



City of Fountain Valley

Draft Hazard Mitigation Plan

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ES

EXECUTIVE SUMMARY

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ES.1 Plan Requirements and Objectives

The City of Fountain Valley (City) Hazard Mitigation Plan is a living document that reflects ongoing hazard mitigation activities. Hazard mitigation involves strategies to reduce short- and long-term vulnerability to identified hazards. This document serves as the framework for the ongoing identification and implementation of hazard mitigation strategies developed in the City.



Background Information

In 2000, the United States Congress determined that disasters and, more importantly, lack of preparedness for disasters, were significant causes of loss of life, human suffering, loss of income, and property loss and damage. Furthermore, because disasters often disrupt the normal functioning of governments and communities and adversely affect individuals and families with great severity, special measures designed to assist the efforts of the affected States in expediting the rendering of aid, assistance, and emergency services, and the reconstruction and rehabilitation of devastated areas, were necessary. As a result, Congress passed the Disaster Mitigation Act of 2000 (DMA 2000), or Public Law 106-390, to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This provides an opportunity for States, Tribal governments, and local jurisdictions to apply for assistance from the Federal government in carrying out their responsibilities to alleviate the suffering and damage which results from such disasters by:

- a. revising and broadening the scope of existing disaster relief programs;
- b. encouraging the development of comprehensive disaster preparedness and assistance plans, programs, capabilities, and organizations by the States and by local governments;
- c. achieving greater coordination and responsiveness of disaster preparedness and relief programs;
- d. encouraging individuals, States, and local governments to protect themselves by obtaining insurance coverage to supplement or replace governmental assistance;
- e. encouraging hazard mitigation measures to reduce losses from disasters, including development of land use and construction regulations; and
- f. providing Federal assistance programs for both public and private losses sustained in disasters.

DMA 2000 allows State, Tribal, and local jurisdictions to obtain Federal assistance through pre-disaster hazard mitigation planning. As part of the requirements for receiving Federal grants for improving a locality's resistance to disasters, each locality must determine their existing vulnerabilities and develop a plan to reduce or eliminate these vulnerabilities and must have this plan approved by the appropriate State and Federal officials. Upon approval of this plan, each locality is eligible to receive various types of disaster-related assistance through the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) Program. This



includes the Building Resilient Infrastructure and Communities (BRIC) program and Hazard Mitigation Grant Program (HMGP) which releases grant funds before and after a hazard event as well as the Flood Mitigation Assistance Grant (FMA) Program which appropriates funds for projects and planning that will reduce long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP).

The BRIC program provides funds for hazard mitigation planning and the implementation of mitigation actions prior to a disaster event. These grants are funded and approved through FEMA on a competitive basis. The HMGP provides grants to implement long-term hazard mitigation measures after a major disaster declaration. These grants are funded by FEMA but are distributed by the State. In California, that agency is the Governor's Office of Emergency Services (Cal OES).

FEMA has developed guidance to assist communities in developing both the vulnerability assessments and plans to reduce or eliminate their vulnerabilities to disasters. These tools, coupled with techniques from the safety and security industries were used to develop the City's Hazard Mitigation Plan. Additional information regarding the HMGP and BRIC programs can be found in FEMA's "Hazard Mitigation Assistance Unified Guidance" document, located in FEMA's Hazard Mitigation Planning portal. Additional information including guidance and regulations can be found at the Cal OES's Local Hazard Mitigation Planning Program portal.

In order to be eligible for certain Federal disaster assistance and mitigation funding, the City is required to have a Cal OES- and FEMA-approved Hazard Mitigation Plan in place. As a result, the City obtained grant funding to update this document to fulfill Cal OES and FEMA requirements and provide direction and guidance on implementing hazard mitigation actions on a hazard-level, probability, and cost-priority basis. The overall goal of the Hazard Mitigation Plan is to reduce the potential for damage to critical assets from natural and man-made hazards. In addition, the plan

describes past and current hazard mitigation activities and philosophies and outlines future mitigation goals and strategies.

FEMA Requirements

FEMA requires that the Hazard Mitigation Plan meet certain requirements. First, the planning process must be open and public and must allow the public to have an opportunity to comment during the drafting stage and prior to plan approval. Second, the process must allow other local jurisdictions to be involved in the planning process. Third, the Plan must incorporate, if appropriate, existing plans, studies, reports, and technical information.

FEMA expects that each Hazard Mitigation Plan has the following information:

1. Documentation of the ***planning process*** used to develop the plan
2. A ***risk assessment*** that provides a factual basis for upgrades and recommendations
3. A ***description of the natural hazards*** that can affect the jurisdiction
4. A ***description of the jurisdiction's vulnerability*** to these hazards
5. A ***description of land usage***, and an ***estimate of losses*** should a disaster occur
6. A ***mitigation strategy***
7. A plan ***maintenance process***
8. ***Documentation*** that the plan has been adopted by the jurisdiction's governing body
9. ***Review*** by the State Hazard Mitigation Officer

ES.2 Mitigation Definition

Mitigation is an ongoing effort to prevent or lessen future emergency or disaster incidents, and the impacts they might have on people, property, and the environment. Examples of mitigation activities include the following:

- Legislation, laws, and regulations;
- Variances;
- Zoning and land use management;
- Engineering and building codes;
- Hazard mitigation plans & teams;
- Technical guidance & assistance;
- Financial assistance;
- Hazard Identification;
- Risk Analysis;
- Evaluation;
- Research; and
- Education

Mitigation decreases the demand for emergency response resources, reduces the principal causes of injuries and deaths, enables a quicker lifesaving response and economic recovery because the community infrastructure remains intact, and reduces the societal impacts of the emergency because it results in less disruption to the social environment. In essence, mitigation is the foundation of sustainable community development.

ES.3 Planning Process Summary



Hazard mitigation planning is a dynamic process built on realistic assessments of past and present information that enables the City to anticipate future hazards and provide mitigation strategies to address possible impacts and identified needs. The overall approach to the Hazard Mitigation Plan included developing a baseline understanding of natural and man-made hazards, determining ways to reduce those risks, and prioritizing mitigation recommendations for implementation.

To complete these objectives, the City compiled a qualified team with various expertise, including planning, finance, public safety and health, community services, and emergency response agencies to participate in a Hazard Mitigation Planning Committee (HMPC)

to guide the development of the City’s comprehensive Hazard Mitigation Plan. Additionally, the HMPC actively engaged the public throughout the planning process, with a focus on reaching vulnerable populations. This included attending a senior exposition to connect with a key at-risk group, providing opportunities for public comment during the drafting stage, and making the draft Plan accessible for review and feedback. Chapter 1: Planning Process contains descriptions of the Planning process, including information on the HMPC and public involvement.

ES.4 Hazard Analysis

The City is vulnerable to a wide range of natural and man-made hazards that threaten life and property. To identify the hazards that the City and neighboring communities perceive as the largest threat, each member of the HMPC participated in the Hazard Identification Workshop during the first HMPC Meeting. The HMPC brainstormed potential hazards based on past incidents that have impacted the City and information incorporated from other studies. (Incorporated Plans and studies are described in Section 1.3 “Review and Incorporation of Existing Plans”). Each identified hazard was then qualitatively ranked based upon hazard probability/frequency, consequence/severity, and the City’s overall vulnerability using an interactive model. Section 3.2 Hazard Identification contains detailed information regarding the hazard ranking. Table ES.1 provides a summary of the hazard rankings.



Table ES.1: City of Fountain Valley Hazard Ranking Summary

HAZARD RANK	SCORE
EARTHQUAKE	50
ADVERSARIAL EVENTS	40
CYBER ATTACK	40
FLOOD	18
DAM / RESERVOIR FAILURE	16

Note: The HMPC did not identify any Low or Moderately Low ranked hazards

Asset Inventory and Loss Estimates

In addition to the hazard profiles, the Risk Assessment contains a detailed asset inventory that lists the City's assets, such as buildings, public facilities, parks, and water facilities. This asset inventory was used in the vulnerability assessment to estimate potential losses for each hazard. The HMPC reviewed each hazard and assigned a potential percentage of damage expected. This also included loss of function values for lifeline and emergency service interruptions. Section 3.7 Loss Estimates includes a detailed breakdown of the vulnerability assessment calculations. Table ES.2, listed below, highlights the summary of loss estimates for each identified hazard.

Table ES.2: Loss Estimate Summary

HAZARD	NAME
EARTHQUAKE	\$47,419,000
CYBERATTACK	\$23,532,000
DAM/RESERVOIR FAILURE	\$17,677,000
ADVERSARIAL EVENTS	\$9,291,000
FLOOD	\$4,527,000

Note: Values are rounded to the nearest thousand.

ES.5: Mitigation Strategies and Implementation Plan

Plan Goals and Objectives

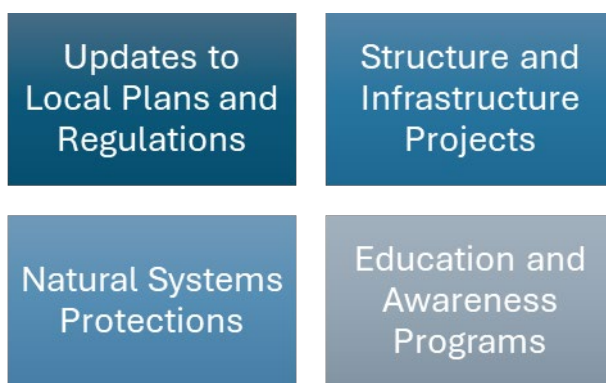
As part of the development process, Plan goals and objectives were revalidated to provide a framework for mitigating hazards and proposing potential mitigation actions. The goals are consistent with the California State Hazard Mitigation Plan and the Los Angeles County Hazard Mitigation Plan and were developed by the HMPC. The City's overall Plan goals are to:

1. Protect Life and Property
2. Promote Public Awareness and Outreach
3. Promote Partnerships and Implementation
4. Enhance Emergency Services Capabilities

In addition to the overall Plan goals, individual objectives were developed that more specifically address mitigation strategies. Section 4.1 Mitigation Goals and Objectives contains the full list of the Plan goals and objectives.

Mitigation Strategies

Mitigation strategies are administrative and/or engineering project recommendations to reduce the vulnerability to the identified hazards. The HMPC identified specific mitigation actions to reduce the impact or likelihood of the hazards. The specific objectives served as a starting point for developing the mitigation actions, and additional actions were taken from the Safety Element of the City's General Plan. Each of the mitigation recommendations fell into one or more of the following categories:



Implementation Plan

Following the identification of mitigation actions, a simplified Benefit-Cost Review was applied in order to prioritize the mitigation actions for implementation. The priority for implementing mitigation actions depended upon the overall cost effectiveness of the action, when taking into account monetary and non-monetary costs and benefits associated with each action. Additionally, the following questions were considered when developing the Benefit-Cost Review:

- How many people will benefit from this action?
- How large of an area is impacted?
- How critical are the facilities that benefit from the action?
- Environmentally, does it make sense to do this project for the overall community?

The Benefit-Cost Review yielded a relative priority ranking (High, Medium, or Low) for each mitigation action. Each ranking was defined as follows.

- High: Benefits are perceived to exceed costs without further study or evaluations; or the action is critical.

- Medium: Benefits are perceived to exceed costs but may require further study or evaluation prior to implementation.
- Low: Benefits and costs require evaluation prior to implementation.

Mitigation actions identified as high priority are typically implemented before lower ranked actions. Results from the Benefit-Cost Review are located in Chapter 4.3 Prioritization of Mitigation Recommendations. The HMPC considered responsible departments, funding resources, and estimated implementation timeframe when developing the implementation plan.

Chapter 4 Mitigation Strategies contains additional information regarding the mitigation strategies and implementation plan. Table ES.3 on the following pages provides a summary of each mitigation action, including the hazard(s) mitigated, responsible agency/department, and relative priority rank taken from the Benefit-Cost Review.

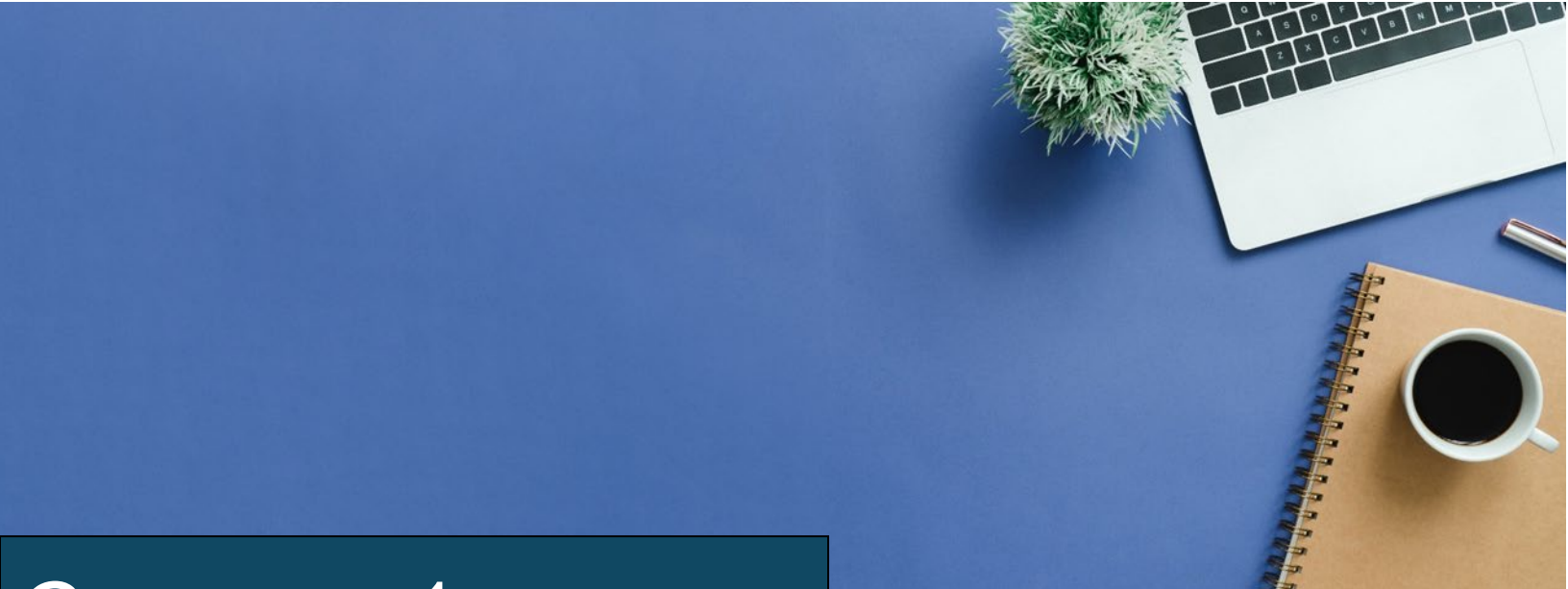
Table ES.3: Mitigation Action Summary

Action ID	Mitigation Action	Hazards Mitigated	Responsible Agency/Dept.	Priority
2022.HMP.01	Determine whether City-owned buildings and infrastructure require structural upgrades and implement projects. This action is intended to promote government continuity during a disaster and provide stability to programs which support identified vulnerable populations.	Earthquake	Public Works	Medium
2022.HMP.02	Identify elderly care facilities that would need assistance during an evacuation scenario and develop a plan, as necessary, to find housing/shelter for impacted residence.	All Hazards	Fire Department	High
2022.HMP.03	Implement a Community Emergency Response Team (CERT) program to garner public support for proactive community involvement in mitigation and emergency preparedness. The CERT program would be leveraged to support vulnerabilities populations, as appropriate, during an emergency.	All Hazards	Police Department	Medium
2022.HMP.04	Expand coordination with local schools to better prepare staff and students to identify, prevent, and respond to shootings/drug - related hazards, and other physical events.	Adversarial Events	Police Department	High
2022.HMP.05	Evaluate existing security features at the Community Services Buildings and implement improvements to better secure the facilities against physical attacks.	Adversarial Events	IT/Police Department	Low
2022.HMP.06	Implement upgrades to City Information Technology Systems to address dynamic challenges to protecting City data and infrastructure.	Cybersecurity	IT Department	Medium
2022.HMP.07	Review vendor arrangements for security clauses and verify resident data is being protected adequate. Although this action will benefit the entire community, emphasis is placed on protecting the	Cybersecurity	IT Department/ Administration	Medium

	elderly community who are often victims of cyber-attacks/identification theft.			
2022.HMP.08	Expand Public Outreach with regard to Cyber Security protection.	Cybersecurity	Fire Department/ IT Department	High
2022.HMP.09	Assess drainage capacities throughout the city and determine the elements of infrastructure (catch basins and pipelines) require improvement to allow for proper drainage. The LHMP Team identified the Walnut Lift Station as a priority for this action due to frequent flooding issues.	Flood	Public Works	High
2022.HMP.10	Expand public outreach to provide education to the business and the community with regard to resources for flood preparation. (I.e., roof protection, sandbag availability, CERT participation)	Flood	Fire Department	High
2022.HMP.11	Implement a CERT program to better utilize/prepare volunteer support to assist in emergency support, particularly in support of vulnerable populations.	Flood	Fire Department	Low
2022.HMP.12	Consider structural improvements for Reservoir No. 1 in order to meet current seismic codes.	Dam or Reservoir Failure/ Earthquake	Public Works	Medium
2022.HMP.13	Establish a permanent Emergency Operations Center (EOC) to adequately house emergency management equipment and provide space for training opportunities for CERT/Residents.	All Hazards	Fire Department	Medium
2024.HMP.14	Hire a dedicated Emergency Manager for the City to champion EOC management, emergency planning, seek grant opportunities for resilience efforts, and oversee community outreach	All Hazards	Fire Department	Low

ES.6: Monitoring, Evaluating, and Updating the Plan

The Hazard Mitigation Plan is a living document that reflects ongoing hazard mitigation activities and requires monitoring, evaluating, and updating to ensure the mitigation actions are implemented. To facilitate the Hazard Mitigation Planning process and adhere to regulatory requirements, the Plan will be reviewed annually, and any major revisions will be incorporated into the five-year update. In addition, public involvement will be requested when applicable. Chapter 5: Plan Maintenance outlines the update requirements and planning mechanisms the City has in place for ongoing hazard mitigation.



CHAPTER 1

PLANNING PROCESS

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Narrative Description of the Planning Process

Hazard mitigation planning is a dynamic process built on realistic assessments of past and present information that engages the City of Fountain Valley (City) to anticipate future hazards and provide meaningful strategies to address possible impacts and identified needs. The hazard mitigation planning process involves the following tasks:



The overall approach to updating the Hazard Mitigation Plan includes building off the baseline understanding of the natural and manmade hazards as defined in the 2018 Hazard Mitigation Plan, determining ways to continue reducing those risks, and prioritizing those recommendations for implementation. The following task descriptions provide a detailed narrative of the overall project progression.

Organize Resources

Identify Stakeholders and Compile Steering Committee

Michele Rudaitis, Fire Marshal for the City Fire Department, invited and coordinated participation for a Steering Committee from the appropriate law enforcement, emergency response, City and County representatives. The Steering Committee was responsible for providing essential insight into past hazard events, current hazard vulnerability (including specific locations), critical assets, and possible mitigation projects. The following groups were invited via email to participate in the plan development:

Table 1.1 Stakeholders Invited to Participate in the Plan Update

<i>Local/Regional Agencies Involved in Hazard Mitigation Activities</i>	<i>Agencies that have Authority to Regulate Development</i>	<i>Representatives of Businesses/ Academia/Other Private Organizations</i>	<i>Neighboring Communities</i>	<i>Representatives of Non-Profit Organizations</i>
• City Police Department • City Public Works • City Finance • City Fire Department	• City Housing Department • City Planning	• Carmel Village • Boys & Girls Club	• Orange County Social Services • City of Huntington Beach • City of Costa Mesa • Orange County Water District	• Memorial Care Orange Coast Medical Center

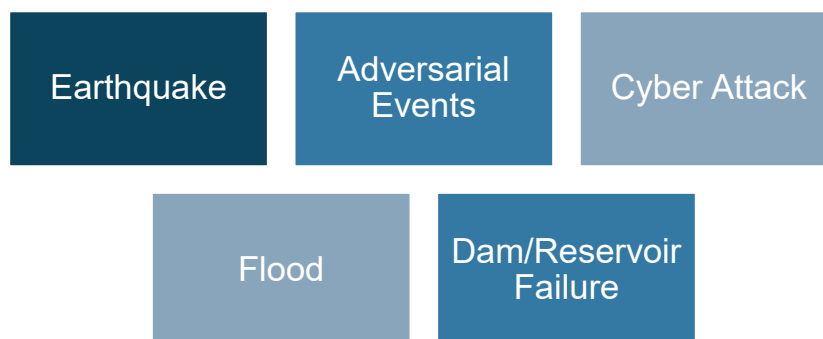
Public Meeting Documentation

The Disaster Mitigation Act of 2000 requires an “Open and Public Process” for developing the Hazard Mitigation Plan. This process requires, at a minimum, that the public be allowed to comment on the plan during the draft phase and prior to adoption. To meet this requirement, the City published a public survey to allow for public comment during the drafting stage of the Hazard Mitigation Plan and posted a draft to the City website for public review prior to submittal of the Plan for Federal Emergency Management Agency (FEMA) review.

Risk Assessment

Identify Hazards

This task was designed to identify all the natural and man-made hazards that *might* affect the City and then narrow the list to the hazards that are most likely to occur. The hazards included natural,



technical, and human-caused events, with an emphasis on the effect of natural disasters on the City's critical facilities. In order to compile the list, the Project Team researched newspapers, historical records, and internet websites to determine the most prevalent hazards. In addition, the Steering Committee played an integral role in the development of a list of hazards that have affected the City in the past, with specific information regarding frequency, magnitude, and associated consequences. A Steering Committee meeting was held to identify and evaluate each selected natural hazard.

This list is not all-inclusive of the hazards discussed during the Hazard Identification exercise. Hazards not thought to pose significant risk to the City were not included. In addition, some items were captured as sub-items of the hazards listed above. For example, climate change is discussed with hazards where the impact of changes in weather patterns could act as a catalyst for those scenarios.

Profile Hazard Events

The hazard profiles consist of either a map indicating the area impacted by each hazard or an important piece of data regarding the characteristics of hazard events within the planning area. To develop the detailed hazard profiles, the Project Team researched and reviewed relevant open-source natural hazard studies and mapping projects. In addition, the City supplied any natural hazard studies that have been developed specifically for the City. This task determined the natural hazard magnitude, frequency, and location characteristics (soil conditions, predicted ground acceleration values, fault locations, flood plains, etc.) that were used as the design-basis for the hazard ranking and loss estimates.

Asset Inventory

The purpose of this task was to determine the quantity of buildings, people, and asset values that lie in the different hazard areas and what proportion of the City this represents. The asset inventory was completed by developing a list of City assets during a Steering Committee meeting.

This inventory was augmented with critical City assets, which enabled the team to estimate losses resulting from hazard events and to determine where resources should be allocated to address mitigation issues.

Loss Estimates

the Project Team developed loss assessment tables for each specific hazard that identifies potential damage within the City, critical infrastructure, and buildings. This task was critical in determining which assets are subject to the greatest potential damages and which hazard event is likely to produce the greatest potential losses. The conclusion of this task precipitated a comprehensive loss estimate (vulnerability assessment) for each identified hazard for each specific asset in terms of damages, economic loss, and the associated consequences.

Mitigation Strategy Development

Develop Mitigation Goals and Objectives

The Project Team, based upon information provided by the Steering Committee, discussed the mitigation features and resources the City currently has in place. These mitigation features provided a framework to determine where practical improvements could be made and where sufficient improvements would be prohibitive due to cost, schedule, or impracticality of implementation.

For each of the hazard events, mitigation goals and objectives were updated with the intention of reducing or eliminating the potential hazard impacts. The mitigation goals and objectives were updated at a Steering Committee Meeting to provide the basis for determining the associated mitigation projects.

Identify and Prioritize Mitigation Actions

Mitigation strategies are administrative and engineering project recommendations to reduce the vulnerability to the identified hazards. It was imperative to have City planners and community developers involved in this phase of the plan in order to develop strategies and projects that will mitigate the hazards cost-effectively, as well as ensure consistency with the City's long-term mitigation goals and capital improvements. At a Steering Committee meeting, a team-based approach was utilized to brainstorm mitigation projects based on the identified hazards and associated loss estimates. The evaluation and prioritization of the mitigation actions produced a list of recommended mitigation actions to incorporate into the mitigation plan. A separate Steering Committee meeting was held to conduct a cost-benefit review for each proposed mitigation action to determine the relative priority level of the recommendation.

Implementation & Monitoring

Prepare an Implementation Strategy

The Project Team developed an action plan to detail how the mitigation recommendations will be prioritized, implemented, and administered by the City. During the Hazard Mitigation Plan creation process, the Project Team coordinated with the Steering Committee to determine the mitigation project implementation strategy (including identifying responsible departments, funding resources, and estimated implementation timeframe).

1.2 Steering Committee & Public Involvement

While the City Fire Department and Risk Management Professionals had lead responsibility for the development of the City's Hazard Mitigation Plan, neighboring communities, agencies, and other interested parties were invited to participate on the Steering Committee to review the Hazard Mitigation Plan during each phase of the document development. The City and RMP assessed community support through active community leaders, built a Steering Committee, and engaged the public participants through the use of a public survey. Each member of the Steering Committee had the opportunity to participate in all aspects of the planning process.

Steering Committee Participant Solicitation

The City solicited participation in the Hazard Mitigation Plan Steering Committee by contacting both internal and external stakeholders. Internal stakeholders included members of the various City departments. External stakeholders were comprised of representatives from local agencies and neighboring communities although none were available to support the planning process.

Steering Committee Participants

The City brought together personnel from fire services, police services, and various city departments to ensure the Steering Committee was multi-faceted and provided a mechanism for receiving input from each participant. Additionally, the City compiled historical hazard data, provided relevant planning documents for incorporation into the plan, and coordinated participation with the public. Each draft chapter was reviewed by the Steering Committee and specific comments and input were incorporated into the plan. The multidisciplinary Steering

Committee enabled the City to work together and incorporate each individual's expertise to provide a comprehensive Hazard Mitigation Plan.

The Hazard Mitigation Plan was developed with assistance and advice from participants from the City. Although attempts were made to include outside agencies, no representatives were available for the planning process. Table 1.1 provides a list of the Steering Committee participants. Individuals are listed in alphabetical order by last name.

Table 1.2 Steering Committee Participants

Name	Affiliation	Title
<i>Ayes, Steven</i>	City of Fountain Valley Planning Department	Principal Planner
<i>Barr, Matt</i>	City of Fountain Valley Fire Department	Battalion Chief
<i>Bray, Ryan</i>	Risk Management Professionals	Senior Technical Consultant
<i>Harnish, Robin</i>	City of Fountain Valley	Finance Manager
<i>Kulkarni, Shireen</i>	Risk Management Professionals	Technical Consultant
<i>Le, Maggie</i>	City of Fountain Valley	City Manager
<i>McQuaid, Bill</i>	City of Fountain Valley Fire Department	Fire Chief
<i>Newman, Ashley</i>	City of Fountain Valley	Housing Coordinator
<i>Nguyen, Thang</i>	City of Fountain Valley Fire Department	Fire Prevention Analyst
<i>Pugh, Kristen</i>	Memorial Care	VP of Advocacy and Government Relations

<i>Rudaitis, Michelle</i>	City of Fountain Valley Fire Department	Battalion Chief/ Fire Marshal
<i>Schuck, Mark</i>	Memorial Health	Ex. Dir. Of Facility Ops and Development
<i>Worsham, Jenni</i>	City of Fountain Valley	Community Services Manager

The Steering Committee met four times during the course of the project to discuss project progress and obtain valuable input and information for documenting the Hazard Mitigation Plan. The following meetings are detailed over the subsequent pages. Appendix D – Public Participation contains copies of the presentations used at each meeting, specific meeting handouts, and attendance records.

Steering Committee Meeting Descriptions

Steering Committee Meeting 1: Project Initiation, Hazard Identification, and Information Collection

During the Project Initiation, Hazard Identification, and Information Collection Meeting, Risk Management Professionals presented an overview presentation that detailed the objectives and scope of the project. After a review of the project schedule and key tasks, the Steering Committee participants' areas of expertise, resultant member responsibilities, and the community meeting process was discussed.

The Steering Committee Meeting also served as a mechanism to determine the hazards to profile in detail. To effectively characterize the City's risk and vulnerability, Risk Management Professionals facilitated a discussion of the historical hazards with the Steering Committee members during this meeting. This meeting also served as a forum to discuss information for background information and asset inventory.

During the Project Initiation, Hazard Identification, and Information Collection Meeting, Risk Management Professionals presented an overview presentation that detailed the objectives and scope of the project. After a review of the project schedule and key tasks, the Hazard Mitigation Planning Committee participants' areas of expertise, resultant member responsibilities, and the

community meeting process was discussed. The Hazard Mitigation Planning Committee Meeting also served as a mechanism to determine the hazards to profile in detail. To effectively characterize the City's risk and vulnerability, Risk Management Professionals facilitated a discussion of the historical hazards with the Hazard Mitigation Planning Committee members during this meeting.

The Hazard Mitigation Planning Committee determined the initial hazard profile ranking through a facilitated exercise using an automated interactive spreadsheet that asked specific questions on potential hazards and then assigned a relative value to each potential hazard, accordingly, including numerical rankings (1-5) of the following criteria:

- **Consequence/Severity** – How widespread is the impact area?
- **Secondary Effects** – Could the event trigger another event and separate response?
- **Probability/Frequency** – Historical view of how often this type of event occurs locally and projected recurrence intervals.
- **Warning/Onset** – Advance warning of the event, or none.
- **Duration** – Length of elapsed time where response resources are active.
- **Recovery** – Length of time until lives and property return to normal

Chapter 3: Risk Assessment of this Plan outlines the methodology used for hazard rankings. Additionally, all Hazard Mitigation Planning Committee participants were requested to provide existing plans and technical studies, GIS data, and identify existing mitigation features as part of a detailed information request.

Hazard Mitigation Planning Committee Meeting #2: Mitigation Goals and Objectives

The hazard risk ranking from Hazard Mitigation Planning Committee Meetings #1 was reviewed, updated, and validated with the Hazard Mitigation Planning Committee with a review of the hazard profiles. Additionally, the Plan's mitigation goals and objectives were updated with the intention of reducing or eliminating the potential hazard impacts, which also provided the basis for determining the associated mitigation projects. The Hazard Mitigation Planning Committee reviewed the goals and objectives from the City's 2018 Local Hazard Mitigation Plan, the 2021 Orange County Hazard Mitigation Plan, and the 2023 California State Hazard Mitigation Plan as a baseline for determining the City's current mitigation goals and objectives.

Hazard Mitigation Planning Committee Meeting #3: Vulnerability Assessment

To enhance the City's understanding of how hazards impact vulnerable populations and comply with FEMA's new requirements, a Hazard Mitigation Planning Committee meeting was held to examine the effects of hazard scenarios on these populations. As detailed in Section 2.4 (Demographics), the City identified several groups likely to experience heightened impacts during hazard events, including the elderly, children, individuals with cognitive or physical disabilities, economically disadvantaged residents, and those with limited English proficiency (LEP).

During the meeting, a productive discussion took place regarding the City's capacity to provide resources and information to better support these populations. This resulted in a deeper analysis of the mitigation actions in Chapter 4 and the hazard understanding in Chapter 3 of the plan. Moreover, as the City gained greater clarity on FEMA's expectations for mitigation planning, Chapter 5 was updated to reflect the City's commitment to addressing the needs of vulnerable populations in future mitigation efforts.

Hazard Mitigation Planning Committee Meeting #4: Mitigation Action Identification and Benefit/Cost Review

The purpose of this meeting was to identify potential mitigation actions and projects that will reduce the impact of identified hazards. First, the mitigation goals and objectives from Hazard Mitigation Planning Committee Meeting #2 were reviewed and validated. Then, during the meeting, the Hazard Mitigation Planning Committee participants brainstormed possible projects and actions to mitigate the effects of the identified hazards.

As the mitigation projects were identified, the Hazard Mitigation Planning Committee discussed the mitigation action implementation plan according to the following characteristics:

- Mitigation Action Category – Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services, and Structural Projects
- Corresponding Goals and Objectives
- Responsible Department – Building and Safety, Engineering, Administration, Community Development, Public Works, etc.
- Resources – General Fund, Grant Programs, Staff Time, Capital Improvements, etc.
- Implementation Timeframe – Ongoing, Short-Term (within two years), Medium-term (between three and ten years), and Long-Term (greater than ten years)

- Whether or not the projects protect new or future buildings

The identified mitigation actions were reviewed and validated with the Hazard Mitigation Planning Committee. The Hazard Mitigation Planning Committee then performed a high-level Benefit-Cost Review on each of the identified mitigation actions. The review consisted of identifying all benefits and costs associated with implementing each mitigation action. Typical benefits include:

- Avoided physical damages (e.g., to buildings, infrastructure, and equipment)
- Avoided loss of function costs (e.g., loss of utilities and lifelines)
- Avoided casualties
- Avoided emergency management costs (e.g., emergency operations center costs, evacuation/rescue costs, and other management costs)

Once the benefits and costs were estimated, a relative priority was assigned for each action based upon the evaluation. More detailed information can be found in Section 4.4 “Prioritization of Mitigation Recommendations.

Public Meetings and Outreach

The City actively solicited public involvement at several points throughout the Planning process. Representatives from the Hazard Mitigation Planning Committee teamed up with The City of Fountain Valley at a Senior Event on June 19, 2024. This event was valuable in gaining public input regarding hazards that affect the community. Over 150 attendees had opportunities to provide their feedback on hazard scenarios in the City. Even more, the demographic was predominantly aged 65 and older, which was the main vulnerable demographic outlined by the planning committee for the current plan update. More information about identified vulnerable populations can be found in Chapter 4. Members of the public were also able to provide direct input for Hazard Mitigation Plan development and attend a City Council Meeting to review the Hazard Mitigation Plan during the drafting stage and provide comments. The Draft Hazard Mitigation Plan was provided on the City website two weeks prior to the City Council meeting to allow the public to review the document before providing comments. For the City Council meeting, a presentation was prepared to provide an overview of the planning process and the results of the analyses for the public. Additional documentation regarding public involvement and additional information on the City Council Meeting, including the attendance log and presentation, can be found in Appendix D.

1.3 Review and Incorporation of Existing Plans

While developing the City's Hazard Mitigation Plan, the Project Team reviewed existing plans (detailed below) and incorporated relevant information into the planning efforts.

City of Fountain Valley Local Hazard Mitigation Plan (2018)

The 2018 Local Hazard Mitigation Plan was crucial in comparing the previous mitigation ideas and attitudes to the City's current needs and concerns. The project team referred to this plan constantly throughout the updating process. The Hazard Mitigation Plan provides insight into hazard ranking, hazard history, previously proposed mitigation projects, etc.

§201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

City of Fountain Valley General Plan (2023).

The City of Fountain Valley General Plan 2023, including the updates to the Housing Element and Public Facilities and Safety Element, contains guidelines and policies that serve as the City's vision for future planning and development. Mitigation projects defined in the Hazard Mitigation Plan will be required to align with the objectives outlined in the Safety Element of the General Plan. Proposed mitigation actions are found in Chapter 4 of this document.

City of Fountain Valley Urban Water Management Plan (2020)

The City of Fountain Valley 2020 Urban Water Management Plan is updated every five years to monitor water supply issues and mitigate drought situations. As part of Urban Water Management Plan updates, the City will review the drought hazard profile in the HMP and incorporate the drought mitigation actions identified in the plan.

California State Hazard Mitigation Plan (2023)

The State Hazard Mitigation Plan was reviewed to ensure consistency between the State and City Plan, with respect to identified hazards and vulnerability, goals and objectives, and mitigation actions. The State goals served as the basis for developing the goals at the City level. City goals and objectives are outlined in Chapter 4.

County of Los Angeles Hazard Mitigation Plan (2021)

Los Angeles County's All-Hazard Mitigation Plan was reviewed to ensure consistency between the County and City Plan. The County Plan, updated in 2021, outlines the County's approach to

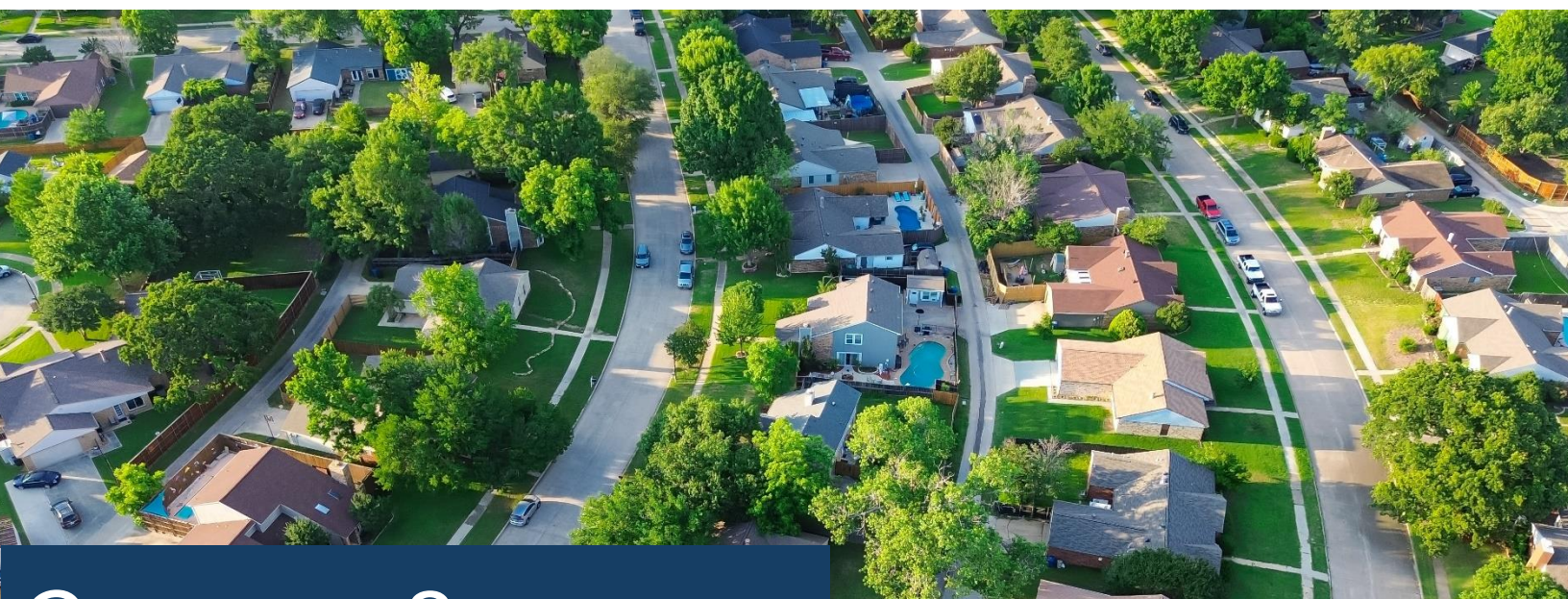
hazard mitigation, focusing on natural hazards, human-caused events, and technological emergencies.

California Adaptation Planning Guide (2020)

FEMA, CalOES, and the California Natural Resources Agency developed the California Adaptation Planning Guide to assist municipalities in recognizing local climate change and to provide guidance addressing potential vulnerabilities. The information was used to develop potential hazards and to provide background information that allowed the Hazard Mitigation Planning Committee to make educated decisions regarding mitigation actions designed to alleviate the effects of climate change.

FEMA's Flood Insurance Rate Map (FIRM)

The FIRM, or FEMA's official map of the community delineating Special Flood Hazard Areas (SFHAs), Base Flood Elevations (BFEs) and flood risk zones was reviewed to determine flood hazard areas within the City boundary. Portions of the map are included in the Flood Hazard Profile in Chapter 3 which was used to support the City's understanding of flood-related risks within the City.



CHAPTER 2

PLANNING AREA PROFILE

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2.1 Region Description

The City of Fountain Valley (City) is a municipality characterized by a combination of residential, industrial, and commercial developments. The City is located in the northern part of Orange County, California, about 35 miles southeast of the City of Los Angeles, and is positioned close to the border between Los Angeles County and Orange County. The City is bordered by the cities of Huntington Beach and Seal Beach to the west; Westminster, Garden Grove, and Anaheim to the north; Santa Ana to the east, and Costa Mesa and Newport Beach to the south. The eastern border of the City is the Santa Ana River. The Interstate 405, a major freeway, diagonally bisects the City, with the California State Routes 39 and 55 located nearby. Additionally, the City is near the Los Angeles International Airport, Long Beach Municipal Airport, John Wayne Airport, and the ports of Los Angeles and Long Beach, and is about 8 miles northeast of the Pacific Ocean. Fountain Valley has a total area of 9.08 square miles.

The City's climate is consistent with Southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers, and moderate rainfall. The City's temperatures in the summer tend to be in the 70s, while the winter temperatures tend to be in the 50s. With an average high temperature of 80 degrees Fahrenheit, August is the warmest month of the year, while December has an average minimum temperature of 47 degrees Fahrenheit. During the summer, temperature differences between day and night can reach 20 degrees Fahrenheit, and during the winter, they often range between 22- and 20-degrees Fahrenheit. In Fountain Valley, the annual average precipitation is 11.7 inches. Throughout the year, rainfall typically occurs during the winter months. With an average rainfall of 3.0 inches, February tends to be the wettest month of the year.



Residents of Fountain Valley and neighboring communities used to refer to this area as the "Gospel Swamps" between the 1880s and early 1900s. The numerous artesian wells and abundant water supply inspired the City's name to be "Fountain Valley." Early settlers worked to drain the land so that it could be used by building up drainage canals through the 1890s. On areas of the land not growing crops, cattle were allowed to graze. Until the middle of the 1930s, when some significant landowners started to sell portions of land, Fountain Valley remained primarily a field crop area.

Since then, the majority of the agricultural emphasis has been on truck crops. The City of Fountain Valley became the 21st city in Orange County when it was formed in 1957. Since its incorporation, the City has made a name for itself as a progressive town committed to raising the standard of living for its residents.

2.2 Development Trends

As stated previously, the City is 9.08 square miles in area. The Land Use Element of the City's General Plan provides a guide for land use, future growth, and development within the City. Since the 2018 Hazard Mitigation Plan, there have been no major changes in development that have greatly affected the City's vulnerability to the identified hazards. However, the State of California is mandating the City to add 1908 housing units within the next 8-year period. At the time of this report, the City has not received any new applications for

development, so future changes in vulnerability cannot be estimated. City staff will monitor the situation and incorporate a hazard review into future proposed developments.

The following describes land use designations, as amended, for the City. These descriptions were excerpted from the City's 2045 Draft General Plan Update, which went out for Public Review in 2021, as an attempt to designate the proposed general distribution and intensity of uses of the land for housing, business, industry, open space, public facilities, and other categories of public and private uses. During the update to this plan, the housing element underwent an extensive update and was adopted by the City Council in early 2022. However, the changes to the element did not make a significant impact on hazard vulnerability for the community.

Residential Density

Each residential land use designation includes a range of allowable densities, calculated as the number of dwelling units allowed per acre (du/ac). The maximum density represents a potential maximum density (number of housing units per acre) that could be achieved if all other requirements are met, including zoning standards in the municipal code.

Nonresidential Intensity

Floor area ratio (FAR) is a measurement used to identify nonresidential land use intensity. The FAR is the ratio of the total gross floor area of all buildings on a lot compared to the total area of that lot. Higher FARs generally indicate larger buildings and/or more stories, but as shown in Figure LU-02, the size and height of the building can vary a great deal within the same FAR. Note, FAR is also a measure used in regulating the intensity of mixed-use areas and projects.

44 CFR 201.6(c)(2)(ii)(C): [The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Residential Land Uses

Low Density Residential (LDR)

Land uses within this designation are characterized by single-family residential. This land use is characterized as being in a suburban neighborhood structure, served by common infrastructure, public facilities, and services. The allowable density of this designation is Up to 5 du/ac.

Low Medium Density Residential (LDMR)

This land use designation consists of single family detached and attached housing types in a suburban neighborhood structure, with housing options ranging from small-lot to large-lot single-family detached homes to townhomes and duplexes. The allowable density of this designation is Up to 10.8 du/ac.

Medium Density Residential Development (MDR)

This land use designation is described as single family attached and small-scale multifamily housing types. The allowable density for this residential designation is Up to 15 du/ac. It includes townhomes, small apartment complexes, and small-lot singly family detached or attached homes.

High Density Residential Development (HDR)

This land designation consists of higher density single family attached and multi-family housing. These areas are currently limited to 15 to 30 du/ac. These developments are typically in proximity to transit services, employment opportunities, retail and service businesses, and community services and facilities.

Very High-Density Residential Development (VHDR)

This land designation is characterized as compact and/or large multi-family residential housing. The allowable density is classified as 30 to 60 du/ac. Typically, these buildings are found in proximity to transit service, employment opportunities, *retail* and service businesses, and community services and facilities.

Commercial Land Uses

Local Commercial (LC)

Land designated under this category is intended for small-scale stores and personal service uses. This is usually near residential neighborhoods and is meant to serve local residents and workers with convenient access to local goods and services. The allowable intensity is listed as Up to .35 FAR.

General Commercial (GC)

This land use designation applies to a wide range and intensity of land uses involved in retail and service commercial uses that are meant to serve those in Fountain Valley as well as those living in the larger surrounding market area. It also supports the development and continued operation of recreational, hospitality, cultural, entertainment, and employment opportunities. The allowable intensity is listed as Up to .50 FAR.

Office Commercial (OC)

This designation applies to administrative and professional offices, as well as complementary commercial uses. Developments under this designation are particularly appropriate in areas where such uses may serve as a buffer between two less compatible land uses. The density for this classification is listed as Up to .50 FAR.

Commercial Manufacturing (CM)

The industrial classification includes those land uses that are a mix of office and clean, light industrial, and complementary retail uses in an integrated development setting. Typical uses include office industrial flex spaces, multilevel corporate offices, and small-scale manufacturing that do not produce significant pollutants or nuisance. The typical allowed intensity for this land use classification is Up to .60 FAR.

Mixed Land Uses

Mixed-Use 1 (MU1)

This land designation is classified as large scale and/or intensity building(s) on parcels up to 5 acres that contain a mix of higher density residential uses and non-residential uses such as retail, dining, entertainment, and offices. Building and site design fosters lively and pedestrian-friendly streetscapes and connectivity to surrounding uses and neighborhoods. The allowable density and intensity for this classification is 30 to 65 du/ac and 2.25 FAR.

Mixed-Use 2 (MU2)

This land designation is described as a master planned project area on parcels larger than 5 acres containing a range of residential product types and densities mixed with non-residential uses, such as retail, dining, entertainment, offices, and public spaces. Building and site design for this classification fosters lively and pedestrian friendly streetscapes and connectivity to surrounding uses and neighborhoods, with public spaces to promote community gatherings. The allowable density and intensity for this land designation is 30 to 55 du/ac and 2.20 FAR.

OtherLand Uses

Public Facilities (PF)

This designation includes public and quasi-public facilities to meet current and future needs. This includes schools, police and fire stations, infrastructure, and civic uses.

Parks and Open Space (OS)

The Parks and Open Space designation includes active and passive recreational uses, including parks and natural preservation areas.

Specific Plan (SP)

This is characterized as a master planned development intended to allow for a more flexible mix and intensity of uses in return for exceptional design and stronger promotion of the Guiding Vision and General Plan goals and policies. The density and intensity for this varies per adopted specific plan.

Table 2.1 reflects the long-term buildout capacity for residents, housing units, and jobs by 2045 taken from the 2023 City of Fountain Valley General Plan Update draft. This buildout figure was designed to assist in planning the City's infrastructure and services and in coordinating with regional planning efforts. Growth above these estimates would require significant investments in new infrastructure systems and/or expansions of public services and facilities.

Table 2.1: City of Fountain Valley Potential Buildout Table

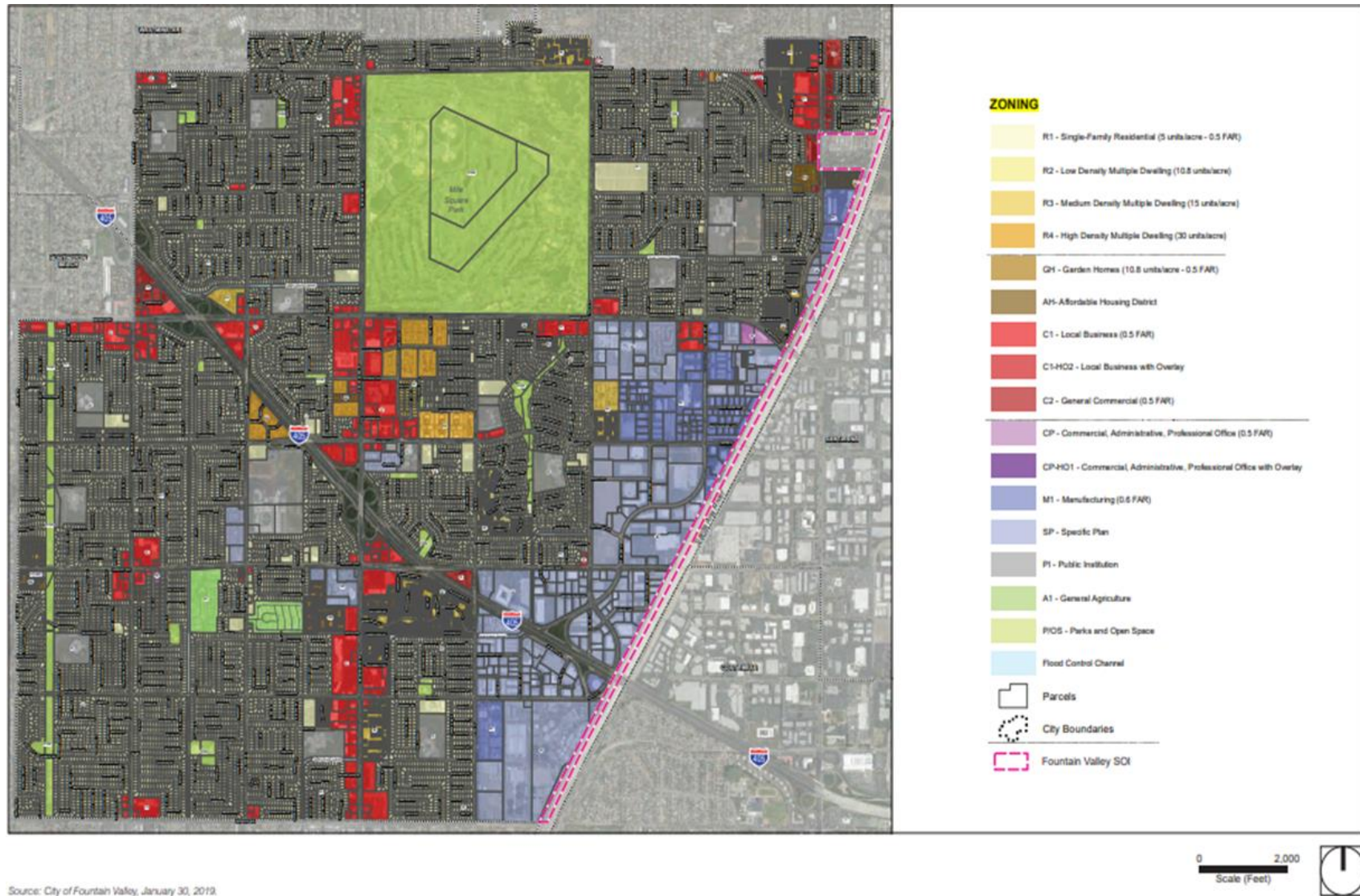
LAND USE CATEGORY	EXISTING 2021			BUILDOUT 2045		
	Housing Units	Pop	Jobs	Housing Units	Pop	Jobs
Low Density Residential	12,553	37,653	380	13,352	38,850	388
Low Medium Density Residential	775	2,322	0	800	2,393	-
Medium Density Residential	2,637	7,778	9	2,637	7,778	9
High Density Residential	2,285	6,558	-	2,783	7,792	-

Very High Density Residential	-	-	155	296	828	-
Local Commercial	-	-	1,102	-	-	1,102
Office Commercial	-	-	388	-	-	388
General Commercial	-	-	11,715	-	-	11,715
Commercial Manufacturing	-	-	2,804	-	-	2,804
Mixed-Use 1	-	-	180	481	1,147	50
Mixed-Use 2	-	-	630	1,078	3,010	425
Public Facilities	-	-	-	-	-	-
Parks & Recreation	-	-	-	-	-	-
Specific Plan	1,144	3,284	15,122	4,206	11,870	19,661
CITYWIDE TOTAL	19,395	57,595	32,485	25,633	73,668	36,542

Source: 2023 City of Fountain Valley General Plan Update Public Hearing Draft

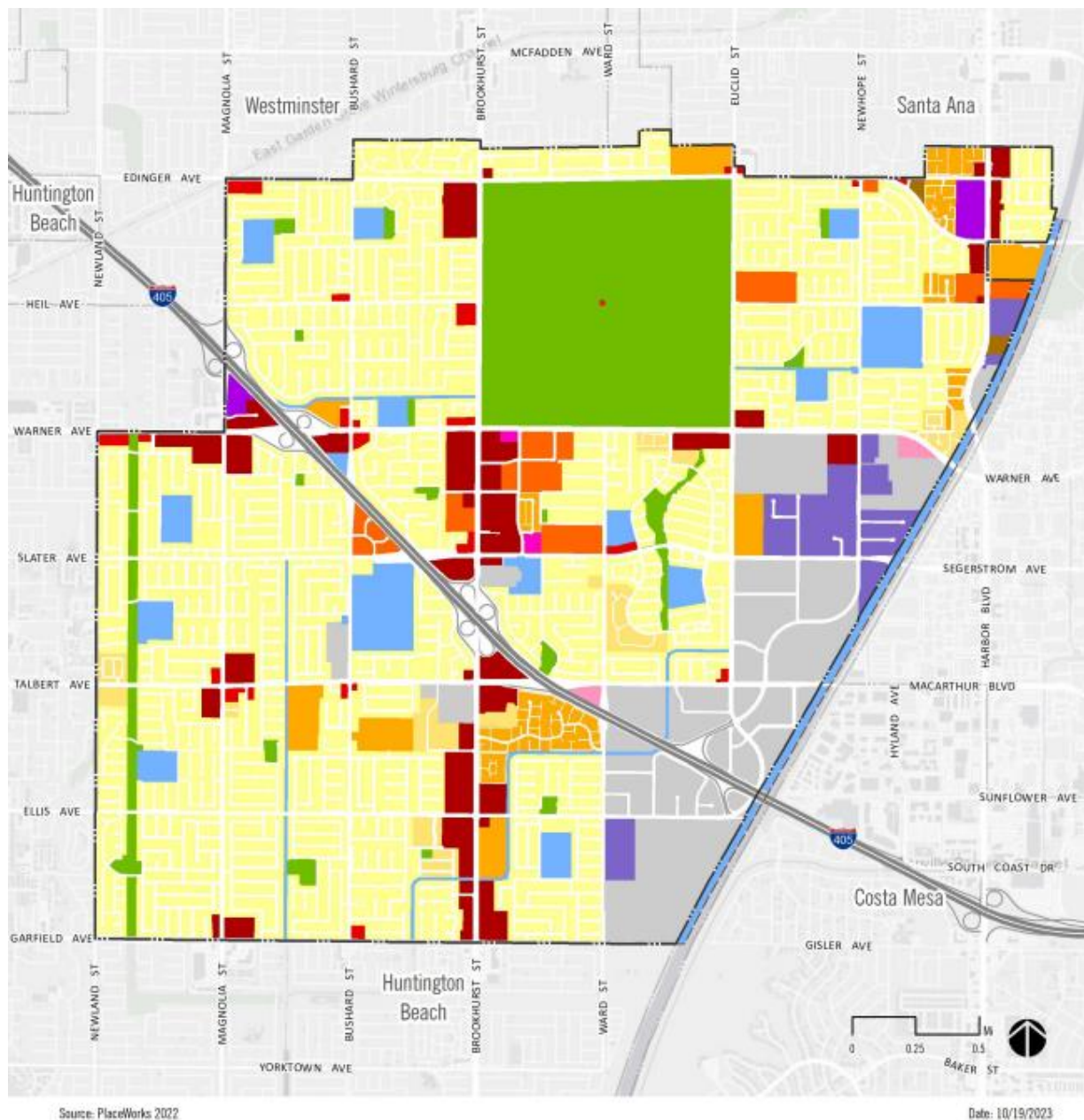
Figures 2.1 and 2.2 on the following pages contain the zoning and land use maps taken from the City of Fountain Valley General Plan. These maps illustrate the City's layout and organization. These maps were used by the Hazard Mitigation Planning Committee (HMPC) to examine how identified hazards may impact different areas and social groups within the City.

Figure 2.1: City of Fountain Valley Zoning Map



Source: City of Fountain Valley website, January 30, 2019

Figure 2.2: City of Fountain Valley Land Use Map



Source: PlaceWorks 2022

Date: 10/19/2023

Fountain Valley City Limit	General Plan Land Use	Very High Density Residential (30 to 65 du/ac)	Public Facilities
Fountain Valley SOI	Low Density Residential (Up to 5 du/ac)	Local Commercial (Up to 0.35 FAR)	Parks and Open Space
	Low Medium Density Resid (Up to 10.8 du/ac)	Office Commercial (Up to 0.50 FAR)	Mixed-Use 1 (30 to 65 du/ac)
	Medium Density Residential (Up to 15 du/ac)	General Commercial (Up to 0.50 FAR)	Mixed-Use 2 (30 to 55 du/ac)
	High Density Residential (15 to 30 du/ac)	Commercial Manufacturing (Up to 0.60 FAR)	Specific Plan



DRAFT Figure LU-1
General Plan Land Use

Source: October 2023 General Plan Update Public Review Draft

2.3 Population

The City was incorporated in 1957, but it was not until the 1960s when residential uses overtook agriculture as the City's dominant land use. The population continued to grow steadily until, due to global political changes, there was a sharp increase in new residents beginning in 1975 and lasting throughout the 1980's. The current estimated population of the City is 56,754, according to the [American Community Survey](#) (2022). The following table provides the projected growth for the City as described in the City's 2020 Urban Water Management Plan.

Table 2.2: Estimated Population Growth

Year	2025	2030	2035	2040	2045
Population	57,530	58,442	58,969	59,110	58,873

Source: 2020 City of Fountain Valley Urban Water Management Plan

It should be noted, the City's population is expected to increase marginally as the City meets the State's mandate to include 1908 housing units within the next eight years. As mentioned in Section 2.1, City personnel will consider the dynamics in vulnerability when proposals for development are submitted to the City for review. At the time of this report, the City has not received any formal application for new developmental proposals.

2.3 Demographics

As stated in the previous section, the City boasts a diverse community with a population of about 56,754 people. This is less than some estimates for the City which may indicate a slowing in population growth in the future. As mentioned above, the City is built out with limited space to accommodate population growth, so this trend for slower population growth is expected to continue.

Men and women split evenly in the community with each group representing almost exactly 50% each. The City is home to people of all ages with roughly 20% being under 18 and another 20% over the age of 65. Additionally, the community represents backgrounds from all over the world with over 30% being reported as born outside the United States.

The community is made up of 18,906 households with roughly three individuals per house. Housing stability is considered good with nearly 90% of the population remaining in their homes for over a year. Additionally, over 65% of housing units within the City are owner-occupied lending to a community that takes interest in City management and programs.

Poverty in the area is considered low. The 7% reported by the United States Census Bureau for the City is less than the 13.2% State Average for 2023 reported by the Public Policy Institute of California (www.ppic.org). The table below outlines the census data points provided by the United States Census Bureau for the City.

Table 2.3: Demographic Estimates

ESTIMATE CATEGORY	CENSUS ESTIMATES
Population (V2023) *	55,468
Persons under 5 years, percent	4.1%
Persons under 18 years, percent	19.3%
Persons 65 years and over, percent	19.9 %
Female persons, percent	49.8%
Persons with a disability under age 65, percent (2018-2022)	5.2%
Households (2018-2022)	18,906
Persons per household (2018-2022)	2.97
Owner-occupied housing unit rate, 2018-2022	65.9%
Limited English Speaking (LEP) Households (2022)	1,652
Limited English Speaking (LEP) Households, percent (2022)	8.7%
Households with a computer, percent (2018-2022)	97.0%
Households with a broadband internet subscription, percent (2018-2022)	93.6%

Living in same house 1 year ago, percent of persons age 1 year+, 2018-2022	89.7%
High School graduate or higher, percent of persons aged 25 years+ (2018-2022)	90.4%
Bachelor's degree or higher percent of persons aged 25 years+ (2018-2022)	43.8%
Median Household income (in 2022 dollars, 2018-2022)	\$108,860
Per capita income in past 12 months (in 2022 dollars, 2018-2022)	\$46,609
Persons in poverty, percent	7.0%
Foreign born persons, percent, 2018-2022	31.8%

Source: [U.S. Census Bureau](#)

Source : [American Community Survey](#) (LEP Information)

Socially Vulnerable Populations

FEMA Guidance requires agencies engaging in hazard mitigation planning to consider vulnerable populations as part of the planning process. The Center for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) defines social vulnerability as the “demographic and socioeconomic factors (such as poverty, lack of access to transportation, and crowded housing) that adversely affect communities-level stressors.” To address this planning requirement the City considered vulnerable groups as part of the plan update through identifying areas with the City more prone to hazard stresses due to multiple factors. The City utilized guidance from the CDC/ATSDR to identify elements contributing to vulnerability. Those elements are listed below.

SOCIOECONOMIC STATUS	HOUSEHOLD CHARACTERISTICS	HOUSING TYPE & TRANSPORTATION
•Below Poverty •Unemployed •Housing Cost Burden •No High School Diploma •No Health Insurance	•Aged 65 & Older •Aged 17 & Younger •Civilian with a Disability •Single-Parent Household •English Language Proficiency	•Multi-Unit Structures •Moblie Homes •Crowding •No Vehicle •Group Quartes

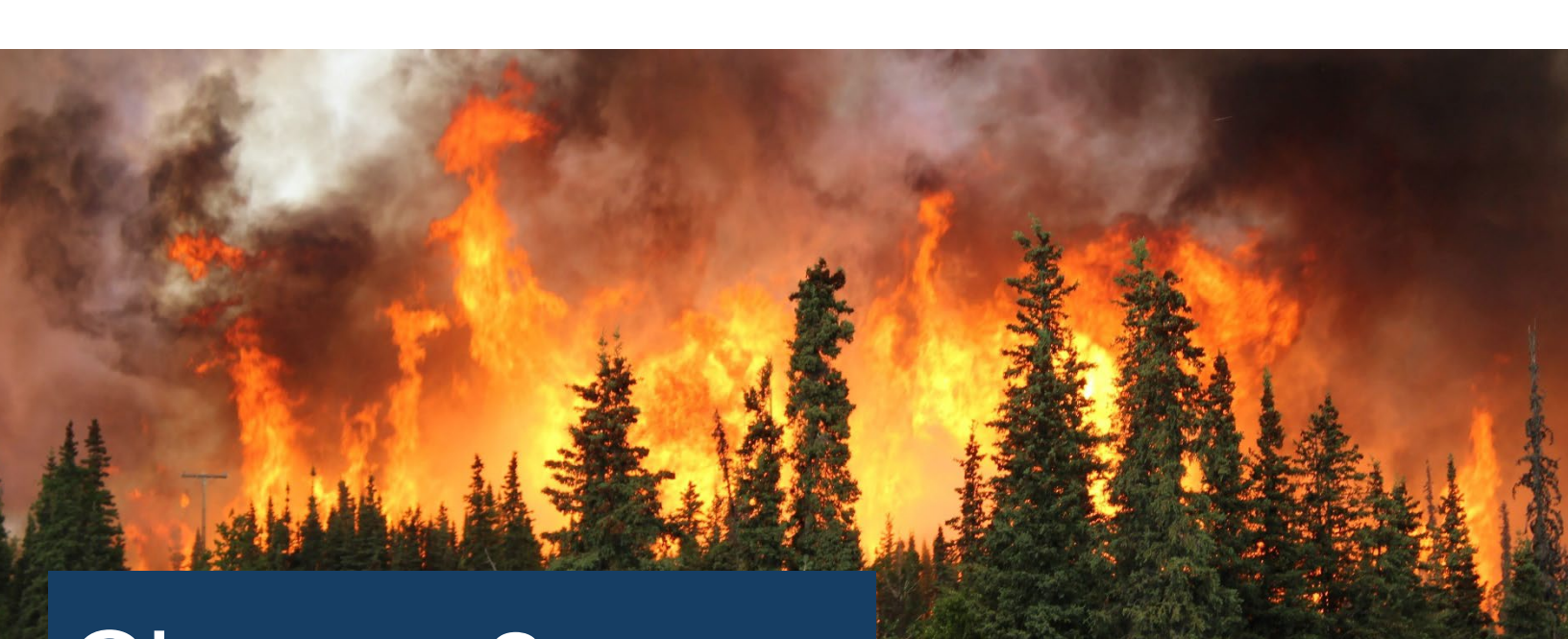
To further refine the vulnerable population within the City, the Steering Committee considered the community and established the following individual vulnerability factors that drove community vulnerability discussions throughout the plan development process.

- Age
- Socioeconomic Status
- Mobility and Transportation
- Language/Communication Barriers
- Housing

The vulnerability factors that impact the community within Fountain Valley are included in the table below.

Social Vulnerability Determination

The Hazard Mitigation Planning Committee (HMPC) is cognizant of the complicated, intersection nature of social vulnerabilities. As such, the HMPC discussed that more research was needed to more fully understand the levels of vulnerabilities throughout the City. The effort to better serve the community is ongoing and the City intends to expand its understanding of vulnerable populations and expand its capabilities to provide equitable services. For the purpose of moving forward with hazard mitigation planning, the HMPC decided to focus its efforts on persons 65 years and older. This was done because, according to personal experiences held by some HMPC participants, this group represents the most overlap of the aforementioned social vulnerability characteristics (i.e. economically disadvantaged, disability, age, housing difficulties) and make up nearly 20% of the population. As such, most of the outreach efforts and mitigation strategies seek to assist this group. As more is understood about other socially vulnerable groups, the City will expand its efforts in future planning efforts.



Chapter 3

Risk Assessment

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Appendix E – Dam/Reservoir Failure

3.1 Risk Assessment

The Risk Assessment consists of four steps: Hazard Identification, Hazard Profiling, Asset Inventory, and Loss Estimates. This chapter includes the Hazard Identification and Hazard Profiling steps to evaluate the hazards of primary concern to local decision-makers in order to provide a basis for loss estimates. Additionally, the Risk Assessment provides a foundation for the evaluation of mitigation actions which can help reduce the impacts of potential hazard events.



Step 1 Identify Hazards

This step identified the natural and man-made hazards which might affect the City of Fountain Valley (City) and then narrowed the list to those hazards which are most likely to occur. These hazards included natural, technical, and human-caused events, with an emphasis on the effect of disaster events on critical facilities (e.g., government buildings as well as public services including police and fire) and vulnerable populations as outlined in Chapter 2. The Hazard Mitigation Planning Committee (HMPC) participated in a hazard identification exercise to identify and rank the potential hazards within the City.

Step 2 Profile Hazard Events

Hazard profiles consist of either a map indicating the area impacted by each hazard or key information regarding the characteristics of hazard events within the planning area. To develop detailed hazard profiles, relevant open-source natural hazard studies and mapping projects were reviewed and documented within this report. In addition, the City supplied natural hazard studies that included specific hazard and emergency information. This planning step determined the magnitude, frequency, and location characteristics or relevant natural hazards (predicted ground acceleration values, fault locations, flood plains, etc.) that were utilized as the design-basis for the loss estimates. These profiles are in the appendices attached to this chapter.

Step 3 Inventory Assets



The purpose of this step was to determine the quantity of buildings, people (specifically vulnerable populations), and City assets which lie in the different hazard areas and what proportion of the City this represents. The asset inventory was completed utilizing a 2018 property insurance report which included asset locations and specifications for the following assets:

- Government Facilities
- Water system components: storage reservoirs, pumping plants, wells, etc.
- Public Service Buildings: police and fire

The values were reviewed and increased to account for inflation between 2018 and 2024 to provide the HMPC with a more current reflection of replacement values. The development of the comprehensive inventory facilitated the development of loss estimates for all hazard scenarios.

Step 4 Loss Estimates

The loss estimate step relied on detailed information regarding the hazard probability and maps that were completed as part of the hazard profiles. This information was utilized to apply the hazard probabilities and recurrence intervals to the assets and vulnerable populations within the City. This step was critical in determining which assets and population groups were subject to the greatest potential impacts and which hazard event was likely to produce the greatest potential losses or injuries.

The conclusion of this step precipitated a comprehensive loss estimate which captured the projected impacts to City Assets and population groups throughout the City. This understanding of the vulnerability for the community and City infrastructure was used to develop mitigation actions which seek to promote resiliency for the affected community/assets.

3.2 Hazard Identification

The hazard identification and ranking was obtained primarily from the Hazard Identification Exercise. Each hazard profile includes a summary of the Hazard Identification Exercise identified risk factors and overall rank for each hazard, in addition to the detailed hazard description, historical occurrences, and projected future probability, magnitude, and frequency.

The hazard identification exercise was conducted as a participatory HMPC workshop to identify the potential hazards within the City. The hazard identification exercise was facilitated utilizing an interactive spreadsheet program that asks specific questions on potential hazards and then rated them accordingly. These questions guide the team in the correct facilitation and application of the program. Table 3.1 summarizes the Hazard Identification Exercise risk factors, lists the descriptions of each factor, provides the specific descriptor choices for each risk factor, and summarizes the risk ranking associated with each hazard.



Table 3.1 Risk Factors for Hazard Identification

RISK FACTOR	DESCRIPTION	DESCRIPTORS	VALUE
PROBABILITY/ FREQUENCY	Prediction of how often a hazard will occur in the future.	Rare event - occurs less than once every 50 years	1
		Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
		Regular event - occurs between once a year and once every 7 years	3
		Frequent event - occurs more than once a year	4
CONSEQUENCE/SEVERITY	Physical Damage - structures and lifelines Economic Impact – loss of function for power, water, sanitation, roads, etc., as applicable	No damage	1
		Minor/slight damage to buildings and structures, no loss of lifelines	2
		Moderate building damage, minor loss of lifelines (less than 12 hours)	3
		Moderate building damage, lifeline loss (less than 24 hours)	4
		Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
VULNERABILITY	Impact Area - area impacted by a hazard event, Secondary Impacts - Capability of triggering additional hazards Onset - Period of time between initial recognition of an approaching hazard and when the hazard begins to impact the community	No physical damage, no secondary impacts	1
		Localized damage area	2
		Localized damage area, minor secondary impacts, delayed hazard onset	3
		Moderate damage area, moderate secondary impacts, moderate warning time	4
		Widespread damage area, significant secondary impacts, no warning time	5

Each profile also includes a ranking of the hazard (ranging from low hazard to high hazard). Table 3.2 illustrates the matrix for how each hazard was ranked according to all of the previously mentioned factors. Table 3.3 provides the value determinations for each ranking. The HMPC determined this initial profile ranking based on the hazard identification, profile research, group discussion, and evaluation of all of the data.

Table 3.2 Risk Rank Matrix

PROBABILITY/ FREQUENCY DESCRIPTION	RISK RANKING MATRIX						
	Probability/Frequency	Consequence/Severity					
Rare Event: Occurs less than once every 50 years	Value	1	1	2	3	4	5
	Vulnerability	1	1	2	3	4	5
		2	2	4	6	8	10
		3	3	6	9	12	15
		4	4	8	12	16	20
		5	5	10	15	20	25
Infrequent Event: Occurs between once every 8 years and once every 50 years (inclusive)	Probability/Frequency	Consequence/Severity					
	Value	2	1	2	3	4	5
	Vulnerability	1	2	4	6	8	10
		2	4	8	12	16	20
		3	6	12	18	24	30
		4	8	16	24	32	40
		5	10	20	30	40	50
Regular Event: Occurs between once a year and once every 7 years	Probability/Frequency	Consequence/Severity					
	Value	3	1	2	3	4	5
	Vulnerability	1	3	6	9	12	15
		2	6	12	18	24	30
		3	9	18	27	36	45
		4	12	24	36	48	60
		5	15	30	45	60	75

Table 3.3 Risk Rank Categorization

High Hazard	50-100
Moderately High Hazard	25-49
Moderate Hazard	15-24
Moderately Low Hazard	5-14
Low Hazard	1-4

Table 3.4 provides the hazard ranking summary for the City.

Table 3.4 Hazard Ranking Summary

HAZARD RANK		SCORE
	EARTHQUAKE	50
	ADVERSARIAL EVENTS	40
	CYBER ATTACK	40
	FLOOD	18
	DAM / RESERVOIR FAILURE	16

Note: The Hazard Mitigation Planning Committee did not indentogty any Low or Moderately Low ranked hazards.

Trends in Percieved Vulnerability

As illustrated above, the HMPC reviewed its perceived vulnerability to determine the potential impact of each hazard on the City. The HMPC began with the hazards identified in the 2018 Hazard Mitigation Plan and used the list as a springboard in determining current perceived vulnerability. The current update saw a steep reduction in the list of identified hazards. This was done in an effort to streamline the planning process and focus HMPC efforts on target hazards the City would like to mitigation during the next 5-year planning period. Please note, removal of a hazard fom the plan is not intended to indicate these scenarios are not relevant to the City, but rather the balance between low probability and the 5-year forecast for improvement within the

City was determined to be sufficient to remove the hazard scenarios from the plan for the following 5-year planning period. Also, the HMPC discussed that, should a shift in perceived hazard vulnerability occur within the next 5-year planning period, the HMPC could reconvene and amend this plan to include the missing hazard. The hazards removed from the current plan update included windstorm, pipeline failure, subsidence, and drought.

During the Plan Update, The HMPC considered the hazards which impact the region. For this effort, the HMPC consulted [FEMA's National Risk Index](#) which indicated, for Orange County, the City should consider Wildfire, Riverine Flooding, landslide, Heat Wave, and Earthquake. Apart from Earthquake, the rest of the hazards were not included in the final list of identified hazards. This was because, generally, these hazards do not apply to the City. With very few open areas, wildfire was not considered credible. There are no rivers or to allow for riverine flooding and the terrain is predominantly flat rendering landslide inapplicable as well. Heat Wave would have been considered, but the HMPC discussed that the City has existing mitigation measures sufficient that the City does not have regular impacts to public health. In conclusion, the final list of identified hazards was kept brief, focusing only on those hazards the HMPC considered significant and relevant over the next 5-year planning period.

3.3 Considerations for Climate Change

With the release of the California Adaptation Planning Guide (APG) in March 2015 and revised in 2021, the City aimed to include the effects of climate change in the Hazard Mitigation Plan update. As identified in the “Understanding Regional Characteristics” portion of the APG, the City is located in the South Coastal Region of California. As a result, the City considered the following climate change impacts as recommended by the APG:

- Increased Temperatures
- Reduced Precipitation
- Sea Level Rise
- Reduce tourism
- Reduced Water Supply
- Wildfire Risk
- Coastal Erosion

- Public Health (heat and air quality)

The HMPC engaged in a discussion to determine which impacts posed a viable threat to the City and what areas might be impacted. While some impacts clearly applied to the City, some required additional research. Studies were conducted to look at recorded trends for sea level rise, wildfire, and regional temperature increases. The result of the study was the following list of perceived, feasible impacts which were assumed could impact all portions of the City over the next five to ten years:

- Increased Temperatures
- Reduced Precipitation
- Reduced Water Supply

After reviewing the results of each of these impacts, the HMPC would typically consider how these impacts would have been perceived by the City. For instance, increased temperatures and reduced water supply would be perceived as drought conditions. Additionally, increased temperatures and reduced precipitation might indicate that fire conductions are more likely. However, in reviewing the final list of hazards identified by the HMPC, none of the natural hazards

appear to be impacted by climate change. This fact is stated again within the hazard profile appendices. The City is cognizant of the impact of changing weather patterns. The HMPC discussed that, if new information is presented which demonstrates a significant impact to the City as the result of climate change, the HMPC will reconvene and amend the current plan.



3.4 Asset Inventory

A critical step in completing the Risk Assessment is developing a detailed asset inventory and documenting potential asset damages due to each identified hazard. The calculated loss estimates are based on values determined during the initial asset inventory, with adjustments made to account for inflation through 2024. The City developed a comprehensive inventory of all assets, including their locations, to ensure accurate loss estimates. Specific values were assigned

to critical City facilities, with the understanding that these values are estimates used for planning purposes.

The replacement values for facilities were derived from a variety of sources, including insurance surveys and data from previous plans, with adjustments for inflation to reflect current market conditions. For public facilities and critical infrastructure, the replacement value represents the cost of rebuilding the facility to the same size and functionality, using current construction prices and materials. This value provides a baseline for understanding the potential financial impact if these assets were damaged or destroyed by a hazard. For public services and lifelines, the City also assessed Loss of Function Values, which reflect the potential impact of service interruptions. These values were assigned to essential services such as police, fire, water, and wastewater, based on their importance to the community and the associated economic and social costs if disrupted. Next, the HMPC reviewed each asset and assigned a percent damage for each identified hazard, considering factors such as the type of hazard, location, and vulnerability of the asset. The percent damage indicates the anticipated degree of damage that each asset could experience in the event of a hazard. These percentages were determined based on historical data and skilled judgment from City staff who had information specific to each type of hazard. Finally, the Loss Estimate was calculated by applying the assigned percent damage to the total replacement value of each asset. This provides an estimate of the financial loss expected for each facility or service in the event of a hazard, helping the City to understand potential impacts and prioritize mitigation actions.

Future Developments

Currently, there are no planned developments for future buildings within the City; however, the hazard maps and loss estimates are dynamic, and the calculations will be updated to account for future developments as the potential arises. The Asset Inventory Summary Tables and map depicting the asset locations for the City of are presented on the following pages

The following tables present the asset categories, facility names, addresses, total replacement values, percent damage, and corresponding loss estimates for each identified hazard. These estimates were used to guide mitigation action strategy development.

Table 3.5: Asset Inventory Summary

TYPE	NAME	ADDRESS	STRUCTURE VALUE
Public Facility	CITY HALL & COUNCIL CHAMBERS	10200 SLATER AVENUE	\$4,352,600
Public Facility	BOYS & GIRLS CLUBHOUSE ACADEMY	10200 SLATER AVENUE	\$1,387,000
Public Facility	CHILD CARE FACILITY	17565 LOS ALAMOS	\$1,431,000
Public Facility	LIBRARY	17635 LOS ALAMOS STREET	\$1,816,000
Public Facility	CITY YARD	17300 MT HERRMANN STREET	\$4,673,000
Public Facility	THE CENTER AT FOUNDERS VILLAGE SR. COMM. CENTER	17967 BUSHARD ST.	\$3,530,000
Police	POLICE FACILITY	10200 SLATER AVENUE	\$11,815,000
Fire	FIRE STATION #1	17737 BUSHARD STREET	\$1,535,000
Fire	FIRE STATION #2	16767 NEWHOPE STREET	\$926,000
Parks	RECREATION CENTER COMPLEX	16400 BROOKHURST STREET	\$3,606,000

Parks	RESTROOM STORAGE CONCESSION	16400 BROOKHURST ST.	\$172,000
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$172,000
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$172,000
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$172,000
Water Facility	WATER RESERVOIR #1 PUMP STATION	18460 EUCLID STREET	\$1,500,000
Water Facility	WATER STORAGE TANK	18460 EUCLID STREET	\$5,000,000
Water Facility	WATER RESERVOIR #2 PUMP STATION	9300 TANAGER STREET	\$1,500,000
Water Facility	WATER STORAGE TANK	9300 TANAGER STREET	\$5,000,000
Water Facility	WELL PUMP SITE #6	11775 WARNER AVE	\$3,000,000
Water Facility	WELL PUMP SITE #8	11669 EDINGER AVENUE	\$3,000,000
Water Facility	WELL PUMP SITE #9	9293 POINSETTIA AVENUE	\$3,000,000
Water Facility	WELL PUMP SITE #10	170239 NEWHOPE STREET	\$3,000,000

Water Facility	WELL PUMP SITE #11	16640 BROOKHURST STREET	\$3,000,000
Water Facility	WELL PUMP SITE #12	16201 EUCLID STREET	\$3,000,000
Water Facility	PUMP STATION	16489 SANDALWOOD STREET	\$2,500,000
Water Facility	PUMP STATION	8917 COCKATOO AVENUE	\$2,500,000
Water Facility	WARD SEWER LIFT PUMP STATION	17886 WARD STREET	\$1,250,000
Water Facility	METROPOLITAN WATER DIST. PRESSURE REDUCING STATION	MAGNOLIA STREET - 200 FT. NORTH OF EDINGER	\$1,500,000
Note: Values provided by 9/2018 Assessment by Jones Lang Lasalle (JLL) Note: Inflation estimated using data from the U.S. Bureau of Labor Statistics Consumer Price Index (2018-2024, or \$1 to \$1.24)			\$110,991,904

Table 3.6: Loss of Function

LOSS OF FUNCTION / CONTINUITY PREMIUM (1 DAY)				
POPULATION:	55,930			
CATEGORY	Value Per Person	Value Per Day	Continuity Premium	Total
FIRE SERVICE	-	\$35,500	10	\$355,000
POLICE SERVICE	-	\$36,589	10	\$534,199
WATER SERVICE	\$136	\$7,594,175	-	\$11,239,380
WASTEWATER	\$60	\$3,347,970	-	\$4,954,995
Note: Population taken from 2022 census data provided on the City's website. Note: Values Per Person were listed from FEMA's "BCA Reference Guide, June 2009" Note: Inflation estimated using data from the U.S. Bureau of Labor Statistics Consumer Price Index (2009-2004, or \$1 to \$1.48)				\$27,372,457

Table 3.7: Loss Estimates/ Vulnerability Assessment

City of Fountain Valley Vulnerability Assessment Calculations				Earthquake		Adversarial Events		Cyber Attack		Flood		Dam/Reservoir Failure	
Type	Name	Address	TOTAL	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate	%	Loss Estimate	% Damage	Loss Estimate
Public Facility	CITY HALL & COUNCIL CHAMBERS	10200 SLATER AVENUE	\$5,397,224	35%	\$1,889,028	7%	\$377,806	7%	\$377,806	3%	\$161,917	5%	\$269,861
Public Facility	BOYS & GIRLS CLUBHOUSE ACADEMY	10200 SLATER AVENUE	\$1,719,880	25%	\$429,970	7%	\$120,392	7%	\$120,392	3%	\$51,596	5%	\$85,994
Public Facility	CHILD CARE FACILITY	17565 LOS ALAMOS	\$1,774,440	25%	\$443,610	7%	\$124,211	7%	\$124,211	3%	\$53,233	5%	\$88,722
Public Facility	LIBRARY	17635 LOS ALAMOS STREET	\$2,251,840	25%	\$562,960	7%	\$157,629	7%	\$157,629	3%	\$67,555	5%	\$112,592
Public Facility	CITY YARD	17300 MT HERRMANN STREET	\$5,794,520	25%	\$1,448,630	7%	\$405,616	7%	\$405,616	3%	\$173,836	5%	\$289,726
Public Facility	THE CENTER AT FOUNDERS VILLAGE SR. COMM. CENTER	17967 BUSHARD ST.	\$4,377,200	10%	\$437,720	7%	\$306,404	7%	\$306,404	3%	\$131,316	5%	\$218,860
Police	POLICE FACILITY	10200 SLATER AVENUE	\$14,650,600	30%	\$4,395,180	7%	\$1,025,542	7%	\$1,025,542	3%	\$439,518	5%	\$732,530
Fire	FIRE STATION #1	17737 BUSHARD STREET	\$1,903,400	75%	\$1,427,550	7%	\$133,238	7%	\$133,238	3%	\$57,102	5%	\$95,170
Fire	FIRE STATION #2	16767 NEWHOPE STREET	\$1,148,240	75%	\$861,180	7%	\$80,377	7%	\$80,377	3%	\$34,447	5%	\$57,412
Parks	RECREATION CENTER COMPLEX	16400 BROOKHURST STREET	\$4,471,440	25%	\$1,117,860	7%	\$313,001	0%	\$0	3%	\$134,143	5%	\$223,572
Parks	RESTROOM STORAGE CONCESSION	16400 BROOKHURST ST.	\$213,280	10%	\$21,328	7%	\$14,930	0%	\$0	3%	\$6,398	5%	\$10,664
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$213,280	10%	\$21,328	7%	\$14,930	0%	\$0	3%	\$6,398	5%	\$10,664
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$213,280	10%	\$21,328	7%	\$14,930	0%	\$0	3%	\$6,398	5%	\$10,664
Parks	RESTROOM CONCESSION	16400 BROOKHURST ST.	\$213,280	10%	\$21,328	7%	\$14,930	0%	\$0	3%	\$6,398	5%	\$10,664
Water Facility	WATER RESERVOIR #1 PUMP STATION	18460 EUCLID STREET	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	50%	\$2,480,000
Water Facility	WATER STORAGE TANK	18460 EUCLID STREET	\$6,200,000	20%	\$1,240,000	7%	\$434,000	0%	\$0	3%	\$186,000	50%	\$3,100,000

Water Facility	WATER RESERVOIR #2 PUMP STATION	9300 TANAGER STREET	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	50%	\$2,480,000
Water Facility	WATER STORAGE TANK	9300 TANAGER STREET	\$6,200,000	20%	\$1,240,000	7%	\$434,000	0%	\$0	3%	\$186,000	50%	\$3,100,000
Water Facility	WELL PUMP SITE #6	11775 WARNER AVE	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	WELL PUMP SITE #8	11669 EDINGER AVENUE	\$4,650,000	30%	\$1,395,000	7%	\$325,500	7%	\$325,500	3%	\$139,500	5%	\$232,500
Water Facility	WELL PUMP SITE #9	9293 POINSETTIA AVENUE	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	WELL PUMP SITE #10	170239 NEWHOPE STREET	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	WELL PUMP SITE #11	16640 BROOKHURST STREET	\$4,960,000	30%	\$1,488,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	WELL PUMP SITE #12	16201 EUCLID STREET	\$4,650,000	30%	\$1,395,000	7%	\$325,500	7%	\$325,500	3%	\$139,500	5%	\$232,500
Water Facility	PUMP STATION	16489 SANDALWOOD STREET	\$4,960,000	20%	\$992,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	PUMP STATION	8917 COCKATOO AVENUE	\$4,960,000	20%	\$992,000	7%	\$347,200	7%	\$347,200	3%	\$148,800	5%	\$248,000
Water Facility	WARD SEWER LIFT PUMP STATION	17886 WARD STREET	\$2,480,000	20%	\$496,000	7%	\$173,600	7%	\$173,600	3%	\$74,400	5%	\$124,000
Water Facility	METROPOLITAN WATER DIST. PRESSURE REDUCING STATION	MAGNOLIA STREET - 200 FT. NORTH OF EDINGER	\$2,790,000	20%	\$558,000	7%	\$195,300	7%	\$195,300	3%	\$83,700	5%	\$139,500
Fire Service			\$355,000	100%	\$355,000	80%	\$284,000	100%	\$355,000	80%	\$284,000	80%	\$284,000
Police Service			\$534,199	100%	\$534,199	80%	\$427,360	85%	\$454,069	80%	\$427,360	80%	\$427,360
Water Service			\$11,239,380	100%	\$11,239,380	5%	\$561,969	100%	\$11,239,380	3%	\$337,181	10%	\$1,123,938
Wastewater			\$4,954,995	100%	\$4,954,995	5%	\$247,750	100%	\$4,954,995	3%	\$148,650	5%	\$247,750
				Earthquake	\$47,418,575	Adversarial Events	\$9,290,512	Cyber Attack	\$23,532,158	Flood	\$4,526,948	Dam/Reservoir Failure	\$17,676,642

Table 3.8: Loss Estimates Summary

HAZARD	NAME
EARTHQUAKE	\$47,419,000
CYBERATTACK	\$23,532,000
DAM/RESERVOIR FAILURE	\$17,677,000
ADVERSARIAL EVENTS	\$9,291,000
FLOOD	\$4,527,000

Note: Values are rounded to the nearest thousand

Figure 3.1 City of Fountain Valley Asset Inventory Map



Appendix A

Earthquake

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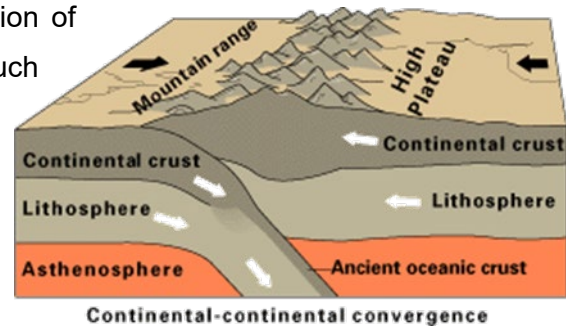
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E.1 Earthquake Identification and Background

Plate tectonics is a starting point for understanding the forces within the Earth that cause earthquakes. Plates are thick slabs of rock that make up the outermost 100 kilometers of the Earth. The term "tectonics" describes the deformation of the Earth's crust, the forces producing such deformation, and the geologic and structural features that result. The constant motion of the plates causes stress in the brittle upper crust of the earth. These tectonic stresses build as the rocks are gradually deformed. The rock deformation, or strain, is stored in the rocks as elastic strain energy. When the strength of the rock is exceeded, rupture occurs along a fault. The rocks on opposite sides of the fault slide past each other as they spring back into a relaxed position. The strain energy is released partly as heat and partly as elastic waves called seismic waves. The passage of these seismic waves produces the ground shaking in earthquakes.



Faults are more likely to produce future earthquakes if they have rapid rates of movement, have had recent earthquakes along them, experience greater total displacements, and are aligned so that movement can relieve the accumulating tectonic stresses. Geologists classify faults by their relative hazards. "Active" faults, which represent the highest hazard, are those that have ruptured to the ground surface during the Holocene period (about the last 11,000 years). In contrast, "potentially active" faults are those that displaced layers of rock from the Quaternary period (the last 1,800,000 years). Determining if a fault is "active" or "potentially active" depends on geologic evidence, which may not be available for every fault.

Ground Failure

Fissuring, settlement, and permanent horizontal and vertical shifting of the ground often accompanies large earthquakes. Although not as pervasive or as costly as the shaking itself, these ground failures can significantly increase damage and, under certain circumstances, can be the dominant cause of damage. The following is a list of different ground failure scenarios.

Fault Rupture

The sudden sliding of one part of the earth's crust past another releases the vast store of elastic energy in the rocks as an earthquake. The resulting fracture is known as a fault, while the sliding movement of earth on either side of a fault is called fault rupture. Fault rupture begins below the ground surface at the earthquake hypocenter, typically between three and ten miles below the ground surface in California. If an earthquake is large enough, the fault rupture will actually travel all the way to the ground surface, severely damaging structures built across its path.

Liquifaction

In addition to the primary fault rupture that occurs right along a fault during an earthquake, the ground many miles away can also fail during the intense shaking. One common type of failure occurs when soft, water-saturated soil settles, causing the water to eject sediment particles as it works its way to the ground surface. This phenomenon, known as liquefaction, turns the soil into a fluid, causing it to lose the ability to support buildings and other structures. Areas susceptible to liquefaction include places where sandy sediments have been deposited by rivers along their course or by wave action along beaches.

Landslides

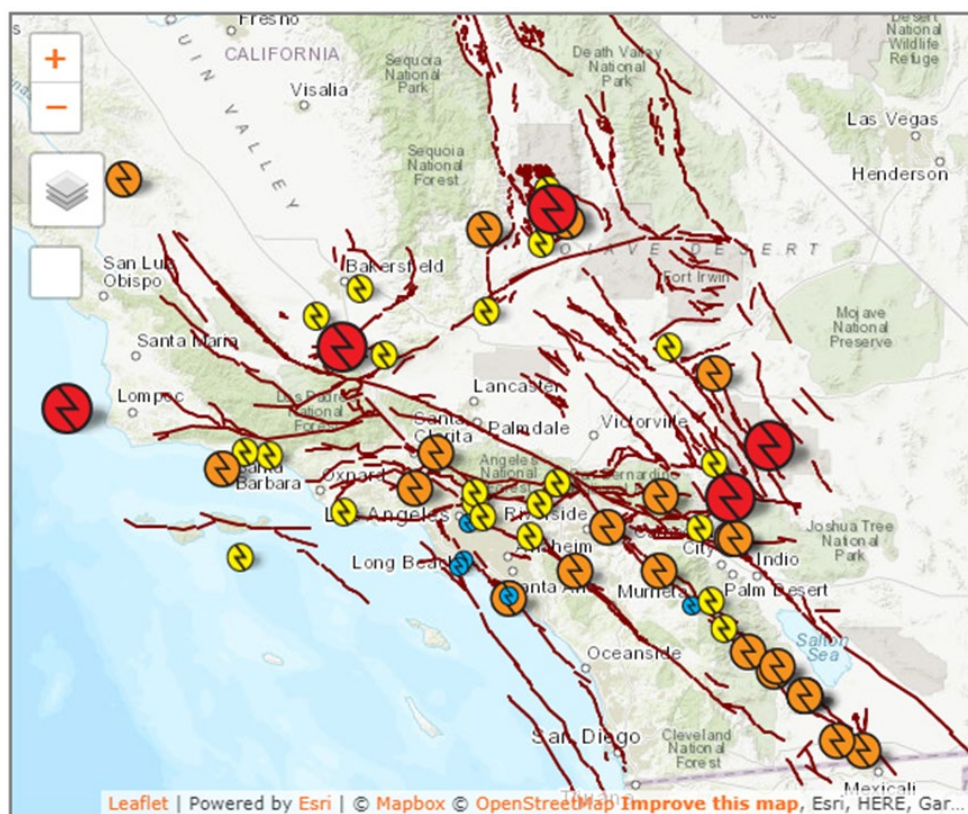
Landslides are the result of the down-slope movement of unstable hillside materials under the influence of weathering and gravity over time. Strength of rock and soil, steepness of slope, and weight of the hillside material all play an important role in the stability of hillside areas. Weathering and absorption of water can weaken slopes, while the added weight of saturated materials or overlying construction can increase the chances of slope failure. Sudden failure can be triggered by heavy rainfall, excavation of weak slopes, and earthquake shaking, among other factors.

E.2 Earthquake Location

Even if the epicenter of a major earthquake is not located directly within the City of Fountain Valley (City), the aftershocks associated with that earthquake can cause significant damage. The hazards associated with aftershock earthquakes are the same as mainshock earthquakes and may cause significant damage and disruption. The primary difference between mainshock and

aftershock earthquakes is aftershock earthquakes are categorized by the following two guidelines. First, it must occur within one rupture length of the mainshock rupture surface, or alternatively, within an "aftershock zone" based upon early aftershock activity and defined by seismologists. Second, it must occur within that designated area before the seismicity rate in that area returns to its "background", meaning pre-mainshock, level. Figure 1 from the [Southern California Earthquake Data Center](#) details the locations and magnitudes for historic Southern California earthquakes.

Figure E.1. Southern California Historic Earthquake Map



The Steering Committee ranked earthquake as the greatest threat to the City. The City is located in a seismic fault zone near the Newport-Inglewood Fault and the Elysian Park Fault according to a Preliminary Alquist-Priolo Earthquake Fault Zone map provided by the California Department of Conservation website and is located in a high seismic risk zone.

Figure E.2 Southern California Earthquake Fault Map



Fault Zones

There are many faults and fault zones throughout southern California. After reviewing maps of the United States, California and specifically the southern California area, the research resulted in earthquakes that could impact the City. Faults that were reviewed include: San Andreas, Newport-Inglewood, Norwalk, Whittier, San Joaquin Hills, Rose Canyon, Coronado Bank fault, Elsinore Fault, San Diego Trough, Elysian Park, and San Clemente Faults. These faults, all considered active, are capable of producing earthquakes in the 4.5 – 8+ range. This report focused on the five faults that could most seriously impact the area.

- 1. San Andreas Fault
- 2. Newport-Inglewood Fault
- 3. San Joaquin Hills Thrust Fault
- 4. Palos Verdes Fault
- 5. San Clemente Fault

A major earthquake along any of these five faults could result in substantial casualties and damage resulting from collapsed buildings, damaged roads and bridges, fires, flooding, and other threats to life and property. There may still be unmapped earthquake faults throughout southern California that could also affect the City. Figures 1 and 2 provide the local earthquake faults in the City and southern California areas. In addition, Tables 1 through 5 give fault specific information from the Southern California Earthquake Data Center for local faults that could affect the City.

The San Andreas Fault

Table E.1 San Andreas Fault Information

Type of fault:	Right-lateral strike-slip
Length:	1200 km
Nearby Communities:	Parkfield, Frazier Park, Palmdale, Wrightwood, San Bernardino, Banning, Indio

Last Major Rupture:	January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)
Slip rate:	20-35 mm/yr.
Interval Between Major Ruptures:	Average of about 140 years on the Mojave segment; recurrence interval varies greatly from under 20 years (at Parkfield only) to over 300 years
Probable Magnitudes:	6.8-8.0

This fault marks the boundary between the North American and Pacific tectonic plates and is capable of producing earthquakes in the magnitude 8+ range. It has been scientifically determined through a carbon dating process that a major earthquake on this fault has occurred approximately every 145 years plus or minus 20 years. The last major earthquake on the Mojave segment of the Fault occurred in 1857 (159 years ago as of 2016). The San Andreas Fault is considered one of the most active faults in the world today, and a major earthquake up to an 8.3 magnitude is expected to occur again within the next 20 years. The Fault traverses the southern California region and is located east of the City. The ground shaking of an 8.3 magnitude earthquake on the Southern San Andreas Fault would result in serious damage in Southern California, including the City.

The Newport-Inglewood Fault

Table E.2 Newport-Inglewood Fault Information

Type of fault:	Right lateral; local reverse slip associated with fault steps
Length:	75 km
Nearby Communities:	Culver City, Inglewood, Gardena, Compton, Signal Hill, Long Beach, Seal Beach, Huntington Beach, Newport Beach, Costa Mesa
Last Major Rupture	March 10, 1993, MW 6.4
Slip rate:	0.6 mm/yr.

Interval Between Major Ruptures:	Unknown
Probable Magnitudes:	6.0-7.4

The Newport-Inglewood Fault is considered the second most active fault in California. It runs from the City of Inglewood through Huntington Beach and out into the Pacific Ocean near the Newport Beach area. This fault is capable of producing earthquakes in the range of 6.3 to 7.5 magnitude. The 6.5 magnitude, 1933 Long Beach earthquake occurred on the Newport-Inglewood fault causing 120 deaths and severe damage. Unreinforced masonry buildings collapsed leaving people trapped beneath the rubble.

When scientists refer to the San Andreas Fault, they often call it “The Big One.” In 1990, the Los Angeles Times newspaper did a series of articles on the Newport-Inglewood Fault and described it as “The Bigger One.” Both faults would cause considerable damage; however, a 7.5 magnitude Newport-Inglewood earthquake have a more severe impact on the City than an 8.3 on the San Andreas due to the fault’s proximity. The cost estimates of damage are much greater for the Newport-Inglewood worst-case scenario than the San Andreas worst-case scenario.

The San Joaquin Hills Fault

Table E.3 San Joaquin Fault Information

Type of fault:	Blind thrust
Length:	39 km
Nearby Communities:	Huntington Beach, Costa Mesa, Newport Beach, Laguna Beach, Laguna Niguel, Dana Point
Most recent surface rupture:	Unknown
Slip rate:	Unknown

According to a California Institute of Technology (Caltech) study, the San Joaquin Hills Fault is a blind thrust fault, which will not break the earth's surface but can cause severe damage. It is 24 miles in length from Dana Point to Huntington Beach. This thrust fault may interact with the projected Compton Thrust Fault to the west. Caltech reported that the maximum magnitude the fault could produce was up to a 7.3 earthquake, which is a large and powerful seismic event. Caltech utilized the research on the fault conducted by Lisa Grant at UCI to complete an earthquake-shaking model showing the intensity, velocity, and acceleration.

Palos Verdes Fault

Table E.4 Palos Verdes Fault Information

Type of fault:	Right reverse
Length:	Roughly 80 km
Nearby Communities:	San Pedro, Palos Verdes Estates, Torrance, Redondo Beach
Most recent surface rupture:	Holocene offshore; Late Quaternary onshore;
Slip rate:	Between 0.1 and 3.0 mm/yr.
Interval between major ruptures:	Unknown
Probable magnitudes:	6.0 – 7.0 (or greater); fault geometries may allow only partial rupture at any one time.

The Palos Verdes Hills Fault is capable of a 6.0-7.0 magnitude earthquake. It has two main branches and continues southward as the Palos Verdes-Coronado Bank Fault Zone.

This fault is located off the coast of Huntington Beach. It starts north of Long Beach and extends south past Newport Beach where it is projected to join the Coronado Bank Fault Zone. The issue of concern is the fault causing shaking and liquefaction within the City

San Clemente Fault

Table e.5 San Clemente Fault Information

Type of fault:	Right lateral and vertical offsets
Length:	At least 210 km; essentially continuous with the San Isidoro Fault Zone, off the coast of Mexico
Nearby Communities:	San Diego (70 km offshore) forms scarp on east side of San Clemente Island
Most recent surface rupture:	Holocene
Slip rate:	Roughly 1.5 mm/yr.

As with the Palos Verdes Fault, the San Clemente Fault is located offshore and could cause ground shaking and liquefaction within the City.

E.3 Earthquake Extent

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales. One of the first was the Richter scale, developed in 1932 by Dr. Charles F. Richter of the California Institute of Technology. The most commonly used scale today is the Moment Magnitude (M_w) Scale. Moment magnitude is related to the total area of the fault that ruptured and the amount of offset (displacement) across the fault. It is a more uniform measure of the energy released during an earthquake.

The other commonly used measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. In general, it decreases

with distance from the source of an earthquake, but it may be increased or decreased by a number of factors.

The Modified Mercalli Intensity Scale & Corresponding Richter Scale Magnitudes

Shaking intensity is often described using the Modified Mercalli Intensity Scale which rates an earthquake's effects based on human observation. While an earthquake has only one magnitude, it may have many intensity values which will generally decrease with distance from the epicenter. Table 6 lists the Mercalli Scale's various intensity levels

Table E.6 Modified Mercalli Intensity Scale

MERCALLI INTENSITY		DESCRIPTION	RICHTER SCALE MAGNITUDE
I	Instrumental	Detected only by a seismograph	
II	Feeble	Noticed by sensitive people	0.1 to 3.4
III	Slight	Like the vibrations due to a passing truck	3.5 to 4.2
IV	Moderate	Felt by people while walking, rocking of loose objects, including standing vehicles	4.3 to 4.8
V	Rather Strong	Felt generally; most sleepers are awakened and bells ring	4.3 to 4.8
VI	Strong	Trees sway and all suspended objects swing; damage by over-turning and falling of loose objects	4.9 to 5.4
VII	Very Strong	General alarm; walls crack; plaster falls	4.9 to 5.4
VIII	Destructive	Car drivers seriously disturbed; masonry fissured; chimneys fall; poorly constructed buildings damaged	5.5 to 6.1
IX	Ruinous	Some houses collapse where ground begins to crack, and pipes break	6.2 to 6.9

X	Disastrous	Ground cracks badly; many buildings destroyed, and railway lines bent; landslides on steep slopes	7.0 to 7.3
XI	Very disastrous	Few buildings remain standing; bridges destroyed; all services (railway, pipes, and cables) out of action; great landslides and floods	7.4 to 8.1
XI	Catastrophic	Total Destruction; objects thrown into air; ground rises and falls in waves	8.1 +

As described in the Earthquake Probability, the City has roughly a .02% change of a 6.5M earthquake annually. According to the table 1, this could result in severe shaking resulting in housing collapse, ground fissures, and possible damage to underground infrastructure.

Amplification of Seismic Shaking

Although seismic waves radiate from their source like ripples on a pond, the radiation is not uniform due to the complex nature of an earthquake rupture, the different paths the waves follow through the Earth, and the different rock and soil layers near the Earth's surface. Large earthquakes begin to rupture at their hypocenter deep in the Earth and the fault ruptures outward from that point. Because the speed of an earthquake rupture on a fault is similar to the speed of seismic waves, waves closer to the epicenter can be compounded by waves from farther along the rupture, creating a pulse of very strong seismic waves that moves along the fault in the direction of the fault rupture. Seismic waves may also be modified as they travel through the Earth's crust.

As seismic waves approach the ground surface, they commonly enter areas of loose soils where the waves travel more slowly. As the waves slow down, their amplitude increases, resulting in larger waves with frequencies that are more likely to damage structures. Waves can also be trapped within soft sediments between the ground surface and deep, hard basement rocks, their destructive energy multiplying as they bounce back and forth, producing much greater shaking at the ground surface.

E.4 Earthquake History

To indicate the potential for an earthquake event, Table 3.6 lists significant recorded earthquakes in Southern California and the associated magnitudes (excerpted from the SCEDC (2013): Southern California Earthquake Data Center):

Table E.7 Table of Select Historical Earthquakes

MAGNITUDE	YEAR	EARTHQUAKE NAME
 MAGNITUDE 5.5 - 6.4	1796	LA Basin Earthquake
 MAGNITUDE 6.5 TO 7.4	1800	San Diego Earthquake
 MAGNITUDE 6.5 TO 7.4	1812	Wrightwood (or San Juan Capistrano) Earthquake
 MAGNITUDE 6.5 TO 7.4	1812	Santa Barbara Earthquake
 MAGNITUDE 6.5 TO 7.4	1852	Volcano Lake Earthquake
 MAGNITUDE 5.5 - 6.4	1855	Los Angeles Region Earthquake
 MAGNITUDE > 7.5	1857	Fort Tejon Earthquake
 MAGNITUDE 5.5 - 6.4	1858	San Bernardino Earthquake
 MAGNITUDE 5.5 - 6.4	1862	San Diego Earthquake
 MAGNITUDE > 7.5	1872	Owens Valley Earthquake
 MAGNITUDE 5.5 - 6.4	1881	Parkfield Earthquake

 MAGNITUDE 5.5 - 6.4	1883	Santa Barbara Channel Earthquake
 MAGNITUDE 6.5 TO 7.4	1890	San Jacinto or Elsinore Fault Region Earthquake
 MAGNITUDE 6.5 TO 7.4	1892	San Jacinto or Elsinore Fault Region Earthquake
 MAGNITUDE 6.5 TO 7.4	1892	Laguna Salada Earthquake
 MAGNITUDE > 7.5	1892	Imperial Valley Earthquake
 MAGNITUDE 5.5 - 6.4	1899	Cajon Pass Earthquake
 MAGNITUDE 6.5 TO 7.4	1899	San Jacinto Earthquake
 MAGNITUDE 5.5 - 6.4	1901	Parkfield Earthquake
 MAGNITUDE 5.5 - 6.4	1906	Imperial Valley Earthquake
 MAGNITUDE 5.5 - 6.4	1908	Death Valley Region Earthquake
 MAGNITUDE 5.5 - 6.4	1910	Elsinore Earthquake
 MAGNITUDE 5.5 - 6.4	1915	Imperial Valley Earthquake
 MAGNITUDE 5.5 - 6.4	1916	South of Death Valley Earthquake
 MAGNITUDE 6.5 TO 7.4	1918	San Jacinto Earthquake
 MAGNITUDE 5.5 - 6.4	1922	Parkfield Earthquake
 MAGNITUDE 6.5 TO 7.4	1968	Borrego Mountain Earthquake

 MAGNITUDE 4.5 - 5.4	1970	Lytle Creek Earthquake
 MAGNITUDE 6.5 TO 7.4	1971	San Fernando (Sylmar) Earthquake
 MAGNITUDE 4.5 - 5.4	1973	Point Mugu Earthquake
 MAGNITUDE 4.5 - 5.4	1975	Galway Lake Earthquake
 MAGNITUDE 4.5 - 5.4	1978	Santa Barbara Earthquake
 MAGNITUDE 4.5 - 5.4	1979	Malibu Earthquake
 MAGNITUDE 5.5 - 6.4	1979	Imperial Valley Earthquake
 MAGNITUDE 5.5 - 6.4	1980	White Wash Earthquake
 MAGNITUDE 4.5 - 5.4	1982	"Anza Gap" Earthquake
 MAGNITUDE 5.5 - 6.4	1986	North Palm Springs Earthquake
 MAGNITUDE 4.5 - 5.4	1986	Oceanside Earthquake
 MAGNITUDE 6.5 TO 7.4	1987	Elmore Ranch/Superstition Hills Earthquakes
 MAGNITUDE 5.5 - 6.4	1987	Whittier Narrows Earthquake
 MAGNITUDE 4.5 - 5.4	1988	Tejon Ranch Earthquake
 MAGNITUDE 4.5 - 5.4	1988	Upland Earthquake
 MAGNITUDE 4.5 - 5.4	1988	Pasadena Earthquake

■ MAGNITUDE 4.5 - 5.4	1989	Malibu Earthquake
■ MAGNITUDE 4.5 - 5.4	1989	Newport Beach Earthquake
■ MAGNITUDE 4.5 - 5.4	1989	Montebello Earthquake
■ MAGNITUDE 4.5 - 5.4	1990	Upland Earthquake
■ MAGNITUDE 5.5 - 6.4	1991	Sierra Madre Earthquake
■ MAGNITUDE 5.5 - 6.4	1992	Joshua Tree Earthquake
■ MAGNITUDE 6.5 TO 7.4	1992	Landers Earthquake
■ MAGNITUDE 5.5 - 6.4	1992	Big Bear Earthquake
■ MAGNITUDE 5.5 - 6.4	1992	Mojave (Garlock) Earthquake
■ MAGNITUDE 4.5 - 5.4	1993	Wheeler Ridge Earthquake
■ MAGNITUDE 6.5 TO 7.4	1994	Northridge Earthquake
■ MAGNITUDE 5.5 - 6.4	1995	Ridgecrest Earthquakes
■ MAGNITUDE 4.5 - 5.4	1996	Coso Earthquake
■ MAGNITUDE 4.5 - 5.4	1997	Calico Earthquake
■ MAGNITUDE 4.5 - 5.4	1998	Coso Earthquake
■ MAGNITUDE 4.5 - 5.4	1998	Crafton Hills (Redlands) Earthquake

 MAGNITUDE 4.5 - 5.4	1998	San Bernardino Earthquake
 MAGNITUDE 4.5 - 5.4	1998	Whiskey Springs (Big Bear City) Earthquake
 MAGNITUDE 6.5 TO 7.4	1999	Hector Mine Earthquake
 UNDER MAGNITUDE 4.5	2001	West Hollywood Earthquake
 MAGNITUDE 4.5 - 5.4	2001	Anza Earthquake
 MAGNITUDE 5.5 - 6.4	2002	Laguna Salada Earthquake
 MAGNITUDE 6.5 TO 7.4	2003	San Simeon Earthquake
 MAGNITUDE 4.5 - 5.4	2005	Mettler Earthquake
 MAGNITUDE 4.5 - 5.4	2008	Chino Hills Earthquake
 MAGNITUDE 4.5 - 5.4	2009	Inglewood Earthquake
 MAGNITUDE 5.5 - 6.4	2009	Baja California Earthquake
 MAGNITUDE 6.5 TO 7.4	2010	Sierra El Mayor Earthquake
 MAGNITUDE 4.5 - 5.4	2010	Ocotillo Earthquake
 MAGNITUDE 4.5 - 5.4	2010	Borrego Springs Earthquake
 MAGNITUDE 4.5 - 5.4	2011	Calexico Earthquake
 MAGNITUDE 4.5 - 5.4	2012	Brawley Earthquake

■ MAGNITUDE 4.5 - 5.4	2012	Westmoreland Earthquake
■ MAGNITUDE 4.5 - 5.4	2013	Anza Earthquake
■ MAGNITUDE 4.5 - 5.4	2013	Isla Vista Earthquake
■ MAGNITUDE 4.5 - 5.4	2014	Brea Earthquake
■ MAGNITUDE 4.5 - 5.4	2014	Running Springs Earthquake
■ MAGNITUDE 4.5 - 5.4	2015	Stovepipe Wells Earthquake
■ MAGNITUDE 4.5 - 5.4	2016	San Jacinto Earthquake
■ MAGNITUDE 4.5 - 5.4	2016	Borrego Springs Earthquake
■ MAGNITUDE 4.5 - 5.4	2018	Santa Cruz Earthquake
■ MAGNITUDE 5.5 - 6.4	2019	Ridgecrest Earthquake
■ MAGNITUDE 6.5 TO 7.4	2019	Ridgecrest Earthquake
■ MAGNITUDE 5.5 - 6.4	2020	Lone Pine Earthquake

Southern California Historic Earthquakes

The City is in the high seismic risk zone. The City is located on an alluvial flood plain, which, for the most part, has a high potential for shaking intensity and ground failure (liquefaction) damage. One of the best indicators of earthquake potential is learning the earthquake history of the area. The following is a discussion on large earthquakes that affected the City, which were also included in table 3.6.

1857 Fort Tejon Earthquake

On January 9, 1857, one of the greatest recorded earthquakes in the U.S. occurred in Southern California. The Fort Tejon earthquake measured 7.9 on the Richter scale and left a surface rupture scare of over 350 kilometers (225 miles) along the San Andreas Fault. Strong shaking was said to have lasted for over a minute, and water from the Los Angeles River was reportedly thrown out of its bed. Damage was not nearly as serious as it would be today since Southern California was sparsely populated at the time. Were the Fort Tejon earthquake to occur today, the damage could easily run into billions of dollars, and the loss of life could be substantial. The present-day communities of Wrightwood and Palmdale lie upon or near the 1857 rupture area.

1933 Long Beach Earthquake

In 1933, the Long Beach 6.4 magnitude earthquake struck the Los Angeles Basin on March 10. The earthquake occurred on the Newport-Inglewood Fault, causing serious damage in Long Beach and other communities. The earthquake resulted in 120 deaths and over \$50 million in property damage. Most of the damaged buildings were of unreinforced masonry construction. The following images of the damage were taken from the Southern California Earthquake Data Center website.



1971 Sylmar Earthquake (San Fernando)



On February 9, 1971, the Los Angeles Basin shook for over one minute. There were 65 deaths and a financial cost of over \$500 million. The earthquake resulted in a crack in the Van Norman Dam where an 80-square mile area had to be evacuated due to fear the dam would break. Numerous people were trapped in buildings and fires were started from natural gas line breaks. Two hospitals collapsed killing nine people. The Veterans Administration Hospital had seven deaths (photos left), and the Olive View Hospital had two deaths. Following this earthquake, the

Alquist Hospital Seismic Act was passed establishing structural and non-structure classifications for hospital building seismic –safety levels.

1987 Whittier Narrows Earthquake

In October 1987, the Whittier Narrows Earthquake struck the Los Angeles area with a 5.9 magnitude earthquake. This earthquake occurred on a fault system not previously known for seismic activity. There were 8 deaths and 200 injuries. The earthquake damage was estimated at \$358 million.

1994 Northridge Earthquake

On January 17, 1994, the Northridge Earthquake struck at a 6.7 magnitude in the Los Angeles area. There were 57 deaths and over 1,500 people were injured. The earthquake caused billions of dollars in damages and disrupted the lives of thousands of residents, schools and businesses in Southern California.

For days afterward, thousands of homes and businesses were without electricity; tens of thousands had no gas; and nearly 50,000 had little or no water. According to NASA Ames Research Center, building officials inspected over 66,500 structures and determined 4,000 were severely damaged and deemed uninhabitable. An additional 11,000 buildings were moderately damaged and authorized only for limited occupancy. Several collapsed bridges and overpasses created commuter havoc on the freeway system. In addition, ground shaking caused extensive damage and triggered liquefaction. This ignited dozens of fires throughout the area resulting in further damage.



However, the earthquake occurred early in the morning on a holiday. These circumstances considerably reduced the impact. Many collapsed buildings were unoccupied, and most businesses were not yet open. Still, the direct and indirect economic losses ran into the tens of billions.

State and Federal Declared Earthquake Disasters

While the City has neither had state nor federally declared earthquake disasters since the last plan update, it is important to note that other California counties have. This includes Kern and San Bernadino Counties in July of 2019. This earthquake event resulted in the state declaring a disaster for those counties. In addition, Humboldt County experienced an earthquake in December of 2022, also resulting in the governor classifying the event as a state recognized disaster. It is crucial to recognize the history of state declared earthquake disasters in other California counties due to the fact that the service area is set in an earthquake fault zone and can occur at any moment without warning.

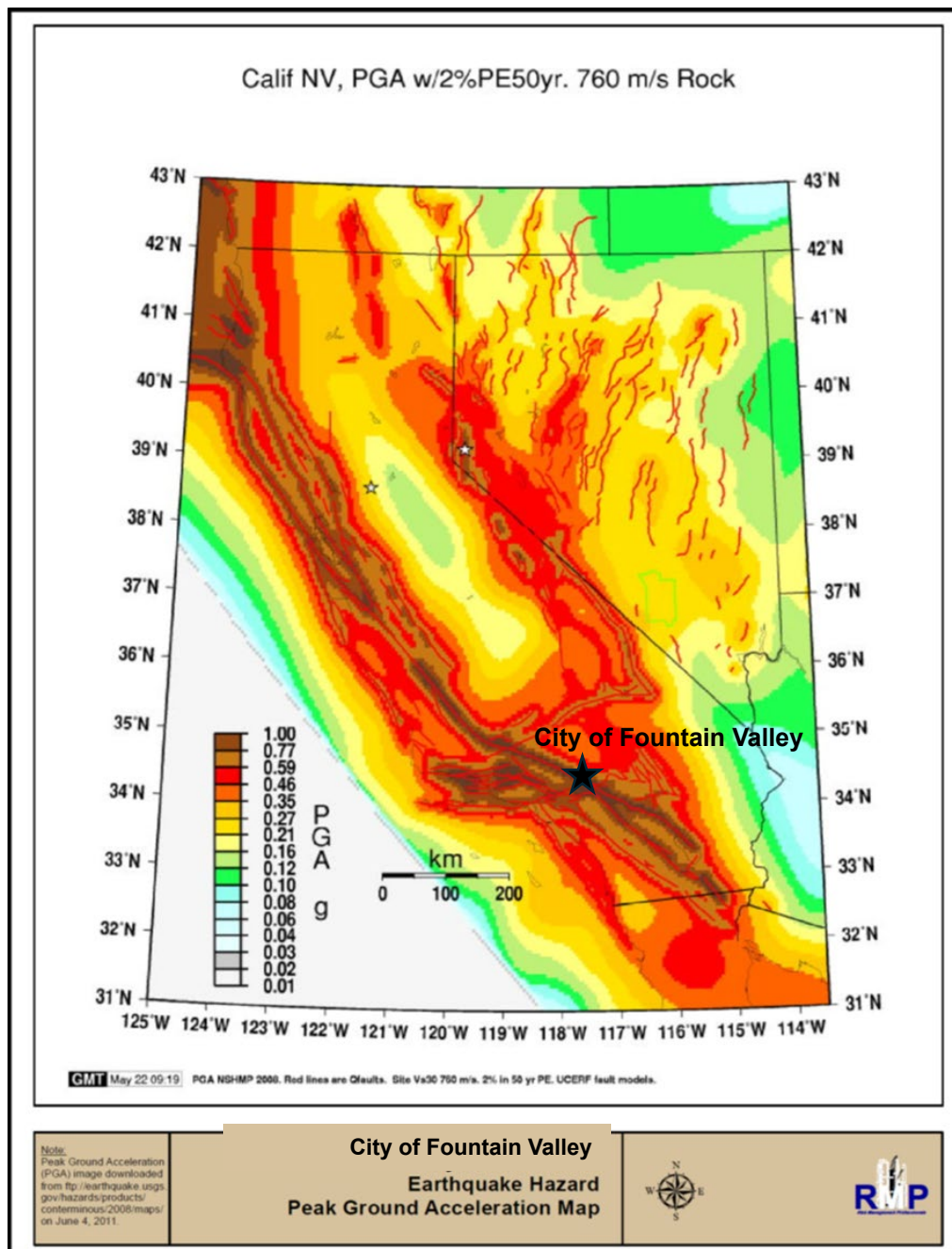
E.5 Earthquake Probability

To assess probability of earthquake, this report will rely on Peak Ground Acceleration (PGA). PGA mapping represents peak horizontal acceleration of the ground on firm-rock conditions. The approach of representing peak horizontal ground acceleration on firm-rock is a common and widely used method of showing ground accelerations. The development of probabilistic acceleration maps is a result of three types of basic input parameters:

- 1) Attenuation of ground shaking with distance from the earthquake source.
- 2) Frequency of earthquakes within an area or region, termed recurrence; and
- 3) The character and extent of regions and faults that generate earthquakes.

According to the following Peak Ground Acceleration Map, the City is located in an area that will experience a PGA ranging from 0.50 g to 0.70 g with 10% exceedance in 50 years (0.0021 annual probability).

Figure E.3 Peak Groun Acceleration Map



According to Table 3.12 below (provided by the United States Geographic Survey), this PGA Value is typically associated with a 6.9 magnitude earthquake. Thus, there is a 0.21% annual possibility of a 6.9 magnitude earthquake affecting the City.

Table E.8 Mercalli intensity and Corresponding peak Group Acceleration

MERCALLI INTENSITY	RICHTER INTENSITY	ACCELERATION (%G)	VELOCITY (CM/S)	PERCIEVED SHAKING	POTENTIAL DAMAGE
	3.5	< 0.17	< 0.1	Not Felt	None
	4.2 – 4.3	0.17 - 1.4	0.1 - 1.1	Weak	None
	4.8	1.40 – 3.9	1.1 - 3.4	Light	None
	4.9 – 5.4	3.9 - 9.2	3.4 - 8.1	Moderate	Very light
	5.5 – 6.0	9.2 - 18	8.1 - 16	Strong	Light
	6.1	18 - 34	16 - 31	Very Strong	Moderate
	6.2	34 - 65	31 - 60	Severe	Moderate to Heavy
	6.9	65 - 124	60 - 116	Violent	Heavy
	7.0	> 124	> 116	Extreme	Very Heavy

The City has been impacted by earthquakes numerous times over the years. Typical of many locations in Southern California, seismic building standards have prevented these earthquakes from causing any severe damage within the City. However, as noted above, the potential for a large-scale earthquake is possible. Based on data the proximity of identifies fault lines and the information demonstrated in the PGA maps, it is clear the whole community are at risk to the impacts of an earthquake event. Given the frequency, and likelihood, of earthquake occurrences in the area coupled with the possibility for a large-scale scenario, the City has ranked earthquakes

as one of the hazards with highest vulnerability for the City. The Steering Committee determined that the impacts of Climate Change would not have any effect on the probability of earthquake scenarios.

E.5 Earthquake vulnerability and Potential Vulnerability

In the event of an earthquake, vulnerable populations may be impacted to a greater extent than others in the community. An earthquake may cause infrastructure /systems damage as well as loss of equipment, which would restrict access and use of facilities that cater to high-risk members of the community. During the planning process, the HMPC identified the following facilities as being at a more significant risk than other City assets.

Table E.9 Earthquake Loss Estimate Table

ASSET NAME	REPLACEMENT		LOSS ESTIMATE
	VALUE	% DAMAGE	
FIRE STATION #1	\$14,65600	75%	\$1,427,550
FIRE STATION #2	\$1,148,240	75%	\$861,180
CITY HALL/ COUNCIL CHAMBERS	\$5,397,224	35%	\$1,889,028

Note: Loss estimates are estimates only and do not represent expected/actual damage
Note: Loss estimates are based on insurance surveys and may not represent accurate replacement values. These values were used for planning purposes only.

Additionally, facilities such as the Senior Center, privately-owned Carmel Village, and Crystal Cove Care house/serve the elderly population. Since these facilities are spread out throughout the region, there is no way for the city to know which of these is more likely to be impacted. Therefore, the city can assume that the vulnerable population will be impacted equally since we cannot predict where an earthquake would occur. In Mitigation Action 2024.HMP.01, the City

intends to evaluate the structural integrity of City buildings, including the Senior Center and City Hall, with the intention of reducing the impacts of earthquake so the City can continue to provide normal and emergency services to the community, particularly the elderly which may be impacted to a great extent. Additionally, Mitigation Action 204.HMP.03 seeks to establish a Community Emergency Response Team (CERT) to assist the City in resource allocation and support to the elderly population following a disaster such as an earthquake.

The HMPC identified that earthquakes have the ability to impact the City as a whole, and did not anticipate any changes to population patterns (density or migration). It was also noted that emergency situations have a great potential for impacting those with mobility and language proficiency challenges. Also, those without a strong economic foundation will face challenges in recovery. While open to the public, City personnel are trained to provide or locate support for people in need, particularly for vulnerable populations. It is useful to note that the City and County emergency plans include considerations for vulnerable populations, including the elderly, in response in the event of an earthquake.

Appendix B

Adversarial Event

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AE.1 Adversarial Event Identification and Background

Terrorism is the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of a political or social objective.

A weapon of mass destruction (WMD) is a type of weapon that can bring significant harm to a large number of people or structures. Examples of WMD include nuclear, radiological, biological, or chemical agents. Aside from attacking local targets, terrorists might also use WMD to inflict harm on a large population.

The Federal Bureau of Investigation (FBI) has categorized two types of terrorism in the United States.

International Terrorism involves terrorist activity committed by groups or individuals who are foreign-based and/or directed by countries or groups outside the United States, or whose activities transcend national boundaries.

Domestic Terrorism involves groups or individuals whose terrorist activities are directed at elements of our government or population without foreign direction.

Well-known international terrorist groups include Islamic Fundamentalist groups, such as Islamic State in Iraq and Syria (ISIS); European terrorists, including the Red Brigade in Italy, Spain's Euskadi Ta Askatasuna (ETA), and the Japanese Red Army; separatist groups, such as Sierra Luminosa, and the "Shining Path" in Peru. Add to these a host of narco-terrorists, such as the Medellin and Cali drug cartels.

In the United States, a number of animal rights activists; environmentalist groups; white supremacists, such as the League of Aryan nations; and groups including the Covenant, Sword and Arm of the Lord, New World Order, and skinheads have been responsible for acts of terrorism on United States soil. Added to these are groups like the Klu Klux Klan; survivalists, such as the Freeman in Montana; and doomsday cults, such as David Koresh in Waco, Texas, and Jim Jones in Guyana.

There are a number of methods a terrorist may use to carry out their objective, including attacks of a chemical, biological, radiological, nuclear, explosive, and cyber nature. In addition, terrorists conduct hijackings, assassinations, armed assaults, kidnappings/hostage taking, arson fires, sabotage of critical infrastructures such as utilities and transportation, and the dissemination of confidential or otherwise vulnerable information for the planning of terrorist attacks.

Chemical

Chemical agents involve the use of chemical compounds to kill or seriously injure victims. There are numerous kinds of chemical weapons, and their effectiveness is determined by a number of factors, including age, purity, weather conditions, wind direction, and means of dissemination.

Biological

Biological agents include microbes, such as bacteria or viruses, and toxins derived from plants or animals that can produce illness or death. Illegal facilities that manufacture these substances are difficult to detect because they employ fermentation technology commonly used in the production of legitimate products such as antibiotics, vaccines, and consumables.

Radiological and Nuclear

Radiological or nuclear terrorism is the use of radioactive materials and/or nuclear explosives, as well as any terrorist actions against nuclear facilities by individuals or groups, to inflict harm on a population and advance political or social objectives. Sources of radiological material including nuclear fuel cycle waste, medical and dental equipment, military weaponry, and machines used in private industry.

Explosive

The impact of a bombing depends largely on the type, size, and placement of the device used. Additionally, a WMD in combination with an explosive device expands the lethality, physical damage, and economic disruption. The use of an explosive device can also inflict significant disruption of society through destruction of critical infrastructure and widespread fear amongst the target population.

Additional Terrorism Methods

Additional terrorism methods include hijackings, kidnappings, and the taking of hostages; armed assaults and mass shootings; assassinations of public figures; sabotage of transportation systems and utility infrastructure; the dissemination of confidential information that would aid terrorist organizations when planning an attack; arson fires; and many other means of disrupting normal society or endangering lives and property.

AE.2 Adversarial Event Location

The City of Fountain Valey (City), while not as high-profile as nearby cities like Los Angeles, still faces potential risks from adversarial events that could impact various parts of the community. Key city facilities such as City Hall, the Police Facility, Fire Station #1 on Bushard Street, and Fire Station #2 on Newhope Street, are critical to the city's operations and may be more likely to be targeted during an adversarial incident due to their symbolic importance and vital roles in public safety. These central locations, essential for the city's functionality, are more vulnerable to disruption compared to residential areas, which are less visible and dispersed throughout the city.

In addition to government buildings, public spaces such as Miles Square Park could also be a viable target for an adversarial event, given their size and location within the city. Though residential neighborhoods may seem less likely to be targeted, they are not immune to the broader impacts of such incidents. The City's proximity to larger regional centers and transportation networks, such as Interstate 405, means that an event could cause significant disruptions throughout the city. The impact on essential services could affect both residents and businesses, underscoring the need for a comprehensive mitigation strategy that addresses all areas of the city. Even City facilities with a lower public profile might be impacted by an adversarial event, highlighting the importance of preparedness across the entire community.

AE.3 Adversarial Event Extent

The extent of potential adversarial events in the City can vary greatly, ranging from localized incidents, such as an active shooter situation, to large-scale catastrophic events involving WMDs. While incidents like shootings could have a more confined impact, affecting specific areas or

facilities, the use of a WMD could result in widespread destruction, with far-reaching consequences for the entire city. The scale and severity of these events depend on various factors, including the location and method of attack. Regardless of the nature of the incident, the impact on public safety, city infrastructure, and the ability to provide essential services could be significant.

AE.4 Adversarial Event History

The United States has proven to be a high priority target for both domestic and international terrorists. Acts of terror have become increasingly alarming in their magnitude in recent years. Examples of this include the bombing of the Alfred P. Murrah Federal Building in Oklahoma City and the attacks of September 11, 2001, on the World Trade Center complex and the Pentagon. Not all attacks, however, are at this level of intensity. The United States has also been subject to small scale attacks in the past such as the bombing at the Boston Marathon in 2013 or Las Vegas Shooting in 2017.

While the City has not been directly impacted by any major adversarial events, there have been protests that highlight the potential for such incidents. In 2020, during a period of heightened regional tensions, a peaceful protest was organized at Mile Square Park, drawing attention due to its size and public visibility. Although the protest remained peaceful and did not escalate into significant disturbances, it underscored the potential for such events to occur in public spaces within the city. While the City has not experienced terrorism or large-scale violence in the past, the absence of these events does not mean that similar or more severe incidents could not happen in the future.

AE.5 Adversarial Event Probability

The likelihood of an adversarial event occurring in the City is challenging to estimate, as it depends on various factors such as regional tensions and broader security issues. While the City has not experienced significant incidents in the past, its proximity to larger urban areas and key transportation routes increases the chances of being affected by events in neighboring cities.

Although the probability of a major adversarial event may be relatively low, it remains a possibility, making it essential to prepare for a variety of scenarios.

AE.6 Adversarial Event Vulnerability

Vulnerability to Structures

The City's public buildings and infrastructure are vulnerable to a range of potential adversarial events. Key city facilities such as City Hall, the Police Facility, Fire Station #1 on Bushard Street, and Fire Station #2 on Newhope Street, are vital to the city's operations and are more likely to be targeted. Additionally, public spaces like Mile Square Park, which attract gatherings and events, could pose a risk for larger crowds in the event of civil unrest or other disruptive incidents. Impacts on any of these city facilities could disrupt essential services and impair the city's ability to respond effectively. To address this, the City has developed Mitigation Strategy 2024.HMP.05, which focuses on enhancing security features at critical city facilities.

The table below is an excerpt from the full Loss Estimate Table located in Chapter 3. 4 and provides loss estimates for critical City facilities and essential services in the event of an adversarial incident. The projected financial impacts vary based on the asset type and estimated damage percentages. The Hazard Mitigation Planning Committee (HMPC) reasoned that all City facilities, including, but not limited to, City Hall, the Boys & Girls Clubhouse Academy, Library, and City Yard, etc. are anticipated to sustain a 7% loss, resulting in financial damages ranging from approximately \$120,000 to over \$400,000. Essential services, such as fire and police, are projected to experience an 80% loss, with estimated financial damages of \$284,000 and \$427,360, respectively. Meanwhile, water and wastewater services are expected to face lower damage percentages (5%), yet their substantial replacement values result in significant projected losses of \$561,969 and \$247,750, respectively. These figures highlight the potential vulnerability of both municipal infrastructure and emergency response services, highlighting the importance of proactive security measures and resilience-building efforts to mitigate the impact of adversarial threats

Table AE.1 Adversarial Event Loss Estimate Table

ASSET NAME	REPLACEMENT VALUE	% DAMAGE	LOSS ESTIMATE
City Hall & Council Chambers	\$5,397,224	7	\$377,806
Boys and Girls Clubhouse Academy	\$1,719,880	7	\$120,392
Library	\$2,251,840	7	\$157,629
City Yard	\$5,794,520	7	\$405,616
Fire Service	\$355,000	80	\$284,000
Police Service	\$534,199	80	\$427,360
Water Service	\$11,239,380	5	\$561,969
Wastewater	\$4,954,995	5	\$247,750

Note: Replacement values provided by 9/2018 Assessment by Jones Lang Lasalle (JLL)

Note: Inflation estimated using data from the [U.S. Bureau of Labor Statistics Consumer Price Index](#) (2018-2024, or \$1 to \$1.24)

Vulnerability to People

The City's residents, especially vulnerable groups like the very young, elderly, people with disabilities, and those with LEP, could face more challenges in an emergency. These individuals might have difficulty evacuating, receiving information, or accessing essential services during a crisis, which is why the City considered their specific needs when developing mitigation actions. To address the needs of vulnerable populations, the HMPC developed Mitigation Strategy 2024.HMP.04, focusing on expanding coordination and protections, particularly for very young children. While the City recognizes that all residents are vulnerable in an emergency, this population was identified as one that could be effectively targeted during the planning process to improve preparedness and response.

Appendix C

Cyberattack

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C.1 Cyberattack Identification and Background

A cyberattack is a deliberate attempt to compromise the confidentiality, integrity, or availability of a computer system, network, or data. Cyberattacks can take many forms, including hacking, phishing, ransomware, and denial-of-service attacks, and they may be carried out by cybercriminals, insider threats, or organized crime networks. In some cases, these attacks are politically motivated and aim to disrupt critical infrastructure, steal sensitive information, or undermine public trust. When such actions are tied to an ideological or political cause, they may be classified as cyber terrorism, where the intent is to advance a specific agenda through the disruption or destruction of digital systems.

For a city, a cybersecurity attack can have significant and widespread consequences, threatening essential services and public safety. As municipal systems controlling utilities like water, electricity, and transportation increasingly rely on digital technology, they become prime targets for attackers. A ransomware attack, for example, could lock City officials out of vital systems, delaying emergency responses or halting traffic management. Similarly, a breach of public records could expose sensitive personal data or disrupt critical processes like emergency response coordination. Such attacks not only disrupt operations but also damage the trust residents place in their local government.

C.2 Cyberattack Location

The City of Fountain Valley's (City's) critical facilities, such as City Hall and the Water Department facilities, are essential for managing municipal operations and public services. These facilities increasingly rely on digital networks, making them potential targets for cyberattacks. While such attacks would not cause physical damage, they could disrupt services citywide. For instance, a cyberattack on the Water Department could impede water distribution or wastewater management, affecting residents and businesses throughout the City. Similarly, if City Hall's administrative systems were compromised, it could delay public services and emergency responses. Therefore, safeguarding the cybersecurity of these critical facilities is important to ensure delivery of essential services to the community.

C.3 Cyberattack Extent

The extent of a cybersecurity attack on the City would depend on the target and the nature of the attack. If city systems, such as those housed at City Hall or the Water Department, were compromised, the impact could ripple across various municipal services. A ransomware attack, for instance, could lock City officials out of critical administrative systems, disrupting daily operations and hindering the City's ability to deliver essential services to its residents. Similarly, a breach of water management systems could hinder the City's ability to regulate water distribution and wastewater treatment, potentially affecting public health and daily activities for residents and businesses. The disruption caused by such an event could be citywide.

While a cybersecurity attack would not cause physical damage to the City's infrastructure, its operational consequences could be far-reaching. Essential services like emergency response coordination or traffic management could face delays or interruptions, creating safety concerns. Furthermore, personal information stored in city databases could be exposed, leaving residents vulnerable to identity theft or fraud.

A cybersecurity attack could also make the City more vulnerable to ransom payment demands, particularly if critical systems are taken offline or sensitive data is encrypted. For instance, a cyberattack targeting City administrative systems or water facilities could leave officials with limited options to restore operations quickly. The inability to access essential systems could pressure the City to consider paying a ransom to resume services or protect sensitive information. Such a scenario not only increases the financial burden on the City but also sets a dangerous precedent, potentially encouraging future attacks. This heightened vulnerability would amplify the extent of the attack's impact, as it could prolong disruptions to vital services, damage public trust, and strain the City's financial resources.

C.4 Cyberattack History

San Bernardino County Sheriff's Department Cyberattack

In April 2023, various news outlets, including [ABC 7 Los Angeles](#) and the [San Bernadino Sun](#), reported the San Bernardino County Sheriff's Department experienced a significant cyberattack

that disrupted its digital systems for several days. The attack was initiated through a phishing email that appeared to originate from a trusted external contractor, allowing the attackers to infiltrate the Sheriff Department's network. Once inside, the hackers encrypted critical data and demanded a ransom for its release. In response, the county decided to pay a \$1.1 million ransom. Although the attack did not compromise public safety operations, it caused significant disruptions, and the department lost data spanning five years. In the aftermath, the Sheriff's Department has taken steps to replace the compromised database, upgrade outdated hardware, and improve its overall cybersecurity posture.

Orange County Transportation Authority (OCTA) Cyberattack

As explained in an Orange County Register article dated August of 2016, the Orange County Transportation Authority (OCTA) became a victim of a significant cyberattack that exploited vulnerabilities in a third-party vendor's system. This ransomware attack encrypted critical files, rendering them inaccessible and disrupted OCTA's operations. The attackers demanded a ransom for the decryption key, and while some data was eventually restored, irreplaceable information was permanently lost. The financial impact was substantial, with the agency spending over \$500,000 on recovery efforts, including enhanced cybersecurity measures and system restoration. This incident not only disrupted OCTA's ability to deliver transportation services effectively but also highlighted the risks posed by external vendors.

Orange County District Attorney's Office Breach

In 2023, [ABC 7 Los Angeles](#) reported that the Orange County District Attorney's Office experienced a major data breach. The breach exposed sensitive information, such as case files and personal details tied to ongoing investigations, raising serious concerns about privacy and security. This incident disrupted the office's operations and sparked public scrutiny, with residents questioning the effectiveness of the office's data protection policies. In response, the District Attorney's Office launched a review of its cybersecurity practices and strengthened its security measures to prevent similar breaches in the future.

C.5 Cyberattack Probability

Determining the exact probability of a cyberattack impacting the City is challenging, as it depends on several factors. However, the City recognizes that the frequency of cyberattack incidents has been steadily increasing in recent years, suggesting that cities are becoming more vulnerable. The rise in cyberattacks targeting neighboring cities and regions highlights a growing trend, with digital systems progressively more exposed to threats. As the City continues to increasingly rely on digital infrastructure for daily operations, the risk of being targeted by cybercriminals also rises. With the evolution of cyberattacks, it is more likely that the City could be targeted at some point in the future. While the City has made strides in improving its cybersecurity, the growing sophistication of cybercriminals means that municipalities remain attractive targets due to potential vulnerabilities. While the likelihood of an attack cannot be precisely determined, the Hazard Mitigation Planning Committee (HMPC) emphasized that preparing for such scenarios is vital, as the consequences of an attack could deeply affect the city's ability to function and meet residents' needs.

C.5 Cyberattack Vulnerability

Vulnerability to Structures:

The City's critical facilities and digital infrastructure are particularly susceptible to cyberattacks, which have the potential to severely disrupt city operations. Key locations such as City Hall and the City Water Department depend on interconnected digital systems to manage essential services, including administrative functions, public utilities, and water management. A successful cyberattack targeting these systems could compromise sensitive data, interrupt vital operations, and hinder the city's ability to deliver essential services to residents. While physical damage is unlikely in such an event, the reliance on digital infrastructure means that even a temporary disruption could cascade into significant operational challenges.

The table below is an excerpt from the full Loss Estimate Table located in Chapter 3. 4. The HMPC identified that a cyberattack would primarily disrupt the City's ability to deliver essential services to the community. As highlighted in the accompanying table, a cyberattack could compromise

critical systems supporting public safety and water supply, significantly affecting the City's operations. The table below is an excerpt from the critical facilities loss estimate, illustrating the potential financial impact of hazard-related damage to essential public services. It includes estimated losses for fire, police, water, and wastewater services based on their replacement values and expected damage percentages. According to the data, fire and water services are projected to experience total losses in the event of a major cybersecurity incident, with 100% damage to their infrastructure, resulting in estimated losses of \$355,000 and \$11,239,380, respectively. Similarly, wastewater services are also anticipated to face total losses amounting to \$4,954,995. Police services, while expected to sustain 85% damage, still represent a significant financial impact, with an estimated loss of \$454,069. This analysis highlights the potential vulnerabilities of critical infrastructure and highlights the importance of mitigation efforts to reduce financial and operational disruptions.

Table C.1 Cyberattack Loss Estimate Table

ASSET NAME	REPLACEMENT VALUE	% DAMAGE	LOSS ESTIMATE
Fire Service	\$355,000	100%	\$355,000
Police Service	\$534,199	85%	\$454,069
Water Service	\$11,239,380	100%	\$11,239,380
Wastewater	\$4,954,995	100%	\$4,954,995

Note: Replacement values provided by 9/2018 Assessment by Jones Lang Lasalle (JLL)

Note: Inflation estimated using data from the [U.S. Bureau of Labor Statistics Consumer Price Index](#) (2018-2024, or \$1 to \$1.24)

To address these risks, the City has developed Mitigation Strategy 2024.HMP.06, which focuses on bolstering cybersecurity protections and ensuring the resilience of critical systems. The HMPC emphasized that while an attack might not occur in the next five years, the potential consequences if it did would be severe and could disrupt vital services across the city.

Vulnerability to People:

Residents of the City could experience significant challenges during a cyberattack. Disruptions to essential city services, including public communication networks and online resources, could prevent access to important information and services. This could impact both the city's ability to operate and residents' day-to-day needs.

The City also recognizes the significant impact cyberattacks could have on vulnerable populations, particularly the elderly, and has prioritized actions to strengthen cybersecurity defenses and community awareness. Mitigation Strategy 2024.HMP.06 focuses on upgrading the City's Information Technology Systems to address evolving cyber threats and protect critical City data and infrastructure. By enhancing these systems, the City aims to reduce the risk of service disruptions that could disproportionately affect residents who rely on essential services and timely access to resources. To further safeguard the community, Mitigation Strategy 2024.HMP.07 ensures that vendor agreements are reviewed to include stringent security measures, with a focus on protecting resident data. This is especially important for elderly residents, who are often targeted by identity theft and other cybercrimes. Additionally, Mitigation Strategy 2024.HMP.08 emphasizes expanding public outreach to educate the community about cybersecurity best practices, empowering residents to recognize and respond to potential threats.

Appendix D

Flood

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F.1 Flood Identification and Background

According to the [National Flood Insurance Program](#) (NFIP), flood is the most common type of disaster including both man made and naturally occurring incidents in the United States. Land along rivers, streams, lakeshores, and coastlines are particularly susceptible to flooding.

The primary responsibility of the local governments during widespread flooding is to protect public safety. The second responsibility is protection of the environment followed by property such as highways, streets, bridges, and structure protection.

The types and causes of flooding that can occur within the City of Fountain Valley (City) are the result of:

- Heavy rain,
- Atmospheric Rivers,
- Flood control channel overflow,
- Wastewater flooding within residences as a result of lift station failures, and
- Coastal, tropical, and/or hurricane storms.

Due to light annual rainfall and the City's location on the flood plain protecting it from channel overflow, dam failure is the most likely cause of flooding with the City.

What are Floods?

A flood occurs any time a body of water rises to cover what is usually dry land. Floods have many causes, including heavy rains, spring snowmelt, coastal storms, and dam or levee failure. When flooding occurs, affected areas may sustain damage to structures and personal property, as well as severe damage to the environment in the form of soil erosion, deforestation and damage to utilities and transportation systems.

Floods can take several hours to days to develop. The following flood characterization designates the amount of time for response.

- **Flood Watch** – a flood is possible in the area.
- **Flood Warning** – flooding is already occurring or will occur soon in the area.
- **Flash Flood Watch** – a flash flood is possible in the area. Those affected should seek immediate shelter or higher ground.

- **Flash Flood Warning** – flooding is already occurring or will occur soon in the area. Flash floods can occur without warning, during heavy rain in mountainous regions ensure that precautions and flash flood warnings are adhered to.

Alluvial Fan Flooding

Alluvial fan flooding occurs in the steep arid or semiarid mountains found throughout California. Alluvial fans are fan-shaped deposits of eroded rock and soil carried out of mountains and into valley floors by landslides, mudslides, mudflows, and surface runoff. At the beginning of the valley, alluvial fans are steep and narrow with boulders and other coarse material. The deposited material becomes increasingly fine as the gradient decreases and the material, mainly gravel, sand and mud, spreads.

When rain falls, runoff from the canyon walls flows as a high-velocity sheet that channels into rivulets, and then to natural drainage courses. The rapidly moving water often carries large boulders and other material from the watershed depositing them into runoff channels, blocking the flow of water. Floodwater then spills out onto the fan, with each event finding a new channel that soon fills up with deposits and overflows. Flooding in alluvial fans often can cause greater damage than clear-water flooding.

Flash Flooding

A flash flood is a rapid flooding of low-lying areas, rivers and streams that is caused by the intense rainfall associated with a thunderstorm or multiple thunderstorms. Flash floods also occur when a man-made structure, such as a dam, collapses. Flash flooding occurs when the ground under a storm becomes saturated with water so quickly that it cannot be absorbed. The runoff collects in low-lying areas and flows rapidly downhill. As a result, anything in its path is suddenly in rising water. Typically, flash floods begin with a slow-moving thunderstorm. A slow-moving thunderstorm usually takes longer to move out of the affected areas and causes the area to endure a greater amount of rainfall for a longer period of time. In addition, a thunderstorm may pass over an affected area repeatedly, dumping even more rainfall.

The heavy rainfall associated with these storm systems contributes to urban flooding in a number of ways. Primarily, heavy rainfall will often overwhelm the capacity of the conventional drainage system made up of storm drains, catch basins, sewers, and additional natural mechanisms for storm-water management. These systems typically cannot handle more than one or two inches of rainfall per hour before they begin to back up and overflow. This amount is further diminished

if the storm drains, and other components of the storm-water management system, have not been adequately maintained, are clogged with debris such as trash or natural waste, or are old and in a state of disrepair. Heavy rainfall, combined with storm-water runoff, can cause local waterways to rise and overflow their banks.

F.2 Flood Location

Flooding in the City can happen anywhere, but the Hazard Mitigation Planning Committee (HMPC) noted that it is most likely to occur in specific areas, including the streets of Sandalwood, Walnut, and Heil. These locations are particularly vulnerable during periods of heavy precipitation, which often leads to significant runoff that overwhelms the local drainage systems. The Sandalwood pump stations have faced challenges during such events, highlighting their importance to the city's flood mitigation strategy. It is important to note that a project is currently underway to enhance the reliability and capacity of these pump stations to better protect the surrounding neighborhoods.

Flooding has also caused substantial damage to critical infrastructure within the city. Notably, the basement of Orange Coast Hospital has experienced flooding in past events, with the issues compounded by a roof collapse due to poor maintenance of drainage systems. Such incidents not only disrupt hospital operations but also put the safety and functionality of essential services at risk. Power outages during these events have further strained City resources, affecting residents and businesses alike and emphasize the interconnected vulnerabilities of infrastructure.

F.3 Flood Extent

A flood event in the region can range from a few isolated areas where a number of streets are flooded preventing temporary access to homes and businesses, to numerous homes inundated with several feet of water causing millions of dollars of damage. Floods in the City can cause extensive damage to residential and business properties, parks and recreational facilities, road and highway infrastructure, and critical utility facilities.

Large amounts of water from other parts of Orange County flow through the City on the way to the ocean. These regional water flows are carried through flood control channels owned and operated by the County of Orange. In addition to these County channels, the City maintains three local storm drain channels and two storm water pumps to drain the local floodwaters

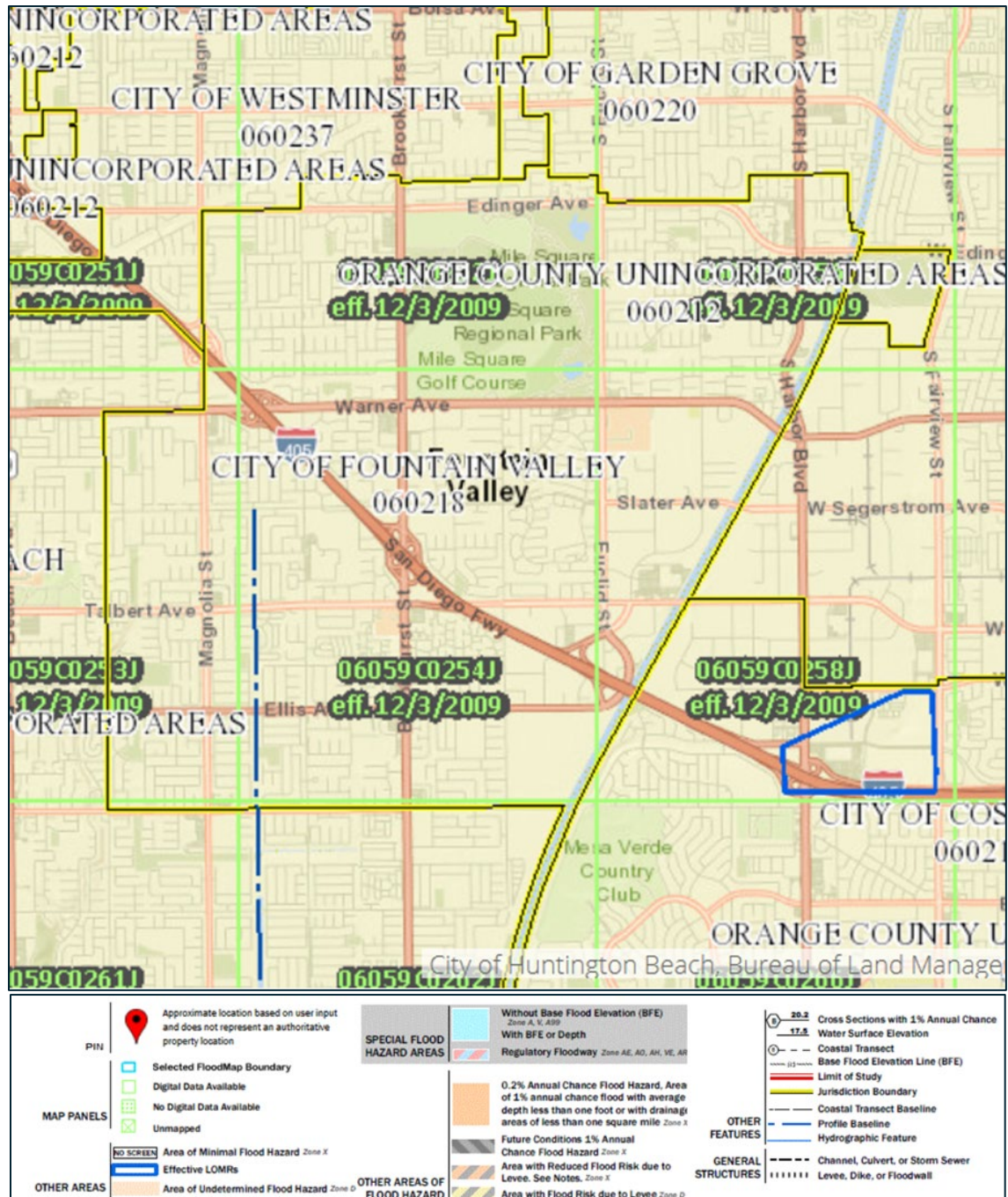
The extent of flooding can vary widely depending on the severity of the weather event. During significant storm events, water may rise to several feet in low-lying areas, impacting streets, residential neighborhoods, and commercial areas. For example, intersections in areas with poor drainage can experience standing water of 1-2 feet, creating hazards for vehicles and pedestrians. In extreme scenarios, flash flooding may occur, with water moving quickly and causing damage to infrastructure, homes, and utilities.

Some of the most severe flooding incidents in the City have occurred during heavy rainfall events linked to atmospheric rivers. These events can produce several inches of rain over a short period, leading to widespread inundation. The Santa Ana River, which flows near the city, benefits from flood control infrastructure, reducing the risk of flooding. However, intense rainfall can still overwhelm localized systems, especially in areas near natural drainage basins or older stormwater infrastructure.

Beyond direct impacts, flooding in the City disrupts transportation systems, temporarily closing key roadways and intersections. In addition, floodwater can threaten critical infrastructure, such as power lines, sewer systems, and communication networks, increasing the effects of the hazard.

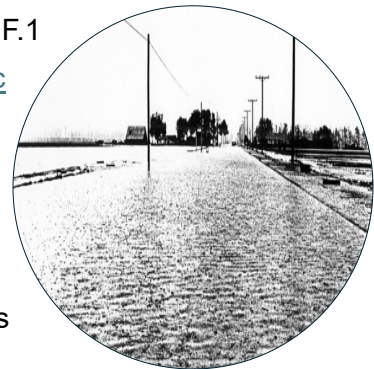
The following section provides [FEMA Flood Insurance Rate Maps](#) (FIRM) for the City. According to the map, virtually all the City is located in 100-year flood plain with minor portions of the City in the 500-year flood plain. The 100- and 500-year recurrence intervals indicate a 0.01 and 0.002 annual probability of a flooding event, respectively.

Figure F.1 Fountain Valley FEMA Flood Insurance Rate Map



E.4 Flood History

To indicate the potential for a severe storm/flooding event, Table F.1 below, based on data from the [National Oceanic and Atmospheric Administration's](#) (NOAA) National Climatic Data Center, lists an excerpt of large-scale flooding events that have resulted in damage within Orange County since the previous planning period. Incidents that did not involve fatalities, injuries, property loss, or crop damage have been excluded from this table, which aims to highlight events with significant impacts.



1938 Talbert (Fountain Valley) Flood
Photo Courtesy Orange County Archives

Table F.1 Large Scale Flooding Events in Orange County

DATE	LOCATION	INJURIES	FATALITIES	PROPERTY DAMAGE	CROP DAMAGE
12/06/2018	Esperanza	0	0	5K	0
1/15/2019	Fountain Valley	0	0	0	0
2/13/2019	Laguna Beach	0	0	80K	0
3/20/2019	Yorba Linda	0	0	.5K	0
3/20/2019	Rossmoor	0	0	5K	0
4/06/2020	La Jolla	0	0	25K	0
7/03/2020	Orange County Coastal	0	2	40K	0
3/10/2021	Silverado	0	0	75K	0
12/14/2021	Silverado	0	0	800K	0
3/01/2023	Red Hill	0	0	10K	0

State and Federal Declared Flood Disasters

Over the years, both state and federally declared disasters have highlighted the significant impacts of flooding on life, property, and infrastructure. These declarations provide critical assistance and resources for response and recovery efforts. The table below lists flood-related disaster declarations taken from [FEMA's Website for Disasters and Decalations](#), and the [California Franchise Tax Board](#), along with their respective disaster codes, offering an overview of past events that have shaped mitigation and preparedness efforts.

Table F.2 Disaster Declarations

DISASTER CODE	INCIDENT PERIOD
EM-3591-CA	01/08/2023-1/31/2023
EM-3592-CA	03/09/2023-07/10/2023
DR-4683-CA	12/27/2022-01/31/2023
DR-4699-CA	02/21/2023-07/10/2023
DR-4758-CA	01/21/2024-01/23/2024
CA Disaster Loss 109	02/2024-02/2019
CA Disaster Loss 127	12/2021
CA Disaster Loss 140	12/2022-01/2023
CA Disaster Loss 141	02/2023-03/2023
CA Disaster Loss 142	08/2023
CA Disaster Loss 146	02/2024

E.5 Flood Probability

The probability of flooding in the City is expected to increase as a result of future conditions, including climate change and evolving weather patterns. Climate models project that Southern California will experience more frequent and intense rainfall events due to the increased prevalence of atmospheric rivers and shifting storm dynamics. Warmer temperatures associated with climate change can increase the atmosphere's capacity to hold moisture, leading to heavier precipitation during storms. These conditions may increase the risk of flooding in areas with poor drainage. Long-term weather patterns, such as prolonged droughts followed by heavy rainfall, could further exacerbate the risk. Currently, the City is not anticipating any changes to land use in the near future to mitigation flood vulnerability, but the City is cognizant that considerations may be necessary in the distant future if climate change predictions are correct. The combination of these factors suggests that the probability of flooding in the City may rise over the coming decades.

E.5 Flood Vulnerability

Vulnerability to Structures

In terms of vulnerability to structures, the City's built-out environment is generally resilient, with no significant vulnerabilities identified during the team's discussion. However, the City's infrastructure, particularly drainage systems, remains a concern. While city assets such as buildings and roads are not immediately vulnerable to flooding, issues with local drainage systems could exacerbate flooding risks. The mitigation action aimed at improving drainage capacity is therefore crucial. Specifically, 2024.HMP.09, which involves assessing drainage capacities and prioritizing the Walnut Lift Station, directly addresses these concerns. The Walnut Lift Station has been identified as a key point due to its repeated flooding issues, and improvements to drainage infrastructure will reduce the risk of flood-related damage to the city's structural assets.

The table below is an excerpt from the full Loss Estimate Table located in Chapter 3. 4, highlighting facilities and services that were deemed more significantly at risk than other city assets. It presents estimated financial losses for critical facilities and essential services in the event of flooding, with projected damage based on a 3% loss estimate for most facilities and services, except for fire and police services, which are estimated at 80%. City facilities including, but not limited to, City Hall, the Boys & Girls Clubhouse Academy, the Child Care Facility, the Library, and the City Yard are expected to sustain losses ranging from approximately \$51,596 to \$173,836,

while the Police Facility, given its higher valuation, has the most substantial projected facility loss at \$439,518. Additionally, essential services such as fire and police operations are estimated to experience significant losses of \$284,000 and \$427,360, respectively, due to their high vulnerability during flood events. Water and wastewater services, which are critical for maintaining public health and infrastructure functionality, are projected to incur losses of \$337,181 and \$148,650, respectively. These estimates highlight the financial risks posed by flooding, reinforcing the need for mitigation strategies that minimize disruptions and ensure community resilience.

Table F.3 Flood Loss Estimate Table

ASSET NAME	REPLACEMENT VALUE	% DAMAGE	LOSS ESTIMATE
City Hall & Council Chambers	\$5,397,224	3	\$161,917
Library	\$2,251,840	3	\$67,555
City Yard	\$5,794,520	3	\$173,836
Fire Service	\$355,000	80%	\$284,000
Police Service	\$534,199	80%	\$427,360
Water Service	\$11,239,380	3%	\$337,181
Wastewater	\$4,954,995	3%	\$148,650

Note: Replacement values provided by 9/2018 Assessment by Jones Lang Lasalle (JLL)

Note: Inflation estimated using data from the [U.S. Bureau of Labor Statistics Consumer Price Index](#) (2018-2024, or \$1 to \$1.24)

Vulnerability to People

While the city's physical structures are relatively protected, the HMPC identified that the most vulnerable aspect during flooding events is the community's access to essential services, particularly fire and police services. Flooding can significantly disrupt emergency response times, which could lead to delayed assistance for vulnerable populations, such as the elderly, low-income residents, and individuals with disabilities. The HMPC's mitigation actions reflect this concern. For example, 2024.HMP.10 emphasizes expanding public outreach to better educate the community on flood preparation, which will help mitigate the impact of flooding on residents, particularly those most at risk. Furthermore, 2024.HMP.11, which focuses on implementing a Community Emergency Response Team (CERT) program, will help prepare and mobilize volunteers to support vulnerable populations during emergencies, ensuring that these groups receive the assistance they need during floods or other crises.

Appendix E

Dam/Reservoir Failure

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DRF.1 Dam/Reservoir Failure Identification and Background

Dam Failure

A dam is a barrier preventing the flow of water or loose solid materials (such as soil or snow) or a barrier built across a watercourse for impounding water. Dams are artificial barriers, which are 25 feet or more in height or have an impounding capacity of 50 acre-feet or more. Dams are important because they provide water for drinking, for industry, irrigation, fishing and recreation, water for hydroelectric power production, water for navigation in rivers, and other needs. Dams also protect people by reducing or preventing floods.

There are four general types of dams: Arch, Buttress, Gravity, and Embankment. Each of these types of dams has different failure characteristics.

Arch Dams

Arch dams are best suited to narrow canyons where they divert the force of the water behind the dam to the sides of the canyon in order to help support the weight. Therefore, arch dams need not be as thick as gravity dams since the dam itself supports less weight making them less expensive to construct. Arch dams may carry less weight than other dams; however, they are affected by the same kinds of force. These forces include pressure of the water, weight of the water, and weight of the dam.

Buttress Dams

Buttress dams are also known as Ambursen dams, named after the American engineer who implemented this design in the early 20th century. Originally, buttress dams were used in areas requiring irrigation, but where the land was not capable of supporting the size and weight of other types of dams. Generally, buttress dams are built in wide valleys. The name "buttress" dam comes from the structure of the dam itself. The dam is supported at intervals by several buttresses, concrete slabs reinforced with steel, which form a watertight seal against the river. There are two main types of buttress dams: flat slab and multiple arches.

Gravity Dams

Gravity dams serve the same purposes as arch and buttress dams; however, they differ in structure and method of retaining water. This type of dam is solid and triangular in

shape; therefore, it requires a large amount of concrete or other construction material. The immense weight of the concrete provides stabilization and allows the dam to maintain control of the water.

Embankment Dams

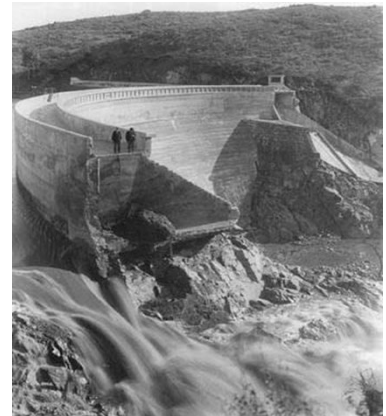
Embankment dams are massive dams made of earth or rock. Embankment dams usually have some sort of waterproof interior (called the core), which is covered with earth or rock fill. Grass may even grow on the earth fill. Water will seep in through the earth or rock fill but should not seep into the core. They rely on weight to resist the flow of water, similar to concrete gravity dams.

The embankment dam is the only dam type that is not made of concrete. Embankment dams may be made of earth or rock, both of which are pervious to water, that is, water can get into it. Water seeps into the core material and should stop at the seepage line. The core material is usually more watertight than the rock or earth that is on the outside of the dam, but the core material is still not totally impervious to water.

According to the [FEMA website](#), dam failures are generally caused by one or a combination of the following reasons:

Overtopping

The [Association of State Dam Safety Officials](#) (ASDSO) reports 34% of all U.S. dam failures are due to overtopping as a result of inadequate spillway design, debris blockage of spillways, or settlement of the dam crest. Overtopping occurs when primary and emergency spillways are not sufficient to pass floodwater and the excess runs over the top of the dam. The overflow can erode the embankment, weakening the dam wall and potentially cause a full dam failure. While the City has not experienced the repercussions of a major dam failure, the Sweetwater Dam failure that occurred on January 27, 1916, is an example of a failure in Southern California that was the result of overtopping. After experiencing a long period of drought, the area received more than thirty-nine



inches of rain. As a result, more than 200 bridges were washed out, entire communities were swept away, levees collapsed, and valleys were inundated.

Acts of sabotage

Sabotage, or deliberate actions aimed at disrupting normal dam operations, can occur for many reasons. Like an act of terrorism or public demonstration, acts of sabotage can be motivated by a number of factors; political, socio-economic, and religious are a just a few. Often, they occur suddenly, and without warning. However, according to the [Stanford University National Performance of Dams Program](#) (NPDP), sabotage and vandalism have been the cause of the fewest dam failures between the years 1975 and 2001. Therefore, while the City is vulnerable to acts of sabotage, it is unlikely to occur.

Structural failure of materials used in dam construction

According to the NPDP, dam failure due to structural deficiencies are only marginally more common than the acts of sabotage. Due to state regulations for dam construction and maintenance, failures due to inadequate structural integrity are rare.

According to FEMA, causes of dam failure in this category may include:

- Movement and/or failure of the foundation supporting the dam,
- Settlement and cracking of concrete or embankment dams,
- Piping and internal erosion of the soil in embankment dams, and
- Inadequate maintenance and upkeep.

Reservoir Failure

Reservoir failure is the uncontrolled release of impounded water from a reservoir. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism, and terrorism can all cause a reservoir to fail. Seismic activity may also cause inundation by the action of a differential movement of the tank and the water within the tank, causing shearing or buckling of the tank.

Above Ground Water Storage Reservoirs

One of the more common failures for water storage tanks during an earthquake is the shearing of the connecting piping. Typically, the inlet, outlet, and overflow piping on water storage tanks are

connected to flanged iron fittings that are then connected to underground flanged piping. This piping configuration is rigid and does not allow for motion of the piping during a seismic event. Unsynchronized motion between water storage tanks and piping can create large stresses and subsequent structural failure. During a moderate earthquake, water storage tanks without proper protective features can release the entire contents of a tank, which may cause unwanted secondary effects on the tank foundation and even surrounding property and population.



During a seismic event, the tank itself is subjected to many different types of motion influenced by the size and shape of the tank, the use of anchors, impulsive and convective forces of the water contained in the tank, and the properties of the soil. These factors influence the tank motion, while ground motion has a linear effect on the underground piping. This differential in piping and tank motion during an earthquake has

proven to be a key weakness in a typical configuration during seismic events of magnitudes credible in California.

DRF.2 Dam/Reservoir Failure Location

The City faces potential risks from two dams: the Prado Dam and the Seven Oaks Dam. These dams are located northeast of Orange County in Riverside and San Bernardino Counties, respectively, and are part of the Santa Ana River system. Both dams play key roles in controlling water flow during storms and floods, but their failure could have significant consequences for the City and the surrounding areas.

The Prado Dam is closer to Fountain Valley, about 40 miles downstream from the Seven Oaks Dam. It sits in the Chino Hills near Corona and has a reservoir that can hold approximately 61 billion gallons of water. The Seven Oaks Dam, located near Redlands, is even larger, with a capacity of about 47 billion gallons. Together, these dams manage water flow into the Santa Ana River, which runs through Orange County and ultimately to the Pacific Ocean.

If either of these dams were to fail, the City could experience significant flooding. The Santa Ana River is the primary channel for floodwater, and its proximity to Fountain Valley means the City would be among the areas impacted during a dam failure event. While the City itself has never experienced a dam failure, the potential risk is still taken seriously, as it could affect homes, businesses, and essential infrastructure.

Santa Ana River, Prado Dam, and Seven Oaks Dam

Santa Ana River

There are two flood control dams that control flood flow in the Santa Ana River. The Seven Oaks Dam is located on the river in the upper Santa Ana Canyon about eight miles northeast of the City of Redlands in San Bernardino County. This dam was completed in 1999. The Prado Dam is about 40 miles downstream of the Seven Oaks Dam. Approximately 47 billion gallons (145,600 acre-feet) of water can be stored in the Seven Oaks reservoir and 61 billion gallons (187,600 acre-feet) in the Prado Dam reservoir.

During a flood, the Seven Oaks Dam will store water destined for the Prado Dam for as long as the reservoir at Prado Dam is rising. When the water surface of Prado Dam reservoir is less than the buffer pool, water conservation releases are then made in coordination with the Orange County Water District based on the capacity of the groundwater recharge facilities and agreements with other agencies. Flood control releases occur when the water surface in the reservoir exceeds the buffer pool. Releases are increased to match inflow from upstream (5,000 cubic feet per second). The objective of the flood control operation is to drain the reservoir pools as quickly as possible without exceeding the capacity of the channel downstream. When the water surface elevation in the Prado Dam reservoir exceeds 543 feet, uncontrolled releases from the spillway occur.

In the event of Prado Dam failure, floodwaters would flow through the Santa Ana Canyon on its way to the Pacific Ocean. The flood would range from about 3,000 feet wide in the canyon to over 15 miles wide downstream at the Santa Ana Freeway (Interstate 5). The flooding would impact over one million people and 110,000 acres. According to an estimate developed by [Ranch Santiago Community College District](#), within 6 hours, the intersection of Bristol and Civic Center in Santa Ana, CA would experience severe flooding and peak at 4 feet. Shortly after, the City would be likely be inundated as its borders are in close proximity. The peak elevation would be

32 feet with 7 feet average over the river's bank depth. The greatest flooding would occur in the area between the Bolsa Chica Mesa and the Newport Beach Mesa where flood depths can vary from one to nine feet.

Prado Dam

Prado Dam is an earth-fill dam across the Santa Ana River at the Chino Hills near Corona, California in Riverside County with the resulting impounded water creating Prado Flood Control Basin reservoir. The U.S. Army Corps of Engineers built the dam in Lower Santa Ana River Canyon. Its primary purpose is flood control and it is the downstream element of the Santa Ana River's flood control system, which is a natural constriction about 30.5 mi (49.1 km)



upstream from the ocean. The area upstream from the dam contains 2,255 sq. mi (5,840 km²) of the watershed's 2,650 sq. mi (6,900 km²). The dam's construction was authorized in 1936, and the flood of 1938 demonstrated its necessity. Construction was completed in 1941. Prado Flood Control Basin also provides water storage for groundwater recharge operations. Pictures of the Prado Dam are provided on the following page:

Seven Oaks Dam

The Seven Oaks Dam is located on the Santa Ana River, 4 miles (6 km) northeast of Redlands, California. It was constructed by the United States Army Corps of Engineers as a flood control dam. The dam sits virtually on top of the San Andreas Fault and is designed to withstand a magnitude 8.0 earthquake.



Construction of the Seven Oaks Dam began in August 1994. When it was completed, the height of the dam was 550 ft. (168 m) and was over 2,200 ft. (670 m) wide at its base; 43,000,000 yd³ (33,000,000 m³) of earth and rock were required to build it. The Seven Oaks Dam is ranked as the

10th largest earth fill dam in the United States. The Seven Oaks Dam forms Seven Oaks Reservoir, which has a capacity of 147,970 acre-feet (182,521,000 m³).

Water Storage Reservoirs

The City has two existing storage reservoirs, each with a capacity of 5 million gallons (MG). Reservoir No.1 is a steel reservoir constructed in 1965. Reservoir No. 2 is a buried concrete reservoir located in Cordata Park off Tanager Avenue. Table 3.16 below presents a summary of reservoir information.

Table DRF.1 City of Fountain Valley Reservoirs Information

NAME	WORKING STORAGE VOLUME (MG)	USABLE STORAGE VOLUME (MG)	DIAMET ER (FT.)	HEIGHT (FT.)	BOTTO M ELEV (FT.)	HIGH WATER LEVEL (FT.)
Reservoir No. 1	5.0	3.5	210	20	27	47
Reservoir No. 2	5.0	2.5	208	20	4	24
Total	10.0	7.0	-	-	-	-

DRF.3 Dam/Reservoir Failure Extent

The extent of damage from a dam or reservoir failure depends on several factors, including the volume of water released, the condition of the river system, and the topography of the affected areas. For example, if Prado Dam were to fail, a massive surge of water would move rapidly downstream through the Santa Ana River, spreading across a wide area. Neighborhoods closer to the river could experience severe flooding with water depths exceeding 30 feet, while areas farther from the river might experience shallower flooding, depending on the shape of the land and natural drainage patterns.

In the event of a reservoir failure, water could travel quickly through the Santa Ana Canyon, gaining momentum before spreading out into the surrounding floodplain. For Fountain Valley, this could mean widespread flooding of homes, businesses, parks, and local roads. Critical infrastructure, such as utilities, bridges, and emergency services, could also be significantly impacted, potentially leading to disruptions in electricity, clean water, and transportation. These damages would make it difficult for residents to evacuate or return home quickly, creating long-term recovery challenges for the City and its community.

Although the likelihood of a dam or reservoir failure is very low due to the extensive maintenance and monitoring performed by agencies like the U.S. Army Corps of Engineers, the potential consequences are devastating. This makes dam and reservoir failure a high-consequence but low-probability hazard.

DRF.4 Dam/Reservoir Failure History

The history of dam and reservoir failures in Southern California serves as a stark reminder of the risks associated with aging infrastructure and the region's natural hazards. While catastrophic failures have been rare, the consequences of these events are often devastating, prompting advancements in engineering standards and emergency planning. By examining these historical failures, we gain valuable insights into the vulnerabilities of critical infrastructure and the importance of ongoing maintenance and oversight.

In the Orange County and Los Angeles region, several notable dam and reservoir failures—or near failures—have shaped local infrastructure practices and policies. These events have not only impacted the immediate communities but have also served as catalysts for improved safety measures and regulations across California.

St. Francis Dam Failure (1928)

One of the most catastrophic dam failures in U.S. history occurred in 1928 when the St. Francis Dam, located in northern Los Angeles County, collapsed just two years after its completion. The failure unleashed a 12-billion-gallon flood wave that swept through the Santa Clara River Valley, destroying everything in its path. Over 400 people lost their lives in this tragedy, and entire towns

were devastated. The disaster revealed critical engineering flaws and a lack of adequate oversight during the dam’s construction, leading to sweeping changes in dam safety regulations statewide.

Prado Dam Challenges

Although not a failure, Prado Dam, located near Corona in Riverside County and serving as a vital flood control structure for Orange County, has faced significant maintenance issues. In the early 2000s, concerns about seepage and aging infrastructure prompted a major rehabilitation effort to ensure the dam's continued functionality. Heavy rainfall during these periods heightened fears of potential failure, emphasizing the importance of proactive management and regular assessments to address vulnerabilities.

Santiago Dam and Irvine Lake

The Santiago Dam, which forms Irvine Lake, has also experienced structural concerns during periods of heavy rain. While no catastrophic failure has occurred, these concerns highlight the risks associated with aging infrastructure, particularly as climate change increases the frequency of extreme weather events. Regular inspections and maintenance of the dam have been essential to ensuring the safety of nearby communities.

Overall, there have been at least 460 deaths from dam failures in California. A brief selection of these failures is outlined in Table DRF.2.

Table DRF.2: Selected Dam Failures in California

YEAR FAILED	DAM	LOCATION	CAUSE OF FAILURE/DEATHS
1883	English	Sierra County	Dam Crumbles to foundations, decay of timber used
1892	Long Valley Creek	San Jacinto	Heavy rains, dam carried away by flood
1895	The Angels	Calaveras County	Undetermined during flood, poor foundation
1896	Vernon Heights	Oakland	Shallow foundation
1898	Snake Ravine	Stanislaus County	Poor compaction

1916	Sweetwater	San Diego	Dam collapse releasing 13 billion gallons of water
1925	Sheffield	Santa Barbara	Earthquake comprised foundation integrity
1928	St. Francis	Los Angeles County	Likely instability of underlying soil
1963	Baldwin Hills	Los Angeles	Leak through embankment turned into washout
1964	Hell Hole	Rubicon River	Failed during construction due to unprecedented rains
1965	Matilija	Ventura	Bad foundation and concrete disintegrating
1971	San Fernando	Los Angeles	Gate failure only resulting from earthquake
1995	Folsom Dam	Sacramento	Gate failure only – minor damage to dam and spillway
2017	Oroville	Oroville	Inundated spillways resulted in severe erosion

Source: [Association of State Dam Safety Officials](#) and various open sources

DRF.5 Dam/Reservoir Failure Probability

The probability of a dam failure impacting Fountain Valley is considered low but cannot be entirely ruled out. The City is vulnerable to potential flooding from Prado and Seven Oaks Dams, both located upstream along the Santa Ana River in Riverside and San Bernardino Counties, respectively. These dams serve as critical flood control structures designed to mitigate the effects of heavy rainfall and stormwater runoff. However, in the event of a dam failure, the consequences could be catastrophic, leading to loss of life, destruction of high-value properties, and disruption to residential areas, businesses, and tourism. Although both dams are maintained under strict regulatory oversight, historical incidents, such as the 2005 seepage event at Prado Dam that prompted evacuations, highlight the ongoing need for vigilance.

DRF.6 Dam/Reservoir Failure Vulnerability

Vulnerability to Structures

The table on the following page outlines the estimated financial impacts of a dam or reservoir failure on key City facilities and essential services. Most City facilities including, but not limited to, City Hall and the City Yard are projected to experience 5% damage. However, the most significant vulnerabilities lie within the city’s water infrastructure, where critical assets such as pump stations and storage tanks face a 50% estimated damage rate. Water Reservoir #1 and #2 Pump Stations, along with the Euclid and Tanager Water Storage Tanks, could each sustain multi-million-dollar losses. Reservoir No. 1, faces heightened vulnerability in the event of a dam or reservoir failure. The structure of Reservoir No. 1, which was constructed in 1965, is particularly susceptible to damage due to its aging design, which can create significant stress and potentially lead to leaks or failure during high-pressure events.

The table below is an excerpt from the full Loss Estimate Table located in Chapter 3. 4. Public safety services are also at heightened risk, with estimated losses of \$284,000 for fire services and \$427,360 for police services due to their essential role in emergency response and potential operational disruptions. Additionally, water and wastewater services, which are crucial for maintaining public health and sanitation, are projected to incur damages of \$1,123,938 and \$247,750, respectively. By implementing structural improvements, the City can mitigate the risks associated with dam and reservoir failure, enhancing the protection of critical infrastructure.

Table DRF.3 Dam and Reservoir Failure Loss Estimate Table

ASSET NAME	REPLACEMENT VALUE	% DAMAGE	LOSS ESTIMATE
City Hall & Council Chambers	\$5,397,224	5	\$269,861
City Yard	\$1,719,880	5	\$85,994

Water Reservoir #1 Pump Station	\$4,960,000	50	\$2,480,000
Water Storage Tank- Euclid	\$6,200,000	50	\$3,100,000
Water Reservoir #2 Pump Station	\$4,960,000	50	\$2,480,000
Water Storage Tank- Tanager	\$6,200,000	50	\$3,100,000
Fire Service	\$355,000	80%	\$284,000
Police Service	\$534,199	80%	\$427,360
Water Service	\$11,239,380	10%	\$1,123,938
Wastewater	\$4,954,995	5%	\$247,750

Note: Replacement values provided by 9/2018 Assessment by Jones Lang Lasalle (JLL)

Note: Inflation estimated using data from the [U.S. Bureau of Labor Statistics Consumer Price Index](#) (2018-2024, or \$1 to \$1.24)

Recognizing the importance of safeguarding the City's water storage capacity, the Hazard Mitigation Planning Committee (HMPC) identified recommended Mitigation Action 2024.HMP.12, which focuses on structural improvements for Reservoir No. 1 to enhance its resilience and ensure it meets modern engineering standards. Upgrading the reservoir would reduce the likelihood of catastrophic failure, improve the tank's ability to withstand stress, and ensure that critical water resources remain available during emergencies.

Vulnerability for People

In the event of a dam or reservoir failure, the residents of the City would face significant risks from flooding and potential loss of life. The Prado and Seven Oaks Dams, which influence the flow of the Santa Ana River, are critical to managing floodwater in the region. A failure of either dam could result in widespread flooding, endangering residents and causing extensive damage to homes, businesses, and infrastructure. Vulnerable populations, such as seniors, low-income families, and

individuals with disabilities, would be particularly at risk due to challenges in evacuating quickly, limited resources, or lack of access to transportation.

The HMPC has recognized the importance of addressing these risks and proposed mitigation actions aimed at improving public safety and reducing the impacts of potential dam or reservoir failure. For example, by evaluating and strengthening critical infrastructure, such as Reservoir No. 1, the City can better prepare to manage flood risks and protect vulnerable populations. By implementing Mitigation Action 2024.HMP.12, the City can ensure a safer, more resilient future for all residents, especially those most at risk from the consequences of dam or reservoir failure.



Chapter 4

Mitigation Strategies

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4.1 Mitigation Goals and Objectives

To structure goals and objectives that produce appropriate mitigation actions, the hazard profiles and loss estimates were thoroughly reviewed to identify patterns in the location of potential hazard events and the vulnerability of the infrastructure identified within those locations. This information was used to develop clear goals to mitigate the effects of natural hazard events.

44 CFR §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The mitigation goals provide guidelines for developing mitigation projects to provide prioritized hazard reduction. The goals are based on the findings of the Risk Assessment and input from the Hazard Mitigation Planning Committee (HMPC) and characterize long-term hazard reduction targets and the enhancement of current mitigation capabilities.

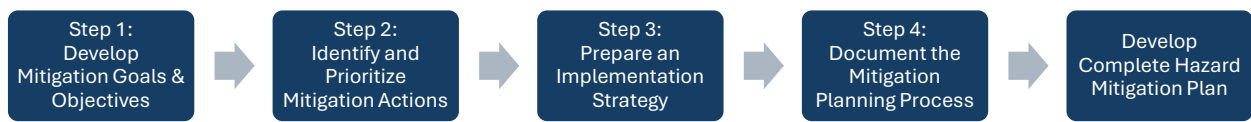


Table 4.1 includes the Plan goals and corresponding mitigation objectives. These strategies were developed and reviewed by the HMPC using knowledge of the local area (including high-hazard areas and sensitive populations), review of past efforts, findings of the Risk Assessment, and identification of mitigation projects.

Table 4.1 Overall Plan Goals and Objectives

PLAN GOALS	SUPPORTING GOAL OBJECTIVES
PROTECT LIFE & PROPERTY	Objective 1.1: Implement activities that assist in protecting lives within the community by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from hazards. Objective 1.2: Continue to obtain and assess hazard assessment information to monitor high hazard areas and

	encourage preventative measures as vulnerability changes.
PROMOTE PUBLIC AWARENESS & OUTREACH	Objective 2.1: Continue to grow and implement education and outreach programs to increase public awareness of the risks associated with hazards and available resources Objective 2.2: Continue to provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities. Adapting to changing vulnerabilities
PROMOTE PARTNERSHIPS & IMPLEMENTATION	Objective 3.1: Identify and communicate new sources of information and identify new groups Look at new ways to communicate information and identify new groups to coordinate participation among and within public agencies, citizens, nonprofit organizations, businesses, and industry to gain a vested interest in implementation Objective 3.2: Encourage leadership within public and private sector organizations to prioritize and implement local and regional hazard mitigation activities.
ENHANCE EMERGENCY SERVICES AND MANAGEMENT CAPABILITY	Objective 4.1: Enhance emergency operations by increasing collaboration and coordination among public agencies, citizens, nonprofit organizations, businesses, and industry, to address needs and resource allocation throughout the community. Objective 4.2: Review and include considerations of mass influx to improve warning and evacuation procedures for residents and businesses.

Following the development of the overall Plan goals and strategies, each hazard was reviewed to determine hazard-specific mitigation objectives. These objectives were determined using the overall plan goals, the hazard profiles, and the 2018 Plan hazard-specific objectives, and were used to help establish mitigation action items. It should be noted that the HMPC worked to better align its goals and objectives with the 2023 Hazard Mitigation Plan Guidance with the inclusion of

vulnerable populations. Since the goals and objectives listed above are meant to support the entire community, references to vulnerable populations was not added. As a trade off, the HMPC demonstrated concern for vulnerable populations in the proposed mitigation actions in Table 4.2. Otherwise, the goals and objectives from the 2018 plan were pulled through to the 2024 update albeit with language that better aligned with current City efforts for improvement.

4.2 Identification of Mitigation Recommendations

44 CFR §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and

Mitigation actions are administrative and/or engineering project recommendations to reduce the City's vulnerability to the identified hazards. Vital City employees are required in the development of actions and projects that are designed to mitigate these hazards and solve problems cost-effectively, as well as ensure consistency with the City's long-term mitigation goals and capital improvements. During the third HMPC meeting, a team-based approach was used to brainstorm mitigation projects based on the identified hazards and associated

loss estimates. In addition, FEMA's Local Mitigation Planning Handbook and the California Adaptation Planning Guide were used to identify actions to mitigate the effects of climate change.

The evaluation and prioritization of the mitigation actions were used as aids to produce a list of recommended mitigation actions to incorporate into the mitigation plan. Each of the mitigation recommendations listed in Table 4.2 fell into one or more of the following categories:

Updates to
Local Plans and
Regulations

Structure and
Infrastructure
Projects

Natural Systems
Protections

Education and
Awareness
Programs

Table 4.2 provides an overview of the mitigation actions and other relevant information, in no specific order. Following the identification of mitigation actions, a Cost-Benefit Review was

conducted in order to determine a prioritization of the items. Section 4.4 contains more information on the Cost-Benefit Review and the prioritization of the projects.

Table 4.2 Mitigation Action Identification

MITIGATION ACTIVITY	HAZARDS MITIGATED	MITIGATION ACTION CATEGORY	CORRESPONDING GOALS	RESPONSIBLE DEPARTMENT	RESOURCES	ESTIMATED PROJECT COSTS	TIMEFRAME	PROTECTS NEW BUILDINGS	PROTECTS EXISTING BUIDILNGS
2024.HMP.01: Determine whether City-owned buildings and infrastructure require structural upgrades and implement projects. This action is intended to promote government continuity during a disaster and provide stability to programs which support identified vulnerable populations.	Earthquake	Local Planning and Regulations/ Structure and Infrastructure Projects	Goal 1	Public Works	Capital Improvement Projects	\$2,500,000/ project	Long	N	Y
2024.HMP.02: Identify elderly care facilities that would need assistance during an evacuation scenario and develop a plan, as necessary, to find housing/shelter for impacted residence.	All Hazards	Local Planning and Regulations	Goal 4	Fire Department	Staff Time	Staff Time	Medium	N	N
2024.HMP.03: Implement a Community Emergency Response Team (CERT) program to garner public support for proactive community involvement in mitigation and emergency preparedness. The CERT program would be leveraged to support vulnerabilities populations, as appropriate, during an emergency.	All Hazards	Local Planning and Regulations/ Education and Awareness Programs	Goal 4	Police Department	Grant Funding/ Staff Time	\$100,000 Staff Time/	Medium	N	N
2024.HMP.04: Expand coordination with local schools to better prepare staff and students to identify, prevent, and respond to shootings/drug - related hazards, and other physical events.	Adversarial Events	Education and Awareness Programs	Goal 3	Police Department	Staff Time	Staff Time	Short	N	N
2024.HMP.05: Evaluate existing security features at the Community Services Buildings and	Adversarial Events	Structure and Infrastructure Projects	Goal 1/ Goal 4	IT Department/ Police Department	Staff Time/ Capital Improvements	\$750,000 average/facility	Medium	N	Y

implement improvements to better secure the facilities against physical attacks.									
2024.HMP.06: Implement upgrades to City Information Technology Systems to address dynamic challenges to protecting City data and infrastructure.	Cybersecurity	Structure and Infrastructure Projects	Goal 1	IT Department	General Fund/ Grant Funding*	\$1,000,000	Long	N	Y
2024.HMP.07: Review vendor arrangements for security clauses and verify resident data is being protected adequate. Although this action will benefit the entire community, emphasis is placed on protecting the elderly community who are often victims of cyber-attacks/identification theft.	Cybersecurity	Local Planning and Regulations	Goal 3	IT Department/ Administration	Staff Time	Staff Time	Short	N	N
2024.HMP.08: Expand Public Outreach with regard to Cyber Security protection.	Cybersecurity	Education and Awareness Programs	Goal 2	Fire Department/ IT Department	Staff Time	\$30,000/ campaign/ Staff Time	Short	N	N
2024.HMP.09: Assess drainage capacities throughout the city and determine the elements of infrastructure (catch basins and pipelines) require improvement to allow for proper drainage. The LHMP Team identified the Walnut Lift Station as a priority for this action due to frequent flooding issues.	Flood	Local Planning and Regulations/ Structure and Infrastructure Projects	Goal 1	Public Works	Grant Funding*/ Capital Improvements	\$20,000,000/ project	Medium	N	Y
2024.HMP.10: Expand public outreach to provide education to the business and the community with regard to resources for flood preparation. (I.e. roof protection, sandbag availability, CERT participation)	Flood	Education and Awareness Programs	Goal 2	Fire Department	General Fund/ Staff Time	\$30,000/ campaign/ Staff Time	Short	N	N
2024.HMP.11: Implement a CERT program to better utilize/prepare volunteer support to assist in	Flood	Education and Awareness Programs	Goal 4	Fire Department	Grant Funding/ Staff Time	\$100,000 Staff Time/	Long	N	N

emergency support, particularly in support of vulnerable populations.									
2024.HMP.12: Consider structural improvements for Reservoir No. 1 in order to meet current seismic codes.	Dam Reservoir Failure/ Earthquake	Structure and Infrastructure Projects	Goal 1	Public Works	Grant Funding/ Capital Improvement	50,000,000	Medium	N	Y
2024.HMP.13: Establish a permanent Emergency Operations Center (EOC) to adequately house emergency management equipment and provide space for training opportunities for CERT/Residents.	All Hazards	Structure and Infrastructure Projects /Education and Awareness Programs	Goal 4	Fire Department	Grant Funding*	\$20,000,000	Long	Y	N
2024.HMP.14: Hire a dedicated Emergency Manager for the City to champion EOC management, emergency planning, seek grant opportunities for resilience efforts, and oversee community outreach.	All Hazards	Local Planning and Regulations	Goal 4	Fire Department	Grant Funding*/ General Fund	\$150,000/year	Long	N	N

- Notes: 1 Values provided by the HMPC
- 2 Timeframe definitions are as follows.
- a) Short: Task to be completed within 1-2 years
 - b) Medium Task to be completed within 3-5 years
 - c) Long: Task to be completed after the 5-year planning period

Mitigation Actions Not Included in the Hazard Mitigation Plan

During the Planning process, the HMPC proposed several ideas to improve resiliency throughout the City. All developed mitigation actions were included in the final Plan. There were no actions discussed which are not represented in the Mitigation Actions listed in Table 4.2.

4.3 Prioritization of Mitigation Recommendations

A simplified Benefit-Cost Review was applied in order to prioritize the mitigation recommendations for implementation. The priority for implementing mitigation recommendations depends upon the overall cost effectiveness of the recommendation, when taking into account monetary and non-monetary costs and benefits associated with each action. Additionally, the following questions were considered when developing the Benefit-Cost Review:

- How many people will benefit from the action?
- How large an area is impacted?
- How critical are the facilities that benefit from the action?
- Environmentally, does it make sense to do this project for the overall community?

Table 4.4 provides a detailed benefit-cost review for each mitigation recommendation, as well as a relative priority rank (High, Medium, and Low) based upon the judgment of the HMPC. The general category guidelines are listed below.

- High – Benefits are perceived to exceed costs without further study or evaluation
- Medium – Benefits are perceived to exceed costs, but may require further study or evaluation prior to implementation
- Low – Benefits and cost evaluations requires additional evaluation prior to implementation

It should be noted that the values for costs (cons) are estimates only.

Table 4.3 Benefit-Cost Review Summary Table

MITIGATION ACTIVITY	BENEFITS	COSTS	PRIORITY
2024.HMP.01: Determine whether City-owned buildings and infrastructure require structural upgrades and implement projects. This action is intended to promote government continuity during a disaster and provide stability to programs which support identified vulnerable populations.	Avoided Loss of Life/Injury Avoided Asset Damage Reduced Emergency Management Efforts Resilience for services for vulnerable populations (youth, elderly)	\$2,500,000/ project Staff Time	Medium
2024.HMP.02: Identify elderly care facilities that would need assistance during an evacuation scenario and develop a plan, as necessary, to find housing/shelter for impacted residence.	Avoided Loss of Life/Injury Reduced Emergency Management Efforts Resilience for services for vulnerable populations (elderly)	Staff Time	High
2024.HMP.03: Implement a Community Emergency Response Team (CERT) program to garner public support for proactive community involvement in mitigation and emergency preparedness. The CERT	Reduced Emergency Management Efforts	\$100,000 for materials Staff Time/	Medium

program would be leveraged to support vulnerabilities populations, as appropriate, during an emergency.	Resilience for services for vulnerable populations (youth, elderly)		
2024.HMP.04: Expand coordination with local schools to better prepare staff and students to identify, prevent, and respond to shootings/drug -related hazards, and other physical events.	Resilience for services for vulnerable populations (youth) Reduced Emergency Management Efforts Avoided Loss of Life/Injury	Staff Time	High
2024.HMP.05: Evaluate existing security features at the Community Services Buildings and implement improvements to better secure the facilities against physical attacks.	Avoided Loss of Life/Injury Avoided Asset Damage Reduced Emergency Management Efforts	\$750,000 average/facility	Low
2024.HMP.06: Implement upgrades to City Information Technology Systems to address dynamic challenges to protecting City data and infrastructure.	Resilience for services for vulnerable populations (elderly) Improvde continuity of operations Avoided Asset Damage	\$1,000,000	Medium
2024.HMP.07: Review vendor arrangements for security clauses and verify resident data is being protected adequate. Although this action will benefit the entire community,	Resilience for services for vulnerable populations (elderly) Improvde continuity of operations	Staff Time	Medium

emphasis is placed on protecting the elderly community who are often victims of cyber-attacks/identification theft.			
2024.HMP.08: Expand Public Outreach with regard to Cyber Security protection.	Resilience for services for vulnerable populations (elderly, youth)	\$30,000/ campaign Staff Time	High
2024.HMP.09: Assess drainage capacities throughout the city and determine the elements of infrastructure (catch basins and pipelines) require improvement to allow for proper drainage. The HMPC identified the Walnut Lift Station as a priority for this action due to frequent flooding issues.	Avoided Asset Damage Reduced emergency management Efforts	\$20,000,000/ project	High
2024.HMP.10: Expand public outreach to provide education to the business and the community with regard to resources for flood preparation. (I.e. roof protection, sandbag availability, CERT participation)	Resilience for services for vulnerable populations (elderly) Reduced emergency management Efforts	\$30,000/ campaign Staff Time	High
2024.HMP.11: Implement a CERT program to better utilize/prepare volunteer support to	Resilience for services for vulnerable populations (elderly)	\$100,000 for materials Staff Time/	Low

assist in emergency support, particularly in support of vulnerable populations.	Reduced emergency management Efforts Avoided Loss of Life/Injury		
2024.HMP.12: Consider structural improvements for Reservoir No. 1 in order to meet current seismic codes.	Avoided Asset Damage Improved Continuity of City Services	50,000,000	Medium
2024.HMP.13: Establish a permanent Emergency Operations Center (EOC) to adequately house emergency management equipment and provide space for training opportunities for CERT/Residents.	Improved Emergency Management Capabilities Avoided loss of Life Avoided Asset Damage Improved Continuity of City Services.	\$20,000,000	Medium
2024.HMP.14: Hire a dedicated Emergency Manager for the City to champion EOC management, emergency planning, seek grant opportunities for resilience efforts, and oversee community outreach.	Improved Emergency Management Capabilities Improved Continuity of City Services.	\$150,000/year in salary costs	Low

4.5 Implementation Strategy

Mitigation Actions classified as high-priority mitigation actions provide the most significant vulnerability reduction, as related to cost and probability, and are typically implemented before lower ranked improvements. The City of Fountain Valley, however, may find that under some circumstances that a mitigation action classified as low-priority mitigation actions may need to be implemented before a higher priority recommendation. The priority levels associated with each improvement are indicated on the “Mitigation Action Prioritization: Benefit-Cost Review” table in the previous section.

2018 Hazard Mitigation Plan Strategies

The HMPC reviewed the mitigation strategies and actions from the 2018 Hazard Mitigation Plan. The 2018 Plan outlined mitigation strategies scheduled for completion in the near future and additional projects for consideration. However, as many of these projects are contingent on the City receiving grant funding to implement, some of these have yet to be implemented.

Several of the Mitigation Strategies from the 2018 Plan have been carried through into this update. Table 4.4 on the following page provides some of the mitigation strategies from the 2018 Plan and their correlation to the current Plan. As mentioned previously, only some of the mitigation actions garnered the funding necessary for implementation. The table on the follow page denotes whether or not an action was completed since the last Plan update.

Table 4.4 Ongoing Mitigation Strategies

2018 MITIGATION STRATEGIES	CORRELATED MITIGATION STRATEGIES	STATUS
<i>HMP.2018.01:</i> Evaluate the structural and non-structural (e.g., fire protection system) integrity of critical City facilities in relation to seismic hazards	Completed – Used to purchase new location for secondary fire station. Currently under construction.	Completed
<i>HMP.2018.02:</i> Conduct an evaluation of the hazards and reliability associated with the critical equipment located in the Police Building in relation to all identified hazards.	Completed – Used to implement upgrade to Police Building to meeting current safety standards.	Completed
<i>HMP.2018.03:</i> Implementing seismic retrofits to the underground concrete tank Reservoir #2.	Redirected – The City determined seismic issues were no longer a concern for this site.	Removed
<i>HMP.2018.04:</i> Continue to replace water mains (e.g., older asbestos concrete piping) with seismically robust materials.	Removed – The City removed this project from the Plan. It will be included in a separate Pipeline Replacement effort.	Removed
<i>HMP.2018.05:</i> Evaluate the structural and non-structural (e.g., fire protection system) integrity and operability of Fire Station #1 and Fire Station #2 in relation to seismic hazards.	Redirected and Completed – This action was redirected into the purchase of the land for the secondary Fire Station currently under construction.	Completed

<i>HMP.2018.06:</i> Enhance operability for emergency response by improving emergency egress for the Police Department	Completed – Used to implement upgrade to Police Building to meeting current safety standards. Completed
<i>HMP.2018.07:</i> Consider improving site security at the #2 Reservoir, including perimeter fencing, cameras, and alarms.	Completed – The City implemented security upgrades at the site. Completed
<i>HMP.2018.08:</i> Evaluate and update security measures and practices at critical City facilities to minimize the potential for a security breach.	2024.HMP.06: Implement upgrades to City Information Technology Systems to address dynamic challenges to protecting City data and infrastructure. Ongoing
<i>HMP.2018.09:</i> Replace Walnut pump station in order to ensure sufficient capacity during severe storms.	Complete – The Pump Station equipment was replaced by the City. Completed
<i>HMP.2018.10:</i> Consider tying into the Huntington Beach desalination plant for an alternate water source to provide redundancy in the event of a drought.	Removed – This action was no longer considered a priority by the City. Removed
<i>HMP.2018.11:</i> Install backup power for critical facilities to ensure operability during emergency events	Completed – Generators were purchased for all critical City facilities. Completed

HMP.2018.12: Enhance emergency operability by implementing communication infrastructure improvements	Action was abandoned and determined to be unnecessary for the City.	Removed
HMP.2018.13: Expand public outreach to include public resources during an emergency and for pre-disaster mitigation.	Completed – The City implented an annual Disaster Expo held at the Senior Center to fulfil this action.	Completed
HMP.2018.14: Evaluate how to improve hazard information dissemination considering the specific diverse community within the City	Completed – The City has implemented providing hazard information in Spanish and Vietnamese which are the two most-widely spoken languages (other than English) within the City.	Completed
HMP.2018.15: Acquire location to house designated EOC and Department Operations Center (DOC)	Completed – The City pruchased a new location and is currently building a secondary Fire Station. The EOC will be housed at this new location.	Completed
HMP.2018.16: Conduct Emergency Drills including schools, hospitals, Red Cross, private industry, OCTA, and other essential stakeholders.	Completed – The City regularly takes part in emergencu drills with critical stakeholders.	Completed



Chapter 5

Plan Maintenance

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5.1 Mitigation Progress Monitoring

§201.6(c)(4)(i): [The plan maintenance process **shall** include a] section describing the method and schedule of **monitoring**, evaluating, and updating the mitigation plan within a five-year cycle.

The Mitigation Strategy section in the Hazard Mitigation Plan identifies mitigation actions that have been prioritized based on the loss estimates and the probability of each hazard, which will typically be implemented according to the priority rank. To thoroughly track hazard mitigation status, the City of Fountain Valley (City) must continuously monitor and document the progress of the implementation of mitigation actions. Though mitigation actions may be delegated to different departments within the City, the Fire

Marshal will have the responsibility of monitoring overall progress.

To facilitate this monitoring process, Table 5.7: “Action Item Implementation” was developed to provide a mechanism for monitoring the overall implementation progress. The table is designed to monitor mitigation actions according to project managers, project status, and project milestones. The table can be found at the end of this chapter.



5.2 Planning Mechanisms

§201.6(c)(4)(ii): [The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

The City maintains the following processes to incorporate mitigation strategies of the Hazard Mitigation Plan into planning mechanisms:

Website

The City’s HMP will be posted on the City website to enable citizens to review and provide feedback regarding mitigation objectives and strategies. Feedback from residents can be incorporated during the annual review or five-year update of the HMP. In addition, the website can be used as a vehicle to maintain an ongoing conversation with the public regarding upcoming mitigation projects and provide an avenue for hazard education.

City Council

The City Council is responsible for approving projects, plans, and programs on a citywide level. By providing mitigation planning concepts to the City Council, mitigation actions and projects will be incorporated into relevant planning efforts. The Fire Department can work with Council Members to encourage the inclusion of mitigation goals and objectives for any project or planning efforts which are reviewed by the council.

Public Works Department

This department provides infrastructure and maintenance services to City assets and to the public. The Public Works Department is broken down into four divisions, Utilities, General Services, Engineering, and Environmental. Hazard mitigation will be integrated into Public Works programs through its involvement in the Steering Committee. In addition, the Public Works Department is in charge of seismic retrofits.

Planning and Building Department

The City Planning Department is generally involved in land use, general planning, developments, and residential projects; thus, mitigation can be incorporated into potential projects. The Department is responsible for enforcing the local building codes and ensuring that minimum code standards, including National Flood Insurance Program compliance, are maintained.

Housing and Community Development Department

The Housing and Community Development Department provides support to a number of programs related to physical housing and neighborhood preservation. Through this department, the City is able to incorporate hazard mitigation into community development.

Assembly Bill (AB) 2140

Passed in 2006, AB 2140 compliance would allow the City to be considered for additional state cost-share on eligible Public Assistance. To be eligible, the City must have an approved Hazard Mitigation Plan and adopt that plan into the Safety Element of the City's general plan. Although currently the hazard mitigation plan has not been adopted into the City's Safety Element, doing so would allow the City to bring in more grant funding and reduce the administrative burden of implementing mitigation projects. The City intends to adopt the current plan into the City's Safety Element for future planning purposes.

Grant Funding

Grant Funding can be obtained through many different Federal, State, and specialty organizations. Searching for and obtaining additional funding for the City allows the City to implement improvement projects while limiting the burden of project costs. As part of the implementation strategy of this plan, obtaining grant funding will be crucial to the success of implementing large mitigation actions. Table 5.4 Grant Funding includes a list of some of the programs the City can explore to obtain supplemental funding to implement resiliency action.

Resource Tables

This section serves as a high-level capability assessment of the City's resources through which hazard mitigation objectives may be achieved. The following subsections attempt to document the Planning/Regulatory, Administrative/Technical, Fiscal, Grant funding, and Outreach/Partnership resources available to the City.

Table 5.1: Planning/Regulatory Tools Table

Regulatory Tool	Updated	Comments
“City of Fountain Valley General Plan Update”	2023	Plan outlines how the City is organized with regards to area such as land use, safety, different conservation efforts, and economic resilience and development.
City Ordinance for Water Conservation Regulations	2009	Ordinance outlines legality and framework for imposing water use restrictions and fines in times of water shortage.
Urban Water Management Plan	2020	The plan provides water supply planning for a 25-year planning period in 5-year increments. The plan identifies water supplies for existing and future demands; quantifies water demands during the normal year, single-dry year, and multiple-dry years; and identifies supply reliability under the three hydrological conditions.
Security Vulnerability Assessment	2017	Plan outlines potential vulnerabilities for security breaches and makes recommendation for improvement in order to mitigate potential adversarial events.

Table 5.2: Administrative/Technical Tools Table

Administrative/Technical Tool	Personnel/Resources
Emergency Management Division	The Emergency Manager, along with the Fire Marshal is responsible for emergency preparedness and hazard mitigation planning. This is the department ultimately responsible for promoting the implementation of hazard mitigation objectives.
Fire Department	The Fire Department is the seat of the emergency management division and will oversee its accomplishments. In addition, the Department has the authority to inspect facilities storing hazardous materials for proper storage, host public education campaigns, and inspect building structures.
Police Department	The Police Department is able to support public outreach and may assist in identifying areas of improvement for resistance to civil unrest and adversarial events.
City Council	The City Council can review and approve mitigation propositions for implementation.
Advisory Committee for the Disabled	This committee seeks to ensure the disabled population is considered in public planning and projects
Planning Commission	This commission reviews planning documents for the City and will help promote considerations for hazard mitigation in future planning documents.

Community Development Department	The Community Development Department is response for all developments within the City. This department will be able to include considerations for local hazards in new projects.
Public Works	The Public Works Department is responsible for street improvements and overall City maintenance. This department can implement hazard mitigation activities as part of planned maintenance and City upgrades.
Administration	Administration is a multi-faceted resource. The City may utilize experts in its many departments.

Table 5.3: Fiscal Tools Table

Fiscal Tool	Available for Use
General Fund	Yes, with approval
Capital Improvement Plan	Yes
Water Fund	Yes
Authority to impose taxes for specific purposes	Yes, with voter approval

Table 5.4 Grant Funding Tools Table

Grant Funding Tool	Agency	Purpose	Contact
Pre-Disaster Mitigation Program (PDM)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To provide funding for States, and communities for cost-effective hazard mitigation activities which complement a comprehensive hazard mitigation program and reduce injuries, loss of life, and damage and deconstruction of property.	FEMA 500 C. Street, SW Washington, DC 20472 Phone: (202) 646-4621 www.fema.gov
Hazard Mitigation Grant Program	U.S. Department of Homeland Security, Federal Emergency Management Agency	To prevent future losses of lives property due to disasters; to implement State of local hazard mitigation plans; to enable mitigation measures to be implemented during immediate recovery from a disaster; and to provide funding for previously identified mitigation measures to benefit the disaster area.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov

Flood Mitigation Assistance (FMA)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To help States and communities plan and carry out activities designed to reduce the risk of flood damage to structures insurable under the NFIP.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Emergency Management Performance Grants (EMPG)	U. S. Department of Homeland Security; Federal Emergency Management Agency	To encourage the development of comprehensive emergency management at the State and local level and to improve emergency management planning, preparedness, mitigation, response, and recovery capabilities.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Community Development Grant Program (CDBG)	U.S. Department of Housing and Urban Development	To develop viable urban communities by providing decent housing and a suitable living environment. Principally for low-to-moderate income individuals.	HUD 451 7 th Street, S. W. Washington, DC 20410-7000 Phone: (202) 708-3587 www.hud.gov
Public Assistance Program (PA)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To provide supplemental assistance to States, local governments, and certain private nonprofit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President. Under Section 406, Public Assistance funds may be used to mitigate the impact of future disasters.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Emergency Watershed Protection	U.S. Department of Agriculture, Natural Resource Conservation Service	To provide emergency technical and financial assistance to install or repair structures that reduce runoff and prevent soil erosion to safeguard life and property.	NRCS PO BOX 2890 Washington, DC 20013 Phone: (202) 720-3527 www.nrcs.usda.gov
Disaster Mitigation and Technical Assistance Grants	U.S. Department of Commerce, Economic Development Administration	To help States and localities to develop and /or implement a variety of disaster mitigation strategies.	EDA Herbert C. Hoover Building Washington, DC 20230 Phone: (800) 345-1222 www.eda.gov
Watershed Surveys and Planning	U.S. Department of Agriculture, Natural Resource Conservation Service	To provide planning assistance to Federal, State, and local agencies for the development of coordination water and related land resources programs in watersheds and river basins	NRCS PO Box 2890 Washington, DC 20013 Phone: (202) 720-3527 www.nrcs.usda.gov

National Earthquake Hazards Reduction Program (NEHRP)	U.S. Department of Homeland Security, Federal Emergency Management Agency	To mitigate earthquake losses that can occur in many parts of the nation providing earth science data and assessments essential for warning of imminent damaging earthquakes, land-use planning, engineering design, and emergency preparedness decisions.	FEMA 500 C Street S.W. Washington, DC 20472 Phone (202) 646-4621 www.fema.gov
Engineering for Natural Hazards	National Science Foundation	Supports fundamental research that advances knowledge for understanding and mitigating the impact of natural hazards on constructed civil infrastructure	National Science Foundation Phone: (703) 292-7024 https://www.nsf.gov

Table 5.5 Outreach and Partnership Tools

Outreach Tool	Available for Use
City Website	The City website is an open forum for providing hazard information and for accepting ongoing comments from the public. The City website will likely be the main avenue for maintaining an open dialogue with the public for hazard mitigation throughout the planning period.
Mutual Aid Agreements	As part of expanding its resilience to the impacts of hazard events, the City will periodically review its current mutual aid agreements, identify gaps, and secure new agreements to expand its available mutual resources when necessary.

Building on Existing Capabilities

As part of the Plan update, potential improvements to the City's existing capabilities were discussed. The City is cognizant of the need to continually evaluate its efforts and take an active role in promoting resiliency within the City. The City currently utilizes the Fire Department to train its staff and reach out to the community regarding preventative and preparedness strategies for hazard events. The Capital Improvement Program (CIP) directs funding to improve infrastructure, and the City continually searches for grant opportunities to allow the City to accomplish additional improvements that address hazard mitigation efforts for public facilities. In addition to the City's current efforts, the following is a list of potential new initiatives that would improve the City's ability to promote resiliency.

- **Regulatory/Fiscal:** Enhance the CIP proposal procedure to include a Mitigation/Resiliency element to be considered for each project proposal. The intent is to consider how each CIP project might contribute to mitigation efforts, citing the HMP when proposed projects align with hazard mitigation planning efforts.
- **Administrative:** Expand the Community Safety Division's programs sufficiently to provide specialized natural disaster training and safety for City personnel and the public, as appropriate.
- **Grant Funding:** Expand search for grant funding specifically to assist with aging infrastructure improvements, water reliability, energy efficiency, and facility upgrades.
- **Outreach/Education:** Implement a CERT Team and increase volunteer opportunities to work with the public to gain community participation in resiliency efforts and voluntary resilience projects for privately-owned properties.

Progress for Mitigation Incorporation

The sections above demonstrate the many resources available to the City for successful mitigation action implementation. Some of these resources have already proven their usefulness through successful action implementation over the last planning period. For example, since the last update, the City has been able to obtain support for translating emergency messages into Spanish and Vietnamese to better serve the non-English speaking community. Additionally, since the last update, the City has expanded public outreach by initiating the annual Disaster Expo at the Senior Center to raise awareness and provide education on disaster preparedness.

Available Planning Mechanisms to Incorporate Mitigation Requirements

The City uses the following local planning mechanisms for incorporating the mitigation requirements of the Hazard Mitigation Plan.

General Planning

The City is responsible for updating and incorporating mitigation actions and concepts into the Fountain Valley General Plan. The General Plan, which is currently under revision, is evaluated on a periodic basis which includes a review of the policies and programs associated with land use and development. Action Items from the HMP will be reviewed during the current update and incorporated, as applicable. As part of this review, ordinances and codes will be reviewed to ensure they are consistent with the mitigation strategies and referred to the appropriate regulatory authority, as needed.

Capital Improvements Plan

The City maintains a Capital Improvements Plans (CIP) with projects that are budgeted for at least a five-year period. Engineering mitigation projects are included within the Capital Improvements Plan. Additionally, the projects already included within the Capital Improvements Plan are reviewed for mitigation improvements (e.g., areas prone to flooding are configured with mitigation elements, new reservoirs are reviewed to ensure they configured with seismic flexible joints, current seismic design criteria are applied to pipeline construction, facility locations are reviewed for special hazards, etc.).

Emergency Operations Plan

The Emergency Operations Plan (EOP) is periodically updated and includes specific response procedures to identified hazards. In order to ensure the plan includes an appropriate response, the EOP update will incorporate the risk assessment element of the Hazard Mitigation Plan. In addition, many of the mitigation actions identified by the City are geared toward emergency response and the EOP will be updated to reflect the implemented mitigation actions.

Codes and Ordinances

The City has several codes and ordinances, taken from the Fountain Valley Municipal Code, in place to enforce hazard mitigation, including:

18.06.090 Liquefaction Study

This article allows the building official to require a geotechnical study for areas subject to potential liquefaction as identified by several factors, including shallow groundwater, or designated seismic zones.

21.14.040 Floodplain (-FP) Overlay Zoning District – Flood Damage Prevention

The City also implements flood hazard mitigation through its floodplain management zoning code as described in Chapter 4.3.

21.14.050 Seismic Hazard (-SH) Overlay Zoning District

The City created this zoning district to address potential seismic and liquefaction hazards. In these designated areas, the building official may require special design requirements or site-specific soil reports in order to minimize hazards.

5.3 Periodic Assessment Requirements

§201.6(c)(4)(i): [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, **evaluating**, and updating the mitigation plan within a five-year cycle.

Mitigation planning is an ongoing process, and as such, the Hazard Mitigation Plan should be treated as a living document that must grow and adapt in order to keep pace with changes within the City. Continuing from the 2018 Plan, an annual assessment will be completed to document any changes in site hazards (e.g., updated FIRM maps, contemporary seismic studies, etc.) or the installation and purchase of new equipment (e.g., back-up generators, emergency response equipment, etc.) to

ensure they do not have any major effects on City's hazard vulnerabilities that would impact the conclusions or actions associated with the Hazard Mitigation Plan. In addition, these reviews will track the progress of proposed mitigation actions and the incorporation of mitigation planning in other City planning documents. As needed, these reviews can be used to promote mitigation action with the City or alter mitigation strategies within the plan, as appropriate. If any of the above-mentioned goals have not made progress, Plan objectives can be brought to department heads for approval. The criteria for progress will be evaluated by the completion of mitigation actions, references of this Plan in planning mechanisms, and the frequency with which public comments, particularly from representatives of vulnerable groups, are obtained.

Prior to the fifth year of the revision cycle and after the third annual review, these annual observations will be evaluated to determine what changes should be implemented in the required Hazard Mitigation Plan Update. The results of the annual evaluations will be folded back into each phase of the planning process and should yield decisions on how to update each section of the Plan. The official Plan update is expected to begin one year prior to the five-year anniversary date.

The Fire Marshal has the responsibility of implementing these annual and five-year requirements. During the annual review, if any updates are deemed minor, then the Fire Marshal or designee will perform the updates. However, if more major updates are required, then the Hazard Mitigation Planning Committee (HMPC) will be reconvened to discuss the effects on the Plan. For the fifth-year revision, the entire HMPC will reconvene in order to use their expertise to update the Plan in its entirety.

In addition to these periodic requirements, any significant modification to the City's facilities should be considered with respect to a possible impact on the Hazard Mitigation Plan. All HMPC members are responsible for providing updates for the Plan to the Fire Marshal, as necessary. As noted in the following section, the completed Hazard Mitigation Plan will be available on the City's website to allow the public to continue to be involved during these periodic reviews.

5.4 Update Requirements

The Emergency Management and Assistance regulations (44 CFR Part 201) state that it is the responsibility of local agencies (i.e., the City) to “at a minimum, review and, if necessary, update the local mitigation plan every five years from date of plan approval to continue program eligibility.” As stated in Section 5.3, this responsibility lies with the Fire Marshal. The evaluation procedures listed below will provide insight into the major changes that need to be included in the five-year update and resubmission to FEMA:

- Annual Hazard Mitigation Plan review with respect to changes in hazard vulnerability (e.g., additional hazards identified, natural hazard events, etc.)
- Annual Hazard Mitigation Plan review with respect to development of new facilities
- Five-year comprehensive update to address the findings of the annual reviews
- Re-submittal of the updated Hazard Mitigation Plan to CalOES/FEMA

Additionally, the risk assessment portion of the plan will be reviewed to determine if the information should be updated or modified. Each division/department responsible for the various implementation actions will report on:

- Status of their projects,
- Implementation processes,
- Any difficulties encountered,
- How coordination efforts are proceeding, and
- Strategies that should be revised.

Plan Update

The City's Hazard Mitigation Plan was last updated in 2018. During HMPC Meeting #2, the Plan goals were reviewed for consistency and applicability to the City, along with the goals from the 2023 California State Hazard Mitigation Plan and 2021 Orange County All-Hazards Mitigation Plan. Table 5.6 illustrates the changes in the priorities of the Plan.

Table 5.6: Hazard Mitigation Plan Goals

2018 Plan Goals	Current Plan Goals
Protect Life and Property	Protect Life and Property
Promote Public Awareness and Outreach	Promote Public Awareness and Outreach
Promote Partnerships and Implementation	Promote Partnerships and Implementation
Improve Emergency Services and Management Capability	Enhance Emergency Services and Management Capability

As shown in Table 5.6, the overall Plan goals did not change significantly. However, Plan objectives were updated to further clarify how the City wanted to achieve the Plan goals. Details of the Plan objectives can be found in Chapter 4 of this Plan.

Continued Public Involvement

To facilitate ongoing public input, the completed and adopted Hazard Mitigation Plan will be posted on the City’s website and social media outlets to allow the public to remain engaged and provide feedback. The website will include a link to a contact form allowing the public to submit comments. When updating the Hazard Mitigation Plan, the City will solicit participation from HMPC participants to discuss any issues that need to be addressed in the Hazard Mitigation Plan update. Public participation will be solicited through public notices and advertised on the website.

The goal of outreach is to solicit public involvement in the HMPC, which brainstorms the hazards facing the City and discusses ways to mitigate those hazards. The public was encouraged to participate in the hazard mitigation process through discussions at City events. The City can use the feedback from those discussions when deciding which mitigation action to implement. It can generally be assumed that actions reducing risk for the hazards discussed with the public will be well received by the community. More detailed information regarding the survey results can be found in Chapter 1 and Appendix D.

If Plan revisions are needed, City will request involvement from vulnerable groups within the City. It is anticipated that public announcements via the website will be supplemented by targeted outreach materials—such as letters and surveys—that City representatives will deliver to representatives of vulnerable communities. This will guarantee that outreach efforts directed towards obtaining the involvement of vulnerable populations are more extensive.

As part of future efforts, the City is determined to include a wider group of representative groups in the planning process and further expand its concept of vulnerability throughout the City particularly where it involves vulnerable populations. This is likely to be completed through the aid of local charity groups, the Chamber of Commerce, and additional City personnel with special information regarding particular groups at risk within the City.

Table 5.7: Action Item Implementation

Action ID	Action Description	Responsible Department	Completion Timeframe	Status	Details/Status Summary
2024.HMP.01	Determine whether City-owned buildings and infrastructure require structural upgrades and implement projects. This action is intended to promote government continuity during a disaster and provide stability to programs which support identified vulnerable populations.	Public Works	Long	Open	
2024.HMP.02	Identify elderly care facilities that would need assistance during an evacuation scenario and develop a plan, as necessary, to find housing/shelter for impacted residence.	Fire Department	Medium	Open	
2024.HMP.03	Implement a Community Emergency Response Team (CERT) program to garner public support for proactive community involvement in mitigation and emergency preparedness. The CERT program would be leveraged to support vulnerabilities populations, as appropriate, during an emergency.	Police Department	Medium	Open	
2024.HMP.04	Expand coordination with local schools to better prepare staff and students to identify, prevent, and respond to shootings/drug -related hazards, and other physical events.	Police Department	Short	Open	
2024.HMP.05	Evaluate existing security features at the Community Services Buildings and implement improvements to better secure the facilities against physical attacks.	IT Department/ Police Department	Medium	Open	
2024.HMP.06	Implement upgrades to City Information Technology Systems to address dynamic challenges to protecting City data and infrastructure.	IT Department	Long	Open	
2024.HMP.07	Review vendor arrangements for security clauses and verify resident data is being protected adequate. Although this action will benefit the entire community,	IT Department/ Administration	Short	Open	

	emphasis is placed on protecting the elderly community who are often victims of cyber-attacks/identification theft.				
2024.HMP.08	Expand Public Outreach with regard to Cyber Security protection.	Fire Department/ IT Department	Short	Open	
2024.HMP.09	Assess drainage capacities throughout the city and determine the elements of infrastructure (catch basins and pipelines) require improvement to allow for proper drainage. The LHMP Team identified the Walnut Lift Station as a priority for this action due to frequent flooding issues.	Public Works	Medium	Open	
2024.HMP.10	Expand public outreach to provide education to the business and the community with regard to resources for flood preparation. (I.e. roof protection, sandbag availability, CERT participation)	Fire Department	Short	Open	
2024.HMP.11	Implement a CERT program to better utilize/prepare volunteer support to assist in emergency support, particularly in support of vulnerable populations.	Fire Department	Long	Open	
2024.HMP.12	Consider structural improvements for Reservoir No. 1 in order to meet current seismic codes.	Public Works	Medium	Open	
2024.HMP.13	Establish a permanent Emergency Operations Center (EOC) to adequately house emergency management equipment and provide space for training opportunities for CERT/Residents.	Fire Department	Long	Open	
2024.HMP.14	Hire a dedicated Emergency Manager for the City to champion EOC management, emergency planning, seek grant opportunities for resilience efforts, and oversee community outreach.	Fire Department	Long	Open	

Note: Timeframe definitions are as follows.

- a) Short: Task to be completed within 1-2 years
- b) Medium Task to be completed within 3-5 years
- c) Long: Task to be completed after the 5-year planning period

ANNEX A. GLOSSARY

Active fault - For implementation of Alquist-Priolo Earthquake Fault Zoning Act (APEFZA) requirements, an active fault is one that shows evidence of, or is suspected of having experienced surface displacement within the last 11,000 years. APEFZA classification is designed for land use management of surface rupture hazards. A more general definition (National Academy of Science, 1988), states "a fault that on the basis of historical, seismological, or geological evidence has the finite probability of producing an earthquake" (see potentially active fault).

Aftershocks - Minor earthquakes following a greater one and originating at or near the same place.

Asset - Any man-made or natural feature that has value, including, but not limited to people, buildings, infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

A zone - Under the National Flood Insurance Program, area subject to inundation by the 100-year flood where wave action does not occur or where waves are less than 3 feet high, designated Zone A, AE, A1-A30, A0, AH, or AR on a Flood Insurance Rate Map (FIRM).

Base flood - Flood that has a 1 percent probability of being equaled or exceeded in any given year. Also known as the 100-year flood.

Bedrock - The solid rock that underlies loose material, such as soil, sand, clay, or gravel.

Contour - A line of equal ground elevation on a topographic (contour) map.

Critical facility - Facilities that are critical to the health and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.

Debris - (Seismic) The scattered remains of something broken or destroyed; ruins; rubble; fragments. (Flooding, Coastal) Solid objects or masses carried by or floating on the surface of moving water.

Debris flow - A saturated, rapidly moving saturated earth flow with 50 percent rock fragments coarser than 2 mm in size which can occur on natural and graded slopes.

Duration - How long a hazard event lasts.

Earthquake - Vibratory motion propagating within the Earth or along its surface caused by the abrupt release of strain from elastically deformed rock by displacement along a fault.

Epicenter - The point at the Earth's surface directly above where an earthquake originated.

Erosion - Under the National Flood Insurance Program, the process of the gradual wearing away of landmasses. In general, erosion involves the detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.

Essential facility - Elements that are important to ensure a full recovery of a community or state following a hazard event. These would include: government functions, major employers, banks, schools, and certain commercial establishments, such as grocery stores, hardware stores, and gas stations.

Extent - The size of an area affected by a hazard or hazard event.

Fault - A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.

Fault slip rate - The average long-term movement of a fault (measured in cm/year or mm/year) as determined from geologic evidence.

Federal Emergency Management Agency (FEMA) - Independent agency created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response and recovery.

Flash flood - A flood event occurring with little or no warning where water levels rise at an extremely fast rate.

Flood - A general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.

Floodplain - Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.

Frequency - A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average and would have a 1 percent chance – its probability – of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

Geographic Information Systems (GIS) - A computer software application that relates physical features on the Earth to a database to be used for mapping and analysis.

Ground motion - The vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter, but soft soils can further amplify ground motions.

Ground rupture - Displacement of the earth's surface as a result of fault movement associated with an earthquake.

Hailstorm – Storm associated with spherical balls of ice. Hail is a product of thunderstorms or intense showers. It is generally white and translucent, consisting of liquid or snow particles encased with layers of ice. Hail is formed within the higher reaches of a well-developed thunderstorm. When hailstones become too heavy to be caught in an updraft back into the clouds of the thunderstorm (hailstones can be caught in numerous updrafts adding a coating of ice to the original frozen droplet of rain each time), they fall as hail and a hailstorm ensues.

Hazard - A source of potential danger or adverse condition. Hazards in this how-to series will include naturally occurring events such as floods, earthquakes, tornadoes, tsunamis, coastal storms, landslides, and wildfires that strike populated areas. A natural event is a hazard when it has the potential to harm people or property.

Hazard event - A specific occurrence of a particular type of hazard.

Hazard identification - The process of identifying hazards that threaten an area.

Hazard mitigation - Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.

Hazard Mitigation Grant Program (HMGP) – Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard

mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazard Mitigation Plan – A collaborative document in which hazards affecting the community are identified, vulnerability to hazards assessed, and consensus reached on how to minimize or eliminate the effects of these hazards.

Hazard profile - A description of the physical characteristics of hazards and a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

Hazardous Material Facilities – Facilities housing industrial and hazardous materials, such as corrosives, explosives, flammable materials, radioactive materials, and toxins.

HAZUS (Hazards U.S.) - A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA.

Hurricane - An intense tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74-miles-per-hour or more and blow in a large spiral around a relatively calm center or "eye." Hurricanes develop over the north Atlantic Ocean, northeast Pacific Ocean, or the south Pacific Ocean east of 160°E longitude. Hurricane circulation is counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Hydrology - The science of dealing with the waters of the earth. A flood discharge is developed by a hydrologic study.

Infrastructure - Refers to the public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, drydocks, piers and regional dams.

Landslide - A general term covering a wide variety of mass-movement landforms and processes involving the downslope transport, under gravitational influence, of soil and rock material en masse.

Liquefaction - Changing of soils (unconsolidated alluvium) from a solid state to weaker state unable to support structures; where the material behaves similar to a liquid as a consequence of earthquake shaking. The transformation of cohesionless soils from a solid or liquid state as a result of increased pore pressure and reduced effective stress.

Magnitude - A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures specific to the hazard.

Mitigation plan - A systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in the state and includes a description of actions to minimize future vulnerability to hazards.

Nor'easter - An extra-tropical cyclone producing gale-force winds and precipitation in the form of heavy snow or rain.

Peak Ground Acceleration (PGA) - The greatest amplitude of acceleration measured for a single frequency on an earthquake accelerogram. The maximum horizontal ground motion generated by an earthquake. The measure of this motion is the acceleration of gravity (equal to 32 feet per second squared, or 980 centimeter per second squared), and generally expressed as a percentage of gravity.

Potentially active fault - A fault showing evidence of movement within the last 1.6 million years (750,000 years according to the U.S. Geological Survey) but before about 11,000 years ago, and that is capable of generating damaging earthquakes.

Probability - A statistical measure of the likelihood that a hazard event will occur.

Replacement value - The cost of rebuilding a structure. This is usually expressed in terms of cost per square foot and reflects the present-day cost of labor and materials to construct a building of a particular size, type and quality.

Retrofit - Any change made to an existing structure to reduce or eliminate damage to that structure from flooding, erosion, high winds, earthquakes, or other hazards

Richter scale - A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935. Seismologists no longer use this magnitude scale because of limitations in how it measures large earthquakes and prefer instead to use moment magnitude as a measure of the energy released during an earthquake.

Risk - The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse

condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Seismicity - Describes the likelihood of an area being subject to earthquakes.

Tectonic plate - Torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.

Topographic - Characterizes maps that show natural features and indicate the physical shape of the land using contour lines. These maps may also include manmade features.

Tornado - A violently rotating column of air extending from a thunderstorm to the ground.

Tsunami - Great sea wave produced by a submarine earthquake, landslide, or volcanic eruption.

Vulnerability - Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power – if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

Vulnerability assessment - The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard events on the existing and future built environment.

Wildfire - An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

Zone - A geographical area shown on a Flood Insurance Rate Map.

100-year flood – A flood that has a 1-percent chance of being equaled or exceeded in any given year. This flood event is also referred to as the base flood. The term "100-year flood" can be misleading; it is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1- percent chance of being equaled or exceeded each year. Therefore, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most federal and state

agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management to determine the need for flood insurance.

500-year flood – A flood that has a 0.2-percent chance of being equaled or exceeded in any one year.

PUBLIC LAW 106-390—OCT. 30, 2000

DISASTER MITIGATION ACT OF 2000

Public Law 106–390
106th Congress

An Act

Oct. 30, 2000
[H.R. 707]

To amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act to authorize a program for predisaster mitigation, to streamline the administration of disaster relief, to control the Federal costs of disaster assistance, and for other purposes.

Disaster
Mitigation Act of
2000.
42 USC 5121
note.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) **SHORT TITLE.**—This Act may be cited as the “Disaster Mitigation Act of 2000”.

(b) **TABLE OF CONTENTS.**—The table of contents of this Act is as follows:

Sec. 1. Short title; table of contents.

TITLE I—PREDISASTER HAZARD MITIGATION

Sec. 101. Findings and purpose.

Sec. 102. Predisaster hazard mitigation.

Sec. 103. Interagency task force.

Sec. 104. Mitigation planning; minimum standards for public and private structures.

TITLE II—STREAMLINING AND COST REDUCTION

Sec. 201. Technical amendments.

Sec. 202. Management costs.

Sec. 203. Public notice, comment, and consultation requirements.

Sec. 204. State administration of hazard mitigation grant program.

Sec. 205. Assistance to repair, restore, reconstruct, or replace damaged facilities.

Sec. 206. Federal assistance to individuals and households.

Sec. 207. Community disaster loans.

Sec. 208. Report on State management of small disasters initiative.

Sec. 209. Study regarding cost reduction.

TITLE III—MISCELLANEOUS

Sec. 301. Technical correction of short title.

Sec. 302. Definitions.

Sec. 303. Fire management assistance.

Sec. 304. Disaster grant closeout procedures.

Sec. 305. Public safety officer benefits for certain Federal and State employees.

Sec. 306. Buy American.

Sec. 307. Treatment of certain real property.

Sec. 308. Study of participation by Indian tribes in emergency management.

**TITLE I—PREDISASTER HAZARD
MITIGATION**

42 USC 5133
note.

SEC. 101. FINDINGS AND PURPOSE.

(a) **FINDINGS.**—Congress finds that—

(1) natural disasters, including earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires, pose great danger to human life and to property throughout the United States;

(2) greater emphasis needs to be placed on—

(A) identifying and assessing the risks to States and local governments (including Indian tribes) from natural disasters;

(B) implementing adequate measures to reduce losses from natural disasters; and

(C) ensuring that the critical services and facilities of communities will continue to function after a natural disaster;

(3) expenditures for postdisaster assistance are increasing without commensurate reductions in the likelihood of future losses from natural disasters;

(4) in the expenditure of Federal funds under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.), high priority should be given to mitigation of hazards at the local level; and

(5) with a unified effort of economic incentives, awareness and education, technical assistance, and demonstrated Federal support, States and local governments (including Indian tribes) will be able to—

(A) form effective community-based partnerships for hazard mitigation purposes;

(B) implement effective hazard mitigation measures that reduce the potential damage from natural disasters;

(C) ensure continued functionality of critical services;

(D) leverage additional non-Federal resources in meeting natural disaster resistance goals; and

(E) make commitments to long-term hazard mitigation efforts to be applied to new and existing structures.

(b) **PURPOSE.**—The purpose of this title is to establish a national disaster hazard mitigation program—

(1) to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters; and

(2) to provide a source of predisaster hazard mitigation funding that will assist States and local governments (including Indian tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster.

SEC. 102. PREDISASTER HAZARD MITIGATION.

(a) **IN GENERAL.**—Title II of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5131 et seq.) is amended by adding at the end the following:

“SEC. 203. PREDISASTER HAZARD MITIGATION.

“(a) **DEFINITION OF SMALL IMPOVERISHED COMMUNITY.**—In this section, the term ‘small impoverished community’ means a community of 3,000 or fewer individuals that is economically disadvantaged, as determined by the State in which the community is located and based on criteria established by the President.

“(b) **ESTABLISHMENT OF PROGRAM.**—The President may establish a program to provide technical and financial assistance to States and local governments to assist in the implementation of

President.
42 USC 5133.

predisaster hazard mitigation measures that are cost-effective and are designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities under the jurisdiction of the States or local governments.

“(c) APPROVAL BY PRESIDENT.—If the President determines that a State or local government has identified natural disaster hazards in areas under its jurisdiction and has demonstrated the ability to form effective public-private natural disaster hazard mitigation partnerships, the President, using amounts in the National Predisaster Mitigation Fund established under subsection (i) (referred to in this section as the ‘Fund’), may provide technical and financial assistance to the State or local government to be used in accordance with subsection (e).

“(d) STATE RECOMMENDATIONS.—

“(1) IN GENERAL.—

“(A) RECOMMENDATIONS.—The Governor of each State may recommend to the President not fewer than five local governments to receive assistance under this section.

“(B) DEADLINE FOR SUBMISSION.—The recommendations under subparagraph (A) shall be submitted to the President not later than October 1, 2001, and each October 1st thereafter or such later date in the year as the President may establish.

“(C) CRITERIA.—In making recommendations under subparagraph (A), a Governor shall consider the criteria specified in subsection (g).

“(2) USE.—

“(A) IN GENERAL.—Except as provided in subparagraph (B), in providing assistance to local governments under this section, the President shall select from local governments recommended by the Governors under this subsection.

“(B) EXTRAORDINARY CIRCUMSTANCES.—In providing assistance to local governments under this section, the President may select a local government that has not been recommended by a Governor under this subsection if the President determines that extraordinary circumstances justify the selection and that making the selection will further the purpose of this section.

“(3) EFFECT OF FAILURE TO NOMINATE.—If a Governor of a State fails to submit recommendations under this subsection in a timely manner, the President may select, subject to the criteria specified in subsection (g), any local governments of the State to receive assistance under this section.

“(e) USES OF TECHNICAL AND FINANCIAL ASSISTANCE.—

“(1) IN GENERAL.—Technical and financial assistance provided under this section—

“(A) shall be used by States and local governments principally to implement predisaster hazard mitigation measures that are cost-effective and are described in proposals approved by the President under this section; and

“(B) may be used—

“(i) to support effective public-private natural disaster hazard mitigation partnerships;

“(ii) to improve the assessment of a community’s vulnerability to natural hazards; or

President.

“(iii) to establish hazard mitigation priorities, and an appropriate hazard mitigation plan, for a community.

“(2) DISSEMINATION.—A State or local government may use not more than 10 percent of the financial assistance received by the State or local government under this section for a fiscal year to fund activities to disseminate information regarding cost-effective mitigation technologies.

“(f) ALLOCATION OF FUNDS.—The amount of financial assistance made available to a State (including amounts made available to local governments of the State) under this section for a fiscal year—

“(1) shall be not less than the lesser of—

“(A) \$500,000; or

“(B) the amount that is equal to 1.0 percent of the total funds appropriated to carry out this section for the fiscal year;

“(2) shall not exceed 15 percent of the total funds described in paragraph (1)(B); and

“(3) shall be subject to the criteria specified in subsection (g).

“(g) CRITERIA FOR ASSISTANCE AWARDS.—In determining whether to provide technical and financial assistance to a State or local government under this section, the President shall take into account—

“(1) the extent and nature of the hazards to be mitigated;

“(2) the degree of commitment of the State or local government to reduce damages from future natural disasters;

“(3) the degree of commitment by the State or local government to support ongoing non-Federal support for the hazard mitigation measures to be carried out using the technical and financial assistance;

“(4) the extent to which the hazard mitigation measures to be carried out using the technical and financial assistance contribute to the mitigation goals and priorities established by the State;

“(5) the extent to which the technical and financial assistance is consistent with other assistance provided under this Act;

“(6) the extent to which prioritized, cost-effective mitigation activities that produce meaningful and definable outcomes are clearly identified;

“(7) if the State or local government has submitted a mitigation plan under section 322, the extent to which the activities identified under paragraph (6) are consistent with the mitigation plan;

“(8) the opportunity to fund activities that maximize net benefits to society;

“(9) the extent to which assistance will fund mitigation activities in small impoverished communities; and

“(10) such other criteria as the President establishes in consultation with State and local governments. President.

“(h) FEDERAL SHARE.—

“(1) IN GENERAL.—Financial assistance provided under this section may contribute up to 75 percent of the total cost of mitigation activities approved by the President.

“(2) SMALL IMPOVERISHED COMMUNITIES.—Notwithstanding paragraph (1), the President may contribute up to 90 percent of the total cost of a mitigation activity carried out in a small impoverished community.

“(i) NATIONAL PREDISASTER MITIGATION FUND.—

“(1) ESTABLISHMENT.—The President may establish in the Treasury of the United States a fund to be known as the ‘National Predisaster Mitigation Fund’, to be used in carrying out this section.

“(2) TRANSFERS TO FUND.—There shall be deposited in the Fund—

“(A) amounts appropriated to carry out this section, which shall remain available until expended; and

“(B) sums available from gifts, bequests, or donations of services or property received by the President for the purpose of predisaster hazard mitigation.

“(3) EXPENDITURES FROM FUND.—Upon request by the President, the Secretary of the Treasury shall transfer from the Fund to the President such amounts as the President determines are necessary to provide technical and financial assistance under this section.

“(4) INVESTMENT OF AMOUNTS.—

“(A) IN GENERAL.—The Secretary of the Treasury shall invest such portion of the Fund as is not, in the judgment of the Secretary of the Treasury, required to meet current withdrawals. Investments may be made only in interest-bearing obligations of the United States.

“(B) ACQUISITION OF OBLIGATIONS.—For the purpose of investments under subparagraph (A), obligations may be acquired—

“(i) on original issue at the issue price; or

“(ii) by purchase of outstanding obligations at the market price.

“(C) SALE OF OBLIGATIONS.—Any obligation acquired by the Fund may be sold by the Secretary of the Treasury at the market price.

“(D) CREDITS TO FUND.—The interest on, and the proceeds from the sale or redemption of, any obligations held in the Fund shall be credited to and form a part of the Fund.

“(E) TRANSFERS OF AMOUNTS.—

“(i) IN GENERAL.—The amounts required to be transferred to the Fund under this subsection shall be transferred at least monthly from the general fund of the Treasury to the Fund on the basis of estimates made by the Secretary of the Treasury.

“(ii) ADJUSTMENTS.—Proper adjustment shall be made in amounts subsequently transferred to the extent prior estimates were in excess of or less than the amounts required to be transferred.

“(j) LIMITATION ON TOTAL AMOUNT OF FINANCIAL ASSISTANCE.—The President shall not provide financial assistance under this section in an amount greater than the amount available in the Fund.

“(k) MULTHAZARD ADVISORY MAPS.—

“(1) DEFINITION OF MULTHAZARD ADVISORY MAP.—In this subsection, the term ‘multihazard advisory map’ means a map

on which hazard data concerning each type of natural disaster is identified simultaneously for the purpose of showing areas of hazard overlap.

“(2) DEVELOPMENT OF MAPS.—In consultation with States, local governments, and appropriate Federal agencies, the President shall develop multihazard advisory maps for areas, in not fewer than five States, that are subject to commonly recurring natural hazards (including flooding, hurricanes and severe winds, and seismic events). President.

“(3) USE OF TECHNOLOGY.—In developing multihazard advisory maps under this subsection, the President shall use, to the maximum extent practicable, the most cost-effective and efficient technology available.

“(4) USE OF MAPS.—

“(A) ADVISORY NATURE.—The multihazard advisory maps shall be considered to be advisory and shall not require the development of any new policy by, or impose any new policy on, any government or private entity.

“(B) AVAILABILITY OF MAPS.—The multihazard advisory maps shall be made available to the appropriate State and local governments for the purposes of—

“(i) informing the general public about the risks of natural hazards in the areas described in paragraph (2);

“(ii) supporting the activities described in subsection (e); and

“(iii) other public uses.

“(1) REPORT ON FEDERAL AND STATE ADMINISTRATION.—Not later than 18 months after the date of the enactment of this section, the President, in consultation with State and local governments, shall submit to Congress a report evaluating efforts to implement this section and recommending a process for transferring greater authority and responsibility for administering the assistance program established under this section to capable States. Deadline.

“(m) TERMINATION OF AUTHORITY.—The authority provided by this section terminates December 31, 2003.”

(b) CONFORMING AMENDMENT.—Title II of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5131 et seq.) is amended by striking the title heading and inserting the following:

“TITLE II—DISASTER PREPAREDNESS AND MITIGATION ASSISTANCE”.

SEC. 103. INTERAGENCY TASK FORCE.

Title II of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5131 et seq.) (as amended by section 102(a)) is amended by adding at the end the following:

“SEC. 204. INTERAGENCY TASK FORCE.

42 USC 5134.

“(a) IN GENERAL.—The President shall establish a Federal interagency task force for the purpose of coordinating the implementation of predisaster hazard mitigation programs administered by the Federal Government.

“(b) CHAIRPERSON.—The Director of the Federal Emergency Management Agency shall serve as the chairperson of the task force.

“(c) MEMBERSHIP.—The membership of the task force shall include representatives of—

“(1) relevant Federal agencies;

“(2) State and local government organizations (including Indian tribes); and

“(3) the American Red Cross.”.

SEC. 104. MITIGATION PLANNING; MINIMUM STANDARDS FOR PUBLIC AND PRIVATE STRUCTURES.

(a) IN GENERAL.—Title III of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5141 et seq.) is amended by adding at the end the following:

42 USC 5165.

“SEC. 322. MITIGATION PLANNING.

“(a) REQUIREMENT OF MITIGATION PLAN.—As a condition of receipt of an increased Federal share for hazard mitigation measures under subsection (e), a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government.

“(b) LOCAL AND TRIBAL PLANS.—Each mitigation plan developed by a local or tribal government shall—

“(1) describe actions to mitigate hazards, risks, and vulnerabilities identified under the plan; and

“(2) establish a strategy to implement those actions.

“(c) STATE PLANS.—The State process of development of a mitigation plan under this section shall—

“(1) identify the natural hazards, risks, and vulnerabilities of areas in the State;

“(2) support development of local mitigation plans;

“(3) provide for technical assistance to local and tribal governments for mitigation planning; and

“(4) identify and prioritize mitigation actions that the State will support, as resources become available.

“(d) FUNDING.—

“(1) IN GENERAL.—Federal contributions under section 404 may be used to fund the development and updating of mitigation plans under this section.

“(2) MAXIMUM FEDERAL CONTRIBUTION.—With respect to any mitigation plan, a State, local, or tribal government may use an amount of Federal contributions under section 404 not to exceed 7 percent of the amount of such contributions available to the government as of a date determined by the government.

“(e) INCREASED FEDERAL SHARE FOR HAZARD MITIGATION MEASURES.—

“(1) IN GENERAL.—If, at the time of the declaration of a major disaster, a State has in effect an approved mitigation plan under this section, the President may increase to 20 percent, with respect to the major disaster, the maximum percentage specified in the last sentence of section 404(a).

President.

“(2) FACTORS FOR CONSIDERATION.—In determining whether to increase the maximum percentage under paragraph (1), the President shall consider whether the State has established—

“(A) eligibility criteria for property acquisition and other types of mitigation measures;

“(B) requirements for cost effectiveness that are related to the eligibility criteria;

“(C) a system of priorities that is related to the eligibility criteria; and

“(D) a process by which an assessment of the effectiveness of a mitigation action may be carried out after the mitigation action is complete.

“SEC. 323. MINIMUM STANDARDS FOR PUBLIC AND PRIVATE STRUCTURES.

42 USC 5165a.

“(a) IN GENERAL.—As a condition of receipt of a disaster loan or grant under this Act—

“(1) the recipient shall carry out any repair or construction to be financed with the loan or grant in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards; and

“(2) the President may require safe land use and construction practices, after adequate consultation with appropriate State and local government officials.

“(b) EVIDENCE OF COMPLIANCE.—A recipient of a disaster loan or grant under this Act shall provide such evidence of compliance with this section as the President may require by regulation.”.

(b) LOSSES FROM STRAIGHT LINE WINDS.—The President shall increase the maximum percentage specified in the last sentence of section 404(a) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170c(a)) from 15 percent to 20 percent with respect to any major disaster that is in the State of Minnesota and for which assistance is being provided as of the date of the enactment of this Act, except that additional assistance provided under this subsection shall not exceed \$6,000,000. The mitigation measures assisted under this subsection shall be related to losses in the State of Minnesota from straight line winds.

President.

(c) CONFORMING AMENDMENTS.—

(1) Section 404(a) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170c(a)) is amended—

(A) in the second sentence, by striking “section 409” and inserting “section 322”; and

(B) in the third sentence, by striking “The total” and inserting “Subject to section 322, the total”.

(2) Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5176) is repealed.

TITLE II—STREAMLINING AND COST REDUCTION

SEC. 201. TECHNICAL AMENDMENTS.

Section 311 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5154) is amended in subsections (a)(1), (b), and (c) by striking “section 803 of the Public Works and Economic Development Act of 1965” each place it appears

and inserting “section 209(c)(2) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3149(c)(2))”.

SEC. 202. MANAGEMENT COSTS.

(a) **IN GENERAL.**—Title III of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5141 et seq.) (as amended by section 104(a)) is amended by adding at the end the following:

42 USC 5165b.

“SEC. 324. MANAGEMENT COSTS.

“(a) **DEFINITION OF MANAGEMENT COST.**—In this section, the term ‘management cost’ includes any indirect cost, any administrative expense, and any other expense not directly chargeable to a specific project under a major disaster, emergency, or disaster preparedness or mitigation activity or measure.

Regulations.

“(b) **ESTABLISHMENT OF MANAGEMENT COST RATES.**—Notwithstanding any other provision of law (including any administrative rule or guidance), the President shall by regulation establish management cost rates, for grantees and subgrantees, that shall be used to determine contributions under this Act for management costs.

Deadline.

“(c) **REVIEW.**—The President shall review the management cost rates established under subsection (b) not later than 3 years after the date of establishment of the rates and periodically thereafter.”.

42 USC 5165b
note.

(b) APPLICABILITY.—

(1) **IN GENERAL.**—Subject to paragraph (2), subsections (a) and (b) of section 324 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as added by subsection (a)) shall apply to major disasters declared under that Act on or after the date of the enactment of this Act.

(2) **INTERIM AUTHORITY.**—Until the date on which the President establishes the management cost rates under section 324 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as added by subsection (a)), section 406(f) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172(f)) (as in effect on the day before the date of the enactment of this Act) shall be used to establish management cost rates.

SEC. 203. PUBLIC NOTICE, COMMENT, AND CONSULTATION REQUIREMENTS.

Title III of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5141 et seq.) (as amended by section 202(a)) is amended by adding at the end the following:

42 USC 5165c.

“SEC. 325. PUBLIC NOTICE, COMMENT, AND CONSULTATION REQUIREMENTS.

“(a) **PUBLIC NOTICE AND COMMENT CONCERNING NEW OR MODIFIED POLICIES.—**

President.

“(1) **IN GENERAL.**—The President shall provide for public notice and opportunity for comment before adopting any new or modified policy that—

“(A) governs implementation of the public assistance program administered by the Federal Emergency Management Agency under this Act; and

“(B) could result in a significant reduction of assistance under the program.

“(2) APPLICATION.—Any policy adopted under paragraph (1) shall apply only to a major disaster or emergency declared on or after the date on which the policy is adopted.

“(b) CONSULTATION CONCERNING INTERIM POLICIES.—

“(1) IN GENERAL.—Before adopting any interim policy under the public assistance program to address specific conditions that relate to a major disaster or emergency that has been declared under this Act, the President, to the maximum extent practicable, shall solicit the views and recommendations of grantees and subgrantees with respect to the major disaster or emergency concerning the potential interim policy, if the interim policy is likely—

“(A) to result in a significant reduction of assistance to applicants for the assistance with respect to the major disaster or emergency; or

“(B) to change the terms of a written agreement to which the Federal Government is a party concerning the declaration of the major disaster or emergency.

“(2) NO LEGAL RIGHT OF ACTION.—Nothing in this subsection confers a legal right of action on any party.

“(c) PUBLIC ACCESS.—The President shall promote public access to policies governing the implementation of the public assistance program.”. President.

SEC. 204. STATE ADMINISTRATION OF HAZARD MITIGATION GRANT PROGRAM.

Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170c) is amended by adding at the end the following:

“(c) PROGRAM ADMINISTRATION BY STATES.—

“(1) IN GENERAL.—A State desiring to administer the hazard mitigation grant program established by this section with respect to hazard mitigation assistance in the State may submit to the President an application for the delegation of the authority to administer the program.

“(2) CRITERIA.—The President, in consultation and coordination with States and local governments, shall establish criteria for the approval of applications submitted under paragraph (1). The criteria shall include, at a minimum—

“(A) the demonstrated ability of the State to manage the grant program under this section;

“(B) there being in effect an approved mitigation plan under section 322; and

“(C) a demonstrated commitment to mitigation activities.

“(3) APPROVAL.—The President shall approve an application submitted under paragraph (1) that meets the criteria established under paragraph (2). President.

“(4) WITHDRAWAL OF APPROVAL.—If, after approving an application of a State submitted under paragraph (1), the President determines that the State is not administering the hazard mitigation grant program established by this section in a manner satisfactory to the President, the President shall withdraw the approval.

“(5) AUDITS.—The President shall provide for periodic audits of the hazard mitigation grant programs administered by States under this subsection.”. President.

SEC. 205. ASSISTANCE TO REPAIR, RESTORE, RECONSTRUCT, OR REPLACE DAMAGED FACILITIES.

(a) CONTRIBUTIONS.—Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172) is amended by striking subsection (a) and inserting the following:

“(a) CONTRIBUTIONS.—

“(1) IN GENERAL.—The President may make contributions—

“(A) to a State or local government for the repair, restoration, reconstruction, or replacement of a public facility damaged or destroyed by a major disaster and for associated expenses incurred by the government; and

“(B) subject to paragraph (3), to a person that owns or operates a private nonprofit facility damaged or destroyed by a major disaster for the repair, restoration, reconstruction, or replacement of the facility and for associated expenses incurred by the person.

“(2) ASSOCIATED EXPENSES.—For the purposes of this section, associated expenses shall include—

“(A) the costs of mobilizing and employing the National Guard for performance of eligible work;

“(B) the costs of using prison labor to perform eligible work, including wages actually paid, transportation to a worksite, and extraordinary costs of guards, food, and lodging; and

“(C) base and overtime wages for the employees and extra hires of a State, local government, or person described in paragraph (1) that perform eligible work, plus fringe benefits on such wages to the extent that such benefits were being paid before the major disaster.

“(3) CONDITIONS FOR ASSISTANCE TO PRIVATE NONPROFIT FACILITIES.—

“(A) IN GENERAL.—The President may make contributions to a private nonprofit facility under paragraph (1)(B) only if—

“(i) the facility provides critical services (as defined by the President) in the event of a major disaster; or

“(ii) the owner or operator of the facility—

“(I) has applied for a disaster loan under section 7(b) of the Small Business Act (15 U.S.C. 636(b)); and

“(II)(aa) has been determined to be ineligible for such a loan; or

“(bb) has obtained such a loan in the maximum amount for which the Small Business Administration determines the facility is eligible.

“(B) DEFINITION OF CRITICAL SERVICES.—In this paragraph, the term ‘critical services’ includes power, water (including water provided by an irrigation organization or facility), sewer, wastewater treatment, communications, and emergency medical care.

“(4) NOTIFICATION TO CONGRESS.—Before making any contribution under this section in an amount greater than \$20,000,000, the President shall notify—

“(A) the Committee on Environment and Public Works of the Senate;

“(B) the Committee on Transportation and Infrastructure of the House of Representatives;

“(C) the Committee on Appropriations of the Senate; and

“(D) the Committee on Appropriations of the House of Representatives.”

(b) **FEDERAL SHARE.**—Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172) is amended by striking subsection (b) and inserting the following:

“(b) **FEDERAL SHARE.**—

“(1) **MINIMUM FEDERAL SHARE.**—Except as provided in paragraph (2), the Federal share of assistance under this section shall be not less than 75 percent of the eligible cost of repair, restoration, reconstruction, or replacement carried out under this section.

“(2) **REDUCED FEDERAL SHARE.**—The President shall promulgate regulations to reduce the Federal share of assistance under this section to not less than 25 percent in the case of the repair, restoration, reconstruction, or replacement of any eligible public facility or private nonprofit facility following an event associated with a major disaster—

President.
Regulations.

“(A) that has been damaged, on more than one occasion within the preceding 10-year period, by the same type of event; and

“(B) the owner of which has failed to implement appropriate mitigation measures to address the hazard that caused the damage to the facility.”

(c) **LARGE IN-LIEU CONTRIBUTIONS.**—Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172) is amended by striking subsection (c) and inserting the following:

“(c) **LARGE IN-LIEU CONTRIBUTIONS.**—

“(1) **FOR PUBLIC FACILITIES.**—

“(A) **IN GENERAL.**—In any case in which a State or local government determines that the public welfare would not best be served by repairing, restoring, reconstructing, or replacing any public facility owned or controlled by the State or local government, the State or local government may elect to receive, in lieu of a contribution under subsection (a)(1)(A), a contribution in an amount equal to 75 percent of the Federal share of the Federal estimate of the cost of repairing, restoring, reconstructing, or replacing the facility and of management expenses.

“(B) **AREAS WITH UNSTABLE SOIL.**—In any case in which a State or local government determines that the public welfare would not best be served by repairing, restoring, reconstructing, or replacing any public facility owned or controlled by the State or local government because soil instability in the disaster area makes repair, restoration, reconstruction, or replacement infeasible, the State or local government may elect to receive, in lieu of a contribution under subsection (a)(1)(A), a contribution in an amount equal to 90 percent of the Federal share of the Federal estimate of the cost of repairing, restoring, reconstructing, or replacing the facility and of management expenses.

“(C) **USE OF FUNDS.**—Funds contributed to a State or local government under this paragraph may be used—

“(i) to repair, restore, or expand other selected public facilities;

“(ii) to construct new facilities; or

“(iii) to fund hazard mitigation measures that the State or local government determines to be necessary to meet a need for governmental services and functions in the area affected by the major disaster.

“(D) LIMITATIONS.—Funds made available to a State or local government under this paragraph may not be used for—

“(i) any public facility located in a regulatory floodway (as defined in section 59.1 of title 44, Code of Federal Regulations (or a successor regulation)); or

“(ii) any uninsured public facility located in a special flood hazard area identified by the Director of the Federal Emergency Management Agency under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.).

“(2) FOR PRIVATE NONPROFIT FACILITIES.—

“(A) IN GENERAL.—In any case in which a person that owns or operates a private nonprofit facility determines that the public welfare would not best be served by repairing, restoring, reconstructing, or replacing the facility, the person may elect to receive, in lieu of a contribution under subsection (a)(1)(B), a contribution in an amount equal to 75 percent of the Federal share of the Federal estimate of the cost of repairing, restoring, reconstructing, or replacing the facility and of management expenses.

“(B) USE OF FUNDS.—Funds contributed to a person under this paragraph may be used—

“(i) to repair, restore, or expand other selected private nonprofit facilities owned or operated by the person;

“(ii) to construct new private nonprofit facilities to be owned or operated by the person; or

“(iii) to fund hazard mitigation measures that the person determines to be necessary to meet a need for the person’s services and functions in the area affected by the major disaster.

“(C) LIMITATIONS.—Funds made available to a person under this paragraph may not be used for—

“(i) any private nonprofit facility located in a regulatory floodway (as defined in section 59.1 of title 44, Code of Federal Regulations (or a successor regulation)); or

“(ii) any uninsured private nonprofit facility located in a special flood hazard area identified by the Director of the Federal Emergency Management Agency under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.).”.

(d) ELIGIBLE COST.—

(1) IN GENERAL.—Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172) is amended by striking subsection (e) and inserting the following:

“(e) ELIGIBLE COST.—

“(1) DETERMINATION.—

“(A) IN GENERAL.—For the purposes of this section, the President shall estimate the eligible cost of repairing, restoring, reconstructing, or replacing a public facility or private nonprofit facility—

“(i) on the basis of the design of the facility as the facility existed immediately before the major disaster; and

“(ii) in conformity with codes, specifications, and standards (including floodplain management and hazard mitigation criteria required by the President or under the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.)) applicable at the time at which the disaster occurred.

“(B) COST ESTIMATION PROCEDURES.—

“(i) IN GENERAL.—Subject to paragraph (2), the President shall use the cost estimation procedures established under paragraph (3) to determine the eligible cost under this subsection.

“(ii) APPLICABILITY.—The procedures specified in this paragraph and paragraph (2) shall apply only to projects the eligible cost of which is equal to or greater than the amount specified in section 422.

“(2) MODIFICATION OF ELIGIBLE COST.—

“(A) ACTUAL COST GREATER THAN CEILING PERCENTAGE OF ESTIMATED COST.—In any case in which the actual cost of repairing, restoring, reconstructing, or replacing a facility under this section is greater than the ceiling percentage established under paragraph (3) of the cost estimated under paragraph (1), the President may determine that the eligible cost includes a portion of the actual cost of the repair, restoration, reconstruction, or replacement that exceeds the cost estimated under paragraph (1).

“(B) ACTUAL COST LESS THAN ESTIMATED COST.—

“(i) GREATER THAN OR EQUAL TO FLOOR PERCENTAGE OF ESTIMATED COST.—In any case in which the actual cost of repairing, restoring, reconstructing, or replacing a facility under this section is less than 100 percent of the cost estimated under paragraph (1), but is greater than or equal to the floor percentage established under paragraph (3) of the cost estimated under paragraph (1), the State or local government or person receiving funds under this section shall use the excess funds to carry out cost-effective activities that reduce the risk of future damage, hardship, or suffering from a major disaster.

“(ii) LESS THAN FLOOR PERCENTAGE OF ESTIMATED COST.—In any case in which the actual cost of repairing, restoring, reconstructing, or replacing a facility under this section is less than the floor percentage established under paragraph (3) of the cost estimated under paragraph (1), the State or local government or person receiving assistance under this section shall reimburse the President in the amount of the difference.

“(C) NO EFFECT ON APPEALS PROCESS.—Nothing in this paragraph affects any right of appeal under section 423.

“(3) EXPERT PANEL.—

“(A) ESTABLISHMENT.—Not later than 18 months after the date of the enactment of this paragraph, the President, acting through the Director of the Federal Emergency Management Agency, shall establish an expert panel, which shall include representatives from the construction industry and State and local government.

“(B) DUTIES.—The expert panel shall develop recommendations concerning—

“(i) procedures for estimating the cost of repairing, restoring, reconstructing, or replacing a facility consistent with industry practices; and

“(ii) the ceiling and floor percentages referred to in paragraph (2).

President.

“(C) REGULATIONS.—Taking into account the recommendations of the expert panel under subparagraph (B), the President shall promulgate regulations that establish—

“(i) cost estimation procedures described in subparagraph (B)(i); and

“(ii) the ceiling and floor percentages referred to in paragraph (2).

Deadline.

“(D) REVIEW BY PRESIDENT.—Not later than 2 years after the date of promulgation of regulations under subparagraph (C) and periodically thereafter, the President shall review the cost estimation procedures and the ceiling and floor percentages established under this paragraph.

Deadline.

“(E) REPORT TO CONGRESS.—Not later than 1 year after the date of promulgation of regulations under subparagraph (C), 3 years after that date, and at the end of each 2-year period thereafter, the expert panel shall submit to Congress a report on the appropriateness of the cost estimation procedures.

“(4) SPECIAL RULE.—In any case in which the facility being repaired, restored, reconstructed, or replaced under this section was under construction on the date of the major disaster, the cost of repairing, restoring, reconstructing, or replacing the facility shall include, for the purposes of this section, only those costs that, under the contract for the construction, are the owner’s responsibility and not the contractor’s responsibility.”.

42 USC 5172
note.

(2) EFFECTIVE DATE.—The amendment made by paragraph (1) takes effect on the date of the enactment of this Act and applies to funds appropriated after the date of the enactment of this Act, except that paragraph (1) of section 406(e) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as amended by paragraph (1)) takes effect on the date on which the cost estimation procedures established under paragraph (3) of that section take effect.

(e) CONFORMING AMENDMENT.—Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172) is amended by striking subsection (f).

SEC. 206. FEDERAL ASSISTANCE TO INDIVIDUALS AND HOUSEHOLDS.

(a) IN GENERAL.—Section 408 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5174) is amended to read as follows:

“SEC. 408. FEDERAL ASSISTANCE TO INDIVIDUALS AND HOUSEHOLDS.

“(a) IN GENERAL.—

“(1) PROVISION OF ASSISTANCE.—In accordance with this section, the President, in consultation with the Governor of a State, may provide financial assistance, and, if necessary, direct services, to individuals and households in the State who, as a direct result of a major disaster, have necessary expenses and serious needs in cases in which the individuals and households are unable to meet such expenses or needs through other means.

“(2) RELATIONSHIP TO OTHER ASSISTANCE.—Under paragraph (1), an individual or household shall not be denied assistance under paragraph (1), (3), or (4) of subsection (c) solely on the basis that the individual or household has not applied for or received any loan or other financial assistance from the Small Business Administration or any other Federal agency.

“(b) HOUSING ASSISTANCE.—

“(1) ELIGIBILITY.—The President may provide financial or other assistance under this section to individuals and households to respond to the disaster-related housing needs of individuals and households who are displaced from their predisaster primary residences or whose predisaster primary residences are rendered uninhabitable as a result of damage caused by a major disaster.

“(2) DETERMINATION OF APPROPRIATE TYPES OF ASSISTANCE.—

“(A) IN GENERAL.—The President shall determine appropriate types of housing assistance to be provided under this section to individuals and households described in subsection (a)(1) based on considerations of cost effectiveness, convenience to the individuals and households, and such other factors as the President may consider appropriate. President.

“(B) MULTIPLE TYPES OF ASSISTANCE.—One or more types of housing assistance may be made available under this section, based on the suitability and availability of the types of assistance, to meet the needs of individuals and households in the particular disaster situation.

“(c) TYPES OF HOUSING ASSISTANCE.—

“(1) TEMPORARY HOUSING.—

“(A) FINANCIAL ASSISTANCE.—

“(i) IN GENERAL.—The President may provide financial assistance to individuals or households to rent alternate housing accommodations, existing rental units, manufactured housing, recreational vehicles, or other readily fabricated dwellings.

“(ii) AMOUNT.—The amount of assistance under clause (i) shall be based on the fair market rent for the accommodation provided plus the cost of any transportation, utility hookups, or unit installation not provided directly by the President.

“(B) DIRECT ASSISTANCE.—

“(i) IN GENERAL.—The President may provide temporary housing units, acquired by purchase or lease, directly to individuals or households who, because of a lack of available housing resources, would be unable

to make use of the assistance provided under subparagraph (A).

“(ii) PERIOD OF ASSISTANCE.—The President may not provide direct assistance under clause (i) with respect to a major disaster after the end of the 18-month period beginning on the date of the declaration of the major disaster by the President, except that the President may extend that period if the President determines that due to extraordinary circumstances an extension would be in the public interest.

“(iii) COLLECTION OF RENTAL CHARGES.—After the end of the 18-month period referred to in clause (ii), the President may charge fair market rent for each temporary housing unit provided.

“(2) REPAIRS.—

“(A) IN GENERAL.—The President may provide financial assistance for—

“(i) the repair of owner-occupied private residences, utilities, and residential infrastructure (such as a private access route) damaged by a major disaster to a safe and sanitary living or functioning condition; and

“(ii) eligible hazard mitigation measures that reduce the likelihood of future damage to such residences, utilities, or infrastructure.

“(B) RELATIONSHIP TO OTHER ASSISTANCE.—A recipient of assistance provided under this paragraph shall not be required to show that the assistance can be met through other means, except insurance proceeds.

“(C) MAXIMUM AMOUNT OF ASSISTANCE.—The amount of assistance provided to a household under this paragraph shall not exceed \$5,000, as adjusted annually to reflect changes in the Consumer Price Index for All Urban Consumers published by the Department of Labor.

“(3) REPLACEMENT.—

“(A) IN GENERAL.—The President may provide financial assistance for the replacement of owner-occupied private residences damaged by a major disaster.

“(B) MAXIMUM AMOUNT OF ASSISTANCE.—The amount of assistance provided to a household under this paragraph shall not exceed \$10,000, as adjusted annually to reflect changes in the Consumer Price Index for All Urban Consumers published by the Department of Labor.

“(C) APPLICABILITY OF FLOOD INSURANCE REQUIREMENT.—With respect to assistance provided under this paragraph, the President may not waive any provision of Federal law requiring the purchase of flood insurance as a condition of the receipt of Federal disaster assistance.

“(4) PERMANENT HOUSING CONSTRUCTION.—The President may provide financial assistance or direct assistance to individuals or households to construct permanent housing in insular areas outside the continental United States and in other remote locations in cases in which—

“(A) no alternative housing resources are available; and

“(B) the types of temporary housing assistance described in paragraph (1) are unavailable, infeasible, or not cost-effective.

“(d) TERMS AND CONDITIONS RELATING TO HOUSING ASSISTANCE.—

“(1) SITES.—

“(A) IN GENERAL.—Any readily fabricated dwelling provided under this section shall, whenever practicable, be located on a site that—

“(i) is complete with utilities; and

“(ii) is provided by the State or local government, by the owner of the site, or by the occupant who was displaced by the major disaster.

“(B) SITES PROVIDED BY THE PRESIDENT.—A readily fabricated dwelling may be located on a site provided by the President if the President determines that such a site would be more economical or accessible.

“(2) DISPOSAL OF UNITS.—

“(A) SALE TO OCCUPANTS.—

“(i) IN GENERAL.—Notwithstanding any other provision of law, a temporary housing unit purchased under this section by the President for the purpose of housing disaster victims may be sold directly to the individual or household who is occupying the unit if the individual or household lacks permanent housing.

“(ii) SALE PRICE.—A sale of a temporary housing unit under clause (i) shall be at a price that is fair and equitable.

“(iii) DEPOSIT OF PROCEEDS.—Notwithstanding any other provision of law, the proceeds of a sale under clause (i) shall be deposited in the appropriate Disaster Relief Fund account.

“(iv) HAZARD AND FLOOD INSURANCE.—A sale of a temporary housing unit under clause (i) shall be made on the condition that the individual or household purchasing the housing unit agrees to obtain and maintain hazard and flood insurance on the housing unit.

“(v) USE OF GSA SERVICES.—The President may use the services of the General Services Administration to accomplish a sale under clause (i).

“(B) OTHER METHODS OF DISPOSAL.—If not disposed of under subparagraph (A), a temporary housing unit purchased under this section by the President for the purpose of housing disaster victims—

“(i) may be sold to any person; or

“(ii) may be sold, transferred, donated, or otherwise made available directly to a State or other governmental entity or to a voluntary organization for the sole purpose of providing temporary housing to disaster victims in major disasters and emergencies if, as a condition of the sale, transfer, or donation, the State, other governmental agency, or voluntary organization agrees—

“(I) to comply with the nondiscrimination provisions of section 308; and

“(II) to obtain and maintain hazard and flood insurance on the housing unit.

“(e) FINANCIAL ASSISTANCE TO ADDRESS OTHER NEEDS.—

“(1) MEDICAL, DENTAL, AND FUNERAL EXPENSES.—The President, in consultation with the Governor of a State, may provide financial assistance under this section to an individual or household in the State who is adversely affected by a major disaster to meet disaster-related medical, dental, and funeral expenses.

“(2) PERSONAL PROPERTY, TRANSPORTATION, AND OTHER EXPENSES.—The President, in consultation with the Governor of a State, may provide financial assistance under this section to an individual or household described in paragraph (1) to address personal property, transportation, and other necessary expenses or serious needs resulting from the major disaster.

“(f) STATE ROLE.—

“(1) FINANCIAL ASSISTANCE TO ADDRESS OTHER NEEDS.—

“(A) GRANT TO STATE.—Subject to subsection (g), a Governor may request a grant from the President to provide financial assistance to individuals and households in the State under subsection (e).

“(B) ADMINISTRATIVE COSTS.—A State that receives a grant under subparagraph (A) may expend not more than 5 percent of the amount of the grant for the administrative costs of providing financial assistance to individuals and households in the State under subsection (e).

“(2) ACCESS TO RECORDS.—In providing assistance to individuals and households under this section, the President shall provide for the substantial and ongoing involvement of the States in which the individuals and households are located, including by providing to the States access to the electronic records of individuals and households receiving assistance under this section in order for the States to make available any additional State and local assistance to the individuals and households.

“(g) COST SHARING.—

“(1) FEDERAL SHARE.—Except as provided in paragraph (2), the Federal share of the costs eligible to be paid using assistance provided under this section shall be 100 percent.

“(2) FINANCIAL ASSISTANCE TO ADDRESS OTHER NEEDS.—In the case of financial assistance provided under subsection (e)—

“(A) the Federal share shall be 75 percent; and

“(B) the non-Federal share shall be paid from funds made available by the State.

“(h) MAXIMUM AMOUNT OF ASSISTANCE.—

“(1) IN GENERAL.—No individual or household shall receive financial assistance greater than \$25,000 under this section with respect to a single major disaster.

“(2) ADJUSTMENT OF LIMIT.—The limit established under paragraph (1) shall be adjusted annually to reflect changes in the Consumer Price Index for All Urban Consumers published by the Department of Labor.

President.

“(i) RULES AND REGULATIONS.—The President shall prescribe rules and regulations to carry out this section, including criteria, standards, and procedures for determining eligibility for assistance.”.

“(b) CONFORMING AMENDMENT.—Section 502(a)(6) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5192(a)(6)) is amended by striking “temporary housing”.

(c) **ELIMINATION OF INDIVIDUAL AND FAMILY GRANT PROGRAMS.**—Section 411 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5178) is repealed.

(d) **EFFECTIVE DATE.**—The amendments made by this section take effect 18 months after the date of the enactment of this Act. 42 USC 5174 note.

SEC. 207. COMMUNITY DISASTER LOANS.

Section 417 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5184) is amended—

(1) by striking “(a) The President” and inserting the following:

“(a) **IN GENERAL.**—The President”;

(2) by striking “The amount” and inserting the following:

“(b) **AMOUNT.**—The amount”;

(3) by striking “Repayment” and inserting the following:

“(c) **REPAYMENT.**—

“(1) **CANCELLATION.**—Repayment”;

(4) by striking “(b) Any loans” and inserting the following:

“(d) **EFFECT ON OTHER ASSISTANCE.**—Any loans”;

(5) in subsection (b) (as designated by paragraph (2))—

(A) by striking “and shall” and inserting “shall”; and

(B) by inserting before the period at the end the following: “, and shall not exceed \$5,000,000”; and

(6) in subsection (c) (as designated by paragraph (3)), by

adding at the end the following:

“(2) **CONDITION ON CONTINUING ELIGIBILITY.**—A local government shall not be eligible for further assistance under this section during any period in which the local government is in arrears with respect to a required repayment of a loan under this section.”.

SEC. 208. REPORT ON STATE MANAGEMENT OF SMALL DISASTERS INITIATIVE.

42 USC 5121 note.

Not later than 3 years after the date of the enactment of this Act, the President shall submit to Congress a report describing the results of the State Management of Small Disasters Initiative, including—

Deadline.

(1) identification of any administrative or financial benefits of the initiative; and

(2) recommendations concerning the conditions, if any, under which States should be allowed the option to administer parts of the assistance program under section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5172).

SEC. 209. STUDY REGARDING COST REDUCTION.

42 USC 5121 note.
Deadline.

Not later than 3 years after the date of the enactment of this Act, the Director of the Congressional Budget Office shall complete a study estimating the reduction in Federal disaster assistance that has resulted and is likely to result from the enactment of this Act.

TITLE III—MISCELLANEOUS

SEC. 301. TECHNICAL CORRECTION OF SHORT TITLE.

The first section of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 note) is amended to read as follows:

“SECTION 1. SHORT TITLE.

“This Act may be cited as the ‘Robert T. Stafford Disaster Relief and Emergency Assistance Act’.”.

SEC. 302. DEFINITIONS.

Section 102 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122) is amended—

(1) in each of paragraphs (3) and (4), by striking “the Northern” and all that follows through “Pacific Islands” and inserting “and the Commonwealth of the Northern Mariana Islands”;

(2) by striking paragraph (6) and inserting the following:
“(6) LOCAL GOVERNMENT.—The term ‘local government’ means—

“(A) a county, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government;

“(B) an Indian tribe or authorized tribal organization, or Alaska Native village or organization; and

“(C) a rural community, unincorporated town or village, or other public entity, for which an application for assistance is made by a State or political subdivision of a State.”; and

(3) in paragraph (9), by inserting “irrigation,” after “utility,”.

SEC. 303. FIRE MANAGEMENT ASSISTANCE.

(a) IN GENERAL.—Section 420 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5187) is amended to read as follows:

“SEC. 420. FIRE MANAGEMENT ASSISTANCE.

“(a) IN GENERAL.—The President is authorized to provide assistance, including grants, equipment, supplies, and personnel, to any State or local government for the mitigation, management, and control of any fire on public or private forest land or grassland that threatens such destruction as would constitute a major disaster.

President.

“(b) COORDINATION WITH STATE AND TRIBAL DEPARTMENTS OF FORESTRY.—In providing assistance under this section, the President shall coordinate with State and tribal departments of forestry.

“(c) ESSENTIAL ASSISTANCE.—In providing assistance under this section, the President may use the authority provided under section 403.

“(d) RULES AND REGULATIONS.—The President shall prescribe such rules and regulations as are necessary to carry out this section.” President.

(b) EFFECTIVE DATE.—The amendment made by subsection (a) takes effect 1 year after the date of the enactment of this Act. 42 USC 5187 note.

SEC. 304. DISASTER GRANT CLOSEOUT PROCEDURES. 42 USC 5205.

Title VII of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5101 et seq.) is amended by adding at the end the following:

“SEC. 705. DISASTER GRANT CLOSEOUT PROCEDURES.

“(a) STATUTE OF LIMITATIONS.—

“(1) IN GENERAL.—Except as provided in paragraph (2), no administrative action to recover any payment made to a State or local government for disaster or emergency assistance under this Act shall be initiated in any forum after the date that is 3 years after the date of transmission of the final expenditure report for the disaster or emergency.

“(2) FRAUD EXCEPTION.—The limitation under paragraph (1) shall apply unless there is evidence of civil or criminal fraud.

“(b) REBUTTAL OF PRESUMPTION OF RECORD MAINTENANCE.—

“(1) IN GENERAL.—In any dispute arising under this section after the date that is 3 years after the date of transmission of the final expenditure report for the disaster or emergency, there shall be a presumption that accounting records were maintained that adequately identify the source and application of funds provided for financially assisted activities.

“(2) AFFIRMATIVE EVIDENCE.—The presumption described in paragraph (1) may be rebutted only on production of affirmative evidence that the State or local government did not maintain documentation described in that paragraph.

“(3) INABILITY TO PRODUCE DOCUMENTATION.—The inability of the Federal, State, or local government to produce source documentation supporting expenditure reports later than 3 years after the date of transmission of the final expenditure report shall not constitute evidence to rebut the presumption described in paragraph (1).

“(4) RIGHT OF ACCESS.—The period during which the Federal, State, or local government has the right to access source documentation shall not be limited to the required 3-year retention period referred to in paragraph (3), but shall last as long as the records are maintained.

“(c) BINDING NATURE OF GRANT REQUIREMENTS.—A State or local government shall not be liable for reimbursement or any other penalty for any payment made under this Act if—

“(1) the payment was authorized by an approved agreement specifying the costs;

“(2) the costs were reasonable; and

“(3) the purpose of the grant was accomplished.”.

SEC. 305. PUBLIC SAFETY OFFICER BENEFITS FOR CERTAIN FEDERAL AND STATE EMPLOYEES.

(a) IN GENERAL.—Section 1204 of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3796b) is amended by striking paragraph (7) and inserting the following:

“(7) ‘public safety officer’ means—

“(A) an individual serving a public agency in an official capacity, with or without compensation, as a law enforcement officer, as a firefighter, or as a member of a rescue squad or ambulance crew;

“(B) an employee of the Federal Emergency Management Agency who is performing official duties of the Agency in an area, if those official duties—

“(i) are related to a major disaster or emergency that has been, or is later, declared to exist with respect to the area under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.); and

“(ii) are determined by the Director of the Federal Emergency Management Agency to be hazardous duties; or

“(C) an employee of a State, local, or tribal emergency management or civil defense agency who is performing official duties in cooperation with the Federal Emergency Management Agency in an area, if those official duties—

“(i) are related to a major disaster or emergency that has been, or is later, declared to exist with respect to the area under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.); and

“(ii) are determined by the head of the agency to be hazardous duties.”.

42 USC 3796b
note.

(b) **EFFECTIVE DATE.**—The amendment made by subsection (a) applies only to employees described in subparagraphs (B) and (C) of section 1204(7) of the Omnibus Crime Control and Safe Streets Act of 1968 (as amended by subsection (a)) who are injured or who die in the line of duty on or after the date of the enactment of this Act.

42 USC 5206.

SEC. 306. BUY AMERICAN.

(a) **COMPLIANCE WITH BUY AMERICAN ACT.**—No funds authorized to be appropriated under this Act or any amendment made by this Act may be expended by an entity unless the entity, in expending the funds, complies with the Buy American Act (41 U.S.C. 10a et seq.).

(b) **DEBARMENT OF PERSONS CONVICTED OF FRAUDULENT USE OF “MADE IN AMERICA” LABELS.**—

Deadline.

(1) **IN GENERAL.**—If the Director of the Federal Emergency Management Agency determines that a person has been convicted of intentionally affixing a label bearing a “Made in America” inscription to any product sold in or shipped to the United States that is not made in America, the Director shall determine, not later than 90 days after determining that the person has been so convicted, whether the person should be debarred from contracting under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.).

(2) **DEFINITION OF DEBAR.**—In this subsection, the term “debar” has the meaning given the term in section 2393(c) of title 10, United States Code.

SEC. 307. TREATMENT OF CERTAIN REAL PROPERTY.

(a) **IN GENERAL.**—Notwithstanding the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.), the Flood Disaster

Protection Act of 1973 (42 U.S.C. 4002 et seq.), or any other provision of law, or any flood risk zone identified, delineated, or established under any such law (by flood insurance rate map or otherwise), the real property described in subsection (b) shall not be considered to be, or to have been, located in any area having special flood hazards (including any floodway or floodplain).

(b) REAL PROPERTY.—The real property described in this subsection is all land and improvements on the land located in the Maple Terrace Subdivisions in the City of Sycamore, DeKalb County, Illinois, including—

- (1) Maple Terrace Phase I;
- (2) Maple Terrace Phase II;
- (3) Maple Terrace Phase III Unit 1;
- (4) Maple Terrace Phase III Unit 2;
- (5) Maple Terrace Phase III Unit 3;
- (6) Maple Terrace Phase IV Unit 1;
- (7) Maple Terrace Phase IV Unit 2; and
- (8) Maple Terrace Phase IV Unit 3.

(c) REVISION OF FLOOD INSURANCE RATE LOT MAPS.—As soon as practicable after the date of the enactment of this Act, the Director of the Federal Emergency Management Agency shall revise the appropriate flood insurance rate lot maps of the agency to reflect the treatment under subsection (a) of the real property described in subsection (b).

SEC. 308. STUDY OF PARTICIPATION BY INDIAN TRIBES IN EMERGENCY MANAGEMENT.

42 USC 5121
note.

(a) DEFINITION OF INDIAN TRIBE.—In this section, the term “Indian tribe” has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b).

(b) STUDY.—

(1) IN GENERAL.—The Director of the Federal Emergency Management Agency shall conduct a study of participation by Indian tribes in emergency management.

(2) REQUIRED ELEMENTS.—The study shall—

(A) survey participation by Indian tribes in training, predisaster and postdisaster mitigation, disaster preparedness, and disaster recovery programs at the Federal and State levels; and

(B) review and assess the capacity of Indian tribes to participate in cost-shared emergency management programs and to participate in the management of the programs.

(3) CONSULTATION.—In conducting the study, the Director shall consult with Indian tribes.

(c) REPORT.—Not later than 1 year after the date of the enactment of this Act, the Director shall submit a report on the study under subsection (b) to—

Deadline.

(1) the Committee on Environment and Public Works of the Senate;

(2) the Committee on Transportation and Infrastructure of the House of Representatives;

(3) the Committee on Appropriations of the Senate; and

(4) the Committee on Appropriations of the House of Representatives.

Approved October 30, 2000.

LEGISLATIVE HISTORY—H.R. 707 (S. 1691):

HOUSE REPORTS: No. 106–40 (Comm. on Transportation and Infrastructure).

SENATE REPORTS: No. 106–295 accompanying S. 1691 (Comm. on Environment and Public Works).

CONGRESSIONAL RECORD:

Vol. 145 (1999): Mar. 4, considered and passed House.

Vol. 146 (2000): July 19, considered and passed Senate, amended.

Oct. 3, House concurred in Senate amendment with an amendment.

Oct. 5, Senate concurred in House amendment with an amendment.

Oct. 10, House concurred in Senate amendment.



ANNEX B. REGULATIONS

The Disaster Mitigation Act of 2000 (P.L. 106-390) facilitates a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions (Section 409) and replacing them with a new set of mitigation plan requirements (Section 322). This new section emphasizes the need for state, Tribal, and local entities to closely coordinate mitigation planning and implementation efforts. The following pages provide a description of the Disaster Mitigation Act of 2000, as well as the Interim Final Rule for mitigation planning.



Federal Register

**Tuesday,
February 26, 2002**

Part III

Federal Emergency Management Agency

44 CFR Parts 201 and 206

**Hazard Mitigation Planning and Hazard
Mitigation Grant Program; Interim Final
Rule**

FEDERAL EMERGENCY MANAGEMENT AGENCY

44 CFR Parts 201 and 206

RIN 3067-AD22

Hazard Mitigation Planning and Hazard Mitigation Grant Program

AGENCY: Federal Emergency
Management Agency.

ACTION: Interim final rule.

SUMMARY: This rule addresses State mitigation planning, identifies new local mitigation planning requirements, authorizes Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. This rule also requires that repairs or construction funded by a disaster loan or grant must be carried out in accordance with applicable standards and says that FEMA may require safe land use and construction practices as a condition of grantees receiving disaster assistance under the Stafford Act.

DATES: *Effective Date:* February 26, 2002.

Comment Date: We will accept written comments through April 29, 2002.

ADDRESSES: Please send written comments to the Rules Docket Clerk, Office of the General Counsel, Federal Emergency Management Agency, 500 C Street, SW., room 840, Washington, DC 20472, (facsimile) 202-646-4536, or (email) rules@fema.gov.

FOR FURTHER INFORMATION CONTACT: Margaret E. Lawless, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC, 20472, 202-646-3027, (facsimile) 202-646-3104, or (email) margaret.lawless@fema.gov.

SUPPLEMENTARY INFORMATION:

Introduction

Throughout the preamble and the rule the terms “we”, “our” and “us” refer to FEMA.

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under § 104 the Disaster Mitigation Act of 2000, (DMA 2000) P.L. 106-390, provides new and revitalized approaches to mitigation planning. This section: (1) Continues the requirement for a Standard State Mitigation plan as a condition of disaster assistance; (2) provides for States to receive an increased

percentage of HMGP funds (from 15 to 20 percent of the total estimated eligible Federal assistance) if, at the time of the declaration of a major disaster, they have in effect a FEMA-approved Enhanced State Mitigation Plan that meets the factors listed in this rule; (3) establishes a new requirement for local mitigation plans; and (4) authorizes up to 7 percent of the HMGP funds available to a State to be used for development of State, tribal, and local mitigation plans. We will give Indian tribal governments the opportunity to fulfill the requirements of § 322 either as a grantee or a subgrantee. An Indian tribal government may choose to apply for HMGP funding directly to us and would then serve as a grantee, meeting the State level responsibilities, or it may apply through the State, meeting the local government or subgrantee responsibilities.

Section 322, in concert with other sections of the Act, provides a significant opportunity to reduce the Nation's disaster losses through mitigation planning. In addition, implementation of planned, pre-identified, cost-effective mitigation measures will streamline the disaster recovery process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and private interests to ensure an integrated, comprehensive approach to disaster loss reduction. The language in the Act, taken as a whole, emphasizes the importance of strong State and local planning processes and comprehensive program management at the State level. The new planning criteria also support State administration of the HMGP, and contemplate a significant State commitment to mitigation activities, comprehensive State mitigation planning, and strong program management.

The planning process also provides a link between State and local mitigation programs. Both State level and local plans should address strategies for incorporating post-disaster early mitigation implementation strategies and sustainable recovery actions. We also recognize that governments are involved in a range of planning activities and that mitigation plans may be linked to or reference hazardous materials and other non-natural hazard plans. Improved mitigation planning will result in a better understanding of risks and vulnerabilities, as well as to expedite implementation of measures and activities to reduce those risks, both pre- and post-disaster.

Section 409 of the Stafford Act, 42 U.S.C. 5176, which required mitigation

plans and the use of minimum codes and standards, was repealed by the DMA 2000. These issues are now addressed in two separate sections of the law: mitigation planning is in section 322 of the Act, and minimum codes and standards are in section 323 of the Act. We previously implemented section 409 through 44 CFR Part 206, Subpart M. Since current law now distinguishes the planning from the codes and standards in separate sections, we will address them in different sections of the CFR. We address the new planning regulations in Part 201 to reflect the broader relevance of planning to all FEMA mitigation programs, while the minimum standards remain in Part 206, Federal Disaster Assistance, Subpart M. The regulations implementing the Hazard Mitigation Grant Program are in Part 206, Subpart N. This rule also contains changes to Subpart N, to reflect the new planning criteria identified in section 322 of the Act.

The administration is considering changes to FEMA's mitigation programs in the President's Budget for FY 2003. However, States and localities still would be required to have plans in effect, which meet the minimum requirements under this rule, as a condition of receiving mitigation assistance after November 1, 2003.

Implementation Strategy. States must have an approved hazard mitigation plan in order to receive Stafford Act assistance, excluding assistance provided pursuant to emergency provisions. These regulations provide criteria for the new two-tiered State mitigation plan process: Standard State Mitigation Plans, which allow a State to receive HMGP funding based on 15 percent of the total estimated eligible Stafford Act disaster assistance, and Enhanced State Mitigation Plans, which allow a State to receive HMGP funds based on 20 percent of the total estimated eligible Stafford Act disaster assistance. Enhanced State Mitigation Plans must demonstrate that the State has developed a comprehensive mitigation program, that it effectively uses available mitigation funding, and that it is capable of managing the increased funding. All State Mitigation Plans must be reviewed, revised, and re-approved by FEMA every three years. An important requirement of the legislation is that we must approve a completed enhanced plan *before* a disaster declaration, in order for the State to be eligible for the increased funding.

We will no longer require States to revise their mitigation plan after every disaster declaration, as under former

section 409 of the Act, 42 U.S.C. 5176. We recommend, however, that States consider revising their plan if a disaster or other circumstances significantly affect its mitigation priorities. States with existing mitigation plans, approved under former section 409, will continue to be eligible for the 15 percent HMGP funding until November 1, 2003, when all State mitigation plans must meet the requirements of these regulations. If State plans are not revised and approved to meet the Standard State Mitigation Plan requirements by that time, they will be ineligible for Stafford Act assistance, excluding emergency assistance.

Indian tribal governments may choose to apply directly to us for HMGP funding, and would therefore be responsible for having an approved State level mitigation plan, and would act as the grantee. If an Indian tribal government chooses to apply for HMGP grants through the State, they would be responsible for having an approved local level mitigation plan, and would serve as a subgrantee accountable to the State as grantee.

This rule also establishes local planning criteria so that these jurisdictions can actively begin the hazard mitigation planning process. This requirement is to encourage the development of comprehensive mitigation plans before disaster events. Section 322 requires local governments to have an approved local mitigation plan to be eligible to receive an HMGP project grant; however, this requirement will not fully take effect until November 1, 2003. FEMA Regional Directors may grant an exception to this requirement in extenuating circumstances. Until November 1, 2003, local governments will be able to receive HMGP project grant funds and may prepare a mitigation plan concurrently with implementation of their project grant. We anticipate that the Predisaster Mitigation program authorized by section 203 of the Act, 42 U.S.C. 5133, will also support this local mitigation planning by making funds available for the development of comprehensive local mitigation plans. Managing States that we approve under new criteria established under section 404 of the Act, 42 U.S.C. 5170c(c), as amended by section 204 of DMA 2000 will have approval authority for local mitigation plans. This provision does not apply to States that we approved under the Managing State program in effect before enactment of DMA 2000.

Our goal is for State and local governments to develop comprehensive and integrated plans that are coordinated through appropriate State,

local, and regional agencies, as well as non-governmental interest groups. To the extent feasible and practicable, we would also like to consolidate the planning requirements for different FEMA mitigation programs. This will ensure that one local plan will meet the minimum requirements for all of the different FEMA mitigation programs, such as the Flood Mitigation Assistance Program (authorized by sections 553 and 554 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4104c and 42 U.S.C. 4104d), the Community Rating System (authorized by section 541 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4022), the Pre-Disaster Mitigation Program (authorized by section 203 of the Stafford Act), the Hazard Mitigation Grant Program (authorized by section 404 of the Stafford Act), and the mitigation activities that are based upon the provisions of section 323 and subsections 406(b) and (e) of the Stafford Act. The mitigation plans may also serve to integrate documents and plans produced under other emergency management programs. State level plans should identify overall goals and priorities, incorporating the more specific local risk assessments, when available, and including projects identified through the local planning process.

Under section 322(d), up to 7 percent of the available HMGP funds may now be used for planning, and we encourage States to use these funds for local plan development. In a memorandum to FEMA Regional Directors dated December 21, 2000, we announced that this provision of section 322 was effective for disasters declared on or after October 30, 2000, the date on which the Disaster Mitigation Act of 2000 became law. Regional Directors are encouraging States to make these funds immediately available to local and Indian tribal governments, although the funds can be used for plan development and review at the State level as well.

As discussed earlier in this Supplementary Information, subsection 323(a) of the Stafford Act, 42 U.S.C. 5166(a), requires as a precondition to receiving disaster assistance under the Act that State and local governments, as well as eligible private nonprofit entities, must agree to carry out repair and reconstruction activities "in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards." In addition, that subsection authorizes the President (FEMA, by virtue of Executive Order 12148, as amended) to "require safe land use and construction practices,

after adequate consultation with appropriate State and local officials" in the course of the use of Federal disaster assistance by eligible applicants to repair and restore disaster-damaged facilities.

At the same time that we implement the planning mandates of section 322 of the Stafford Act, we are also implementing the Minimum Standards for Public and Private Structures provision of section 323 of the Act. This rule appears at Subpart M of Part 206 of Title 44 of the Code of Federal Regulations. As mentioned earlier, the section 322 planning regulations are in Part 201, while Part 206, Subpart M includes only the minimum codes and standards regulations mandated in § 323. The rule to implement § 323 of the Act reinforces the link between pre-disaster planning, building and construction standards, and post-disaster reconstruction efforts.

We encourage comments on this interim final rule, and we will make every effort to involve all interested parties prior to the development of the Final Rule.

Justification for Interim Final Rule

In general, FEMA publishes a rule for public comment before issuing a final rule, under the Administrative Procedure Act, 5 U.S.C. 553 and 44 CFR 1.12. The Administrative Procedure Act, however, provides an exception from that general rule where the agency for good cause finds the procedures for comment and response contrary to public interest. Section 322 of the Stafford Act allows States to receive increased post-disaster grant funding for projects designed to reduce future disaster losses. States will only be eligible for these increased funds if they have a FEMA-approved Enhanced State Mitigation Plan.

This interim final rule provides the criteria for development and approval of these plans, as well as criteria for local mitigation plans required by this legislation. In order for State and local governments to be positioned to receive these mitigation funds as soon as possible, these regulations must be in effect. The public benefit of this rule will be to assist States and communities assess their risks and identify activities to strengthen the larger community and the built environment in order to become less susceptible to disasters. Planning serves as the vital foundation to saving lives and protecting properties, having integrated plans in place can serve to both streamline recovery efforts and lessen potential future damages. Therefore, we believe it is contrary to the public interest to delay

the benefits of this rule. In accordance with the Administrative Procedure Act, 5 U.S.C. 553(d)(3), we find that there is good cause for the interim final rule to take effect immediately upon publication in the **Federal Register** in order to meet the needs of States and communities by identifying criteria for mitigation plans in order to reduce risks nationwide, establish criteria for minimum codes and standards in post-disaster reconstruction, and to allow States to adjust their mitigation plans to receive the increase in mitigation funding.

In addition, we believe that, under the circumstances, delaying the effective date of this rule until after the comment period would not further the public interest. Prior to this rulemaking, FEMA hosted a meeting where interested parties provided comments and suggestions on how we could implement these planning requirements. Participants in this meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We took comments and suggestions provided at this meeting into account in developing this interim final rule. Therefore, we find that prior notice and comment on this rule would not further the public interest. We actively encourage and solicit comments on this interim final rule from interested parties, and we will consider them in preparing the final rule. For these reasons, we believe we have good cause to publish an interim final rule.

National Environmental Policy Act

44 CFR 10.8(d)(2)(ii) excludes this rule from the preparation of an environmental assessment or environmental impact statement, where the rule relates to actions that qualify for categorical exclusion under 44 CFR 10.8(d)(2)(iii), such as the development of plans under this section.

Executive Order 12866, Regulatory Planning and Review

We have prepared and reviewed this rule under the provisions of E.O. 12866, Regulatory Planning and Review. Under Executive Order 12866, 58 FR 51735, October 4, 1993, a significant regulatory

action is subject to OMB review and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The purpose of this rule is to implement section 322 of the Stafford Act which addresses mitigation planning at the State, tribal, and local levels, identifies new local planning requirements, allows Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. The rule identifies local mitigation planning requirements before approval of project grants, and requires our approval of an Enhanced State Mitigation plan as a condition for increased mitigation funding. The rule also implements section 323 of the Stafford Act, which requires that repairs or construction funded by disaster loans or grants must comply with applicable standards and safe land use and construction practices. As such the rule itself will not have an effect on the economy of more than \$100,000,000.

Therefore, this rule is a significant regulatory action and is not an economically significant rule under Executive Order 12866. The Office of Management and Budget (OMB) has reviewed this rule under Executive Order 12866.

Executive Order 12898, Environmental Justice

Under Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, February 16, 1994, we incorporate environmental justice into our policies and programs. The Executive Order requires each Federal agency to conduct its programs, policies, and activities that substantially affect human health or the

environment, in a manner that ensures that those programs, policies, and activities do not have the effect of excluding persons from participation in our programs, denying persons the benefits of our programs, or subjecting persons to discrimination because of their race, color, or national origin.

No action that we can anticipate under the final rule will have a disproportionately high or adverse human health and environmental effect on any segment of the population. Section 322 focuses specifically on mitigation planning to: Identify the natural hazards, risks, and vulnerabilities of areas in States, localities, and tribal areas; support development of local mitigation plans; provide for technical assistance to local and tribal governments for mitigation planning; and identify and prioritize mitigation actions that the State will support, as resources become available. Section 323 requires compliance with applicable codes and standards in repair and construction, and use of safe land use and construction standards. Accordingly, the requirements of Executive Order 12898 do not apply to this interim final rule.

Paperwork Reduction Act of 1995

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) and concurrent with the publication of this interim final rule, we have submitted a request for review and approval of a new collection of information, which is contained in this interim final rule. Under the Paperwork Reduction Act of 1995, a person may not be penalized for failing to comply with an information collection that does not display a currently valid Office of Management and Budget (OMB) control number. The request was submitted to OMB for approval under the emergency processing procedures in OMB regulation 5 CFR 1320.1. OMB has approved this collection of information for use through August 31, 2002, under OMB Number 3067-0297.

We expect to follow this emergency request with a request for OMB approval to continue the use of the collection of information for a term of three years. The request will be processed under OMB's normal clearance procedures in accordance with provisions of OMB regulation 5 CFR 1320.10. To help us with the timely processing of the emergency and normal clearance submissions to OMB, we invite the general public to comment on the collection of information. This notice and request for comments complies with the provisions of the Paperwork

Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)).

Collection of Information

Title: State/Local/Tribal Hazard Mitigation Plans under Section 322 of the Disaster Mitigation Act of 2000.

Abstract: Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by Section 104 of the Disaster Mitigation Act of 2000, provides new and revitalized approaches to mitigation planning. To obtain Federal assistance, new planning provisions require that each state, local, and tribal government prepare a hazard mitigation plan to include sections that describe the planning process, an assessment of the risks, a mitigation strategy, and identification of the plan maintenance and updating process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and

private interests to ensure an integrated, comprehensive approach to disaster loss reduction. Under Section 322 there is a two-tiered State mitigation plan process. State mitigation plans must be reviewed, revised, and submitted to us every 3 years.

(1) A *Standard State Mitigation Plan* must be approved by us in order for States to be eligible to receive Hazard Mitigation Grant Program (HMGP) funding based on 15 percent of the total estimated eligible Federal disaster assistance. This plan demonstrates the State's goals, priorities, and commitment to reduce risks from natural hazards and serves as a guide for State and local decision makers as they commit resources to reducing the effects of natural hazards.

(2) An *Enhanced State Mitigation Plan* must be approved by us for a State to be eligible to receive HMGP funds based on 20 percent of the total

estimated eligible Federal disaster assistance. This plan must be approved by us within the 3 years prior to the current major disaster declaration. It must demonstrate that a State has developed a comprehensive mitigation program, is effectively using available mitigation funding, and is capable of managing the increased funding.

To be eligible to receive HMGP project grants, *local governments* must develop Local Mitigation Plans that include a risk assessment and mitigation strategy to reduce potential losses and target resources. Plans must be reviewed, revised, and submitted to us for approval every 5 years.

To receive HMGP project grants, *tribal governments* may apply as a grantee or subgrantee, and will be required to meet the planning requirements of a State or local government.

Estimated Total Annual Burden:

Type of collection/forms	No. of respondents	Hours per response	Annual burden hours
Update state or tribal mitigation plans (standard state mitigation plans)	18	320	5,760
State review of local plans	500 local plans	8	4,000
States develop Enhanced State Mitigation Plans	7	100	700
Local or tribal governments develop mitigation plans	500 local plans	300	150,000
Total burden			160,460

Comments: We are soliciting written comments to: (a) Evaluate whether the proposed data collection is necessary for the proper performance of the agency, including whether the information shall have practical utility; (b) evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) obtain recommendations to enhance the quality, utility, and clarity of the information to be collected; and (d) evaluate the extent to which automated, electronic, mechanical, or other technological collection techniques may further reduce the respondents' burden. FEMA will accept comments through April 29, 2002.

Addressee: Interested persons should submit written comments to Muriel B. Anderson, Chief, Records Management Section, Program Services and Systems Branch, Facilities Management and Services Division, Administration and Resource Planning Directorate, Federal Emergency Management Agency, 500 C Street, Street, SW., Washington, DC 20472.

FOR FURTHER INFORMATION CONTACT: You may obtain copies of the OMB paperwork clearance package by

contacting Ms. Anderson at (202) 646-2625 (voice), (202) 646-3347 (facsimile), or by e-mail at muriel.anderson@fema.gov.

Executive Order 13132, Federalism

Executive Order 13132, Federalism, dated August 4, 1999, sets forth principles and criteria that agencies must adhere to in formulating and implementing policies that have federalism implications, that is, regulations that have substantial direct effects on the States, or on the distribution of power and responsibilities among the various levels of government. Federal agencies must closely examine the statutory authority supporting any action that would limit the policymaking discretion of the States, and to the extent practicable, must consult with State and local officials before implementing any such action.

We have reviewed this rule under E.O.13132 and have concluded that the rule does not have federalism implications as defined by the Executive Order. We have determined that the rule does not significantly affect the rights, roles, and responsibilities of States, and involves no preemption of State law nor

does it limit State policymaking discretion.

However, we have consulted with State and local officials. In order to assist us in the development of this rule, we hosted a meeting to allow interested parties an opportunity to provide their perspectives on the legislation and options for implementation of § 322. Stakeholders who attended the meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We received valuable input from all parties at the meeting, which we took into account in the development of this rule. Additionally, we actively encourage and solicit comments on this interim final rule from interested parties, and we will

consider them in preparing the final rule.

Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

We have reviewed this interim final rule under Executive Order 13175, which became effective on February 6, 2001. Under the Hazard Mitigation Grant Program (HMGP), Indian tribal governments will have the option to apply for grants directly to us and to serve as "grantee", carrying out "State" roles. If they choose this option, tribal governments may submit either a State-level Standard Mitigation Plan for the 15 percent HMGP funding or a State-level Enhanced Mitigation Plan for 20 percent HMGP funding. In either case, Indian tribal governments would be able to spend up to 7 percent of those funds on planning. Before developing this rule, we met with representatives from State and local governments and the Bureau of Indian Affairs, to discuss the new planning opportunities and requirements of § 322 of the Stafford Act. We received valuable input from all parties, which helped us to develop this interim final rule.

In reviewing the interim final rule, we find that it does not have "tribal implications" as defined in Executive Order 13175 because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. Moreover, the interim final rule does not impose substantial direct compliance costs on tribal governments, nor does it preempt tribal law, impair treaty rights or limit the self-governing powers of tribal governments.

Congressional Review of Agency Rulemaking

We have sent this interim final rule to the Congress and to the General Accounting Office under the Congressional Review of Agency Rulemaking Act, Public Law 104-121. The rule is a not "major rule" within the meaning of that Act. It is an administrative action in support of normal day-to-day mitigation planning activities required by section 322 and compliance under section 323 of the Stafford Act, as enacted in DMA 2000.

The rule will not result in a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. It will not have "significant adverse effects" on competition, employment, investment,

productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises. This final rule is subject to the information collection requirements of the Paperwork Reduction Act, and OMB has assigned Control No. 3067-0297. The rule is not an unfunded Federal mandate within the meaning of the Unfunded Mandates Reform Act of 1995, Public Law 104-4, and any enforceable duties that we impose are a condition of Federal assistance or a duty arising from participation in a voluntary Federal program.

List of Subjects in 44 CFR Part 201 and Part 206

Administrative practice and procedure, Disaster assistance, Grant programs, Mitigation planning, Reporting and recordkeeping requirements.

Accordingly, Amend 44 CFR, Subchapter D—Disaster Assistance, as follows:

1. Add Part 201 to read as follows:

PART 201—MITIGATION PLANNING

Sec.

- 201.1 Purpose.
- 201.2 Definitions.
- 201.3 Responsibilities.
- 201.4 Standard State Mitigation Plans.
- 201.5 Enhanced State Mitigation Plans.
- 201.6 Local Mitigation Plans.

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

§ 201.1 Purpose.

(a) The purpose of this part is to provide information on the policies and procedures for mitigation planning as required by the provisions of section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

§ 201.2 Definitions.

Grantee means the government to which a grant is awarded, which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally,

the State is the grantee. However, after a declaration, an Indian tribal government may choose to be a grantee, or may act as a subgrantee under the State. An Indian tribal government acting as grantee will assume the responsibilities of a "state", as described in this part, for the purposes of administering the grant.

Hazard mitigation means any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Hazard Mitigation Grant Program means the program authorized under section 404 of the Stafford Act, 42 U.S.C. 5170c and implemented at 44 CFR Part 206, Subpart N, which authorizes funding for certain mitigation measures identified through the evaluation of natural hazards conducted under section 322 of the Stafford Act 42 U.S.C. 5165.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local government is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Managing State means a State to which FEMA has delegated the authority to administer and manage the HMGP under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c). FEMA may also delegate authority to tribal governments to administer and manage the HMGP as a Managing State.

Regional Director is a director of a regional office of FEMA, or his/her designated representative.

Small and impoverished communities means a community of 3,000 or fewer individuals that is identified by the State as a rural community, and is not a remote area within the corporate boundaries of a larger city; is economically disadvantaged, by having an average per capita annual income of residents not exceeding 80 percent of national, per capita income, based on

best available data; the local unemployment rate exceeds by one percentage point or more, the most recently reported, average yearly national unemployment rate; and any other factors identified in the State Plan in which the community is located.

The Stafford Act refers to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93–288, as amended (42 U.S.C. 5121–5206).

State is any State of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

State Hazard Mitigation Officer is the official representative of State government who is the primary point of contact with FEMA, other Federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private non-profit organizations, or Indian tribal government. Indian tribal governments acting as a subgrantee are accountable to the State grantee.

§ 201.3 Responsibilities.

(a) *General.* This section identifies the key responsibilities of FEMA, States, and local/tribal governments in carrying out section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) *FEMA.* The key responsibilities of the Regional Director are to:

(1) Oversee all FEMA related pre- and post-disaster hazard mitigation programs and activities;

(2) Provide technical assistance and training to State, local, and Indian tribal governments regarding the mitigation planning process;

(3) Review and approve all Standard and Enhanced State Mitigation Plans;

(4) Review and approve all local mitigation plans, unless that authority has been delegated to the State in accordance with § 201.6(d);

(5) Conduct reviews, at least once every three years, of State mitigation activities, plans, and programs to ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

(c) *State.* The key responsibilities of the State are to coordinate all State and

local activities relating to hazard evaluation and mitigation and to:

(1) Prepare and submit to FEMA a Standard State Mitigation Plan following the criteria established in § 201.4 as a condition of receiving Stafford Act assistance (except emergency assistance).

(2) In order to be considered for the 20 percent HMGP funding, prepare and submit an Enhanced State Mitigation Plan in accordance with § 201.5, which must be reviewed and updated, if necessary, every three years from the date of the approval of the previous plan.

(3) At a minimum, review and, if necessary, update the Standard State Mitigation Plan by November 1, 2003 and every three years from the date of the approval of the previous plan in order to continue program eligibility.

(4) Make available the use of up to the 7 percent of HMGP funding for planning in accordance with § 206.434.

(5) Provide technical assistance and training to local governments to assist them in applying for HMGP planning grants, and in developing local mitigation plans.

(6) For Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c), review and approve local mitigation plans in accordance with § 201.6(d).

(d) *Local governments.* The key responsibilities of local governments are to:

(1) Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving project grant funds under the HMGP, in accordance with § 201.6.

(2) At a minimum, review and, if necessary, update the local mitigation plan every five years from date of plan approval to continue program eligibility.

(e) *Indian tribal governments.* Indian tribal governments will be given the option of applying directly to us for Hazard Mitigation Grant Program funding, or they may choose to apply through the State. If they apply directly to us, they will assume the responsibilities of the State, or grantee, and if they apply through the State, they will assume the responsibilities of the local government, or subgrantee.

§ 201.4 Standard State Mitigation Plans.

(a) *Plan requirement.* By November 1, 2003, States must have an approved Standard State Mitigation plan meeting the requirements of this section, in order to receive assistance under the Stafford Act, although assistance authorized under disasters declared prior to November 1, 2003 will continue

to be made available. In any case, emergency assistance provided under 42 U.S.C. 5170a, 5170b, 5173, 5174, 5177, 5179, 5180, 5182, 5183, 5184, 5192 will not be affected. The mitigation plan is the demonstration of the State's commitment to reduce risks from natural hazards and serves as a guide for State decision makers as they commit resources to reducing the effects of natural hazards. States may choose to include the requirements of the HMGP Administrative Plan in their mitigation plan.

(b) *Planning process.* An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

(c) *Plan content.* To be effective the plan must include the following elements:

(1) Description of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

(2) *Risk assessments* that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments. The risk assessment shall include the following:

(i) An overview of the type and location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate;

(ii) An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the

identified hazard areas shall also be addressed;

(iii) An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

(3) A *Mitigation Strategy* that provides the State's blueprint for reducing the losses identified in the risk assessment. This section shall include:

(i) A description of State goals to guide the selection of activities to mitigate and reduce potential losses.

(ii) A discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; a discussion of State funding capabilities for hazard mitigation projects; and a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

(iii) An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

(iv) Identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

(4) A section on the *Coordination of Local Mitigation Planning* that includes the following:

(i) A description of the State process to support, through funding and technical assistance, the development of local mitigation plans.

(ii) A description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

(iii) Criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according

to a cost benefit review of proposed projects and their associated costs.

(5) A *Plan Maintenance Process* that includes:

(i) An established method and schedule for monitoring, evaluating, and updating the plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts.

(iii) A system for reviewing progress on achieving goals as well as activities and projects identified in the Mitigation Strategy.

(6) A *Plan Adoption Process*. The plan must be formally adopted by the State prior to submittal to us for final review and approval.

(7) *Assurances*. The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

(d) *Review and updates*. Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster timeframe to reflect changing priorities, but it is not required.

§ 201.5 Enhanced State Mitigation Plans.

(a) A State with a FEMA approved Enhanced State Mitigation Plan at the time of a disaster declaration is eligible to receive increased funds under the HMGP, based on twenty percent of the total estimated eligible Stafford Act disaster assistance. The Enhanced State Mitigation Plan must demonstrate that a State has developed a comprehensive mitigation program, that the State effectively uses available mitigation funding, and that it is capable of managing the increased funding. In order for the State to be eligible for the 20 percent HMGP funding, FEMA must have approved the plan within three years prior to the disaster declaration.

(b) Enhanced State Mitigation Plans must include all elements of the Standard State Mitigation Plan identified in § 201.4, as well as document the following:

(1) Demonstration that the plan is integrated to the extent practicable with other State and/or regional planning

initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and FEMA mitigation programs and initiatives that provide guidance to State and regional agencies.

(2) Documentation of the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

(i) Established eligibility criteria for multi-hazard mitigation measures.

(ii) A system to determine the cost effectiveness of mitigation measures, consistent with OMB Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and to rank the measures according to the State's eligibility criteria.

(iii) Demonstration that the State has the capability to effectively manage the HMGP as well as other mitigation grant programs, including a record of the following:

(A) Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;

(B) Preparing and submitting accurate environmental reviews and benefit-cost analyses;

(C) Submitting complete and accurate quarterly progress and financial reports on time; and

(D) Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

(iv) A system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

(3) Demonstration that the State effectively uses existing mitigation programs to achieve its mitigation goals.

(4) Demonstration that the State is committed to a comprehensive state mitigation program, which might include any of the following:

(i) A commitment to support local mitigation planning by providing workshops and training, State planning grants, or coordinated capability development of local officials, including Emergency Management and Floodplain Management certifications.

(ii) A statewide program of hazard mitigation through the development of legislative initiatives, mitigation councils, formation of public/private

partnerships, and/or other executive actions that promote hazard mitigation.

(iii) The State provides a portion of the non-Federal match for HMGP and/or other mitigation projects.

(iv) To the extent allowed by State law, the State requires or encourages local governments to use a current version of a nationally applicable model building code or standard that addresses natural hazards as a basis for design and construction of State sponsored mitigation projects.

(v) A comprehensive, multi-year plan to mitigate the risks posed to existing buildings that have been identified as necessary for post-disaster response and recovery operations.

(vi) A comprehensive description of how the State integrates mitigation into its post-disaster recovery operations.

(c) *Review and updates.* (1) A State must review and revise its plan to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities, and resubmit it for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(2) In order for a State to be eligible for the 20 percent HMGP funding, the Enhanced State Mitigation plan must be approved by FEMA within the three years prior to the current major disaster declaration.

§ 201.6 Local Mitigation Plans.

The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

(a) *Plan requirement.* (1) For disasters declared after November 1, 2003, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of the project grant.

(2) Regional Directors may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after

notice of grant's termination will not be reimbursed by FEMA.

(3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

(c) *Plan content.* The plan shall include the following:

(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section

and a description of the methodology used to prepare the estimate;

(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(3) A *mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

(iii) An action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

(4) A *plan maintenance process* that includes:

(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

(ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

(iii) Discussion on how the community will continue public participation in the plan maintenance process.

(5) *Documentation* that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

(d) *Plan review.* (1) Plans must be submitted to the State Hazard Mitigation Officer for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval.

(2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(3) Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.

(4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office.

PART 206—FEDERAL DISASTER ASSISTANCE FOR DISASTERS DECLARED ON OR AFTER NOVEMBER 23, 1988

2. The authority citation for part 206 is revised to read as follows:

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

2a. Revise Part 206, Subpart M to read as follows:

Subpart M—Minimum Standards

Sec.
206.400 General.
206.401 Local standards.
206.402 Compliance.

§ 206.400 General.

(a) As a condition of the receipt of any disaster assistance under the Stafford Act, the applicant shall carry out any repair or construction to be financed with the disaster assistance in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications and standards.

(b) Applicable codes, specifications, and standards shall include any disaster resistant building code that meets the minimum requirements of the National Flood Insurance Program (NFIP) as well as being substantially equivalent to the recommended provisions of the National Earthquake Hazards Reduction

Program (NEHRP). In addition, the applicant shall comply with any requirements necessary in regards to Executive Order 11988, Floodplain Management, Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, and any other applicable Executive orders.

(c) In situations where there are no locally applicable standards of safety, decency and sanitation, or where there are no applicable local codes, specifications and standards governing repair or construction activities, or where the Regional Director determines that otherwise applicable codes, specifications, and standards are inadequate, then the Regional Director may, after consultation with appropriate State and local officials, require the use of nationally applicable codes, specifications, and standards, as well as safe land use and construction practices in the course of repair or construction activities.

(d) The mitigation planning process that is mandated by section 322 of the Stafford Act and 44 CFR part 201 can assist State and local governments in determining where codes, specifications, and standards are inadequate, and may need to be upgraded.

§ 206.401 Local standards.

The cost of repairing or constructing a facility in conformity with minimum codes, specifications and standards may be eligible for reimbursement under section 406 of the Stafford Act, as long as such codes, specifications and standards meet the criteria that are listed at 44 CFR 206.226(b).

§ 206.402 Compliance.

A recipient of disaster assistance under the Stafford Act must document for the Regional Director its compliance with this subpart following the completion of any repair or construction activities.

Subpart N—Hazard Mitigation Grant Program

3. Revise § 206.431 to read as follows:

§ 206.431 Definitions.

Activity means any mitigation measure, project, or action proposed to reduce risk of future damage, hardship, loss or suffering from disasters.

Applicant means a State agency, local government, Indian tribal government, or eligible private nonprofit organization, submitting an application to the grantee for assistance under the HMGP.

Enhanced State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201 as a condition of receiving increased funding under the HMGP.

Grant application means the request to FEMA for HMGP funding, as outlined in § 206.436, by a State or tribal government that will act as grantee.

Grant award means total of Federal and non-Federal contributions to complete the approved scope of work.

Grantee means the government to which a grant is awarded and which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally, the State is the grantee. However, an Indian tribal government may choose to be a grantee, or it may act as a subgrantee under the State. An Indian tribal government acting as a grantee will assume the responsibilities of a “state”, under this subpart, for the purposes of administering the grant.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local Mitigation Plan is the hazard mitigation plan required of a local or Indian tribal government acting as a subgrantee as a condition of receiving a project subgrant under the HMGP as outlined in 44 CFR 201.6.

Standard State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201, as a condition of receiving Stafford Act assistance as outlined in § 201.4.

State Administrative Plan for the Hazard Mitigation Grant Program means the plan developed by the State to describe the procedures for administration of the HMGP.

Subgrant means an award of financial assistance under a grant by a grantee to an eligible subgrantee.

Subgrant application means the request to the grantee for HMGP funding by the eligible subgrantee, as outlined in § 206.436.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private nonprofit organizations, or Indian tribal government as outlined in § 206.433.

Indian tribal governments acting as a subgrantee are accountable to the State grantee.

4. Revise § 206.432(b) to read as follows:

§ 206.432 Federal grant assistance.

* * * * *

(b) *Amounts of assistance.* The total of Federal assistance under this subpart shall not exceed either 15 or 20 percent of the total estimated Federal assistance (excluding administrative costs) provided for a major disaster under 42 U.S.C. 5170b, 5172, 5173, 5174, 5177, 5178, 5183, and 5201 as follows:

(1) *Fifteen (15) percent.* Effective November 1, 2003, a State with an approved Standard State Mitigation Plan, which meets the requirements outlined in 44 CFR 201.4, shall be eligible for assistance under the HMGP not to exceed 15 percent of the total estimated Federal assistance described in this paragraph. Until that date, existing, approved State Mitigation Plans will be accepted.

(2) *Twenty (20) percent.* A State with an approved Enhanced State Mitigation Plan, in effect prior to the disaster declaration, which meets the requirements outlined in 44 CFR 201.5 shall be eligible for assistance under the HMGP not to exceed 20 percent of the total estimated Federal assistance described in this paragraph.

(3) The estimates of Federal assistance under this paragraph (b) shall be based on the Regional Director's estimate of all eligible costs, actual grants, and appropriate mission assignments.

* * * * *

5. Section 206.434 is amended by redesignating paragraphs (b) through (g) as paragraphs (c) through (h), respectively; adding a new paragraph (b); revising redesignated paragraphs (c) introductory text and (c)(1); and revising redesignated paragraph (d) to read as follows:

§ 206.434 Eligibility.

* * * * *

(b) *Plan requirement.* (1) For all disasters declared on or after November 1, 2003, local and tribal government applicants for subgrants, must have an approved local mitigation plan in accordance with 44 CFR 201.6 prior to receipt of HMGP subgrant funding. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of subgrants.

(2) Regional Directors may grant an exception to this requirement in extraordinary circumstances, such as in a small and impoverished community

when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.

(c) *Minimum project criteria.* To be eligible for the Hazard Mitigation Grant Program, a project must:

(1) Be in conformance with the State Mitigation Plan and Local Mitigation Plan approved under 44 CFR part 201;

* * * * *

(d) *Eligible activities.* (1) *Planning.* Up to 7% of the State's HMGP grant may be used to develop State, tribal and/or local mitigation plans to meet the planning criteria outlined in 44 CFR part 201.

(2) *Types of projects.* Projects may be of any nature that will result in protection to public or private property. Eligible projects include, but are not limited to:

(i) Structural hazard control or protection projects;

(ii) Construction activities that will result in protection from hazards;

(iii) Retrofitting of facilities;

(iv) Property acquisition or relocation, as defined in paragraph (e) of this section;

(v) Development of State or local mitigation standards;

(vi) Development of comprehensive mitigation programs with implementation as an essential component;

(vii) Development or improvement of warning systems.

* * * * *

6. Revise § 206.435(a) to read as follows:

§ 206.435 Project identification and selection criteria.

(a) *Identification.* It is the State's responsibility to identify and select eligible hazard mitigation projects. All funded projects must be consistent with the State Mitigation Plan. Hazard Mitigation projects shall be identified and prioritized through the State, Indian tribal, and local planning process.

* * * * *

7. Revise § 206.436 to read as follows:

§ 206.436 Application procedures.

(a) *General.* This section describes the procedures to be used by the grantee in submitting an application for HMGP funding. Under the HMGP, the State or Indian tribal government is the grantee and is responsible for processing subgrants to applicants in accordance with 44 CFR part 13 and this part 206. Subgrantees are accountable to the grantee.

(b) *Governor's Authorized Representative.* The Governor's Authorized Representative serves as the grant administrator for all funds provided under the Hazard Mitigation Grant Program. The Governor's Authorized Representative's responsibilities as they pertain to procedures outlined in this section include providing technical advice and assistance to eligible subgrantees, and ensuring that all potential applicants are aware of assistance available and submission of those documents necessary for grant award.

(c) *Hazard mitigation application.* Upon identification of mitigation measures, the State (Governor's Authorized Representative) will submit its Hazard Mitigation Grant Program application to the FEMA Regional Director. The application will identify one or more mitigation measures for which funding is requested. The application must include a Standard Form (SF) 424, Application for Federal Assistance, SF 424D, Assurances for Construction Programs, if appropriate, and a narrative statement. The narrative statement will contain any pertinent project management information not included in the State's administrative plan for Hazard Mitigation. The narrative statement will also serve to identify the specific mitigation measures for which funding is requested. Information required for each mitigation measure shall include the following:

- (1) Name of the subgrantee, if any;
- (2) State or local contact for the measure;
- (3) Location of the project;
- (4) Description of the measure;
- (5) Cost estimate for the measure;
- (6) Analysis of the measure's cost-effectiveness and substantial risk reduction, consistent with § 206.434(c);
- (7) Work schedule;
- (8) Justification for selection;
- (9) Alternatives considered;
- (10) Environmental information consistent with 44 CFR part 9, Floodplain Management and Protection of Wetlands, and 44 CFR part 10, Environmental Considerations.

(d) *Application submission time limit.* The State's application may be amended as the State identifies and selects local project applications to be funded. The State must submit all local HMGP applications and funding requests for the purpose of identifying new projects to the Regional Director within 12 months of the date of disaster declaration.

(e) *Extensions.* The State may request the Regional Director to extend the application time limit by 30 to 90 day

increments, not to exceed a total of 180 days. The grantee must include a justification in its request.

(f) *FEMA approval*. The application and supplement(s) will be submitted to the FEMA Regional Director for approval. FEMA has final approval authority for funding of all projects.

(g) *Indian tribal grantees*. Indian tribal governments may submit a SF 424 directly to the Regional Director.

Subpart H—Public Assistance Eligibility

* * * * *

8. Revise § 206.220 to read as follows:

§ 206.220 General.

This subpart provides policies and procedures for determinations of eligibility of applicants for public assistance, eligibility of work, and eligibility of costs for assistance under sections 402, 403, 406, 407, 418, 419,

421(d), 502, and 503 of the Stafford Act. Assistance under this subpart must also conform to requirements of 44 CFR part 201, Mitigation Planning, and 44 CFR part 206, subparts G—Public Assistance Project Administration, I—Public Assistance Insurance Requirements, J—Coastal Barrier Resources Act, and M—Minimum Standards. Regulations under 44 CFR part 9—Floodplain Management and 44 CFR part 10—Environmental Considerations, also apply to this assistance.

9. Section 206.226 is amended by redesignating paragraphs

(b) through (j) as paragraphs (c) through (k), respectively; adding a new paragraph (b); and revising redesignated paragraph (g)(5) to read as follows:

§ 206.226 Restoration of damaged facilities.

* * * * *

(b) *Mitigation planning*. In order to receive assistance under this section, as

of November 1, 2003, the State must have in place a FEMA approved State Mitigation Plan in accordance with 44 CFR part 201.

* * * * *

(g) * * *

(5) If relocation of a facility is not feasible or cost effective, the Regional Director shall disapprove Federal funding for the original location when he/she determines in accordance with 44 CFR parts 9, 10, 201, or subpart M of this part 206, that restoration in the original location is not allowed. In such cases, an alternative project may be applied for.

* * * * *

Dated: February 19, 2002.

Michael D. Brown,
General Counsel.

[FR Doc. 02–4321 Filed 2–25–02; 8:45 am]

BILLING CODE 6718–05–P

ANNEX C. HAZARD ANALYSIS

The City of Fountain Valley (City) hazard identification and ranking was obtained primarily from Hazard Identification exercise. The Hazard Identification exercise was conducted as a participatory Steering Committee exercise to identify the potential hazards within the City. The exercise was facilitated utilizing an automated interactive software spreadsheet program that asked specific questions on potential hazards and then rates them accordingly. These questions guided the team in the correct facilitation and application of the program. The following spreadsheet summarizes the Hazard Identification exercise risk ranking results, including the descriptions of each hazard factor, and provides the specific descriptor choices for each risk factor and description. Additionally, a risk ranking matrix is provided to designate the overall ranking score and categorization of each hazard.

Hazard Identification and Risk Ranking

Each hazard profile included a profile ranking of the hazard (ranging from low risk to high risk). The Steering Committee determined this initial profile ranking based on all of the hazard identification and profile research summarized and group discussion and evaluation of all of the data, including numerical rankings (1-5) of the following criteria:

- **Consequence/Severity** – How wide spread is the impact area?
- **Secondary Effects** – Could the event trigger another event and separate response?
- **Probability/Frequency** – Historical view of how often this type of event occurs locally and projected recurrence intervals.
- **Warning/Onset** – Advance warning of the event, or none.
- **Duration** – Length of elapsed time where response resources are active.
- **Recovery** – Length of time until lives and property return to normal.



Table C.1 Risk Factors for Hazard Identification

RISK FACTOR	DESCRIPTION	DESCRIPTORS	VALUE
PROBABILITY/ FREQUENCY	Prediction of how often a hazard will occur in the future.	Rare event - occurs less than once every 50 years	1
		Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
		Regular event - occurs between once a year and once every 7 years	3
		Frequent event - occurs more than once a year	4
CONSEQUENCE/SEVERITY	Physical Damage - structures and lifelines Economic Impact – loss of function for power, water, sanitation, roads, etc., as applicable	No damage	1
		Minor/slight damage to buildings and structures, no loss of lifelines	2
		Moderate building damage, minor loss of lifelines (less than 12 hours)	3
		Moderate building damage, lifeline loss (less than 24 hours)	4
		Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
VULNERABILITY	Impact Area - area impacted by a hazard event, Secondary Impacts - Capability of triggering additional hazards Onset - Period of time between initial recognition of an approaching hazard and when the hazard begins to impact the community	No physical damage, no secondary impacts	1
		Localized damage area	2
		Localized damage area, minor secondary impacts, delayed hazard onset	3
		Moderate damage area, moderate secondary impacts, moderate warning time	4
		Widespread damage area, significant secondary impacts, no warning time	5

Each profile includes a ranking of the hazard. The hazard rankings were determined by assigning each hazard the appropriate risk factors as described above. The risk factors were then used with a hazard ranking matrix to determine the final hazard score. The following table provides the matrix used for determining each hazard's score.

Table C.2 Risk Rank Matrix

PROBABILITY/ FREQUENCY DESCRIPTION		RISK RANKING MATRIX					
Rare Event: Occurs less than once every 50 years	Probability/Frequency	Consequence/Severity					
	Value	1	1	2	3	4	5
	Vulnerability	1	1	2	3	4	5
		2	2	4	6	8	10
		3	3	6	9	12	15
		4	4	8	12	16	20
		5	5	10	15	20	25
Infrequent Event: Occurs between once every 8 years and once every 50 years (inclusive)	Probability/Frequency	Consequence/Severity					
	Value	2	1	2	3	4	5
	Vulnerability	1	2	4	6	8	10
		2	4	8	12	16	20
		3	6	12	18	24	30
		4	8	16	24	32	40
		5	10	20	30	40	50
Regular Event: Occurs between once a year and once every 7 years	Probability/Frequency	Consequence/Severity					
	Value	3	1	2	3	4	5
	Vulnerability	1	3	6	9	12	15
		2	6	12	18	24	30
		3	9	18	27	36	45
		4	12	24	36	48	60
		5	15	30	45	60	75

The hazard scores from the Hazard Ranking Matrix were compared to the hazard rank criteria to finally categorize each hazard with a hazard ranking. The table below provides the value determinations for each hazard ranking.

Table C.3 Risk Rank Categorization

High Hazard	50-100
Moderately High Hazard	25-49
Moderate Hazard	15-24
Moderately Low Hazard	5-14
Low Hazard	1-4

The hazard ranking worksheets are provided in the following pages.

Table C.4 Hazard Identification and Risk Ranking

EARTHQUAKE	RANK FACTORS	HAZARD FACTOR DESCRIPTION	RANK
	Probability	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
	Consequence	Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
	Vulnerability	Widespread damage area, significant secondary impacts, no warning time	5
	Risk	Moderately High	50
	Comments	1994 Northridge earthquake: damage of three water well pumps within the City. Minor building damage (no record of major damages).	
ADVERSARIAL EVENTS	RANK FACTORS	HAZARD FACTOR DESCRIPTION	RANK
	Probability	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
	Vulnerability	Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
	Consequence	Moderate damage area, moderate secondary impacts, moderate warning time	4
	Risk	Moderately High	40
	Comments		

CYBER ATTACK	RANK FACTORS	HAZARD FACTOR DESCRIPTION	RANK
	Probability	Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	3
	Consequence	Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5
	Vulnerability	Moderate damage area, moderate secondary impacts, moderate warning time	4
	Risk	Moderately High	40
	Comments		
FLOOD	RANK FACTORS	HAZARD FACTOR DESCRIPTION	RANK
	Probability	Regular event - occurs between once a year and once every 7 years	3
	Consequence	Minor/slight damage to buildings and structures, no loss of lifelines, first aid injury and no disability	2
	Vulnerability	Localized damage area, minor secondary impacts, delayed hazard onset	3
	Risk	Moderate	18
	Comments	Flooding areas: Sandalwood, Walnut, Heil. Sandalwood pump stations impacted (current project underway). Orange coast Hospital basement damage. Roof collapsed due to maintenance issues with drains. Power outages. *Result of high precipitation, runoff; Mentioned impacts to city intrastucture, roadways; updates to the flood map;	

DAM/ RESERVOIR FAILURE	RANK FACTORS	HAZARD FACTOR DESCRIPTION	RANK
	Probability	Rare event - occurs less than once every 50 years	1
	Consequence	Moderate building damage, lifeline loss (less than 24 hours), severe injury or disability	4
	Vulnerability	Moderate damage area, moderate secondary impacts, moderate warning time	4
	Risk	Moderate	16
	Comments		

ANNEX D. PUBLIC PARTICIPATION AND PLANNING PROCESS

Public participation is a crucial component of the Hazard Mitigation Planning process, ensuring that the voices of all community members, particularly those from vulnerable populations, are included in the development of hazard mitigation strategies. For the City of Fountain Valley (City), engaging the public through outreach efforts was a priority, especially for those who may face heightened risks during emergencies.

The Hazard Mitigation Planning Committee (HMPC) discussed the inclusion of the public in the planning process and focused on the inclusion of vulnerable populations. As part of that deliberation, the HMPC discussed English Language Proficiency, economic disadvantages, and complications related to age among other aspects that make certain portion so the community more susceptible to the impacts of hazardous situations. The City decided to focus its efforts for vulnerable populations on the elderly (+65 years) for several reasons. Within the City, the most economically disadvantaged were determined to be individuals in assisted-living conditions. Nearly all the individuals in this situation are advanced in age. The HMPC also discussed that the community, by and large is aging, with people over 65 years making about over 20% of the population. Many of these individuals purchased homes decades ago and will rising housing prices and retired individuals on limited incomes, this demographic seemed the one this planning period should focus on.

While various outreach methods for the elderly community were considered, the primary focus was on engaging the senior community, a key vulnerable population identified by the Hazard Mitigation Planning Committee (HMPC), through direct interaction at the Senior Expo and through the distribution of informational flyers. These efforts provided valuable insight into their awareness of local hazards, their concerns about vulnerability, and their preferences for receiving information. The feedback gathered through this method played an important role in shaping the city's Hazard Mitigation Plan, ensuring that it is both relevant and responsive to the needs of all residents.



Participant Profiles and Methods for Successful Outreach

To ensure the development of the Hazard Mitigation Plan accurately reflects community needs and concerns, the City focused its outreach efforts on engaging vulnerable populations, particularly seniors, who are often at higher risk during disasters. Recognizing that traditional outreach methods had effectively engaged the general population, the HMPC intentionally targeted the senior demographic to incorporate their unique perspectives into the planning process.

A key component of this targeted outreach was participation in the annual Senior Exposition, held at The Center at Founders Village Senior & Community Center. The Senior Exposition is a health and wellness fair that connects seniors with valuable services and information. It includes vendor booths, health screenings, prizes, giveaways, music, and food, making it an attractive, yet informative, gathering for the senior community.

The event attracted dozens of vendors from the area, including healthcare providers and organizations specializing in senior services. A few of the participants included MemorialCare Orange Coast Medical Center, UCI Health- Fountain Valley, Hyundai, Syrentis Clinical Research, and Optum. Additionally, and more importantly, the events attracts hundreds of community members almost entirely from the targeted elderly community.

At the event, the HMPC set up a dedicated booth where committee members provided information to over 100 community representatives about the hazard mitigation planning



process and the hazards identified during the planning meetings. The team also distributed printed flyers containing details about the planning process, local hazards, and ways seniors could contribute feedback. These materials ensured that seniors could review the information at their own pace and provide thoughtful input.

In addition to engaging with seniors directly, HMPC members also took the opportunity to speak with representatives from various organizations that cater to vulnerable populations. Conversations with vendors and service providers offered valuable insights into the specific challenges vulnerable populations may face during disasters, including mobility issues, medical needs, and communication barriers.

By participating in the Senior Exposition, the HMPC strengthened its understanding of how seniors experience hazard risks and gathered meaningful feedback for the Hazard Mitigation Plan. This targeted approach helped ensure that the perspectives of the senior community, and the organizations that serve them, were integrated into the City's long-term hazard mitigation strategies. Additionally, by reaching out through this public event, the City worked to ensure that all residents, especially those who may face challenges in accessing digital platforms or online surveys, had an opportunity to participate.

Inferences from Public Outreach

The Senior Expo provided an excellent platform to connect directly with Fountain Valley residents and seniors, who are a key demographic when considering hazard vulnerability.

Through conversations with residents of the City, it became evident that many elderly residents prefer written materials, such as the flyers that were available to them at the booth, over in-person discussions, as written information allows them to process the details at their own pace before providing input. Recognizing this, the City identified an opportunity to improve future outreach efforts by incorporating printed materials into routine mailings, such as including hazard mitigation updates and information for resources in water bills. This approach ensures that critical information reaches a broader audience and allows seniors to engage in the planning process in a way that aligns with their preferences. The City also acknowledged the need to expand public education efforts, which directly informed the development of the mitigation actions that are aimed at increasing outreach, including targeted cyber security awareness and protections (2024.HMP.07) for seniors and improved protections against cyber threats and scams.

In addition to communication preferences, seniors at the event expressed concerns about mobility and evacuation challenges in the event of a disaster. Many worried about how they would be able to evacuate safely, which highlighted the importance of planning for accessible transportation options and sheltering for elderly residents. In response, the City incorporated a mitigation action (2024.HMP.02) to identify elderly care facilities that would require evacuation assistance and develop a plan to ensure safe relocation and sheltering. Additionally, feedback regarding the need for stronger community preparedness led to the inclusion of a Community Emergency Response Team, which will help train volunteers to assist vulnerable populations during emergencies.

Another key theme that emerged from discussions at the Senior Exposition was the importance of maintaining stable government services and emergency response capabilities during disasters. Seniors expressed concerns about access to essential

services, such as medical care and emergency support, in the aftermath of a disaster. This feedback reinforced the need for structural improvements to city-owned buildings and infrastructure to ensure government continuity and the stability of programs that support vulnerable populations (2024.HMP.01 and 2024.HMP.03).

To reach more people, flyers with important information about local hazards, the mitigation planning process, and ways for residents to get involved were handed out at the event and in other community spaces. Going forward, sending written materials through the mail, as well as using CERT volunteers to connect with vulnerable populations, will be key to getting feedback, especially from senior residents. These efforts, along with the mitigation actions informed by the feedback received at the Senior Exposition, will help create a more inclusive and effective hazard mitigation strategy that addresses the unique concerns of elderly residents and the broader community.

Potential Hazard Mitigation Planning Committee Participants

The following list outlines potential HMPC participants that should be invited to participate in the Plan update. All invitations should be documented to be included in the Hazard Mitigation Plan as evidence of public and stakeholder outreach. Please maintain records of any emails. If appropriate, please consider copying Ryan.Bray@RMPCorp.com. Risk Management Professionals staff is happy to maintain documentation on the City's behalf.

1. Fountain Valley Chamber of Commerce
2. Carmel Village
3. Boys & Girls Club
4. Orange Coast Memorial Hospital
5. City of Fountain Valley Housing Department
6. City of Fountain Valley Planning
7. City of Fountain Valley Police Department
8. City of Fountain Valley Fire Department
9. City of Fountain Vally Public Works
10. City of Fountain Valley Finance
11. Municipal Water District of Orange County

12. Orange County Social Services

13. City of Huntington Beach

14. City of Costa Mesa

Planning Process

The following sections provide additional information and supporting documentation about the planning process implemented by the Hazard Mitigation Planning Committee to update the Hazard Mitigation Plan. For descriptions of the content of each Hazard Mitigation Planning Committee meeting, please refer to Chapter 1.

City of Fountain Valley's Local Hazard Mitigation Plan (LHMP) Update

What is an LHMP?

An LHMP is a plan that seeks to enhance the resilience of communities, reducing their vulnerability to damage, loss, or disruption from natural or human-caused hazards. The planning process includes assessing the risk of hazards that pose a risk to the community, identifying vulnerabilities within the community, documenting the resources for risk reduction, and identifying and developing mitigation strategies that will improve the City's resiliency. The resulting document, the LHMP, serves as a municipality's guide for enhancing community resilience.

What Hazards Will the LHMP Protect Against?

Earthquake	Adversarial Events	Flood	Cyber Attack
Windstorm	Drought	Dam/ Reservoir Failure	Climate Change

City of Fountain Valley

Local Hazard Mitigation Plan (LHMP) Update

What is an LHMP?

An LHMP is a plan that seeks to enhance the resilience of communities, reducing their vulnerability to damage, loss, or disruption from natural or human-caused hazards. The planning process includes assessing the risk of hazards that pose a risk to the community, identifying vulnerabilities within the community, documenting the resources for risk reduction, and identifying and developing mitigation strategies that will improve the City's resiliency. The resulting document, the LHMP, serves as a municipality's guide for enhancing community resilience.

Why Have an LHMP?

The update of the City's LHMP will not only ensure that the City is eligible to receive FEMA hazard mitigation funds but will also lead the City in developing a safer, more sustainable community. While the City cannot entirely eliminate natural and human-caused risks to the community, the LHMP aims to enhance community safety. By conducting a thorough evaluation of potential threats and crafting a unified approach to address them, the LHMP fosters better coordination and collaboration among the City, public agencies, businesses, service providers, and residents. Together, these efforts strive to minimize the impacts of both natural and human-induced hazards on the community.

How is the City's LHMP Being Prepared?

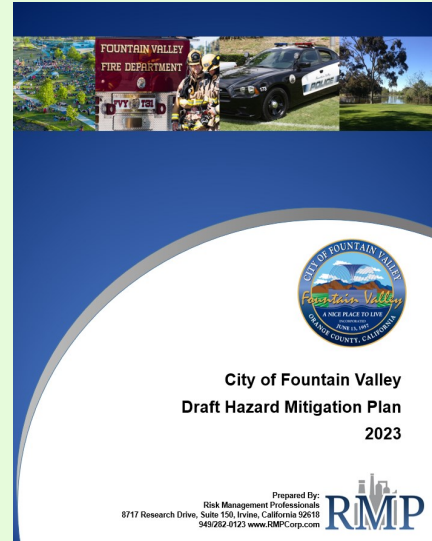
The City has established a Hazard Mitigation Planning Committee (HMPC), featuring representatives from numerous City departments, and is aided by essential stakeholders and technical advisors. Together, these contributors constitute the Project Team responsible for steering the overall development of the City's LHMP.

What Hazards Will the LHMP Protect Against?

Earthquake	Adversarial Events	Flood	Cyber Attack
Windstorm	Drought	Dam/Reservoir Failure	Climate Change

Why Get Involved?

Your engagement in the planning process is vital as it brings diverse perspectives and experiences to the table. As community members, you have unique insights into local hazards and vulnerabilities based on your lived experiences and observations. Your input helps us identify risks more comprehensively and develop targeted strategies that address the specific needs of our community. Together, we can develop a hazard mitigation plan that reflects the collective wisdom and resilience of our community, better preparing us to address future challenges and protect the well-being of all our residents.



City of Fountain Valley - Local Hazard Mitigation Plan Update Steering Committee Invitation

From Ryan Bray <ryan.bray@rmppcorp.com>

Date Wed 9/27/2023 4:12 PM

To Ryan Bray <ryan.bray@rmppcorp.com>

Cc Michelle <Michelle.Rudaitis@fountainvalley.org>; Shireen Kulkarni <Shireen.Kulkarni@rmppcorp.com>

Bcc Ashlyn.Newman@fountainvalley.gov <Ashlyn.Newman@fountainvalley.gov>; Steven.Ayers@fountainvalley.gov <Steven.Ayers@fountainvalley.gov>; Dlarusso@ssa.ocgov.com <Dlarusso@ssa.ocgov.com>; bmettler@surfcity-hb.org <bmettler@surfcity-hb.org>; BRENDA.EMRICK@costamesaca.gov <BRENDA.EMRICK@costamesaca.gov>; Matt.Sheppard@fountainvalley.gov <Matt.Sheppard@fountainvalley.gov>; Mark.Sprague@fountainvalley.gov <Mark.Sprague@fountainvalley.gov>; Robin.Harnish@fountainvalley.gov <Robin.Harnish@fountainvalley.gov>; vosborn@mwdoc.com <vosborn@mwdoc.com>; Bill.McQuaid@fountainvalley.gov <Bill.McQuaid@fountainvalley.gov>

Greetings,

I am writing to you today on behalf of the City of Fountain Valley Fire Department

The City of Fountain Valley is embarking on an update to its Local Hazard Mitigation Plan (LHMP). Having an LHMP which has been approved by the Federal Emergency Management Agency (FEMA) grants eligibility to the City for Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC) grant funding. By this email, the City would like to invite you to participate in a Steering Committee that will guide the update process.

The project kick-off meeting will be held on October 3, 2023 at 10:00 AM in the City of Fountain Valley City Hall. If you would like to participate, please reply to this email and I will send you the meeting details.

Thank you!

Ryan Bray
Senior Technical Consultant
Risk Management Professionals
8717 Research Drive, Suite 150
Irvine, CA 92618

Ryan.Bray@RMPCorp.com

Office: 949-282-0123

Connect with RMP on [LinkedIn](#)

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CITY OF FOUNTAIN VALLEY

HAZARD MITIGATION PLAN UPDATE

Ryan Bray

Risk Management Professionals, Inc.
(949) 282-0123
www.RMPCorp.com

MEETING AGENDA

- Project Overview and Background
- Steering Committee Goals
- Risk Assessment Background
- Hazard Identification and Ranking



PROJECT OVERVIEW

DISASTER MITIGATION ACTION OF 2000

- Revitalized Federal Planning Requirements
 - State and Local Hazard Mitigation Plans
 - Plans must be updated every five years
- Federal Grant Funding Eligibility
 - Hazard Mitigation Grant Program (HMGP)
 - Building Resilient Infrastructure Communities (BRIC)
- Disaster Mitigation Act of 2000 is intended to facilitate cooperation between state and local authorities on risk reduction measures and to expedite funding allocation



PUBLIC PROCESS

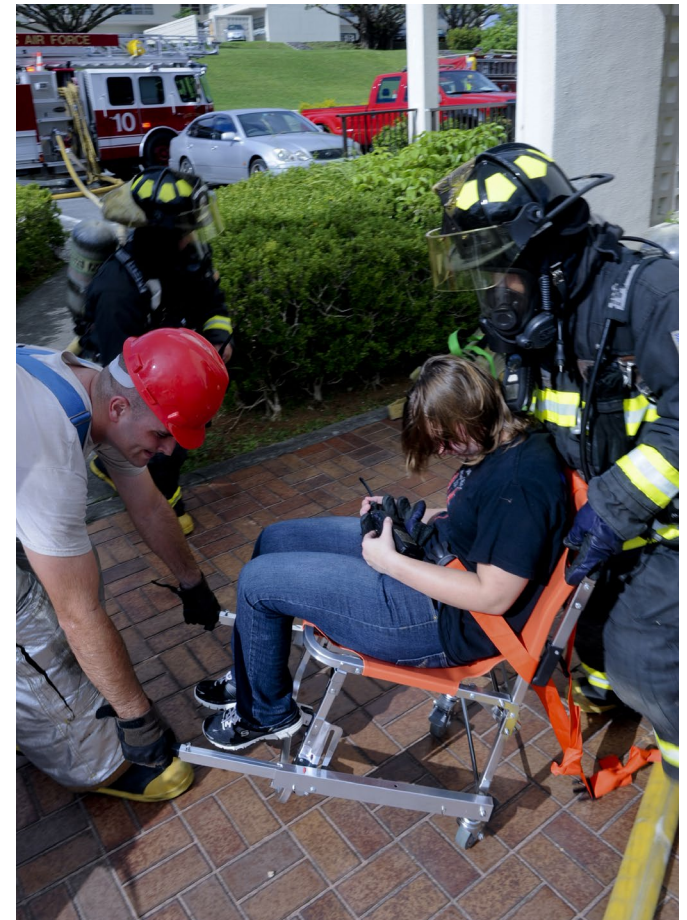
DMA 2000 Stresses Public Participation:

- An open public involvement process that is comprehensive, continuous and starts early
- Coordination with neighboring communities and various interest groups in Plan development



FOCUS ON SENSITIVE POPULATIONS

- New guidance requires a targeted effort to address portions of the population which may be at greater risk to the impacts of a hazard event.
- Identifying Factors
 - Age – Maturity & Youth
 - Persons under 5 Years – 4.8%
 - Persons over 65 Years – 20.2%
 - Economic Standing
 - Persons in poverty – 8.3%
 - Limited English Proficiency
 - Vietnamese, Spanish – 18.3%
 - Mobility/Cognitive Disabilities
 - With a disability, under 65 years – 5.2%



FEMA'S NEW GUIDANCE ON STAKEHOLDERS

Local/Regional agencies
involved in Hazard
Mitigation activities
(Public works, emergency
management)

Agencies that have the
authority to regulate
development (Zoning,
planning, community, and
economic development
departments)

Neighboring Communities
(Adjacent local
governments)

Representatives of
Businesses, Academia,
and other Private
Organizations (Private
utilities)

Representatives of
Nonprofit Organizations
(Housing, healthcare, or
social service agencies)

CLIMATE CHANGE

- California Adaptation Planning Guide (APG) released Spring 2020
- APG released in response to several Executive Orders encouraging research of and response to climate change
- The City of Fountain Valley is in the Orange County Region. The District should consider some of the following hazards
 - Increased Temperatures
 - Reduced Precipitation
 - Sea Level Rise
 - Wildfire Risk
 - Public Health (heat and air quality)



STEERING COMMITTEE GOALS

- Review existing Plan for implementation
- Review the list of potential hazards and add additional hazards for the revision
- Determine the hazard impacts throughout the City
- Interface with partner agencies to determine existing mitigation measures
- Develop possible approaches to projects which will reduce the impacts
- Prioritize mitigation projects for implementation

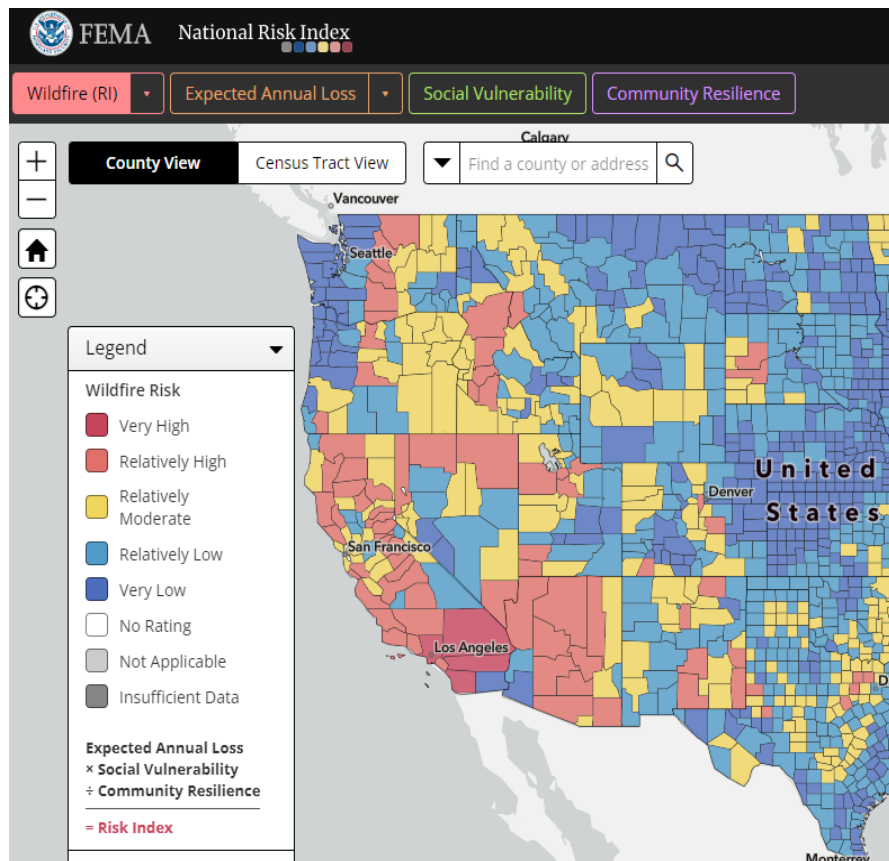


RISK ASSESSMENT METHODOLOGY

RISK ASSESSMENT METHODOLOGY

- Risk Assessment provides the foundation for the mitigation planning process, which is focused on identifying and prioritizing actions to reduce risk to hazards
- FEMA recommended steps for conducting a risk assessment
 - Describe Hazards
 - Identify Community Assets
 - Analyze Risks
 - Summarize Vulnerability
- Risk Management Professionals incorporates each of these steps into the Plan update process and has acquired CalOES and FEMA approval using this methodology many times.

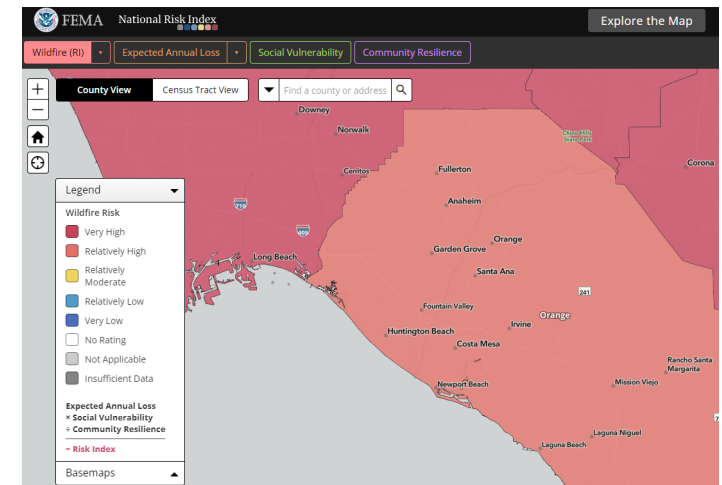
FEMA'S NATIONAL RISK INDEX



- The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards. It was designed and built by FEMA in close collaboration with various stakeholders and partners in academia, local, state and federal government, and private industry.
- The Risk Index leverages available source data for natural hazard and community risk factors to develop a baseline risk measurement for each United States county and Census tract.

FEMA'S NATIONAL RISK INDEX- IDENTIFIED HAZARDS

- Drought: Relatively Low
- Earthquake: Very High
- Heat Wave: Relatively Moderate
- Landslide: Relatively Moderate
- Lightning: Relatively Low
- Riverine Flooding: Relatively High
- Strong Wind: Relatively Low
- Tornado: Relatively Moderate
- Tsunami: Relatively Low
- Wildfire: Relatively High



RISK ASSESSMENT – HAZARDS FROM THE PREVIOUS PLAN

- Earthquake
- Terrorism
- Severe Storm/Flood
- Windstorm
- Dam/Reservoir failure
- Pipeline Failure
- Subsidence
- Drought

RISK ASSESSMENT – POTENTIAL HAZARDS

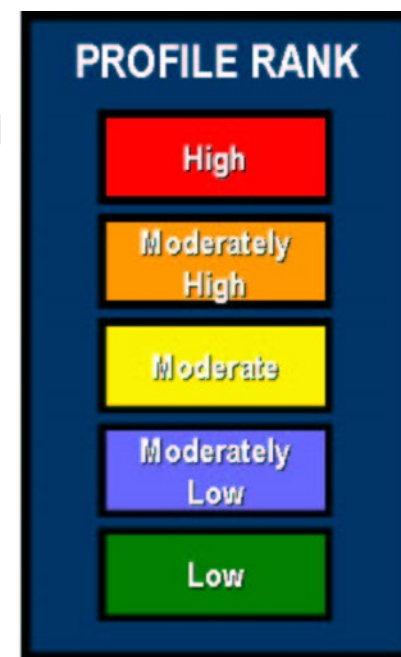
HAZARDS RESULTING FROM CLIMATE CHANGE

- Increased Temperatures
- Reduced Precipitation
- Sea Level Rise
- Reduced Tourism
- Reduced Water Supply
- Wildfire Risk
- Public Health (heat and air quality)
- Coastal Erosion



RISK RANK METHODOLOGY

- The risk ranking is facilitated using an automated interactive spreadsheet program that asks specific questions on potential hazards and then assigns a relative value to each potential hazard accordingly.
- The result of the workshop will be a ranked list of hazards to be studied in detail in the Hazard Mitigation Plan.



Type a question for help			
C3			
	A	B	C
1	HAZARD IDENTIFICATION AND RISK RANKING		
2	Earthquake	Hazard Rank Factors	Hazard Factor Description
3		Probability/Frequency	
4		Consequence/Severity	
5		Vulnerability	Probability/Frequency
6		Risk Rank	Infeasible event - not applicable due to geographic location characteristics
7		Comments	Rare event - occurs less than once every 50 years
8			
9	Wildfire	Hazard Rank Factors	Hazard Factor Description
10		Probability	
11		Vulnerability	
12		Consequence	
13		Risk Rank	Not a Hazard
14		Comments	
15			
16	Flood	Hazard Rank Factors	Hazard Factor Description
17		Probability	
18		Vulnerability	
19		Consequence	
20		Risk Rank	Not a Hazard
		Comments	

RISK RANKING – PROBABILITY/FREQUENCY

- **Recurrence Interval** – Prediction of how often a hazard will occur in the future, including projected return intervals

Probability/Frequency Rank Descriptors	Rank
Infeasible event - not applicable due to geographic location characteristics	0
Rare event - occurs less than once every 50 years	1
Infrequent event - occurs between once every 8 years and once every 50 years (inclusive)	2
Regular event - occurs between once a year and once every 7 years	3
Frequent event - occurs more than once a year	4

RISK RANKING – CONSEQUENCE/SEVERITY

Physical Damage – Structures and lifelines

Economic Impact – Loss of power, water, sanitation, roads, etc...

Probability/Frequency Rank Descriptors	Rank
No damage	1
Minor/slight damage to buildings and structures, no loss of lifelines, first aid injury and no disability	2
Moderate building damage, minor loss of lifelines (less than 12 hours), lost time injury but no disability	3
Moderate building damage, lifeline loss (less than 24 hours), severe injury or disability	4
Extensive building damage, widespread loss of lifelines (water, gas, electricity, sanitation, roads), loss of life	5

RISK RANKING - VULNERABILITY

- **Impact Area** – Area impacted by a hazard event
Secondary Impacts – Capability of triggering additional hazards
Onset - Period between initial recognition of an approaching hazard and when the hazard begins to impact the community

Vulnerability Rank Descriptors	Rank
No physical damage, no secondary impacts	1
Localized damage area	2
Localized damage area, minor secondary impacts, delayed hazard onset	3
Moderate damage area, moderate secondary impacts, moderate warning time	4
Widespread damage area, significant secondary impacts, no warning time	5

RISK RANKING - MATRIX

Probability/Frequency Description	Risk Ranking Matrix						
Rare Event: Occurs less than once every 50 years	Probability/Frequency		Consequence/Severity				
	Value	1	1	2	3	4	5
	Vulnerability	1	1	2	3	4	5
		2	2	4	6	8	10
		3	3	6	9	12	15
		4	4	8	12	16	20
		5	5	10	15	20	25
Infrequent Event: Occurs between once every 8 years and once every 50 years (inclusive)	Probability/Frequency		Consequence/Severity				
	Value	2	1	2	3	4	5
	Vulnerability	1	2	4	6	8	10
		2	4	8	12	16	20
		3	6	12	18	24	30
		4	8	16	24	32	40
		5	10	20	30	40	50
Regular Event: Occurs between once a year and once every 7 years	Probability/Frequency		Consequence/Severity				
	Value	3	1	2	3	4	5
	Vulnerability	1	3	6	9	12	15
		2	6	12	18	24	30
		3	9	18	27	36	45
		4	12	24	36	48	60
		5	15	30	45	60	75
Frequent Event: Occurs more than once a year	Probability/Frequency		Consequence/Severity				
	Value	4	1	2	3	4	5
	Vulnerability	1	4	8	12	16	20
		2	8	16	24	32	40
		3	12	24	36	48	60
		4	16	32	48	64	80
		5	20	40	60	80	100

RISK RANK CATEGORIZATION

Risk Rank Equation

$\text{Risk} = \text{Probability} \times \text{Consequence} \times \text{Vulnerability}$

Risk Rank Categorization	
High Hazard	50 to 100
Moderately High Hazard	25 to 49
Moderate Hazard	15 to 24
Moderately Low Hazard	5 to 14
Low Hazard	1 to 4

QUESTIONS?

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**City of Fountain Valley
HAZARD MITIGATION PLAN-
Steering Committee Meeting #1**

October 3, 2023

Name	Company	Position	Email Address	Phone #
MARK SHUCK	Memorial Health	Exec Director Facility of + Develop	mshuck@memorialcare.org	714 318 7798
Maggie Le	City	City Mgr	maggie.le@fountainvalley.gov	714 593-4410
Robin Harnish	FV	Finance Mgr	Robin.Harnish@fountainvalley.gov	714 593-
Matt Barr	FVFD	Batt. Chief	matbarr@fountainvalley.gov	714 593 4549
Shawn Ayers	Planning Dept	Principal Planner	shawn.ayers@fountainvalley.gov	714 593-4431
Kristen Rygh	Memorial Care	VP Gov't + Community Rel	krygh@memorialcare.org	714-975-1680 ~~(575)~~
Shireen Kulkarni	Risk management Professionals	Technical Specialist	shireen.kulkarni@rmpcorp.com	949-385-6004.
Michelle Rudaitis	FVFD	Battalion chief- Administration / Fire Marshal	michelle.rudaitis@fountainvalley.org	714-593-4430.



CITY OF FOUNTAIN VALLEY

HAZARD MITIGATION PLAN UPDATE

STEERING COMMITTEE MEETING #2

Ryan Bray

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MEETING AGENDA

- Review Hazard Ranking
- Review Previous HMP Mitigation Goals and Objectives
- Engage in discussions to review and develop Goals and Objectives specific to the needs of the City
- Align Goals and Objectives with State and County Goals



HAZARD RANKING REVIEW

HAZARD RANKING SUMMARY

Rank	Score
High	
Earthquake	50
Moderately High	
Adversarial Events	40
Moderate	
Windstorm	24
Flood	18
Drought	16
Dam/Reservoir Failure	16
Moderately Low	
Low	



MITIGATION GOALS AND OBJECTIVES

OVERALL PLAN GOALS (2018)

- Protect Life and Property
- Promote Public Awareness and Outreach
- Promote Partnerships and Implementation
- Improve Emergency Services and Management Capability



NEXT STEPS...

ASSET INVENTORY

Review Asset Inventory

- Types and number of existing and future buildings
- Infrastructure
- Critical Facilities

Loss Estimates

- Review each asset category and assign potential percentage of damage expected due to each identified hazard

QUESTIONS?

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**City of Fountain Valley
HAZARD MITIGATION PLAN-
Steering Committee Meeting #2**

January 22, 2024

Name	Company	Position	Email Address	Phone #
Michelle Rudolph	FVFD	Fire Marshall		714 861 0414
Thang Nguyen	FVFO	Fire Prevention	thang.nguyen@fountainvalley.gov	657-202-4140
Mark Sprague	FV Public Works	Field Services Manager	mark.sprague@fountainvalley.gov	714 593 4609
Ashlyn Newman	Community Development	Housing Coordinator	Ashlyn.Newman@fountainvalley.gov	714-593-4428
Stan Ayas	Comm. Dev.	Principal Planner	stan.ayas@fountainvalley.gov	714/593-4451
Shireen Kulkarni	Risk Management Professionals	Technical consultant	shireen.kulkarni@RMPcorp.com	949-385-6004
Ryan Bray	Risk Management Professionals	Sr. Technical consultant	RYAN.Bray@RMPcorp.com	949-282-0123 x 238



CITY OF FOUNTAIN VALLEY

HAZARD MITIGATION PLAN UPDATE

STEERING COMMITTEE MEETING #3

Ryan Bray
Shireen Kulkarni

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MEETING AGENDA

- Review Asset Inventory List
- Validate Vulnerability Assessment with Loss Estimate Calculations
- Discuss Sensitive Populations at Risk from Identified Hazard Events



ASSET INVENTORY & LOSS ESTIMATES



ASSET INVENTORY

- Asset Inventory
 - Types and umber of existing and future buildings
 - Infrastructure
 - Critical facilities

Asset Inventory Summary – City of Fountain Valley				
Type	Name	Address	Structure Value	TOTAL
Public Facility	CITY HALL & COUNCIL CHAMBERS	10200 SLATER AVENUE	\$4,352,600	\$5,397,224
Public Facility	BOYS & GIRLS CLUBHOUSE ACADEMY	10200 SLATER AVENUE	\$1,387,000	\$1,719,880
Public Facility	CHILD CARE FACILITY	17565 LOS ALAMOS	\$1,431,000	\$1,774,440
Public Facility	LIBRARY	17635 LOS ALAMOS STREET	\$1,816,000	\$2,251,840

VULNERABILITY ASSESSMENT ESTIMATES

Review each asset and assign potential percentage of damage expected due to each identified hazard

City of Fountain Valley Vulnerability Assessment Calculations				Earthquake		Adversarial Events		Flood	
Type	Name		TOTAL	% Damage	Loss Estimate	%	Loss Estimate	%	Loss Estimate
Public Facility	CITY HALL & COUNCIL CHAMBERS	10200 SLATER AVENUE	\$5,397,224	35%	\$1,889,028	5%	\$269,861	3%	\$161,917
Public Facility	BOYS & GIRLS CLUBHOUSE ACADEMY	10200 SLATER AVENUE	\$1,719,880	25%	\$429,970	5%	\$85,994	3%	\$51,596
Public Facility	CHILD CARE FACILITY	17565 LOS ALAMOS	\$1,774,440	25%	\$443,610	5%	\$88,722	3%	\$53,233
Public Facility	LIBRARY	17635 LOS ALAMOS STREET	\$2,251,840	25%	\$562,960	5%	\$112,592	3%	\$67,555
Public Facility	CITY YARD	17300 MT HERRMANN STREET	\$5,794,520	25%	\$1,448,630	5%	\$289,726	3%	\$173,836
Public Facility	THE CENTER AT FOUNDERS VILLAGE SR. COMM. CENTER	17967 BUSHARD ST.	\$4,377,200	10%	\$437,720	5%	\$218,860	3%	\$131,316
Police	POLICE FACILITY	10200 SLATER AVENUE	\$14,650,600	30%	\$4,395,180	5%	\$732,530	3%	\$439,518
Fire	FIRE STATION #1	17737 BUSHARD STREET	\$1,903,400	75%	\$1,427,550	5%	\$95,170	3%	\$57,102



NEXT STEPS...

MITIGATION ACTIONS

Develop Mitigation Actions

- Summarize mitigation project specifications
- Identify project goal categories
- Capital Improvements

Action Categories

- Prevention
- Property Protection
- Public Awareness
- Natural Resource Protection
- Emergency Services
- Structural Projects



QUESTIONS?

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**City of Fountain Valley
HAZARD MITIGATION PLAN-
Steering Committee Meeting #3**

February 26, 2024

Name	Company	Position	Email Address	Phone #
Bill McQuaid	FVFD	Fire Chief	bill.mcquaid@fountainvalley.gov ~~bill.mcquaid~~	714 336-6844
Sean Ayres	Planning Dept	Principal Planner	sean.ayres@fountainvalley.gov	714/593-4431
Ashlyn Newman	CDD	Housing Coordinator	Ashlyn.Newman@fountainvalley.org	714-593-4428
Mark Sprague	FV	Field Services Manager	mark.sprague@fountainvalley.gov	714 593-4609
Robin Harnish	FV	Finance Mgr	Robin.Harnish@fountainvalley.gov	714-593-4681
Mukul Kulkarni	RMP	Fire Marshal		
Ryan Bray	Risk Mgmt Prof.	Sr. Tech Consultant	ryan.bray@RMPCorp.com	949.282.0123
Shireen Kulkarni	Risk management professionals	Technical Consultant	shireen.kulkarni@rmcorp.com	949-282-0123 ext - 242.



CITY OF FOUNTAIN VALLEY

HAZARD MITIGATION PLAN UPDATE

STEERING COMMITTEE MEETING #4

Ryan Bray
Shireen kulkarni

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MEETING AGENDA

- Review Mitigation Goals
- Develop Potential Mitigation Projects
- Discuss next steps of the update process



MITIGATION GOALS AND OBJECTIVES REVIEW

OVERALL PLAN GOALS

- Protect Life and Property
- Promote Public Awareness and Outreach
- Promote Partnerships and Implementation
- Improve Emergency Services and Management Capability



IDENTIFY POTENTIAL MITIGATION ACTIONS

EARTHQUAKE EXAMPLE MITIGATION PROJECTS

- Building Retrofits
- Anchor Electrical Transformers
- Install Expansion Joints
- Reinforce Well Shaft or Install Submersible Pump
- Restrain Pipes
- Improve Pipe Materials
- Install Tank Anchors
- Install Friction Dampers on Elevated Tanks

TERRORISM EXAMPLE MITIGATION PROJECTS

- Emergency Plans
- Emergency Response Teams
- Security
- Training

SEVERE STORM/ FLOOD EXAMPLE MITIGATION PROJECTS

- Implement Tree Trimming
- Retrofits
- Anchoring
- Traffic Light Upgrades

RESERVOIR/ DAM FAILURE EXAMPLE MITIGATION PROJECTS

- Acquisition, Relocation, & Elevation Projects
- Dry-Floodproofing (e.g., plastic sheeting)
- Wet-Floodproofing (e.g., water resistant materials)
- Stormwater Management Ordinances or Amendments
- Floodplain Ordinances or Amendments
- Storm Drainage System Improvements
- Structural Flood Control Measures (e.g., levees, dams, floodwalls) Inundation Zone Mapping
- Preparedness and Response Plans
- Notification Systems
- Structural Storage Tank Reservoir Improvements

WINDSTORM EXAMPLE MITIGATION PROJECTS

- Implement Tree Trimming
- Retrofits
- Anchoring
- Traffic Light Upgrades

HAZMAT RELEASE EXAMPLE MITIGATION PROJECTS

- Emergency Plans
- Transportation
- Disposal
- Emergency Response Teams
- Industrial Site Buffering
- Pipeline Location and Design
- Digging Hotlines
- Contingency Planning
- Improvements to Maps and Records

SUBSIDENCE EXAMPLE MITIGATION PROJECTS

- Building Code Improvements
- Provide information to the public regarding resources for subsidence information for new building design
- Building relocation
- Promote Community Awareness

DROUGHT EXAMPLE MITIGATION PROJECTS

- Water Use Ordinances
- Contingency Plans
- Emergency Water Distribution and Storage Systems
- Water Conservation Education
- System Retrofits
- Leak Detection Programs



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QUESTIONS?

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**City of Fountain Valley
HAZARD MITIGATION PLAN-
Steering Committee Meeting #4**

September 19, 2024

Name	Company	Position	Email Address	Phone #
Michelle Rudaske	FVFD	Fire Marshal	michelle.rudaske@fountainvalley.gov	714 593-4420
JENNI WORSHAM	CITY OF FOUNTAIN VALLEY	COMMUNITY SERVICES MANAGER	Jenni.Worsham@fountainvalley.gov	714-593-4447
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Kristen Pyke	Memorial Care	VP, Govt + Community Relations	Kpyke@memorialcare.org ~~pyke@memorialcare.org~~	714-975-1640
Robin Harnish	FV	Finance Mgr	Robin.Harnish@fountainvalley.gov	714-593-