

Section 3: Risk Assessment

What is a risk assessment?

Conducting a risk assessment can provide information: on the location of hazards, the value of existing land and property in hazard locations, and an analysis of risk to life, property, and the environment that may result from natural hazard events. Specifically, the three levels of a risk assessment are as follows:

1) Hazard Identification

This is the description of the geographic extent, potential intensity and the probability of occurrence of a given hazard. Maps are frequently used to display hazard identification data. The City identified three major hazards that affect this geographic area. These hazards - earthquakes, liquefaction, and severe weather occasions - were identified through an extensive process that utilized input from the NHMP Committee. The geographic extent for two of the main identified hazards (earthquakes and liquefaction) have been identified by the City, the California Department of Conservation, and the U.S. Army Corps of Engineers using the best available data, and is illustrated by the maps 6 and 7, located on pages 160 and 161. Map 8 (page 162) is a close up of the liquefaction area in the City.

2) Profiling Hazard Events

This process describes the causes and characteristics of each hazard, how it has affected the City in the past, and what part of the City's population, infrastructure, and environment has historically been vulnerable to each specific hazard. A profile of each hazard discussed in this plan is provided in each hazard section. For a full description of the history of hazard specific events, please see the appropriate hazard chapter.

3) Vulnerability Assessment/Inventorying Assets

This is a combination of hazard identification with an inventory of the existing (or planned) property development(s) and population(s) exposed to a hazard. Critical facilities are of particular concern, because these entities provide essential products and services to the general public that are necessary to preserve the welfare and quality of life in the City, and fulfill important public safety, emergency response, and/or disaster recovery functions. The critical and essential facilities, commercial, industrial and residential properties have been identified, and are located on map 3 (page 157), and are listed in Appendix F (page 173).

4) Risk Analysis

Estimating potential losses involves assessing the damage, injuries, and financial costs, which would likely sustain in a geographic area over a given period of time. This level of analysis involves using mathematical models. The two measurable components of

risk analysis are the magnitude of the harm that may result and the likelihood of the harm occurring. Describing vulnerability in terms of dollar losses provides the community and the state with a common framework in which to measure the effects of hazards on assets.

5) Assessing Vulnerability/ Analyzing Development Trends

This step provides a general description of land uses and development trends within the community so that mitigation options can be considered in land use planning and future land use decisions. This plan provides a description of the character of the City in the Community Profile. This description includes the geography and environment, population and demographics, land use and development, housing and community development, employment and industry, and transportation and commuting patterns. Analyzing these components of the City can help in identifying potential problem areas, and can serve as a guide for incorporating the goals and ideas contained in this mitigation plan into other community development plans.

Table 3-1. List of Hazard Mitigation Plan Charts/Maps

Type of Map	Section of the Plan
Transportation Routes	Appendix E – Map 1
Critical Facilities (local agencies, utilities, etc.)	Appendix E – Map 2
Essential Facilities (schools, shelters, etc.)	Appendix E – Map 3
Regional Vicinity Map	Appendix E – Map 4
Railroad Crossings	Appendix E – Map 5
Earthquake Hazard Map	Appendix E – Map 6
El Monte Quadrangle Seismic Hazard Map	Appendix E – Map 7
Close-up of Map 7	Appendix E – Map 8
Los Angeles River Watershed	Appendix E – Map 9
San Gabriel River Watershed	Appendix E – Map 10
FEMA Flood Plains	Appendix E – Map 11
Los Angeles County Wash Elevations	Appendix E – Map 12
Wash Locations in Temple City	Appendix E – Map 13
Los Angeles County Dam Failure Inundation	Appendix E – Map 14
Santa Fe Dam Inundation Map	Appendix E – Map 15
Los Angeles County Drainage Map	Appendix E – Map 16
Los Angeles County Historic Fire Locations	Appendix E – Map 17
Los Angeles County Fire Hazards Map	Appendix E – Map 18

Note: The information on the maps in this plan was derived from a variety of resources found in Appendix A. Care was taken in the creation of these maps, but is provided "as is." The City cannot accept any responsibility for any errors, omissions or positional accuracy, and therefore, there are no warranties that accompany these products (the maps). Although information from land surveys may have been used in the creation of these products, in no way does this product represent or constitute a land survey. Users are cautioned to field verify information on this product before making any decisions.

Hazard assessments are subject to the availability of hazard-specific data. Gathering data for a hazard assessment requires a commitment of resources on the part of participating organizations and agencies. Each hazard-specific section of the plan includes a section on hazard identification using data and information from City, County or State agency sources.

Regardless of the data available for hazard assessments, there are numerous strategies the City can take to reduce risk. These strategies are described in the action items detailed in each hazard section of this Plan. Mitigation strategies can further reduce disruption to critical services, reduce the risk to human life, and alleviate damage to personal and public property and infrastructure. Action items throughout the hazard sections provide recommendations to collect further data to map hazard locations and conduct hazard assessments.

Federal requirements for risk assessment

Recent federal regulations for hazard mitigation plans outlined in 44 CFR Part 201 include a requirement for risk assessment. This risk assessment requirement is intended to provide information that will help communities to identify and prioritize mitigation activities that will reduce losses from the identified hazards. There are three hazards profiled in the mitigation plan, including *earthquakes, liquefaction and severe weather occasions*. The Federal criteria for risk assessment and information on how the City NHMP meets those criteria is outlined in Table 3-2 below.

Table 3-2. Federal Criteria for Risk Assessment

Section 322 Plan Requirement	How is this addressed?
Identifying Hazards	Each hazard section includes an inventory of the best available data sources that identify hazard areas. The City developed maps identifying the location of the hazard in the City. The Executive Summary and the Risk Assessment sections of the plan include a list of the hazard maps.
Profiling Hazard Events	Each hazard section includes documentation of the history, and causes and characteristics of the hazard in the City.
Assessing Vulnerability: Identifying Assets	Where data is available, the vulnerability assessment for each hazard addressed in the mitigation plan includes an inventory of all publicly owned land within hazardous areas. Each hazard section provides information on vulnerable areas in the City in the Community Issues section. Each hazard section also identifies potential mitigation strategies.

Assessing Vulnerability: Estimating Potential Losses:	The Risk Assessment Section of this mitigation plan identifies key critical facilities and lifelines in the City and includes a map of these facilities. Vulnerability assessments have been completed for the hazards addressed in the plan, and quantitative estimates were made for each hazard where data was available.
Assessing Vulnerability: Analyzing Development Trends	The City Profile Section of this plan provides a description of the development trends in the City, including the geography, environment, population, demographics, land use, land development, housing, community development, employment, industry, transportation and commuting patterns.

Critical Facilities and Infrastructure

Facilities critical to government response and recovery activities (i.e., life safety and property and environmental protection) include: 911 centers, emergency operations centers, police and fire stations, public works facilities, communications centers, sewer and water facilities, hospitals, bridges and roads, and American Red Cross shelters. If these facilities were damaged, it could cause serious secondary impacts that may also be considered "critical." A hazardous material facility is one example of this type of "critical" facility.

Essential facilities are those that are vital to the continued delivery of key government services. They may significantly impact the public's ability to recover from the emergency. These facilities could include: buildings such as the jail, law enforcement center, public services building, community corrections center, the courthouse, juvenile services buildings, and other public facilities, such as schools.

Summary

Natural hazard mitigation strategies can reduce the impacts concentrated at large employment centers, industrial centers, public infrastructure, and critical facilities. Natural hazard mitigation for industries and employers may include developing relationships with emergency management services and their employees before disaster strikes, and establishing mitigation strategies together. Collaboration among the public and private sectors to create mutually beneficial mitigation plans or actions can reduce the impacts of natural hazards.