

Section 4:

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 of Carson identified three major hazards that affect this geographic area. These hazards - earthquakes, flooding, and windstorms - were identified through an extensive process that utilized input from the Hazard Mitigation Planning Team. The geographic extent of each of the identified hazards has been identified by the City of Carson utilizing the maps contained in the City's General Plan and the MHFP Threat Assessment, and are illustrated in the tables, maps, and photos listed on page iii.

2) Profiling Hazard Events

The maps help to describe the causes and characteristics of each hazard and what part of the City's population, infrastructure, and environment may be 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 facilities have been identified and are illustrated in Table 4-2. A description of the critical facilities in the City is also provided in this section. In addition, these tables indicate vulnerabilities to the various identified hazards.

4) Risk Analysis

Estimating potential losses involves assessing the damage, injuries, and financial costs likely to be sustained 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 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.

For each hazard where data was available, quantitative estimates for potential losses have been included in the hazard assessment.

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 comprehensive description of the character of City of Carson 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 City of Carson 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.

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, flooding, and windstorms. The Federal criteria for risk assessment and information on how the City of Carson Natural Hazards Mitigation Plan meets those criteria is outlined in Table 4-1 below.

Table 4-1: 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. To the extent data are available; the existing maps identifying the location of the hazard were utilized. 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 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 of Carson Profile Section of this plan provides a description of the development trends in the City, including the geography and environment, population and demographics, land use and development, housing and community development, employment and industry, and transportation and commuting patterns.

Critical and Essential Facilities

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 shelters. Also, facilities that, if damaged, could cause serious secondary impacts may also be considered "critical." A hazardous material facility is one example of this type of critical facility.

Essential facilities are those facilities that are vital to the continued delivery of key government services or that may significantly impact the public’s ability to recover from

the emergency. These facilities may include: buildings such as the jail, law enforcement center, public services building, community corrections center, the courthouse, and juvenile services building and other public facilities such as schools. The following table illustrates the critical and essential facilities serving the City of Carson.

Table 4-2: City of Carson Critical and Essential Facilities Vulnerable to Hazards

Earthquakes	Flooding	Windstorms	Facility	Address
X		X	Los Angeles County Sheriff's Station	21356 South Avalon
X		X	Fire Station 10	1860 E. Del Amo Blvd.
X		X	Fire Station 36	127 W. 223 rd Street
X		X	Fire Station 116	755 E. Victoria St
X		X	Fire Station 127	2049 E. 223 rd Street
X		X	Casualty Care Center – Walnut St.Park	440 E. Walnut
X		X	Casualty Care Center – Avalon Park	700 E. Gardena Blvd.
X		X	Casualty Care Center – Anderson Park	19101 S. Wilmington Ave.
X		X	Casualty Care Center – Mills Park	1340 E. Diamondale Dr.
X	X	X	Casualty Care Center – Del Amo Park	703 E. Del Amo Blvd.
X		X	Casualty Care Center – Carson Park	21411 Orrick Street
X		X	Casualty Care Center – Boxing Center	424 ½ Carson Street
X		X	Casualty Care Center – Dolphin Park	21205 Water street
X		X	Casualty Care Center – Calas Park	1000 E. 220 th Street
X		X	Casualty Care Center – Scott Park	23410 Catskill Avenue
X		X	Casualty Care Center – Carriage Crest Park	23800 S. Figueroa Street
X		X	Casualty Care Center – Dominquez Park	21330 Santa Fe Avenue

Summary

Natural hazard mitigation strategies can reduce the impacts concentrated at large employment and 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 sector to create mitigation plans and actions can reduce the impacts of natural hazards.