



City of Tustin

Draft Hazard Mitigation Plan

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EXECUTIVE SUMMARY

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ES.1 Plan Requirements and Objectives

The City of Tustin (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.

The City's previous Hazard Mitigation Plan was adopted in 2009. This Hazard Mitigation Plan serves as an update to the original Plan.

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 FEMA's Hazard Mitigation Assistance (HMA) Program. This includes the Pre-Disaster Mitigation (PDM) 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 PDM 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 the Federal Emergency Management Agency (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 PDM programs can be found in FEMA's "Hazard Mitigation Assistance Unified Guidance" document, located in FEMA's Hazard Mitigation Assistance portal (<http://www.fema.gov/hazard-mitigation-assistance>). Additional information including guidance and regulations can be found at the Cal OES's Local Hazard Mitigation Planning Program portal (http://hazardmitigation.calema.ca.gov/plan/local_hazard_mitigation_plan_lhmp).

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 have 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 the 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 Police, Finance, Community Development, Emergency Management, Parks and Recreation, Public Works, and Utilities departments to participate on a Steering Committee to guide the development of the City's comprehensive Hazard Mitigation Plan. In addition, the Steering Committee solicited public involvement throughout the planning process, including the release of a public survey through the City's Police Department Facebook page, allowing the public to comment during the drafting stage, and making the draft Plan available to allow the public to comment on its content. Chapter 1: Planning Process, contains descriptions of the Planning process, including information on the Steering Committee 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. In order to identify the hazards that the City and neighboring communities perceive as the largest threat, each member of the Steering Committee participated in the Hazard Identification exercise during the first Steering Committee Meeting. The Steering Committee 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 ranking.

Table ES.1: City of Tustin Hazard Ranking Summary

Hazard Rank
High
Moderately High
Earthquake
Moderate
Extreme Heat
Wildfire
Drought
Windstorm
Dam/ Reservoir Failure
Mass Transit Accident
Power Failure
Terrorism
Moderately Low
Pandemic
Hazardous Materials Release/ Pipeline Failure
Low
Flood

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, parks, public facilities, and critical non-City assets, such as hospitals and schools. This asset inventory was used in the vulnerability assessment to estimate potential losses for each hazard. The Steering Committee 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 3.19 Loss Estimates, includes a detailed breakdown of the vulnerability assessment calculations.

Table ES.2: Loss Estimate Summary

Hazard	Estimated Losses
Earthquake	\$101,926,000
Terrorism	\$22,059,000
Hazardous Materials Release/ Gas Pipeline Failure	16,780,000
Windstorm	\$10,760,000
Dam/Reservoir Failure	\$10,760,000
Drought	\$9,739,000
Extreme Heat	\$9,505,000
Power Failure	\$9,194,000
Wildfire	\$8,959,000
Mass Transit Accident	\$8,183,000
Flood	\$4,621,000
Pandemic	3,830,000

Note: A total value is not included since it is not expected for all hazards to occur simultaneously. Loss estimate values were determined through an in-person exercise. Supporting data can be found in Section 3.19 Loss Estimates

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 Steering Committee. The City's overall Plan goals are to:

- Prevent Future Hazard-Related Losses of Life, Property, and Commerce
- Increase Public Awareness
- Improve Emergency Management Capability
- Develop and Enhance partners and Implementation
- Protect the Environment

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 Steering Committee 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.

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 the 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 4.4 Prioritization of Mitigation Recommendations. The Steering Committee 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/Department	Priority
2017.HMP.01	HMP.2017.1 - Identify sensitive populations in the City and develop a database with addresses and contact information for use in emergency response efforts	Multi-Hazard	Police Department	Low
2017.HMP.02	HMP.2017.2 - Develop an evacuation plan and include sections discussing provisions for the sensitive population	Multi-Hazard	Police Department	Low
2017.HMP.03	HMP.2017.3 - Review and update the General Plan Safety Element to include goals and objections from the Hazard Mitigation Plan	Multi-Hazard	Community Development	Medium
2017.HMP.04	HMP.2017.4 – Update the City website to include information on the potential hazards that may impact residents and provide information on preventive measures	Multi-Hazard	Police Department/ IT Department	High
2017.HMP.05	HMP.2017.5 – Initiate an outreach campaign to encourage the community to take a more active role in City emergency preparedness (CERT, etc.)	Multi-Hazard	Police Department	High
2017.HMP.06	HMP.2017.6 – Implement construction of a new Emergency Operations Center, fully devoted to emergency management, and Public Works Yard to enhance response capabilities	Multi-Hazard	Public Works	Medium
2017.HMP.07	HMP.2017.7 - To protect public health in the event of an earthquake and ensure continuity of water service, consider replacing the water main lines throughout the City	Earthquake	Public Works	Medium
2017.HMP.08	HMP.2017.8 - Continue and enhance community awareness campaigns with regards to the impacts of extreme heat, available City resources, and how to avoid heat-related injuries	Extreme Heat	Police Department	Medium

Action ID	Mitigation Action	Hazards Mitigated	Responsible Agency/Department	Priority
2017.HMP.09	HMP.2017.9 - Replace generator and make electrical system improvements at the Tustin Area Senior Center to promote functionality of Ac system for use as a cooling center during a heat event (or any other emergency)	Extreme Heat	Public Works	Medium
2017.HMP.10	HMP.2017.10 - Research potential grant opportunities that would encourage citizens to replace existing fire hazard roofs	Wildfire	Community Development	High
2017.HMP.11	HMP.2017.11 - Include Fire Authority representatives in civic events and encourage the City to take a more active role in County fire prevention initiatives	Wildfire	Community Development/ Police Department	High
2017.HMP.12	HMP.2017.12 - Implement water system improvements to meet fire flow requirements including fire suppression demands	Wildfire	Public Works	Medium
2017.HMP.13	HMP.2017.13 – Drill and install water wells and wellheads throughout the City to provide local water supply resilience in drought conditions and to reduce dependency on imported water	Drought	Public Works	Medium
2017.HMP.14	HMP.2017.14 – Enhance City tree pruning functions to consider forecasted wind conditions and vulnerable locations when schedule tree maintenance	Windstorm	Public Works	Medium
2017.HMP.15	HMP.2017.15 - Enhance coordination with utility providers to encourage resilience to wind events	Windstorm	Public Works	Medium
2017.HMP.16	HMP.2017.16 - To mitigate the potential for reservoir failure, implement the Simon Ranch Reservoir, Booster Pump, and Pipeline replacement project, which includes compliance with current seismic standards.	Dam/Reservoir Failure/ Earthquake	Public Works	High

Action ID	Mitigation Action	Hazards Mitigated	Responsible Agency/Department	Priority
2017.HMP.17	HMP.2017.17 - Implement the John Lyttle Reservoir Tank Evaluation, Site Improvement and Safety Upgrade project, which includes compliance with current seismic standards	Dam/Reservoir Failure/ Earthquake	Public Works	Medium
2017.HMP.18	HMP.2017.18 - To provide mitigation for traffic accidents within the City, consider the installation/replacement of traffic signals at key locations throughout the City, including Irvine Boulevard/Prospect Avenue, Tustin Ranch Road/Greenway Drive, Red Hill Avenue/Bell Avenue, Red Hill Avenue/Service Road, and Main Street/Williams Street.	Mass Transit Accident	Public Works/ Engineering	Medium
2017.HMP.19	HMP.2017.19 - Review and revise Traffic Management Plan for special events (including bicycle and pedestrian safety)	Mass Transit Accident	Police Department	Medium
2017.HMP.20	HMP.2017.20 - Review, research, and update data for locations which are prone to accident. Implement mitigation projects accordingly	Mass Transit Accident	Police Department/ Public Works	Medium
2017.HMP.21	HMP.2017.21 - Continue to include back-up power generation for critical facilities and new City developments	Power Failure	Public Works	Low
2017.HMP.22	HMP.2017.22 - Review and refresh mutual aid agreements for backup power generator	Power Failure	Police Department/ Public Works	Medium
2017.HMP.23	HMP.2017.23 - Review City-wide camera system program and make improvements as necessary	Terrorism	Police Department/ Public Works	Low
2017.HMP.24	HMP.2017.24 - Develop public outreach campaign to enhance public awareness about how to act after a terrorism event	Terrorism	Police Department	Medium

Action ID	Mitigation Action	Hazards Mitigated	Responsible Agency/Department	Priority
2017.HMP.25	HMP.2017.25 - Facilitate POD exercises through the Police Department in conjunction with the local Fire Authority	Pandemic	Police Department	Medium
2017.HMP.26	HMP.2017.26 - Coordinate with County authorities to enhance public awareness about contagious disease	Pandemic	Police Department	Medium
2017.HMP.27	HMP.2017.27 - Update the City website with pipeline safety information (i.e. Dig Alert)	Hazardous Materials Release	Public Works/ IT Department	Medium
2017.HMP.28	HMP.2017.28 - Improve maps and records for locations and pipelines containing hazardous materials and digitize	Hazardous Materials Release	Public Works	Low
2017.HMP.29	HMP.2017.29 - To improve flood control, consider configuring storm drainage throughout the City	Flood	Public Works	Low
2017.HMP.30	HMP.2017.30 - Alternate Power source improvements for the Civic Center Replacement of current backup generator – This would power the police department during emergency	Power Failure	Public Works	Medium
2017.HMP.31	HMP.2017.31 - Switch high-pressure sodium street lighting and replace with energy-efficient LEDs to reduce power usage thereby reducing the impact of black outs	Power Failure	Public Works	Medium

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.