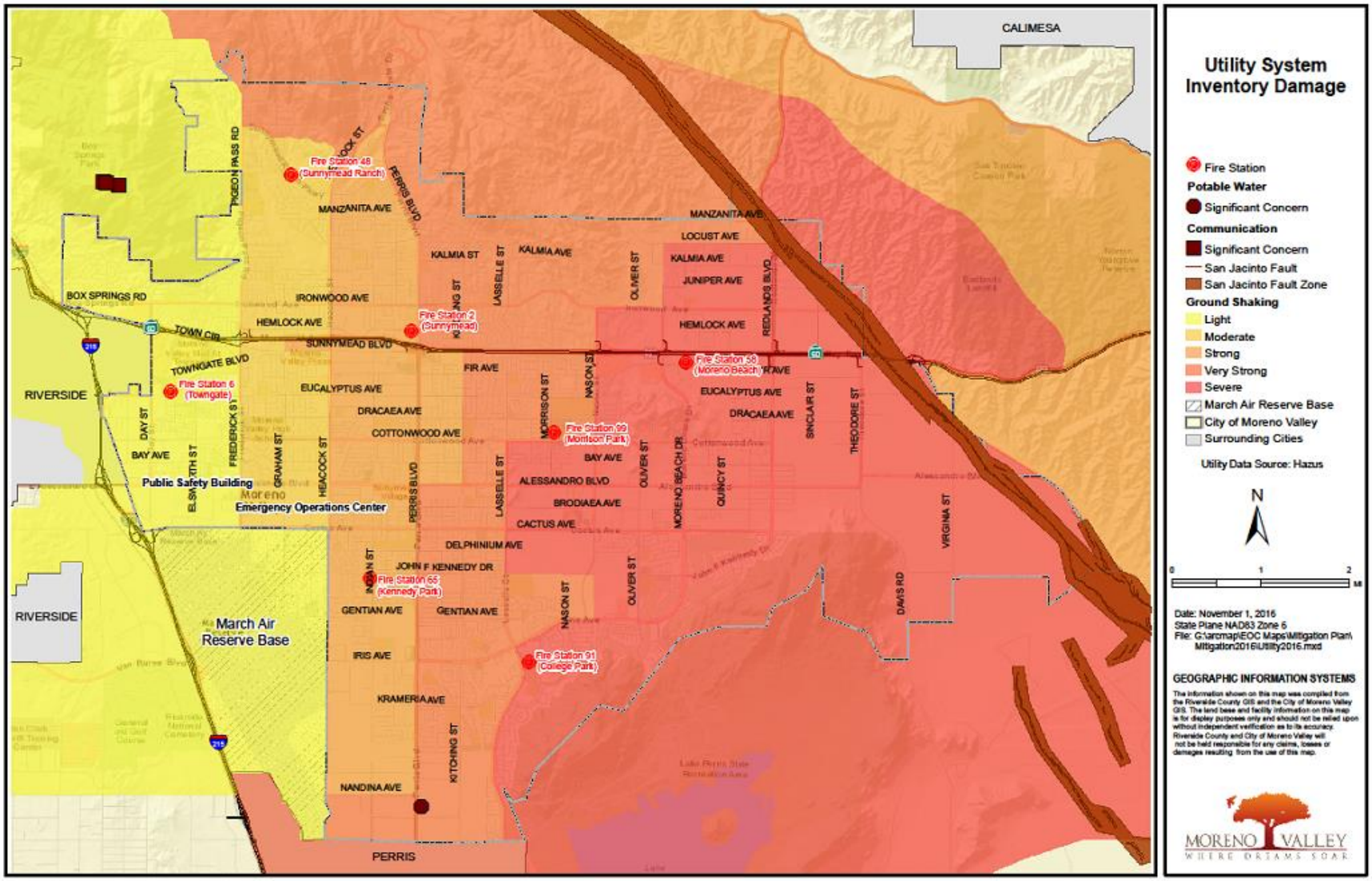


FIGURE 4-2.3: EARTHQUAKE SCENARIO- COMMERCIAL BUILDING DAMAGE

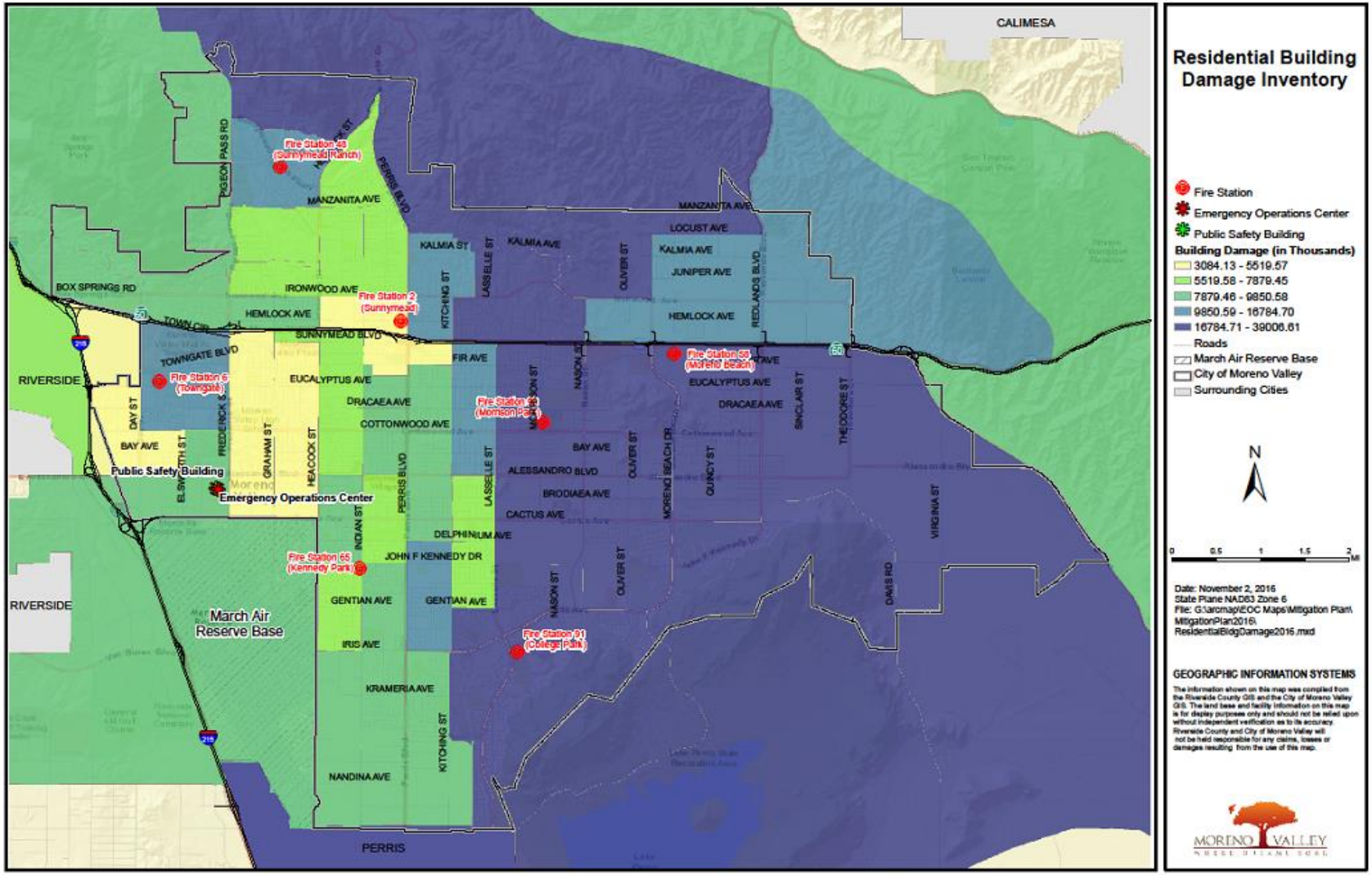
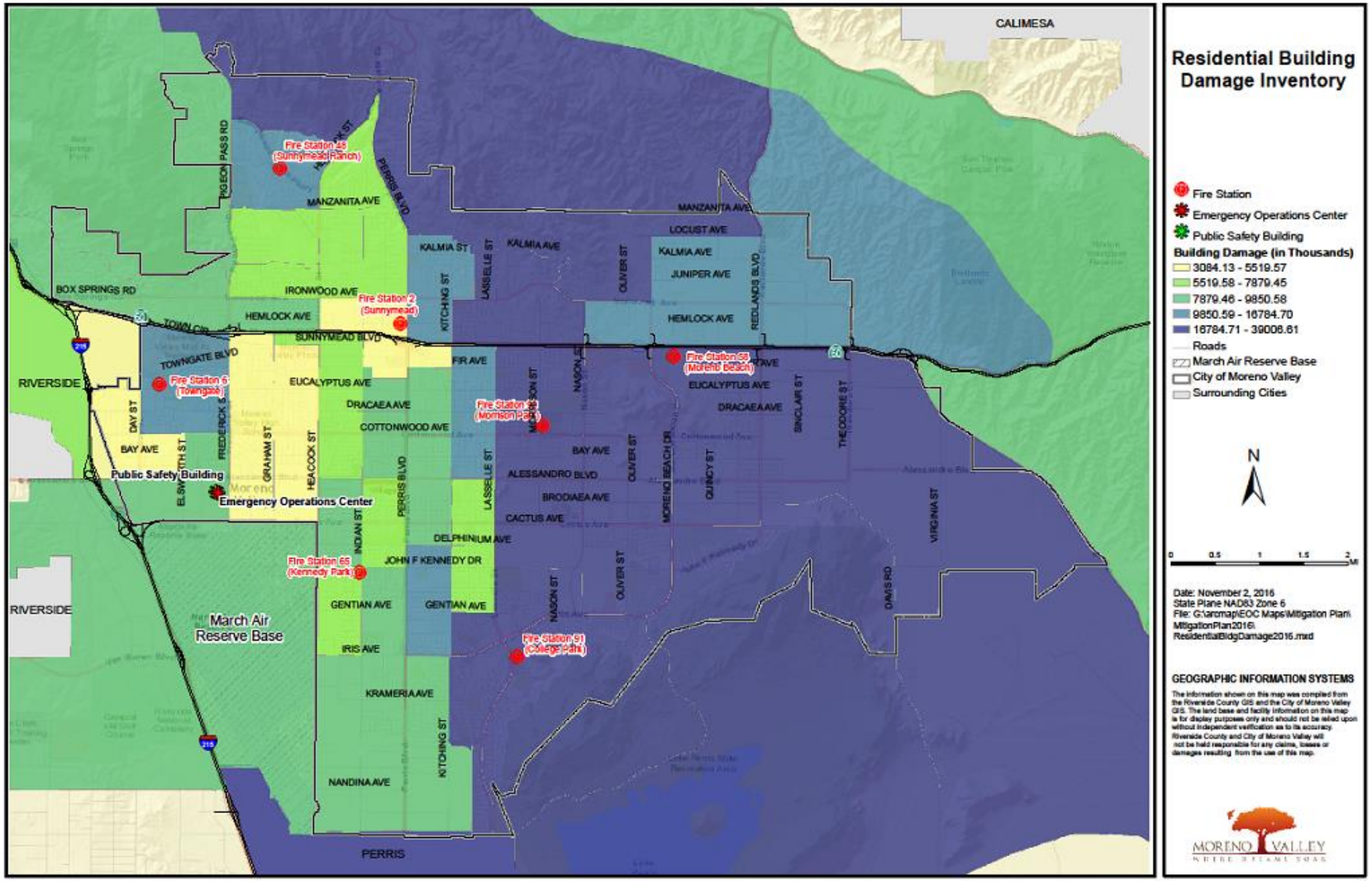


FIGURE 4-2.4: EARTHQUAKE SCENARIO - RESIDENTIAL BUILDING DAMAGE



CHAPTER 5: WILDLAND AND URBAN FIRES

Moreno Valley Rating: Severity = 2 Probability = 3

5.1 WILDLAND AND URBAN FIRES PROFILE – OVERVIEW

The City of Moreno Valley is subject to both wildland and urban fires. The natural vegetation in the area is highly prone to fire, as well as the urbanized portions of the city are subject to structural fires. The vegetation and geographical landscape consist of rolling hills covered in annual grasses with sage brush with no tree top canopy. The vegetation typically comes on an annual basis from annual rains which occur between the months of January and March.

A wildland fire is an uncontrolled fire in combustible vegetation that is typically found in a rural or wilderness area. Also known as a vegetation fire, brush fire, forest fire or grass fire, a wildland fire differs from other fires by its extensive size and the speed by which it can spread. These types of fires have a great potential to change direction unexpectedly and can frequently jump roads and fire breaks, making them difficult to control. Wildland fires pose a great danger to urban areas where lives and property can be severely affected.
Within the City of Moreno Valley, wildfire poses a threat to the northern and eastern portions of the city, as those areas are within the high fire hazard area. Also, the southeast area contains the largest potential for state land threat, Lake Perris, which is a California State Park that falls under the direct protection of the City of Moreno Valley for structure and wildland protection. This area also includes a wildlife refuge area which has a 'no fire retardant dropping area.' Other areas of concern include Box Springs (northwest area), San Timoteo Canyon (north end) and Reche Canyon (northeast area).

5.1.1 WILDLAND AND URBAN FIRES PROFILE – PREVIOUS OCCURRENCES

Between 2003 and today, there were 8 wildland fires located within the City of Moreno Valley varying in size and impact. Of those, there were 11 that were over 50 acres in size.[10] The table below outlines fires exceeding 50 acres in size that impacted Moreno Valley. Since 2011, the total incident costs for fires over 50 acres is $1,178,679.17.

[10] Riverside County Fire

TABLE 5-1: HISTORY OF FIRE IN MORENO VALLEY AND SURROUNDING AREAS

Year	Description
2011	June 27, 2011 – A wildfire at Camino Real x Oliver burned 52 acres near the North entrance of Lake Perris State Recreational Area. No damage information was available.
2011	July 20, 2011 – A wildfire at San Timoteo Canyon Road east of Redlands Boulevard burned 71.13 acres. No damage to structure, personal property or city infrastructure. Incident cost: $253,274.89.
2011	August 6, 2011 – A wildfire at SR-60 at Gilman Springs Road burned 1,026 acres. No damage to structures, personal property or city infrastructure Incident cost: $391,725.84.
2013	May 25, 2013 – A wildfire at Gilman Hot Springs Road east of Alessandro Boulevard burned 126.64 acres. There was no damage to structures, personal property or city infrastructure. Incident cost: $97,626.58.
2013	July 16, 2013 – A fire near Redlands Boulevard east of San Timoteo Canyon Road burned 168.09 acres. There was damage to two outbuildings and personal property with unknown dollar damage. Mandatory evacuations ordered. No damage to city infrastructure. Incident cost: $99,218.15.
2015	July 1, 2015 – A wildfire at Merwin Road east of Alessandro Boulevard burned 181.43 acres. A mandatory evacuation was ordered to a residential community and a fire threat was issued to a natural animal preserve. There was city damage sustained to a City of Moreno Valley water tower and property fence. There was no residential structure damage. Incident cost: $336,833.71.
2019	August 15, 2019 – A grass fire burned 3 acres at the intersection of Phyllis Avenue and Ella Avenue. The fire caused damage to several homes and outbuildings on the nearby properties. The incident cost is estimated at $250,000.
2021	May 5, 2021 – A fatality traffic collision resulted in a brush fire on Gilman Springs Road south of Alessandro Avenue. The fire burned 226 acres. There was no residential structure damage or damage to city infrastructure.
2021	May 18, 2021 - A brush fire at Alessandro Boulevard near Theodore Street burned 301 acres and threatened the San Diego Gas and Electric Power Station as well as infrastructure in the area. An evacuation order was issued for the Power Station.
2022	July 10, 2022 – A brush fire at Shetland Lane near Foxtrot Lane burned 25 acres and threatened approximately 50 homes before

	being contained. There was no damage to structures, personal property or city infrastructure.

5.1.2 WILDLAND AND URBAN FIRES PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.

Due to the natural topography, terrain, volatile fuel types and climate conditions, wildfire in Moreno Valley will continue to be an ongoing threat. Fuel, like weather, is an ever-changing variable in the fire environment and must be addressed in any fire behavior forecast. Fuel type, loading, horizontal continuity, vertical arrangement, size and shape, moisture content, chemical content, fuel bed depth and live-fuel-to-dead-fuel ratio have a profound effect on fire behavior.

The potential for large and damaging fires to Moreno Valley is present throughout much of the year. In autumn and winter, when the Santa Ana winds typically blow, the potential for a large and damaging wildfire fire is increased significantly. As the southern region of California continues to stay in a record drought conditions due to lower than expected rain fall totals, the potential for large vegetation fires in or near the City of Moreno Valley is highly predictable for major fires. With the population size and dense residential housing in the city, the threat for larger financial loss is also highly predictable.

5.2 WILDLAND AND URBAN FIRES VULNERABILITY OVERVIEW/ IMPACT

The severity rating for this hazard is a 3, which means that there is a potential for critical damage, causing injuries and/or illnesses resulting in permanent disability, complete shutdown of critical facilities for two weeks and/or 25% to 49% of property is severely damaged.

Impact to Population and Structures: Injuries and/or deaths may occur during fires. In addition, portions of the population could be affected by smoke inhalation and heat from the fire, as well as poisonous gases that cause disorientation and drowsiness. Those affected could be requested to evacuate their homes and businesses, causing both emotional and financial hardship. Seniors and individuals with access and functional needs may need special assistance to evacuate. Structures, vehicles, and personal belongings could be damaged or destroyed by fire. This may cause civilians to take independent action which raises the threat level and situational awareness for firefighters and other public safety entities.

Impact to Essential Facilities/Historical Sites: Damage to essential facilities would impact the ability to appropriately respond to emergencies. Damage to historical sites would be particularly devastating as they would be difficult to replace.

Impact to Infrastructure: Firefighting can cause an increased demand to the water supply. Infrastructure could be affected by fires and/or evacuations. Internal Emergency Operations Centers are activated under the auspices of the Fire Department supervision. They would coordinate evacuation centers and assist with civilian evacuations and repopulation of an area once the threat of fire has been mitigated.
Future Development Trends: With the current and expected development of commercial and residential construction, the potential and expected threat will rise. New development is shown in Appendix C.

5.2.1 WILDFIRE VULNERABILITY – POTENTIAL LOSS

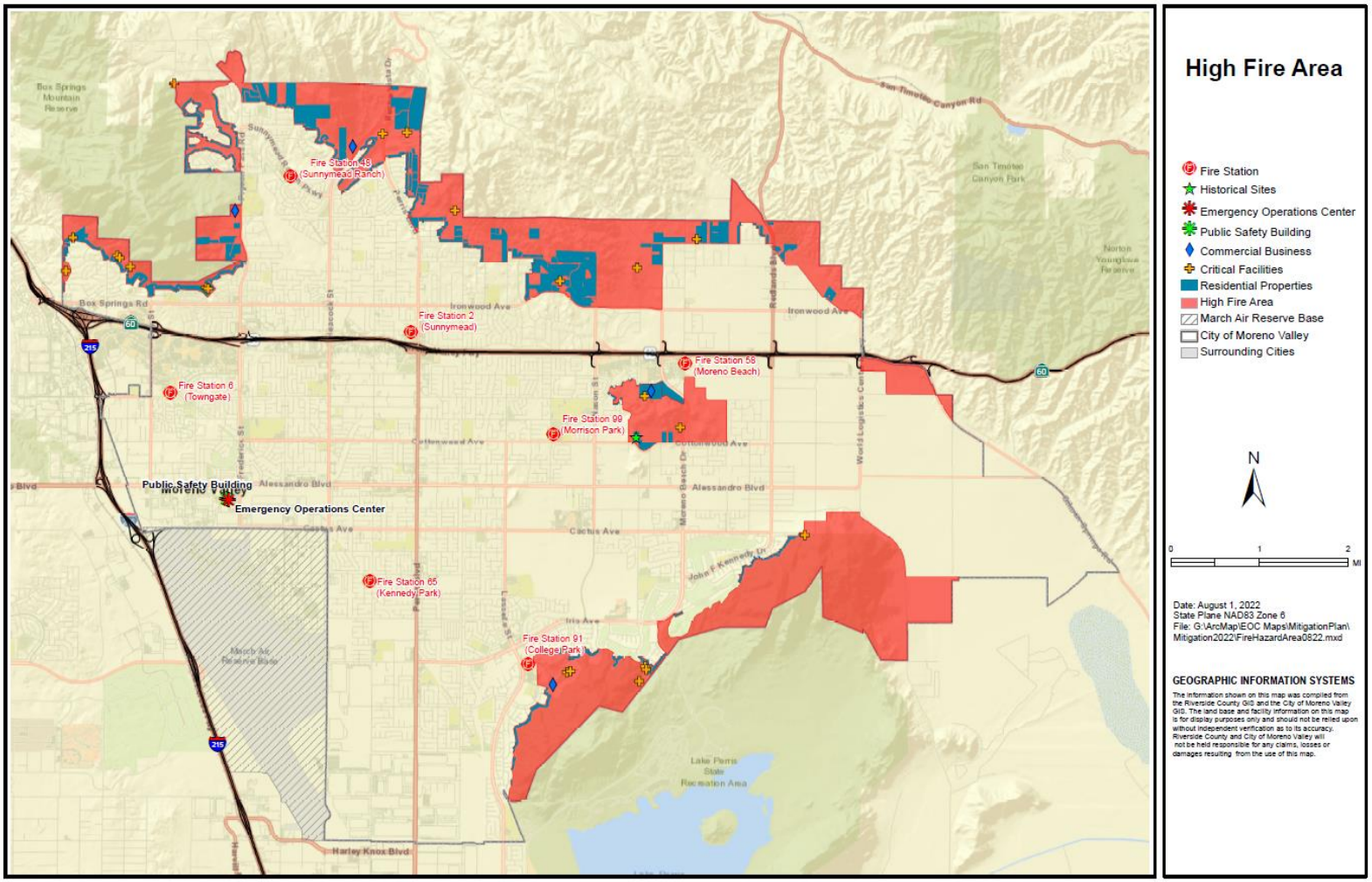
As shown on Figure 5-2 (map), there is vulnerability to residential property, businesses and essential facilities that are located in or near high fire areas within the City of Moreno Valley. Utilizing Moreno Valley and Riverside County Assessor Data, potential loss was calculated (no contents) and the results are:

TABLE 5-2: POTENTIAL FINANCIAL LOSS NEAR HIGH FIRE AREA BY TYPE

Building Type	High Fire Area (#, Value)
Residential	1,395 - $ 323,762,617
Commercial	4 - $ 36,330,426
Critical Facilities	22 - $ 993,486
Historic Sites	0 - $ 0

If a wildfire siege such as the one that occurred in California from October to November 1993 were to occur and damage occurred to 50% of the structures located in the wildfire area, the potential loss would be $571 million. There are no known repetitive loss properties.

Figure 5-2: Moreno Valley High Fire Area Map – Revised August 1. 2022



CHAPTER 6: FLOODING

Moreno Valley Rating: Severity = 3 Probability = 3

6.1 FLOODING PROFILE – OVERVIEW

There are four types flooding conditions that exist within the Moreno Valley 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 SR-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.

Known flood-prone areas as noted in the General Plan as well as recorded in city maintenance files, include:

- Along the Quincy Channel between Cottonwood Avenue and Cactus Avenue.
- An extensive floodplain that 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.
- Along 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 (next to March Air Reserve Base).
- Along Sunnymead Boulevard between Frederick Street and Graham Street.
- Along Pigeon Pass Road, between Sunnymead Ranch Parkway and Lawless Road.
- Along Moreno Beach Boulevard, between Juniper Avenue and Locust Avenue.
- Along Highland Avenue, between Redlands Boulevard and Alessandro Boulevard.
- Along Locust Avenue, between Moreno Beach Boulevard and northerly city Limits.
- Along Heacock Street, between Lake Summit Drive and Reche Vista Drive.
- Along Hubbard Street, between Skyland Drive and Ironwood Avenue.

- Along Cottonwood Avenue, between Nason St and Martha Crawford Street.
- Alessandro Boulevard, between Gilman Springs Road and Theodore Street.

- Neighborhood bounded by Alessandro Boulevard, Brodiaea Avenue, Redlands Boulevard, and Merwin Street.
- Miramontes Court, north of Via Solana Court.
- Easterly side of neighborhood east of Perris Boulevard, between Covey Road and Manzanita Avenue.

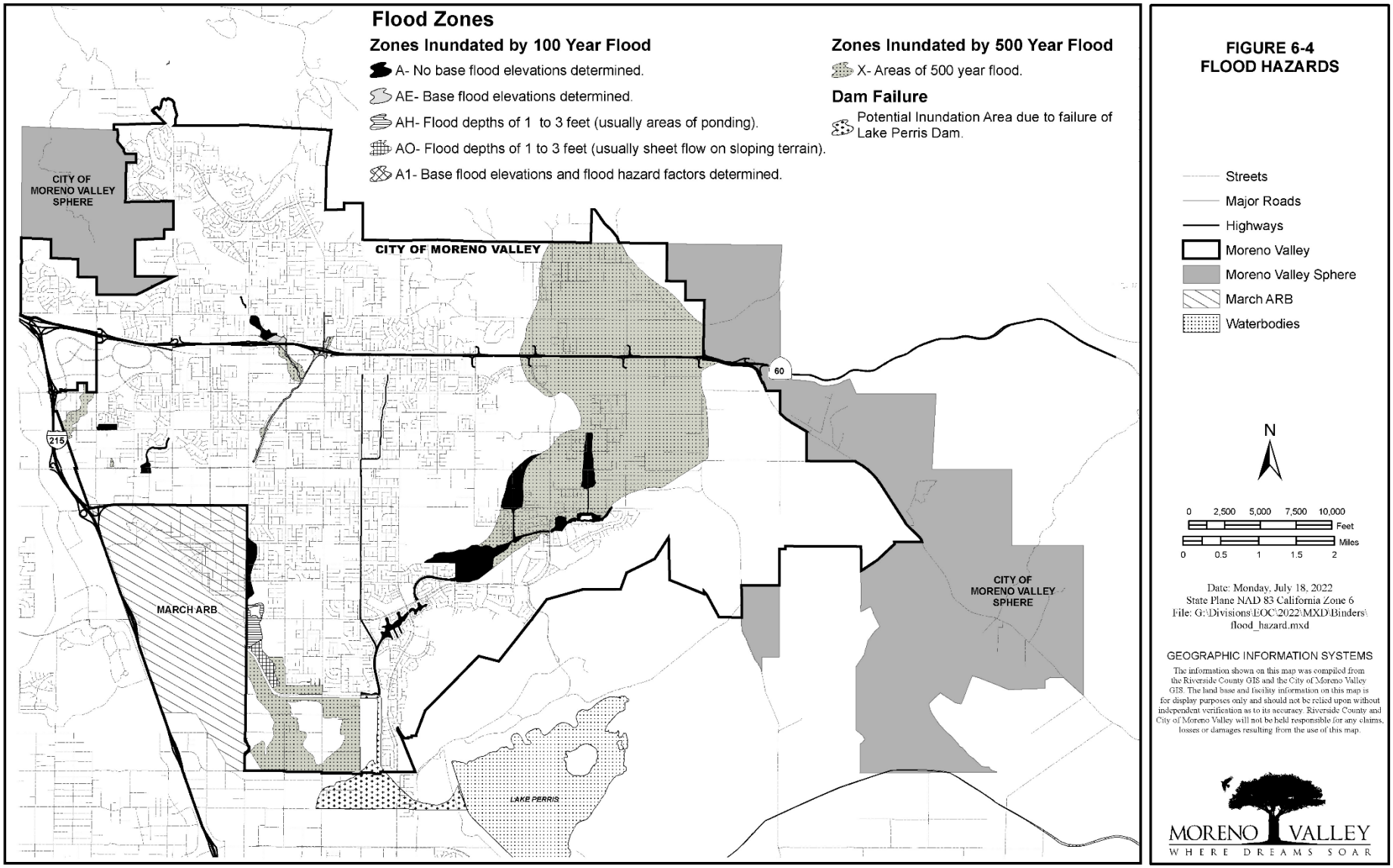
The City maintains 18,420 linear feet of open channels as ahown in the chart below:

TABLE 6-1: CITY MAINTAINED OPEN CHANNELS

Area	Street	From	To	Linear Feet
1	Old 215	Bay Ave.	Alessandro Blvd.	95
2	Davis St.	Ironwood Ave.	Hemlock Ave.	1,070
3	Redlands Blvd.	Juniper Ave.	SR-60	6,100
4	Redlands Blvd.	Eucalyptus Ave.	Dracaea Ave.	1,260
5	Wilmont St.	Bay Ave.	Brodiaea Ave.	2,575
6	Redlands Blvd.	Bay Ave.	Alessandro Blvd.	1,260
7	Theodore St.	SR-60	Alessandro Blvd.	4,200
8	Quincy St.	Brodiaea Ave.	Cactus Ave. (S/s)	1,590
9	Cactus Ave. (S/s)	Wilmont St. (E/o)	Redlands Blvd. (W/o)	270

Several portions of the Moreno Valley area are subject to a 100-year flood, meaning a flood with a one percent chance of occurring in any given year. 100 year and 500-year floods, as well as dam inundation, are shown on Figure 6-1.

FIGURE 6-1: MORENO VALLEY FLOOD ZONES 100- & 500-YEAR ZONES – REVISED JULY 18, 2022



6.1.1 FLOODING PROFILE – PREVIOUS OCCURRENCES

Moreno Valley has a long history of being affected by flooding. Notable flooding incidents since 2005 include:

TABLE 6-1.1: HISTORY OF FLOODING IN MORENO VALLEY

Year	Description
2005	DR-1577, January 2005, 12 homes were damaged throughout the city from flooding. Asphalt and pavement were washed out at various sites throughout the city. Heacock and Cactus channel flooded and block public right of way. $23K public assistance.
2005	DR-1585, February 2005, flooding in the area of Reche Vista, Ironwood and Davis St., Heacock channel north of JFK Blvd; 15 homes throughout the city with minor flood damage. $16K public assistance.
2010	DR-1884 Jan 2010 – Flooding damage/road closures throughout the city. Example of damage included: erosion of Heacock Channel (south of Iris north of Cactus) causing encroachment to the roadway. Slope and down drain repair at Reche vista; damage to retention basin/drainage swales on Redlands Blvd; and debris /road cleanup throughout city. Damage assessment for the Heacock Channel area resulted in an approximate cost of $58 million, which included damages to infrastructures (roadway and utilities), commercial and residential structures, and undevelopable industrial and commercial lands due to flood plain.
2010	DR-1952, December 2010, Flooding was citywide. Heacock channel, 10 city parks, several home were damaged from flooding. Damage to the Indian Basin while under construction for improvement; flooding of Sunnymead Boulevard and surrounding businesses between Frederick Street and Graham Street. Preliminary damage assessment $998K.
2012	Severe rain and flooding citywide resulted in numerous residential flooding east of Redlands Blvd. in the Campbell Ave., Gifford Ave., and Hotchkiss St. neighborhood areas. Numerous visual sightings of tornadoes were reported.
2015	Flash flood caused flooding damages citywide. Severe damage was reported for the residential areas located on Hubbard Street and Dunlavy Court, residential area on Kitching Street-Ivy Lane Neighborhood, on Lawless Road – Pigeon Pass Street, and Camino Del Coronado Street-Sunnymead Ranch were also affected.

6.1.2 FLOODING PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.

Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue in the future. This potential change in weather patterns can also increase flood risks.[11]

6.2 FLOODING VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 3, which means that there is a potential for critical damage, causing injuries and/or illnesses resulting in permanent disability, complete shutdown of critical facilities for two weeks and/or 25% to 49% of property is severely damaged. Flooding could cause cascading hazards such as landslides, dam failure, pipeline hazards, transportation incidents, power outages, hazardous materials incidents, civil unrest, diseases, and insect infestations.

Impact to Population and Structures: Flooding can cause a huge impact to both the population and structures. Injuries and/or deaths could occur from drowning or traffic collisions, as well as, from cascading hazards such as power lines down, landslides and other hazards. Communications could be impacted by flooding and people could be evacuated from dangerous areas. Seniors and individuals with access and functional needs may need special assistance to evacuate. Structures could be damaged, as well as property.

Impact to Essential Facilities/Historical Sites: Essential facilities fall within the 100 year and 500-year flood zones and therefore could suffer damage from flooding. Historical sites could also suffer damage.

Impact to Infrastructure: Flooding could cause power outages, which would affect traffic lights and transportation. Damage to pipelines and communication infrastructure could occur. Mud and debris could affect infrastructure.

Future Development Trends: Future development will result in an increased demand for flood control and drainage services. Moreno Valley participates in the NFIP as well as the voluntary CRS, which is administered by FEMA. The NFIP program provides federal flood insurance and federally financed loans for property owners in flood prone areas. For more information about the city's participation in NFIP and CRS, see Chapter 20.4 National Flood Insurance Program. To qualify for federal flood insurance, the city must identify flood hazard

[11] https://water.ca.gov/Programs/All-Programs/Climate-Change-Program/Climate-Change-and-Water Accessed July 2022

areas and implement a system of protective controls. In addition, all development is required to comply with Riverside County Flood Control and Water Conservation District requirements for construction of master drainage plan facilities. New development is shown in Appendix C.

6.2.1 FLOODING VULNERABILITY – REPETITIVE LOSS

There are no repetitive loss properties.

6.2.2 FLOODING VULNERABILITY – POTENTIAL LOSS

The City was unable to utilize HAZUS-MH for flooding because the data only includes river overflows. Utilizing Moreno Valley and Riverside County Assessor Data, potential loss was calculated (no contents) and the results are:

TABLE 6-2: POTENTIAL FINANCIAL LOSS IN FLOOD ZONES BY TYPE

Building Type	100 Year Flood (#, Value)	500 Year Flood (#, Value)
Residential	115 – $27,418,423	2,607 – $640,584,254
Commercial	30 – $10,932,260	97 – $668,845,383
Critical Facilities	1 – N/A*	22 – $ 73,299,820
Historic Sites	0	3 – $ 852,675

* Note: Structure value not in assessor data

CHAPTER 7: DROUGHT

Moreno Valley Rating: Severity = 2 Probability = 3

7.1 DROUGHT PROFILE – OVERVIEW

Drought is an extremely dry climatic period where the available water falls below statistical average for a particular region. Drought is defined by factors including rainfall, vegetation conditions, agricultural productivity, soil moisture, water levels in reservoirs and lakes, and stream flow. The three forms of drought include: meteorological drought; agricultural drought; and hydrologic drought.

A meteorological drought is defined as prolonged periods of less than average precipitation; an agricultural drought is defined as insufficient moisture for an average crop yield; a hydrologic drought is defined water levels falling below sustainable levels.

7.1.1 DROUGHT PROFILE – PREVIOUS OCCURRENCES

The City of Moreno Valley has an early history of drought when, in 1887, Frank E. Brown sought to provide water to the barren plain that is now Moreno Valley. Mr. Brown built a dam at Bear Valley in the San Bernardino Mountains and formed the Bear Valley Land and Water Company. This company provided water to the City of Redlands, and communities of Alessandro and Moreno Valley.

Due to a drought affecting Southern California in 1899, Mr. Brown had to terminate the water supply to what would later become the City of Moreno Valley as the City of Redlands had first rights to the water supply. As a result of the loss of water delivery, the residents of Moreno Valley were forced to leave the area in search of a more livable environment. By 1901, few people resided in Moreno Valley, and those who remained turned primarily to the dry farming of hay, grain, and grapes.[12]

Table 7-1 shows a chronological list of dates of severe droughts that have occurred in California:

TABLE 7-1: HISTORY OF DROUGHTS

Year	Description
1929-1934	The most severe drought in California's history at that time[13]
1943-1951	The more severe in southern California[14]
1959-1962	Was more severe in the Sierra Nevada[15]
1976-1977	The single driest year on record for California[16]
1987-1992	Caused 23 of California's 58 counties to declare county-wide local states of emergency in 1991[17]

[12] https://www.morenovalleyhistoricalsociety.org/about-us Retrieved July 2022

[13] https://water.ca.gov/water-basics/drought Retrieved July 2022

[14] https://water.ca.gov/water-basics/drought Retrieved July 2022

[15] https://water.ca.gov/water-basics/drought Retrieved July 2022

[16] https://water.ca.gov/water-basics/drought Retrieved July 2022

[17] http://www.water.ca.gov/drought/docs/CalDrought.pdf Retrieved July 2022

2007-2009	One of the more severe droughts in California's history with 2007 setting records in the southern coastal region as one of the driest years on record.[18]
2012-2014	Driest three-year period in the measured record of statewide precipitation.[19]
2020 - 2022	Extreme drought conditions are ongoing

7.1.2 DROUGHT PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.
Based on the climate change impacts and predictors, it is highly probable that Moreno Valley will be impacted by additional periods of drought over the next 10-20 years. By the end of this century, the Sierra snowpack is projected to experience a 48-65 percent loss from the historical April 1st average. This loss of snowpack means less water will be available for Californians to use.[20]
Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue in the future and could add additional challenges for water supply reliability.[21]

7.2 DROUGHT VULNERABILITY – OVERVIEW/ IMPACT/ DEVELOPMENT TRENDS

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property that is severely damaged. Drought could cause cascading incidents such as fires, flooding, insect infestations and civil unrest.

[18] http://www.water.ca.gov/drought/docs/timeline-present.pdf Retrieved July 2022

[19] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Publications-And-Reports/033021_2012-16-Drought-Report_v4_ay11.pdf Retrieved July 2022

[20] https://water.ca.gov/water-basics/drought Retrieved July 2022

[21] https://water.ca.gov/water-basics/drought Retrieved July 2022

Impact to Population and Structures: Drought could impact the population by the imposition of water usage restrictions, thus impacting crops, livestock, land, vegetation, and urban water supplies. One of the most significant impacts could be its effect on wildfire protection. Dry vegetation has a potential to increase wildfires in and around the City of Moreno Valley. In addition, firefighting efforts may be hindered due to inadequate water supplies. Drought may also cause soil to compact and not absorb water well, thus making an area more susceptible to flooding.

Impact to Essential Facilities/Historical Sites: Essential facilities and historical sites could be impacted by inadequate water supplies and the potential for flooding in and around the site. Firefighting efforts may be hindered due to inadequate water supplies and damage to landscaping may occur.

Impact to Infrastructure: The impact of drought to infrastructure could be severe as the availability of water could be affected. Drought could affect the stream flow, snowpack, lakes, reservoirs, and groundwater levels.

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure could be impacted by drought. A potential of inadequate water supply during periods of drought may need to be considered for future development. New development is shown in Appendix C.

7.2.1 DROUGHT VULNERABILITY – POTENTIAL LOSS

Drought's characteristics along with its far-reaching impacts make its effects on society, economy, and environment difficult, though not impossible, to identify and quantify.[22] Due to the limitation of data, it is not possible to analyze the potential loss for Moreno Valley. However, there would be a significant loss from its related impact to wildfires, and the significant costs incurred to replace landscaping. There are no known repetitive loss properties.

CHAPTER 8: LANDSLIDE

Moreno Valley Rating: Severity = 2 Probability = 2

[22] Understanding the Drought Phenomenon: The Role of Definitions (Wilhite & Glantz, 1985) https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Publications-And-Reports/033021_2012-16-Drought-Report_v4_ay11.pdf Retrieved July 2022

8.1 LANDSLIDE PROFILE – OVERVIEW

The primary factors that determine an area's susceptibility to slope instability are the underlying geologic and soils characteristics. The abundant shales and siltstones underlying the Badlands are highly porous and do not hold together well when wet, which can lead to slope instability and landslides. Cascading hazards contributing to the possibility of landslides include rainstorms and earthquakes. A "slow moving" landslide reportedly exists along Gilman Springs Road in the eastern portion of the Moreno Valley area.

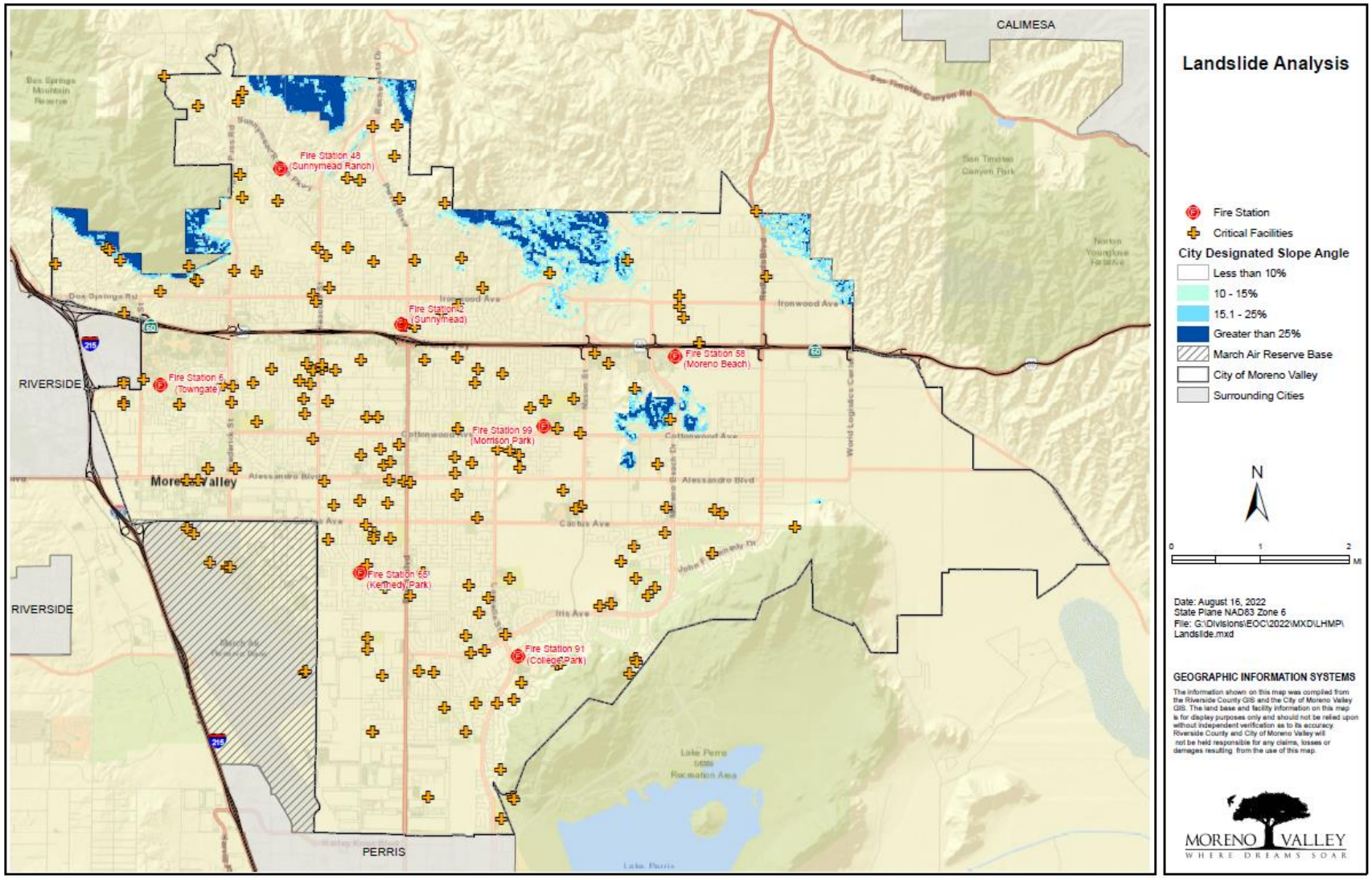
A 2002 report prepared for the California Department of Transportation states that there have been over 8,500 landslides mapped within the corridor area between Gilman Springs Road and Jack Rabbit Trail. Of those, only 281 are the relatively deep, slower-moving types of landslides that typically cause damage to roadways.

The majority of the larger and deeper landslides that were mapped are dormant-mature based on the landslide features and level of erosion. Dormant-mature in this area may only mean a low level of activity over several decades. The small number of historic rockslides that was mapped does suggest, however, that the deeper and slower moving slides are not a very frequent occurrence in this highway corridor.

In contrast, small, shallow, rapidly moving debris flows are very abundant in the San Timoteo Badlands. Thousands of individual flows were triggered by the storms of 1969, and hundreds of additional slides were triggered by the storms of 1998. Overall, the debris flow process is probably the main erosional force on the slopes of the badlands.[23]

[23] https://www.conservation.ca.gov/cgs/Documents/Landslides/Caltrans/SR_186/CT60riv.pdf Retrieved July 2022

FIGURE 8-1: MORENO VALLEY SLOPE ANALYSIS – REVISED AUGUST 16, 2022



8.1.1 LANDSLIDE PROFILE – PREVIOUS OCCURRENCES

TABLE 8-1: HISTORY OF LANDSLIDES

Year	Description
2005	Slope failure in the Bonita Heights area of Moreno Valley. Amount of damage unknown.
2010	Slope failure due to winter storm impacting Duckbill and Mallow drive in Moreno Valley. Voluntary evacuations of 6 houses. Amount of damage unknown.
2015	Mud flowing down Pigeon Pass Road and into homes on Whitewater Circle in Moreno Valley. The mud ran off private property at the northeast corner of Pigeon Pass and Lawless roads[24].

8.1.2 LANDSLIDE PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

8.2 LANDSLIDE VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged. Landslides could cause cascading hazards such as hazardous materials incidents, transportation incidents, power outages and pipeline incidents.

Impact to Population and Structures: There could be injuries and/or deaths from landslides due to debris flow and/or flooding. Damage to structures and personal property could occur due to the debris flow and/or flooding. People could be asked to evacuate and/or detour. Seniors and individuals with access and functional needs may need special assistance to evacuate.
Impact to Essential Facilities/Historical Sites: Essential facilities and/or historical sites are not located near landslide areas; however, they could be impacted from failure of smaller slopes, debris flow and flooding.
Impact to Infrastructure: There could be plugging of culverts and related flooding and erosion of basin overflows. Transportation corridors could be impacted, causing traffic to be detoured. Evacuations could occur.

[24] https://www.pe.com/2015/07/21/moreno-valley-mud-damage-not-preventable-city-says/ Retrieved July 2022

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure would not be impacted. New development is shown in Appendix C.

8.2.1 LANDSLIDE VULNERABILITY – POTENTIAL LOSS

If there was a landslide affecting the SR-60 San Timoteo Badlands area, the potential loss would be to people traveling on SR-60 and may not involve Moreno Valley residents. As a heavily travelled transportation corridor for products, goods and services, any prolonged impact to the highway could result in financial impacts to haulers, consumers, and impacted businesses. The California Department of Transportation (Caltrans) would be responsible for losses related to the highway. There are no known repetitive loss properties.

CHAPTER 9: INSECT INFESTATION

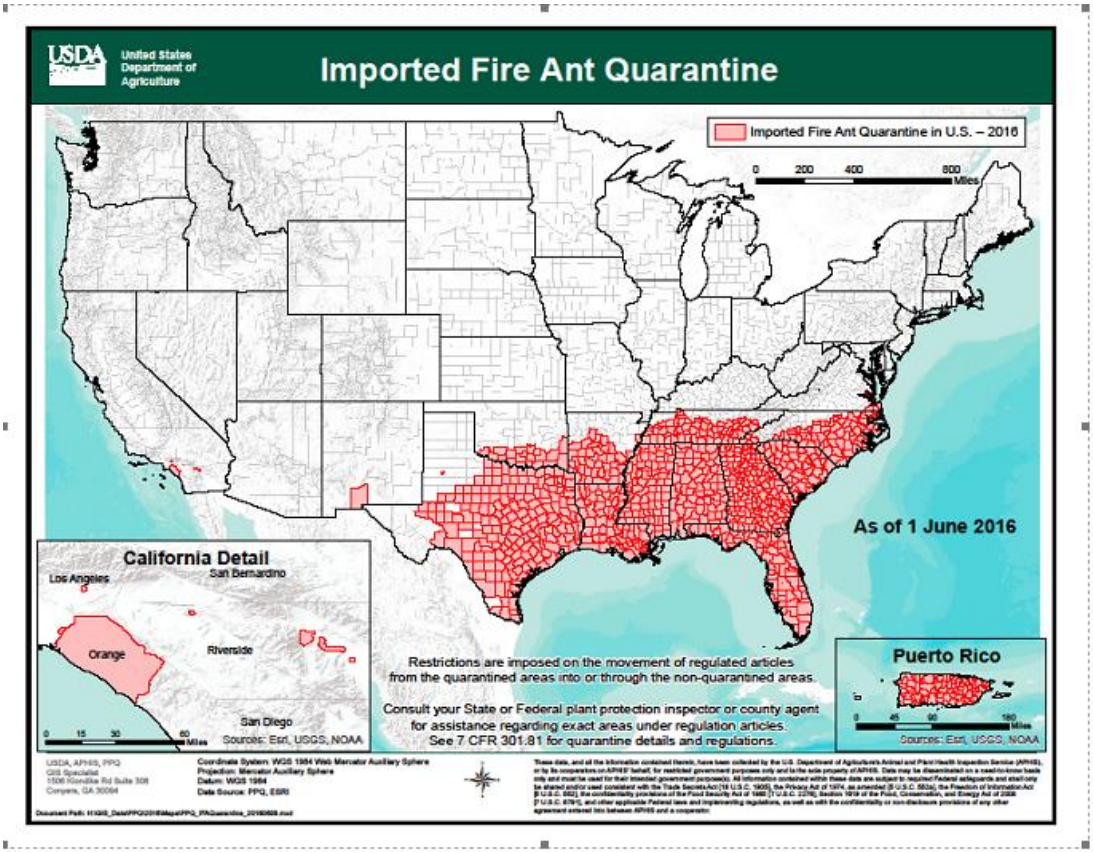
Moreno Valley Rating: Severity = 1 Probability = 2

9.1 INSECT INFESTATION PROFILE – OVERVIEW

The City of Moreno Valley is vulnerable to insect infestation such as Africanized Honeybees, Red Imported Fire Ants, and mosquitoes which can cause vector-borne diseases. By 1998, the red imported fire ants were found in most of Orange County and in parts of Riverside County. These ants can become highly aggressive if their nests are disturbed There are reports indicating people who are allergic to their venom have died.[25] In the past, Moreno Valley has been subject to quarantine limiting the movement of plants and soil (Figure 9-1).

[25] https://www.ars.usda.gov/arsuserfiles/60360510/publications/Klotz_et_al-2003(M-3789).pdf Retrieved July 2022

FIGURE 9-1: IMPORTED FIRE ANT QUARANTINE[26]



The Africanized Honeybee is virtually indistinguishable from the common honeybee, but the Africanized Honeybees are more aggressive in defending their home or when disturbed. These bees will swarm in the hundreds to thousands in order to sting anything perceived as a threat. These attacks can be deadly in nature due to the sheer number of bee stings that an animal or person receives, resulting in onset of anaphylactic shock. The only known Africanized Honeybee hive in Moreno Valley was located in 1998 at the Moreno Valley Unified School District; however, the Africanized Honeybee has been in California since 1994 and has completely colonized numerous counties, including Riverside County.

[26] https://www.aphis.usda.gov/aphis/home Retrieved July 2022

Vector-borne disease – Vector-borne diseases are among the most complex to prevent and control[27]. These bacterial and viral diseases are transmitted by mosquitoes, ticks, and fleas. Due to the difficulty in tracking vector behavior vector-borne diseases pose a major public health concern.

9.1.1 INSECT INFESTATION PROFILE – PREVIOUS OCCURRENCES

TABLE 9-1: HISTORY OF INSECT INFESTATION

Year	Description
1998	Red imported fire ant, Latin name *Solenopsis invicta,* caused 1 square mile of Moreno Valley to be quarantined.[28]
1998	An Africanized Honeybee, Latin name *Apis mellifera scutellata Lepeletier,* attack occurred in October at the Moreno Valley Unified School District located on Perris Boulevard.[29]
2000	A resident in Banning, CA is killed by swarm of bees. Banning is located 22 miles north of Moreno Valley.[30]
2006	Red imported fire ant hive found on the football field at Canyon Springs High School. Football field was out of service for approximately one month due to the infestation.[31]
2010	Two horses are killed by swarming bees in the City of Menifee which is located just 17.8 miles south of Moreno Valley.[32]

[27] https://www.cdc.gov/ncezid/dvbd/about.html Retrieved July 2022

[28] https://urban.ucr.edu/sites/default/files/2020-05/1999_greenberg_et_al_fire_ants_in_ca.pdf Retrieved July 2022

[29] https://www.latimes.com/archives/la-xpm-1998-dec-17-me-54929-story.html Verified November 7, 2016, Retrieved July 2022

[30] https://www.pe.com/2019/09/28/woman-in-banning-is-stung-by-bees-more-than-100-times/ Retrieved July 2022

[31] https://www.9news.com/article/news/weird/high-schools-main-rivals-are-fire-ants/73-342099441 Retrieved July 2022

[32] http://www.sandiegouniontribune.com/sdut-menifee-horses-killed-by-swarming-bees-2010jun24-story.html Retrieved July 2022

2011	Bee attack in the Arlanza area of the City of Riverside kills a horse, owner is hospitalized. Riverside is a neighboring jurisdiction to Moreno Valley.[33]
2011	Swarm of bees in Wildomar neighborhood attack dog. Wildomar is located 35 miles south of Moreno Valley.[34]
2013	A total of 35 confirmed West Nile Virus human cases reported in Riverside County.
2014	A total of 15 confirmed West Nile Virus human cases reported in Riverside County.
2014	Bark beetle found as far south as San Diego, as far east as the City of Eastvale which is located approximately 18 miles west of Moreno Valley.[35]
2015	Two confirmed human cases of West Nile Virus in Riverside County. A 37-year-old man and 53-year-old woman.[36]
2016	First Zika virus case July of 2016 in Riverside County[37]

[33] http://latimesblogs.latimes.com/lanow/2011/07/horse-killed-bees-riverside.html Verified November 8, 2016, Retrieved July 2022,

[34] http://www.nbclosangeles.com/news/local/Bees-Sward-Riverside-Neighborhood-125669843.html Retrieved July 2022

[35] http://www.latimes.com/science/la-sci-beetle-trees-20140530-story.html Retrieved July 2022

[36] https://www.rivcoph.org/Portals/0/LatestNews/West_Nile_Virus_8-22-12.pdf Retrieved July 2022

[37] https://abc7.com/zika-virus-mosquito-disease-cdc/1414481/ Retrieved July 2022

In Riverside County, mosquito-borne diseases, such as West Nile Virus and Zika Virus, have been of increased concern. The West Nile Virus is a seasonal epidemic that flares up in the summer and typically continues into fall. As of November 2016, the California Department of Public Health reported 5 human cases, 16 dead birds, and 32 mosquito samples that tested positive for West Nile in Riverside County; however, there are no active reported cases in 2022.[38] Figure 9-2 shows the West Nile Virus activity in California Counties as of November 2016.

Zika is spread through mosquito bites, during blood transfusions, during sex with a person infected with Zika, and from a pregnant woman to her fetus during pregnancy or around the time of birth. The Zika virus has been detected in several counties surrounding Moreno Valley. The first case in Riverside County was identified in July 2016 in a man who traveled outside the United States.[39] In August 2016, the second case in Riverside County was identified when a woman became infected while traveling outside the country and is expected to completely recover, according to a press release from Riverside University Health System.[40]

On May 26, 2016, the California Department of Public Health issued a Health and Travel Advisory to Californians to avoid mosquito bites during travel to Latin American countries and the Caribbean where there has been increased reports of mosquito-borne disease, including Zika, chikungunya and dengue.[41]

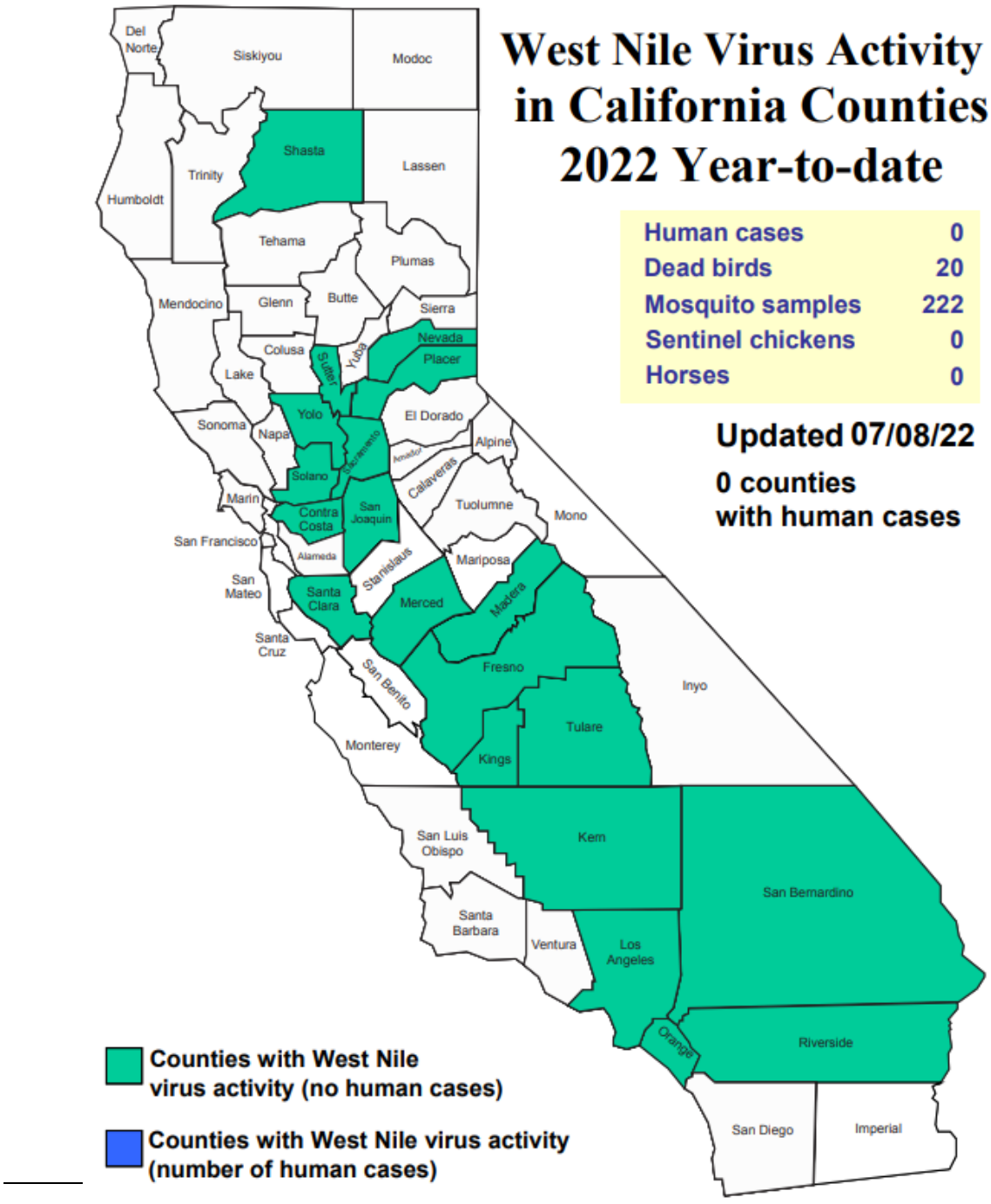
[38] http://westnile.ca.gov/ Retrieved July 2022

[39] https://abc7.com/zika-virus-mosquito-disease-cdc/1414481/ Retrieved July 2022

[40] http://www.pe.com/articles/county-810271-infected-zika.html Retrieved July 2022

[41] https://www.cdph.ca.gov/Programs/OPA/Pages/NR16-033.aspx Retrieved July 2022

FIGURE 9-2: WEST NILE VIRUS ACTIVITY IN CALIFORNIA 2022[42]



[42] https://westnile.ca.gov/download?download_id=4714 Retrieved July 2022

9.1.2 INSECT INFESTATION PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

9.2 INSECT INFESTATION VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 1, which means that there is a potential for negligible damage, causing injuries and/or illnesses treatable with first aid, minor quality of life lost, shutdown of critical facilities and services for 24 hours or less and/or no more than 1% of property is severely damaged. Insect infestation could cause cascading hazards such as pandemic flu or disease.

Impact to Population and Structures: Injuries and/or deaths from insect infestations are likely. The amount of injuries and/or deaths is not expected to be high. Insects pose an impact to vegetation as well as structures. The bark beetle and gold spotted oak borer, for instance, devastate forests and trees and pose deadly fire and structure damage through falling into structures.

Common city trees, such as American sweetgum and maple, could become public branch-dropping hazards. Further, native trees such as the California sycamore and the coast live oak have started to succumb, creating a fire risk in the form of dead, dry tinder.[43]

Impact to Essential Facilities/Historical Sites: There could be an impact to essential facilities and historical sites, as well as landscaping.

Impact to Infrastructure: No impact is expected.

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure could be impacted by insect infestations. Eradication costs may need to be considered. New development is shown in Appendix C.

9.2.1 INSECT INFESTATION VULNERABILITY – POTENTIAL LOSS

Insect infestation and vector-borne diseases could impact the City of Moreno Valley. Due to the difficulty in tracking vector behavior, the risk for vector-borne diseases is high. The actual cost is not known. There are no known repetitive loss properties.

[43] http://www.latimes.com/science/la-sci-beetle-trees-20140530-story.html Retrieved July 2022

CHAPTER 10: EXTREME WEATHER

Moreno Valley Rating: Severity = 2 Probability = 3

10.1 EXTREME WEATHER PROFILE – OVERVIEW

For purposes of profiling the extreme weather hazard for this plan, extreme weather includes lightning, hail, freezing and heat. Flooding is profiled in chapter 6 and severe wind is profiled in chapter 11. Extreme weather could affect the entire City of Moreno Valley.

Lightning – Lightning is a discharge of electrical energy which creates a "bolt" when the buildup of positive and negative charges becomes strong enough.[44] Lightning can strike anywhere and typically follows the shortest, easiest path to the earth, striking buildings, trees, or other objects such as poles and metal objects. Lightning can enter a building through a direct strike by striking a metal object that is attached to the building or by following a power line or unground wire fence that is attached to a building.
Hail/Freezing – Hail is a form of solid precipitation. It consists of balls or irregular lumps of ice, each of which is referred to as a hail stone. Hail formation requires environments of strong, upward motion of air with the parent thunderstorm (similar to tornadoes) and lowered heights of the freezing level (< 32 °Fahrenheit, 0 Celsius). Hail is most frequently formed in the interior of continents within the mid-latitudes of Earth, with hail generally confined to higher elevations within the tropics.[45]

Heat – As climate change continues to impact weather, the once summer-only heat continues to extend to other parts of the calendar year. Extreme heat may occur in the summer.

10.1.1 EXTREME WEATHER PROFILE – PREVIOUS OCCURRENCES

Table 10-1 shows the history of extreme weather for the City of Moreno Valley and surrounding area.

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[44] Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards https://www.ready.gov/severe-weather Retrieved July 2022

[45] http://en.wikipedia.org/wiki/hail

TABLE 10-1: HISTORY OF EXTREME WEATHER

Year	Description
2005	February 24, Lightning struck a girl in Moreno Valley. [46]
2008	March 23, Hail on Moreno Beach Drive in Moreno Valley. The nickel size hail damaged awnings and trees. [47]
2008	May, 22, Heavy rain from thunderstorms. 28 residences were flooded and damaged in the northeast Moreno Valley. [48]
2008	December 26, Freezing temperatures in Moreno Valley, (31°)[49]
2010	December 30, Freezing temperatures in Moreno Valley, (32°)[50]
2012	August 30 – Flooding and Heavy Rain in Moreno Valley. Rainfall of 1.53 inches fell in one hour at March AFB in Riverside.[51]
2012	September 28 – Extreme Heat in surrounding areas. Temperatures expected to range between 99 to 109 degrees Fahrenheit.[52]
2013	December 5 – Freezing weather in the surrounding area. A storm is delivering a quarter inch of rain and 4 to 8 inches of snow in the mountains.[53]
2015	July 21 – Flooding and Heavy Rain in Moreno Valley. Downpour dumped 1.5 inches of rain on the northwest portion of the city in 45 minutes.[54]
2016	June 20 – Extreme Heat Conditions with temp of 109 and low humidity made fire danger high.

[46] http://www.wrh.noaa.gov/sgx/document/weatherhistory.pdf

[47] http://weathercurrents.com/morenovalley/PhotoDisplay.do?Id=9&Story=main/22May2008Hail

[48] http://www.wrh.noaa.gov/sgx/document/weatherhistory.pdf

[49] http://weathercurrents.com/morenovalley/NewsItemDisplay.do?Id=527

[50] http://weathercurrents.com/morenovalley/NewsItemDisplay.do?Id=704

[51] http://www.pe.com/articles/valley-652399-storm-moreno.html Retrieved July 2022

[52] https://www.ncdc.noaa.gov/stormevents/ Retrieved July 2022

[53] http://www.pe.com/articles/cold-682944-plants-snow.html Retrieved July 2022

[54] http://www.pe.com/articles/storm-774196-city-insurance.html Retrieved July 2022

2017	Moreno Valley experienced 36 days with temperatures over 100 degrees; conditions were dry and created high fire danger[55].
2018	Moreno Valley only received just over 4" of rain the entire winter, creating dry fuel conditions. There were 26 days of 100 degree or higher heat between May and August.[57]
2019	Moreno Valley received 19.12" of rain this year and 32 days were above 100 degrees[57].
2020	September 6th Moreno Valley experienced its highest temperature of 115 degrees o on a day that averages 82 degrees; it also received its lowest recorded temperature for the year of 31 degrees on a day that averages 54 degrees[57].
2021	Moreno Valley experienced 42 days with temperatures over 100 degrees and precipitation levels peaked at 11.76" [57].

10.1.2 EXTREME WEATHER PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.

10.2 EXTREME WEATHER VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged. Extreme weather can cause cascading hazards such as pipeline incidents, transportation incidents, power outages, hazardous materials incidents, and civil unrest.

The city will open Warm and Cool centers at the Senior Center and the Library to provide drop-in sites for vulnerable individuals, seniors, the disabled, and others in need of temporary relief from the extreme weather.

To ensure the safety of the population, the city follows guidelines to prepare and respond to the effects of extreme weather that exceed what is considered normal for the geographic locale. Riverside University Health System Public Health issues extreme weather advisories in partnership with National Weather Service (NWS) as outlined below.

[55] https://weathercurrents.com/morenovalley/Archive2021.do Retrieved July 2022

TABLE 10-2: NATIONAL WEATHER SERVICE WEATHER ADVISORIES

Advisory	Description
Heat Advisory Excessive Heat Outlooks	Outlooks are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to those who need considerable lead-time to prepare for the event.
Excessive Heat Watches	Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
Heat Advisory	A heat advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule for this Advisory is when the maximum heat index temperature is expected to be 100° or higher for at least 2 days and nighttime air temperatures will not drop below 75°. Inland Empire: 103° or higher (June-Sept) / 100° or higher (Oct) Mountains: 95° or higher (June-Sept) / 90° or higher (Oct) Low Desert: 112° or higher (June-Sept) / 108° or higher (Oct)

Advisory	Description
Excessive Heat Warning	Excessive heat warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule for this Warning is when the maximum heat index temperature is expected to be 105° or higher for at least 2 days and nighttime air temperatures will not drop below 75°. Inland Empire: 108° or higher (June-Sept) / 105° or higher (Oct) Mountains: 100° or higher (June-Sept) / 95° or higher (Oct) Low Desert: 115° or higher (June-Sept) / 113° or higher (Oct)
Cold Warning	A Cold Warning is issued when temperatures are expected to fall below 40˚.

Source: Community Action Partnership[56]

Impact to Population and Structures: The impact to the population from lightning strikes, hail or freezing and/or extreme heat could involve injuries and/or deaths.

For heat, the city's population is susceptible to heat exhaustion and heat stroke. The elderly, children, people with functional needs and those that have pre-existing medical conditions are especially susceptible to heat injuries during extreme heat.

Structures may be vulnerable to damage from varying types of extreme weather. Extreme heat also has potential to impact vegetation.

Impact to Essential Facilities/Historical Sites: Essential facilities and/or historical sites may be susceptible to damage from types of extreme weather. Extreme heat may also impact vegetation.

Impact to Infrastructure: Extreme weather may cause power outages and disruptions to communications and transportation.

[56] https://www.capriverside.org/ Retrieved July 2022

Development Trends: Since vulnerability to extreme weather is citywide, future development trends are not expected to impact the vulnerability to extreme weather. New development is shown in Appendix C.

10.2.1 EXTREME WEATHER VULNERABILITY – POTENTIAL LOSS

Multiple structures throughout the city have the potential to be impacted by extreme weather. For example, if a lightning event were to damage the Conference and Recreation Center, located on Frederick Street, the potential loss could be from structural and infrastructure damage. The value of the building is $12,252,110 (does not include contents). It is estimated that the potential loss could be 1% of the value, which would be $122,521. There are no known repetitive loss properties.

CHAPTER 11: SEVERE WIND

Moreno Valley Rating: Severity = 2 Probability = 3

11.1 SEVERE WIND PROFILE – OVERVIEW

Winds around Moreno Valley are generally cyclic, blowing from the southwest and west, especially in the summer and during the day. At night, especially during the winter, a weak offshore breeze occurs. Occasionally in the fall these cyclical breezes are interrupted by strong, dry, warm desert winds (Santa Anas) from the north/northeast.
Riverside County follows wind warnings based on NWS criteria as shown below.

TABLE 11-1: NATIONAL WEATHER SERVICE WIND ADVISORIES

Advisory	Description
High Wind Watch	A High Wind Watch is issued when the following conditions are possible: 1) sustained winds of 40 mph or higher for one hour or more OR 2) wind gusts of 58 mph or higher for any duration.
High Wind Warning	A High Wind Warning is issued when the following conditions are expected: 1) sustained winds of 40 mph or higher for one hour or more OR 2) wind gusts of 58 mph or higher for any duration.
Wind Advisory	A Wind Advisory is issued when the following conditions are expected:

	1) sustained winds of 31 to 39 mph for an hour or more. AND/OR 2) wind gusts of 46 to 57 mph for any duration.
Extreme Wind Warning	An Extreme Wind Warning is issued for surface winds of 100 knots (115 MPH) or greater associated with non-convective, downslope, derecho (NOT associated with a tornado), or sustained hurricane winds are expected to occur within one hour.

Source: National Weather Service[57]

11.1.1 SEVERE WIND PROFILE – PREVIOUS OCCURRENCES

The City of Moreno Valley and surrounding area has a history of chronic windstorms. While extremely rare, the Moreno Valley area is also susceptible to tornadoes. In May of 2008, two tornadoes barreled across I-215 south of March Air Reserve Base, knocking over a tractor trailer and several box cars from a nearby train.[58]

Figure 11-1: May 2008 Two Tornadoes Touch Down Across I-215[59]

[57] https://www.weather.gov/lwx/WarningsDefined Retrieved July 2022

[58] http://www.pe.com/articles/zone-788341-elsinore-lake.html Retrieved July 2022

[59] Photo From Anonymous Author

TABLE 11-2: HISTORY OF SEVERE WIND/TORNADOES NEAR MORENO VALLEY

Year	Description
1955	Tornado north of Moreno Valley[60]
1982	Tornado in Riverside.
1996	Tornado in Cabazon. Threw a 5-ton mobile home 30 feet. Minor damage to six other mobile homes.
1998	Tornado in Homeland, Funnel clouds in in Homeland and Moreno Valley. Damage to mobile homes on Homeland.
2005	A tornado hit Hemet. A funnel cloud was reported in Mira Loma. The tornado picked up a storage shed in Diamond Valley and threw it into a power pole.
2005	A tornado struck Hemet. Trees downed.
2005	60 -70 mph winds hit the Hemet, Canyon Lake, and Menifee region.
2006	50 mph+ winds demolished the “M” on Box Springs Mountain, above Moreno Valley
2008	May 22, Four Tornadoes touched down near Moreno Valley, one was rated on the Enhanced Fujita Scale an EF-2 and was on the ground for an exceptional 21 minutes. 9 railroad cars were derailed. A semi-truck was lifted 30 -40 feet in the air, severely injuring the driver. Damage to roofs, trailers and sheds occurred.[61]
2015	Wind speeds of up to 52 mph hit Moreno Valley, causing major limb loss and or tree uprooting.

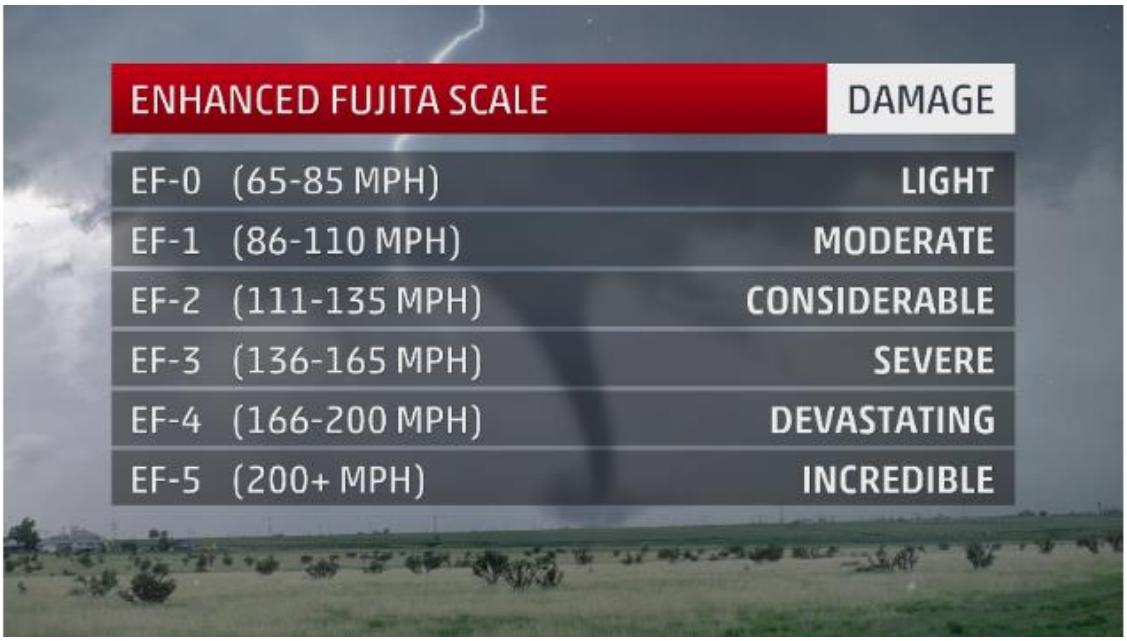
The original Fujita scale, which was developed in 1971 and ranges from F0 to F5, is based upon the type and severity of damage a tornado produced. The Enhanced Fujita (EF) Scale was devised by a panel of meteorologists and engineers convened by the Wind Science and Engineering Research Center at Texas Tech University[62].

[60] https://data.desertsun.com/tornado-archive/california/9990151/ Retrieved July 2022

[61] https://data.desertsun.com/tornado-archive/california/102641/ Retrieved July 2022

[62] https://weather.com/storms/tornado/news/enhanced-fujita-scale-20130206 Retrieved July 2022

FIGURE 11-1.1: ENHANCED FUJITA SCALE[63]



11.1.2 SEVERE WIND PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year.

11.2 SEVERE WIND VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged. Severe wind could cause cascading hazards such as transportation and hazardous materials incidents, power outages, fires, and pipeline incidents.

Impact to Population and Structures: Severe wind and/or tornadoes could cause major injuries. The potential for impaled objects exists as well. Severe wind and/or tornadoes also pose damage to structures and cause an increased chance of fires.

[63] https://weather.com/storms/tornado/news/enhanced-fujita-scale-20130206 Retrieved July 2022

Impact to Essential Facilities/Historical Sites: Severe wind and/or tornadoes could cause damage to essential facilities and/or historical sites and cause an increased chance of fires.
Impact to Infrastructure: Severe wind and/or tornadoes could cause power outages.
Development Trends: Future development of buildings, structures, critical facilities, and infrastructure could be impacted by severe winds and/or tornadoes; however, there are no recommendations for changes to development trends. New development is shown in Appendix C.

11.2.1 SEVERE WIND VULNERABILITY – POTENTIAL LOSS

Multiple structures throughout the city have the potential to be impacted by severe wind. For example, if a severe wind event were to occur, causing a power outage near the Moreno Valley Mall area during mall hours, the potential loss could be loss of retail sales and the cost to restore power. Due to limitation of data available, it is not possible to estimate the potential loss. There are no known repetitive loss properties.

CHAPTER 12: DAM FAILURE/INUNDATION

Moreno Valley Rating: Severity = 2 Probability = 2

12.1 DAM FAILURE/INUNDATION PROFILE – OVERVIEW

Dam inundation is a potential flood hazard in several portions of Moreno Valley from two dams: Pigeon Pass Dam (Poorman's Reservoir) and Perris Dam.

Pigeon Pass Dam: Failure of the Pigeon Pass Dam (Poorman's 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.

Perris Dam: Failure of the Perris Dam 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 Moreno Valley.

In 2005, a study by the state found that the Perris Dam likely would crumble in the range of a 7.5 magnitude earthquake, unleashing billions of gallons of water across western Riverside County. After that, the lake was dropped 25 feet to a safer level and will remain there until repairs can be completed. The seismic repairs began in October 2014 and have been completed.[64]

During remediation, the state injected cement and soil into the deepest and most unstable parts of the dam's foundation so it will better withstand shaking from an earthquake. A stability berm was built on top of the new foundation, allowing the lake to be taken to its previous level. A new outlet tower to funnel lake water into the regional drinking water system was also built.

A two-mile-long emergency channel has been constructed next to the Ramona Expressway so large water releases during a disaster would mostly be directed away from neighborhoods and into a storm drain.

The Perris dam constantly assessed and monitored.

[64] http://www.water.ca.gov/lakeperris/

Figure 12-1: Perris Dam Construction Project[65]

A map of Moreno Valley 100-year flood, 500-year flood, and dam inundation is included in Chapter 6 (Figure 6-1). Table 12-1 shows a summary of Pigeon Pass and Perris Dam information.

TABLE 12-1: PIGEON PASS AND PERRIS DAM INFORMATION SUMMARY

Dam	Height	Storage (acre-feet)	Year Built	Drainage Area (square miles)
Pigeon Pass	36	900 (approx. 293,000 gal)	1958	8.71
Perris	130	2,340 (approx. 42,834,000 gal)	1973	10

[65] http://www.water.ca.gov/lakeperris/ Verified November 7, 2016, Retrieved July 2022

12.1.1 DAM FAILURE/INUNDATION PROFILE – PREVIOUS OCCURRENCES

There are no previous occurrences of dam failure/inundation.

12.1.2 DAM FAILURE/INUNDATION PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

12.2 DAM FAILURE/INUNDATION VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged. For information about flooding, see Chapter 6. Dam failure/inundation could cause cascading hazards such flooding, pipeline hazards, transportation, power outages and hazardous materials incidents.

Impact to Population and Structures: The population in the dam inundation areas could be requested to evacuate. Seniors and individuals with access and functional needs may need special assistance to evacuate. An evacuation map (Figure 12-2) shows the nearby population to the inundation area. There could be damage to structures in the inundation areas affected by flood waters.

Impact to Essential Facilities/Historical Sites: Failure of the Perris Dam 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 Moreno Valley. While two schools, Rancho Verde High School, and El Potrero Elementary School, are not located in the inundation area, they may be impacted by an evacuation. The schools near (not in) the inundation area is shown on the evacuation map (Figure 12-2). No historical sites are within the dam inundation area.

Impact to Infrastructure: An evacuation could impact transportation routes.

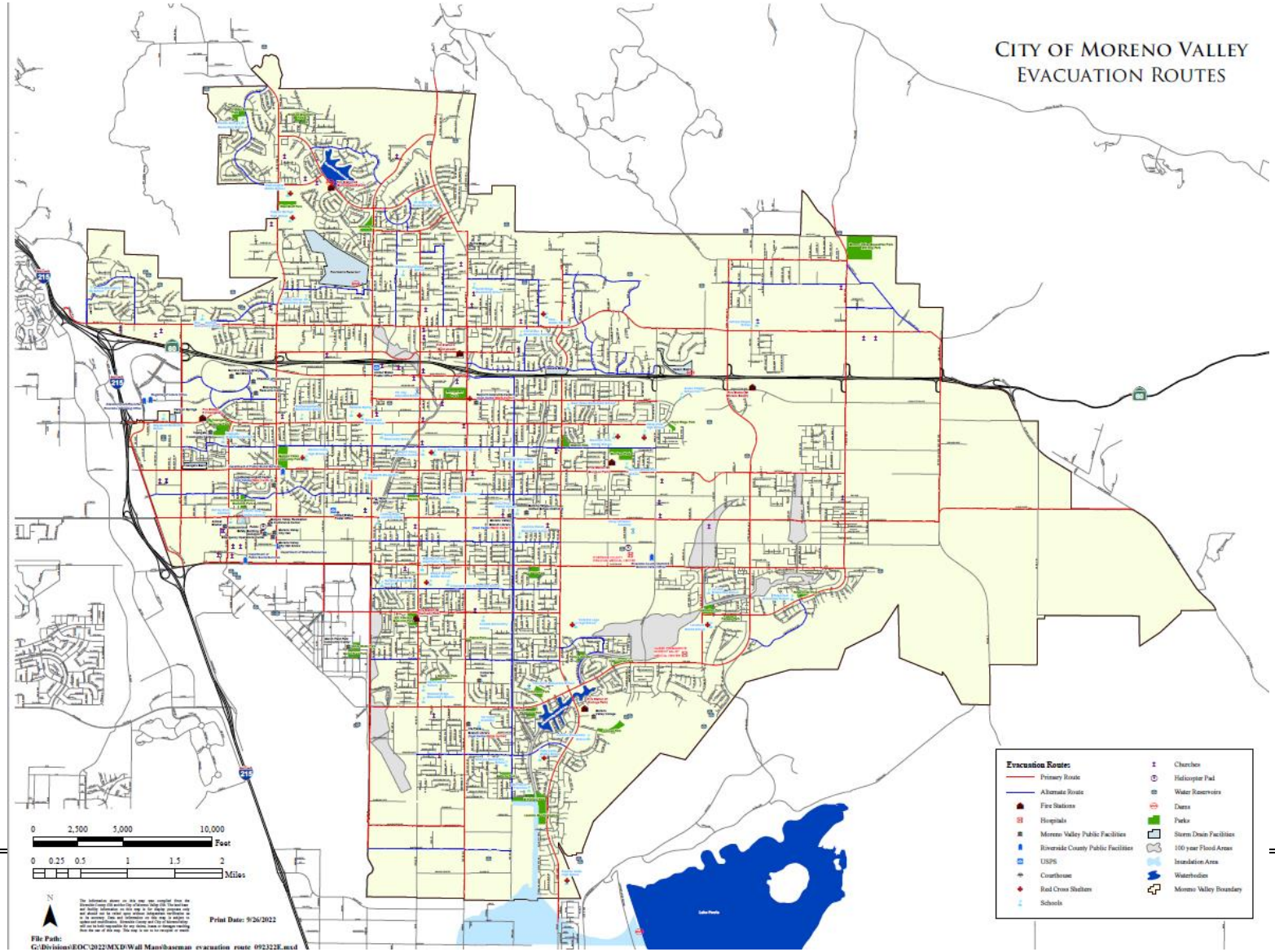
Development Trends: Future development will result in an increased demand for flood control and drainage services. Moreno Valley participates in the NFIP as well as the voluntary CRS, which is administered by FEMA. The NFIP program provides federal flood insurance and federally financed loans for property owners in flood prone areas. For more information about the city's participation in NFIP and CRS, see Chapter 20.4: National Flood Insurance Program. To qualify for

federal flood insurance, the city must identify flood hazard areas and implement a system of protective controls. In addition, all development is required to comply with Riverside County Flood Control and Water Conservation District requirements for construction of master drainage plan facilities. New development is shown in Appendix C.

12.2.1 DAM FAILURE/INUNDATION VULNERABILITY – POTENTIAL LOSS

f a dam failure occurred at Perris Dam, the potential loss would be limited to a very small area south of Nandina Avenue along the Perris Valley Storm Drain in the southeast corner of Moreno Valley. See Chapter 6 for losses related to flooding. There are no repetitive loss properties.

FIGURE 12-2: CITY OF MORENO VALLEY EVACUATION MAP – REVISED SEPTEMBER 6, 2022



CHAPTER 13: PIPELINE

MORENO VALLEY RATING: SEVERITY = 2 PROBABILITY = 2

13.1 PIPELINE PROFILE – OVERVIEW

Natural gas, oil, water, and sewer are transported via pipeline, mostly by underground pipes in developed and urban areas.

Water: Most of the city's water is imported via the California Aqueduct from northern and central California. Box Springs Mutual Water Company serves a small portion of the community, while Eastern Municipal Water District (EMWD) has been the primary purveyor of water in Moreno Valley since the early 1950[66].

EMWD completed a major water supply line along Perris Boulevard in 1954 through which water became available in 1955. The existing water companies were responsible for connecting to the main water supply system, including the Edgemont Gardens Mutual Water Company and the Sunnymead Mutual Water Company. An underground segment of the aqueduct runs from the northwest corner of Moreno Valley to Lake Perris. Water from Lake Perris is pumped to the Mills Filtration Plant in the City of Riverside before it is distributed to Moreno Valley customers.

Natural Gas: The Southern California Gas Company maintains a comprehensive system of distribution and service lines throughout the city. In addition to local lines, two major 30-foot-wide transmission lines cross Moreno Valley. Line number "2001" is located on Cottonwood Avenue and line number "2000" is located on Brodiaea Avenue. Both lines run east-west through the entire city.

There are also 8-inch and 12-inch major distribution supply lines located on Indian Avenue, running north from Brodiaea Ave through Moreno Valley. All of these are considered "high-pressure" lines, meaning that they contain over 60 pounds per square inch (psi).

There is also an aviation fuel line that runs through Moreno Valley, however, this line no longer provides fuel to March Air Reserve Base.

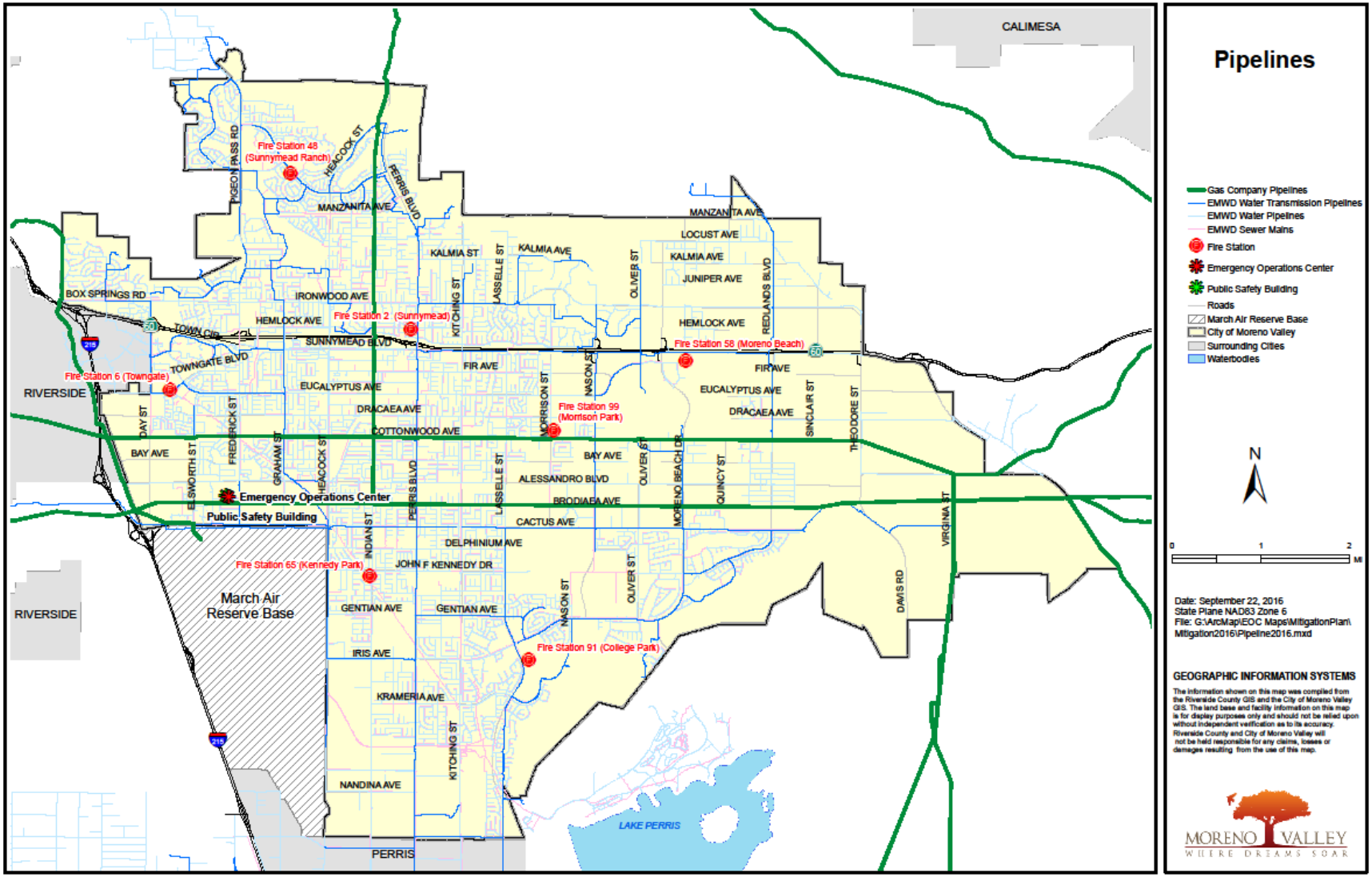
[66] https://www.socalgas.com/ Retrieved July 2022

Located in the city, the Moreno Valley Pressure Limiting Station (PLS) is capable of receiving 800 million standard cubic feet per day (MMscfd) of natural gas at 850 pounds per square inch gage (PSIG) from the Adelanto Compressor Station. The Moreno Valley PLS will allow gas from the new Adelanto to Moreno Pipeline and from the new Moreno to Whitewater Pipeline to flow into any of the existing lines at the Moreno Valley PLS.[67]

Sewer: Eastern Municipal Water District operates over 356 miles of sewer mains (12" and above) and six sewage lift stations to provide wastewater collection services within Moreno Valley. All wastewater is collected and conveyed to the Moreno Valley Regional Water Reclamation Facility located in the southwestern portion of the city and has a capacity to treat 16 million gallons of wastewater per day (mgd) and a capacity to expand to 41 mgd. Sewer services for the southwestern Moreno Valley are provided by the Edgemont Community Services District. The District provides wastewater treatment under contract with the City of Riverside. According to the District, the pipes that transmit sewage to the City of Riverside Water Quality Control Plant are over 50 years old and are in need of repair.

[67] https://www.emwd.org/ Retrieved July 2022

Figure 13-1: City of Moreno Valley Pipeline Map



13.1.1 PIPELINE PROFILE – PREVIOUS OCCURRENCES

Moreno Valley and the surrounding area have a history of pipeline ruptures, spillage and vandalism to natural gas and sewer lines. Table 13-1 shows incidents dating from 1991.

TABLE 13-1 MORENO VALLEY AREA NATURAL GAS AND SEWER LINE INCIDENTS

Year	Description
2008	450 gallons of sewage discharged at 13874 Rockcrest Drive[68]
2008	1,500 gallons of sewage discharged at 12080 Pigeon Pass[69]
2008	450 gallons of sewage discharged at 13874 Rockcrest Drive[70]
2009	2,590 gallons of sewage released at Ironwood and Talbor[71]
2009	270 gallons of sewage released at Pan Am and Eucalyptus[72]
2009	7,000 gallons of sewage released at 23650 Hemlock[73]
2009	Two-inch underground gas line broke on Daimler Street between Margarita Street and Bay Avenue at 2 p.m. Two homes were evacuated. Repairs took three hours.[74]

68 https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_overview Retrieved July 2022

69 https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

70 https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

71 https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

72 https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

73 https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

74 https://www.pe.com/2022/06/30/riverside-residents-evacuated-after-crew-hits-gas-line/

2011	A four-to-five-inch natural gas main was ruptured on Cactus Avenue east of Moreno Beach Drive at a construction site.[75]
2011	1,140 gallons of sewage discharged at 12640 Memorial Way[76]
2011	6,500 gallons of sewage discharged at 12926 Indian Street[77]
2011	4-inch gas main was struck by a backhoe at Cactus Avenue and Wilmot. [78]
2016	Contractor breached 4-inch natural-gas line at Karma Automotive in the 17000 block of Perris Blvd.[79]

13.1.2 PIPELINE PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

13.2 PIPELINE VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged. Pipeline incidents could cause cascading hazards such as flooding, transportation and hazardous materials incidents, civil unrest and pandemic flu or disease.

Impact to Population and Structures: Pipeline incidents could impact the population by causing injuries, illness, or death. People affected may have to be evacuated or asked to shelter in place. Seniors and individuals with access and functional needs may need special assistance to evacuate. People could be

[75] https://www.pe.com/2011/08/14/inland-police-and-fire-reports-81411 Retrieved July 2022

[76] https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

[77] https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

[78] https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting Retrieved July 2022

[79] http://www.pe.com/articles/dug-808104-perris-evacuated.html Retrieved July 2022

asked to drink bottled water or to boil their water before drinking if sewage were to contaminate the water. Damage to structures and/or property may occur.

Impact to Essential Facilities/Historical Sites: Essential facilities and/or historical sites could be affected by pipeline incidents. Pipeline incidents could hinder emergency operations due to lack of water or evacuation of essential facilities.

Impact to Infrastructure: A pipeline incident would have a large effect on infrastructure. For instance, a sewer line rupture could contaminate water; a water line rupture could limit emergency responder's ability to fight fires; and a natural gas rupture could cause fires, evacuations and more.

Development Trends: An increase in development is expected to result in incremental increased demand for infrastructure. Future planned development is expected to be constructed utilizing Uniform Building Codes and design standards. New development is shown in Appendix C.

13.2.1 PIPELINE VULNERABILITY – POTENTIAL LOSS

Multiple structures throughout the city have the potential to be impacted by pipeline vulnerabilities. For example, if a gas line explosion were to occur at City Hall, the damage to the building and infrastructure could be significant and is estimated at $20 million. Additionally, a mainline event could disrupt gas delivery to and from the Adelanto area. There are no known repetitive loss properties.

CHAPTER 14: TRANSPORTATION

MORENO VALLEY RATING: SEVERITY = 2 PROBABILITY = 2

14.1 TRANSPORTATION PROFILE – OVERVIEW

The City of Moreno Valley has an extensive transportation network that includes state highways, arterials and local streets, public transit, and nearby rail. For purposes of this plan, transportation emergencies involve highways, arterials, and surface streets, as well as rail and air.

Highways and Arterials - SR-60 is a major regional east-west highway linking Moreno Valley to both neighboring and outlying communities. Additional regional east-west travel is provided by Box Springs Road/Ironwood Avenue, Sunnymead Boulevard and Alessandro Boulevard, all of which are maintained by the city. Sunnymead Boulevard serves as the traditional commercial corridor of Moreno Valley. Alessandro Boulevard serves as a major commercial and industrial corridor at its westerly end. Other major east-west routes within the city include Eucalyptus Avenue; Cottonwood Avenue; and Cactus Avenue.

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

Rail - The nearest railway is the Burlington Northern Santa Fe railway which runs parallel to I-215. A major train derailment could impact the City of Moreno Valley if the crash involved a hazardous materials spill.

Air - 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 land at each end of the runway is subject to significant danger of aircraft accidents during takeoff and landing, or by collision. The land below the landing approach is designated as the clear zone and is located at the northeast corner of Heacock Street and Oleander Avenue in the city.

Air crash zones are mapped into various categories: areas on or adjacent to the runway; areas within the areas within the clear zone; Accident Potential Zone (APZ) I; and Accident Potential Zone (APZ) II. The risk is greatest immediately under the takeoff and landing zone located at either end of the runway(s). 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.

FIGURE 14-1: CITY OF MORENO VALLEY TRANSPORTATION MAP

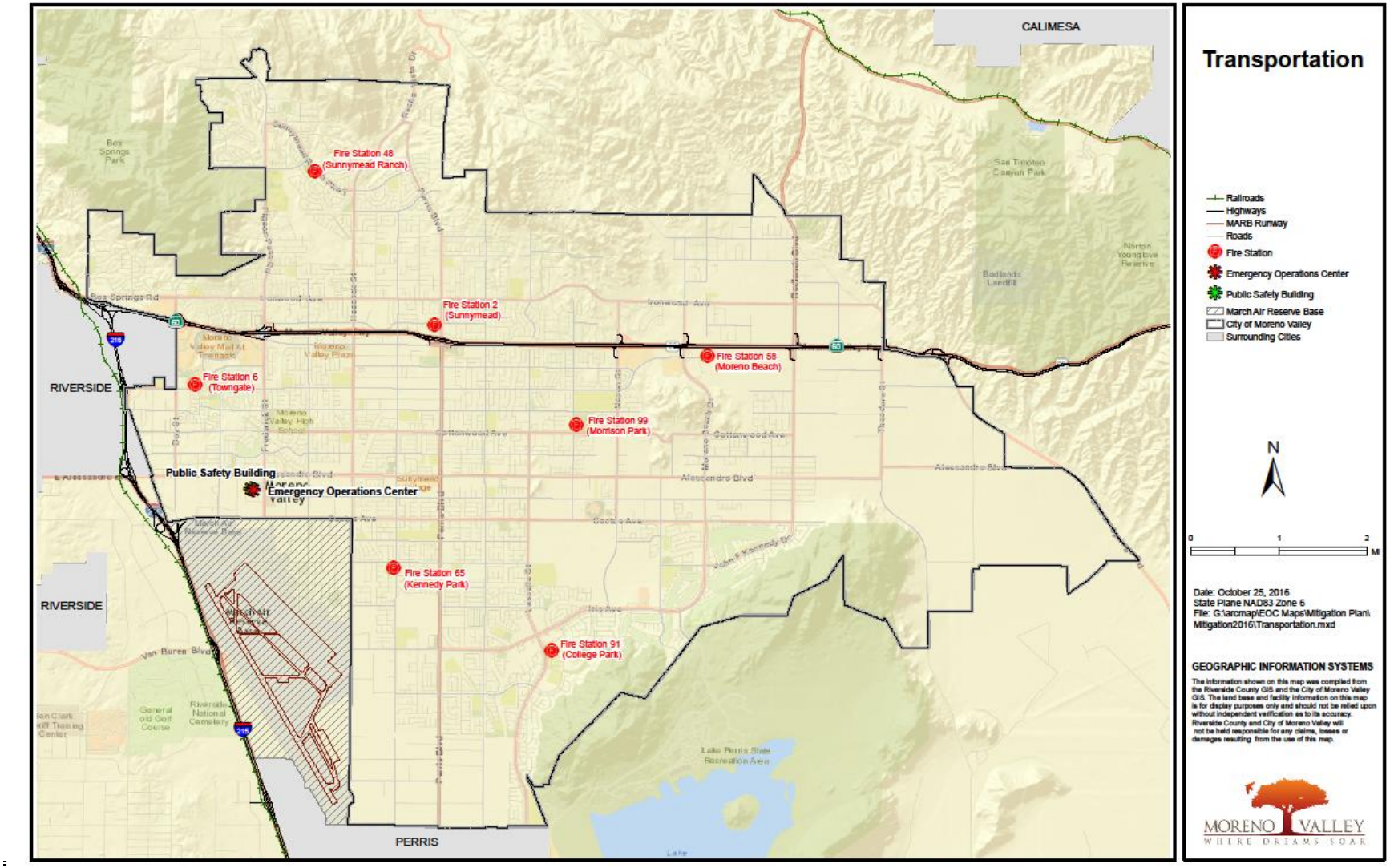
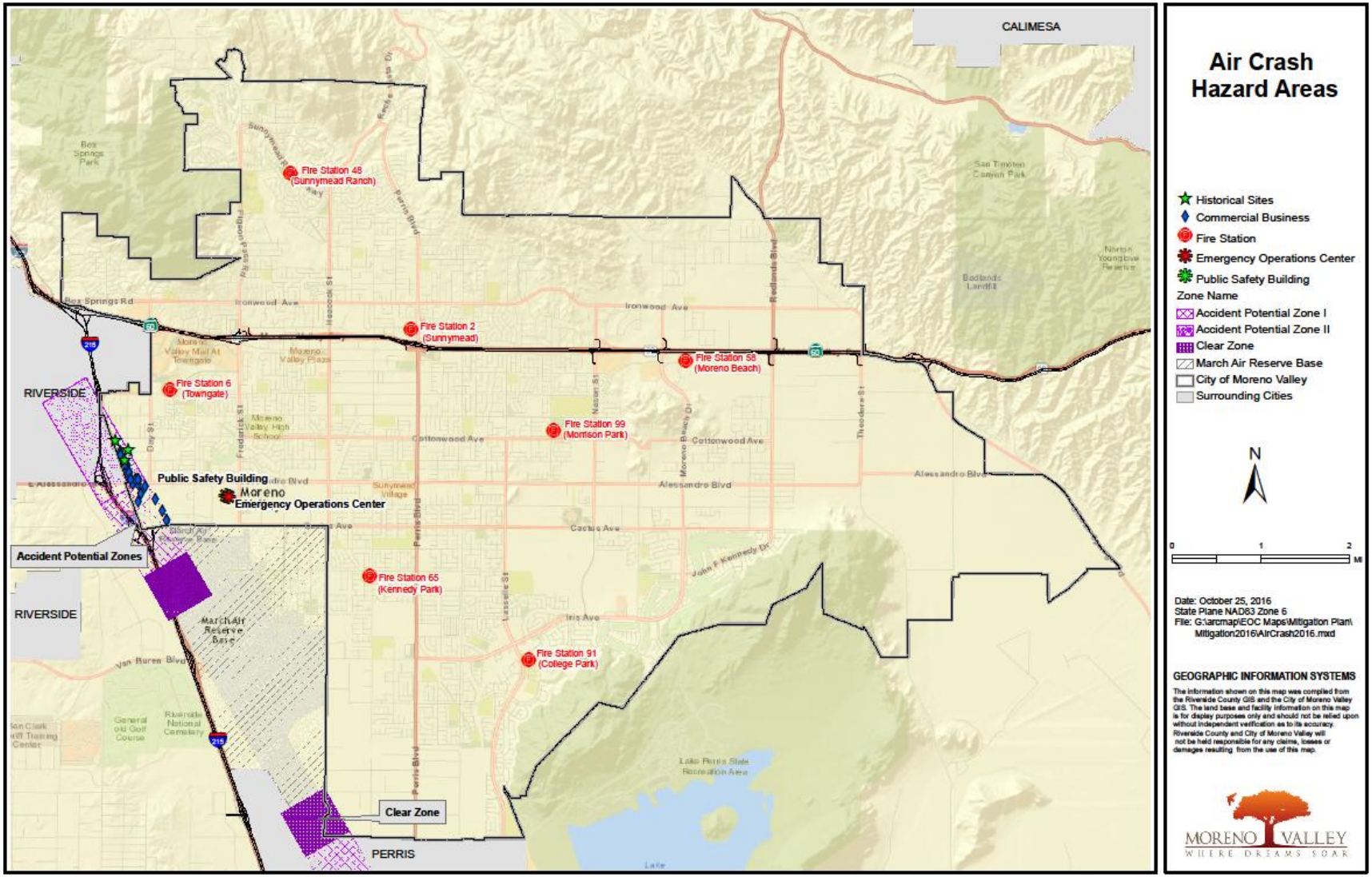


FIGURE 14-1.1: CITY OF MORENO VALLEY AIR CRASH HAZARD AREA MAP



14.1.1 TRANSPORTATION PROFILE – PREVIOUS OCCURRENCES

TABLE 14-1: MORENO VALLEY TRANSPORTATION HISTORY OF INCIDENTS

Year	Description
1998	Union Pacific train derailment occurred with 4,000 gallons of hazardous fuel near Moreno Valley in San Timoteo Canyon. Damage costs were estimated at $1.3 million.[80]
1999	Amateur built airplane crashes in a parking lot one mile from March Air Reserve Base.[81]
2003	18-wheeler tanker drives off the SR-60 overpass at Perris Boulevard.[82] Tanker truck explodes shortly after impact and there was a hazardous material spill.
2003	Train derailment in San Timoteo Canyon scatters 22 rail cars and three locomotives from two trains along the tracks.[83]
2005	Moreno Valley Fire Department fire engine rolls off eastbound Interstate 10 at SR-60 during severe rainstorm.[84]
2006	Nine engines derail in San Timoteo Canyon it to be closed between Alessandro Road and Redlands Boulevard. [85]
2010	Private plane runs out of fuel and crash lands in Moreno Valley at Cactus Avenue and Redlands Boulevard.[86]

[80] Press Enterprise, 1998

[81] https://planecrashmap.com/plane/ca/N3415M/ Retrieved July 2022

[82] Press Enterprise *Rib plunges off overpass* January 8, 2003

[83] https://www.latimes.com/archives/la-xpm-2003-sep-26-me-sbriefs26.2-story.html Retrieved July 2022

[84] https://www.firehouse.com/lodds/news/10506325/riverside-county-calif-firefighter-killed-in-freeway-rollover Retrieved July 2022

[85] https://www.trainorders.com/discussion/read.php?1,1228276 Retrieved July 2022

[86] https://www.sbsun.com/2010/12/13/plane-in-nov-21-crash-that-killed-3-south-bay-men-ran-out-of-fuel/ Retrieved July 2022

2010	Plane crashes near Lake Perris, killing the pilot.[87]
2011	18-wheeler truck turned on its side on eastbound SR-60 at Theodore due to the truck being driven too fast for the conditions. Driver was killed.
2011	18-wheeler semi-truck collides with RV on eastbound SR-60 at Perris Boulevard. 40 gallons of diesel fuel spill. [88]
2015	Construction equipment on a flatbed truck struck the westbound SR-60 overpass at Theodore Street. Pieces of the overpass fell into westbound lanes, striking some vehicles.[89]
2019	An F-16 with live ordinance on board crashed on the border of Moreno Valley and Riverside in the unincorporated area of Riverside County. No fatalities occurred. [90]

14.1.2 TRANSPORTATION PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

14.2 TRANSPORTATION VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged

Impact to Population and Structures: Highway, arterial roads, and streets as well as air and/or rail incidents could cause severe injuries and/or deaths. They could also cause burns and/or illness due to exposure to fires and/or potential hazardous materials on board. Structures could be damaged or could be used for sheltering.

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[87] https://www.nbclosangeles.com/news/local/pilot-killed-in-plane-crash-near-moreno-valley/1865440/ Retrieved July 2022

[88] https://kesq.com/news/2011/02/11/major-crash-on-highway-60-sends-two-to-hospital/ Retrieved July 2022

[89] http://www.pe.com/articles/bridge-759303-westbound-struck.html Retrieved October 31, 2016

[90] https://www.desertsun.com/story/news/nation/2019/05/16/f-16-fighter-jet-crashes-march-air-reserve-base-california/3700934002/ Retrieved July 2022

Impact to Essential Facilities/Historical Sites: Essential facilities could be damaged or impacted by cascading hazards such as power outages, pipeline ruptures or hazardous materials incidents from transportation hazards.
Impact to Infrastructure: Infrastructure could be impacted by cascading hazards such as power outages, pipeline ruptures or hazardous materials incidents from transportation hazards.

Development Trends: Development is expected to increase demand on transportation infrastructure. New residential developments in the eastern portion of the city will require the installation of additional infrastructure such as new roadways, water systems, and sewage disposal to serve these areas. Future development will comply with adopted land use standards, policies, and ordinances and will be compatible with land uses in surrounding areas. For air hazards, only open space uses are appropriate within the clear zone. New development is shown in Appendix C.

14.2.1 TRANSPORTATION VULNERABILITY – POTENTIAL LOSS

Air: There are 3 historical sites valued at $81,170 and 27 commercial businesses valued at $42,134,023 located within the air crash zone. Data is based on the structure value received from Riverside County Assessor (October 2016). No contents were valued.

Due to the limitation of data related to rail and highway losses within Moreno Valley, it is not possible to analyze the potential loss. There are no known repetitive loss properties.

CHAPTER 15: POWER OUTAGE

MORENO VALLEY RATING: SEVERITY = 3 PROBABILITY = 4

15.1 POWER OUTAGE PROFILE – OVERVIEW

A power failure can range in magnitude and impact from a relatively modest power outage to a catastrophic regional blackout. Power outages may affect a specific area of the City of Moreno Valley or the entire city.

15.1.1 POWER OUTAGE PROFILE – PREVIOUS OCCURRENCES

The City of Moreno Valley has been affected by power outages in the past for various reasons, such as severe winds, storms and damaged power equipment

and equipment failures. Table 15-1 shows a history of power outages affecting the City of Moreno Valley.

Table 15-1: History of Power Outages in Moreno Valley

Year	Description
1998	Power outage affects Moreno Valley causing Canyon Springs High School to delay basketball games. [91]
2003	High winds cause power outage in Moreno Valley.[92]
2005	Power outage for the Lasselle circuit occurs due to a storm. 466 Moreno Valley Utility customers are without power for 2 hours, 5 minutes.[93]
2006	1,175 residents are without power for 2 hours when Moreno Valley Utility's Lasselle Circuit goes down. [94]
2006	1,245 residents are without power for 3 ½ hours when Moreno Valley Utility's Cactus circuit goes down. [95]
2006	950 residents are without power for 1 hour 5 minutes when Moreno Valley Utility's Globe circuit goes down. [96]
2006	1,175 residents are without power for 5 hours, 50 minutes when Moreno Valley Utility's Lasselle circuit goes down. [97]
2006	1,245 residents are without power for 3 ½ hours when Moreno Valley Utility's Cactus circuit goes down. [98]

[91] http://www.socalhoops.tierranet.com/archive/prepnotes/Feb98/riv211c.htm Retrieved September 27, 2011

[92] MTV-3 provided photographs of wind event that occurred in 2003 showing downed power lines

[93] Information provided by Moreno Valley Utility on September 27, 2011

[94] Information provided by Moreno Valley Utility on September 27, 2011

[95] Information provided by Moreno Valley Utility on September 27, 2011

[96] Information provided by Moreno Valley Utility on September 27, 2011

[97] Information provided by Moreno Valley Utility on September 27, 2011

[98] Information provided by Moreno Valley Utility on September 27, 2011

2006	Power outage due to a prolonged heat wave affects Moreno Valley.[99]
2007	Planned power outage by Southern California affects 800 residents in the area between Moreno Beach Drive and Redlands Boulevard and extends from Eucalyptus and Dracaea avenues on the north, to Cottonwood and Bay avenues on the south.[100]
2009	Southern California Edison power outage affects 268,000 residents in Riverside County for 10 minutes, including residents in Moreno Valley.[101]
2010	Southern California Edison power outage affects residents in Riverside County, including Moreno Valley.[102]
2010	3,906 Moreno Valley Utility customers lose power for 58 minutes.[103]
2010	890 Moreno Valley Utility customers lose power for 1 hour 6 minutes.[104]
2010	High winds caused power outages statewide, 4,000 residents affected in Moreno Valley.[105]
2010	200 Moreno Valley Utility customers lose power for 14 hours 37 minutes when a vehicle collides with a capacitor bank.[106]
2011	Massive power outage affecting electric customers in western Arizona, Southern California, and northern Baja, Mexico has an

[99] http://www.edison.com/pressroom/pr.asp?bu=sce&year=0&id=6317 Retrieved September 27, 2011

[100] http://www.pe.com/localnews/morenovalley/stories/PE_News_Local_R_rpower19.5eda61.html Retrieved September 27, 2011

[101] http://weathercurrents.com/morenovalley/NewsItemDisplay.do?Id=548 Retrieved September 27, 2011

[102] http://www.nbclosangeles.com/news/local/Large-Power-Outage-in-Riverside-County.html Retrieved September 27, 2011

[103] Information provided by Moreno Valley Utility on September 27, 2011

[104] Information provided by Moreno Valley Utility on September 27, 2011

[105] http://www.fema.gov/emergency/reports/2010/nat012010.shtm September 27, 2011

[106] Information provided by Moreno Valley Utility on September 27, 2011

	impact on Moreno Valley as residents from those areas travel to cities with power.[107]
2011	Blackout continues to affect 1,808 homes and businesses in Moreno Valley where officials are uncertain of the cause and when repairs will be completed.[108]
2012	Power to more than 2,500 customers was cut after downed power lines draped over roofs, fences and into pools in Moreno Valley.[109]
2013	Equipment failure caused power outage for 1,115 Moreno Valley Utility customers for 73 minutes.[110]
2014	5,597 Moreno Valley Utility customers without power for 3 minutes.[111]
2015	All-day blackout affected 369 Moreno Valley homes, businesses[112]
2016	Moreno Valley blackout affected 10,000 homes[113]

15.1.2 POWER OUTAGE PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 4, which means that it is highly likely and there is a near 100% chance that it will occur within the next year.

15.2 POWER OUTAGE VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 3, which means that there is a potential for critical damage, causing injuries and/or illnesses resulting in permanent disability,

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[107] http://en.wikipedia.org/wiki/2011_Southwestern_United_States_blackout Retrieved September 27, 2011

[108] http://www.pe.com/articles/area-628481-began-lasselle.html Retrieved November 3, 2016

[109] http://www.nbclosangeles.com/news/local/Moreno-Valley-Downed-Power-Lines-146915005.html Retrieved November 3, 2016

[110] Information provided by Moreno Valley Utility on November 3, 2016

[111] Information provided by Moreno Valley Utility on November 3, 2016

[112] http://www.pe.com/articles/homes-769043-blackout-moreno.html Retrieved November 3, 2016

[113] http://www.pe.com/articles/website-818261-nov-california.html Retrieved November 15, 2016

complete shutdown of critical facilities for two weeks and/or 25% to 49% of property is severely damaged. Power outages could cause cascading hazards such as transportation incidents, civil unrest, and disease.

Loss of electric power could have a major impact on the City of Moreno Valley and its citizens.

Impact to Population and Structures: The impact to the population from loss of power may include disruption of power to critical medical devices. Medical conditions could be affected by an increase of temperatures due to loss of the use of air conditioners or fans. Loss of lighting and the inability to keep perishables refrigerated would also impact the population. Structures would be impacted due to loss of power to elevators, lighting, air conditioning, communications and other systems that may not operate without a generator or alternate power sources.

Impact to Essential Facilities/Historical Sites: Essential facilities would be impacted due to loss of power to elevators, lighting, air conditioning, communications and other systems that may not operate without a generator or alternate power sources. A power outage could impact emergency operations. Historical sites within Moreno Valley would be impacted the same as structures listed above.

Impact to Infrastructure: Loss of power would severely impact infrastructure. It would affect traffic signals, which would increase in the probabilities of traffic collisions, and various types of communication infrastructure which could fail after prolonged power outage.

Development Trends: New development will result in an additional demand for electricity; however, General Plan objectives and associated policies encourage the efficient use of energy, including passive cooling with landscaping and the use of solar power. New development is shown in Appendix C.

15.2.1 POWER OUTAGE VULNERABILITY – POTENTIAL LOSS

If a power outage were to occur citywide for eight hours, the potential would be limited to loss of perishables, cost of fuel to run generators, potential for damage to vehicles from traffic accidents and loss of income to commercial businesses. Potential losses from days-long or longer outages could escalate exponentially in terms of financial and human costs as powered medical infrastructure fails. There are no repetitive loss properties.

CHAPTER 16: HAZARDOUS MATERIALS ACCIDENT

MORENO VALLEY RATING: SEVERITY = 3 PROBABILITY = 3

16.1 HAZARDOUS MATERIALS PROFILE – OVERVIEW

Hazardous materials are any substance or combination of substances that may pose a risk to human health and safety or to the environment. Hazardous materials include toxic, corrosive, infectious, flammable, explosive and radioactive materials. Businesses, public or private institutions and private households all use or generate hazardous materials to some extent. Some of the larger businesses use certain classes of hazardous materials that require accidental release scenario modeling in order to plan, prepare and respond to the worst-case scenario.

Hazardous materials are routinely manufactured, used, stored, or transported in nearly every community and could therefore occur throughout the City of Moreno Valley. The probability of hazardous materials spills is accentuated with the city being bordered by two major transportation corridors and that the region is susceptible to earthquakes. Loss of human and wildlife, as well as significant effects on the environment and substantial cleanup costs could have a large impact on the city.

A hazardous chemical release in the City of Moreno Valley would most likely occur either by transportation of chemicals, the use of chemicals at a business, or illegal dumping of chemical waste.

City of Moreno Valley Records indicate there is currently one business located in the city which exceeds the Federal and California threshold for storing chemicals and is required to file both Federal and California response plans. According to the County of Riverside Department of Environmental Health, the City of Moreno Valley has 38 sites permitted as underground or above ground storage tank facilities; 208 sites permitted as hazardous waste generator facilities; and 314 sites permitted as hazardous chemical disclosure facilities[114]. Figure 16-1 shows locations of hazardous material sites throughout Moreno Valley.

[114] Data provided electronically November 2, 2016 by County of Riverside Department of Environmental Health at city's Request

FIGURE 16-1: CITY OF MORENO VALLEY HAZARDOUS MATERIALS SITE LOCATIONS MAP – REVISED SEPT. 26, 2022

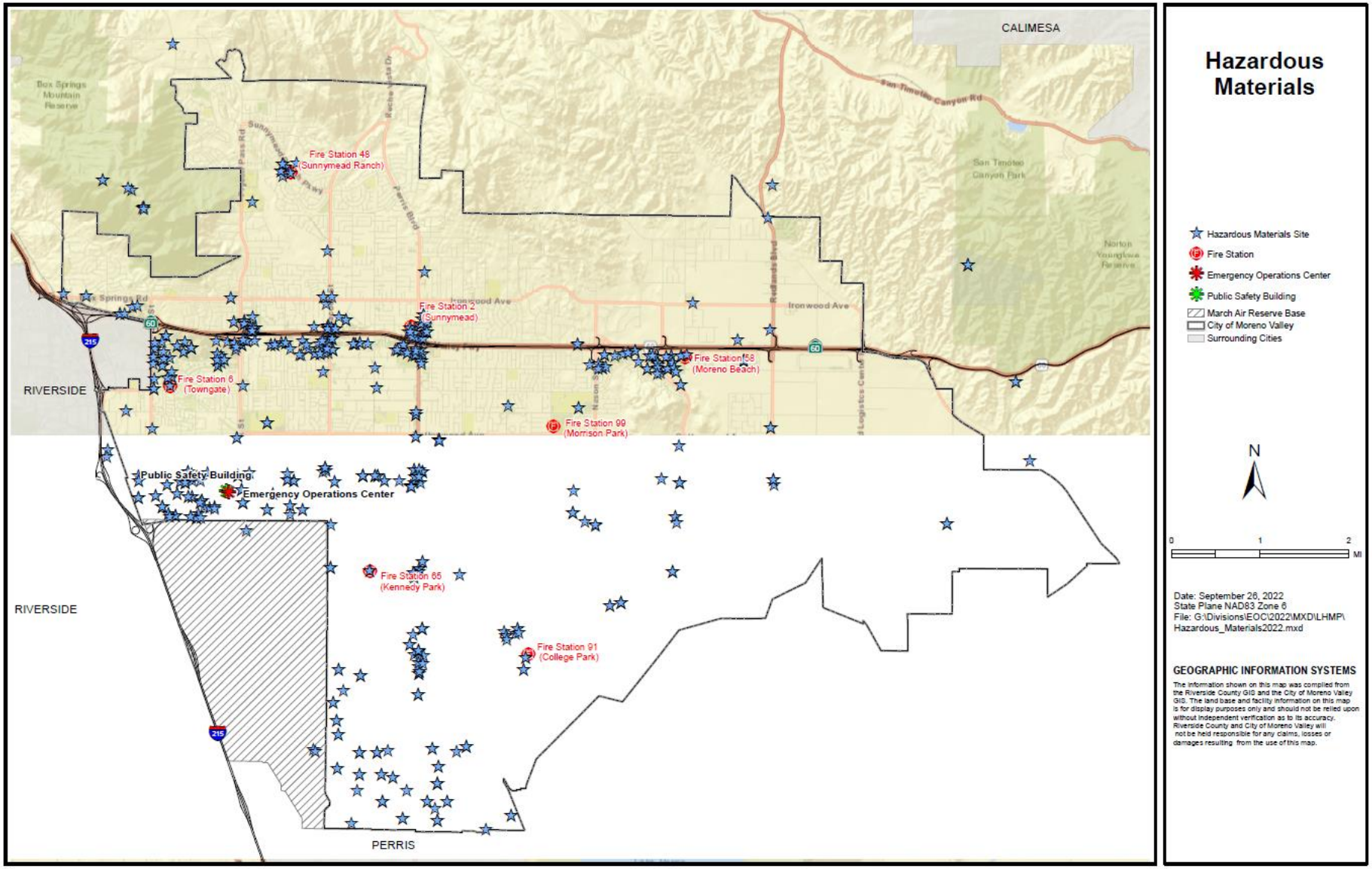
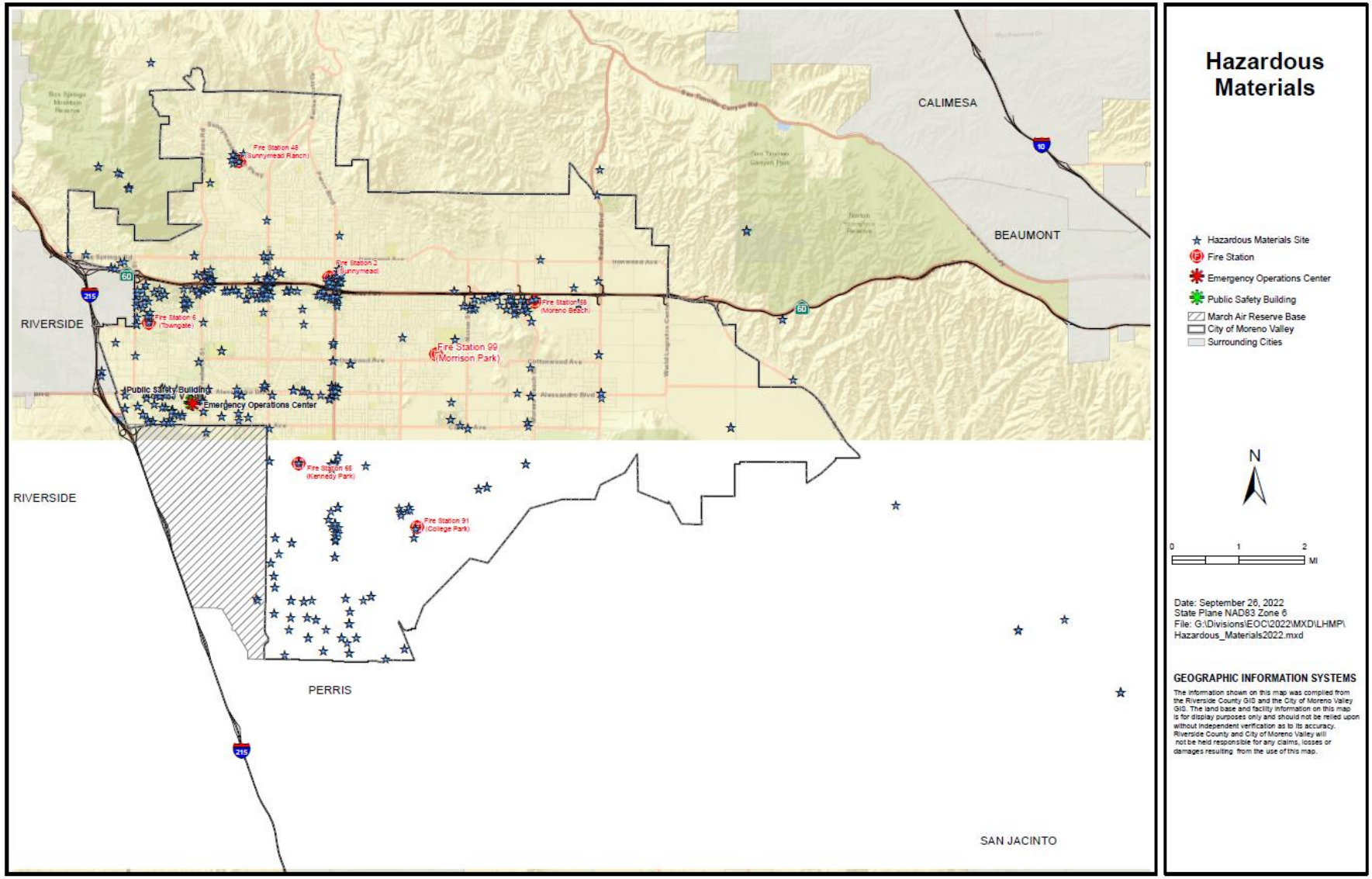


FIGURE 16-1: PART 2: CITY OF MORENO VALLEY HAZARDOUS MATERIALS SITE LOCATIONS MAP – REV. SEPT. 26, 2022



16.1.1 HAZARDOUS MATERIALS PROFILE – PREVIOUS OCCURRENCES

The following table describes hazardous materials incidents that have impacted Moreno Valley and surrounding area.

TABLE 16-1: MORENO VALLEY HAZARDOUS MATERIALS INCIDENT HISTORY

Year	Description
2008	Unknown amount of digester gas released at 17140 Kitching Street by Eastern Municipal Water District[115]
2008	30,000 cubic feet of methane gas released due to power outage at 17140 Kitching Street[116]
2008	70 gallons mineral oil at 21272 O'Casey Ct. due to an equipment failure of a pad mount transformer.[117]
2008	70 gallons mineral oil at 25944 Andre Ct due to an equipment failure of a pad mount transformer. [118]
2009	Westbound SR-60 just east of mile marker 24 in Moreno Valley is an 80-gallon diesel fuel spill.[119]
2010	46,885 cubic feet of digester gas was released at the EMWD facility located at 17140 Kitching Street. Attributed to a power loss to the pressure gauge that controls flare offs.[120]

[115] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202008.xls Retrieved September 26, 2011

[116] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202008.xls Retrieved September 26, 2011

[117] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202008.xls Retrieved September 26, 2011

[118] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202008.xls Retrieved September 26, 2011

[119] http://www.CalOES.ca.gov/HazardousMaterials/Documents/Hazmat%20Spill%20Reports%202009.xls Retrieved September 26, 2011

[120] http://www.CalOES.ca.gov/HazardousMaterials/Documents/Hazmat%20Spill%20Reports%202010.xls Retrieved September 26, 2011

2011	An 18-wheeler semi-truck caught fire on eastbound SR-60 at Frederick Street. The fuel tank ruptured which caused the fire as well as a freeway closure for several hours. [121]
2011	Westbound SR-60 is closed from Beaumont to Moreno Valley due to a 100-gallon fuel spill.[122]
2011	68 gallons of Mineral Oil spilled by Southern California Edison at 23343 Hemlock[123]
2011	500 gallons of Ferric Chloride spilled at 17140 Kitching Street by EMWD. Spill was contained by their containment area. [124]
2014	An unknown chemical leak – in gas form – sent a firefighter and three police officers to hospital and closed down a high school in Riverside.[125]

16.1.2 HAZARDOUS MATERIALS PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 3, which means that there is a 10% to 100% chance that it will occur within the next year. From hazardous materials disclosures of existing businesses on file, County of Riverside Department of Environmental Health has identified 560 businesses with varying quantities, forms, and types of hazardous materials on site both interior and exterior.

16.2 HAZARDOUS MATERIALS VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 3, which means that there is a potential for critical damage, causing injuries and/or illnesses resulting in permanent disability, complete shutdown of critical facilities for two weeks and/or 25% to 49% of property is severely damaged.

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[121] http://www.swrnn.com/2011/01/26/highway-60-in-moreno-valley-closed-tuesday-night-by-crash-and-fire/ Retrieved September 26, 2011

[122] http://www.kpsplocal2.com/news/local/story/100-Gallon-Fuel-Spill-Prompts-Badlands-Freeway/X7WvEkjOW0-5ghMaXD5h7g.cspx?rss=2276 Retrieved September 25, 2011

[123] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202011.xls Retrieved September 26, 2011

[124] http://www.CalOES.ca.gov/HazardousMaterials/Documents/HazMat%20Spill%20Reports%202011.xls Retrieved September 26, 2011

[125] http://www.nbclosangeles.com/news/local/Unknown-Gas-Leak-Prompts-Evacuations-in-Areas-of-Riverside-280540172.html Retrieved November 8, 2016

Impact to Population and Structures: Severe or prolonged exposure to hazardous materials is expected to cause injuries and/or deaths. In addition, people may be evacuated or asked to shelter in place during a hazardous materials incident. Seniors and individuals with access and functional needs may need special assistance to evacuate. People may also be required to be decontaminated to remove the hazard from their structures, property, and clothing. There may be economic impacts as well due to cleanup and removal of hazardous materials.

Impact to Essential Facilities/Historical Sites: Exposure to hazardous materials could impact essential facilities and historical sites. Essential facilities may be closed for decontamination, thus causing an interruption to services.

Impact to Infrastructure: Runoff from hazardous materials has a potential to affect the waterways and drainage systems, as toxic substances may leach into local groundwater supplies. Also, transportation systems could be impacted due to decontamination and increased congestion from evacuation efforts.

Development Trends: Future development of buildings, residential structures, critical facilities, and infrastructure are expected to be constructed according to the most recent Uniform Building Codes and design standards and are expected to carefully consider for adding to vulnerability from hazardous materials. New development is shown in Appendix C.

16.2.1 HAZARDOUS MATERIALS VULNERABILITY – POTENTIAL LOSS

Analysis of the one business located in Moreno Valley that exceeds the Federal and California threshold for storing chemicals shows that a worst-case scenario could have a significant environmental and financial impact to the City of Moreno Valley. Due to the limitation of data available and the range of potential impacts, it is not possible to calculate the potential loss. There are no known repetitive loss properties.

CHAPTER 17: TERRORIST ATTACK

MORENO VALLEY RATING: SEVERITY = 4 PROBABILITY = 2

17.1 TERRORIST ATTACK PROFILE – OVERVIEW

Terrorism, as defined by the FBI, is "the unlawful use of force against persons or property to intimidate or coerce a government, the civilian population or any segment thereof, in the

furtherance of political or social objectives."[126] The act of terrorism could involve chemicals, biological, radiological, or nuclear agents, explosives, or cyber-terrorism.

A specific location for a terrorist attack is not known; however, some of the most likely targets could be Moreno Valley locations including March Air Reserve Base (MARB); Riverside University Health System (RUHS); Kaiser Hospital; and the San Diego Gas & Electric (SDG&E) Moreno natural gas compressor station. These are some considered high-profile targets but acts of terrorism could occur anywhere within the City of Moreno Valley and has the potential to impact a portion or all of the City of Moreno Valley.

17.1.1 TERRORIST ATTACK PROFILE – PREVIOUS OCCURRENCES

The City of Moreno Valley has not experienced a major terrorism attack; however, many parts of our Nation can't say the same. From mass shootings to cars being driven into crowed streets, terrorism is something that is beginning to plaque too many communities.

Terrorism attacks can take many forms, from incendiary devices to biological weapons to weapons of mass destruction. On September 11, 2001, the United States of America was attacked by terrorists when four airplanes were hijacked by members of Al-Qaeda. Two of these planes were crashed into the World Trade Center, one into the Pentagon, and the fourth never reached its destination as the passengers retook control of the airplane and crashed it into a field in Pennsylvania. These major terrorist attacks were followed one week later by the mailing of anthrax to two United States Senators and several news media offices, killing five people and infecting 17 others.[127]

Shortly after the 2011 attacks, the City of Moreno Valley experienced four incidents of potential terror attacks in the form of unmarked white powder being left at area school campuses. These fours incidents occurred in October 2001, and all four incidents involved white powder being left on campus. After testing, all white powders were later determined to be non-hazardous.

Although not occurring in the City of Moreno Valley, the December 2, 2015 terrorist attack at the Inland Regional Center (IRC) did occur in the adjacent city of San Bernardino, which is approximately a 10-mile drive from the City of Moreno Valley. The IRC is a regional medical center whose primary mission is to assist people with developmental disabilities. On this day, a mass shooting and attempted bombing incident occurred at the IRC located in the City of San Bernardino. In this attack, two suspects shot the victim-employees during

[126] http://www.nij.gov/topics/crime/terrorism/pages/welcome.aspx Retrieved November 3, 2016

[127] http://en.wikipedia.org/wiki/2001_anthrax_attacks

a training meeting at the IRC. As a result of the incident, 14 victims were killed, and another 22 were wounded. A brief encounter with police also resulted in the deaths of the two suspects. Preliminary reports about the incident indicate that the suspects may have been on an Islamic jihadist mission against America.

TABLE 17-1: HISTORY OF MORENO VALLEY TERRORIST ATTACK INCIDENTS OF CONCERN

Year	Description
2001	White powdery substance is found at Canyon Springs High School and was treated as an anthrax incident.[128]
2001	White powdery substance is discovered at Sunnymead Middle School. Substance was treated as if it was anthrax.[129]
2001	White powdery substance located next to a cargo container on Moreno Valley Unified School District property. Incident was initially responded to as an anthrax incident until it was determined that the white powder was chalk for marking athletic fields.[130]
2001	White powdery substance found at Bayside Elementary School and treated as an anthrax incident.[131]
2004	On the five-year anniversary of the Columbine High School attacks, a backpack with a bomb threat note is located at Canyon Springs High School. Riverside Sheriff's Department Hazardous Device Team detonates the backpack. Upon investigation, no parts to a bomb device were located after the backpack was detonated. On the same day, another bomb threat was received for March Mountain High School, but no device was located. [132]
2004	The city receives a phone call stating that there is a bomb located inside City Hall. The building is evacuated while the Riverside Sheriff's Department

[128] Notes from meeting with Moreno Valley Unified School District

[129] http://en.wikipedia.org/wiki/2001_anthrax_attacks

[130] http://en.wikipedia.org/wiki/2001_anthrax_attacks

[131] http://en.wikipedia.org/wiki/2001_anthrax_attacks

[132] http://www.pe.com/localnews/morenovalley/stories/PE_News_Local_bomb21.f0b0.html Retrieved September 27, 2011

	conducts a search of the facility for any potential hazardous device. No device is located.[133]
2010	A bomb threat note was found at Canyon Springs High School causing the campus to be evacuated while the Riverside Sheriff's Department searched for the device. No bomb was located.[134]

TABLE 17-1: HISTORY OF MORENO VALLEY TERRORIST ATTACK INCIDENTS OF CONCERN (CONT'D)

Year	Description
2015	A mass shooting incident occurred in the neighboring City of San Bernardino. Two suspects shot and wounded 22 people, and killed another 14, before being killed during the incident. Preliminary reports after the incident indicate the suspects may have been committing Islamic Jihad against America.
2016	A cardboard box filled with assorted harmless items prompted a bomb scare that closed off a major intersection. It was determined there was nothing dangerous inside the box and the area was reopened to traffic.[135]

17.1.2 TERRORIST ATTACK PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

17.2 TERRORIST ATTACK VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 4, which means that there is a potential for catastrophic damage, causing multiple deaths, complete shutdown of critical facilities for 30 days or more and more than 50% of property has a potential to be damaged.

[133] Meeting notes on debriefing for the evacuation of City Hall due to a bomb threat

[134] http://www.instantriverside.com/2010/04/canyon-springs-high-school-bomb-threat/ Retrieved September 27, 2011

[135] http://www.pe.com/articles/bomb-805907-box-moreno.html Retrieved November 3, 2016

Impact to Population and Structures: A terrorist attack is expected to cause multiple deaths and injuries and extensive damage to structures. The amount of expected injuries and deaths is dependent on the type of terrorist event.

Impact to Essential Facilities/Historical Sites: Government buildings, schools, hospitals, critical infrastructure, special events and historical sites are especially vulnerable to terrorist attacks. The impact could be devastating, and could severely interrupt emergency response efforts, as well as government services.

Impact to Infrastructure: Depending on the type of attack, it is expected that a terrorist attack would have a severe impact on infrastructure. Depending on the type of incident, this could involve loss of electricity, water, sewer, and communications.

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure could be impacted by a terrorist attack, depending on the location of the incident. The environmental impact of biological, chemical and/or radiological contamination may need to be considered prior to future development. New development is shown in Appendix C.

17.2.1 TERRORIST ATTACK VULNERABILITY – POTENTIAL LOSS

If a terrorist attack were to occur at City Hall, the structural and infrastructure damage could be approximately $25 million. There are no repetitive loss properties.

MORENO VALLEY RATING: SEVERITY = 2 PROBABILITY = 2

18.1 CIVIL UNREST PROFILE – OVERVIEW

Civil unrest typically begins as non-violent gatherings and progresses to violence. These types of incidents have a potential to escalate into destruction of property, purposefully set fires, and injury to others. Often times, injuries are restricted to police and individuals observed to be breaking the law. Out of control crowds have been known to throw bottles, rocks, and other projectiles. Civil unrest incidents could happen in any location, but they typically occur near government buildings.

18.1.1 CIVIL UNREST PROFILE – PREVIOUS OCCURRENCES

The City of Moreno Valley does not have a history of violent civil unrest. Fortunately, the civil demonstrations included were non-violent in nature.

TABLE 18-1: HISTORY OF MORENO VALLEY CIVIL DEMONSTRATIONS

Year	Description
2001	Protestors marched in front of the Moreno Valley police station regarding the shooting of an African American male by a Riverside County Sheriff Deputy.[136] This was a non-violent protest.
2006	1,000 demonstrators gathered at Moreno Valley Community Park to demonstrate against the passage of House of Representatives Bill 4377 (H.R. 4377), a Federal law aimed at illegal immigration. Protestors then marched to City Hall and conducted a non-violent protest regarding the passage of this Federal legislation.[137]
2013	Hundreds of protestors gathered at Moreno Valley City Hall to demonstrate against city council member recalls and major warehousing projects. Protestors were peaceful and conducted a non-violent protest.

[136] http://la.indymedia.org/news/2001/03/5706_comment.php?theme=2 Retrieved September 26, 2011

[137] http://www.pe.com/localnews/morenovalley/stories/PE_News_Local_M_mprotest02.7f76ec.html Retrieved September 26, 2011

2016	200 protestors gathered at Sunnymead Park to demonstrate against the shooting of African Americans throughout the nation. Protestors then peacefully marched to the Moreno Valley Mall and conducted a non-violent protest.

18.1.2 CIVIL UNREST PROFILE – PROBABILITY OF FUTURE EVENTS

The probably rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year.

18.2 CIVIL UNREST VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 2, which means that there is a potential for limited damage, causing injuries and/or illnesses, complete shutdown of critical facilities for more than one week and/or 10% of property is severely damaged.

Impact to Population and Structures: Injuries could occur to protestors or demonstrators and are often a result of resisting arrest and exposure to tear gas or mace but could also be due to protestors throwing bottles or other projectiles. Impacts to buildings and structures could involve physical damage including smashed windows; building destruction; and fire damage.

Impact to Essential Facilities/Historical Sites: Protestors could damage facilities and/or historical sites during civil unrest. Impact to essential facilities and/or historical sites could involve smashed windows, building destruction and fire damage.

Impact to Infrastructure: Protestors could damage facilities and/or historical sites during civil unrest. The impact could involve loss of electricity, water, sewer, and communications.

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure would not be impacted by civil unrest. New development is shown in Appendix C.

18.2.1 CIVIL UNREST VULNERABILITY – POTENTIAL LOSS

If civil unrest were to occur at the Public Safety Building involving, perhaps, fire, the potential loss could be $13.5 million. There are no repetitive loss properties.

CHAPTER 19: PANDEMIC FLU/DISEASE

MORENO VALLEY RATING: SEVERITY = 3 PROBABILITY = 2

19.1 PANDEMIC FLU/DISEASE PROFILE – OVERVIEW

A pandemic is an epidemic of world-wide proportions. Throughout history there have been a number of pandemics such as smallpox, tuberculosis, measles, and polio. In recent years, pandemics include HIV/AIDS, Influenza, and Pertussis (whooping cough), and the ongoing Coronavirus (Covid-19) which began in February 2020 and continues today.

Significant public health emergencies have been affecting populations for centuries. Some of the notable pandemics in history are:

14th century, Black Death – The Black Death was a medieval pandemic that killed approximately 25 million people in Europe. This pandemic lingered for centuries.[138]

1918–1919, Spanish Flu – The Spanish Flu caused an estimated 50 million deaths worldwide with nearly 675,000 of those deaths in the United States.[139]

1968, Influenza (H3N2) – An estimated 1 million deaths occurred worldwide with 100,000 in the United States. Most excessive deaths were in people 65 years or older.[140]

2005-2015 (at its peak), HIV/AIDS – HIV/AIDS has killed more than 36 million people since 1981. From 2005-2012, the annual global deaths from HIV/AIDS dropped from 2.2 million to 1.6 million.[141]

2020-Current, Covid-19 – Covid-19 has killed over 1 million people in the United States and nearly 6.5 million worldwide. With new variants emerging every couple of months, this pandemic could continue for years to come.

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[138] https://www.nationalgeographic.com/science/article/the-plague Retrieved July 2022

[139] https://www.cdc.gov/flu/pandemic-resources/reconstruction-1918-virus.html Retrieved July 2022

[140] http://www.cdc.gov/flu/pandemic-resources/basics/past-pandemics.html Retrieved July 2022

[141] https://www.mphonline.org/worst-pandemics-in-history/ Retrieved July 2022

19.1.1 PANDEMIC FLU/DISEASE PROFILE – PREVIOUS OCCURRENCES

In 2022 Riverside County began and continues to experience significant cases of Respiratory Syncytial Virus, or RSV, which typically causes mild, cold-like symptoms, but can be particularly serious for infants and older adults. It is the most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia (infection of the lungs) in children younger than 1 year old in the United States. Symptoms of RSV can include shallow or difficulty breathing, cough, poor appetite, listlessness or irritability and it can cause bronchiolitis (inflammation of the small airways in the lung) and pneumonia (infection of the lungs). Public Health officials continue ongoing public messaging campaigns about the dangers of this and other respiratory illnesses and how to prevent them. [142] The City of Moreno Valley continues to monitor case numbers affecting the population in the city and throughout the County.

In late February 2020, the City of Moreno Valley, in cooperation with the County of Riverside, was notified that a plane would be landing at March Air Reserve Base (MARB) carrying U.S. residents who had been in Wuhan, China where the original Covid-19 infections were detected. Upon repatriation of the flight, County Health officials had to determine the best means of protecting the public. Officials determined that quarantine mandates were appropriate for these and others returning to the County to prevent infection spread. Unfortunately, others unknowing they were virus carriers, began to spread the virus all over the U.S. as they returned from abroad. Over the next several, federal, state, and local health officials navigated rapidly increasing infection and death rates worldwide. Mask mandates, closures of businesses, schools, and anything else considered non-essential were enforced, and in some cases, continue. Social distancing rules of maintaining at least 6 feet distance from anyone around you were implemented. In addition to the worldwide pandemic, some countries, including the United States, simultaneously began to struggle with supply chain shortages of essential items such as baby formula, among other things. Many of the lasting supply chain issues are still present today. The State of California and the City will end its COVID-19 emergency proclamations and emergency operation center activations, however, for many, the threat of other variants remains a constant[143].

In 2009, Moreno Valley was impacted by the H1N1 influenza epidemic in which California proclaimed a State of Emergency (April 28, 2009). From April 23, 2009, until August 28, 2010, the California Department of Public Health reported 116 severe cases, 108 intensive care unit cases, and 41 deaths in Riverside County[144]. The public health emergency required

[142] https://www.ruhealth.org/public-health/respiratory-viruses#rsv Retrieved February 2023

[143] https://www.cdph.ca.gov/ Retrieved July 2022

[144] https://www.cdph.ca.gov/ Retrieved July 2022

the activation of the Moreno Valley Emergency Operations Center to track the epidemic; provide daily statistics to Riverside County Public Health on the status of our employees; to participate in regular conference calls; and to outreach information about appropriate precautions as well as provide information about vaccination. In today's news, you often hear officials recalling this epidemic and reminding everyone that this and similar viruses can easily become problematic.

Pertussis (also known as whooping cough) is a highly contagious bacterial disease. People with pertussis experience severe coughing attacks that can last for months. During 2010, over 9,000 cases of pertussis were reported in California, including 10 infant deaths. Table 19-1 identifies disease outbreaks, including Influenza[145] and Pertussis,[146] in Riverside County.

TABLE 19-1: DISEASE OUTBREAKS IN THE MORENO VALLEY AREA

Year	Disease	Number of Cases
2009-2010	Influenza (H1N1)	265
2010	Pertussis	461
2010-2011	Influenza	11
2011	Pertussis	176
2011-2012	Influenza	16
2012	Pertussis	31
2012-2013	Influenza	19
2013-2014	Influenza	66
2014-2015	Influenza	15
2020-Ongoing	Covid-19	76,939 (as of 2/2023)

[145] https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx Retrieved July 2022

[146] https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/pertussis.aspx Retrieved July 2022

19.1.2 PANDEMIC FLU/DISEASE PROFILE – PROBABILITY OF FUTURE EVENTS

The probability rating for this hazard is a 2, which means that there is between a 1% and 10% chance that it will occur within the next year. This does not account for the ongoing (existing) pandemic conditions caused by Covid-19.

19.2 PANDEMIC FLU/DISEASE VULNERABILITY – OVERVIEW/IMPACT

The severity rating for this hazard is a 3, which means that there is a potential for critical damage, causing injuries and/or illnesses resulting in permanent disability, complete shutdown of critical facilities for two weeks and/or 25% to 49% of property is severely damaged.

Impact to Population and Structures: Due to the geographic extent of a pandemic, the entire population is vulnerable to illness, injuries, and casualties. There is no expected damage to structures; however, there could be a quarantine which would prevent people from coming or going from a particular structure or area.

Impact to Essential Facilities/Historical Sites: Essential facilities and/or historical sites could be affected if there was a quarantine initiated by Public Health. Essential functions may be limited if a large percentage of the workforce was unable to report to work, as we experienced during Covid-19.

Impact to Infrastructure: Travel will likely be restricted during a pandemic, with mandates for quarantine likely during disease outbreak periods.

Development Trends: Future development of buildings, structures, critical facilities, and infrastructure could be impacted if there were disease outbreaks requiring special treatment of development areas prior to building. New development is shown in Appendix C.

19.2.1 PANDEMIC FLU/DISEASE VULNERABILITY – POTENTIAL LOSS

When the pandemic occurred, it affected everyone, not just in our city, but worldwide. The immediate and ongoing loss to income resulting from forced business closures, people's inability to travel or generally move-about in public and spend money, weakened, and affected every aspect of life, including the local economy. As the pandemic continues, with new variants occurring, these impacts will continue for the foreseeable future. Transportation, commerce, businesses small and large, and everything in between, has been negatively affected, and likely would be again during a pandemic. What is unknown is the cost for things not as tangible, such as school closures with online learning.

PART 3

MITIGATION STRATEGY

CHAPTER 20: MITIGATION STRATEGY

20.1 INTRODUCTION

Chapter 20 provides information about the City of Moreno Valley's mitigation strategies, which is the blueprint for reducing losses from the identified hazards that may affect the city. This chapter will provide an assessment of Moreno Valley's capabilities; identification of hazard mitigation strategies and status; analysis of mitigation actions; and National Flood Insurance Program compliance information. The city's identified hazards, and their respective mitigation strategies, were developed using a Threat and Hazard Identification and Risk Assessment (THIRA) approach which includes probabilities, priorities, and potential severities.

20.2 CAPABILITY ASSESSMENT

The City of Moreno Valley's capabilities for implementing mitigation strategies to reduce hazards that may affect the city include legal and regulatory capabilities, administrative and technical capabilities, fiscal capabilities and outreach and other capabilities.

Legal and Regulatory Capabilities: Moreno Valley formally adopts, regularly reviews, and updates regulatory policies such a general plan, along with implementing regulations such as zoning ordinances, subdivision ordinances, and specific plans. Table 20-1 is an example of regulatory capabilities that assist the City of Moreno Valley in its mitigation strategies.

TABLE 20-1: EXAMPLE OF REGULATORY CAPABILITIES

Regulatory Tool	Comments
Floodplain ordinance	Municipal Code Title 8, Chapter 8.12 (Flood damage prevention and implementation of National Flood Insurance Program (NFIP)) includes flood damage prevention and implementation of the national flood insurance program (NFIP). Utilized for public outreach and educational awareness.
Water conservation ordinance	Municipal Code Title 9, Chapter 9.17 (Landscape and Water efficiency requirements) addresses water conservation. Utilized for public outreach and educational awareness.

Regulatory Tool	Comments
Stormwater ordinance	Municipal Code Title 8, Chapter 8.10(Storm water/urban runoff management and discharge controls). Utilized for public outreach and educational awareness.
Wildfire ordinance	Municipal Code Title 6, Chapter 6.04 (Abatement of Public Nuisances). Utilized for public outreach and educational awareness.
Building Standards Code	Utilize Approved California Building Codes; Latest adoption was July 1, 2022, with effective date of January 1, 2023.
Fire and Safety Standards	Utilize Approved 2016 Fire and Safety Standards; effective date of January 1, 2017.
Fire department ISO rating	Rating: class 4 urban/9 rural
Erosion or sediment control program	Municipal Code Title 8, Chapter 8.21.160 (Erosion Control) and Municipal Code Chapter 9.17.110 (Erosion Control/Slope Planting). Utilized for public outreach and educational awareness.
Riverside County Flood Control and Water Conservation District Master Drainage Plan	Three (3) master drainage plans (Sunnymead Area, West End, Moreno). Utilized for public outreach and educational awareness.
Regional Water Quality Control Board Regulations	All proposed septic systems must comply; prevents groundwater contamination
Santa Ana Watershed Project Authority Water Resources Plan	Protects water quality in the Santa Ana watershed. Eastern Municipal Water District (which serves the City of Moreno Valley) is a part of the Santa Ana Watershed.

Regulatory Tool	Comments
National Pollutant Discharge Elimination System	Protects water resources from pollutants in runoff.
Capital Improvements Plan	The Capital Improvements Plan (CIP) is updated annually. Utilized to develop project budget, priorities, and develop mitigation strategies.
Economic Development Plan	2-year plan, 2022. Utilized for community profile.
Local Emergency Operations Plan	Emergency Operations Plan, March 2018

Several mitigation goals and objectives are included in the city's General Plan to assist with mitigation efforts. A good example is Goal S-1, along with a few corresponding objectives and policies:

Goal S-1: Protect life and property from natural and humanmade hazards.

Policy S.1-1: Continue to restrict the development of habitable structures within Alquist-Priolo Earthquake Fault Zones consistent with State law.

Policy S.1-2: In areas of high liquefaction risk (see MoVal 2040: General Plan Map S-2), require that project proponents submit geotechnical investigation reports and demonstration that the project conforms to all recommended mitigation measures prior to City approval.

Policy S.1-14: Require new development in Very High Fire Hazard Severity Zones (VHFHSZs) to prepare a Fire Protection Plan that minimizes risks by: Assessing site-specific characteristics such as topography, slope, vegetation type, wind patterns etc.; Siting and designing development to avoid hazardous locations (e.g. through fire breaks) to the extent feasible; Incorporating fuel modification and brush clearance techniques in accordance with applicable fire safety requirements and carried out in a manner which reduces impacts to environmentally sensitive habitat to the maximum feasible extent; Using fire-safe building materials and design features, consistent with the adopted Municipal Code and Fire and Building Code standards; Using fire-resistant landscaping; and Complying with established standards and specifications for fuel modification, defensible space, access, and water facilities.

Goal S-2: Provide effective response to disasters and emergencies.

Policy S.2-1: Use the adopted Local Hazard Mitigation Plan and Emergency Operations Plan to guide actions and investments for emergency preparedness and response.

Another example of regulatory capabilities is Moreno Valley Municipal Code, Title 9, Chapter 9.17, which addresses water conservation and waste. Specifically, 9.17.160 (Landscape Water Use Efficiency Enforcement), states that the city will coordinate with the local water purveyors and encourage landscape water use efficiency such as tiered water rate structure; allocation-based conservation water pricing structure; irrigation audits and/or irrigation surveys.

As part of day-to-day business, the City is always exploring if there is a need to revise or enhance existing policies, procedures, processes, ordinances, plans, etc. Upon identified need of any such updates, revisions, or removals of such, the City, through documented processes and procedures would move accordingly to ensure such actions are completed.

The City takes proactive steps to regularly evaluate if existing capabilities, plans, procedures, strategies, etc. align with mitigation projects and activities. In the event there is a need for revisions, updates to these, or if new ones are necessary, the City will take appropriate steps to do so. Mitigation capabilities, whether administrative, fiscal, or other, and mitigation strategies must work together and as such, must be closely aligned to support each project and the overall mitigation program.

Administrative/Technical Capabilities: Table 20-1.1 gives an example of the personnel responsible for activities related to mitigation for the City of Moreno Valley.

TABLE 20-1.1: EXAMPLE OF ADMINISTRATIVE AND TECHNICAL CAPABILITIES

Personnel Resources	Department/Position
Engineer with knowledge of land development/land management practices	Public Works Department/City Engineer
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Community Development Department/ Building and Safety Supervisor and/or Building Official
Engineer with an understanding of natural hazards	Public Works Department /City Engineer
Floodplain manager	Public Works Department /City Engineer

Personnel Resources	Department/Position
Personnel skilled in GIS applications	Financial & Administrative Services Department/GIS Analyst
Building Official	Community Development Department Building Official
Scientist familiar with local natural hazards	N/A
Emergency Manager	Fire-Office of Emergency Management Division Manager
Grant writers	All Departments
Cost benefit/analysis staff	Financial and Administrative Services and Public Works Departments

Example of Fiscal Capabilities: Table 20-1.2 shows an example of financial tools and resources that the city could potentially use to help fund mitigation activities.

TABLE 20-1.2: FISCAL MITIGATION CAPABILITIES

Financial Resources	Comments
Community Development Block Grants	Requires council approval
Capital improvements project funding	Requires council approval
Authority to levy taxes for specific purposes	Requires voter approval
Fees for water, sewer, gas, or electric services	Utility tax; voter approval
Impact fees for new development	Requires council approval
Incur debt through general obligation bonds	Requires voter approval
Incur debt through special tax bonds	Requires voter approval
Hazard Mitigation Grant Program (HMGP)	Apply when available & projects meet requirements
Building Resilient Communities (BRIC) Grants	Apply when available & projects meet requirements
Climate Adaptation Grants	Apply when available & projects meet requirements
Drought Resilience Grants	Apply when available & projects meet requirements
Cal CAP Seismic Safety Grants	Apply when available & projects meet requirements

Financial Resources	Comments
Other Federal, state, or local grants that may become available	The City has a new grants division dedicated to seeking grant funding sources for all-hazards mitigation and other City-related projects

An example of a successful grant mitigation award is a storm drain project the city applied for as a result of a presidentially declared winter storm disaster (DR-1731). The project is to install a storm drain system in the middle of the tract bounded by Redlands Boulevard and Merwin Street, from Alessandro Boulevard to Campbell Avenue, and connected to an existing open channel on the southwest corner of Redlands Boulevard and Brodiaea Avenue. The project would provide the Moreno Townsite area with 100-year storm level of protection. The lack of a proper storm drain system in the neighborhood has resulted in flooding events in almost every storm. The project is under design using grant funds.

Outreach and Other Capabilities

The City provides fire safety classes, through the Community Emergency Response Team (CERT) program to the community several times a year and partners with businesses and local agencies to provide information outreach during community events. The city also participates in regional mass care and shelter planning and incorporates planning for access and functional needs individuals. In addition, the city has designated a cooling center if needed during a heat emergency and a heating center for cold, winter days. The Police Department and the California Department of Transportation have a plan to divert traffic from Highway in the event of major traffic accidents.

Expansion and Improvement:

Planning & Regulatory: AB2140 compliance may entitle the City to additional mitigation grant funding and/or long-term recovery funds. This expansion alone could potentially elevate the City's opportunities to obtain funding for much needed mitigation projects.

Admin/Technical: Given the critical nature of mitigation efforts, the City strives to expand and improve existing capabilities and resources whenever possible. Such efforts begin with day-to-day activities such as training and purchasing the latest technologies. Some of the ways the City will look to expand and improve existing administrative and technical capabilities specifically in the future include but are not limited to expansion of GIS capabilities and utilization of GIS technologies in more mitigation applications. Long—term training of engineers who assess or perform mitigation projects to better utilize the technology. Expansion may also include the utilization of more artificial intelligence (AI)

software in the future. Existing technologies and personnel may be able to expand capabilities with the addition of such new technology to better identify potential hazards. Financial (Fiscal): The City is seeking to hire a high-level grant writing executive to ensure that the City is taking advantage of all potential grant funding opportunities, including critical mitigation grants.

Education & Outreach: The City will look to expand outreach and education promoting events such as the Great Shakeout to businesses and residents within the City. Additionally, the City will explore opportunities for expanded promotion of the Firewise program to residents and businesses.

20.3 LOCAL HAZARD MITIGATION STRATEGIES AND PROGRESS

The next several pages will provide a summary of the mitigation strategies that were chosen for reducing the potential losses identified in the hazard risk assessment. Each mitigation strategy shows the priority ranking, responsible department/division/program, timeframe, funding, cost, and the status. In addition, the associated hazard(s) and relevant chapter from the LHMP is identified for each mitigation measure. The LHMP's overall goals were identified in the Executive Summary in the beginning of the plan. They are:

1. Protect life, property, and the environment.
2. Provide public awareness.
3. Protect continuity of government; and
4. Improve emergency management, preparedness, collaboration, and outreach.

Priority Ranking: Several factors were considered to determine the mitigation priority ranking for each mitigation measure. The highest priority ranking was assigned to those mitigation measures that met three criteria: 1) greatest potential for protecting life and property; 2) greatest potential for maintaining critical city functions and operability following a disaster; and 3) achievability in terms of community support, and cost effectiveness. Each mitigation action is assigned a priority ranking as follows:

Critical: Most important goals/actions (may be short-term or long-term)
High: To be implemented in the short-term future
Moderate: To be implemented when funding/resources become available.

Benefit/Cost Review: The benefits of proposed projects were weighed against costs as a part of the project prioritization process to determine if the proposed project should be ranked critical, high, or moderate. Where possible, an actual benefit/cost analysis ratio was provided.

Previous Mitigation Projects: Listed in the bullets below are the mitigation projects from the City's 2017 LHMP that were completed. All incomplete projects from this plan are listed in the Mitigation Strategy section as projects still to be completed.

- Replace the existing functionally obsolete SR-60/Redlands Avenue Overcrossing two-lane bridge with a four-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction. This project from the 2017 plan is currently in the design phase. Refer to Mitigation Strategy 4.7 below for additional details.

- Replace the existing functionally obsolete SR-60/Theodore Avenue Overcrossing two-lane bridge with a four or six-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction. This project from the 2017 plan is currently in the design phase. Refer to Mitigation Strategy 4.8 below for additional details.

- Ensure that minimum building standards are implemented to safeguard life, limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within the City of Moreno Valley. Adopt current California Building Standards Code, California Code of Regulations, Title 24, the California Building Code, California Mechanical Code, California Residential Code, California Plumbing Code, California Fire Code, and the California Electrical Code and adopting other regulations relating to Building and Fire Prevention requirements. This project from the 2017 plan was completed in 2017. Refer to Mitigation Strategy 6.14 below for additional details.

- For the flooding problems at Hubbard Street and Dunleavy Court neighborhood, the ultimate solution is to construct a storm drain system to collect flows from the upstream end, run off along Hubbard Street with inlets at Dunlavy Court and lateral streets and carry them to the existing Line H-1 on Ironwood Avenue in the City of Moreno Valley. This project from the 2017 plan was completed in 2019. Refer to Mitigation Strategy 6.13 below for additional details.

- Encourage public participation in the city's hazard mitigation update process by designating a Hazard Mitigation web page in the Emergency Section of the city website that is specific to the City of Moreno Valley Local Hazard Mitigation Plan. This project from the 2017 plan was completed during the update of that plan as well as during the update of this plan. Although complete, the concept of soliciting input from residents about the plan remains an ongoing effort.

Mitigation Strategies and Status: Beginning on the next page, grouped by identified hazard, is a summary of the city's new and updated strategies that serve to mitigate the hazards that may affect the City of Moreno Valley.

Each Mitigation Strategy and Status includes information about actual or potential funding sources. The City prioritizes seeking any available federal, state, or local mitigation grants including but not limited to: Building Resilient Communities (BRIC), Hazard Mitigation Grant Program (HMGP), Cal Trans grants, Utility Infrastructure grants, etc. It should also be noted that grants often have a very specific target capability they are looking to award for which may cause certain projects to be ineligible for a given grant year or grant cycle. Grants may also have target demographics, such as vulnerable populations, that they are looking to ensure the funds will directly benefit, which may or may not align with some projects given their geographic location. Other complexities of grant awards can be incomplete project funding. Many of the projects noted in this plan carry significant price tags that a single grant may not cover, rendering the funds unattainable if other supplemental funding is not immediately available. By listing the potential grant funding sources for each strategy, this does not imply that those are the only potential funding sources the City may seek, it only indicates that those are the most common, probable, or likely to be sought.

The Mitigation Strategies section also contains information about timeframe. The timeframe is generally a reference towards when the project was last included in the LHMP (if applicable). References to "ongoing" generally refer to the fact the project is not completed as of the time of this revision.

Status within this section generally refers to the overall project status. Some reveal assessed meaning they were assessed and evaluated during the 2017 plan and ongoing again, referring to the fact that the project remains ongoing.

Chapter 4 – Earthquake

4.1 Mitigation Strategy: **New Mitigation Strategy –** Minimize the potential for loss of life and protect the community from the physical injury and property damage due to seismic ground shaking and secondary effects. Require all new development projects, existing critical and essential facilities, and structures to comply with the City of Moreno Valley Municipal Code.

Priority:	Critical
Responsible Dept:	Building & Safety; Land Development
Timeframe:	2017- Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** Utilize Approved California Building Codes; Latest adoption was July 1, 2022, adopting the 2022 Building Codes with effective date of January 1, 2023.

Does this capability require an update to support this mitigation effort? No, Code updates are required every 3 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 4 – Earthquake

4.2 Mitigation Strategy: **Mitigation Update –** Reduce fault rupture and liquefaction hazards through the identification and recognition of potentially hazardous conditions and areas as they relate to the San Jacinto fault zone and the high and very high liquefaction hazard zones. Require all new development projects produce geologic studies and comply with mitigation for fault rupture hazards in accordance with the Alquist-Priolo Special Study Zones Act.

Priority:	Critical
Responsible Dept:	Land Development; Planning
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort utilizes approved California Building Codes.

Does this capability require an update to support this mitigation effort? No

Status: Assessed

Chapter 4 – Earthquake

4.3 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential for loss of life, property, and damage from earthquake events. Encourage public participation and usage of Cal OES' "MyHazards" tool to discover hazards in their area (earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk.

Priority:	High
Responsible Dept:	Office of Emergency Management
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1, 2

Supporting Capability:	**What identified capability supports this mitigation effort?** Ongoing community outreach efforts about the LHMP and general disaster preparedness outreach as part of the General Plan goals. **Does this capability require an update to support this mitigation effort?** Yes, LHMP must be updated every 5 years. No update needed specifically as a result of this strategy.
Status:	Assessed

Chapter 4 – Earthquake

4.4 Mitigation Strategy: **Mitigation Update –** Protect historic buildings from geologic hazards. Evaluate historic buildings relative to the need for mitigation of geologic hazards, while weighing their historical value against the potential hazard of their collapse.

Priority:	Moderate
Responsible Dept:	Building & Safety
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability:	**What identified capability supports this mitigation effort?**	
	Building Standards Code – Historical Building Code and Existing Building Code	Utilize Approved California Building Codes; Latest adoption was July 1, 2022, adopting the 2022 Building Codes with effective date of January 1, 2023.

Does this capability require an update to support this mitigation effort? Yes, Code update required every 3 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 4 – Earthquake

4.5 Mitigation Strategy: **Mitigation Update –** Replace the existing structurally deficient SR-60/Moreno Beach Drive two-lane bridge with a six-lane bridge and complete the SR-60/Moreno Beach improvements. Obtain funds and request City Council approval to complete design and perform construction.

Priority:	Critical
Responsible Dept:	Capital Projects
Timeframe:	November 2022 – November 2023
Funding/Cost:	Federal, TUMF, Local Shares secured/approx. $29 million
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program.

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Ongoing. The project could provide a new Moreno Beach Drive/SR-60 bridge that meets current seismic standards/requirements. The project could mitigate earthquake hazards by providing a new bridge that meets current seismic standards. The project is under the right-of-way phase. Design completion and construction funds are not identified.

Chapter 4 – Earthquake

4.6 Mitigation Strategy: **Mitigation Update –** Replace the existing structurally deficient SR-60/Indian Street Overcrossing two-lane bridge with a two or four-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction.

Priority:	Critical

Responsible Dept:	Capital Projects
Timeframe:	207 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities

Plan Goal(s)*: 1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: The project could provide a new Indian Street bridge that meets current seismic standards/requirements. The project is under preliminary study for timeline and funding opportunities.

Chapter 4 – Earthquake

4.7 Mitigation Strategy: **Mitigation Update –** Replace the existing functionally obsolete SR-60/Redlands Avenue Overcrossing two-lane bridge with a four-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction.

Priority:	Critical
Responsible Dept:	Capital Projects
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities

Plan Goal(s)*: 1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program.

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Ongoing. The project could provide a new Redlands Avenue bridge that meets current seismic standards/requirements. The project is under preliminary study for timeline and funding opportunities.

Chapter 4 – Earthquake

4.8 Mitigation Strategy: **Mitigation Update –** SR-60/World Logistics Center Parkway Project: Replace the existing functionally obsolete SR-60/Theodore Avenue Overcrossing two-lane bridge with a four or six-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction.

Priority: Critical
Responsible Dept: Capital Projects
Timeframe: January 2022 to December 2025 (tentative)
Funding/Cost: Funds identified for environmental studies and preliminary engineering; funds needed for design and construction
City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*: 1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program.

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: In progress. The project could provide a new WLC/Theodore Street bridge that meets current seismic standards/requirements. The project is under environmental and preliminary engineering studies.

Chapter 4 – Earthquake

4.9 Mitigation Strategy: **New Mitigation Strategy –** Replace the existing functionally obsolete SR-215/Cactus Avenue Overcrossing two-lane bridge with a four or six-lane bridge. Obtain funds and request Caltrans and City Council approval to perform environmental studies, design, and construction.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	January 2024 to December 2027 (tentative)
Funding/Cost:	Funds identified for environmental studies and preliminary engineering; funds needed for design and construction City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Assessed and Ongoing. The project could provide a new Cactus Avenue bridge that meets current seismic standards/requirements. The project is under environmental and preliminary engineering studies.

Chapter 5 – Wildland and Urban Fires

5.1 Mitigation Strategy:

Mitigation Update – Ensure that property in or adjacent to wildland areas is reasonably protected from wildland fire hazard, consistent with the maintenance of a viable natural ecology. Continue ongoing inspection programs for hazardous fuel and abatement on occupied and vacant parcels. Encourage programs to minimize the fire hazard, including but not limited to, the prevention of fuel build-up where wildland areas are adjacent to urban development. For new construction and significant tenant improvement, continue adherence to existing city Municipal Code standards.

Priority:	High
Responsible Dept:	Code Enforcement; Fire
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability:

What identified capability supports this mitigation effort? CA Fire Code; General Plan

Does this capability require an update to support this mitigation effort? Yes, codes are updated periodically, and General Plan is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 5 – Wildland and Urban Fires

5.2 Mitigation Strategy:

Mitigation Update – Ensure that uses within urbanized areas are planned and designed consistent with applicable provisions of relevant regulatory policies. Ensure that ordinances, resolutions, and policies relating to urban development are consistent with the requirements of

acceptable fire safety, including requirements for smoke detectors, emergency water supply and automatic fire sprinkler systems.

Priority:	Critical
Responsible Dept:	Building & Safety; Fire
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** Utilize Approved California Building Codes; Latest adoption was July 1, 2022, adopting the 2022 Building Codes with effective date of January 1, 2023.

Does this capability require an update to support this mitigation effort? Yes, Code update required every 3 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 5 – Wildland and Urban Fires

5.3 Mitigation Strategy: **Mitigation Update –** Protect life and property from the potential fire hazard from improper or careless use, storage, treatment, and disposal of hazardous materials and waste. Require all land use applications and approvals to be consistent with applicable provisions of relevant regulatory policies.

Priority:	Critical
Responsible Dept:	Fire; Land Development; Riverside County Department of Environmental Health
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought

		Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
	Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** These efforts are supported by numerous laws, standards, and ordinances within each discipline. CA Fire Code outlines requirements for storage, disposal, etc. of waste which is supported and implemented by Fire Prevention and County Env. Health.

Does this capability require an update to support this mitigation effort? Yes, state, municipal, and local codes require periodic updating. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 5 – Wildland and Urban Fires

5.4 Mitigation Strategy: **Mitigation Update –** Protect life and property from potential fire hazard by limiting development in safety zones according to identified land uses. Within the safety zones (e.g., Air Crash Hazard Zones and Clear Zones), residential uses shall not be permitted, and business uses shall be restricted to low intensity uses as defined in regulatory policies including the March Air Reserve Base Air Installation Compatible Use Zone Report, as amended from time to time.

Priority:	High
Responsible Dept:	Planning; March Joint Powers Authority (MJPA); March Air Reserve Base
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** These efforts are supported by numerous laws, standards, and ordinances

within each discipline. City General Plan and ordinances support economic development which is further supported by Fire Prevention and Planning ordinances.

Does this capability require an update to support this mitigation effort? Yes, plans and ordinances must be periodically updated. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 5 – Wildland and Urban Fires

5.5 Mitigation Strategy: **New Mitigation Strategy –** Identify areas of high fire risk. Work with GIS to identify and create a special wildfire layer to designate high-risk areas for use on the city's website.

Priority:	High
Responsible Dept:	Fire; GIS
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** CA Fire Code and CA Wildfire Mitigation Plans, as well as internal Fire Prevention standards and codes.

Does this capability require an update to support this mitigation effort? Yes, plans and codes require periodic review and updating. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 5 – Wildland and Urban Fires

5.6 Mitigation Strategy:	**New Mitigation Strategy –** Reduce potential for damage from fire. Outreach and education to property owners about defensible space around structures and general abatement on vacant parcels.
	Priority: High **Responsible Dept:** Code Enforcement; Fire **Timeframe:** 2017 - Ongoing **Funding/Cost:** Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities **Plan Goal(s)*:** 1, 2
Supporting Capability:	**What identified capability supports this mitigation effort?** CA Fire Code and CA Wildfire Mitigation Plans, as well as internal Fire Prevention standards and codes. **Does this capability require an update to support this mitigation effort?** Yes, plans and codes require periodic review and updating. No update needed specifically as a result of this strategy.
Status:	Assessed

Chapter 5 – Wildland and Urban Fires

5.7 Mitigation Strategy:	**New Mitigation Strategy –** Reduce response time for fire events. Construct new four-lane bridge across Perris Valley Channel at Indian Street with some flood control improvements.
	Priority: High **Responsible Dept:** Capital Projects **Timeframe:** 2023 to 2025 (tentative) **Funding/Cost:** Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and

	other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan and Federal Highway Bridge Program.

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically, as a result of this strategy.

Status: Pending

Chapter 5 – Wildland and Urban Fires

5.8 Mitigation Strategy: **New Mitigation Strategy –** Reduce response time for fire events. Construct two-lane road for missing section of Heacock Street connecting it down to Harley Knox.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	2024-2025
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan.

Does this capability require an update to support this mitigation effort? Yes, CIP is reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Assessed and pending

Chapter 6 – Flooding

6.1 Mitigation Strategy: **Mitigation Update –** Reduce the potential from flood damage. Permit only acceptable land use development in 100-year floodplain. Review project proposals to ensure that they meet the accepted land use for the location. Require all land use applications and approvals to be consistent with applicable provisions of relevant regulatory policies.

Priority:	High
Responsible Dept:	Capital Projects, Land Development
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists to support the National Flood Insurance Program floodplain ordinance

Does this capability require an update to support this mitigation effort? No

Status: Ongoing

Chapter 6 – Flooding

6.2 Mitigation Strategy: **Mitigation Update –** Locate critical facilities, such as hospitals, fire stations, police stations, public administration buildings and schools outside of flood hazard areas. Review land use and flood maps to ensure proposed critical facilities are not within flood prone areas.

Priority:	High
Responsible Dept:	Capital Projects; Land Development
Timeframe:	Ongoing
Funding/Cost:	Current funding source & cost unknown

	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1
Supporting Capability:	**What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the National Flood Insurance Program flood ordinance. **Does this capability require an update to support this mitigation effort?** No
Status:	Assessed and pending

Chapter 6 – Flooding

6.3 Mitigation Strategy:	**Mitigation Update –** Improve storm and water flow. Design, construct and maintain street and storm drain flood control systems to accommodate 10 year and 100-year storm flows, respectively. Determine potential projects to mitigate known flood areas due to inadequate storm drain and flood control channels.
Priority:	High
Responsible Dept:	Capital Projects; Land Development
Timeframe:	2017 - Ongoing
Funding/Cost:	Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s):	1
Supporting Capability:	**What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control and Water Conservation District Master Drainage Plan **Does this capability require an update to support this mitigation effort?** No
Status:	Pending project identification.

Chapter 6 – Flooding

6.4 Mitigation Strategy: **Mitigation Update** – Improve/widen the existing 1.0 mile of incised earthen channel with concrete side walls and invert along Heacock Street from Cactus Avenue to Perris Valley Drain Lateral "A".

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	Completed
Funding/Cost:	Joint venture with March Joint Powers Authority (MJPA) , March Air Reserve Base, and Riverside County Flood Control and Water Conservation District; $18.7 million
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: In progress. The project, currently under design, could provide the area along Heacock Channel with 100-year storm level of protection. The existing channel currently cannot carry 10-year flood. Threat to residential areas and March Air Reserve Base properties. Flooding events threaten to undermine the road and underlying utilities, resulting in closures affecting ingress and egress of 700 residences and businesses and resulting in damages to March Air Reserve Base's pump house and transformer which interrupt their operations and emergency missions. A Flood Damage Reduction Study was completed in 2007 with a purpose of finding funding for the project.

Estimated Benefit-to-Cost Ratio*: 3.0

Chapter 6 – Flooding

6.5 Mitigation Strategy:

Mitigation Update – Improve/widen the existing 1.5 mile of incised earthen channel with concrete side walls and invert along Cactus Avenue from Elsworth Street to Heacock Street and connecting to Heacock Channel.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	N/A
Funding/Cost:	Current funding source & estimated cost $7.5m City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1

Supporting Capability:

What identified capability supports this mitigation effort?
This mitigation effort assists in supporting the Riverside County Flood Control and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Pending. The project could provide the area along Cactus Channel with 100-year storm level of protection capacity. The existing channel currently cannot carry 10-year flood. The existing Cactus Channel has limited capacities which result in overtopping and flooding to residential areas and March ARB properties. Flooding events threaten to undermine the road and underlying utilities, result in closures affecting ingress and egress of businesses, and result in damages to March ARB's pump house and transformer which interrupt March ARB's operations and emergency missions. A Flood Damage Reduction Study was completed in 2007 with a purpose of finding funding for the project. This project was identified in 2004 multi-jurisdictional plan.

Chapter 6 – Flooding

6.6 Mitigation Strategy: **Mitigation Update –** Reconstruct/upsize storm drain system on Redlands Boulevard from Alessandro Boulevard to south of Brodiaea Avenue and connect to the existing open channel on the southwest corner of Redland Boulevard and Brodiaea Avenue.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	2023-2025
Funding/Cost:	Hazard Mitigation Grant (DR-1731) and Moreno Area Drainage Plan (ADP) fees; Only available for the construction of Line F-18 and F-19; $4 million
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: This project is in design and is slated for construction in 2024/2025. Estimated Benefit-to-cost Ratio: 3.62**
**Benefit to cost ratio, which is an indicator, used in cost-benefit analysis.

Chapter 6 – Flooding

6.7 Mitigation Strategy: **Mitigation Update –** Install storm drain system in the San Timoteo Foothill Neighborhood, running along Carrie Lane, from Locust Avenue to Kalmia Avenue, then west along Kalmia Avenue to Pettit Street and to be tied into existing storm drain on Pettit Street.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	2017 - ongoing
Funding/Cost:	Hazard Mitigation Grant (DR-1810) and Moreno ADP fees; total cost $2.5 million;

	Riv. Co. Flood Control will provide funding for project, amount TBD
Plan Goal(s)*:	1

Supporting Capability:

What identified capability supports this mitigation effort? This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Ongoing. The project could provide the San Timoteo Foothill Neighborhood with 100-year storm level of protection. The lack of proper storm drain system in the neighborhood has resulted in flooding events in almost every storm season. The implementation of the project could mitigate flooding hazards to the San Timoteo Foothill Neighborhood, including damages to roadway and properties, closures of roadways, health issues, disruptions of traffic and public services.

Estimated Benefit-to-Cost Ratio: 6.26**
**Benefit to cost ratio, which is an indicator, used in cost-benefit analysis.

Chapter 6 – Flooding

6.8 Mitigation Strategy: **Mitigation Update –** Install storm drain systems at two locations on Sunnymead Boulevard; at east of Frederick Street from Hemlock Avenue to 100 feet south of Sunnymead Boulevard and Graham street from Hemlock Avenue to Sunnymead Boulevard and connected.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	N/A
Funding/Cost:	Measure “A” for local match; total cost $45m City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought

	Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities million
Plan Goal(s)*:	1

Supporting Capability:

What identified capability supports this mitigation effort? This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status:

Pending. The proposed project could provide the businesses, public and private properties along Sunnymead Boulevard with 100-year storm level of protection. The existing storm drain systems are inadequate which result in flooding events in almost every storm season. The preliminary engineering has been done for the project in the efforts of getting enough information for filling out future HMGP grant application when it becomes available.

Chapter 6 – Flooding

6.9 Mitigation Strategy:

Mitigation Update – Install a storm drain system in Perris Boulevard from Perris Valley Storm Drain Lateral "A" to north of Suburban Lane in the Perris Valley ADP.

Priority:	High
Responsible Dept:	Capital Projects; Riverside County Flood Control and Water Conservation District
Timeframe:	N/A
Funding/Cost:	Perris ADP fees; $600,000
Plan Goal(s)*:	1

Supporting Capability:

What identified capability supports this mitigation effort? This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: The project could provide 100-year storm level of protection for the lands around Perris Boulevard south of Suburban Lane. Projected to be completed in the next LHMP review period.

Chapter 6 – Flooding

6.10 Mitigation Strategy: **New Mitigation Strategy –** Install a storm drain system Line K-1 (Stage 1) in Ironwood Avenue west of Moreno Beach Drive to Pettit Street.

Priority:	High
Responsible Dept:	Capital Projects; Riverside County Flood Control and Water Conservation District
Timeframe:	N/A
Funding/Cost:	Moreno ADP fees; $2 million
Plan Goal(s)*:	1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Pending. The proposed project could provide 100-year storm level of protection for the area north of Ironwood Avenue between Moreno Beach Drive and Pettit Street.

Chapter 6 – Flooding

6.11 Mitigation Strategy: **New Mitigation Strategy –** Install a storm drain system Line K parallel with Moreno Beach Drive from Ironwood Avenue to north of Kalmia Avenue.

Priority:	High
Responsible Dept:	Capital Projects; Riverside County Flood Control and Water Conservation District
Timeframe:	N/A
Funding/Cost:	Moreno ADP fees; $4 million

Plan Goal(s)*: 1

Supporting Capability:

What identified capability supports this mitigation effort?
This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Pending. The project could provide 100-year storm level of protection for the area west of Moreno Beach Drive south of Locust Avenue.

Chapter 6 – Flooding

6.12 Mitigation Strategy: **New Mitigation Strategy –** For the flooding problems at Kitching Street-Ivy Lane Neighborhood, the ultimate solution is to construct a storm drain system to collect flows from the upstream end, run off along Kitching Street and carry them to the existing Line B-16 on Ironwood Avenue in the City of Moreno Valley. The proposed storm drain system includes approximate 2,900 feet of reinforced concrete pipes and lateral basins. The proposed storm drain system is identified as Line B-16 A within Sunnymead Master Drainage Plan.

Priority: High
Responsible Dept: Capital Projects; Riverside County Flood Control and Water Conservation District
Timeframe: N/A
Funding/Cost: Estimated cost $1.4m
City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*: 1

Supporting Capability:

What identified capability supports this mitigation effort?
This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Pending. The project could provide 100-year storm level protection for the area of Kitching Street-Ivy Lane Neighborhood.

Chapter 6 – Flooding

6.13 Mitigation Strategy: **New Mitigation Strategy –** For the flooding problems at Hubbard Street and Dunleavy Court neighborhood, the ultimate solution is to construct a storm drain system to collect flows from the upstream end, run off along Hubbard Street with inlets at Dunlavy Court and lateral streets and carry them to the existing Line H-1 on Ironwood Avenue in the City of Moreno Valley.

Priority: High
Responsible Dept: Capital Projects; Riverside County Flood Control and Water Conservation District
Timeframe: 2017-2018 -COMPLETED
Funding/Cost: City of Moreno Valley and Riverside County Flood Control and Water Conservation District; $1.5 million
Plan Goal(s)*: 1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control District and Water Conservation District Master Drainage Plan

Status: **Does this capability require an update to support this mitigation effort?** No
The project provided 100-year storm level protection for the area of Hubbard Street and Dunleavy Court Neighborhood.

Chapter 6 – Flooding

6.14 Mitigation Strategy: **New Mitigation Strategy –** Ensure that minimum building standards are implemented to safeguard life, limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within the City of Moreno Valley. Adopt current California Building Standards

Code, California Code of Regulations, Title 24, the California Building Code, California Mechanical Code, California Residential Code, California Plumbing Code, California Fire Code, California Existing Building Code, California Historical Code, California Green Code, California Energy Code, and the California Electrical Code and adopting other regulations relating to Building and Fire Prevention requirements.

Priority: Critical
Responsible Dept: Building & Safety; Fire
Timeframe: 2017 Completed
Funding/Cost: Current funding; cost unknown
Plan Goal(s)*: 1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** Utilize Approved California Building Codes; Latest adoption was July 1, 2022, adopting the 2022 Building Codes with effective date of January 1, 2023.

Does this capability require an update to support this mitigation effort? Yes, Code update required every 3 years. No update needed specifically as a result of this strategy.

Status: COMPLETED.

Chapter 6 – Flooding

6.15 Mitigation Strategy: **New Mitigation Strategy –** Reduce flooding with the construction of multiple flood control basins throughout the City.

Priority: High
Responsible Dept: Capital Projects
Timeframe: 2024 and ongoing
Funding/Cost: Current funding source & cost unknown City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities

Plan Goal(s)*: S-1

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation effort assists in supporting the Riverside County Flood Control and Water Conservation District Master Drainage Plan

Does this capability require an update to support this mitigation effort? No

Status: Assessed and pending.

Chapter 7 – Drought

7.1 Mitigation Strategy: **New Mitigation Strategy –** Decrease water usage on public and private parcels. Promote adoption of drought tolerant xeriscaping and potential incentives for landscaping replacement and continue removal and replacement of city-owned landscaping. Encourage contractors for residential and commercial developments to offer options promoting partnering agencies' programs.

Priority: High
Responsible Dept: Facilities; Parks and Community Services; Planning; Special Districts; EMWD
Timeframe: Ongoing
Funding/Cost: City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*: 2

Supporting Capabilities: **What identified capability supports this mitigation effort?** City General Plan and general Economic Development standards

Does this capability require an update to support this mitigation effort? Yes, City plans require periodic update and review. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 7 – Drought

7.2 Mitigation Strategy: **New Mitigation Strategy –** Decrease water usage on public and private parcels. Construct hardscape and xeriscape along streets within the City; replacing existing water-heavy landscaping.

Priority:	High
Responsible Dept:	Capital Projects
Timeframe:	2024 and ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-1

Supporting Capabilities: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan

Does this capability require an update to support this mitigation effort? Yes, CIP plans must be reviewed and updated periodically. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 8 – Landslide

8.1 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential for loss of life, property, and damage of critical facilities from landslide damage. Work with GIS to identify, inventory, and map critical facilities subject to landslides.

Priority:	High
Responsible Dept:	Building & Safety; Fire; GIS; Public Works (Land Development)
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought

		Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
	Plan Goal(s)*:	1, 3, 4
Supporting Capability:	**What identified capability supports this mitigation effort?** City General Plan, Emergency Operations Plan, Natl. Flood Ins. **Does this capability require an update to support this mitigation effort?** Yes, General Plan and EOP require periodic review and updating. GIS maintains current maps of all hazards. No update needed specifically as a result of this strategy.	
Status:	Assessed	

Chapter 8 – Landslide

8.2 Mitigation Strategy:	**New Mitigation Strategy –** Increase public awareness of current and potential threats. Educate residents about potential erosion control resources and measures.	
	Priority:	High
	Responsible Dept:	Office of Emergency Management
	Timeframe:	Ongoing
	Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
	Plan Goal(s)*:	1, 2
Supporting Capability:	**What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan **Does this capability require an update to support this mitigation effort?** Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.	
Status:	Assessed	

Chapter 9 – Insect Infestation

9.1 Mitigation Strategy: **New Mitigation Strategy –** Increase public awareness of current and potential threats. Educate residents about potential infestation control resources and measures.

Priority:	High
Responsible Dept:	Code Enforcement; Fire; Technology Services;
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 9 – Insect Infestation

9.2 Mitigation Strategy: **New Mitigation Strategy –** Work with the Riverside County Department of Environmental Health to ensure continued compliance with Vector Control Program for mosquito treatment citywide. Continue to inspect reports of stagnant water and work with property owners to educate and abate with county assistance as needed.

Priority:	High
Responsible Dept:	Code Enforcement; Riverside County Department of Environmental Health
Timeframe:	Ongoing

	Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
	Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 10 – Extreme Weather

10.1 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential impacts of extreme weather. Encourage public participation and usage of Cal OES' "MyHazards" tool to discover hazards in their area (earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk.

Priority:	High
Responsible Dept:	Office of Emergency Management
Timeframe:	Ongoing; public education campaign is ongoing
Funding/Cost:	No direct costs
Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 10 – Extreme Weather

10.2 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential impacts of extreme temperatures. Increase public awareness of extreme temperatures including shelter locations and cooling and warming centers.

Priority:	High
Responsible Dept:	Office of Emergency Management; Parks & Community Services; Technology Services, Media
Timeframe:	Ongoing
Funding/Cost:	No direct costs
Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 11 – Severe Wind

11.1 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential impacts and damage from severe wind events. Encourage public participation and usage of Cal OES' MyHazards tool to discover hazards in their area (earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk.

Priority:	High
Responsible Dept:	Office of Emergency Management
Timeframe:	Ongoing
Funding/Cost:	No direct costs
Plan Goal(s)*:	1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 11 – Severe Wind

11.2 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential impacts and damage from windy conditions. Encourage maintenance or removal of overgrown or dead trees that may pose a falling hazard in windy conditions. Ensure city-owned trees are continued to be similarly maintained.

Priority:	High
Responsible Dept:	Parks and Community Services; Public Works; Special Districts
Timeframe:	Ongoing
Funding/Cost:	Funding is provided via general funds within dept. budget; When eligible, the City applies for Hazard Mitigation Grants (HMGP) and other climate-related grants from Federal, state, and local providers such as Cal OES
Plan Goal(s)*:	1, 2, 3

Supporting Capability: **What identified capability supports this mitigation effort?** Emergency Operations Plan and other City-related ordinances and mission areas.

Does this capability require an update to support this mitigation effort? Yes, EOP must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 12 – Dam Failure/Inundation

12.1 Mitigation Strategy: **New Mitigation Strategy –** Increase public awareness of current and potential threats. Encourage public participation and usage of Cal OES' MyHazards tool to discover hazards in their area

(earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk.

Priority: High
Responsible Dept: Fire; Parks and Community Services (Maintenance); Public Works (Maintenance & Operations)
Timeframe: Ongoing
Funding/Cost: No direct costs
Plan Goal(s)*: 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 13 – Pipeline

13.1 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential damage to infrastructure and pipelines. Work with pipeline owners and appropriate state and federal inspectors to promote and encourage continued compliance with inspection, maintenance, signage, and notification requirements in accordance with local, state, and federal regulations. Continue to require all development applications and approvals to be consistent with applicable provisions of relevant regulatory policies.

Priority: High
Responsible Dept: Land Development
Timeframe: Ongoing
Funding/Cost: City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, and other Federal, State, or local grant opportunities
Plan Goal(s)*: 1, 2

Supporting Capability: **What identified capability supports this mitigation effort?** City General Plan & Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 14 – Transportation

14.1 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential transportation impacts. Continue to utilize existing city and intersection cameras to monitor and adjust traffic flows. Continue traffic and speed studies with enforcement.

Priority:	High
Responsible Dept:	Police; Public Works (Transportation)
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Cal Trans Program grants, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-2

Supporting Capability: **What identified capability supports this mitigation effort?** Capital Improvement Plan

Does this capability require an update to support this mitigation effort? Yes, the CIP is reviewed and updated as required. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 14 – Transportation

14.2 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential transportation impacts. Continue to adjust intersection signal timing during peak periods or around special events. Develop and implement a Commercial Vehicle Enforcement program.

Priority:	High
Responsible Dept:	Police; Public Works (Transportation)
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Cal Trans Program grants and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-2

Supporting Capability: **What identified capability supports this mitigation effort?** Capital Improvement Plan

Does this capability require an update to support this mitigation effort? Yes, the CIP is reviewed and updated as required. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 14 – Transportation

14.3 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential transportation impacts. Develop citywide intersection signal timing coordination with adjustment capability. Upgrade and refurbish Transportation Management Center equipment and software.

Priority:	High
Responsible Dept:	Transportation
Timeframe:	2023 and ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought

	Resilience Planning, CalCAP Seismic Safety, Cal Trans Program grants and other Federal, State, or local grant opportunities
Plan Goal(s)*:	S-2

Supporting Capability: **What identified capability supports this mitigation effort?** This mitigation assists in supporting the Capital Improvement Plan

Does this capability require an update to support this mitigation effort? Yes, the CIP requires periodic review and update. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 15 – Power Failure

15.1 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential impact from power failures. Promote and encourage compliance with state- and utility-mandated conservation efforts during peak periods.

Priority:	High
Responsible Dept:	MVU
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Utility Infrastructure grants via So Cal Edison, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	2

Supporting Capability: **What identified capability supports this mitigation effort?** California Public Utilities Code General Orders, Wildfire Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, both require periodic or annual updates. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 15 – Power Failure

15.2 Mitigation Strategy: **New Mitigation Strategy –** Minimize potential impact from power failures. Ensure continued compliance with California Public Utilities Commission orders and rules regarding required line clearance where vegetation exists and encroaches on power lines.

Priority:	High
Responsible Dept:	MVU
Timeframe:	Ongoing
Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Utility Infrastructure grants via So Cal Edison, and other Federal, State, or local grant opportunities
Plan Goal(s)*:	1, 3

Supporting Capability: **What identified capability supports this mitigation effort?** California Public Utilities Code General Orders, Wildfire Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, both require periodic or annual updates. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 16 – Hazardous Materials Accident

16.1 Mitigation Strategy: **New Mitigation Strategy –** Reduce potential for loss of life, property, and environmental damage from hazardous materials impacts. Ensure continued compliance with materials code and local, state, federal regulations and relevant regulatory policies regarding generation and storage of hazardous materials.

Priority:	High

	Responsible Dept:	Fire Prevention; Riverside County Department of Environmental Health
	Timeframe:	Ongoing
	Funding/Cost:	City continues to explore BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Utility Infrastructure grants via So Cal Edison, and other Federal, State, or local grant opportunities
	Plan Goal(s)*:	1, 2
Supporting Capability:	**What identified capability supports this mitigation effort?** CA Fire Code, General Plan	
	Does this capability require an update to support this mitigation effort? Yes, the Fire Code and General Plan require periodic review and update. No update needed specifically as a result of this strategy.	
Status:	Assessed	

Chapter 17 – Terrorist Attack

17.1 Mitigation Strategy:	**Mitigation Update –** Minimize opportunities for crime found in the present and future build environment, and by creating and maintaining a high level of community awareness and support of crime prevention. Promote the establishment of neighborhood and business watch programs to encourage community participation in the patrol of neighborhood areas, and increased awareness of any suspicious activity.	
	Priority:	High
	Responsible Dept:	Police
	Timeframe:	Ongoing
	Funding/Cost:	The City regularly pursues law enforcement-related grant opportunities through various public sectors
	Plan Goal(s)*:	1, 2, 4
Supporting Capability:	**What identified capability supports this mitigation effort?** Riverside County Sheriff general mission; Neighborhood Watch Program	

Does this capability require an update to support this mitigation effort? No

Status: Assessed

Chapter 18 – Civil Unrest

18.1 Mitigation Strategy: **New Mitigation Strategy –** Minimize opportunities for crime found in the present and future build environment, and by creating and maintaining a high level of community awareness and support of crime prevention. Promote the establishment of neighborhood and business watch programs to encourage community participation in the patrol of neighborhood areas, and increased awareness of any suspicious activity.

Priority:	High
Responsible Dept:	Police
Timeframe:	Ongoing
Funding/Cost:	The City regularly pursues law enforcement-related grant opportunities through various public sectors
Plan Goal(s)*:	1, 2, 4

Supporting Capability: **What identified capability supports this mitigation effort?** Riverside County Sheriff general mission; Neighborhood Watch Program

Does this capability require an update to support this mitigation effort? No

Status: Assessed

Chapter 19 – Pandemic Flu/Disease

19.1 Mitigation Strategy: **Mitigation Update –** Collaborate and coordinate with the Riverside County Public Health Department to support community awareness to prevention and protections from communicable disease and/or pandemic flu. Assist in providing information to the public regarding prevention and protection against communicable

disease and/or pandemic flu. Increase public awareness of current and potential threats.

Priority:	Moderate
Responsible Dept:	Office of Emergency Management; Technology Services; Riverside University Health Systems - Public Health
Timeframe:	2017 - Ongoing
Funding/Cost:	The City received federal pass-through funds to support worldwide pandemic and will continue to pursue Federal, state, and local grant funding opportunities through Cal OES, CDPH, CDC, and others.
Plan Goal(s)*:	1, 2, 3, 4

Supporting Capability: **What identified capability supports this mitigation effort?** Local Hazard Mitigation Plan and City General Plan

Does this capability require an update to support this mitigation effort? Yes, Local Hazard Mitigation Plan must be updated every 5 years. No update needed specifically as a result of this strategy.

Status: Assessed

Chapter 19 – Pandemic Flu/Disease

19.2 Mitigation Strategy: **Mitigation Update –** Minimize risk and threat of infection or disease. Encourage and promote participation in seasonal immunization efforts.

Priority:	High
Responsible Dept:	Office of Emergency Management
Timeframe:	2017 - Ongoing
Funding/Cost:	The City received federal pass-through funds to support worldwide pandemic and will continue to pursue Federal, state, and local grant funding opportunities through Cal OES, CDPH, CDC, and others.

Plan Goal(s)*: 1, 2, 3, 4

Supporting Capability: **What identified capability supports this mitigation effort?** N/A

Does this capability require an update to support this mitigation effort? No. There are several local and regional programs that are utilized to encourage community immunizations. Grants funds are sought through various channels through partner agencies and non-profits.

Status: Assessed

All Hazards

AH.1 Mitigation Strategy: **Mitigation Update –** Provide a satellite EOC traffic management center LED or LCD wall display and computers to better manage emergency operations from the EOC and provide a backup to the city's traffic management center.

Priority: High
Status: Carryover from City's 2017 LHMP
Responsible Dept: Capital Projects; Traffic Engineering
Timeframe: 2016-2017
Funding/Cost: FY10 EMPG grant $25K; ongoing costs are supported by the City currently; however, the City is always pursing BRIC, Hazard Mitigation Grant Funding (HMGP), Climate Adaptation Grants, Drought Resilience Planning, CalCAP Seismic Safety, Infrastructure grants via other Federal, State, or local grant opportunities
Plan Goal(s)*: 3, 4

Supporting Capability: **What identified capability supports this mitigation effort?** Capital Improvement Plan, General Plan

Does this capability require an update to support this mitigation effort? No update needed specifically as a result of this strategy.

Status: COMPLETED

All Hazards

AH.2 Mitigation Strategy: **Mitigation Update –** Encourage public participation in the city's hazard mitigation update process by designating a Hazard Mitigation web page in the Emergency Section of the city website that is specific to the City of Moreno Valley Local Hazard Mitigation Plan.

Priority:	Moderate
Responsible Dept:	Office of Emergency Management; Technology Services - Media
Timeframe:	2017 COMPLETED / Ongoing
Funding/Cost:	General funded
Plan Goal(s)*:	1, 2, 4

Supporting Capability: **What identified capability supports this mitigation effort?**
Local Hazard Mitigation Plan

Does this capability require an update to support this mitigation effort? Yes, LHMP is updated every 5 years. No update needed specifically as a result of this strategy.

Status: Completed/Ongoing

All Hazards

AH.3 Mitigation Strategy: **Mitigation Update –** Promote a greater community awareness and understanding of the effects of natural and man-made hazards. Provide FEMA Community Emergency Response Team Training regularly to the community.

Priority:	High
Responsible Dept:	Office of Emergency Management
Timeframe:	2017 - Ongoing
Funding/Cost:	Homeland Security Grant Program and General Fund
Plan Goal(s)*:	1, 2, 4

Supporting Capability: **What identified capability supports this mitigation effort?**
Local Hazard Mitigation Plan

	Does this capability require an update to support this mitigation effort? Yes, LHMP must be updated every 5 years. No update needed specifically as a result of this strategy.
Status:	Continuing and ongoing.

All Hazards

AH.4 Mitigation Strategy:	**New Mitigation Strategy –** Provide emergency preparedness presentations to service clubs, homeowner's associations, and other organizations to enhance preparedness. **Priority:** Moderate **Responsible Dept:** Office of Emergency Management **Timeframe:** 2017 - Ongoing **Funding/Cost:** General fund **Plan Goal(s)*:** 1, 2, 4
Supporting Strategy:	**What identified capability supports this mitigation effort?** This is an ongoing effort by emergency management and is achieved through various avenues. **Does this capability require an update to support this mitigation effort?** No
Status:	Assessed

20.4 NATIONAL FLOOD INSURANCE PROGRAM

The last component of the city's mitigation strategy is participation in the National Flood Insurance Program. The City of Moreno Valley has participated in the NFIP since June 16, 1987.

The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations.

The NFIP seeks to minimize the socio-economic impact of disasters by encouraging and promoting the purchase and retention of general risk insurance, but also flood insurance, specifically, to homes and businesses located in Special Flood Hazard Areas (SFHA). The land area covered by the floodwaters of the base flood is the SFHA on NFIP maps.

Per City Municipal Code, the City of Moreno Valley regulates new development and substantial improvement to existing structures in the SFHA or to build safely above Base Flood Elevation (BFE) to reduce damage to new construction. The program is based on mapping areas of flood risk and requiring local implementation to reduce flood damage primarily requiring the elevation of structures above the BFE including revising the Flood Insurance Rate Maps (FIRMs) by processing Letters of Map Revisions (LOMR) with FEMA prior to issuance of certificates of occupancy. The city completes the NFIP Biennial Report and returns that information to FEMA in a timely manner. There have been no negative issues from participating in the NFIP.

In 2008, the city updated its Municipal Code, adopting the April 19, 2017 Flood Insurance Study (FIS), Flood Boundary and Floodway Maps (FBFM) and attendant FIRMs. The FIS, FBFM and FIRM are on file at Public Works Department, Land Development Division.

The City of Moreno Valley requires Flood Plain Development Permits for all construction or other development, including manufactured homes, within any SFHA. Flood Insurance may be required in these zones as a condition of loan or grant assistance. Elevation Certificates are required as part of the Development Permit, issuance of a building permit and issuance of final occupancy. The Elevation Certificate is a form published by FEMA and required to be maintained and filed in Moreno Valley as a participating community in the NFIP.

The Moreno Valley Master Drainage Plan was updated in early 2015 and adopted by City Council on October 13, 2015. The Master Drainage plan proposes the construction of detention basins, debris basins, open channels, and a network of underground storm drains. When implemented, it shall provide flood protection from the 100-year storm event. In addition, it also serves as a planning guide for the location and sizing of local drainage facilities to be constructed by developers and others within the area.

Discretionary projects located in an SFHA are required, as a condition of approval, to construct necessary storm drain improvements per the city's Master Drainage Plan and process a Letter of Map Revision, thus removing property from SFHA.

Repetitive Loss Properties: There are no repetitive loss properties.

Other Data Used to Regulate Flood Hazard Areas: The City of Moreno Valley utilizes past Hydrology/Hydraulic (H/H) studies prepared by the Riverside County Flood Control and Water Conservation District, developers and others prepared in the past in areas known for shallow flooding within Zone X to determine finish floor elevations for proposed structures.

Community Rating System (CRS): Beginning October 1, 1991, the City of Moreno Valley has maintained its member participation in the CRS and is rated at a Class 8. FEMA conducts NFIP-CRS field verifications on a five-year cycle to determine if communities

remain in compliance with NFIP regulations. The City of Moreno Valley's most recent field verification was conducted in April 2017 and found the city to be in compliance. The NFIP-CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted by 10% for SFHA zones and 5% for non-SFHA zones to reflect the reduced flood risk resulting from the community actions. These efforts are aligned with the three goals of the CRS:

1. Reduce flood damages to insurable property.
2. Strengthen and support the insurance aspects of the NFIP; and
3. Encourage a comprehensive approach to floodplain management.

APPENDIX A

ABBREVIATIONS, ACRONYMS, AND INITIALISMS

Abbreviations, Acronyms, and Initialisms

ADP	Area Drainage Plan
APZ	Accident Potential Zone
BFE	Base Flood Elevation
BIA	Business In Action
CALTRANS	California Department of Transportation
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CRC	Community and Recreation Center
CRS	Community Rating System
DNA	Deoxyribonucleic Acid
DR	Disaster
E-MAIL	Electronic Mail
EMWD	Easter Municipal Water Department
EOC	Emergency Operations Center
FBFM	Flood Boundary and Floodway Maps
FBI	Federal Bureau of Investigations
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GIS	Geological Information Systems
H/H	Hydrology/Hydraulic
HIV	Human Immunodeficiency Virus
HMGP	Hazard Mitigation Grant Program
H.R.	House of Representatives
IRC	Inland Regional Center
LHMP	Local Hazard Mitigation Plan
LOMR	Letter of Map Revisions
MMscfd	Million Standard Cubic Feet per Day
MVTV-3	Moreno Valley Cable Television Channel
MVU	Moreno Valley Utility
N/A	Not Available
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NWS	National Weather Service

OEM	Office of Emergency Management
PLS	Pressure Limiting Station
PSIG	Per Square Inch Gage
RCC	Riverside Community College
RCFC/WCD	Riverside County Flood Control and Water Conservation District
RDA	Redevelopment Agency
RUHS	Riverside University Health System
RV	Recreational Vehicle
SBA	Small Business Administration
SDG&E	San Diego Gas & Electric
SFHA	Special Flood Hazard Area
SME	Subject Matter Expert
SONGS	San Onofre Nuclear Generating System
SR	State Route
TBD	To Be Determined
THIRA	Threat and Hazard Identification and Risk Assessment
TUMF	Transportation Uniform Mitigation Fee
UP	Union Pacific
USGS	United States Geological Services
WCD	Wastewater Control District

APPENDIX B

MEETING DOCUMENTATION

Executive Team - LHMP Planning Committee Kickoff Meeting – July 6, 2022

Executive Team
LHMP Briefing & Kickoff Agenda
July 6, 2022

- Presentation of Plan
- Plan Update Overview
- Outline of City LHMP Planning Team
  - Roles & Responsibilities
  - Members
  - Timeline
  - Process
- Questions
- Adjourn

EXECUTIVE TEAM LHMP BRIEFING & KICKOFF MEETING – JULY 6, 2022

Executive Team LHMP Briefing & Kickoff Agenda - July 6, 2022
Attendance Roster

Participant Name	Present On Call	Not on Call
Mike Lee, City Manager	X	
Brian Mohan, Asst. City Manager	X	
Aldo Schindler	X	
Michael Lloyd, PE Public Works Engineer		X
Manual Mancha, Community Development		X
Steve Quintanilla, City Attorney		X
Jeremy Bubnick, Director, Parks & Community Svs.	X	
John Salisbury, Police Chief		X
Jesse Park, Fire Chief	X	
Diana Rockot-Sykes, Division Manager, OEM	X	
Angel Galache, Deputy City Manager	X	

City LHMP Planning Committee Kickoff Meeting – July 28, 2022

SIGN IN SHEET

CITY OF MORENO VALLEY - LOCAL HAZARD MITIGATION PLANNING TEAM
2022 UPDATE KICKOFF MEETING

JULY 28, 2022
10:30 am

Official Microsoft Teams Meeting Summary Report

Total Number of Participants	13
Meeting Title	LHMP Planning Team Kick Off Meeting Invitation
Meeting Start Time	7/28/2022, 10:24:03 AM
Meeting End Time	7/28/2022, 10:50:28 AM
Meeting Id	a2921cb7-29da-4a3d-9b43-8698710b7c4c

Full Name	Email	Participant ID (UPN)
Diana Rockot	dianar@moval.org	dianar@moval.org
Janice Nollar-Conrad, GISP	janicen@moval.org	janicen@moval.org
Sean P. Kelleher	seanke@moval.org	seanke@moval.org
Rodriguez, Dave@CALFIRE	Dave.Rodriguez@fire.ca.gov	Dave.Rodriguez@fire.ca.gov
Raquel Ortega	raquelo@moval.org	raquelo@moval.org
Joseph Mattox	josephm@moval.org	josephm@moval.org
Dean Ayer	deana@moval.org	deana@moval.org
Jeannette Olko	jeannetteo@moval.org	jeannetteo@moval.org
Steve Hargis, PhD	steveh@moval.org	steveh@moval.org
Mindy Davis	mindyd@moval.org	mindyd@moval.org
Bloom, Doug@CALFIRE	Doug.Bloom@fire.ca.gov	Doug.Bloom@fire.ca.gov
Clement Jimenez, P.E.	clementj@moval.org	clementj@moval.org
James Verdugo, CBO	jamesv@moval.org	jamesv@moval.org

Hazard Mitigation Planning Team

The following departments & stakeholders will play a vital role in the 2022 Update process:

- Emergency Management – Diana Rockot, Division Manager, Lead
- Building & Safety – James Verdugo, Division Manager
- Electric Utility – Jeannette Olko, Division Manager
- Fire Dept. (CAL FIRE/Riv. Co. Fire Dept.) – Jesse Park, Fire Chief
- GIS – Janice Nollar-Conrad, GISP, GIS Administrator
- Maintenance & Operations – Joseph Mattox, Division Manager
- Parks & Community Services – Jeremy Bubnick, Director
- Police (Riv. Co. Sheriff's Dept.) - TBD
- Planning – Sean Kelleher, Planning Official
- Other departments, divisions, and stakeholders will be consulted as required

City LHMP Planning Committee Kickoff Meeting – July 28, 2022

TIMELINE

LHMP Plan Revision Timeline 2022-23

1. July 28, 2022 – City Planning Team Kickoff Meeting
2. August – December – Department & Division Plan Review & Update
3. September – Launch Public LHMP Web Page to access Plan & Provide Feedback
4. October – Host two Public Review & Input Meetings
5. November – Review Department/Division Submissions
6. February – Provide Public Feedback Opportunity on Website of Draft Plan
7. March – Submit plan to Riverside County Operational Area for Review
8. April – Send to City Council for Adoption
9. May – Re-post to city website for public accessibility

Operational Area Planning Committee Meeting – Agenda July 28, 2022

OPERATIONAL AREA PLANNING COMMITTEE MEETING – SIGN IN SHEET – JULY 28 2022

Total Number of Participants 55

Meeting Title	**OAPC Meeting**
Meeting Start Time	7/28/2022, 8:46:12 AM
Meeting End Time	7/28/2022, 10:16:53 AM

Full Name	Join Time	Leave Time
Moore, Kelly J	7/28/2022, 8:46:12 AM	7/28/2022, 10:11:27 AM
David Ellsworth	7/28/2022, 8:47:02 AM	7/28/2022, 10:10:38 AM
Ernesto Diaz (Guest)	7/28/2022, 8:50:03 AM	7/28/2022, 10:10:32 AM
Dunlap, Joseph	7/28/2022, 8:54:14 AM	7/28/2022, 10:10:37 AM
Diana Rockot	7/28/2022, 8:54:17 AM	7/28/2022, 10:02:37 AM
Diana Rockot	7/28/2022, 10:05:25 AM	7/28/2022, 10:08:52 AM
Robert Galletta	7/28/2022, 8:54:40 AM	7/28/2022, 9:08:07 AM
Robert Galletta	7/28/2022, 9:42:12 AM	7/28/2022, 9:47:16 AM
Daniel DeSelms	7/28/2022, 8:55:28 AM	7/28/2022, 10:10:29 AM
Edward Chacon (Guest)	7/28/2022, 8:56:41 AM	7/28/2022, 10:10:34 AM
Mariana Hernandez	7/28/2022, 8:56:50 AM	7/28/2022, 10:10:32 AM
Merrick, Jan	7/28/2022, 8:57:03 AM	7/28/2022, 10:10:35 AM
Vanessa Barrera	7/28/2022, 8:57:13 AM	7/28/2022, 10:10:34 AM
McFadden, Tellette	7/28/2022, 8:57:15 AM	7/28/2022, 10:10:41 AM
Boyd, Branden	7/28/2022, 8:57:16 AM	7/28/2022, 10:10:28 AM
Candy Alvarez	7/28/2022, 8:57:34 AM	7/28/2022, 10:10:36 AM
Kelly, Michelle	7/28/2022, 8:57:40 AM	7/28/2022, 9:13:14 AM
Tisdale, Brian	7/28/2022, 8:57:42 AM	7/28/2022, 9:58:22 AM
Tom Marcoux	7/28/2022, 8:57:58 AM	7/28/2022, 10:10:26 AM
Barton, Bruce	7/28/2022, 8:58:20 AM	7/28/2022, 10:10:35 AM
Melanie Bonilla	7/28/2022, 8:58:46 AM	7/28/2022, 10:10:36 AM
Barron, Joe E	7/28/2022, 8:58:49 AM	7/28/2022, 10:10:32 AM
Reichardt, Shane	7/28/2022, 8:59:06 AM	7/28/2022, 10:10:29 AM
Donna Mayer	7/28/2022, 8:59:09 AM	7/28/2022, 10:10:30 AM
Daisy Ramirez	7/28/2022, 8:59:17 AM	7/28/2022, 10:10:46 AM
John Lavallee	7/28/2022, 8:59:21 AM	7/28/2022, 10:10:28 AM
Juan Landeros-Tavera	7/28/2022, 9:00:36 AM	7/28/2022, 10:10:26 AM
Brittany Whitmore	7/28/2022, 9:00:40 AM	7/28/2022, 10:10:29 AM
Cadden, Eric	7/28/2022, 9:00:40 AM	7/28/2022, 10:10:34 AM
Brian Young	7/28/2022, 9:00:41 AM	7/28/2022, 10:10:31 AM
Michael D'Amico	7/28/2022, 9:00:44 AM	7/28/2022, 10:10:32 AM
Diamond, Myles	7/28/2022, 9:00:45 AM	7/28/2022, 9:30:15 AM
Tina Evans (Guest)	7/28/2022, 9:01:12 AM	7/28/2022, 9:14:45 AM
Ngo, Ehren	7/28/2022, 9:01:13 AM	7/28/2022, 10:10:34 AM
Leyva, Hilda	7/28/2022, 9:01:17 AM	7/28/2022, 10:10:34 AM
Collins, Camille	7/28/2022, 9:01:29 AM	7/28/2022, 10:10:32 AM
Bricker, Zuzzette	7/28/2022, 9:01:33 AM	7/28/2022, 10:09:51 AM
Carolina Barrera	7/28/2022, 9:01:33 AM	7/28/2022, 10:10:27 AM
Mesa, Ralph	7/28/2022, 9:01:35 AM	7/28/2022, 10:10:37 AM
Stephen Anderson (Guest)	7/28/2022, 9:01:48 AM	7/28/2022, 10:11:31 AM
Barrios, Andrea	7/28/2022, 9:02:07 AM	7/28/2022, 9:03:10 AM
Eva Terekhova	7/28/2022, 9:02:08 AM	7/28/2022, 10:10:31 AM
Doug Story	7/28/2022, 9:02:25 AM	7/28/2022, 9:47:31 AM
Craig Sanborn	7/28/2022, 9:03:16 AM	7/28/2022, 9:15:43 AM
Craig Sanborn	7/28/2022, 9:23:39 AM	7/28/2022, 10:10:29 AM
Mikayla Mendoza - Soboba (	7/28/2022, 9:03:17 AM	7/28/2022, 10:10:36 AM

OA MJLHMP STEERING COMMITTEE MEETING – AUGUST 3, 2022

Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP) Update
OA Steering Committee Revise Agenda
Date: August 3, 2022
Time: 10:00 AM to 11:30 PM

Subject	Time	Presented by	Purpose	Attachments
Introductions / Purpose	10 mins	Brian MacGavin	Inform	Sign-in Sheet
Review of Minutes from April 13, 2022	5 mins.	Brian MacGavin	Inform	April 13, 2022 Steering Committee Minutes
Review of update requirements and timeline	10 mins.	William Luna	Inform	Local Mitigation Plan Review Guide & Timeline
Tracking and Scoring Mitigation Projects / Actions	15 mins	Brian MacGavin	Inform	Mitigation Projects Spreadsheet
MJLHMP Goals and Objectives	15 mins.	Brian MacGavin	Discussion	Goals from 2018 MJLHMP
Review of MJLHMP Hazards	10 mins	William Luna	Discussion	
Additional Discussion and Feedback from Steering Committee Members	15 mins.	All	Discuss	N/A
Next Steps /Action Items	5 min.	Brian MacGavin	Discuss	N/A
Adjourn / Next Meeting	2 min.	Brian MacGavin	Inform	N/A

Next Meeting-October 5, 2022 10:00 AM to 11:30 AM

OA MJLHMP Steering Committee Sign in Sheet – August 3, 2022

LHMP Process Review Meeting with County EMD – August 8, 2022

City of Moreno Valley
Local Hazard Mitigation Planning Meeting
August 8, 2022

1:00 p.m. to 2:00 p.m.

Location: Emergency Operation Center

Department/Office	Name	Signature
Moreno Valley OEM	Diana Rockot	Diana Rockot
Riverside County EMD	William Luna	
RIVERSIDE COUNTY EMD	BRUCE BARTLETT	

OA MJLHMP Workshop Agenda– August 17, 2022

Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP) Update
Jurisdiction Workshop
Dates: August 17, 2022 (West County EOC or Virtual)
August 24, 2022 (East County EOC or Virtual)
Times: 9:00 AM to 12:00 PM
1:00 PM to 4:00 PM

Subject	Time	Presented by	Purpose
Introductions / Overview	5 mins.	William Luna	
Review of Update Requirements / Q&A	15 mins.	Jennifer Smith	Inform
Risk Assessment Overview	20 mins.	William Luna	Discussion
GIS Mapping/ Risk Score Matrix Q&A	30 mins.	Catherine Farrokhi & Moses Martinez	Discussion
Community Outreach Strategies & Breakout Session	30 mins.	Shane Reichardt	Discussion & Breakout
Break	10 mins.	-	-
Example Plan Review	30 mins.	Jennifer Smith & William Luna	Discussion
Mitigation Project Ranking & Tracking	15 mins.	Brian MacGavin	Discussion
Overview of Approval Process with Cal OES and FEMA	15 mins.	Victoria Lamaar-Haas	Inform
Timeline Review /Action Items	5 mins.	Jennifer Smith & William Luna	Inform
Roundtable & Adjourn	5 mins.	Brian MacGavin	

Next Meeting-TBD based on partner needs
Any inquires and follow-up: Email LHMP@Rivco.org

OA MJLHMP Workshop Sign in Sheet– August 17, 2022

LHMP Participant Workshop

Sign-In

Wednesday, August 17, 2022
1:00 pm to 4:00 pm
West County EOC / Microsoft Teams

	Name:	Email:	Agency:	In Attendance Virtually (Y/N)?
1	Jay Cregreen	jcregeen@hemetca.gov	Hemet Fire Dept	Virtual
2	Diana Rockot	dianar@moval.org	City of Moreno Valley	Virtual
3	Eva Terekhova	eterekhova@eastvaleca.gov	City of Eastvale	Virtual
4	Peter Sellas	Psellas@rivco.org	City of Riverside	Virtual
5	Scott Reierson	sreierson@mwdh20.com	Metro Water District	Virtual
6	Sudah Bashar	bsudah@mwdh20.com	Metro Water District	Virtual
7	Michael D'Amico	mdamico@rcoe.us	Riverside County Office of Education	Virtual
8	Jennifer Ustation	justation@beaumontca.gov	City of Beaumont	Virtual
9	Jared Peri	Jared.Peri@caloes.ca.gov	Cal-OES	Virtual

Non-Profit & Faith-based Organizations Presentation – August 25, 2022 (Sign in sheet not available)

AGENDA

- Welcome & Introductions
- Citywide Hazard Overview:
  - Local Hazard Mitigation Plan (LHMP) Overview
    - Coming soon: www/moval.org/lhmp
    - Provide comments on the plan
- Preparing on a Budget
- Non-profit & Faith-based Roles in Disasters
- Questions

City CERT Training Flyer – September 9-11, 2022

CITY OF MORENO VALLEY
CERT
COMMUNITY EMERGENCY RESPONSE TEAM

Are You Prepared For A Disaster?

The *Community Emergency Response Team (CERT)* program and training is designed to increase individual and community preparedness and self-reliance in the event of man-made or natural disasters. Emergency Services may not be immediately available, so residents may have to rely on each other for life-saving skills and needs.

Our all-hazard approach training teaches disaster preparedness, hazard mitigation in your home and workplace, and life-saving skills with emphasis on rescuer safety, decision-making skills, leadership and ....

"Doing The Greatest Good For The Greatest Number Of People".

- There are no pre-requisites to attend
- Must be at least 18 years of age (16 years of age with a parent or guardian attending)
- Students must complete all 20 hours of training to receive a Certificate of Completion
- There is no cost for the training

Upcoming 2022 Classes:

- September 9-11, 2022
- October 14-16, 2022

Classes meet Friday evening 6:00 p.m. — 9:30 p.m.,
Saturday and Sunday 8:00 a.m. — 5:00 p.m.

TRAINING INCLUDES:

- Earthquake & Disaster Preparedness
- Disaster Medical Operations & Triage
- Fire Safety & Suppression
- Hazardous Materials Awareness
- Damage Assessment
- Utility Control
- Terrorism Awareness
- Disaster Psychology
- Light Search & Rescue
- Emergency Communications
- Team Organization
- Disaster Drill & Simulation

Register Today!

*Register online at **www.moval.org/oem**, click on the **CERT** link or call 951.413.3800*

Revised 8/2022

City CERT Training Agenda – September 9-11, 2022

Doing the greatest good, for the greatest number!

COURSE AGENDA

Friday, September 9, 2022

I. Welcome, Introductions, & Course Overview
II. Unit 1: Disaster Preparedness

Saturday, September 10, 2022

I. Welcome & Review
II. Unit 2: Fire Safety & Utility Controls
III. Disaster Medial Operations – Part 1
IV. Disaster Medical Operations – Part 2

Sunday, September 11, 2022

I. Welcome & Moment of Silence
II. Light Search & Rescue
III. Disaster Psychology
IV. Terrorism Awareness
V. Disaster Simulation
VI. Evaluations, Graduation & Final Comments

This course is made possible with funds provided by the U.S. Department of Homeland Security Grant Funding Program

Course Sponsored & Instructed by:
City of Moreno Valley
Office of Emergency Management & Volunteer Services
22870 Calle San Juan De Los Lagos, Moreno Valley, CA 92552-0805
www.moval.org 951.413.3800

City CERT Training Sign in Sheet– September 9-11, 2022

MORENO VALLEY
EMERGENCY MANAGEMENT

COMMUNITY EMERGENCY RESPONSE TEAM

September 9-11, 2022

CERT COMMUNITY EMERGENCY RESPONSE TEAM

LAST NAME	FIRST NAME	FRIDAY 9/9	SATURDAY 9/10	SUNDAY 9/11
Avila Rivera	Edwin Alexander			
Chacon	Kathy			
Chacon	Bryn	Bryan Chacon	Bryan Chacon	Bryan Chacon
Diamond	Myles			
Farber	Margaret (Peggy)	Peggy	Peggy Farber	Peggy Farber
Hunte	Althia	Althia Hunte	Althia Hunte	Althia Hunte
Jackson	Jarred		JT	
Jones	Beverly			
Lucas	Mary			
Manning	Teresita			
Mitchell	Denise			
Robinson	Aaron			
Rumfola	William			
Siksay	Mya			
Stringfellow	Carrie			
JAMES	PAUL	PCJ	PCJ	


MORENO VALLEY
WHERE DREAMS SOAR
City of Moreno Valley, CA
CERT
COMMUNITY EMERGENCY RESPONSE TEAM
FREE FOR CITY EMPLOYEES
COMMUNITY EMERGENCY RESPONSE TEAM TRAINING
LEARN WHAT TO DO BEFORE DISASTER STRIKES?
TO SIGN UP:
Obtain supervisor approval & Register Here:
https://form.jotform.com/222077606201143
WHEN:
Wednesday, September 21, 2022, 8am – 5pm
&
Thursday, September 22, 2022, 8am – 5pm
(Students must attend both days)
WHERE:
Emergency Operations Center (EOC)
22870 Calle San Juan De Los Lagos
ATTIRE:
Pants, work-appropriate shirt, closed-toe shoes
NOTICE: Employees requiring accommodations, contact OEM at 413.3800.
Class is presented & instructed by
Fire Dept. Office of Emergency Management
LHMP Plan Overview
RSVP TODAY!
TRAINING TOPICS INCLUDE:
Disaster Organization
Personal Preparedness
Fire Safety
Disaster Medical
Disaster Psychology
Search & Rescue
Earthquake Exercise Simulation
Lots of Hands-on Learning
Students completing the course will receive a FREE CERT Backpack courtesy of Homeland Security!
Free classes are also available for the public; Learn more here:
www.moreno-valley.ca.us/oem

CITY EMPLOYEE CERT CLASS AGENDA – SEPTEMBER 21-22, 2022

CERT TRAINING AGENDA

CITY OF MORENO VALLEY EMPLOYEE EXCLUSIVE

DAY 1 – September 21, 2022

Welcome & Introductions - All

- Instructors
- Students

Introduction to Disaster Awareness – Diana

- Preparedness Roles
- Hazard Awareness
- Personal and Family Preparedness

Disaster Organization and Management – Diana

- Incident Command System
- CERT Organization

Disaster Fire Suppression Techniques – Andrew

- Fire Chemistry
- Fire Extinguisher Use
- Utility Control

Disaster Medical Operations 1 – Andrew

- Recognizing and Treating Life-Threatening Emergencies
- Triage
- Treatment Area Management

Disaster Medical Operations 2 – Andrew

- Head-to-Toe Evaluation
- Recognizing and Treating Non-Life-Threatening Emergencies
- Bandaging and Splinting

DAY 2 – September 22, 2022

Light Search and Rescue Operations – Diana

- Structure Safety Evaluation
- Search Techniques
- Rescue Methods
- Lifts and Carries

Disaster Psychology – Diana

- Vicarious Trauma
- Disaster Well Being

Terrorism Awareness – Andrew

- What is Terrorism?
- 8 Signs of Terrorism
- Role of a CERT member
- Preparing for a terrorist incident

Final Questions & Drill Scenario Preparation – All

Disaster Scenario – All

Wrap up & Graduation – All

CITY EMPLOYEE CERT CLASS SIGN IN SHEET – SEPTEMBER 21-22, 2022

MORENO VALLEY EMERGENCY MANAGEMENT

COMMUNITY EMERGENCY RESPONSE TEAM

September 21-22, 2022

CERT COMMUNITY EMERGENCY RESPONSE TEAM

LA		Signature	Wednesday 9/21	Thursday 9/22
Ac				
Ap				
As				
Ay			✓	✓
Bi			✓	✓
Ca				
Ca			✓	✓
Ch			✓	✓
Co			✓	✓
Fe			✓	✓
Ga			✓	✓
Ge			✓	✓
Ju				
La			✓	✓
Le			✓	✓
Lo			✓	✓
Lu			✓	✓
M			✓	✓
Ni			✓	✓
Or			✓	✓
Pa			✓	✓
PE				
Pulido	Marlene			

NAMES ARE

REDACTED FOR PRIVACY

OA MJLHMP Steering Committee Agenda – October 5, 2022

Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP) Update
OA Steering Committee Revise Agenda
Date: October 5, 2022
Time: 10:00 AM to 11:30 PM

Subject	Time	Presented by	Purpose	Attachments
Introductions / Housekeeping	10 mins	Brian MacGavin	Inform	Sign-in Sheet
Review of Minutes from August 3, 2022	5 mins.	Brian MacGavin	Inform	August 5, 2022 Steering Committee Minutes
Review of update requirements and timeline	10 mins.	Jennifer Smith	Inform	Local Mitigation Plan Review Guide & Timeline
Data Collection and HAZUS	10 mins	Catherine Farrokhi	Information	
Tracking and Scoring Mitigation Projects / Actions	15 mins	Brian MacGavin	Inform	Mitigation Projects Spreadsheet
Jurisdictional and County Department Assessments	15 mins.	William Luna	Information	
Additional Discussion and Feedback from Steering Committee Members	15 mins.	All	Discuss	N/A
Next Steps /Action Items	5 mins.	Brian MacGavin	Discuss	N/A
Adjourn / Next Meeting	2 mins.	Brian MacGavin	Inform	N/A

OA MJLHMP Steering Committee Sign in Sheet – October 5, 2022

City CERT Class Flyer – October 14-16, 2022

CITY OF MORENO VALLEY
CERT
COMMUNITY EMERGENCY RESPONSE TEAM

Are You Prepared For A Disaster?

The *Community Emergency Response Team (CERT)* program and training is designed to increase individual and community preparedness and self-reliance in the event of man-made or natural disasters. Emergency Services may not be immediately available, so residents may have to rely on each other for life-saving skills and needs.

Our all-hazard approach training teaches disaster preparedness, hazard mitigation in your home and workplace, and life-saving skills with emphasis on rescuer safety, decision-making skills, leadership and ....

"Doing The Greatest Good For The Greatest Number Of People".

- There are no pre-requisites to attend
- Must be at least 18 years of age (16 years of age with a parent or guardian attending)
- Students must complete all 20 hours of training to receive a Certificate of Completion
- There is no cost for the training

Upcoming 2022 Classes:

- September 9-11, 2022
- October 14-16, 2022

Classes meet Friday evening 6:00 p.m. — 9:30 p.m., Saturday and Sunday 8:00 a.m. — 5:00 p.m.

TRAINING INCLUDES:

- Earthquake & Disaster Preparedness
- Disaster Medical Operations & Triage
- Fire Safety & Suppression
- Hazardous Materials Awareness
- Damage Assessment
- Utility Control
- Terrorism Awareness
- Disaster Psychology
- Light Search & Rescue
- Emergency Communications
- Team Organization
- Disaster Drill & Simulation

Register Today!

*Register online at **www.moval.org/oem**, click on the **CERT** link or call 951.413.3800*

Revised 8/2022

City CERT Class Agenda – October 14-16, 2022

Doing the greatest good, for the greatest number!

COURSE AGENDA

Friday, October 14, 2022

I. Welcome, Introductions, & Course Overview
II. Unit 1: Disaster Preparedness
    a. Local Hazard Mitigation Plan – Community Engagement
III. Unit 2: CERT Organization

Saturday, October 15, 2022

I. Welcome & Day 1 Review
II. Unit 6: Fire Safety & Utility Controls
III. Unit 3: Disaster Medial Operations – Part 1
IV. Unit 4: Disaster Medical Operations – Part 2

Sunday, October 16, 2022

I. Welcome & Day 2 Review
II. Unit 7: Light Search & Rescue
III. Unit 5: Disaster Psychology
IV. Unit 8: Terrorism Awareness
V. Unit 9: Disaster Simulation
VI. Evaluations, Graduation & Final Comments

This course is made possible with funds provided by the
U.S. Department of Homeland Security Grant Funding Program

Course Sponsored & Instructed by:
City of Moreno Valley
Office of Emergency Management & Volunteer Services
22870 Calle San Juan De Los Lagos, Moreno Valley, CA 92552-0805
www.moval.org 951.413.3800

City CERT Class Sign in Sheet – October 14-16, 2022

MORENO VALLEY
EMERGENCY MANAGEMENT

COMMUNITY EMERGENCY RESPONSE TEAM

October 14-16, 2022

CERT COMMUNITY EMERGENCY RESPONSE TEAM

LAST NAME	FIRST NAME	FRIDAY 10/14	SATURDAY 10/15	SUNDAY 10/16

NAMES ARE

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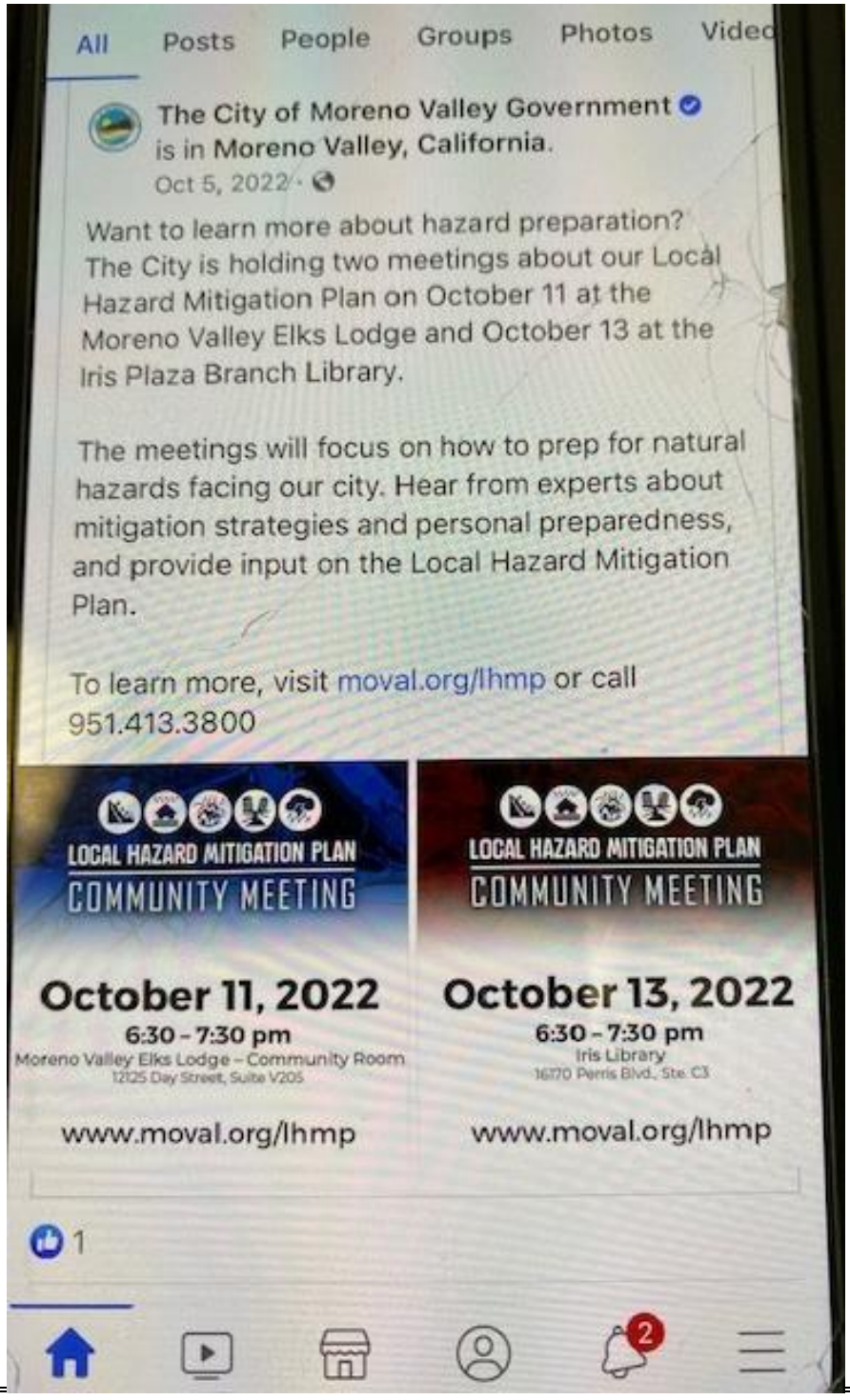
Public LHMP Input & Feedback Meetings Social Media Post -October 5, 2022



Public Meeting #1 Advertisement– October 11, 2022

WE WANT TO HEAR FROM YOU!

JOIN US

October 11, 2022

6:30 – 7:30 pm

Moreno Valley Elks Lodge – Community Room
12125 Day Street, Suite V205

PRESENTATION ON CITY LOCAL HAZARD MITIGATION PLAN:

Learn about natural hazards in our city

Hear from experts about mitigation strategies

Talk with experts about personal preparedness

Ask questions about the plan and what it means for you

COMMUNITY INPUT IS AN ESSENTIAL ELEMENT OF DISASTER PLANNING AND WE WANT TO HEAR FROM YOU!

Spanish & American Sign Language Interpreters will be on site to assist during the meeting. If you require other accommodations, please contact Office of Emergency Management 14 days in advance at 951-413-3800

For more information:
951-413-3800 | www.moval.org/lhmp

MORENO VALLEY
WHERE DREAMS SOAR

Any person with a disability who requires a modification or accommodation in order to participate in these activities should direct such requests to the ADA Coordinator, at 951.413.3350 at least 72 hours before the activity.

PUBLIC MEETING #1 AGENDA – OCTOBER 11, 2022

PUBLIC MEETING #1 SIGN IN SHEET – OCTOBER 11, 2022

OCTOBER 11, 2022 6:30 - 7:30 PM

First Name	Last Name	Signature
NAMES ARE REDACTED FOR PRIVACY		
Mike	Bowles	Mike Bowles

Public Meeting #2 Advertisement – October 13, 2022

WE WANT TO HEAR FROM YOU!

JOIN US

October 13, 2022

6:30 – 7:30 pm

Iris Library
16170 Perris Blvd., Ste. C3.

PRESENTATION ON CITY LOCAL HAZARD MITIGATION PLAN:

Learn about natural hazards in our city

Hear from experts about mitigation strategies

Talk with experts about personal preparedness

Ask questions about the plan and what it means for you

COMMUNITY INPUT IS AN ESSENTIAL ELEMENT OF DISASTER PLANNING AND WE WANT TO HEAR FROM YOU!

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For more information:
951-413-3800 | www.moval.org/lhmp

MORENO VALLEY
WHERE DREAMS SOAR

Any person with a disability who requires a modification or accommodation in order to participate in these activities should direct such requests to the ADA Coordinator, at 951.413.3350 at least 72 hours before the activity.

PUBLIC MEETING #2 AGENDA – OCTOBER 13, 2022

PUBLIC MEETING #2 SIGN IN SHEET – OCTOBER 13, 2022

OCTOBER 13, 2022 6:30 - 7:30 PM

Public LHMP Website & Feedback Survey Landing Page

LAUNCHED SEPTEMBER 15, 2022 – REMAINS OPEN

Fire Department > lhmp

Local Hazard Mitigation Plan

The City's Local Hazard Mitigation Plan (LHMP) identifies, reduces, or eliminates the long-term natural hazard risks to life, property, and the environment.

PLAN OVERVIEW

The City of Moreno Valley Local Hazard Mitigation Plan (LHMP) is designed to identify, reduce, or eliminate the long-term natural hazard risks to life, property, and the environment. Key components of the plan include hazard identification, asset inventory, risk analysis, loss estimation, and mitigation strategies to reduce the effects of these hazards. The City of Moreno Valley encourages its residents to do mitigation planning at every level - at home, in the workplace and in their communities.

There are simple steps you can take today to mitigate your risk of hazards before disaster strikes. Clearing debris and dry brush from around your home is a great mitigation strategy. If you regularly experience flooding in your neighborhood, having sand and sandbags available may also a great mitigation strategy. To learn more ways to prepare, visit: www.ready.gov/

WE WANT TO HEAR FROM YOU!

The City of Moreno Valley wants your feedback on the Local Hazard Mitigation Plan. By reviewing our existing plan, hopefully, this will provide you with ideas to share for the 2022-23 update, which is taking place now. Feedback should be directed to the content of the plan and ways to enhance it. After reviewing the plan, please take a moment to complete the brief feedback survey. Plan feedback for the 2022-23 update will be accepted through November 30, 2022. Public comments will be reviewed by the City and incorporated as appropriate.

Take the Survey

After reviewing the current plan, complete our short survey before November 30, 2022.

TAKE THE SURVEY NOW

Attend a Meeting

Please join us on for one of the Local Hazard Mitigation Plan Update Community Meetings listed below:

- October 11, 2022 Flyer
- October 13, 2022 Flyer

Resources

- County of Riverside Local Hazard Mitigation Plan
- FEMA

PUBLIC LHMP WEBSITE FEEDBACK SURVEY QUESTIONS

City of Moreno Valley Local Hazard Mitigation Plan (LHMP)
Community Feedback Survey 2022

What area or community do you live in?
- Open response: 40 Characters

Are you responding as:
- Resident
- Business owner in the city
- Visitor
- Other

Are you aware that City of Moreno Valley has a Local Hazard Mitigation Plan?
- Yes
- No

Please select the one hazard you think is the highest threat to your neighborhood:
- Fire
- Flood
- Weather – Severe Wind
- Prolonged Power Outage
- Earthquake
- Other: 30 characters

Please select the one hazard you think is the second highest threat to your neighborhood:
- Fire
- Flood
- Weather – Severe Wind
- Prolonged Power Outage
- Earthquake
- Other: 30 characters

In your opinion, what are some steps your local government could make to reduce or eliminate the risk of future hazard damages in your neighborhood?
- Open response: 150 characters

Are there any other hazards or disasters in the community that you think are important that have not yet been identified in the plan?
- Yes
  - If yes, explain: 30 characters or less
- No

In general, there are six broad categories that hazard reduction-types fall into. Please tell us how important you think each type of hazard reduction is for your community.
- Prevention – The Administrative or regulatory actions that influence the way land is developed and buildings are constructed (Example - Planning and zoning building codes, etc.).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

PUBLIC LHMP WEBSITE FEEDBACK SURVEY QUESTIONS – CONT.

- Property Protection - Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area (Example - Retrofits, relocation, acquisition, etc.).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

- Public Education and Awareness - Actions to inform and educate residents, elected officials and property owners about the hazards and potential ways to mitigate them (Example - Outreach, real estate disclosure, school-age and adult education).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

- Natural Resource Protection - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems (Example - Erosion control, stream restoration, etc.).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

- Emergency Services - Actions that protect people and property during and immediately after a disaster or hazard event (Example - Warning systems, protection of official facilities, etc.).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

- Structural Projects - Actions that involve the construction of structures to reduce the impact of a hazard (Example - Dams, floodwalls, etc.).
  Drop down scale 1 Not important at all, 2, Somewhat Important, 3 Moderately Important, 4, Very Important

If you wish to receive an email with mitigation resources provided on this page, an email is required. We will not share your information with anyone outside our organization

Email (required only if you wish to receive more information about hazard mitigation resources)

Public LHMP Website Feedback Survey Results
(as of January 23, 2022)

City of Moreno Valley Local Hazard Mitigation Plan - Community Feedback Survey 2022

View This Form

YOU DON'T HAVE ANY SUBMISSIONS

Your submissions will be listed here.

Chamber of Commerce Business in Action Meeting Agenda – September 14, 2022 (sign in sheet not available)

OA MJLHMP Steering Committee Agenda – January 4, 2023

Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP) Update
OA Steering Committee Agenda
Date: January 4, 2023
Time: 10:00 AM to 11:30 AM

Subject	Time	Presented by	Purpose	Attachments
Introductions / Housekeeping	10 mins	Brian MacGavin	Inform	Sign-in Sheet
Review of Minutes from October 5, 2022	5 mins.	Brian MacGavin	Inform	October 5, 2022 Steering Committee Minutes
Review of update requirements and timeline	10 mins.	Jennifer Smith	Inform	Local Mitigation Plan Review Guide & Timeline
GIS / Data Collection	10 mins	Moses Martinez	Information	
2023-2028 Tracking and Scoring Mitigation Projects / Actions	15 mins	Brian MacGavin	Inform	Mitigation Projects Spreadsheet
Jurisdictional LHMP Status Reports	15 mins.	William Luna	Information	
Additional Discussion and Feedback from Steering Committee Members	15 mins.	All	Discuss	N/A
Next Steps /Action Items	5 mins.	Brian MacGavin	Discuss	N/A
Adjourn / Next Meeting	2 mins.	Brian MacGavin	Inform	N/A

OA MJLHMP Steering Committee Sign in Sheet – January 4, 2023

Community Input Flyer for Posting in City Facilities February 8th through March 8, 2022

WE WANT TO HEAR FROM YOU!

Residents are encouraged to provide

feedback on the

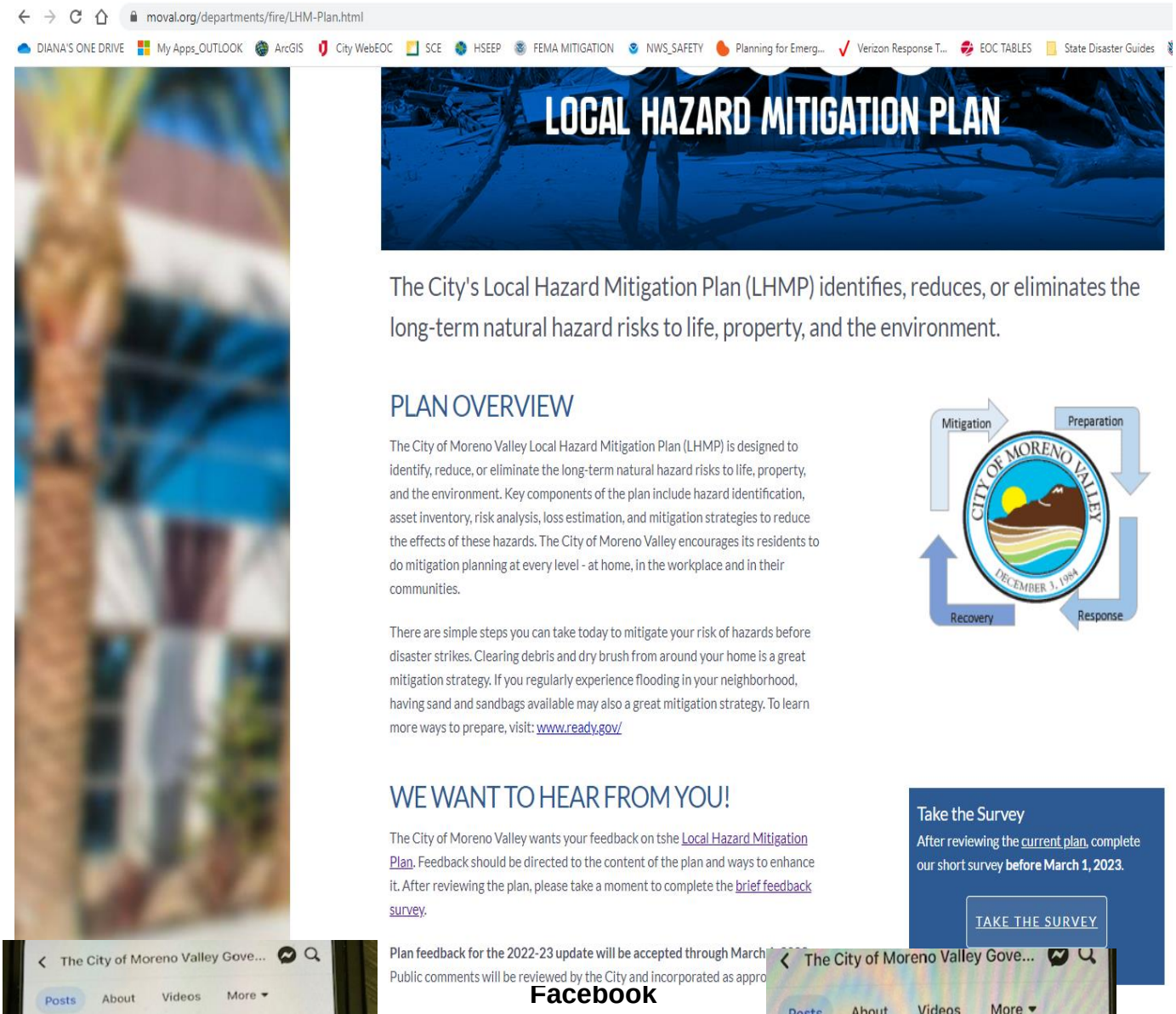
2022-2023

Draft Local Hazard Mitigation Plan (LHMP)

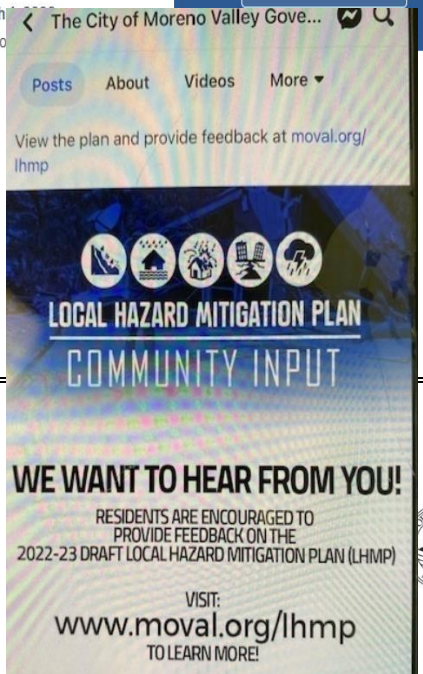
Visit:
www.moval.org/lhmp to learn more!

MORENO VALLEY
WHERE DREAMS SOAR

City Website Landing Page for Community Input on 2022 Draft LHMP - Posted February 8, 2023



Facebook



Instagram


LOCAL HAZARD MITIGATION PLAN
COMMUNITY INPUT
WE WANT TO HEAR FROM YOU!
RESIDENTS ARE ENCOURAGED TO
PROVIDE FEEDBACK ON THE
2022-23 DRAFT LOCAL HAZARD MITIGATION PLAN (LHMP)
VISIT:
www.moval.org/lhmp
TO LEARN MORE!
View insights
Boost post
Liked by eddiebaut11 and 9 others
cityofmorenovalley The City of Moreno Valley wants to hear from you!
We want your feedback on the Local Hazard Mitigation Plan (LHMP), which identifies, reduces, and eliminates long term natural hazard risks to life, property, and the environment. Feedback should be directed to the content of the plan and ways we can enhance it.
View the plan and provide feedback at moval.org/lhmp

APPENDIX C

CITY OF MORENO VALLEY
FUTURE DEVELOPMENT

ECONOMICDEVELOPMENT SUMMARY

SEPTEMBER 2022

MORENOVALLEY
ACCELERATING OPPORTUNITIES
www.morenovalleybusiness.com

COMMERCIAL / RETAIL

Cactus Commerce Center: 53,420 sq. ft. mixed-use center on Cactus east of I-215. Includes 3 restaurants, gas station / carwash, and a 36,950 sq. ft. industrial building - UNDER CONSTRUCTION

- **ARCO AM/PM** - OPEN
- **Starbucks** - UNDER CONSTRUCTION
- **Wendy's** - OPEN

Canyon Springs Plaza: 417,000 sq. ft. regional center at SR-60 & Day

- **Bikes 951** - OPENED
- **CBD Authority** - OPENED
- **Get Air Trampoline Park** - OPENED
- **La Surtidora** - OPENED

Continental East Development: 21,600 sq. ft. of boutique retail and restaurant space at the NEC of Lasselle and Krameria - IN PLAN CHECK

The District (former Festival Center): 32-acre center at SR-60 & Heacock anchored by Floor & Decor

- **7-Eleven** - APPROVED
- **Sprouts Farmers Market** - OPENED
- **Starbucks** - OPENED
- **The Joint Chiropractic** - UNDER CONSTRUCTION
- **WoodSpring Suites** - UNDER CONSTRUCTION
- **WSS** - OPENED

Farm Market: Multi-tenant retail, fueling station, and restaurant building at the SEC of Redlands and Alessandro - IN PLAN CHECK

Iris Plaza: 87,000 sq. ft. neighborhood center at the SEC of Perris & Iris

- **Dunkin Donuts** - IN PLAN CHECK

Ironwood Plaza: 58,500 sq. ft. neighborhood center at the NWC of Heacock and Ironwood

- **Gina's Boutique** - OPENED
- **Mi Pueblo Restaurant** - OPENED

Lakeside Terrace: Neighborhood shopping center at the NEC of Lasselle and Iris anchored by Dollar Tree, CVS Pharmacy, and Chase Bank.

- **Mr. Fries Man** - OPENED

Moreno Beach Plaza: 171,483 sq. ft. shopping center at SWC of Eucalyptus and Moreno Beach anchored by Walmart

- **Capriotti's Sandwich Shop** - OPENED
- **Wingstop** - OPENED

Moreno Valley Auto Mall:

- **CarPros - Kia Motors** - OPENED

Moreno Valley Center: Retail center at the NEC of Hemlock and Perris, anchored by CVS, Dollar Tree and dd's Discounts

- **You Deserve This Cleaning Service** - OPENED

Moreno Valley Mall: 1.1 million sq. ft. regional mall along SR-60, anchored by Macy's and J.C. Penney

- **BoxLunch** - OPENED
- **MK Joy** - OPENED

Moreno Valley Marketplace: 4.5 acre retail development on the SWC of Perris and Iris - UNDER CONSTRUCTION

- **Aldi Foods** - UNDER CONSTRUCTION
- **Habit Burger** - UNDER CONSTRUCTION
- **Quick Quack Car Wash** - IN PLAN CHECK
- **Starbucks** - UNDER CONSTRUCTION

Moreno Valley Plaza: 341,000 sq. ft. shopping center anchored by Office Depot, Superior Grocers and Harbor Freight Tools at SWC of Sunnymead and Heacock

- **iBrow Plus** - OPENED
- **The Lucky Treasure Hunt** - LEASED
- **Valley Cake and Candy Supplies** - OPENED
- **WestStar Physical Therapy** — UNDER CONSTRUCTION

COMMERCIAL / RETAIL (continued)

Perris Pavilion: 25,000 sq. ft. neighborhood mall at the NEC of Perris and John F. Kennedy, including a food hall, health and beauty - OPENED

- **Attractiff Beauty**
- **Billionaire Burger Boyz Express**
- **Blessed Sweets**
- **Doris Accessories and More**
- **Evolution Fitness & Nutrition**
- **Fine Cha Cha**
- **Fufu's Mideast Grill**
- **G&G Fashion**
- **Green Town Recycling**
- **Isabel's Beauty**
- **Lemon Tree Sushi & Ramen**
- **Love, Grace & Mercy Worship Center**
- **Lydia's Hair Designs**
- **Moreno Mongolian BBQ**
- **New Beginning Multi Services**
- **Puente De Oro Home Loans**
- **Red Dragon Express**
- **Royal Beauty Threading**
- **Sandy's Fabric & Alterations**
- **Sigue Money Transfer**
- **The Mecca of Sportscards**
- **Vida Pura Wellness & Fitness**

Plaza del Sol: 56,000 sq. ft. retail center at the NEC of Alessandro and Frederick.

- **Kalaveras Cantina** - UNDER CONSTRUCTION

Rancho Belago Retail: 19,324 sq. ft. retail center at the SWC of Moreno Beach and JFK - APPROVED

Stoneridge Towne Centre: 579,000 sq. ft. center at the SEC of SR-60 and Nason, anchored by Super Target, Kohl's, Kirkland and Best Buy Outlet

- **Focus Vision Optometry** - OPENED
- **Jiffy Lube** - UNDER CONSTRUCTION
- **Popeye's** - UNDER CONSTRUCTION
- **Sharetea** - UNDER CONSTRUCTION

Southpointe Shopping Center: SEC of Heacock and Alessandro anchored by O'Reilly Auto Parts, Leading Edge Learning and Dairy Queen

- **Rancho Physical Therapy** - OPENED
- **Skinology Aesthetic Center** - OPENED
- **The Cupcake & Espresso Bar Ghost Kitchen** - OPENED

Sunnymead Towne Center: Neighborhood center at the SWC of Alessandro and Perris, anchored by El Super, 99 Cents Only and Rite Aid

- **HR Direct Services** - OPENED
- **sPETacular Pet Supply** - UNDER CONSTRUCTION

The Quarter: Mixed-use project at the NEC of Day & Eucalyptus includes two 4-story hotels, a service station with convenience store, and a multi-tenant retail/restaurant building:

- **Orleans & York** - OPENED
- **ZPizza & Tap Room** - OPENED

TownGate Center: High profile mix of national tenants including TJ-Maxx, HomeGoods, Ulta, BevMo, Planet Fitness and Regency Theatres at the NWC of Frederick and Towngate Blvd

- **Boba St.** - OPENED
- **Raising Cane's** - OPENED

TownGate Plaza: 48,000 sq. ft. retail center at the SWC of 60 Fwy and Frederick, anchored by BJ's Restaurant & Brewhouse, Starbucks, Chili's and Five Guys

- **Texas Roadhouse** - UNDER CONSTRUCTION
- **The Buffalo Spot** - OPENED

TownGate Square: NEC of Day and Eucalyptus anchored by WinCo Foods, Fairfield Inn & Suites, Portillo's, Popeye's and Pieology

- **Hilton Garden Inn** - IN PLAN CHECK

TownGate Promenade: 48,000 sq. ft. shopping center anchored by Aldi and 24 Hour Fitness

- **Alaska Crab Juicy Seafood** - OPENED
- **Wingstop** - OPENED

Standalone:

- **Winchell's Donuts (Perris and Cottonwood)** - UNDER CONSTRUCTION
- **Winchell's Donuts (Alessandro and Day)** - IN PLAN CHECK

MEDICAL / OFFICE

Kaiser Permanente: 1,125,000 sq. ft. 20 year, 3 phase expansion to existing Kaiser Permanente Hospital - APPROVED

- **Diagnostic & Testing Center** - UNDER CONSTRUCTION

Moreno Valley MOB: 20,337 sq. ft. medical office building on Eucalyptus east of Day - IN PLAN CHECK, 10,000 sq. ft. LEASED TO RADNET AND LOMA LINDA MEDICAL CLINIC

INDUSTRIAL

Ledo Capital Group | The District Business Park: 223,436 sq. ft. building at the SEC of Heacock and Ironwood - APPROVED

CENTERPOINTE INDUSTRIAL AREA

Home to Sherwin Williams, Harbor Freight Tools, Porvene Doors, Serta Simmons, Uttermost and the US Postal Service.

Alere Property Group | Brodiaea Commerce Center: 256,859 sq. ft. NWC Brodiaea and Heacock – LEASED TO NAUTILUS FITNESS, INC., OPENED

Cactus Commerce Center: 36,000 sq. ft. building, leased to Innovative Expo

Compass Danbe: 2 buildings on Alessandro between Frederick and Graham, 278,460 sq. ft and 96,139 sq ft. – APPROVED

PAMA | Alessandro Industrial Center: 6 buildings along the south side of Alessandro west of Heacock, divisible units 9,050 sq. ft. / to 50,000 sq. ft. for sale or lease - UNDER CONSTRUCTION

J&T Management | Cactus Commerce Center: 36,950 sq. ft. Cactus Ave east of I-215 - LEASED TO INNOVATIVE EXPO, OPENED

Resource Corporate Center: 49,800 sq. ft. industrial building at the northeast corner of Corporate Wy and Resource Wy — UNDER CONSTRUCTION

MORENO VALLEY INDUSTRIAL AREA

Home to Amazon, Cardinal Glass, Floor & Decor, Harman Kardon, Karma Automotive, Philips Electronics, Procter & Gamble, Deckers Outdoor, Lowe's Home Improvement and Ross Dress for Less.

Compass Danbe: 43,400 sq. ft. building on Rivard - IN PLAN CHECK

CRG Industrial: 164,920 sq. ft. on 8.67 acres along east side of Heacock south of Cosmos - LEASED TO DHL, OPENED

First Industrial: 221,756 sq. ft. on Nandina east of Indian - LEASED TO UNITED MATERIAL HANDLING, OPENED

LDC Industrial: 95,875 sq. ft. at 24773 Nandina - LEASED TO REP FITNESS, OPENED

Patriot Development Partners: 91,012 sq. ft at the southeast corner of Heacock & Krameria - IN PLAN CHECK

17825 Indian Street: 374,000 sq. ft. facility on Indian south of Grove View:

- 270,000 sq. ft. LEASED TO IGPS LOGISTICS, IN PLAN CHECK,
- 98,000 sq. ft. LEASED TO UPS, OPENED

SR - 60 CORRIDOR

Home to Aldi Foods, Skechers USA, Solaris Paper, ShipBob, Mainfreight and Santa Fe Warehouse.

Skechers USA Phase II: 790,400 sq. ft. addition - UNDER CONSTRUCTION

World Logistics Center: 40.6 million sq. ft. logistics campus – APPROVED

MORENOVALLEY
ACCELERATING OPPORTUNITIES

COMMERCIAL development

The City of Moreno Valley is a growing city with a bright future. Strategically located in the Inland Empire of Southern California, with a market area of over two million people and abundant developable land, savvy developers and retailers continue to choose Moreno Valley for growth and success. The City of Moreno Valley is dedicated to fostering new businesses and well-managed growth to create a superb quality of life. *Take a look at what's happening!*

Commercial Centers

Center Name	Size (sq. ft.)	Traffic Counts (ADT) East/West	Traffic Counts (ADT) North/South
TownGate Highlands	391,300	194,000	21,000
Moreno Valley Mall	1,200,000	154,000	22,600
Stoneridge Towne Centre	[illegible]	60,000	17,100
TownGate Center/Plaza	485,000	137,000	24,200
Moreno Beach Plaza	350,000	74,000	15,400
Moreno Valley Plaza	341,000	19,500	22,900
TownGate Square	130,000	20,000	22,900
TownGate Crossing	237,000	154,000	22,900
TownGate Promenade	290,000	154,000	22,900
Moreno Beach Marketplace	175,000	74,000	15,400
Lakeside Plaza & Terrace	143,000	20,700	23,600
Lakeshore Village	140,000	20,500	18,000
Alessandro & Lasselle	149,000	19,600	12,100
Moreno Marketplace	83,788	11,900	14,000
Iris Plaza	87,120	16,800	25,900
Bosworth Plaza	30,000	18,000	8,800
Cactus Commerce Center	16,000	43,300	7,700
The District	1,327,845	120,000	33,500
The Quarter	[illegible]	13,600	22,000

Office/Medical

Map #	Name	Size (sq. ft.)
1	TownGate Square	170,000
2	Olivewood Plaza	22,758
3	Centerpointe Office Area	256,000
4	Moreno Valley Medical Plaza	217,000
5	Moreno Valley Medical District Area	[illegible]
6	Renaissance Village	98,400
7	Riverside County Office Building	[illegible]
8	Fresenius Medical Care	12,000
9	Integrated Care Communities	44,000
10	Riverside University Health System- Expansion	1,298,000
11	Kaiser Permanente Master Campus Expansion	[illegible]
12	Mainstreet Post-acute Care	57,000

Industrial/Job Centers

Areas	Occupied/ Leased (sq. ft.)	Available/ Approved (sq. ft.)	Proposed (sq. ft.)
Centerpointe Business Park	[illegible]	[illegible]	[illegible]
Moreno Valley Industrial Area	19,001,697	1,311,080	221,850
SR-60 Business Park Area	[illegible]	[illegible]	–
Approved World Logistics Center	–	40,600,000	–

Hospitality Development

Map #	Hotel Name	# Guest Rooms
	TownGate Hotels:	
1	Residence Inn	112
2	Holiday Inn Express	104
3	Fairfield Inn & Suites	106
4	Hilton Garden Inn	126
5	Ayres Suites	127
6	Hampton Inn & Suites	[illegible]
	Sunnymead Area Hotels	
7	La Quinta Inn & Suites	[illegible]
8	Travelers Inn	[illegible]
9	Comfort Inn	[illegible]
10	Woodsprings Suites	122
11	Econo Lodge	61
12	Hotel ZOLA by Wyndham	151
13	Best Western Moreno Hotel & Suites	[illegible]

RESIDENTIAL development

Single-Family Development: 2,524 Units

Map	Record	Builder/Applicant	# of Units	Status
1	[illegible]	[illegible]	105	In Process
2	PEN18-0145	KB Homes	67	Under Construction
3	PA04-0015/ PEN18-0252/ PEN19-0210	Rockwell Village	213	Approved
4	PEN19-0202/-0908	Bonmful LLC	31	In Process
5	[illegible]	Flight Solutions	7	Plan Check
6	PEN17-0096	Manuel Ruiz	4	Plan Check
7	[illegible]	Victoria Homes	12	Plan Check
8	PA05-0052/ PEN19-0244	Winchester Associates	105	Plan Check
9	[illegible]	Curtis Development	20	Approved
10	PA05-0114/ PEN16-0146/ PEN19-0254	Sussex Capital Group	11	Approved
11	[illegible]	Sussex Capital Group	57	Approved
12	PEN21-0079/ 0080/0081	Lansing Companies	315	In Process
13	[illegible]	Beazer Homes	274	Under Construction
14	PEN18-0190	Alcantar Construction	4	In Process
15	[illegible]	[illegible]	11	Approved
16	PEN21-0050	TTM 38098/ Winco Holdings Inc.	195	In Process
17	[illegible]	DR Horton	[illegible]	In Process
18	PEN21-0189/ 0203/0204	DR Horton	67	In Process
19	[illegible]	Mike McKnight Planning	[illegible]	Plan Check
20	PEN12-0080	Hakan Buvan	8	Plan Check
21	[illegible]	Michael De La Torre	6	Plan Check
22	PEN18-0053/ PEN18-0092	Cantebury	45	Plan Check
23	[illegible]	[illegible]	[illegible]	In Process
24	PEN18-0095/ PEN20-0016	Mission Pacific Land	221	Under Construction
25	[illegible]	PI Properties No. 67 LLC	[illegible]	Approved
26	PEN18-0042	Ada Deturcios	2	Plan Check

Multi-Family Development: 3,377 Units

Map	Record	Builder/Applicant	# of Units	Status
1	[illegible]	[illegible]	[illegible]	In Process
2	PEN20-0057, -058	Apollo IV Dev Grp	51	Approved
3	[illegible]	Apollo III Dev Grp	[illegible]	Plan Check
4	PEN19-0127, -0128, -0129	JWDA-MB Architects	197	In Process
5	[illegible]	Design Concepts	[illegible]	Under Construction
6	PEN16-0066	Cal Choice Inv. Inc.	20	Approved
7	[illegible]	Jimmy Lau	12	Approved
8	PEN19-0157	Geri Fetch	11	Plan Check
9	[illegible]	MORENO VALLEY HOUSING AUTHORITY	[illegible]	In Process
10	PEN 19-0510-0108-0109-0097	Moreno Valley Housing Authority	80	Plan Check
11	[illegible]	Lansing Companies	[illegible]	In Process
12	PA15-0046/ PEN19-0159	Rocas Grandes	426	Approved
13	[illegible]	[illegible]	[illegible]	Approved
14	PA13-0062/ PEN16-0120	Creative Design Assoc.	58	Plan Check
15	[illegible]	Moreno Rose	[illegible]	In Process
16	PA15-0039/ PEN18-0211	Spruce Grove Inc.	272	Plan Check
17	[illegible]	Century Communities	117	Under Construction
18	PA06-0096/ PEN19-0203	TL Group	52	Plan Check
19	[illegible]	[illegible]	[illegible]	Under Construction
20	PEN20-0175	RC Hobbs	38	In Process
21	[illegible]	[illegible]	[illegible]	Plan Check
22	PA08-0054/ PEN18-0225	Granite Capital	135	Plan Check
23	[illegible]	[illegible]	[illegible]	Approved
24	PEN21-0021/ 0215/0218	PERRIS AT PENTECOSTAL	426	In Process
25	[illegible]	[illegible]	[illegible]	In Process

In Process = not yet approved by Planning Commission
Approved = Planning Commission approval
Plan Check = Approved plus construction documents in review
Under Construction

MORENOVALLEY
ACCELERATING OPPORTUNITIES

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www.morenovalleybusiness.com
www.moval.org/simplicity (Check project status)

New Projects Map with Commercial Development Activity, New Housing and Planned New Housing – Revised January 2022