

City of Huntington Park Natural Hazards Mitigation Plan

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Prepared under contract with:

*Emergency Planning Consultants
San Diego, California
Carolyn J. Harshman, President*

Special Recognition

The Disaster Management Area Coordinators (DMAC) of Los Angeles County prepared planning guidance materials that were utilized by the City of Huntington Park in preparing this Natural Hazards Mitigation Plan. The City extends special recognition to DMAC Coordinator Mike Martinet for his editing contribution to the Hazard-Specific Sections of this Plan. The DMAC planning guidance materials were based on the Mitigation Plan from Clackamas County, Oregon. The City is grateful to DMAC and the Clackamas County Natural Hazards Mitigation Committee for their contributions to this project.

Special Thanks

Hazard Mitigation Planning Team:

City of Huntington Park

- Don Pruyn, City Treasurer/Finance Director
- Henry Gray, Director of Community Development
- Alan Shear, Assistant to the City Manager
- Rosanna Ramirez, City Clerk
- Wesley R. Lind, Building Official/City Engineer
- Patrick Fu, Assistant City Engineering
- Gabriel Bautista, Planning Manager
- Barbara Grimm, Building and Safety Tech

Office of Disaster Management, Area E: Fan Abel, Coordinator

Office of Disaster Management, Area G: Mike Martinet, Executive Director

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City of Huntington Park City Council

- Juan R. Noguez, Mayor
- Elba Guerrero, Mayor Pro-Tem
- Mario Gomez, Councilmember
- Ofelia Hernandez, Councilmember
- Elba Romo, Councilmember

Mapping

Other than Internet-sourced maps, the City of Huntington Park provided all of the maps included in this plan.

Consulting Services

Project Management and Planning Services for this project were provided under contract by Emergency Planning Consultants -

Project Management Services:	Carolyn J. Harshman, President
Planning Services:	Carolyn J. Harshman, President Daniel Robeson, Jr., Associate

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Note: The maps in this plan were provided by the City of Huntington Park or were acquired from public Internet sources. Care was taken in the creation of these maps, but they are provided "as is". The City of Huntington Park 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.

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Executive Summary: Hazard Mitigation Action Plan

The City of Huntington Park Natural Hazards Mitigation Plan includes resources and information to assist City residents, public and private sector organizations, and others interested in participating in planning for natural hazards. The mitigation plan provides a list of activities that may assist City of Huntington Park in reducing risk and preventing loss from future natural hazard events. The action items address multi-hazard issues, as well as activities for earthquakes and windstorms.

How is the Plan Organized?

The Plan contains a Mitigation Actions Matrix, background on the purpose and methodology used to develop the mitigation plan, a profile of City of Huntington Park, sections on two natural hazards that occur within the City, and a number of appendices. All of the sections are described in detail in Section 1, Introduction.

Who Participated in Developing the Plan?

The City of Huntington Park Natural Hazards Mitigation Plan is the result of a collaborative planning effort between City of Huntington Park citizens, public agencies, non-profit organizations, the private sector, and regional and state organizations. Public participation played a key role in development of goals and action items. Interviews were conducted with stakeholders across the City, and public outreach activities were conducted to include City of Huntington Park residents in plan development. A Planning Team guided the process of developing the plan.

The Planning Team was comprised of the following representatives:

City of Huntington Park	Don Pruyn, City Treasurer/Finance Director Henry Gray, Dir. of Community Development Alan Shear, Assistant to the City Manager Rosanna Ramirez, City Clerk Wesley R. Lind, Building Official/City Engineer Patrick Fu, Assistant City Engineering Gabriel Bautista, Planning Manager Barbara Grimm, Building and Safety Tech
Emergency Planning Consultants	Carolyn J. Harshman, President

What is the Plan Mission?

The mission of the City of Huntington Park Natural Hazards Mitigation Plan is to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards. This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention, and identifying activities to guide the City towards building a safer, more sustainable community.

What are the Plan Goals?

The plan goals describe the overall direction that City of Huntington Park agencies, organizations, and citizens can take to work toward mitigating risk from natural hazards. The goals are stepping-stones between the broad direction of the mission statement and the specific recommendations outlined in the action items.

Protect Life and Property

Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.

Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Improve hazard assessment information to make recommendations for discouraging new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural hazards.

Public Awareness

Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.

Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.

Natural Systems

Balance natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.

Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.

Partnerships and Implementation

Strengthen communication and coordinate participation among and within public agencies, citizens, non-profit organizations, business, and industry to gain a vested interest in implementation.

Encourage leadership within public and private sector organizations to prioritize and implement local and regional hazard mitigation activities.

Emergency Services

Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.

Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.

Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

How are the Action Items Organized?

The action items are a listing of activities in which City agencies and citizens can be engaged to reduce risk. Each action item includes an estimate of the timeline for implementation (see Attachment 1: Mitigation Actions Matrix).

The action items are organized within the following Matrix, which lists all of the multi-hazard and hazard-specific action items included in the mitigation plan. Data collection and research and the public participation process resulted in the development of these action items (see Appendix B: Public Participation). The Matrix includes the following information for each action item:

Funding Source. The actions items will be funded through a variety of sources, possibly including: operating budget/general fund, development fees, Community Development Block Grant (CDBG), Hazard Mitigation Grant Program (HMGP), other Grants, private funding, Capital Improvement Program (CIP), and other funding opportunities.

Coordinating Organization. The Mitigation Actions Matrix assigns primary responsibility for each of the action items. The hierarchies of the assignments vary – some are positions, others departments, and others Committees. No matter, the primary responsibility for implementing the action items falls to the entity shown as the “Coordinating Organization”. The coordinating organization is the public agency with regulatory responsibility to address natural hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation. Coordinating organizations may include local, county, or regional agencies that are capable of or responsible for implementing activities and programs.

Timeline. Action items include both short and long-term activities. Each action item includes an estimate of the timeline for implementation.

Plan Goals Addressed. The plan goals addressed by each action item are included as a way to monitor and evaluate how well the mitigation plan is achieving its goals once implementation begins. The plan goals are organized into the following five areas:

- Protect Life and Property**
- Public Awareness**
- Natural Systems**
- Partnerships and Implementation**
- Emergency Services**

How Will the Plan be Implemented, Monitored, and Evaluated?

The Plan Maintenance Section (Section 2) of the Plan details the formal process that will ensure that the City of Huntington Park Natural Hazards Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the City will integrate public participation throughout the plan maintenance process. Finally, this section includes an explanation of how the City of Huntington Park government intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as the City's General Plan, Capital Improvement Plans, and Building & Safety Codes.

Plan Adoption

Adoption of the Natural Hazards Mitigation Plan by the local jurisdiction's governing body is one of the prime requirements for approval of the Plan. Once the Plan is completed, the City Council will be responsible for adopting the City of Huntington Park Natural Hazards Mitigation Plan. The local agency governing body has the responsibility and authority to promote sound public policy regarding natural hazards. The City Manager will have the authority to periodically need to re-adopt the plan as it is revised to meet changes in the natural hazard risks and exposures in the community. The approved Natural Hazard Mitigation Plan will be significant in the future growth and development of the community.

Coordinating Body

A City of Huntington Park Hazard Mitigation Committee will be responsible for coordinating implementation of Plan action items and undertaking the formal review process. The City Manager will assign representatives from City agencies, including, but not limited to, the current Hazard Mitigation Planning Team members.

Convener

The City Council will adopt the City of Huntington Park Natural Hazards Mitigation Plan and the Mitigation Committee will take responsibility for plan implementation. The City Manager will serve as a convener to facilitate the Team meetings, and will assign tasks such as updating and presenting the Plan to the members of the Team. Plan implementation and evaluation will be a shared responsibility among all of the Hazard Mitigation Planning Team members.

Implementation through Existing Programs

City of Huntington Park addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Plans, and City Building & Safety Codes. The Natural Hazard Mitigation Plan provides a series of recommendations that are

closely related to the goals and objectives of these existing planning programs. City of Huntington Park will have the opportunity to implement recommended mitigation action items through existing programs and procedures.

Economic Analysis of Mitigation Projects

The Federal Emergency Management Agency's approaches to identify costs and benefits associated with natural hazard mitigation strategies or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later. Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

Formal Review Process

The City of Huntington Park Natural Hazards Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process includes a firm schedule and time line, and identifies the local agencies and organizations participating in plan evaluation. The convener will be responsible for contacting the Hazard Mitigation Committee and organizing the annual meeting. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

Continued Public Involvement

City of Huntington Park is dedicated to involving the public directly in the continual review and updates of the Hazard Mitigation Plan. Copies of the plan will be catalogued and made available at City Hall and at the public library. The Plan also includes the address and the phone number of the City Department, responsible for keeping track of public comments on the Plan. In addition, copies of the Plan and any proposed changes will be posted on the City website. This site will also contain an email address and phone number to which people can direct their comments and concerns.

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
Multi-Hazard Action Items								
MH #1-1	Integrate the goals and action items from the Huntington Park Natural Hazard Mitigation Plan into existing regulatory documents and programs, where appropriate.	Mitigation Committee	Ongoing				X	
MH #1-2	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Mitigation Committee	Ongoing				X	
MH #1-3	Establish a formal role for the City of Huntington Park to develop a sustainable process for implementing, monitoring, and evaluating citywide mitigation activities.	City Manager's Office	Ongoing				X	
MH #1-4	Develop public and private partnerships to foster natural hazard mitigation program coordination and collaboration in the City of Huntington Park.	Mitigation Committee	Ongoing				X	
MH #1-5	Develop inventories of City owned buildings and facilities, and infrastructure and prioritize mitigation	Building Safety	1-2 years	X			X	X

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	projects.							
MH #1-6	Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs and enhancing public education on a regional scale.	Mitigation Committee	Ongoing		X			X
MH #1-7	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, private property owners, businesses.	Mitigation Committee	Ongoing		X			
MH #1-8	Enhance strategies for debris management for windstorm events.	Field Services	2 years				X	X
MH #1-9	Pursue funding opportunities to develop and implement mitigation activities.	Police and Building and Safety	Ongoing	X				
MH #1-10	Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.	Mitigation Committee	Ongoing	X	X			
MH #1-11	Pursue grants to enhance all agencies/departments' incident response	Police Department	Ongoing	X	X			X

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	capabilities.							
MH #1-12	Coordinate the implementation of pre-disaster mitigation programs.	Mitigation Committee	Ongoing		X		X	
MH #1-13	Partner with other organizations and agencies in the community to pursue grant programs and foundations that may support mitigation activities.	Mitigation Committee	2 years		X		X	
MH #1-14	Pursue funding sources for structural and nonstructural retrofitting of Public structures that are identified as seismically vulnerable.	Mitigation Committee	Ongoing	X				X
MH #1-15	Pursue sources of support such as philanthropic foundations, community foundations, and professional organizations such as the Urban Land Institute or American Planning Association who might be able to provide technical or financial support for recovery planning.	Mitigation Committee	Ongoing	X	X			X
MH #1-16	Improve hazard assessment information to make recommendations for	Planning Division	Ongoing	X	X			

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	discouraging new development and encouraging preventative measures for existing development in areas vulnerable to natural hazards.							
MH #1-17	Update Multi-Hazard Functional Plan to meet State of California SEMS (Standardized Emergency Management System) regulations.	Mitigation Committee	1 year	X			X	X
MH #1-18	Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.	Police Department	2 years	X				X
MH #1-19	Develop inventories of at-risk Public buildings and infrastructure and prioritize mitigation projects.	Building and Safety	1 year	X				
MH #1-20	Identify critical facilities at risk from natural hazards events.	Building and Safety	1 year	X				X
MH #1-21	Maintain enforcement of wind-resistant building sites and construction codes.	Building and Safety	Ongoing	X				
MH #1-22	Develop public and private partnerships to foster natural hazard mitigation	Safety Committee	2 years		X		X	

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	program coordination and collaboration in city.							
MH #1-23	Establish clear roles for participants, meeting regularly to pursue and evaluate implementation of mitigation strategies.	Mitigation Committee	1 year				X	
MH #1-24	Maintain communication between DOT and City road departments to work together to prioritize and identify strategies to deal with road problems.	Engineering	Ongoing				X	X
MH #1-25	Maintain protocol for communication electric providers and the Department of Transportation to assure rapid restoration of transportation capabilities.	Engineering	Ongoing				X	X
MH #1-26	Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.	Police Department, Safety Committee	Ongoing				X	X
MH #1-27	Develop a Preliminary Damage Assessment (PDA) process and review PDA data to identify planning concerns.	Mitigation Committee	2 years				X	X

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-28	Compile a directory of out-of-area contractors to help with repairs/reconstruction so that restoration occurs in a timely manner.	Building and Safety, Mitigation Committee	1 year				X	X
MH #1-29	Conduct interim planning to locate, set up, and manage temporary sites where government functions can continue their operations during recovery.	Mitigation Committee	2 years				X	X
MH #1-30	Determine temporary protection measures for Public buildings and facilities; install plastic sheeting on roofs, cover exterior openings such as windows or doors, draining trapped water in ceilings or draining accumulated flood waters, temporary shoring to avoid imminent building collapse or damage.	Building and Safety	2 years	X			X	X
MH #1-31	Utility and communications systems supporting emergency services operations will be maintained to withstand the impacts of disasters.	Police Department, Building and Safety	2 years					X

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-32	Develop strategies for debris management for severe storm events.	Field Services	3 years	X				
MH #1-33	Familiarize public officials of requirements regarding public assistance for disaster response.	Police Department	Ongoing	X				
MH #1-34	Establish a formal role for the Hazards Mitigation committee to develop a sustainable process for implementing, monitoring, and evaluating local mitigation activities.	Mitigation Committee	3 years	X	X		X	
MH #1-35	Identify opportunities for partnering with citizens, private contractors, and other jurisdictions to increase availability of equipment and manpower for efficiency of response efforts.	Police Department	Ongoing	X				
MH #1-36	Work with Community Planning Organizations (CPO's) and other neighborhood groups to establish community response teams.	Police Department	Ongoing	X				
MH #1-37	Conduct disaster exercises to test the EOP.	Police Department	Ongoing					X

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-38	Work with the City Planning Division to review regulations pertaining to their jurisdiction to make sure that adequate zoning regulations are in place to reduce future development in high hazard areas in their jurisdiction.	Planning Division	1-2 years	X			X	
MH #1-39	Develop and deliver information to all City residents, through community groups and/or publications, information on how to shelter in place and when it is appropriate to do so.	Mitigation Committee	1 year		X			
MH #1-40	Ensure adequacy of emergency operations plans and compliance with the states SEMS Regulations.	Police Department	Ongoing				X	X
MH #1-41	Provide technical assistance to help the community develop disaster management operations capabilities.	Mitigation Committee	Ongoing	X				
MH #1-42	Review priorities for restoration of the community's infrastructure and vital public facilities following a disaster.	Field Services	Ongoing	X				
MH	Review and amend corrective measures	Mitigation Committee	Ongoing	X				

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
#1-43	to address existing problems.							
MH #1-44	Install and improve back-up power in critical facilities.	Field Services	Ongoing	X				
MH #1-45	Improve water systems to assist with Wildfire and Drought conditions.	Field Services	Ongoing	X				
MH #1-46	Review and amend preventive measures to avoid creating new problems.	Mitigation Committee	Ongoing	X				
MH #1-47	Develop updates for the Natural Hazards Mitigation Action Plan based on new information.	Mitigation Committee	5 years	X				
MH #1-48	Improve water quality and balance public and private property rights.	Mitigation Committee	Ongoing	X				
MH #1-49	Review observed damage with a view toward revising codes to help mitigate damage from future disasters.	Mitigation Committee	When needed	X				
MH #1-50	Determine which building owners (and their contractors) are responsible for hauling construction and demolition debris to proper landfills.	Building and Safety	Ongoing	X				
MH #1-51	Conduct damage assessment to determine if structures are safe and	Building and Safety	When needed	X				

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	capable of being used.							
MH #1-52	Utility and communications systems supporting emergency services operations will be retrofitted or relocated to withstand the impacts of disasters.	Police Department	Ongoing	X				
MH #1-53	Minimize suffering and disruption caused by disasters.	Mitigation Committee	Ongoing/ When needed	X				
MH #1-54	Determine which structures and/or facilities that will not be allowed to be repaired/reconstructed.	Building and Safety	When needed	X				
MH #1-55	Bury the utility lines on main Streets- and those crossing main streets in an effort to complete the utility line burial project.	Engineering	Ongoing	X				
MH #1-56	Distribute FEMA's Emergency Management Guide for Businesses and Industry and Preparing Your Business for the Unthinkable brochure to the local Chamber of Commerce's.	Mitigation Committee	Ongoing		X		X	

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-57	Participate in State and County sponsored Disaster Preparedness Campaigns.	Mitigation Committee	Ongoing	X	X			
MH #1-58	Add links to the City’s website for FEMA and American Red Cross for self-help information.	Mitigation Committee	1 year	X	X		X	
MH #1-59	Develop informational literature on animal disaster plans and supply kits and have them available in veterinary clinics and pet stores.	Mitigation Committee	1-2 years		X		X	
MH #1-60	Enroll Planning and Zoning, Emergency Services personnel in the Emergency Management Institute’s “Digital Hazard Data” course to provide them the skills and knowledge to use digital flood data and other hazard data.	Planning Department	Ongoing					X
MH #1-61	Encourage and facilitate the adoption of building codes that provide protection for new construction and substantial renovations from the effects of identified hazards.	Building and Safety	Ongoing	X				

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
MH #1-62	Provide adequate and consistent enforcement of ordinances and codes within and between jurisdictions.	Mitigation Committee	Ongoing	X				
MH #1-63	Promote local development of National, consensus-based building, life safety, and fire codes and standards.	Building and Safety	Ongoing	X				
MH #1-64	Incorporate Life Safety Regulations in codes.	Building and Safety	Ongoing	X				
MH #1-65	Change/modify/improve codes to better standards for all buildings UBC, NEC, California, County.	Building and Safety	Ongoing	X				
MH #1-66	Adopt appropriate codes.	Building and Safety	Ongoing	X				
MH #1-67	Develop building and reconstruction policies and requirements for post disaster situations.	Mitigation Committee	Ongoing	X				
MH #1-68	Encourage reduction of non-structural and structural earthquake hazards in homes business and government offices.	Mitigation Committee	Ongoing	X				
MH #1-69	Ensure repairs of construction funded by Federal disaster assistance conform to	Building and Safety	Ongoing	X				

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	applicable codes and standards.							
MH #1-70	Review current building codes and standards to determine adequacy for disaster restoration of properties.	Building and Safety	Ongoing	X				
MH #1-71	Monitor trees and branches in public areas at risk of breaking or falling in wind storms, prune or thin trees or branches when they would pose an immediate threat to property, or other significant structures or critical facilities.	Field Services	Ongoing	X				
MH #1-72	Conduct training and exercises as required in the State's SEMS regulations.	Mitigation Committee	Ongoing	X			X	
MH #1-73	Develop a "how to" mitigation materials at special events. This display would include pictures and information, such as that contained in FEMA's Retrofitting for Homeowners Guide.	Mitigation Committee	Ongoing		X		X	
MH #1-74	Develop a disaster display booth for use in City Library. The display booth could	Mitigation Committee	Ongoing		X		X	

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	include information on disaster mitigation and preparedness as well as resource guides for additional reading.							
MH #1-75	Educate the public about hazards prevalent to their area.	Mitigation Committee	Ongoing	X	X			
MH #1-76	Promote public education to increase awareness of hazards and opportunities for mitigation.	Mitigation Committee	Ongoing	X	X			
MH #1-77	Educate the public about procedures for reporting human-caused incidents.	Mitigation Committee	Ongoing	X	X			
MH #1-78	Conduct a detailed vulnerability assessment in the future in order to accurately identify the extent of damages to vulnerable buildings, infrastructure, and critical facilities.	Mitigation Committee	Ongoing	X	X	X	X	X
Earthquake Action Items								
EQ #2-1	Integrate new earthquake hazard mapping data for the City.	Building and Safety Department	Ongoing	X			X	
EQ #2-2	Pursue funding sources for structural and nonstructural retrofitting of public structures that are identified as	Mitigation Committee	Ongoing		X		X	

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	seismically vulnerable.							
EQ #2-3	Encourage purchase of earthquake hazard insurance.	Mitigation Committee	Ongoing	X	X			
EQ #2-4	Consider seismic strength evaluations of critical facilities in the City to identify vulnerabilities for mitigation of public infrastructure and critical facilities to meet current seismic standards.	Mitigation Committee	5 years	X	X			
EQ #2-5	Encourage reduction of nonstructural earthquake hazards in homes, businesses, and government offices.	Mitigation Committee	Ongoing	X	X			
EQ #2-6	Ensure repairs or construction funded by Federal disaster assistance conform to applicable codes and standards.	Building and Safety Division	Ongoing					
EQ #2-7	Pursue seismic strength evaluations of critical facilities in the city to identify vulnerabilities for mitigation of public infrastructure, and critical facilities to meet current seismic standards.	Building and Safety	2 years	X				
EQ #2-8	Integrate new earthquake hazard mapping data for the City.	Building and Safety	Ongoing		X			

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
EQ #2-9	Partner with Home Depot to develop brochure and building materials required for residential retrofitting.	Building and Safety Department	2 years					
Windstorm Action Items								
WS #3-1	Maintain and Improve programs to keep public trees from threatening lives, property, and public infrastructure during windstorm events and provide information to private owners.	Field Services	Ongoing	X			X	X
WS #3-2	Support/encourage electrical utilities to use underground construction methods where possible to reduce power outages from windstorms.	Planning Division	Ongoing			X	X	
WS #3-3	Maintain and enforcement of wind-resistant building citing and construction codes.	Building and Safety Department	Ongoing	X	X			
WS #3-4	Support/encourage electrical utilities to use underground construction methods where possible to reduce power outages	Planning and Building and Safety	Ongoing	X				

City of Huntington Park Mitigation Actions Matrix

Natural Hazard	Action Item	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships and Implementation	Emergency Services
	from windstorms.							
WS #3-5	Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorm events.	Field Services	Ongoing	X				
WS #3-6	Develop public awareness materials that promote proper maintenance of private trees prior to storms.	Mitigation Committee	1 year	X	X		X	

Section 1

Introduction

Throughout history, the residents of City of Huntington Park have dealt with the various natural hazards affecting the area. Photos, journal entries, and newspapers show that the residents of the area dealt with earthquakes and windstorms.

Although there were fewer people in the area, the natural hazards adversely affected the lives of those who depended on the land and climate conditions for food and welfare. As the population of the City continues to increase, the exposure to natural hazards creates an even higher risk than previously experienced.

The City of Huntington Park is located in central Los Angeles County, and offers the benefits of living in a Mediterranean type of climate. The City is characterized by the unique and attractive landscape that makes the area so popular. However, the potential impacts of natural hazards associated with the terrain make the environment and population vulnerable to natural disasters.

The City is subject to earthquakes and windstorms. It is impossible to predict exactly when these disasters will occur, or the extent to which they will affect the City. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens within the community, it is possible to minimize the losses that can result from these natural disasters.

Why Develop a Mitigation Plan?

As the cost of damage from natural disasters continues to increase, the community realizes the importance of identifying effective ways to reduce vulnerability to disasters. Natural hazard mitigation plans assist communities in reducing risk from natural hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the City.

The plan provides a set of action items to reduce risk from natural hazards through education and outreach programs and to foster the development of partnerships, and implementation of preventative activities such as land use programs that restrict and control development in areas subject to damage from natural hazards.

The resources and information within the Mitigation Plan:

- (1) Establish a basis for coordination and collaboration among agencies and the public in City of Huntington Park;
- (2) Identify and prioritize future mitigation projects; and
- (3) Assist in meeting the requirements of federal assistance programs.

The Mitigation Plan works in conjunction with other City plans, including the Multi-Hazard Functional Plan.

Whom Does the Mitigation Plan Affect?

The City of Huntington Park Natural Hazards Mitigation Plan affects the entire City. Map 1-1 shows major roads in the City of Huntington Park. This plan provides a framework for planning for natural hazards. The resources and background information in the plan is applicable City-wide, and the goals and recommendations can lay groundwork for other local mitigation plans and partnerships.

**Map 1-1: Base Map of City of Huntington Park
(Source: City of Huntington Park General Plan)**



Natural Hazard Land Use Policy in California

Planning for natural hazards should be an integral element of any city's land use planning program. All California cities and counties have General Plans and the implementing ordinances that are required to comply with the statewide planning regulations.

The continuing challenge faced by local officials and state government is to keep the network of local plans effective in responding to the changing conditions and needs of California's diverse communities, particularly in light of the very active seismic region in which we live.

This is particularly true in the case of planning for natural hazards where communities must balance development pressures with detailed information on the nature and extent of hazards.

Planning for natural hazards, calls for local plans to include inventories, policies, and ordinances to guide development in hazard areas. These inventories should include the compendium of hazards facing the community, the built environment at risk, the personal property that may be damaged by hazard events and most of all, the people who live in the shadow of these hazards.

Support for Natural Hazard Mitigation

All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with local jurisdictions. Local jurisdictions, however, are not alone. Partners and resources exist at the regional, state and federal levels. Numerous California state agencies have a role in natural hazards and natural hazard mitigation. Some of the key agencies include:

- The Governor's Office of Emergency Services (OES) is responsible for disaster mitigation, preparedness, response, recovery, and the administration of federal funds after a major disaster declaration;
- The Southern California Earthquake Center (SCEC) gathers information about earthquakes, integrates this information on earthquake phenomena, and communicates this to end-users and the general public to increase earthquake awareness, reduce economic losses, and save lives.
- The California Division of Forestry (CDF) is responsible for all aspects of wildland fire protection on private, state, and administers forest practices regulations, including landslide mitigation, on non-federal lands.
- The California Division of Mines and Geology (DMG) is responsible for geologic hazard characterization, public education, the development of partnerships aimed at reducing risk, and exceptions (based on science-based refinement of tsunami inundation zone delineation) to state mandated tsunami zone restrictions; and

- The California Division of Water Resources (DWR) plans, designs, constructs, operates, and maintains the State Water Project; regulates dams; provides flood protection and assists in emergency management. It also educates the public, serves local water needs by providing technical assistance

Plan Methodology

Information in the Mitigation Plan is based on research from a variety of sources. Staff from the City of Huntington Park conducted data research and analysis, facilitated Planning Team meetings and public outreach activities, and developed the final mitigation plan. The research methods and various contributions to the plan include:

Input from the Planning Team:

The Planning Team convened four times to guide development of the Mitigation Plan. The Team played an integral role in developing the mission, goals, and action items for the Mitigation Plan. The Team consisted of representatives of seven local government agencies, including:

- City of Huntington Park Field Services Department
- City of Huntington Park Finance Department
- City of Huntington Park Planning Division
- City of Huntington Park Police Department
- City of Huntington Park Building/Safety Department
- City of Huntington Park Engineering Department
- City of Huntington Park City's Clerk's Office

Stakeholder Interviews:

City staff conducted interviews with individuals and specialists from organizations interested in natural hazards planning. The interviews identified common concerns related to natural hazards and identified key long and short-term activities to reduce risk from natural hazards. A complete listing of all the reviewers of the Plan is as follows:

- Los Angeles County Fire Department
- Los Angeles County Public Works
- Los Angeles County Health Department
- Los Angeles County Sanitation District
- Los Angeles Unified School District
- South Coast Air Quality Management District
- Huntington Park Engineering/Public Works Department
- Huntington Park Building and Safety Division
- Huntington Park Water Department (ECO Resources)
- Huntington Park License Department
- Huntington Park Police Department
- Huntington Park Code Enforcement Division
- Los Angeles County Office of Emergency Management
- Southern California Gas Company

Edison Company
City of Huntington Park Chamber of Commerce
City of Huntington Park Business Improvement District
Mark Patti, Field Services
Gabriel Bautista, Planning Division
William Diers, Police Department
Patrick FU, Engineering Department
Barbara Grimm, Building Safety
Rosanna Ramirez, City Clerks Office

State and federal guidelines and requirements for mitigation plans:

Following are the Federal requirements for approval of a Natural Hazards Mitigation Plan:

- Open public involvement, with public meetings that introduce the process and project requirements.
- The public must be afforded opportunities for involvement in: identifying and assessing risk, drafting a plan, and public involvement in approval stages of the plan.
- Community cooperation, with opportunity for other local government agencies, the business community, educational institutions, and non-profits to participate in the process.
- Incorporation of local documents, including the local General Plan, the Zoning Ordinance, the Building Codes, and other pertinent documents.

The following components must be part of the planning process:

- Complete documentation of the planning process.
- A detailed risk assessment on hazard exposures in the community.
- A comprehensive mitigation strategy, which describes the goals & objectives, including proposed strategies, programs & actions to avoid long-term vulnerabilities.
- A plan maintenance process, which describes the method and schedule of monitoring, evaluating and updating the plan and integration of the Natural Hazards Mitigation Plan into other planning mechanisms.
- Formal adoption by the City Council.
- Plan Review by both State OES and FEMA.

These requirements are spelled out in greater detail in the following plan sections and supporting documentation.

Public participation opportunities were created through use of local media, the City's website, distribution of a natural hazards questionnaire, and the City Council public hearing. In addition, the makeup of the Planning Team insured a constant exchange of data and input from a variety of different perspectives.

Through its consultant, Emergency Planning Consultants, the City had access to numerous existing mitigation plans from around the country, as well as current FEMA hazard mitigation planning standards (386 series).

Other reference materials consisted of county and city mitigation plans, including:

- Clackamas County (Oregon) Natural Hazards Mitigation Plan
- Six County (Utah) Association of Governments
- Upper Arkansas Area Risk Assessment and Hazard Mitigation Plan
- Urbandale-Polk County, Iowa Plan
- Hamilton County, Ohio Plan
- Natural Hazard Planning Guidebook from Butler County, Ohio

Hazard specific research: City of Huntington Park staff collected data and compiled research on two hazards: earthquakes and windstorms. Research materials came from the City General Plan, the City's Threat Assessment contained in the Multi-Hazard Functional Plan, and state agencies including OES and CDF.

The City of Huntington Park staff identified current mitigation activities, resources and programs, and potential action items from research materials and stakeholder interviews.

Public Input

The City of Huntington Park encouraged public participation and input in the Natural Hazards Mitigation Plan by posting its activities at key locations throughout the City, in the media and on the Internet. In addition, the City distributed 300 natural hazards surveys during the plan preparation period and at the following locations and events: Public Counter, Internet, Direct Delivery to City Commissioners and distribution at community meetings.

During the review period for the Draft Plan, copies of the Plan were also made available to interested citizens. Citizens were encouraged to review copies of the Plan Draft and participate in the City Council public hearing, which was held on October 18, 2004. Copies of the Draft Plan were also circulated to outside agencies for comment.

The following is a summary of the public comments gathered from the distributed surveys and the City Council meeting: Residents are more concerned with the dangers posed by earthquakes than any other natural disaster; concern was expressed for the ability of the many older buildings located in the City's to withstand high magnitude earthquakes; residents also expressed concern with regard to flooding and drought; and residents requested that information on preparing for disasters be more widely distributed.

The resources and information cited in the mitigation plan provide a strong local perspective and help identify strategies and activities to make City of Huntington Park more disaster resistant.

How Is the Plan Used?

Each section of the Plan provides information and resources to assist people in understanding the City and the hazard-related issues facing citizens, businesses, and the environment. Combined, the sections of the plan work together to create a document that guides the mission to reduce risk and prevent loss from future natural hazard events.

The structure of the plan enables people to use a section of interest to them. It also allows City government to review and update sections when new data becomes available. The ability to update individual sections of the mitigation plan places less of a financial burden on the City. Decision-makers can allocate funding and staff resources to selected pieces in need of review, thereby avoiding a full update, which can be costly and time-consuming. New data can be easily incorporated, resulting in a Natural Hazards Mitigation Plan that remains current and relevant to City of Huntington Park.

The Plan is organized into three parts. Part I contains an executive summary, Mitigation Actions Matrix, introduction, and plan maintenance section. Part II contains a community profile, risk assessment, and hazard-specific sections. Part III includes the appendices. Each section of the plan is described below.

Part I: Mitigation Actions

Executive Summary: Hazard Mitigation Action Plan

The Action Plan provides an overview of the mitigation plan mission, goals, and action items.

Attachment 1: Mitigation Actions Matrix

The plan action items are included in this section, and address multi-hazard issues, as well as hazard-specific activities that can be implemented to reduce risk and prevent loss from future natural hazard events.

Section 1: Introduction

The Introduction describes the background and purpose of developing the mitigation plan for City of Huntington Park.

Section 2: Plan Maintenance

This section provides information on plan implementation, monitoring and evaluation.

Part II: Hazard Analysis

Section 3: Community Profile

This section presents the history, geography, demographics, and socioeconomics of the City of Huntington Park. It serves as a tool to provide an historical perspective of natural hazards in the City.

Section 4: Risk Assessment

This section provides information on hazard identification, vulnerability and risk associated with natural hazards in City of Huntington Park.

Sections 4-6: Hazard Specific Information

Hazard-Specific Information on the two chronic hazards is addressed in this plan. Chronic hazards occur with some regularity and may be predicted through historic evidence and scientific methods. The chronic hazards addressed in the plan include:

Section 5: Earthquakes

Section 6: Windstorms

Each of the hazard-specific information includes information on the history, hazard causes and characteristics, and hazard assessment.

Part III: Resources

The plan appendices are designed to provide users of the City of Huntington Park Natural Hazards Mitigation Plan with additional information to assist them in understanding the contents of the mitigation plan, and potential resources to assist them with implementation.

Appendix A: Plan Resource Directory

The resource directory includes City, regional, state, and national resources and programs that may be of technical and/or financial assistance to City of Huntington Park during plan implementation.

Appendix B: Public Participation

This appendix includes specific information on the various public processes used during development of the plan.

Appendix C: Benefit/Cost Analysis

This section describes FEMA's requirements for benefit cost analysis in natural hazards mitigation, as well as various approaches for conducting economic analysis of proposed mitigation activities.

Appendix D: List of Acronyms

This section provides a list of acronyms for City, regional, state, and federal agencies and organizations that may be referred to within the City of Huntington Park Natural Hazards Mitigation Plan.

Appendix E: Glossary

This section provides a glossary of terms used throughout the plan.

Section 2:

Plan Maintenance

The Plan Maintenance Section of this document details the formal process that will ensure that the Natural Hazards Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section describes how the City will integrate public participation throughout the plan maintenance process. Finally, this Section includes an explanation of how the City of Huntington Park government intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as the City’s General Plan, Capital Improvement Plans, and Building and Safety Codes.

Monitoring and Implementing the Plan

Plan Adoption

The City Council will be responsible for adopting the Natural Hazards Mitigation Plan. This governing body has the authority to promote sound public policy regarding natural hazards. Once the plan has been adopted, it will be submitted to the State Hazard Mitigation Officer at The Governor’s Office of Emergency Services. The Governor’s Office of Emergency Services will then submit the plan to the Federal Emergency Management Agency (FEMA) for review. This review will address the federal criteria outlined in FEMA Interim Final Rule 44 CFR Part 201. Upon acceptance by FEMA, the City will gain eligibility for Hazard Mitigation Grant Program funds.

Coordinating Body

The City’s Hazard Mitigation Committee will be responsible for coordinating implementation of plan action items and undertaking the formal review process. The City Manager (or other authority) may assign additional representatives from City agencies. The present members of the Mitigation Committee include:

City of Huntington Park	Don Pruyn, City Treasurer/Finance Director Henry Gray, Dir. of Community Development Alan Shear, Assistant to the City Manager Rosanna Ramirez, City Clerk Wesley R. Lind, Building Official/City Engineer Patrick Fu, Assistant City Engineering Gabriel Bautista, Planning Manager Barbara Grimm, Building and Safety Tech
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The Natural Hazards Mitigation Committee will meet on a quarterly basis to review progress on the Plan. The meetings will provide an opportunity to discuss the progress of

the action items and maintain the partnerships that are essential for the sustainability of the Mitigation Plan.

Convener

The City Council will adopt the Natural Hazards Mitigation Plan, and the Mitigation Committee will take responsibility for plan implementation. The City Manager (or designee) will serve as a convener to facilitate the Team meetings, and will assign tasks such as updating and presenting the Plan to the members of the Committee. Plan implementation and evaluation will be a shared responsibility among all of the Committee members.

Implementation through Existing Programs

The City addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Plans, and City Building and Safety Codes. The Natural Hazards Mitigation Plan provides a series of recommendations - many of which are closely related to the goals and objectives of existing planning programs. The City will have the opportunity to implement recommended mitigation action items through existing programs and procedures.

The City's Building & Safety Department is responsible for administering the Building & Safety Codes. In addition, the Mitigation Committee will work with other agencies at the state level to review, develop and ensure Building & Safety Codes that are adequate to mitigate or prevent damage by natural hazards. This is to ensure that life-safety criteria are met for new construction.

The goals and action items in the mitigation plan may be achieved through activities recommended in the City's Capital Improvement Plans (CIP). Various City departments develop CIP plans, and review them on an annual basis. Upon annual review of the CIPs, the Mitigation Committee will work with the City departments to identify action items in the Natural Hazards Mitigation Plan consistent with CIP planning goals and integrate them where appropriate.

The meetings of the Mitigation Committee will provide an opportunity for Committee members to report back on the progress made on the integration of mitigation planning elements into the City's planning documents and procedures.

Economic Analysis of Mitigation Projects

At the Hazard Mitigation Advisory Committee's first implementation meeting, the STAPLEE Tool (Plan Maintenance – Attachment 1) or some other prioritizing tool will be utilized to prioritize the action items identified in the Mitigation Actions Matrix (Executive Summary – Attachment 1). In addition, appropriate funding sources will be identified for the “top ten” priority action items.

FEMA's approaches to identify the costs and benefits associated with natural hazard mitigation strategies, measures, or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis.

Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later.

Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards can provide decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

Given federal funding, the Mitigation Committee will use a FEMA-approved benefit/cost analysis approach to identify and prioritize mitigation action items. For other projects and funding sources, the Committee will use other approaches to understand the costs and benefits of each action item and develop a prioritized list. For more information regarding economic analysis of mitigation action items, please see Appendix C: Benefit/Cost Analysis.

Evaluating and Updating the Plan

Formal Review Process

The Natural Hazards Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process includes a firm schedule and timeline, and identifies the local agencies and organizations participating in plan evaluation. The convener or designee will be responsible for contacting the Mitigation Committee members and organizing the annual meeting.

Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

The Mitigation Committee will review the goals and action items to determine their relevance to changing situations in the City, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The Committee will also review the Risk Assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised.

The convener will assign the duty of updating the plan to one or more of the Committee members. The Committee will notify all holders of the Plan when changes have been

made. Every five years the updated Plan will be submitted to the State Hazard Mitigation Officer and the Federal Emergency Management Agency for review.

Continued Public Involvement

The City is dedicated to involving the public directly in review and updates of the Natural Hazards Mitigation Plan. The Mitigation Committee members are responsible for the annual review and update of the plan.

The public will also have the opportunity to provide feedback about the Plan. Copies of the Plan will be catalogued and kept at all of the appropriate agencies in the City. The existence and location of these copies will be publicized in the quarterly city newsletter which reaches every household in the City. The plan also includes the address and the phone number of the City's Planning and Building Department, responsible for keeping track of public comments on the Plan.

In addition, copies of the Plan and any proposed changes will be posted on the City's Website. This site will also contain an email address and phone number to which people can direct their comments and concerns.

A public meeting will also be held after each annual evaluation or as deemed necessary by the Mitigation Committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The Mitigation Committee will be responsible for using City resources to publicize the annual public meetings and maintain public involvement through the public access cable channel, Website, and local newspapers.

Plan Maintenance – Attachment 1: Simplified STAPLEE Worksheet

**Simplified STAPLEE Worksheet – Prioritizing Mitigation Actions
(Social, Technical, Administrative, Political, Legal, Economic, Environmental)**

1. Fill in the goal. Use a separate worksheet for each goal. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations.
2. Fill in the action items associated with the goal.
3. **Scoring:** For each action item, indicate a plus (+) for favorable, and a negative (-) for less favorable.

When you complete the scoring, add up the positives to establish your priorities. For STAPLEE categories that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer – seek the input of an expert.

Goal: _____

STAPLEE Category	S (Social)		T (Technical)			A (Administrative)			P (Political)		
	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/ Operations	Political Support	Local Champion	Public Support
Categories (right)											
Action Items (below)											
1.											
2.											
3.											
4.											
5.											
6.											

STAPLEE Categories	L (Legal)			E (Economic)				E (Environmental)				
	Categories (right)	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals
1.												
2.												
3.												
4.												
5.												
6.												

Section 3:

Community Profile

Why Plan for Natural Hazards in City of Huntington Park?

Natural hazards impact citizens, property, the environment, and the economy of City of Huntington Park. Earthquakes and windstorms have exposed City of Huntington Park residents and businesses to the financial and emotional costs of recovering after natural disasters. The risk associated with natural hazards increases as more people move to areas affected by natural hazards.

Even in those communities that are essentially “built-out” i.e., have little or no vacant land remaining for development; population density continues to increase when low density housing is replaced with medium and high density development projects.

The inevitability of natural hazards, and the growing population and activity within the City create an urgent need to develop strategies, coordinate resources, and increase public awareness to reduce risk and prevent loss from future natural hazard events. Identifying the risks posed by natural hazards, and developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and communities. Local residents and businesses can work together with the City to create a natural hazards mitigation plan that addresses the potential impacts of hazard events.

Geography and the Environment

City of Huntington Park has an area of 3.5 square miles and is located in central Los Angeles County.

The elevation of the City of Huntington Park is 170 feet above sea level. The terrain is relatively flat and completely developed or urbanized.

Community Profile

The City of Huntington Park is rich in history. The area comprising the City of Huntington Park was first settled in the later part of the 19th and the City itself was incorporated in 1906. The City is highly urbanized and has one of the highest population densities in Los Angeles County according to the City’s General Plan.

As stated in the City’s General Plan, the city is not served by the regional highway system however the city is served by many major arterial routes. The major east-west arterials include Slauson Avenue, Gage Avenue, and Florence Avenue. North-south arterial roadways include Alameda Street, Santa Fe Avenue, Pacific Boulevard, State Street, and California Avenue according to the City’s General Plan.

The General Plan for the City of Huntington Park maps the following railways through the city:

Union Pacific: The Union Pacific Railroad runs through the city from north to south on the eastern boundary off the city.

Southern Pacific: The Southern Pacific Railroad runs north to south near the western boundary and east-west through the northern portion of the city.

Santa Fe: The Santa Fe runs near the northwest border in the City.

Major Rivers

According to the City's General Plan, the two rivers nearest the City of Huntington Park are the Los Angeles River and Rio Hondo River. The Emergency Operations Plan for the City states that the National Flood Insurance Program designates the City as a "Zone C", or area with minimal flooding hazards. The EOP also states that the primary source of flooding to the City would be a 100-year flood on the Los Angeles River. If the Los Angeles River overflows, sections the City of Huntington Park could experience shallow flooding.

Climate

Average temperatures in the City of Huntington Park range from 65 degrees in the winter months to 84 degrees in the summer months. However the temperatures can vary over a wide range, particularly when the Santa Ana winds blow, bringing higher temperatures and very low humidity.

Rainfall in the city averages 15 inches of rain per year. But the term "average" means very little in this region as the annual rainfall during this time period has ranged from only 4.35 inches in 2001-2002 to 38.2 inches in 1883-1884.

Furthermore, actual rainfall in Southern California tends to fall in large amounts during sporadic and often heavy storms rather than consistently over storms at somewhat regular intervals. In short, rainfall in Southern California might be characterized as feast or famine within a single year. Because the metropolitan basin is largely built out, water originating in higher elevation communities can have a sudden impact on adjoining communities that have a lower elevation.

Minerals and Soils

The characteristics of the minerals and soils present in City of Huntington Park indicate that potential types of hazards that may occur. Rock hardness and soil characteristics can determine whether or not an area will be prone to geologic hazards such as earthquakes, liquefaction, and landslides.

Other Significant Geologic Features

City of Huntington Park, like most of the Los Angeles Basin, lie over the area of one or more known earthquake faults, and potentially many more unknown faults, particularly so-called lateral or blind thrust faults.

As identified in the City's General Plan, the major Faults that have the potential to affect the City of Huntington Park are:

- San Andreas
- Newport - Inglewood
- Sierra Madre
- Whittier - Elsinore
- San Fernando
- San Jacinto

The Los Angeles Basin has a history of powerful and relatively frequent earthquakes, dating back to the powerful 8.0+ San Andreas earthquake of 1857 which did substantial damage to the relatively few buildings that existed at the time. Paleoseismological research indicates that large (8.0+) earthquakes occur on the San Andreas fault at intervals between 45 and 332 years with an average interval of 140 years¹. Other lesser faults have also caused very damaging earthquakes since 1857. Notable earthquakes include the 1933 Long Beach Earthquake, the 1971 San Fernando Earthquake, the 1987 Whittier Earthquake and the 1994 Northridge Earthquake.

In addition, many areas in the Los Angeles Basin have sandy soils that are subject to liquefaction. The City of Huntington Park is located in a liquefaction zone that covers most of the Los Angeles Basin (see Section 5: Earthquake).

Population and Demographics

City of Huntington Park has a population of about 61,348 (according to the 2000 Census) in an area of 3.5 square miles.

The increase of people living in City of Huntington Park creates more community exposure, and changes how agencies prepare for and respond to natural hazards. For example, more people living on the urban fringe can increase risk of fire. Wildfire has an increased chance of starting due to human activities in the urban/rural interface, and has the potential to injure more people and cause more property damage. But an urban/wildland fire is not the only exposure to the City of Huntington Park. In the 1987 publication, Fire Following Earthquake issued by the All Industry Research Advisory Council, Charles Scawthorn explains how a post-earthquake urban conflagration would develop. The conflagration would be started by fires resulting from earthquake damage,

¹ Peacock, Simon M.,
<http://aamc.geo.lsa.umich.edu/eduQuakes/EQpredLab/EQprediction.peacock.html>

but made much worse by the loss of pressure in the fire mains, caused by either lack of electricity to power water pumps, and /or loss of water pressure resulting from broken fire mains.

Furthermore, increased density can affect risk. For example, narrower streets are more difficult for emergency service vehicles to navigate, the higher ratio of residents to emergency responders affects response times, and homes located closer together increase the chances of fires spreading.

Natural hazards do not discriminate, but the impacts in terms of vulnerability and the ability to recover vary greatly among the population. According to Peggy Stahl of the Federal Emergency Management Agency (FEMA) Preparedness, Training, and Exercise Directorate, 80% of the disaster burden falls on the public, and within that number, a disproportionate burden is placed upon special needs groups: women, children, minorities, and the poor.²

According the 2000 census figures, the demographic make up of the city is as follows:

	City of Huntington Park
Caucasian	2.7%
Hispanic	95.6%
African American	.8%
Asian	.8%
Native American	1.0%

The ethnic and cultural diversity suggests a need to address multi-cultural needs and services.

The percentage of citizens living in poverty in the City of Huntington Park is about 25.2% according to the 2000 Census. Of those, 31.5% are under 18 years old, and 18.7% are over 65.

Vulnerable populations, including seniors, disabled citizens, women, and children, as well as those people living in poverty, may be disproportionately impacted by natural hazards.

Examining the reach of hazard mitigation policies to special needs populations may assist in increasing access to services and programs. FEMA's Office of Equal Rights addresses this need by suggesting that agencies and organizations planning for natural disasters identify special needs populations, make recovery centers more accessible, and review practices and procedures to remedy any discrimination in relief application or assistance.

² www.fema.gov

The cost of natural hazards recovery can place an unequal financial responsibility on the general population when only a small proportion may benefit from governmental funds used to rebuild private structures. Discussions about natural hazards that include local citizen groups, insurance companies, and other public and private sector organizations can help ensure that all members of the population are a part of the decision-making processes.

Land and Development

Development in Southern California from the earliest days was a cycle of boom and bust. The Second World War however dramatically changed that cycle. Military personnel and defense workers came to Southern California to fill the logistical needs created by the war effort. The available housing was rapidly exhausted and existing commercial centers proved inadequate for the influx of people. Immediately after the war, construction began on the freeway system, and the face of Southern California was forever changed. Home developments and shopping centers sprung up everywhere and within a few decades the central basin of Los Angeles County was virtually built out. This pushed new development further and further away from the urban center.

The City of Huntington Park General Plan addresses the use and development of private land, including residential and commercial areas. This plan is one of the City's most important tools in addressing environmental challenges including transportation and air quality; growth management; conservation of natural resources; clean water and open spaces.

The environment of most Los Angeles County cities is nearly identical with that of their immediate neighbors and the transition from one incorporated municipality to another is seamless to most people. Seamless too are the exposures to the natural hazards that affect all of Southern California.

Housing and Community Development (Source: City's General Plan, 2000 Census)

	City of Huntington Park
Development Type	
Residential	41%
Commercial/Industrial	11%
Open Space	3%
Housing Type	
Single-Family	34.3%
Multi-Residential (20+ units)	9.9%
Mobilehomes	0.0%
Housing Statistics	
Total Available Housing Units	15,335

Owner-Occupied Housing	27.4%
Average Household Size	4.12 persons
Median Home Value	\$164,700

Employment and Industry
(Source: 2000 Census)

	City of Huntington Park
Principal Employment Activities	
Production, Transportation, and Material Moving	38.3%
Sales and Office Occupations	24.4%
Service Occupations	15.6%
Management (professional and related occupations)	11.8%
Construction	9.2%
Major Industries	
Manufacturing	31.0%
Education, Health & Social Services	12.2%
Retail Trade	11.5%
Arts, Entertainment, Recreation, Accommodation, and Food Services	7.6%

Mitigation activities are needed at the business level to ensure the safety and welfare of workers and limit damage to industrial infrastructure. Employees are highly mobile, commuting from surrounding areas to industrial and business centers. This creates a greater dependency on roads, communications, accessibility and emergency plans to reunite people with their families. Before a natural hazard event, large and small businesses can develop strategies to prepare for natural hazards, respond efficiently, and prevent loss of life and property.

Transportation and Commuting Patterns

Private automobiles are the dominant means of transportation in Southern California and in the City of Huntington Park. However, the City of Huntington Park meets its public transportation needs through the Southern California Rapid Transit District with fixed route service on local and express routes according the City's General Plan.

According to the 2000 Census, the City has a population of 61,348. The mean travel time to work for the residents of the City of Huntington Park is 29.5 minutes.

The major east-west commuting arterials include Slauson Avenue, Gage Avenue, and Florence Avenue. North-south arterial roadways include Alameda Street, Santa Fe Avenue, Pacific Boulevard, State Street, and California Avenue.

Localized flooding can render roads unusable. A severe winter storm has the potential to disrupt the daily driving routine of hundreds of thousands of people. Natural hazards can disrupt automobile traffic and shut down local and regional transit systems.

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 five levels of a risk assessment are as follows:

1) Hazard Identification

The Planning Team considered a range of natural hazards facing the region including: Earthquakes, Flooding, Earth Movement, Windstorms, Wildfire, Tsunami, and Drought. The attached Ranking Your Hazards - Attachment 1 handout guided the Team in prioritizing the natural hazards with the highest probability of significantly impacting the City of Huntington Park. The Team agreed that any hazards receiving a Team average score of “3” or higher would be included in the Natural Hazards Mitigation Plan. Utilizing the ranking technique, the Team identified: Earthquakes and Windstorms as the most prominent hazards facing the community.

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 Huntington Park identified two major hazards that affect this geographic area. These hazards – earthquakes 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 Huntington Park 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 process describes 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-Specific Section.

Vulnerability: Location, Extent, and Probability*

	Location (Where)	Extent (How Big)	Probability (How Often)*
Hazard			
Earthquake	Entire Project Area	According to USGS, there is a 60% chance in the next 30 years of an earthquake measuring greater than 6.7 occurring in southern California.	Moderate
Windstorm	Entire Project Area	50 miles per hour or greater	Moderate
* Probability is defined as: Low = 1:500 years, Moderate = 1:100 years, High = 1:10 years			

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 facilities provide critical 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.

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. Data was not available to make vulnerability determinations in terms of dollar losses. The Mitigation Actions Matrix (Executive Summary – Attachment 1) includes an action item to conduct such an assessment in the future.

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 Huntington Park 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 Huntington Park 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 Huntington Park 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 Community 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 "secondary impact" 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 Huntington Park.

Table 4-2: City of Huntington Park Critical and Essential Facilities Vulnerable to Hazards* (*data not available to determine the extent of damages to the critical and essential facilities)

Earthquakes	Windstorms	Facility	Address
✓	✓	City Hall	6550 Miles Avenue
✓	✓	Police Department	6542 Miles Avenue
✓		Field Services Department	6900 Bissell Street
✓		Parks and Recreation Center	3401 Florence Avenue
✓		L.A. County Fire Station	3255 Saturn Avenue
✓		L.A. County Fire Station	6301 S. Santa Fe Avenue
✓	✓	Mission Hospital	3111 Florence Avenue
✓	✓	St. Francis Medical Center	2700 Slauson Avenue
✓		L.A. County Public Library	6518 Miles Avenue
✓		Huntington Park High School	6020 Miles Avenue
✓		Nimitz Junior High School	6021 Carmelita
✓		Henry T. Gage Junior High School	2880 Gage Avenue
✓		Miles Avenue Elementary	6720 Miles Avenue
✓		Middleton Street Elementary	6537 Middleton Street
✓		State Street Elementary	3211 Santa Ana Street
✓	✓	Civic Center Park	6550 Miles Avenue
✓		Salt Lake Park - Municipal Park	3401 East Florence Avenue
✓		Freedom Park	6051 Corona Avenue
✓		Westside Park	2061 Gage Avenue

Earthquakes	Windstorms	Facility	Address
✓		L.A. County Public Library	6518 Miles Avenue
✓		H.P. Water Well/Reservoir #12	8015 Salt Lake Avenue
✓		H.P. Water Well/Reservoir #14	6219 Bissell Street
✓	✓	H.P. Water Well/Reservoir/Elevated Tank #15	6717 Cottage Street
		H.P. Water Well/Reservoir #16	3520 Florence Avenue
✓	✓	H.P. Water Well/Reservoir/Elevated Tank #17	5920 Miles
✓		H.P. Water Well #18	6900 Bissell
✓		H.P. Water Reservoir #18	3706 Florence Avenue
✓	✓	Salvation Army	2965 Gage Avenue
✓		Maywood Water Well	5953 Gifford
✓		Southern Calif. Water Reservoir	1954 Laura Avenue
✓		Edison Power Transfer Station	NWC Zoe St.-Rugby Avenue
✓		Family Center	3355 Gage 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.

Ranking Your Hazards

It is important to keep in mind that your rankings should be based on a hazard event that would overwhelm your jurisdiction's ability to respond effectively.

For each hazard listed assign a score. Place a number in the appropriate box.

Hazard Scoring	
1	An event of that magnitude is not likely to occur
2	There is a slight chance that an event of that magnitude will occur
3	It is possible that an event of that magnitude will occur
4	An event of that magnitude has occurred here in the past and is likely to occur again
5	There is a high probability that an event of that magnitude will occur

Identify any additional hazards for the jurisdiction at the end of the list labeled as "Other Hazard."

<i>Hazard</i>	<i>Score</i>
Earthquake	
Flooding	
Wildfire	
Windstorm	
Earth Movement (Landslide/Debris Flow)	
Tsunami	
Drought	
Other Hazard _____	

Section 5:
Earthquake Hazards
in the
City of
Huntington Park

Why Are Earthquakes a Threat to the City of Huntington Park?

The most recent significant earthquake event affecting Southern California was the January 17, 1994 Northridge Earthquake. At 4:31 A.M. on Monday, January 17, a moderate but very damaging earthquake with a magnitude of 6.7 struck the San Fernando Valley. In the following days and weeks, thousands of aftershocks occurred, causing additional damage to affected structures.

Fifty seven (57) people were killed and more than 1,500 people seriously injured. 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. Approximately 15,000 structures were moderately to severely damaged, which left thousands of people temporarily homeless. A total of 66,500 buildings were inspected. Nearly 4,000 were severely damaged and over 11,000 were moderately damaged. Several collapsed bridges and overpasses created commuter havoc on the freeway system. Extensive damage was caused by ground shaking, but earthquake triggered liquefaction and dozens of fires also caused additional severe damage. This extremely strong ground motion in large portions of Los Angeles County resulted in record economic losses.

However, the earthquake occurred early in the morning on a holiday. This circumstance considerably reduced the potential effects. Many collapsed buildings were unoccupied, and most businesses were not yet open. The direct and indirect economic losses ran into the 10's of billions of dollars.

Historical and geological records show that California has a long history of seismic events. Southern California is probably best known for the San Andreas Fault, a 400 mile long fault running from the Mexican border to a point offshore, west of San Francisco. "Geologic studies show that over the past 1,400 to 1,500 years large earthquakes have occurred at about 130 year intervals on the southern San Andreas Fault. As the last large earthquake on the Southern San Andreas occurred in 1857, that section of the fault is considered a likely location for an earthquake within the next few decades."ⁱ

But San Andreas is only one of dozens of known earthquake faults that crisscross Southern California. Some of the better known faults include the Newport-Inglewood, Whittier, Chatsworth, Elsinore, Hollywood, Los Alamitos, Puente Hills, and Palos Verdes faults. Beyond the known faults, there are a potentially large number of "blind" faults that underlie the surface of Southern California. One such blind fault was involved in the 1987 Whittier Narrows Earthquake.

Although the most famous of the Faults, the San Andreas, is capable of producing an earthquake with a Magnitude of 8+ on the Richter Scale, some of the "lesser" faults have the potential to inflict greater damage on the urban core of the Los Angeles Basin. Seismologists believe that a 6.0 earthquake on the Newport-Inglewood would result in far more death and destruction than a "great" quake on the San Andreas, because the San Andreas is relatively remote from the urban centers of Southern California.

For decades, partnerships have flourished between the USGS, Cal Tech, the California Geological Survey and universities to share research and educational efforts with Californians. Tremendous earthquake mapping and mitigation efforts have been made in California in the past two decades, and public awareness has risen remarkably during this time. Major federal, state, and local government agencies and private organizations support earthquake risk reduction, and have made significant contributions in reducing the adverse impacts of earthquakes. Despite the progress, the majority of California communities remain unprepared because there is a general lack of understanding regarding earthquake hazards among Californians.

Table 5-1: Earthquake Events in the Southern California Region

Southern California Region Earthquakes with a Magnitude 5.0 or Greater			
1769	Los Angeles Basin	1916	Tejon Pass Region
1800	San Diego Region	1918	San Jacinto
1812	Wrightwood	1923	San Bernardino Region
1812	Santa Barbara Channel	1925	Santa Barbara
1827	Los Angeles Region	1933	Long Beach
1855	Los Angeles Region	1941	Carpenteria
1857	Great Fort Tejon Earthquake	1952	Kern County
1858	San Bernardino Region	1954	W. of Wheeler Ridge
1862	San Diego Region	1971	San Fernando
1892	San Jacinto or Elsinore Fault	1973	Point Mugu
1893	Pico Canyon	1986	North Palm Springs
1894	Lytle Creek Region	1987	Whittier Narrows
1894	E. of San Diego	1992	Landers
1899	Lytle Creek Region	1992	Big Bear
1899	San Jacinto and Hemet	1994	Northridge
1907	San Bernardino Region	1999	Hector Mine
1910	Glen Ivy Hot Springs		

Source:

http://geology.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fpasadena.wr.usgs.gov%2Finfo%2Fcahist_eqs.html

To better understand the earthquake hazard, the scientific community has looked at historical records and accelerated research on those faults that are the sources of the earthquakes occurring in the Southern California region. Historical earthquake records can generally be divided into records of the pre-instrumental period and the instrumental period. In the absence of instrumentation, the detection of earthquakes is based on

observations and felt reports, and is dependent upon population density and distribution. Since California was sparsely populated in the 1800s, the detection of pre-instrumental earthquakes is relatively difficult. However, two very large earthquakes, the Fort Tejon in 1857 (7.9) and the Owens Valley in 1872 (7.6) are evidence of the tremendously damaging potential of earthquakes in Southern California. In more recent times two 7.3 earthquakes struck Southern California, in Kern County (1952) and Landers (1992). The damage from these four large earthquakes was limited because they occurred in areas which were sparsely populated at the time they happened. The seismic risk is much more severe today than in the past because the population at risk is in the millions, rather than a few hundred or a few thousand persons.

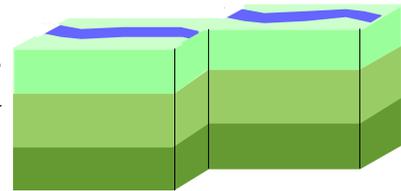
History of Earthquake Events in Southern California

Since seismologists started recording and measuring earthquakes, there have been tens of thousands of recorded earthquakes in Southern California, most with a magnitude below three. No community in Southern California is beyond the reach of a damaging earthquake. Figure 5-1 describes the historical earthquake events that have affected Southern California.

Figure 5-1: Causes and Characteristics of Earthquakes in Southern California

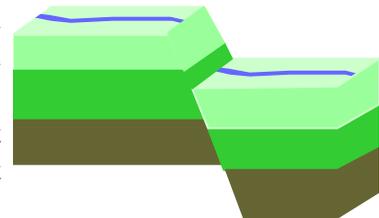
Earthquake Faults

A fault is a fracture along between blocks of the earth's crust where either side moves relative to the other along a parallel plane to the fracture.



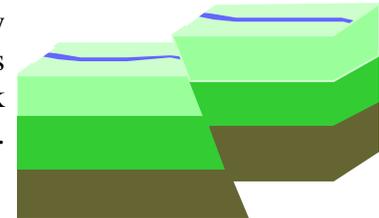
Strike-slip

Strike-slip faults are vertical or almost vertical rifts where the earth's plates move mostly horizontally. From the observer's perspective, if the opposite block looking across the fault moves to the right, the slip style is called a right lateral fault; if the block moves left, the shift is called a left lateral fault.



Dip-slip

Dip-slip faults are slanted fractures where the blocks mostly shift vertically. If the earth above an inclined fault moves down, the fault is called a normal fault, but when the rock above the fault moves up, the fault is called a reverse fault. Thrust faults have a reverse fault with a dip of 45 ° or less.



Dr. Kerry Sieh of Cal Tech has investigated the San Andreas Fault at Palmett Creek. "The record at Palmett Creek shows that rupture has recurred about every 130 years, on average, over the past 1500 years. But actual intervals have varied greatly, from less than 50 years to more than 300. The physical cause of such irregular recurrence remains unknown." ⁱⁱ

Damage from a great quake on the San Andreas would be widespread throughout Southern California.

Earthquake Related Hazards

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

Ground Shaking

Ground shaking is the motion felt on the earth's surface caused by seismic waves generated by the earthquake. It is the primary cause of earthquake damage. The strength of ground shaking depends on the magnitude of the earthquake, the type of fault, and distance from the epicenter (where the earthquake originates). Buildings on poorly consolidated and thick soils will typically see more damage than buildings on consolidated soils and bedrock.

Earthquake-Induced Landslides

Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. They can destroy the roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes.

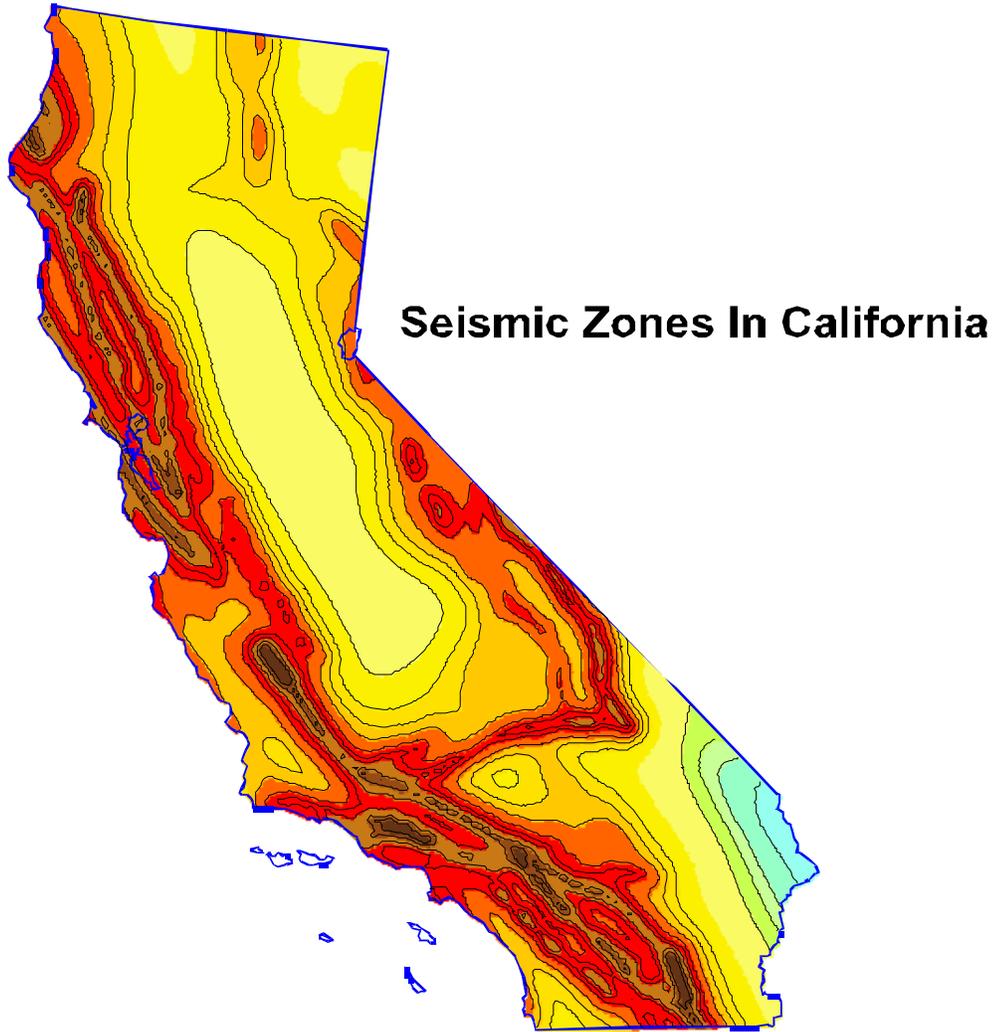
Liquefaction

Liquefaction occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures. Many communities in Southern California are built on ancient river bottoms and have sandy soil. In some cases this ground may be subject to liquefaction, depending on the depth of the water table.

Amplification

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

Map 5-1: Seismic Zones in California



Darker Shaded Areas indicate Greater Potential Shaking

Source: USGS Website

Earthquake Hazard Assessment

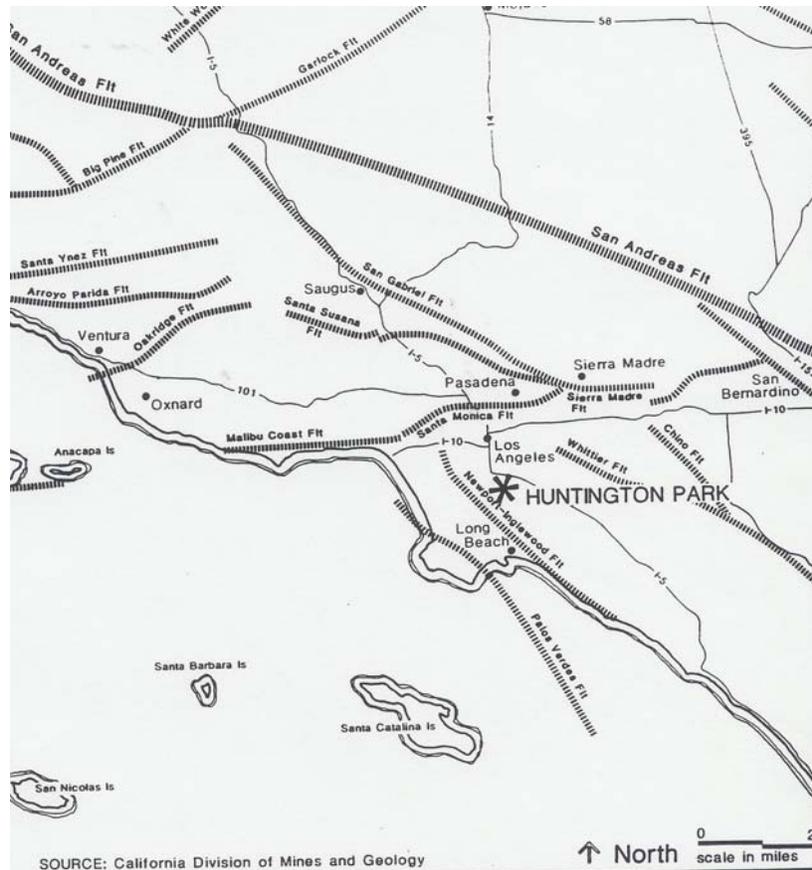
Hazard Identification

Begin the subsection with the following: “Earthquake – Attachment 1 Southern California Earthquake Fault Map plots the various major faults in the region. A list of Earthquake Probable Events gathered from the Southern California Earthquake Data Center is located in Earthquake – Attachment 2”. The list includes various faults and projected magnitude earthquakes likely to impact the region. The Southern California Earthquake Data Center predicts that somewhere in Southern California (not everywhere—many residents would not be affected) should experience a magnitude 7.0 or greater earthquake about seven times each century. About half of these will be on the San Andreas "system" (the San Andreas, San Jacinto, Imperial, and Elsinore Faults) and half will be on other faults. The equivalent probability in the next 30 years is 85%.

In California, many agencies are focused on seismic safety issues: the State’s Seismic Safety Commission, the Applied Technology Council, Governor’s Office of Emergency Services, United States Geological Survey, Cal Tech, the California Geological Survey as well as a number of universities and private foundations.

These organizations, in partnership with other state and federal agencies, have undertaken a rigorous program in California to identify seismic hazards and risks including active fault identification, bedrock shaking, tsunami inundation zones, ground motion amplification, liquefaction, and earthquake induced landslides. Seismic hazard maps have been published and are available for many communities in California through the State Division of Mines and Geology. Map 5-2 illustrates the known earthquake faults in Southern California.

Map 5-2: Regional Fault Zones (Source: City of Huntington Park General Plan)



As identified in the City’s General Plan, the major faults that have the potential to affect the greater Los Angeles Basin, and therefore the City of Huntington Park are the:

- San Andreas
- Newport-Inglewood
- Sierra Madre
- Whittier
- Elsinore
- San Fernando
- San Jacinto

In California, each earthquake is followed by revisions and improvements in the Building Codes. The 1933 Long Beach Earthquake resulted in the Field Act, affecting school construction. The 1971 Sylmar Earthquake brought another set of increased structural standards. Similar re-evaluations occurred after the 1989 Loma Prieta and 1994 Northridge Earthquakes. These code changes have resulted in stronger and more earthquake resistant structures.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard.^{iv}

The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.^v The State Department of Conservation operates the Seismic Mapping Program for California. Extensive information is available at their website: <http://gmw.consrv.ca.gov/shmp/index.htm>

Vulnerability Assessment

The effects of earthquakes span a large area, and large earthquakes occurring in many parts of the Southern California region would probably be felt throughout the region. However, the degree to which the earthquakes are felt, and the damages associated with them may vary. At risk from earthquake damage are large stocks of old buildings and bridges: many high tech and hazardous materials facilities: extensive sewer, water, and natural gas pipelines; earth dams; petroleum pipelines; and other critical facilities and private property located in the county. The relative or secondary earthquake hazards, which are liquefaction, ground shaking, amplification, and earthquake-induced landslides, can be just as devastating as the earthquake.

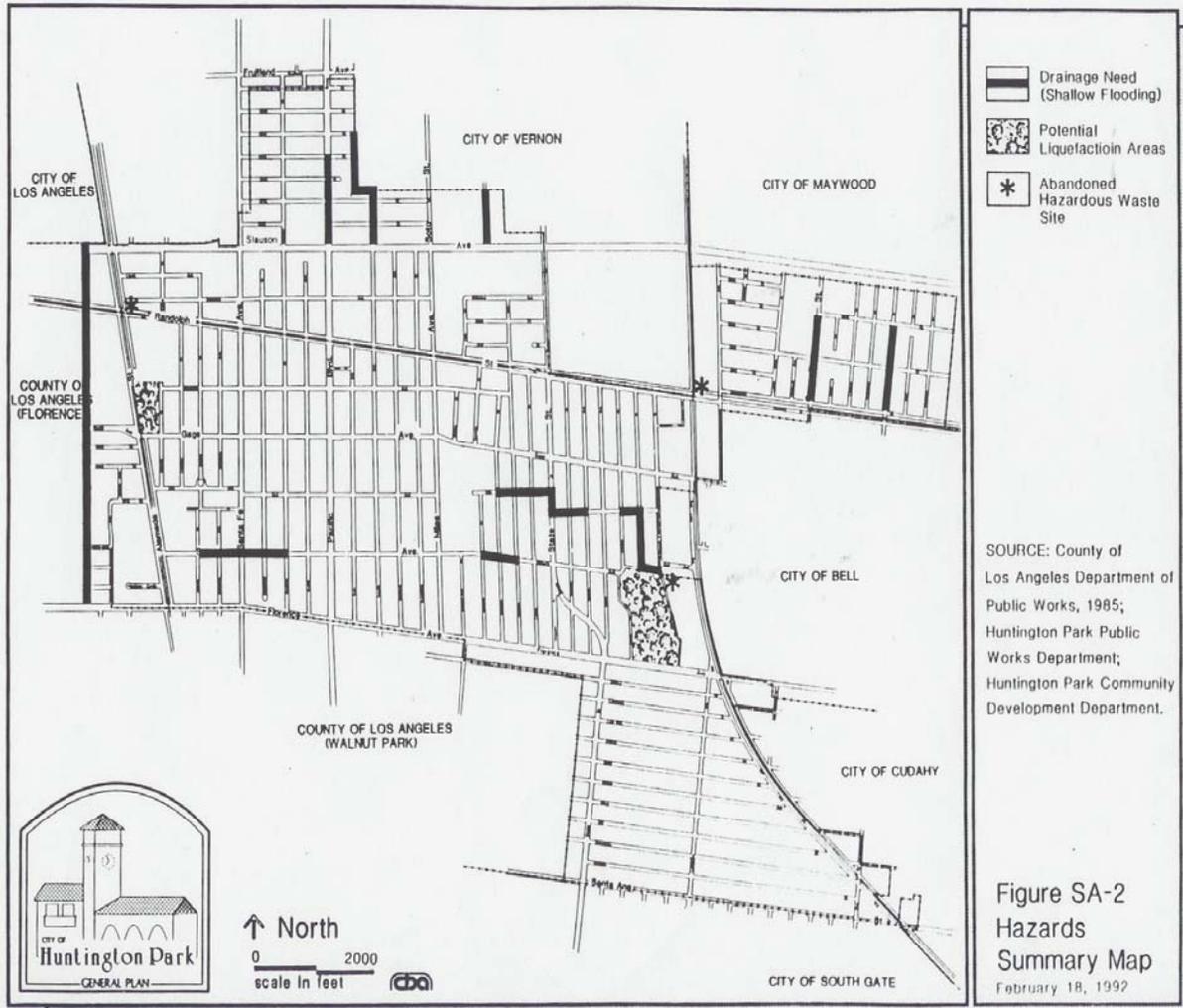
The California Geological Survey has identified areas most vulnerable to liquefaction. Liquefaction occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state. This results in the loss of soil strength and the soil's ability to support weight. Buildings and their occupants are at risk when the ground can no longer support these buildings and structures.

The City of Huntington Park has liquefaction zones as shown on Map 5-3: Potential Liquefaction Areas in the City of Huntington Park. The following two areas are identified in the City's General Plan as potential liquefaction zones:

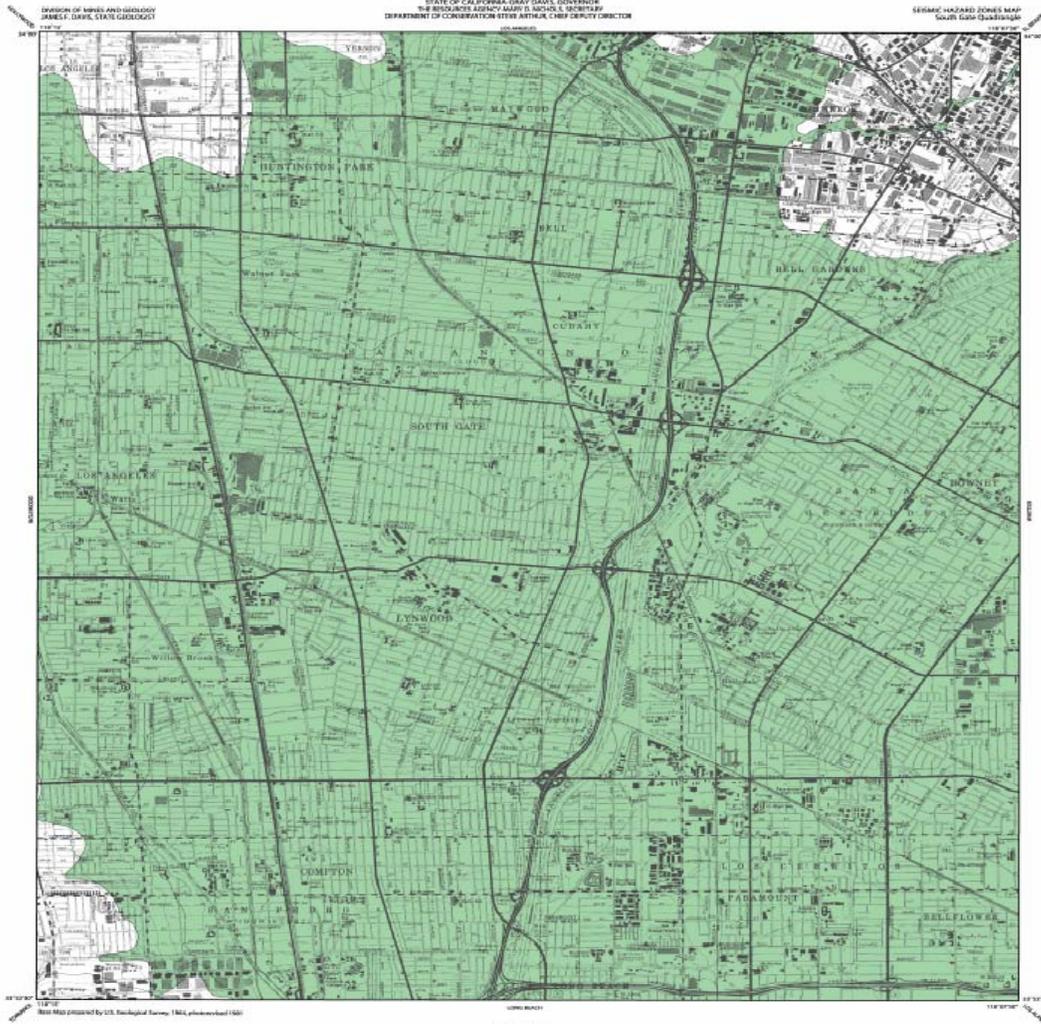
Zone 1: The area along Florence Avenue and Hewell Street

Zone 2: Along Gage and Regent Avenues, east of the railroad right of way.

Map 5-3: Potential Liquefaction Areas in the City of Huntington Park (Source: City of Huntington Park General Plan)



**Map 5-4: Liquefaction and EQ-Induced Landslide Zones in the City of Vernon
 (Source: California Seismic Hazard Zones– South Gate Quadrangle)
 (Key: Green indicates area prone to liquefaction following earthquakes; Blue indicates area prone to landslides following earthquakes)**



PURPOSE OF MAP
 This map was prepared by U.S. Geological Survey, 1982, photorevised 1991.

IMPORTANT: PLEASE NOTE
 This map may not show all areas that have the potential for liquefaction, landsliding, or other seismic hazards. This map is not intended to be used as a basis for engineering or other design. It is intended for general informational purposes only. For more information, contact the U.S. Geological Survey, 3140 Central Expressway, Menlo Park, CA 94023.

STATE OF CALIFORNIA
SEISMIC HAZARD ZONES
 Chapter 7A, Division 2 of the California Public Resources Code
 (Seismic Hazard Mapping Act)

SOUTH GATE QUADRANGLE
OFFICIAL MAP
 Released: March 25, 1999

James H. Dewey
 STATE GEOLOGIST

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MAP EXPLANATION
Zones of Required Investigation

Liquefaction
 Areas where seismic occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions indicate a potential for ground failure (displacements less than 100 mm) or other effects as defined in Public Resources Code Section 26992.3 would be required.

DATA AND METHODS CITED TO DEVELOP THIS MAP ARE LISTED IN THE FOLLOWING:
 Source: Seismic Evaluation of the South Gate 7.5 Minute Quadrangle, Los Angeles County, California, California Division of Mines and Geology, Open-File Report 88-20.

For additional information on seismic hazards in this map area, the following web page may be consulted:
<http://www.cdmg.com/gis/geology/>

Southern California has many active landslide areas, and a large earthquake could trigger accelerated movement in these slide areas, in addition to jarring loose other unknown areas of landslide risk.

Risk Analysis

Risk analysis is the third phase of a hazard assessment. Risk analysis involves estimating the damage and costs likely to be experienced in a geographic area over a period of time^{vi}. Factors included in assessing earthquake risk include population and property distribution in the hazard area, the frequency of earthquake events, landslide susceptibility, buildings, infrastructure, and disaster preparedness of the region. This type of analysis can generate estimates of the damages to the region due to an earthquake event in a specific location. FEMA's software program, HAZUS, uses mathematical formulas and information about building stock, local geology and the location and size of potential earthquakes, economic data, and other information to estimate losses from a potential earthquake.^{vii} The HAZUS software is available from FEMA at no cost.

For greater Southern California there are multiple worst case scenarios, depending on which fault might rupture, and which communities are in proximity to the fault. But damage will not necessarily be limited to immediately adjoining communities. Depending on the hypocenter of the earthquake, seismic waves may be transmitted through the ground to unsuspecting communities. In the Northridge 1994 earthquake, Santa Monica suffered extensive damage, even though there was a range of mountains between it and the origin of the earthquake.

Damages for a large earthquake almost anywhere in Southern California are likely to run into the billions of dollars. Although building codes are some of the most stringent in the world, ten's of thousands of older existing buildings were built under much less rigid codes. California has laws affecting unreinforced masonry buildings (URM's) and although many building owners have retrofitted their buildings, hundreds of pre-1933 buildings still have not been brought up to current standards. The City of Huntington Park's General Plan states that in 1990 there were almost 90 unreinforced masonry buildings in the City. The majority of these buildings were located downtown along the Pacific Boulevard. However, in response to the City's Earthquake Hazard Abatement Program, most of the buildings now have retrofit plans.

Non-structural bracing of equipment and contents is often the most cost-effective type of seismic mitigation. Inexpensive bracing and anchoring may be the most cost effective way to protect expensive equipment. Non-structural bracing of equipment and furnishings will also reduce the chance of injury for the occupants of a building.

Community Earthquake Issues

What is Susceptible to Earthquakes?

Earthquake damage occurs because humans have built structures that cannot withstand severe shaking. Buildings, airports, schools, and lifelines (highways and utility lines) suffer damage in earthquakes and can cause death or injury to humans. The welfare of homes, major businesses, and public infrastructure is very important. Addressing the reliability of buildings, critical facilities, and infrastructure, and understanding the potential costs to government, businesses, and individuals as a result of an earthquake, are challenges faced by the city.

Dams

There are a total of 103 dams in Los Angeles County, owned by 23 agencies or organizations, ranging from the Federal government to Homeowner's Associations.^{viii} These dams hold billions of gallons of water in reservoirs. Releases of water from the major reservoirs are designed to protect Southern California from flood waters and to store domestic water. Seismic activity can compromise the dam structures, and the resultant flooding could cause catastrophic flooding. Following the 1971 Sylmar Earthquake the Lower Van Norman Dam showed signs of structural compromise, and tens of thousands of persons had to be evacuated until the dam could be drained. The dam has never been refilled.

The City's Emergency Operations Plan states that the Hansen Dam and the Sepulveda Dam could have potential impact on the City of Huntington Park. The Emergency Operations Plan also gives the following descriptions of how dam inundation would affect the City.

The City is located 24 miles downstream of the Hansen Dam. In the event of a dam failure the waters would reach the City approximately 16 hours after the breach at a depth of two feet. The flood would inundate the northern section of the city first and then affect the rest of the city.

The Sepulveda Dam is located on the Los Angeles River 20 upstream of the City of Huntington Park. If the dam were to fail, the water would flow in a southeasterly direction reaching the city within 9 hours at a depth of two feet. The water would reach the northwest section of the city first and then inundate the rest of the city.

Buildings

The built environment is susceptible to damage from earthquakes. Buildings that collapse can trap and bury people. Lives are at risk and the cost to clean up the damages is great. In most California communities, including the City of Huntington Park, many buildings were built before 1993 when building codes were not as strict. In addition, retrofitting is not required except under certain conditions and can be expensive. Therefore, the number of buildings at risk remains high. The California Seismic Safety Commission makes annual reports on the progress of the retrofitting of un-reinforced masonry buildings. Huntington Park has had all but two of the un-reinforced masonry

structures over one story built before 1932 retrofitted. The two that are not retrofitted are vacant. Few other structures have been retrofitted.

Infrastructure and Communication

Residents of Huntington Park commute frequently by automobiles and public transportation such as buses and light rail. An earthquake can greatly damage bridges and roads, hampering emergency response efforts and the normal movement of people and goods. Damaged infrastructure strongly affects the economy of the community because it disconnects people from work, school, food, and leisure, and separates businesses from their customers and suppliers.

Bridge Damage

Even modern bridges can sustain damage during earthquakes, leaving them unsafe for use. Some bridges have failed completely due to strong ground motion. Bridges are a vital transportation link - with even minor damages making some areas inaccessible. Because bridges vary in size, materials, location and design, any given earthquake will affect them differently. Bridges built before the mid-1970's have a significantly higher risk of suffering structural damage during a moderate to large earthquake compared with those built after 1980 when design improvements were made.

Much of the interstate highway system was built in the mid to late 1960's. The bridges in the City of Huntington Park are state, county or privately owned (including railroad bridges). Caltrans has retrofitted most bridges on the freeway systems; however there are still some county maintained bridges that are not retrofitted. The FHWA requires that bridges on the National Bridge Inventory be inspected every 2 years. Caltrans checks when the bridges are inspected because they administer the Federal funds for bridge projects. The only bridges in Huntington Park are those that cross the Alameda Corridor train facility and they are new bridges that are less than five years old. The Alameda Corridor is responsible for these bridges but if they are damaged and inoperable they will cause east-west traffic problems.

Damage to Lifelines

Lifelines are the connections between communities and outside services. They include water and gas lines, transportation systems, electricity, and communication networks. Ground shaking and amplification can cause pipes to break open, power lines to fall, roads and railways to crack or move, and radio and telephone communication to cease. Disruption to transportation makes it especially difficult to bring in supplies or services. Lifelines need to be usable after earthquake to allow for rescue, recovery, and rebuilding efforts and to relay important information to the public.

Disruption of Critical Services

Critical facilities include police stations, fire stations, hospitals, shelters, and other facilities that provide important services to the community. These facilities and their services need to be functional after an earthquake event. Many critical facilities are housed in older buildings that are not up to current seismic codes. See Section 1, Introduction for critical and essential facilities vulnerable to earthquakes.

Businesses

Seismic activity can cause great loss to businesses, both large-scale corporations and small retail shops. When a company is forced to stop production for just a day, the economic loss can be tremendous, especially when its market is at a national or global level. Seismic activity can create economic loss that presents a burden to large and small shop owners who may have difficulty recovering from their losses.

Forty percent of businesses do not reopen after a disaster and another twenty-five percent fail within one year according to the Federal Emergency Management Agency (FEMA). Similar statistics from the United States Small Business Administration indicate that over ninety percent of businesses fail within two years after being struck by a disaster.^{ix}

Individual Preparedness

Because the potential for earthquake occurrences and earthquake related property damage is relatively high in the City of Huntington Park, increasing individual preparedness is a significant need. Strapping down heavy furniture, water heaters, and expensive personal property, as well as being earthquake insured, and anchoring buildings to foundations are just a few steps individuals can take to prepare for an earthquake.

Death and Injury

Death and injury can occur both inside and outside of buildings due to collapsed buildings falling equipment, furniture, debris, and structural materials. Downed power lines and broken water and gas lines can also endanger human life.

Fire

Downed power lines or broken gas mains may trigger fires. When fire stations suffer building or lifeline damage, quick response to extinguish fires is less likely. Furthermore, major incidents will demand a larger share of resources, and initially smaller fires and problems will receive little or insufficient resources in the initial hours after a major earthquake event. Loss of electricity may cause a loss of water pressure in some communities, further hampering fire-fighting ability.

Debris

After damage to a variety of structures, much time is spent cleaning up bricks, glass, wood, steel or concrete building elements, office and home contents, and other materials. Developing a strong debris management strategy is essential in post-disaster recovery. Disasters do not exempt the City of Huntington Park from compliance with AB 939 regulations.

Existing Mitigation Activities

Existing mitigation activities include current mitigation programs and activities that are being implemented by county, regional, state, or federal agencies or organizations.

City of Huntington Park Codes

Implementation of earthquake mitigation policy most often takes place at the local government level. The City of Huntington Park Department of Building and Safety

enforces building codes pertaining to earthquake hazards. The following sections of the UBC address the earthquake hazard:

1605.1 (Distribution of Horizontal Shear);
1605.2 (Stability against Overturning);
1626 (Seismic);
1605.3 (Anchorage); and
1632, 1633, 1633.9 deal with specific earthquake hazards.

The City of Huntington Park Planning Department enforces the zoning and land use regulations relating to earthquake hazards.

Generally, these codes seek to discourage development in areas that could be prone to flooding, landslide, wildfire and/or seismic hazards; and where development is permitted, that the applicable construction standards are met. Developers in hazard-prone areas may be required to retain a qualified professional engineer to evaluate level of risk on the site and recommend appropriate mitigation measures.

Coordination among Building Officials

The City of Huntington Park Building Code sets the minimum design and construction standards for new buildings. In 2001 California Building Code up-graded the structural requirements and the City of Huntington Park adopted the most recent seismic standards in its building code, which requires that new buildings be built at a higher seismic standard.

Since 1997, the City of Huntington Park has also required that site-specific seismic hazard investigations be performed for new essential facilities, major structures, hazardous facilities, and special occupancy structures such as schools, hospitals, and emergency response facilities.

Businesses/Private Sector

Natural hazards have a devastating impact on businesses. In fact, of all businesses which close following a disaster, more than forty-three percent never reopen, and an additional twenty-nine percent close for good within the next two years.^x The Institute of Business and Home Safety has developed “Open for Business”, which is a disaster planning toolkit to help guide businesses in preparing for and dealing with the adverse affects natural hazards. The kit integrates protection from natural disasters into the company's risk reduction measures to safeguard employees, customers, and the investment itself. The guide helps businesses secure human and physical resources during disasters, and helps to develop strategies to maintain business continuity before, during, and after a disaster occurs.

Hospitals

“The Alfred E. Alquist Hospital Seismic Safety Act (“Hospital Act”) was enacted in 1973 in response to the moderate Magnitude 6.6 1971 Sylmar Earthquake when four major hospital campuses were severely damaged and evacuated. Two hospital buildings

collapsed killing forty seven people. Three others were killed in another hospital that nearly collapsed.

In approving the Act, the Legislature noted that: “Hospitals, that house patients who have less than the capacity of normally healthy persons to protect themselves, and that must be reasonably capable of providing services to the public after a disaster, shall be designed and constructed to resist, insofar as practical, the forces generated by earthquakes, gravity and winds.” (Health and Safety Code Section 129680)

When the Hospital Act was passed in 1973, the State anticipated that, based on the regular and timely replacement of aging hospital facilities, the majority of hospital buildings would be in compliance with the Act’s standards within 25 years. However, hospital buildings were not, and are not, being replaced at that anticipated rate. In fact, the great majority of the State’s urgent care facilities are now more than 40 years old.

The moderate Magnitude 6.7 1994 Northridge Earthquake caused \$3 billion in hospital-related damage and evacuations. Twelve hospital buildings constructed before the Act were cited (red tagged) as unsafe for occupancy after the earthquake. Those hospitals that had been built in accordance with the 1973 Hospital Act were very successful in resisting structural damage. However, nonstructural damage (for example, plumbing and ceiling systems) was still extensive in those post-1973 buildings.

Senate Bill 1953 (“SB 1953”), enacted in 1994 after the Northridge Earthquake, expanded the scope of the 1973 Hospital Act. Under SB 1953, all hospitals are required, as of January 1, 2008, to survive earthquakes without collapsing or posing the threat of significant loss of life. The 1994 Act further mandates that all existing hospitals be seismically evaluated, and retrofitted, if needed, by 2030, so that they are in substantial compliance with the Act (which requires that the hospital buildings be reasonably capable of providing services to the public after disasters). SB 1953 applies to all urgent care facilities (including those built prior to the 1973 Hospital Act) and affects approximately 2,500 buildings on 475 campuses.

SB 1953 directed the Office of Statewide Health Planning and Development (“OSHPD”), in consultation with the Hospital Building Safety Board, to develop emergency regulations including “...earthquake performance categories with sub gradations for risk to life, structural soundness, building contents, and nonstructural systems that are critical to providing basic services to hospital inpatients and the public after a disaster.” (Health and Safety Code Section 130005)

The Seismic Safety Commission Evaluation of the State’s Hospital Seismic Safety Policies

In 2001, recognizing the continuing need to assess the adequacy of policies, and the application of advances in technical knowledge and understanding, the California Seismic Safety Commission created an Ad Hoc Committee to re-examine the compliance with the Alquist Hospital Seismic Safety Act. The formation of the Committee was also

prompted by the recent evaluations of hospital buildings reported to OSHPD that revealed that a large percentage (40%) of California's operating hospitals are in the highest category of collapse risk.”^{xi}

California Earthquake Mitigation Legislation

California is painfully aware of the threats it faces from earthquakes. Dating back to the 19th Century, Californians have been killed, injured, and lost property as a result of earthquakes. As the State's population continues to grow, and urban areas become even more densely developed, the risk will continue to increase. For decades the legislature has passed laws to strengthen the built environment and protect the citizens. Table 5-4 provides a sampling of some of the 200 plus laws in the State's codes.

Table 5-4: Partial List of the Over 200 California Laws on Earthquake Safety

Government Code Section 8870-8870.95	Creates Seismic Safety Commission.
Government Code Section 8876.1-8876.10	Established the California Center for Earthquake Engineering Research.
Public Resources Code Section 2800-2804.6	Authorized a prototype earthquake prediction system along the Central San Andreas Fault near the City of Parkfield.
Public Resources Code Section 2810-2815	Continued the Southern California Earthquake Preparedness Project and the Bay Area Regional Earthquake Preparedness Project.
Health and Safety Code Section 16100-16110	The Seismic Safety Commission and State Architect, will develop a state policy on acceptable levels of earthquake risk for new and existing state-owned buildings.
Government Code Section 8871-8871.5	Established the California Earthquake Hazards Reduction Act of 1986.
Health and Safety Code Section 130000-130025	Defined earthquake performance standards for hospitals.
Public Resources Code Section 2805-2808	Established the California Earthquake Education Project.
Government Code Section 8899.10-8899.16	Established the Earthquake Research Evaluation Conference.
Public Resources Code Section 2621-2630 2621.	Established the Alquist-Priolo Earthquake Fault Zoning Act.
Government Code Section 8878.50-8878.52 8878.50.	Created the Earthquake Safety and Public Buildings Rehabilitation Bond Act of 1990.
Education Code Section 35295-35297 35295.	Established emergency procedure systems in kindergarten through grade 12 in all the public or private schools.
Health and Safety Code Section 19160-19169	Established standards for seismic retrofitting of unreinforced masonry buildings.
Health and Safety Code Section 1596.80-1596.879	Required all child day care facilities to include an Earthquake Preparedness Checklist as an attachment to their disaster plan.

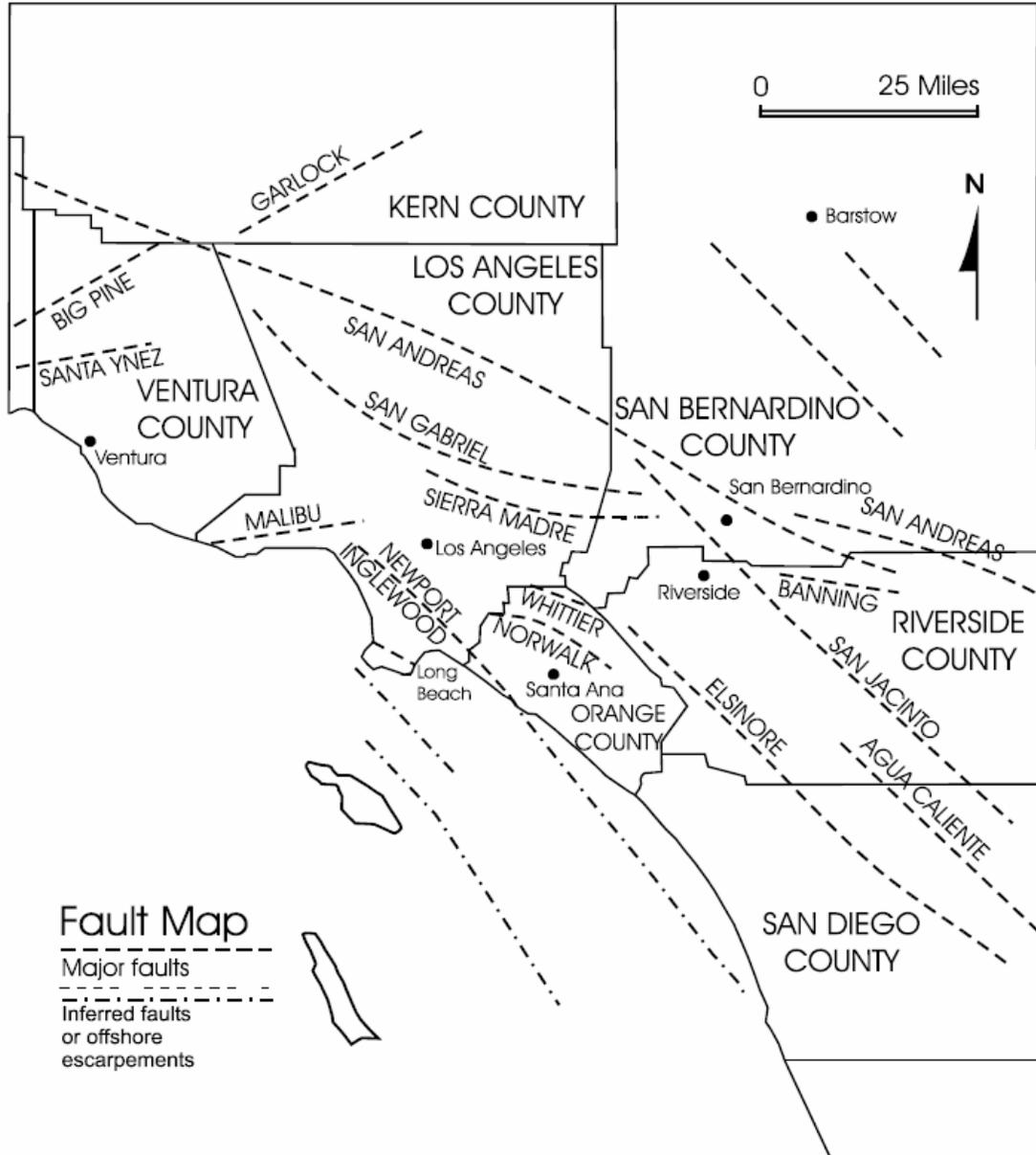
Source:
<http://www.leginfo.ca.gov/calaw.html>

Earthquake Education

Earthquake research and education activities are conducted at several major universities in the Southern California region, including Cal Tech, USC, UCLA, UCSB, UCI, and UCSB. The local clearinghouse for earthquake information is the Southern California Earthquake Center located at the University of Southern California, Los Angeles, CA 90089, Telephone: (213) 740-5843, Fax: (213) 740-0011, Email: SCEinfo@usc.edu, Website: <http://www.scec.org>. The Southern California Earthquake Center (SCEC) is a community of scientists and specialists who actively coordinate research on earthquake hazards at nine core institutions, and communicate earthquake information to the public. SCEC is a National Science Foundation (NSF) Science and Technology Center and is co-funded by the United States Geological Survey (USGS).

In addition, Los Angeles County along with other Southern California counties, sponsors the Emergency Survival Program (ESP), an educational program for learning how to prepare for earthquakes and other disasters. Many school districts have very active emergency preparedness programs that include earthquake drills and periodic disaster response team exercises.

Southern California Earthquake Fault Map



Earthquake Probable Events (Source: Southern California Earthquake Data Center)

Elsinore Fault Zone

TYPE OF FAULTING: right-lateral strike-slip

LENGTH: about 180 km (not including the Whittier, Chino, and Laguna Salada faults)

NEARBY COMMUNITIES: Temecula, Lake Elsinore, Julian

LAST MAJOR RUPTURE: May 15, 1910; Magnitude 6 -- no surface rupture found

SLIP RATE: roughly 4.0 mm/yr

INTERVAL BETWEEN MAJOR RUPTURES: roughly 250 years

PROBABLE MAGNITUDES: M_w 6.5 - 7.5

MOST RECENT SURFACE RUPTURE: 18th century A.D.(?)

Newport-Inglewood Fault Zone

TYPE OF FAULTING: right-lateral; local reverse slip associated with fault steps

LENGTH: 75 km

NEAREST COMMUNITIES: Culver City, Inglewood, Gardena, Compton, Signal Hill, Long Beach, Seal Beach, Huntington Beach, Newport Beach, Costa Mesa

MOST RECENT MAJOR RUPTURE: March 10, 1933, M_w 6.4 (but no surface rupture)

SLIP RATE: 0.6 mm/yr

INTERVAL BETWEEN MAJOR RUPTURES: unknown

PROBABLE MAGNITUDES: M_w 6.0 - 7.4

OTHER NOTES: Surface trace is discontinuous in the Los Angeles Basin, but the fault zone can easily be noted there by the existence of a chain of low hills extending from Culver City to Signal Hill. South of Signal Hill, it roughly parallels the coastline until just south of Newport Bay, where it heads offshore, and becomes the Newport-Inglewood - Rose Canyon fault zone.

San Andreas Fault Zone

TYPE OF FAULT: right-lateral strike-slip

LENGTH: 1200 km 550 km south from Parkfield; 650km northward

NEARBY COMMUNITY: Parkfield, Frazier Park, Palmdale, Wrightwood, San Bernardino, Banning, Indio

LAST MAJOR RUPTURE: January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)

SLIP RATE: about 20 to 35 mm per year

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: M_w 6.8 - 8.0

San Fernando Fault Zone

TYPE OF FAULTING: thrust

LENGTH: 17 km

NEAREST COMMUNITIES: San Fernando, Sunland

LAST MAJOR RUPTURE: February 9, 1971, M_w 6.6

SLIP RATE: 5 mm/yr (?)

INTERVAL BETWEEN MAJOR RUPTURES: roughly 200 years

PROBABLE MAGNITUDES: M_w 6.0 - 6.8

OTHER NOTES: Dip is to the north. The slip rate is not well known, but trenching studies indicate recurrence interval as between 100 and 300 years.

San Jacinto Fault Zone

TYPE OF FAULTING : right-lateral strike-slip; minor right-reverse

LENGTH: 210 km, including Coyote Creek fault
NEARBY COMMUNITIES: Lytle Creek, San Bernardino, Loma Linda, San Jacinto, Hemet, Anza, Borrego Springs, Ocotillo Wells
MOST RECENT SURFACE RUPTURE: within the last few centuries; April 9, 1968, M_w 6.5 on Coyote Creek segment
SLIP RATE: typically between 7 and 17 mm/yr
INTERVAL BETWEEN SURFACE RUPTURES: between 100 and 300 years, per segment
PROBABLE MAGNITUDES: M_w 6.5 - 7.5

Sierra Madre Fault System

TYPE OF FAULTING: reverse - ANIMATION
LENGTH: the zone is about 55 km long;
total length of main fault segments is about 75 km, with each segment measuring roughly 15 km long
NEARBY COMMUNITIES: Sunland, Altadena, Sierra Madre, Monrovia, Duarte, Glendora
MOST RECENT SURFACE RUPTURE: Holocene
SLIP RATE: between 0.36 and 4 mm/yr
INTERVAL BETWEEN SURFACE RUPTURES: several thousand years (?)
PROBABLE MAGNITUDES: M_w 6.0 - 7.0 (?)
OTHER NOTES: This fault zone dips to the north. It was not the fault responsible for the 1991 Sierra Madre earthquake.

Whittier Fault

TYPE OF FAULTING: right-lateral strike-slip with some reverse slip
LENGTH: about 40 km
NEARBY COMMUNITIES: Yorba Linda, Hacienda Heights, Whittier
MOST RECENT SURFACE RUPTURE: Holocene
SLIP RATE: between 2.5 and 3.0 mm/yr
INTERVAL BETWEEN MAJOR RUPTURES: unknown
PROBABLE MAGNITUDES: M_w 6.0 - 7.2
OTHER NOTES: The Whittier fault dips toward the northeast.

End Notes

- ⁱ <http://pubs.usgs.gov/gip/earthq3/when.html>
- ⁱⁱ <http://www.gps.caltech.edu/~sieh/home.html>
- ⁱⁱⁱ Planning for Natural Hazards: The California Technical Resource Guide, Department of Land Conservation and Development (July 2000)
- ^{iv} <http://www.consrv.ca.gov/CGS/rghm/ap/>
- ^v Ibid
- ^{vi} Burby, R. (Ed.) Cooperating with Nature: Confronting Natural Hazards with Land Use Planning for Sustainable Communities (1998), Washington D.C., Joseph Henry Press.
- ^{vii} FEMA HAZUS <http://www.fema.gov/hazus/hazus2.htm> (May 2001).
- ^{viii} Source: Los Angeles County Public Works Department, March 2004
- ^{ix} http://www.chamber101.com/programs_committee/natural_disasters/DisasterPreparedness/Forty.htm
- ^x Institute for Business and Home Safety Resources (April 2001),
- ^{xi} http://www.seismic.ca.gov/pub/CSSC_2001-04_Hospital.pdf

Section 6:

Windstorm Hazards
in the
City of Huntington
Park

Why are Severe Windstorms a Threat to the City of Huntington Park?

Severe wind storms pose a significant risk to life and property in the region by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses. Severe windstorms can present a very destabilizing effect on the dry brush that covers local hillsides and urban wildland interface areas. High winds can have destructive impacts, especially to trees, power lines, and utility services.

Figure 6-1: Santa Ana Winds (Source: NASA's "Observatorium")



Santa Ana Winds and Tornado-Like Wind Activity

Based on local history, most incidents of high wind in the City of Huntington Park are the result of the Santa Ana wind conditions. While high impact wind incidents are not frequent in the area, significant Santa Ana Wind events and sporadic tornado activity have been known to negatively impact the local community.

What are Santa Ana Winds?

“Santa Ana winds are generally defined as warm, dry winds that blow from the east or northeast (offshore). These winds occur below the passes and canyons of the coastal ranges of Southern California and in the Los Angeles basin. Santa Ana winds often blow with exceptional speed in the Santa Ana Canyon (the canyon from which it derives its name). Forecasters at the National Weather Service offices in Oxnard and San Diego usually place speed minimums on these winds and reserve the use of "Santa Ana" for winds greater than 25 knots.”¹ These winds accelerate to speeds of 35 knots as they move through canyons and passes, with gusts to 50 or even 60 knots.

“The complex topography of Southern California combined with various atmospheric conditions create numerous scenarios that may cause widespread or isolated Santa Ana events. Commonly, Santa Ana winds develop when a region of high pressure builds over the Great Basin (the high plateau east of the Sierra Mountains and west of the Rocky Mountains including most of Nevada and Utah). Clockwise circulation around the center of this high pressure area forces air downslope from the high plateau. The air warms as it descends toward the California coast at the rate of 5 degrees F per 1000 feet due to compressional heating. Thus, compressional heating provides the primary source of warming. The air is dry since it originated in the desert, and it dries out even more as it is heated.”²

These regional winds typically occur from October to March, and, according to most accounts are named either for the Santa Ana River Valley where they originate or for the Santa Ana Canyon, southeast of Los Angeles, where they pick up speed.

What are Tornadoes?

Tornadoes are spawned when there is warm, moist air near the ground, cool air aloft, and winds that speed up and change direction. An obstruction, such as a house, in the path of the wind causes it to change direction. This change increases pressure on parts of the house, and the combination of increased pressures and fluctuating wind speeds creates stresses that frequently cause structural failures.

In order to measure the intensity and wind strength of a tornado, Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale. This scale compares the estimated wind velocity with the corresponding amount of suspected damage. The scale measures six classifications of tornadoes with increasing magnitude from an “F0” tornado to a “F6+” tornado.

Table 6-1: Fujita Tornado Damage Scale

Scale	Wind Estimate (mph)	Typical Damage
F0	< 73	Light damage. Some damage to chimneys and TV antennas; breaks twigs off trees; pushes over shallow-rooted trees.
F1	73-112	Moderate damage. Peels surface off roofs; windows broken; light trailer houses pushed or overturned; some trees uprooted or snapped; moving automobiles pushed off the road. 74 mph is the beginning of hurricane wind speed.
F2	113-157	Considerable damage. Roofs torn off frame houses leaving strong upright walls; weak buildings in rural areas demolished; trailer houses destroyed; large trees snapped or uprooted; railroad boxcars pushed over; light object missiles generated; cars blown off highway.
F3	158-206	Severe damage. Roofs and some walls torn off frame houses; some rural buildings completely demolished; trains overturned; steel-framed

		hangar-warehouse-type structures torn; cars lifted off the ground; most trees in a forest uprooted snapped, or leveled.
F4	207-260	Devastating damage. Whole frame houses leveled, leaving piles of debris; steel structures badly damaged; trees debarked by small flying debris; cars and trains thrown some distances or rolled considerable distances; large missiles generated.
F5	261-318	Incredible damage. Whole frame houses tossed off foundations; steel-reinforced concrete structures badly damaged; automobile-sized missiles generated; trees debarked; incredible phenomena can occur.
F6-F12	319 to sonic	Inconceivable damage. Should a tornado with the maximum wind speed in excess of F5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.

Source: <http://weather.latimes.com/tornadoFAQ.asp>

Microbursts

Unlike tornados, microbursts are strong, damaging winds which strike the ground and often give the impression a tornado has struck. They frequently occur during intense thunderstorms. The origin of a microburst is downward moving air from a thunderstorm's core. But unlike a tornado, they affect only a rather small area.

University of Chicago storm researcher Dr Ted Fujita first coined the term “downburst” to describe strong, downdraft winds flowing out of a thunderstorm cell that he believed were responsible for the crash of Eastern Airlines Flight 66 in June of 1975.³

A downburst is a straight-direction surface wind in excess of 39 mph caused by a small-scale, strong downdraft from the base of convective thundershowers and thunderstorms. In later investigations into the phenomena he defined two sub-categories of downbursts: the larger macrobursts and small microbursts.⁴

Macrobursts are downbursts with winds up to 117 mph which spread across a path greater than 2.5 miles wide at the surface and which last from 5 to 30 minutes. The microburst, on the other hand is confined to an even smaller area, less than 2.5 miles in diameter from the initial point of downdraft impact. An intense microburst can result in damaging winds near 270 km/hr (170 mph) and often last for less than five minutes.⁵

“Downbursts of all sizes descend from the upper regions of severe thunderstorms when the air accelerates downward through either exceptionally strong evaporative cooling or by very heavy rain which drags dry air down with it. When the rapidly descending air strikes the ground, it spreads outward in all directions, like a fast-running faucet

stream hitting the sink bottom. When the microburst wind hits an object on the ground such as a house, garage or tree, it can flatten the buildings and strip limbs and branches from the tree. After striking the ground, the powerful outward running gust can wreak further havoc along its path. Damage associated with a microburst is often mistaken for the work of a tornado, particularly directly under the microburst. However, damage patterns away from the impact area are characteristic of straight-line winds rather than the twisted pattern of tornado damage.”⁶

Tornados, like those that occur every year in the Midwest and Southeast parts of the United States, are a rare phenomenon in most of California, with most tornado-like activity coming from micro-bursts.

Local History of Windstorm Events

While the effects of Santa Ana Winds are often overlooked, it should be noted that in 2003, two deaths in Southern California were directly related to the fierce condition. A falling tree struck one woman in San Diego.⁷ The second death occurred when a passenger in a vehicle was hit by a flying pickup truck cover launched by the Santa Ana Winds.⁸

Table 6-2: Santa Ana Wind Events during 2003

The following Santa Ana wind events were featured in news resources during 2003:	
January 6, 2003 OC Register	“One of the strongest Santa Ana windstorms in a decade toppled 26 power poles in Orange early today, blew over a mobile derrick in Placentia, crushing two vehicles, and delayed Metrolink rail service.” This windstorm also knocked out power to thousands of people in northeastern Orange County.
January 8, 2003 CBSNEWS.com	“Santa Ana’s roared into Southern California late Sunday, blowing over trees, trucks and power poles. Thousands of people lost power.”
March 16, 2003 dailybulletin.co m	Fire Officials Brace for Santa Ana Winds - - “The forest is now so dry and so many trees have died that fires, during relatively calm conditions, are running as fast and as far as they might during Santa Ana Winds. Now the Santa Ana season is here. Combine the literally tinder dry conditions with humidity in the single digits and 60-80 mph winds, and fire officials shudder.”

Table 6-3: Major Windstorms in the Vicinity of the City of Huntington Park

Date	Location and Damage
November 5-6, 1961	Santa Ana winds. Fire in Topanga Canyon

February 10-11, 1973	Strong storm winds: 57 mph at Riverside, 46 Newport Beach. Some 200 trees uprooted in Pacific Beach alone
October 26-27, 1993	Santa Ana winds. Fire in Laguna Hills
October 14, 1997	Santa Ana winds: gusts 87 mph in central Orange County. Large fire in Orange County
December 29, 1997	Gusts 60+ mph at Santa Ana
March 28-29, 1998	Strong storm winds in Orange County: sustained 30-40 mph. Gust 70 mph at Newport Beach, gust 60 Huntington Beach. Trees down, power out, and damage across Orange and San Diego Counties. 1 illegal immigrant dead in Jamul.
September 2, 1998	Strong winds from thunderstorms in Orange County with gusts to 40mph. Large fires in Orange County
December 6, 1998	Thunderstorm in Los Alamitos and Garden Grove: gust 50-60 mph called "almost a tornado"
December 21-22, 1999	Santa Ana winds: gust 68 mph at Campo, 53 Huntington Beach, 44 Orange. House and tree damage in Hemet.
March 5-6, 2000	Strong thunderstorm winds at the coast: gust 60 mph at Huntington Beach Property damage and trees downed along the coast
April 1, 2000	Santa Ana winds: gust 93 mph at Mission Viejo, 67 Anaheim Hills
December 25-26, 2000	Santa Ana winds: gust 87 mph at Fremont Canyon. Damage and injuries in Mira Loma, Orange and Riverside Counties
February 13, 2001	Thunderstorm gust to 89 mph in east Orange
Source: http://www.wrh.noaa.gov/sandiego/research/Guide/weatherhistory.pdf	

The following is a glimpse of major tornado-like events to hit the City of Huntington Park, and surrounding areas:

Table 6-4: Major Tornado-like Events in the Vicinity of the City of Huntington Park

Date	Location and Damage
April 1, 1958	Tornado: Laguna Beach
February 19, 1962	Tornado: Irvine
April 8, 1965	Tornado: Costa Mesa
November 7, 1966	Newport Beach and Costa Mesa: Property Damage

March 16, 1977	Tornado skipped from Fullerton to Brea Damage to 80 homes and injured four people
February 9, 1978	Tornado: Irvine. Property damage and 6 injured
January 31, 1979	Tornado Santa Ana Numerous power outages
November 9, 1982	Tornadoes in Garden Grove and Mission Viejo. Property damage
January 13, 1984	Tornado: Huntington Beach. Property damage
March 16, 1986	Tornado: Anaheim. Property damage
February 22-24, 1987	Tornadoes and waterspouts: Huntington Beach
January 18, 1988	Tornadoes: Mission Viejo and San Clemente. Property damage
February 28, 1991	Tornado: Tustin
March 27, 1991	Tornado: Huntington Beach
December 7, 1992	Tornadoes: Anaheim and Westminster Property damage
January 18, 1993	Tornado: Orange County Property damage
February 8, 1993	Tornado: Brea. Property damage
February 7, 1994	Tornado from Newport Beach to Tustin. Roof and window damage. Trees were also knocked down
December 13, 1994	Two waterspouts about 0.5 mile off Newport Beach
December 13, 1995	Funnel cloud near Fullerton Airport
March 13, 1996	Funnel cloud in Irvine
November 10-11, 1997	Waterspout came ashore at Newport Pier on the 10 th and dissipated over western Costa Mesa. Tornadoes in Irvine on the 11 th and a funnel cloud developed. 10 th : Winds estimated at 60-70 mph. 11 th : Minor power outages occurred with little property damage. A fisherman was blown from one end of Newport Pier to the other. Property and vehicle damage in Irvine from flying debris. Ten cars were thrown a few feet.
December 21, 1997	Waterspout and tornado in Huntington Beach. Damage to boats, houses, and city property
February 24, 1998	Tornado in Huntington Beach. Property damage with a power outage, roof flew ¼ mile
March 13-14, 1998	Numerous waterspouts between Long Beach, Huntington Beach, and Catalina
March 31-April 1, 1998	Numerous funnel clouds reported off Orange County coastline, two of which became waterspouts off Orange County. One waterspout briefly hit the coast off the Huntington Beach pier.
June 6, 1998	Two funnel clouds off Dana Point
December 31, 1998	Funnel clouds in Santa Ana. Waterspout off Costa Mesa coast
February 21, 2000	Tornado: Anaheim Hills. Property damage
October 28, 2000	Funnel clouds around Newport Beach and Costa Mesa

January 10, 2001	Funnel cloud at Orange County airport and Newport Beach
February 24, 2001	Tornado in Orange. Damage to warehouse, 6 structures, fences, and telephone wires.
Source: http://www.wrh.noaa.gov/sandiego/research/Guide/weatherhistory.pdf	

Windstorm Hazard Assessment

Hazard Identification

A windstorm event in the region can range from short term microburst activity lasting only minutes to a long duration Santa Ana wind condition that can last for several days as in the case of the January 2003 Santa Ana wind event. Windstorms in the City of Huntington Park area can cause extensive damage including standing heavy trees, highway infrastructure, and critical utility facilities. Figure 6-1 shows clearly the direction of the Santa Ana winds as they travel from the stable, high-pressure weather system called the Great Basin High through the canyons and towards the low-pressure system off the Pacific. Clearly the area of the City of Huntington Park is in the direct path of the ocean-bound Santa Ana winds.

Vulnerability and Risk

With an analysis of the high wind and tornado events depicted in the “Local History” section, we can deduce the common windstorm impact areas including impacts on life, property, utilities, infrastructure and transportation. Additionally, if a windstorm disrupts power to local residential communities, the American Red Cross and City resources might be called upon for care and shelter duties. Displacing residents and utilizing City resources for shelter staffing and disaster cleanup can cause an economic hardship on the community.

Community Windstorm Issues

What is Susceptible to Windstorms?

Life and Property

Based on the history of the region, windstorm events can be expected, perhaps annually, across widespread areas of the region which can be adversely impacted during a windstorm event. This can result in the involvement of City of Huntington Park emergency response personnel during a wide-ranging windstorm or microburst tornadic activity. Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail causing considerable damage.

Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of protective building envelopes, siding, or walls. When severe windstorms strike a community, downed trees, power lines, and damaged property can be

major hindrances to emergency response and disaster recovery.

The Beaufort Scale below, coined and developed by Sir Francis Beaufort in 1805, illustrates the effect that varying wind speed can have on sea swells and structures:

Table 6-5: Beaufort Scale

BEAUFORT SCALE		
Beaufort Force	Speed (mph)	Wind Description - State of Sea - Effects on Land
0	Less 1	Calm - Mirror-like - Smoke rises vertically
1	1-3	Light - Air Ripples look like scales; No crests of foam - Smoke drift shows direction of wind, but wind vanes do not
2	4-7	Light Breeze - Small but pronounced wavelets; Crests do not break - Wind vanes move; Leaves rustle; You can feel wind on the face
3	8-12	Gentle Breeze - Large Wavelets; Crests break; Glassy foam; A few whitecaps - Leaves and small twigs move constantly; Small, light flags are extended
4	13-18	Moderate Breeze - Longer waves; Whitecaps - Wind lifts dust and loose paper; Small branches move
5	19-24	Fresh Breeze - Moderate, long waves; Many whitecaps; Some spray - Small trees with leaves begin to move
6	25-31	Strong Breeze - Some large waves; Crests of white foam; Spray - Large branches move; Telegraph wires whistle; Hard to hold umbrellas
7	32-38	Near Gale - White foam from breaking waves blows in streaks with the wind - Whole trees move; Resistance felt walking into wind
8	39-46	Gale - Waves high and moderately long; Crests break into spin drift, blowing foam in well marked streaks - Twigs and small branches break off trees; Difficult to walk
9	47-54	Strong Gale - High waves with wave crests that tumble; Dense streaks of foam in wind; Poor visibility from spray - Slight structural damage
10	55-63	Storm - Very high waves with long, curling crests; Sea surface appears white from blowing foam; Heavy tumbling of sea; Poor visibility - Trees broken or uprooted; Considerable structural damage
11	64-73	Violent Storm - Waves high enough to hide small and medium sized ships; Sea covered with patches of white foam; Edges of wave crests blown into froth; Poor visibility - Seldom experienced inland; Considerable structural damage

12	>74	Hurricane - Sea white with spray. Foam and spray render visibility almost non-existent - Widespread damage. Very rarely experienced on land.
Source: http://www.compuweather.com/decoder-charts.html		

Disruption of Critical Services

Critical facilities include police stations, fire stations, hospitals, shelters, and other facilities that provide important services to the community. These facilities and their services need to be functional after a windstorm event.

Utilities

Historically, falling trees have been the major cause of power outages in the region. Windstorms such as strong microbursts and Santa Ana Wind conditions can cause flying debris and downed utility lines. For example, tree limbs breaking in winds of only 45 mph can be thrown over 75 feet. As such, overhead power lines can be damaged even in relatively minor windstorm events. Falling trees can bring electric power lines down to the pavement, creating the possibility of lethal electric shock. Rising population growth and new infrastructure in the region creates a higher probability for damage to occur from windstorms as more life and property are exposed to risk.

Infrastructure

Windstorms can damage buildings, power lines, and other property and infrastructure due to falling trees and branches. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds.

Windstorms can result in collapsed or damaged buildings or blocked roads and bridges, damaged traffic signals, streetlights, and parks, among others. Roads blocked by fallen trees during a windstorm may have severe consequences to people who need access to emergency services. Emergency response operations can be complicated when roads are blocked or when power supplies are interrupted. Industry and commerce can suffer losses from interruptions in electric services and from extended road closures. They can also sustain direct losses to buildings, personnel, and other vital equipment. There are direct consequences to the local economy resulting from windstorms related to both physical damages and interrupted services.

Increased Fire Threat

Perhaps the greatest danger from windstorm activity in Southern California comes from the combination of the Santa Ana winds with the major fires that occur every few years in the urban/wildland interface. With the Santa Ana winds driving the flames, the speed and reach of the flames is even greater than in times of calm wind conditions. The higher fire hazard raised by a Santa Ana wind condition requires that even more care and attention be paid to proper brush clearances on property in the wildland/urban interface areas.

Transportation

Windstorm activity can have an impact on local transportation in addition to the problems caused by downed trees and electrical wires blocking streets and highways. During

periods of extremely strong Santa Ana winds, major highways can be temporarily closed to truck and recreational vehicle traffic. However, typically these disruptions are not long lasting, nor do they carry a severe long term economic impact on the region.

End Notes:

1<http://nimbo.wrh.noaa.gov/Sandiego/snawind.html>

2Ibid

3Keith C. Heidorn at <http://www.suite101.com/article.cfm/13646/100918>, June 1, 2003

4Ibid

5Ibid

6Ibid

7www.cbsnews.com, January 8, 2003

8www.cbsnews.com/stories/2003/01/06/national/

Special Thanks to Jacob Green, Assistant to the Emergency Services Coordinator, City of Fountain Valley/Huntington Beach Hazard Mitigation Planning Committee

Appendix A: Plan Resource Directory

The Resource Directory provides contact information for local, regional, state, and federal programs that are currently involved in hazard mitigation activities. The Natural Hazards Mitigation Committee may look to the organizations on the following pages for resources and technical assistance. The Resource Directory provides a foundation for potential partners in action item implementation.

The Committee will continue to add contact information for organizations currently engaged in hazard mitigation activities. This section may also be used by various community members interested in hazard mitigation information and projects.

American Public Works Association		
Level: National	Hazard: Multi	http://www.apwa.net
2345 Grand Boulevard		Suite 500
Kansas City, MO 64108-2641	Ph: 816-472-6100	Fx: 816-472-1610
Notes: The American Public Works Association is an international educational and professional association of public agencies, private sector companies, and individuals dedicated to providing high quality public works goods and services.		
Association of State Floodplain Managers		
Level: Federal	Hazard: Flood	www.floods.org
2809 Fish Hatchery Road		
Madison, WI 53713	Ph: 608-274-0123	Fx:
Notes: The Association of State Floodplain Managers is an organization of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery		
Building Seismic Safety Council (BSSC)		
Level: National	Hazard: Earthquake	www.bssconline.org
1090 Vermont Ave., NW		Suite 700
Washington, DC 20005	Ph: 202-289-7800	Fx: 202-289-109
Notes: The Building Seismic Safety Council (BSSC) develops and promotes building earthquake risk mitigation regulatory provisions for the nation.		

California Department of Transportation (Caltrans)		
Level: State	Hazard: Multi	http://www.dot.ca.gov/
120 S. Spring Street		
Los Angeles, CA 90012	Ph: 213-897-3656	Fx:
Notes: Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the state's boundaries. Alone and in partnership with Amtrak, Caltrans is also involved in the support of intercity passenger rail service in California.		
California Resources Agency		
Level: State	Hazard: Multi	http://resources.ca.gov/
1416 Ninth Street		Suite 1311
Sacramento, CA 95814	Ph: 916-653-5656	Fx:
Notes: The California Resources Agency restores, protects and manages the state's natural, historical and cultural resources for current and future generations using solutions based on science, collaboration and respect for all the communities and interests involved.		
California Division of Forestry (CDF)		
Level: State	Hazard: Multi	http://www.fire.ca.gov/php/index.php
210 W. San Jacinto		
Perris CA 92570	Ph: 909-940-6900	Fx:
Notes: The California Department of Forestry and Fire Protection protects over 31 million acres of California's privately-owned wildlands. CDF emphasizes the management and protection of California's natural resources.		
California Division of Mines and Geology (DMG)		
Level: State	Hazard: Multi	www.consrv.ca.gov/cgs/index.htm
801 K Street		MS 12-30
Sacramento, CA 95814	Ph: 916-445-1825	Fx: 916-445-5718
Notes: The California Geological Survey develops and disseminates technical information and advice on California's geology, geologic hazards, and mineral resources.		
California Environmental Resources Evaluation System (CERES)		
Level: State	Hazard: Multi	http://ceres.ca.gov/
900 N St.		Suite 250
Sacramento, Ca. 95814	Ph: 916-653-2238	Fx:
Notes: CERES is an excellent website for access to environmental information and websites.		

California Department of Water Resources (DWR)			
Level: State	Hazard: Flood	http://www.dwr.water.ca.gov	
1416 9th Street			
Sacramento, CA 95814		Ph: 916-653-6192	Fx:
Notes: The Department of Water Resources manages the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.			
California Department of Conservation: Southern California Regional Office			
Level: State	Hazard: Multi	www.consrv.ca.gov	
655 S. Hope Street		#700	
Los Angeles, CA 90017-2321		Ph: 213-239-0878	Fx: 213-239-0984
Notes: The Department of Conservation provides services and information that promote environmental health, economic vitality, informed land-use decisions and sound management of our state's natural resources.			
California Planning Information Network			
Level: State	Hazard: Multi	www.calpin.ca.gov	
		Ph:	Fx:
Notes: The Governor's Office of Planning and Research (OPR) publishes basic information on local planning agencies, known as the California Planners' Book of Lists. This local planning information is available on-line with new search capabilities and up-to-the-minute updates.			
EPA, Region 9			
Level: Regional	Hazard: Multi	http://www.epa.gov/region09	
75 Hawthorne Street			
San Francisco, CA 94105		Ph: 415-947-8000	Fx: 415-947-3553
Notes: The mission of the U.S. Environmental Protection Agency is to protect human health and to safeguard the natural environment through the themes of air and global climate change, water, land, communities and ecosystems, and compliance and environmental stewardship.			

Federal Emergency Management Agency, Region IX

Level: Federal	Hazard: Multi	www.fema.gov
1111 Broadway		Suite 1200
Oakland, CA 94607	Ph: 510-627-7100	Fx: 510-627-7112

Notes: The Federal Emergency Management Agency is tasked with responding to, planning for, recovering from and mitigating against disasters.

Federal Emergency Management Agency, Mitigation Division

Level: Federal	Hazard: Multi	www.fema.gov/fima/planhowto.shtm
500 C Street, S.W.		
Washington, D.C. 20472	Ph: 202-566-1600	Fx:

Notes: The Mitigation Division manages the National Flood Insurance Program and oversees FEMA's mitigation programs. It has of a number of programs and activities of which provide citizens Protection, with flood insurance; Prevention, with mitigation measures and Partnerships, with communities throughout the country.

Floodplain Management Association

Level: Federal	Hazard: Flood	www.floodplain.org
P.O. Box 50891		
Sparks, NV 89435-0891	Ph: 775-626-6389	Fx: 775-626-6389

Notes: The Floodplain Management Association is a nonprofit educational association. It was established in 1990 to promote the reduction of flood losses and to encourage the protection and enhancement of natural floodplain values. Members include representatives of federal, state and local government agencies as well as private firms.

Gateway Cities Partnership

Level: Regional	Hazard: Multi	www.gatewaycities.org
7300 Alondra Boulevard		Suite 202
Paramount, CA 90723	Ph: 562-817-0820	Fx:

Notes: Gateway Cities Partnership is a 501 C 3 non-profit Community Development Corporation for the Gateway Cities region of southeast LA County. The region comprises 27 cities that roughly speaking extends from Montebello on the north to Long Beach on the South, the Alameda Corridor on the west to the Orange County line on the east.

Governor's Office of Emergency Services (OES)		
Level: State	Hazard: Multi	www.oes.ca.gov
P.O. Box 419047		
Rancho Cordova, CA 95741-9047	Ph: 916 845- 8911	Fx: 916 845- 8910
Notes: The Governor's Office of Emergency Services coordinates overall state agency response to major disasters in support of local government. The office is responsible for assuring the state's readiness to respond to and recover from natural, manmade, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts.		
Greater Antelope Valley Economic Alliance		
Level: Regional	Hazard: Multi	
42060 N. Tenth Street West		
Lancaster, CA 93534	Ph: 661-945-2741	Fx: 661-945-7711
Notes: The Greater Antelope Valley Economic Alliance, (GA VEA) is a 501 (c)(6) nonprofit organization with a 501(c)(3) affiliated organization the Antelope Valley Economic Research and Education Foundation. GA VEA is a public-private partnership of business, local governments, education, non-profit organizations and health care organizations that was founded in 1999 with the goal of attracting good paying jobs to the Antelope Valley in order to build a sustainable economy.		
Landslide Hazards Program, USGS		
Level: Federal	Hazard: Landslide	http://landslides.usgs.gov/index.html
12201 Sunrise Valley Drive		MS 906
Reston, VA 20192	Ph: 703-648- 4000	Fx:
Notes: The NLIC website provides good information on the programs and resources regarding landslides. The page includes information on the National Landslide Hazards Program Information Center, a bibliography, publications, and current projects. USGS scientists are working to reduce long-term losses and casualties from landslide hazards through better understanding of the causes and mechanisms of ground failure both nationally and worldwide.		

Los Angeles County Economic Development Corporation		
Level: Regional	Hazard: Multi	www.laedc.org
444 S. Flower Street		34th Floor
Los Angeles, CA 90071	Ph: 213-236-4813	Fx: 213- 623-0281
Notes: The LAEDC is a private, non-profit 501 (c) 3 organization established in 1981 with the mission to attract, retain and grow businesses and jobs in the Los Angeles region. The LAEDC is widely relied upon for its Southern California Economic Forecasts and Industry Trend Reports. Lead by the renowned Jack Kyser (Sr. Vice President, Chief Economist) his team of researchers produces numerous publications to help business, media and government navigate the LA region's diverse economy.		
Los Angeles County Public Works Department		
Level: County	Hazard: Multi	http://ladpw.org
900 S. Fremont Ave.		
Alhambra, CA 91803	Ph: 626-458-5100	Fx:
Notes: The Los Angeles County Department of Public Works protects property and promotes public safety through Flood Control, Water Conservation, Road Maintenance, Bridges, Buses and Bicycle Trails, Building and Safety, Land Development, Waterworks, Sewers, Engineering, Capital Projects and Airports		
National Wildland/Urban Interface Fire Program		
Level: Federal	Hazard: Wildfire	www.firewise.org/
1 Batterymarch Park		
Quincy, MA 02169-7471	Ph: 617-770-3000	Fx: 617 770-0700
Notes: FIREWISE maintains a Website designed for people who live in wildfire- prone areas, but it also can be of use to local planners and decision makers. The site offers online wildfire protection information and checklists, as well as listings of other publications, videos, and conferences.		
National Resources Conservation Service		
Level: Federal	Hazard: Multi	http://www.nrcs.usda.gov/
14th and Independence Ave., SW		Room 5105-A
Washington, DC 20250	Ph: 202-720-7246	Fx: 202-720-7690
Notes: NRCS assists owners of America's private land with conserving their soil, water, and other natural resources, by delivering technical assistance based on sound science and suited to a customer's specific needs. Cost shares and financial incentives are available in some cases.		

National Interagency Fire Center (NIFC)		
Level: Federal	Hazard: Wildfire	www.nifc.gov
3833 S. Development Ave.		
Boise, Idaho 83705-5354	Ph: 208-387- 5512	Fx:
Notes: The NIFC in Boise, Idaho is the nation's support center for wildland firefighting. Seven federal agencies work together to coordinate and support wildland fire and disaster operations.		
National Fire Protection Association (NFPA)		
Level: National	Hazard: Wildfire	http://www.nfpa.org/catalog/home/index.asp
1 Batterymarch Park		
Quincy, MA 02169-7471	Ph: 617-770-3000	Fx: 617 770-0700
Notes: The mission of the international nonprofit NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training and education		
National Floodplain Insurance Program (NFIP)		
Level: Federal	Hazard: Flood	www.fema.gov/nfip/
500 C Street, S.W.		
Washington, D.C. 20472	Ph: 202-566-1600	Fx:
Notes: The Mitigation Division manages the National Flood Insurance Program and oversees FEMA's mitigation programs. It has of a number of programs and activities providing citizens Protection, with flood insurance; Prevention, with mitigation measures and Partnerships, with communities throughout the country.		
National Oceanic /Atmospheric Administration		
Level: Federal	Hazard: Multi	www.noaa.gov
14th Street & Constitution Ave NW		
Washington, DC 20230	Ph: 202-482-6090	Fx: 202-482-3154
Notes: NOAA's historical role has been to predict environmental changes, protect life and property, provide decision makers with reliable scientific information, and foster global environmental stewardship.		

National Weather Service, Office of Hydrologic Development		
Level: Federal	Hazard: Flood	http://www.nws.noaa.gov/
1325 East West Highway		SSMC2
Silver Spring, MD 20910	Ph: 301-713-1658	Fx: 301-713-0963
Notes: The Office of Hydrologic Development (OHD) enhances National Weather Service (NWS) products by: infusing new hydrologic science, developing hydrologic techniques for operational use, managing hydrologic development by NWS field office, providing advanced hydrologic products to meet needs identified by NWS customers		
National Weather Service		
Level: Federal	Hazard: Multi	http://www.nws.noaa.gov/
520 North Elevar Street		
Oxnard, CA 93030	Ph: 805-988- 6615	Fx:
Notes: The National Weather Service is responsible for providing weather service to the nation. It is charged with the responsibility of observing and reporting the weather and with issuing forecasts and warnings of weather and floods in the interest of national safety and economy. Briefly, the priorities for service to the nation are: 1. protection of life, 2. protection of property, and 3. promotion of the nation's welfare and economy.		
San Gabriel Valley Economic Partnership		
Level: Regional	Hazard: Multi	www.valleynet.org
4900 Rivergrade Road		Suite A310
Irwindale, CA 91706	Ph: 626-856-3400	Fx: 626-856-5115
Notes: The San Gabriel Valley Economic Partnership is a non-profit corporation representing both public and private sectors. The Partnership is the exclusive source for San Gabriel Valley-specific information, expertise, consulting, products, services, and events. It is the single organization in the Valley with the mission to sustain and build the regional economy for the mutual benefit of all thirty cities, chambers of commerce, academic institutions, businesses and residents.		
Sanitation Districts of Los Angeles County		
Level: County	Hazard: Flood	http://www.lacsd.org/
1955 Workman Mill Road		
Whittier, CA 90607	Ph:562-699-7411 x2301	Fx:
Notes: The Sanitation Districts provide wastewater and solid waste management for over half the population of Los Angeles County and turn waste products into resources such as reclaimed water, energy, and recyclable materials.		

Santa Monica Mountains Conservancy		
Level: Regional	Hazard: Multi	http://smmc.ca.gov/
570 West Avenue Twenty-Six		Suite 100
Los Angeles, CA 90065	Ph: 323-221-8900	Fx:
Notes: The Santa Monica Mountains Conservancy helps to preserve over 55,000 acres of parkland in both wilderness and urban settings, and has improved more than 114 public recreational facilities throughout Southern California.		
South Bay Economic Development Partnership		
Level: Regional	Hazard: Multi	www.southbaypartnership.com
3858 Carson Street		Suite 110
Torrance, CA 90503	Ph: 310-792-0323	Fx: 310-543-9886
Notes: The South Bay Economic Development Partnership is a collaboration of business, labor, education and government. Its primary goal is to plan and implement an economic development and marketing strategy designed to retain and create jobs and stimulate economic growth in the South Bay of Los Angeles County.		
South Coast Air Quality Management District (AQMD)		
Level: Regional	Hazard: Multi	www.aqmd.gov
21865 E. Copley Drive		
Diamond Bar, CA 91765	Ph: 800-CUT-SMOG	Fx:
Notes: AQMD is a regional government agency that seeks to achieve and maintain healthful air quality through a comprehensive program of research, regulations, enforcement, and communication. The AQMD covers Los Angeles and Orange Counties and parts of Riverside and San Bernardino Counties.		
Southern California Earthquake Center (SCEC)		
Level: Regional	Hazard: Earthquake	www.scec.org
3651 Trousdale Parkway		Suite 169
Los Angeles, CA 90089-0742	Ph: 213-740-5843	Fx: 213/740-0011
Notes: The Southern California Earthquake Center (SCEC) gathers new information about earthquakes in Southern California, integrates this information into a comprehensive and predictive understanding of earthquake phenomena, and communicates this understanding to end-users and the general public in order to increase earthquake awareness, reduce economic losses, and save lives.		

Southern California Association of Governments (SCAG)		
Level: Regional	Hazard: Multi	www.scag.ca.gov
818 W. Seventh Street		12th Floor
Los Angeles, CA 90017		Ph: 213-236-1800 Fx: 213-236-1825
Notes: The Southern California Association of Governments functions as the Metropolitan Planning Organization for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial. As the designated Metropolitan Planning Organization, the Association of Governments is mandated by the federal government to research and draw up plans for transportation, growth management, hazardous waste management, and air quality.		
State Fire Marshal (SFM)		
Level: State	Hazard: Wildfire	http://osfm.fire.ca.gov
1131 "S" Street		
Sacramento, CA 95814		Ph: 916-445-8200 Fx: 916-445-8509
Notes: The Office of the State Fire Marshal (SFM) supports the mission of the California Department of Forestry and Fire Protection (CDF) by focusing on fire prevention. SFM regulates buildings in which people live, controls substances which may, cause injuries, death and destruction by fire; provides statewide direction for fire prevention within wildland areas; regulates hazardous liquid pipelines; reviews regulations and building standards; and trains and educates in fire protection methods and responsibilities.		
The Community Rating System (CRS)		
Level: Federal	Hazard: Flood	http://www.fema.gov/nfip/crs.shtm
500 C Street, S.W.		
Washington, D.C. 20472		Ph: 202-566-1600 Fx:
Notes: The Community Rating System (CRS) recognizes community floodplain management efforts that go beyond the minimum requirements of the NFIP. Property owners within the County would receive reduced NFIP flood insurance premiums if the County implements floodplain management practices that qualify it for a CRS rating. For further information on the CRS, visit FEMA's website.		
United States Geological Survey		
Level: Federal	Hazard: Multi	http://www.usgs.gov/
345 Middlefield Road		
Menlo Park, CA 94025		Ph: 650-853-8300 Fx:
Notes: The USGS provides reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.		

U.S. Army Corps of Engineers		
Level: Federal	Hazard: Multi	http://www.usace.army.mil
P.O. Box 532711		
Los Angeles CA 90053- 2325	Ph: 213-452- 3921	Fx:
Notes: The United States Army Corps of Engineers work in engineering and environmental matters. A workforce of biologists, engineers, geologists, hydrologists, natural resource managers and other professionals provide engineering services to the nation including planning, designing, building and operating water resources and other civil works projects.		
USDA Forest Service		
Level: Federal	Hazard: Wildfire	http://www.fs.fed.us
1400 Independence Ave. SW		
Washington, D.C. 20250-0002	Ph: 202-205-8333	Fx:
Notes: The Forest Service is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in national forests and grasslands.		
USGS Water Resources		
Level: Federal	Hazard: Multi	www.water.usgs.gov
6000 J Street		Placer Hall
Sacramento, CA 95819-6129	Ph: 916-278-3000	Fx: 916-278-3070
Notes: The USGS Water Resources mission is to provide water information that benefits the Nation's citizens: publications, data, maps, and applications software.		
Western States Seismic Policy Council (WSSPC)		
Level: Regional	Hazard: Earthquake	www.wsspc.org/home.html
125 California Avenue		Suite D201, #1
Palo Alto, CA 94306	Ph: 650-330-1101	Fx: 650-326-1769
Notes: WSSPC is a regional earthquake consortium funded mainly by FEMA. Its website is a great resource, with information clearly categorized - from policy to engineering to education.		

Westside Economic Collaborative C/O Pacific Western Bank		
Level: Regional	Hazard: Multi	http://www.westside-ia.or
120 Wilshire Boulevard		
Santa Monica, CA 90401	Ph: 310-458-1521	Fx: 310-458-6479
<p>Notes: The Westside Economic Development Collaborative is the first Westside regional economic development corporation. The Westside EDC functions as an information gatherer and resource center, as well as a forum, through bringing business, government, and residents together to address issues affecting the region: Economic Diversity, Transportation, Housing, Workforce Training and Retraining, Lifelong Learning, Tourism, and Embracing Diversity.</p>		

Appendix B: Public Participation

Public participation is a key component to any strategic planning process. It is very important that such broad-reaching plans not be written in isolation. Agency participation offers an opportunity for impacted departments and organizations to provide expertise and insight into the planning process. Citizen participation offers citizens the chance to voice their ideas, interests, and opinions. The Federal Emergency Management Agency also requires public input during the development of mitigation plans.

The City of Huntington Park Natural Hazards Mitigation Plan integrates a cross-section of public input throughout the planning process. To accomplish this goal, the Planning Team developed a public participation process through five components: (1) developing a Planning Team comprised of knowledgeable individuals representative of several City agencies; (2) conducting a survey of “Levels of Concerns” to verify the primary concerns of citizens and business owners as relates to natural hazards; (3) soliciting the assistance of local media representatives and community newsletters to announce the progress of the planning activities and to announce the availability of the Draft Natural Hazards Mitigation Plan; (4) creating opportunities for the citizens and public agencies to review the Draft Natural Hazards Mitigation Plan; (5) conducting public meeting at the City Council where the public had an opportunity to express their views concerning the Draft Natural Hazards Mitigation Plan.

Integrating public participation during the development of the Natural Hazards Mitigation Plan has ultimately resulted in increased public awareness. Through public involvement, the Mitigation Plan reflects community issues, concerns, and new ideas and perspectives on mitigation opportunities and plan action items.

Hazard Mitigation Committee

Hazard mitigation in the City of Huntington Park was overseen by the Natural Hazards Mitigation Committee, which consisted of representatives from various City departments. The Committee members have an understanding of how the community is structured and how residents, businesses, and the environment may be affected by natural hazard events. The Mitigation Committee, guided the development of the Plan, and assisted in developing plan goals and action items, identifying stakeholders and plan reviewers, and sharing local expertise to create a more comprehensive plan.

Meeting #1: Disaster Mitigation Act Workshop January 28, 2004

This workshop was held at the Huntington Library in the City of San Marino. Disaster Management Area Coordinators and the Los Angeles County Office of Emergency Management conducted the workshop and provided participants with an introduction the Disaster Mitigation Act, direction on how to initiate a plan, review of an approved plan template and a review of the plan process as well as benchmark dates for submittal. The workshop lasted approximately 5 hours.

Meeting #2: Disaster Mitigation Act – Plan Workshop February 26, 2004

This workshop was held at Carson Civic Center. Disaster Management Area Coordinators and the Los Angeles County Office of Emergency Management conducted the workshop and reviewed the Disaster Mitigation Act, provided direction on beginning the process, reviewed the penalties for not complying with the Act, reviewed the completed Clackamas County Plan and provided submittal deadlines. The workshop lasted approximately 5 hours.

Meeting #3: Disaster Mitigation Plan Consultant Presentation March 10, 2004

The meeting was held at the City of Downey Civic Center. Emergency Planning Consultant presented a review of the Disaster Mitigation Act and also provided information regarding their consultant services for preparation of the plan. The presentation and discussion lasted approximately 3.5 hours.

Meeting #4: Disaster Mitigation Plan Consultant Presentation March 17, 2004

The meeting was held at the City of South Gate Civic Center. Dimensions Unlimited, Inc. provided a review of the Disaster Mitigation Act and also provided information regarding their consultant services for preparation of the plan. The presentation and discussion lasted approximately 3 hours.

Meeting #5: Pre-Training May 6, 2004

The meeting was held at Huntington Park City Hall. Emergency Planning Consultants (EPC) delivered pre-training to the Planning Team. The pre-training consisted of the history of the Disaster Mitigation Act of 2000, the purpose and role of hazard mitigation, and the planning process. The Pre-Training lasted approximately 1.5 hours.

Meeting #6: Kick-Off Meeting May 6, 2004

EPC facilitated a workshop where participants had an opportunity to learn about various natural hazards, assess and rank the local threats, examine hazard maps, and complete the FEMA Worksheets contained in [FEMA 386-2 Understanding Your Risks](#). Part of the discussion included a presentation by EPC of historical disaster events across the country. Those slides served as a backdrop for discussing potential mitigation activities.

There was an extensive discussion on various methods of engaging the public in the mitigation process. The Planning Team prepared a draft media release and discussed a public opinion survey provided by EPC. EPC committed to revising the media release and survey and distributing electronic copies to the Planning Team. The Kick-Off Meeting lasted approximately 3 hours.

Meeting #7: Pre-Training: Mitigation July 22, 2004

The meeting was held at Huntington Park City Hall. EPC delivered pre-training to the Planning Team. The pre-training consisted of the concepts and issues related to developing mitigation actions. The pre-training lasted approximately 1 hour.

Meeting #8: Mitigation Actions July 22, 2004

EPC delivered the Draft Hazard Analysis and the Planning Team discussed missing information, data, and maps. EPC distributed copies of the Mitigation Actions Planning Tools to assist the Team in developing Goals and Action Items appropriate to their natural hazards. The Planning Tools provided a system for collecting the mitigation actions presently in practice in the City, as well as identifying future mitigation actions.

A brainstorming process was then conducted to develop the goals for the Plan. The Planning Team established goals for the Mitigation Plan. Following a discussion of alternative ranking techniques, the Team agreed to cluster the rankings of the Mitigation Actions by type of actions as follows: #1 Multi-Hazard, #2 Earthquakes, and #3 Windstorms.

The next task was to examine a FEMA-approved Mitigation Plan to get an idea of how mitigation actions are written. Each of the jurisdictions was pleased to announce the broad range of mitigation actions already being practiced. The Planning Tools, developed by EPC, consisted of nearly 300 mitigation actions gathered from dozens of Mitigation Plans across the country.

The Planning Team then focused its efforts on developing mitigation actions, utilizing the sample plans and Planning Tools list. Because of the plan samples and Tools, the process of identifying appropriate mitigations actions was accomplished in a very efficient manner.

Throughout the planning process, the consultant reminded the Planning Team of the importance of considering Benefit/Cost issues including: social issues, political realities, economic benefits, and environmental concerns. During Meeting #4, the consultant introduced the Planning Team to the STAPLEE Tool (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) as one of many means available to prioritize mitigation actions. Following a discussion of a range of benefit/cost issues, the Planning Team voted to cluster the action items by hazard as follows: #1 Multi-Hazard, #2 Earthquake, and #3 Windstorms. The Team was unanimous in its belief that the "Multi-Hazard" actions would yield the greatest benefit to the jurisdiction.

Public Hearing

The City of Huntington Park conducted one public Hearing where the Draft Natural Hazard Mitigation Plan was presented and discussed. The City Council approved the Plan on October 18, 2004 and was impressed with the range of mitigation actions already in practice throughout the City. The City Council was very supportive of the overall goal established by the Planning Team to become a Disaster Resistant Community. The results of the citizen survey were discussed and the Council commended the Planning Team for its expeditious efforts to satisfy the DMA 2000 requirements.

Invitation Process

A media release was submitted to the local weekly print media. Notices were also made available at public counters, distributed at public meetings, distributed to all City

Commissions and notices were posted on the City's Official Web Site. Notices were also posted within the community in publicly visible places.

Results

The Planning Team began the presentation by providing an overview of meeting objectives. The City Council and Public were encouraged to present their views and make suggestions on possible mitigation actions. The Planning Team Chair presented the staff report on the Plan, including an overview of the Hazard Analysis, Mitigation Goals, and Mitigation Actions. The staff presentation concluded with a summary of the input received during the public review of the document. The Team Chair then fielded questions from the City Council. The meeting lasted approximately 1 hour and will be aired on local cable access.

The City Council was unanimous in its adoption of the City of Huntington Park Natural Hazards Mitigation Plan.

Appendix B-Attachment 1 Survey Results

The City of Huntington Park distributed surveys at Public Counter, Public Meetings, on the City's Official Web Site and to all City Commissioners from June 2004 – September 2004. The survey asked participants to rank their concerns about the following hazards: flooding, earthquakes, windstorms drought and other hazards not listed. Fourteen (14) individuals responded to the survey, yielding the following results:

Natural Disaster	Extremely Concerned	Very Concerned	Concerned	Somewhat Concerned	Not Concerned	Total
Flooding	1	4	4	5		14
Earthquake	10	1	3			14
Windstorm	1	3	4	5	1	14
Drought	2	5	5	1	1	14
Other						
Infestation		2				2
Fire		1				1

Appendix B-Attachment 2 Survey (Tri-fold Flyer)

<p style="text-align: center;">Earthquakes Flooding Windstorms Drought Wildfires</p> <hr style="width: 20%; margin: auto;"/> <p style="text-align: center;">Mitigation begins with you; help the City reduce the risks from natural disasters.</p> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p style="font-size: small; margin: 0;">HAZARD MITIGATION WORKS, AND IT CAN SAVE YOU MONEY. IT HELPS PROTECT YOUR FAMILY, YOUR BUSINESS AND YOUR PROPERTY FROM THE EFFECTS OF NATURAL DISASTERS.</p> </div>		<p style="text-align: center;">City of Huntington Park</p> <hr style="width: 20%; margin: auto;"/> <p style="text-align: center;">NATURAL HAZARDS MITIGATION PLAN</p> <p style="text-align: center; font-size: large;">Survey</p> <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center;">6550 Miles Avenue Huntington Park, CA</p>
<p>Please Mail, Fax or Return to:</p> <p>City of Huntington Park Natural Hazard Mitigation Plan Attn: Planning Division 6550 Miles Avenue Huntington Park, CA 90255 Fax: (323) 584-6244</p> <p>For Additional Information Contact the Planning Division at (323) 584-6210 or email: gbautista@Huntingtonpark.org</p>		

<div style="border-left: 2px solid black; border-radius: 50%; width: 20px; height: 100px; margin-left: -20px; margin-top: 20px;"></div> <p>City of Huntington Park Natural Hazards Mitigation Plan</p> <p>The City of Huntington Park is in the process of preparing a Natural Hazards Mitigation Plan. Natural hazards include earthquakes, flooding, windstorms, drought and wildfires.</p> <p>Although the City has and continues to be concerned about all occurrences affecting the health and safety of its residents, this particular Plan focuses exclusively on "natural disasters".</p> <p>The Natural Hazards Mitigation Plan will assess local natural hazards and identify ways to minimize potential damage from natural hazards before a disaster strikes.</p> <p>The following survey is being conducted as a part of the City of Huntington Park's preparation of a Natural Hazards Mitigation Plan.</p> <p>Your participation in this survey will provide valuable information which will ensure, that the plan addresses the community's concerns.</p>	<p style="text-align: center;">Level of Concern for Natural Hazards in Huntington Park <i>(place an "X" in the box that best expresses your view)</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="font-size: small;">Natural Disaster</th> <th style="font-size: x-small;">Extremely Concerned</th> <th style="font-size: x-small;">Very Concerned</th> <th style="font-size: x-small;">Concerned</th> <th style="font-size: x-small;">Somewhat Concerned</th> <th style="font-size: x-small;">Not Concerned</th> </tr> </thead> <tbody> <tr> <td style="font-size: small;">Flooding</td> <td style="width: 15%;"></td> </tr> <tr> <td style="font-size: small;">Earthquake</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="font-size: small;">Windstorm (including Hail)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="font-size: small;">Drought</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="font-size: small;">Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="font-size: small; margin: 0;">Additional Comments: _____</p> <p style="margin: 0;">_____</p> <p style="margin: 0;">_____</p> <p style="margin: 0;">_____</p> </div>	Natural Disaster	Extremely Concerned	Very Concerned	Concerned	Somewhat Concerned	Not Concerned	Flooding						Earthquake						Windstorm (including Hail)						Drought						Other					
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Flooding																																					
Earthquake																																					
Windstorm (including Hail)																																					
Drought																																					
Other																																					

Appendix B-Attachment 3 In-House Survey Distribution List

Elsa Avalos Civil Service Commission	Jaime Mendez A. Civil Service Commission	Elisa Rudolph Civil Service Commission
Betty Davis Gonzales Parks & Recreation Commission	Bertha Lopez Parks & Recreation Commission	Steve Martinez Parks & Recreation Commission
Yvonne Correa Parks & Recreation Commission	Ralph Cervantes Parks & Recreation Commission	Alfred Bravo, Sr. Planning Commission
Marial L. Sanders Planning Commission	Veronica Lopez Planning Commission	Andy Molina Planning Commission
Eddie Benitez Planning Commission	Maricela Delgadillo Youth Commission	Silvano Saldivar, Jr. Youth Commission
Rosa Meza Youth Commission	Silvia Gonzales Youth Commission	Victor Hernandez Youth Commission
Jaime Mendez Business Improvement District	Jack Zagha Business Improvement District	Frank Ruiterman Business Improvement District
Rosalinda Huerta Business Improvement District	Marinela Soto Business Improvement District	Frank Maclean Business Improvement District
Sharon Lee Business Improvement District	Gina Min Business Improvement District	Tony Atuf Business Improvement District
Ramin Saedi Business Improvement District	Victor Caballero Arts & Culture Commission	Vicente Ortiz Arts & Culture Commission
Diane Spalding Arts & Culture Commission	Elba Guerrero Arts & Culture Commission	Jackie Gutierrez Arts & Culture Commission
Patrick Fu Traffic Authority	Bill Dears Traffic Authority	Gregory D. Korduner Traffic Authority

Appendix B-Attachment 4 Media Release and Postings

PUBLIC NOTICE

THE CITY OF HUNTINGTON PARK IS PREPARING A NATURAL HAZARDS MITIGATION PLAN

Pursuant to federal mandate, the City of Huntington Park is in the process of preparing a Natural Hazards Mitigation Plan. This plan solely focuses on mitigation efforts for “natural disasters.” The City of Huntington Park has and continues to be concerned about all occurrences affecting the health and safety of its residents. However, at this time, our focus is to comply with the federal mandate and ensure that our City minimizes potential damage from natural hazards.

The Natural Hazards Mitigation Plan assesses local natural hazards and identifies ways to minimize potential damage from natural hazards before a disaster strikes. The Plan is being prepared by the City of Huntington Park with assistance from Emergency Planning Consultants. The City has created a Planning Team consisting of personnel from the various City Departments.

The planning document will focus on the potential impacts of natural hazards including earthquakes, floods, windstorms, and drought.

A draft copy of the Natural Hazards Mitigation Plan will be available for public review and comment during the month of September 2004, in the Huntington Park City Clerk’s Office, located at 6550 Miles Avenue, during the hours of 7:00 a.m. to 5:30 p.m., Monday through Thursday.

Following the review and comment period, the City Council will conduct a Noticed Public Hearing for this item where open public testimony from all interested parties will be accepted for the public record.

Public input into this process is very important, therefore, residents and business owners are encouraged to review the document and participate in the public hearing that will be noticed and scheduled for October 2004.

Anyone having concerns, questions, or wishing to review or comment on the plan is welcome to contact the City Planning Division at (323) 582-6161 ext. 210, or visit the office located at 6550 Miles Avenue during the hours of 7:00 a.m. to 5:30 p.m., Monday through Thursday.

HUNTINGTON PARK CITY COUNCIL

Juan Noguez, Mayor

Appendix B-Attachment 5 City Council Public Hearing Notice

NOTICE OF PUBLIC HEARING

The Huntington Park City Council will be holding a public hearing on Monday, **October 18, 2004** at 6:30 p.m. in the Huntington Park Civic Center, Council Chambers, located at 6550 Miles Avenue, Huntington Park, California 90255, to consider adoption of the following:

NATURAL HAZARDS MITIGATION PLAN (DRAFT) – The Natural Hazards Mitigation Plan (Draft) assesses local natural hazards and identifies ways to minimize potential damage from natural hazards before a disaster strikes. The plan focuses on the potential impacts of natural hazards including earthquakes and windstorms.

The Natural Hazards Mitigation Plan (Draft) may be reviewed and comments will be received any time prior to final action. The City Council will be considering the document, staff's recommendations, and public input at their meeting of **October 18, 2004**, prior to making a final determination.

The City Council will conduct a public hearing for this item in accordance with State and local authority where open public testimony from all interested parties will be accepted for the public record. The City has established formal rules and regulations for such hearings in Title 9 of the Huntington Park Municipal Code. The City Council shall rule on this matter by majority vote after receiving all public testimony in the public meeting to consider the maintenance of the public health, safety, and welfare of the City in accordance with all applicable laws and to generally promote, provide, and regulate the future growth, development, and beautification of the City.

Anyone having concerns, questions, or wishing to review or comment on the plan is welcome to contact the City Planning Division at (323) 582-6161 ext. 210 or visit the office located at 6550 Miles Avenue, during the hours of 7:00 a.m. to 5:30 p.m., Monday through Thursday.

Also, anyone objecting to or in favor of the above may appear in person at the above-described meeting or may submit their concerns in writing to the City prior to said meeting. Written comments should be addressed to the Planning Division, City of Huntington Park, 6550 Miles Avenue, Huntington Park, CA 90255.

IF YOU CHALLENGE ANY OF THE FOREGOING ACTIONS IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING FOR FINAL ACTION DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY COUNCIL AT, OR PRIOR TO, THE PUBLIC HEARING.

HUNTINGTON PARK CITY COUNCIL
Juan Noguez, Mayor

Appendix B-Attachment 6 City Council Public Hearing Postings

NOTICE OF PUBLIC HEARING

The Huntington Park City Council will be holding a public hearing on Monday, **October 18, 2004** at 6:30 p.m. in the Huntington Park Civic Center, Council Chambers, located at 6550 Miles Avenue, Huntington Park, California 90255, to consider adoption of the following:

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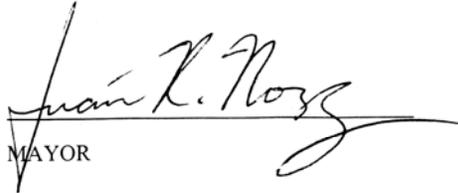
IF YOU CHALLENGE ANY OF THE FOREGOING ACTIONS IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING FOR FINAL ACTION DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY COUNCIL AT, OR PRIOR TO, THE PUBLIC HEARING.

HUNTINGTON PARK CITY COUNCIL
Juan Noguez, Mayor



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PASSED, APPROVED AND ADOPTED this 18th day of October, 2004.


MAYOR

ATTEST:



CITY CLERK

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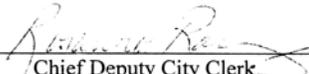
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ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF HUNTINGTON PARK)

I, Rosanna M. Ramirez, Chief Deputy City Clerk of the City of Huntington Park, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Resolution, being Resolution No. 2004-65, was duly passed and adopted by the City Council of the City of Huntington Park, approved and signed by the Mayor of said City, and attested to by the City Clerk of said City, all at a regular meeting of the City Council held on the 18th day of October, 2004, and that the same was so passed and adopted by the following vote, to wit:

- AYES: Council Members - Escareño, Hernandez, Gomez, Loya, Noguez
- NOES: Council Members - None
- ABSENT: Council Members - None
- ABSTAIN: Council Members - None



Chief Deputy City Clerk

Appendix B-Attachment 8 Outside Agency Plan Reviewers

Los Angeles County Health Dept.
Environmental Health
245 S. Feterly Ave., Room 2014
Los Angeles, CA 90022

Los Angeles Unified School District
Real Estate and Asset Management Br.
355 South Grand Avenue, Suite 500
Los Angeles, CA 90071

Los Angeles County Public Works
900 South Fremont
Alhambra, CA 91803

Huntington Park
Police Department
6542 Miles Avenue
Huntington Park, CA 90255

Los Angeles County
Planning Department
320 W. Temple Ave., Room 1360
Los Angeles, CA 90012

City of Cudahy
Planning Department
5220 Santa Ana Street
Cudahy, CA 90201

Metro. Trans. Authority
CEQA Review Coordination
Mail Stop 99-23-2
One Gateway Plaza
Los Angeles, CA 90012-2952

Los Angeles County Fire Dept.
6031 Rickenbacker Road
Commerce, CA 90040

South Coast Air Quality
Management District
21865 East Copley Drive
Diamond Bar, CA 91765

Huntington Park
Building Division
6550 Miles Avenue
Huntington Park, CA 90255

Los Angeles County
Department of Public Works
P.O. Box 1460
Alhambra, CA 91802-1460

City of Vernon
Planning Department
4305 Santa Fe Avenue
Vernon, CA 90058

City of Maywood
Planning Department
4319 East Slauson Avenue
Maywood, CA 90270

City of South Gate
Planning Department
8650 California Avenue
South Gate, CA 90280

Regional Water Quality Board
320 W. 4 th Street, Ste. 200
Los Angeles, CA 90013
Los Angeles County
Sanitation District
1955 Workman Mill Road
Whittier, CA 90601

L.A. County Clerk's Office
12400 E. Imperial Hwy, Rm.
2001
Norwalk, CA 90650

City of Los Angeles
Planning Department
200 N. Spring St., 6~h Floor
Los Angeles, CA 90012

City of Bell
Planning Department
6330 Pine Avenue
Bell, CA 90201

Dept. of Waste Management
8761 Younger Creek Drive
Sacramento, CA 95828

Appendix B-Attachment 9 Letter of Intent

Letter of Intent Notice – Enclosure 1 for Cities/Special Districts/Other Jurisdictions

Letter of Intent (to develop a Local Hazard Mitigation Plan)

Name of City/Special District/Jurisdiction: City of Huntington Park
County of Los Angeles in the State of California

- The above named City/Special District Jurisdiction, does not intend to develop a Local Hazard Mitigation Plan (LHMP) at this time. [The jurisdiction understands that it will not be eligible to receive mitigation project funding after November 1, 2004.]
- The above named City/Special District Jurisdiction, intends to develop and submit for State review and FEMA approval, a LHMP, written in accordance with Section 322 of the Stafford Act, as indicated below. **(Check One)** (Please provide the name of the jurisdiction's LHMP contact person below.)
- Single Jurisdiction LHMP or a Multi-Jurisdictional LHMP. If Multi-Jurisdictional, name of LEAD Jurisdiction: _____

CONCERNING THE LHMP:

- The above named City/Special District/Jurisdiction has begun development of a LHMP.
- The above named City/Special District/Jurisdiction will begin development of a LHMP by Date: _____.
- The above named City/Special District/Jurisdiction does not have enough information to complete this Letter of Intent. Please contact the person listed below to provide clarification or additional information to the jurisdiction.

Signed: Gregory D. Korduner Date: June 23, 2004
(Committee/Board Chair or Designated Representative)

(Print name & title of signing official) Gregory D. Korduner, City Manager

Name LHMP Contact Person:	<u>Gabriel Bautista</u>
Title:	<u>Associate Planner</u>
Telephone:	<u>(323) 584 - 6249</u>
E-mail address:	<u>gbautista@huntingtonpark.org</u>

Please complete the enclosed Letter of Intent ASAP and FAX to the OES Hazard Mitigation Section at (916) 845-8385 or 845-8386.

Appendix B-Attachment 10

Status of LHMP Letter

**Status of LHMP (Local Hazard Mitigation Plan)
Area E Cities**

I will be attending a meeting on the morning of July 13 (next Tuesday) at the County EOC to discuss the status of the cities' Hazard Mitigation planning efforts. I know most of you are in the process and I would like to be able to make a complete report at Tuesday's meeting. So — would you please take a few minutes and answer the questions below and return to me via e-mail ASAP. As always, thank you so much for your help.

City of:	City of Huntington Park
Contact:	Gabriel Bautista
Phone:	323-584-6249
e-mail:	gbautista@huntingtonpark.org

Please check # 1, 2 or 3 below:

1) Our city has begun development of the LHMP (in accordance with Section 322 of the Stafford Act)

2) Our city will begin development of the LHMP by date: _____

3) Our city does NOT intend to develop a LHMP at this time. (The jurisdiction understands that it will not be eligible to receive mitigation project funding after November 1, 2004.)

If you are in the LHMP process —

- Are you writing the plan in house? Yes No
- **If so, who is the lead? (position title)** _____
- Have you hired a consultant to assist with the plan? Yes No
- **If so, who:** Emergency Planning Consultants, Carolyn J. Harshman
- At what stage of the planning process are you? **Please summarize what has taken place to date (kick-off meeting, public hearings, questionnaires, etc.)**
 - City staff attended Disaster Mitigation Plan Workshop - January 28, 2004
 - City staff attended Disaster Mitigation Plan Workshop – February 26, 2004
 - City staff attended Emergency Planning Consultants presentation – March 16, 2004

- City staff attended Dimensions Unlimited, Inc. presentation – March 17, 2004
- Agreement with Carolyn J. Harshman, Emergency Planning Consultants for the preparation of the Natural Hazards Mitigation Plan approved by the Huntington Park City Council – April 5, 2004
- Kick-off meeting with City staff and consultant – May 6, 2004
- Notice of Plan Preparation posted throughout City and Published in local paper – July 8, 2004
- What date is your last public hearing scheduled? Not Yet Scheduled
- What date is scheduled for approval by City Council? October 4, 2004
- What date do you expect to submit plan to OES. October 7, 2004
- Is your LHMP for your jurisdiction only or a Multi-Jurisdictional LHMP?

If Multi-Jurisdictional, please list other cities or school districts with which you are partnering: _____

Please return to Fan at areae@earthlink.net or fax 562-902-2360 ASAP. I will be making a summary report on July 13.

Appendix C: Benefit/Cost Analysis

Benefit/Cost Analysis is a key mechanism used by the California Office of Emergency Services (OES), the Federal Emergency Management Agency, and other state and federal agencies in evaluating hazard mitigation projects, and is required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.

This Appendix outlines several approaches for conducting economic analysis of natural hazard mitigation projects. It describes the importance of implementing mitigation activities, different approaches to economic analysis of mitigation strategies, and methods to calculate costs and benefits associated with mitigation strategies. Information in this section is derived in part from: Federal Emergency Management Agency Publication 331, Report on Costs and Benefits of Natural Hazard Mitigation.

This section is not intended to provide a comprehensive description of benefit/cost analysis, nor is it intended to provide the details of economic analysis methods that can be used to evaluate local projects. It is intended to 1) raise benefit/cost analysis as an important issue, and 2) provide some background on how economic analysis can be used to evaluate mitigation projects.

Why Evaluate Mitigation Strategies?

Mitigation activities reduce the cost of disasters by minimizing property damage, injuries, and the potential for loss of life, and by reducing emergency response costs, which would otherwise be incurred.

Evaluating natural hazard mitigation provides decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects. Evaluating mitigation projects is a complex and difficult undertaking, which is influenced by many variables. First, natural disasters affect all segments of the communities they strike, including individuals, businesses, and public services such as fire, police, utilities, and schools.

Second, while some of the direct and indirect costs of disaster damages are measurable, some of the costs are non-financial and difficult to quantify in dollars. Third, many of the impacts of such events produce “ripple-effects” throughout the community, greatly increasing the disaster’s social and economic consequences.

While not easily accomplished, there is value, from a public policy perspective, in assessing the positive and negative impacts from mitigation activities, and obtaining an instructive benefit/cost comparison. Otherwise, the decision to pursue or not pursue various mitigation options would not be based on an objective understanding of the net benefit or loss associated with these actions.

What are Some Economic Analysis Approaches for Mitigation Strategies?

The approaches used to identify the costs and benefits associated with natural hazard

mitigation strategies, measures, or projects fall into two general categories: benefit/cost analysis and cost-effectiveness analysis. The distinction between the two methods is the way in which the relative costs and benefits are measured. Additionally, there are varying approaches to assessing the value of mitigation for public sector and private sector activities.

Benefit/Cost Analysis

Benefit/Cost Analysis is used in natural hazards mitigation to show if the benefits to life and property protected through mitigation efforts exceed the cost of the mitigation activity. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster related damages later. Benefit/cost analysis is based on calculating the frequency and severity of a hazard, avoided future damages, and risk.

In benefit/cost analysis, all costs and benefits are evaluated in terms of dollars, and a net benefit/cost ratio is computed to determine whether a project should be implemented (i.e., if net benefits exceed net costs, the project is worth pursuing). A project must have a benefit/cost ratio greater than 1 in order to be funded.

Cost-Effectiveness Analysis

Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. This type of analysis, however, does not necessarily measure costs and benefits in terms of dollars. Determining the economic feasibility of mitigating natural hazards can also be organized according to the perspective of those with an economic interest in the outcome. Hence, economic analysis approaches are covered for both public and private sectors as follows.

Investing in public sector mitigation activities

Evaluating mitigation strategies in the public sector is complicated because it involves estimating all of the economic benefits and costs regardless of who realizes them, and potentially to a large number of people and economic entities. Some benefits cannot be evaluated monetarily, but still affect the public in profound ways. Economists have developed methods to evaluate the economic feasibility of public decisions that involve a diverse set of beneficiaries and non-market benefits.

Investing in private sector mitigation activities

Private sector mitigation projects may occur on the basis of one of two approaches: it may be mandated by a regulation or standard, or it may be economically justified on its own merits. A building or landowner, whether a private entity or a public agency, are required to conform to a mandated standard may consider the following options:

1. Request cost sharing from public agencies;
2. Dispose of the building or land either by sale or demolition;
3. Change the designated use of the building or land and change the hazard mitigation compliance requirement; or

4. Evaluate the most feasible alternatives and initiate the most cost effective hazard mitigation alternative.

The sale of a building or land triggers another set of concerns. For example, real estate disclosure laws can be developed which require sellers of real property to

Estimating the costs and benefits of a hazard mitigation strategy can be a complex process.

Employing the services of a specialist can assist in this process.

disclose known defects and deficiencies in the property, including earthquake weaknesses and hazards to prospective purchasers. Correcting deficiencies can be expensive and time consuming, but their existence can prevent the sale of the building. Conditions of a sale regarding the deficiencies and the price of the building can be negotiated between a buyer and seller.

How can an Economic Analysis be conducted?

Benefit/cost analysis and cost-effectiveness analysis are important tools in evaluating whether or not to implement a mitigation activity. A framework for evaluating alternative mitigation activities is outlined below:

1. Identify the Alternatives: Alternatives for reducing risk from natural hazards can include structural projects to enhance disaster resistance, education and outreach, and acquisition or demolition of exposed properties, among others. Different mitigation project can assist in minimizing risk to natural hazards, but do so at varying economic costs.

2. Calculate the Costs and Benefits: Choosing economic criteria is essential to systematically calculating costs and benefits of mitigation projects and selecting the most appropriate alternative. Potential economic criteria to evaluate alternatives include:

- **Determine the project cost.** This may include initial project development costs, and repair and operating costs of maintaining projects over time.

- **Estimate the benefits.** Projecting the benefits or cash flow resulting from a project can be difficult. Expected future returns from the mitigation effort depend on the correct specification of the risk and the effectiveness of the project, which may not be well known. Expected future costs depend on the physical durability and potential economic obsolescence of the investment. This is difficult to project. These considerations will also provide guidance in selecting an appropriate salvage value. Future tax structures and rates must be projected.

Financing alternatives must be researched, and they may include retained earnings, bond and stock issues, and commercial loans.

- **Consider costs and benefits to society and the environment.** These are not easily measured, but can be assessed through a variety of economic tools including existence value or contingent value theories. These theories provide quantitative data on the value people attribute to physical or social environments. Even without hard data, however, impacts of structural projects to the physical environment or to society should be considered when implementing mitigation projects.

- **Determine the correct discount rate.** Determination of the discount rate can just be the risk-free cost of capital, but it may include the decision maker's time preference and also a risk premium. Including inflation should also be considered.

3. Analyze and Rank the Alternatives: Once costs and benefits have been quantified, economic analysis tools can rank the alternatives. Two methods for determining the best alternative given varying costs and benefits include net present value and internal rate of return.

- **Net present value.** Net present value is the value of the expected future returns of an investment minus the value of expected future cost expressed in today's dollars. If the net present value is greater than the project costs, the project may be determined feasible for implementation. Selecting the discount rate, and identifying the present and future costs and benefits of the project calculates the net present value of projects.

- **Internal Rate of Return.** Using the internal rate of return method to evaluate mitigation projects provides the interest rate equivalent to the dollar returns expected from the project. Once the rate has been calculated, it can be compared to rates earned by investing in alternative projects. Projects may be feasible to implement when the internal rate of return is greater than the total costs of the project.

Once the mitigation projects are ranked on the basis of economic criteria, decision-makers can consider other factors, such as risk; project effectiveness; and economic, environmental, and social returns in choosing the appropriate project for implementation.

How are Benefits of Mitigation Calculated?

Economic Returns of Natural Hazard Mitigation

The estimation of economic returns, which accrue to building or land owner as a result of natural hazard mitigation, is difficult. Owners evaluating the economic feasibility of

mitigation should consider reductions in physical damages and financial losses. A partial list follows:

- Building damages avoided
- Content damages avoided
- Inventory damages avoided
- Rental income losses avoided
- Relocation and disruption expenses avoided
- Proprietor's income losses avoided

These parameters can be estimated using observed prices, costs, and engineering data. The difficult part is to correctly determine the effectiveness of the hazard mitigation project and the resulting reduction in damages and losses. Equally as difficult is assessing the probability that an event will occur. The damages and losses should only include those that will be borne by the owner. The salvage value of the investment can be important in determining economic feasibility. Salvage value becomes more important as the time horizon of the owner declines. This is important because most businesses depreciate assets over a period of time.

Additional Costs from Natural Hazards

Property owners should also assess changes in a broader set of factors that can change as a result of a large natural disaster. These are usually termed "indirect" effects, but they can have a very direct effect on the economic value of the owner's building or land. They can be positive or negative, and include changes in the following:

- Commodity and resource prices
- Availability of resource supplies
- Commodity and resource demand changes
- Building and land values
- Capital availability and interest rates
- Availability of labor
- Economic structure
- Infrastructure
- Regional exports and imports
- Local, state, and national regulations and policies
- Insurance availability and rates

Changes in the resources and industries listed above are more difficult to estimate and require models that are structured to estimate total economic impacts. Total economic impacts are the sum of direct and indirect economic impacts. Total economic impact models are usually not combined with economic feasibility models. Many models exist to estimate total economic impacts of changes in an economy. Decision makers should understand the total economic impacts of natural disasters in order to calculate the benefits of a mitigation activity. This suggests that understanding the local economy is an important first step in being able to understand the potential impacts of a disaster, and the benefits of mitigation activities.

Additional Considerations

Conducting an economic analysis for potential mitigation activities can assist decision-makers in choosing the most appropriate strategy for their community to reduce risk and prevent loss from natural hazards. Economic analysis can also save time and resources from being spent on inappropriate or unfeasible projects. Several resources and models are listed on the following page that can assist in conducting an economic analysis for natural hazard mitigation activities.

Benefit/cost analysis is complicated, and the numbers may divert attention from other important issues. It is important to consider the qualitative factors of a project associated with mitigation that cannot be evaluated economically. There are alternative approaches to implementing mitigation projects. Many communities are looking towards developing multi-objective projects. With this in mind, opportunity rises to develop strategies that integrate natural hazard mitigation with projects related to watersheds, environmental planning, community economic development, and small business development, among others. Incorporating natural hazard mitigation with other community projects can increase the viability of project implementation.

Resources

CUREe Kajima Project, Methodologies For Evaluating The Socio-Economic Consequences Of Large Earthquakes, Task 7.2 Economic Impact Analysis, Prepared by University of California, Berkeley Team, Robert A. Olson, VSP Associates, Team Leader; John M. Eidinger, G&E Engineering Systems; Kenneth A. Goettel, Goettel and Associates Inc.; and Gerald L. Horner, Hazard Mitigation Economics Inc., 1997.

Federal Emergency Management Agency, Benefit/Cost Analysis of Hazard Mitigation Projects, Riverine Flood, Version 1.05, Hazard Mitigation Economics Inc., 1996.

Federal Emergency Management Agency Report on Costs and Benefits of Natural Hazard Mitigation. Publication 331, 1996.

Goettel & Horner Inc., Earthquake Risk Analysis Volume III: The Economic Feasibility of Seismic Rehabilitation of Buildings in The City of Portland, Submitted to the Bureau of Buildings, City of Portland, August 30, 1995.

Goettel & Horner Inc., Benefit/Cost Analysis of Hazard Mitigation Projects Volume V, Earthquakes, Prepared for FEMA's Hazard Mitigation Branch, October 25, 1995.

Horner, Gerald, Benefit/Cost Methodologies for Use in Evaluating the Cost Effectiveness of Proposed Hazard Mitigation Measures, Robert Olson Associates, Prepared for Oregon State Police, Office of Emergency Management, July 1999.

Interagency Hazards Mitigation Team, State Hazard Mitigation Plan, (Oregon State Police – Office of Emergency Management, 2000).

Risk Management Solutions, Inc., Development of a Standardized Earthquake Loss Estimation Methodology, National Institute of Building Sciences, Volume I and II, 1994.

VSP Associates, Inc., A Benefit/Cost Model for the Seismic Rehabilitation of Buildings, Volumes 1 & 2, Federal Emergency Management Agency, FEMA, Publication Numbers 227 and 228, 1991.

VSP Associates, Inc., Benefit/Cost Analysis of Hazard Mitigation Projects: Section 404 Hazard Mitigation Program and Section 406 Public Assistance Program, Volume 3: Seismic Hazard Mitigation Projects, 1993.

VSP Associates, Inc., Seismic Rehabilitation of Federal Buildings: A Benefit/Cost Model, Volume 1, Federal Emergency Management Agency, FEMA, Publication Number 255, 1994.

Appendix D: Acronyms

Federal Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ATC	Applied Technology Council
b/ca	benefit/cost analysis
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BSSC	Building Seismic Safety Council
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
CRS	Community Rating System
DOE	Department of Energy
EDA	Economic Development Administration
EPA	Environmental Protection Agency
ER	Emergency Relief
EWP	Emergency Watershed Protection (NRCS Program)
FAS	Federal Aid System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance (FEMA Program)
FTE	Full Time Equivalent
GIS	Geographic Information System
GNS	Institute of Geological and Nuclear Sciences (International)
GSA	General Services Administration
HAZUS	Hazards U.S.
HMGP	Hazard Mitigation Grant Program
HMST	Hazard Mitigation Survey Team
HUD	Housing and Urban Development (United States, Department of)
IBHS	Institute for Business and Home Safety
ICC	Increased Cost of Compliance
IHMT	Interagency Hazard Mitigation Team
NCDC	National Climate Data Center
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHMP	Natural Hazard Mitigation Plan (also known as "409 Plan")
NIBS	National Institute of Building Sciences
NIFC	National Interagency Fire Center
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWS	National Weather Service

SBA	Small Business Administration
SHMO	State Hazard Mitigation Officer
TOR	Transfer of Development Rights
UGB	Urban Growth Boundary
URM	Unreinforced Masonry
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USFA	United States Fire Administration
USFS	United States Forest Service
USGS	United States Geological Survey
WSSPC	Western States Seismic Policy Council

California Acronyms

A&W	Alert and Warning
AA	Administering Areas
AAR	After Action Report
ARC	American Red Cross
ARP	Accidental Risk Prevention
ATC20	Applied Technology Council20
ATC21	Applied Technology Council21
BCP	Budget Change Proposal
BSA	California Bureau of State Audits
CAER	Community Awareness & Emergency Response
CalARP	California Accidental Release Prevention
CalBO	California Building Officials
CalEPA	California Environmental Protection Agency
CalREP	California Radiological Emergency Plan
CALSTARS	California State Accounting Reporting System
CalTRANS	California Department of Transportation
CBO	Community Based Organization
CD	Civil Defense
CDF	California Department of Forestry and Fire Protection
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEPEC	California Earthquake Prediction Evaluation Council
CESRS	California Emergency Services Radio System
CHIP	California Hazardous Identification Program
CHMIRS	California Hazardous Materials Incident Reporting System
CHP	California Highway Patrol
CLETS	California Law Enforcement Telecommunications System
CSTI	California Specialized Training Institute
CUEA	California Utilities Emergency Association
CUPA	Certified Unified Program Agency
DAD	Disaster Assistance Division (California Office of Emergency Services)

DFO	Disaster Field Office
DGS	California Department of General Services
DHSRHB	California Department of Health Services, Radiological Health Branch
DO	Duty Officer
DOC	Department Operations Center
DOF	California Department of Finance
DOJ	California Department of Justice
DPA	California Department of Personnel Administration
DPIG	Disaster Preparedness Improvement Grant
DR	Disaster Response
DSA	Division of the State Architect
DSR	Damage Survey Report
DSW	Disaster Service Worker
DWR	California Department of Water Resources
EAS	Emergency Alerting System
EDIS	Emergency Digital Information System
EERI	Earthquake Engineering Research Institute
EMA	Emergency Management Assistance
EMI	Emergency Management Institute
EMMA	Emergency Managers Mutual Aid
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPEDAT	Early Post Earthquake Damage Assessment Tool
EPI	Emergency Public Information
EPIC	Emergency Public Information Council
ESC	Emergency Services Coordinator
FAY	Federal Award Year
FDAA	Federal Disaster Assistance Administration
FEAT	Governor's Flood Emergency Action Team
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FIR	Final Inspection Reports
FIRESCOPE	Firefighting Resources of Southern California Organized for Potential Emergencies
FMA	Flood Management Assistance
FSR	Feasibility Study Report
FY	Fiscal Year
GIS	Geographical Information System
HAZMAT	Hazardous Materials
HAZMIT	Hazardous Mitigation
HAZUS	Hazards United States (an earthquake damage assessment prediction tool)
HAD	Housing and Community Development
HEICS	Hospital Emergency Incident Command System
HEPG	Hospital Emergency Planning Guidance
HIA	Hazard Identification and Analysis Unit

HMEP	Hazardous Materials Emergency Preparedness
HMGP	Hazard Mitigation Grant Program
IDE	Initial Damage Estimate
IA	Individual Assistance
IFG	Individual & Family Grant (program)
IRG	Incident Response Geographic Information System
IPA	Information and Public Affairs (of state Office of Emergency Services)
LAN	Local Area Network
LEMMA	Law Enforcement Master Mutual Aid
LEPC	Local Emergency Planning Committee
MARAC	Mutual Aid Regional Advisory Council
MHFP	Multi-Hazard Functional Plan
MHID	Multi-Hazard Identification
MOU	Memorandum of Understanding
NBC	Nuclear, Biological, Chemical
NEMA	National Emergency Management Agency
NEMIS	National Emergency Management Information System
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Association
NPP	Nuclear Power Plant
NSF	National Science Foundation
NWS	National Weather Service
OA	Operational Area
OASIS	Operational Area Satellite Information System
OCC	Operations Coordination Center
OCD	Office of Civil Defense
OEP	Office of Emergency Planning
OES	California Governor's Office of Emergency Services
OSHPD	Office of Statewide Health Planning and Development
OSPR	Oil Spill Prevention and Response
PA	Public Assistance
PC	Personal Computer
PDA	Preliminary Damage Assessment
PIO	Public Information Office
POST	Police Officer Standards and Training
PPA/CA	Performance Partnership Agreement/Cooperative Agreement (FEMA)
PSA	Public Service Announcement
PTAB	Planning and Technological Assistance Branch
PTR	Project Time Report
RA	Regional Administrator (OES)
RADEF	Radiological Defense (program)
RAMP	Regional Assessment of Mitigation Priorities
RAPID	Railroad Accident Prevention & Immediate Deployment
RDO	Radiological Defense Officer
RDMHC	Regional Disaster Medical Health Coordinator
REOC	Regional Emergency Operations Center

REPI	Reserve Emergency Public Information
RES	Regional Emergency Staff
RIMS	Response Information Management System
RMP	Risk Management Plan
RPU	Radiological Preparedness Unit (OES)
RRT	Regional Response Team
SAM	State Administrative Manual
SARA	Superfund Amendments & Reauthorization Act
SAVP	Safety Assessment Volunteer Program
SBA	Small Business Administration
SCO	California State Controller's Office
SEMS	Standardized Emergency Management System
SEPIC	State Emergency Public Information Committee
SLA	State and Local Assistance
SONGS	San Onofre Nuclear Generating Station
SOP	Standard Operating Procedure
SWEPC	Statewide Emergency Planning Committee
TEC	Travel Expense Claim
TRU	Transuranic
TTT	Train the Trainer
UPA	Unified Program Account
UPS	Uninterrupted Power Source
USAR	Urban Search and Rescue
USGS	United States Geological Survey
WC	California State Warning Center
WAN	Wide Area Network
WIPP	Waste Isolation Pilot Project

Appendix E: Glossary

Acceleration	The rate of change of velocity with respect to time. Acceleration due to gravity at the earth's surface is 9.8 meters per second squared. That means that every second that something falls toward the surface of earth its velocity increases by 9.8 meters per second.
Asset	Any manmade 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.
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.
Base Flood Elevation (BFE)	Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The Base Flood Elevation is used as the standard for the National Flood Insurance Program.
Bedrock	The solid rock that underlies loose material, such as soil, sand, clay, or gravel.
Building	A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.
Coastal High Hazard Area	Area, usually along an open coast, bay, or inlet that is subject to inundation by storm surge and, in some instances, wave action caused by storms or seismic sources.
Coastal Zones	The area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas having direct drainage to the ocean.
Community Rating System (CRS)	An NFIP program that provides incentives for NFIP communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of policyholders in these communities are reduced.
Computer-Aided Design And Drafting (CADD)	A computerized system enabling quick and accurate electronic 2-D and 3-D drawings, topographic mapping, site plans, and profile/cross-section drawings.
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	The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can cause additional damage to other assets.
Digitize	To convert electronically points, lines, and area boundaries shown on maps into x, y coordinates (e.g., latitude and longitude, universal transverse mercator (UTM), or table coordinates) for use in computer applications.
Displacement Time	The average time (in days) which the building's occupants typically must operate from a temporary location while repairs are made to the original building due to damages resulting from a hazard event.
Duration	How long a hazard event lasts.
Earthquake	A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates.
Erosion	Wearing away of the land surface by 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.
Erosion Hazard Area	Area anticipated being lost to shoreline retreat over a given period of time. The projected inland extent of the area is measured by multiplying the average annual long-term recession rate by the number of years desired.
Essential Facility	Elements 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.
Extratropical Cyclone	Cyclonic storm events like Nor'easters and severe winter low-pressure systems. Both West and East coasts can experience these non-tropical storms that produce gale-force winds and precipitation in the form of heavy rain or snow. These cyclonic storms, commonly called Nor'easters on the East Coast because of the direction of the storm winds, can last for several days and can be very large – 1,000-mile wide storms are not uncommon.
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.

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.
Fire Potential Index (FPI)	Developed by USGS and USFS to assess and map fire hazard potential over broad areas. Based on such geographic information, national policy makers and on-the-ground fire managers established priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas.
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.
Flood Depth	Height of the flood water surface above the ground surface.
Flood Elevation	Elevation of the water surface above an established datum, e.g. National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or Mean Sea Level.
Flood Hazard Area	The area shown to be inundated by a flood of a given magnitude on a map.
Flood Insurance Rate Map (FIRM)	Map of a community, prepared by the Federal Emergency Management Agency that shows both the special flood hazard areas and the risk premium zones applicable to the community.
Flood Insurance Study (FIS)	A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.
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.

Fujita Scale of Tornado Intensity	Rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while and F5 indicated severe damage sustained.
Functional Downtime	The average time (in days) during which a function (business or service) is unable to provide its services due to a hazard event.
Geographic Area Impacted	The physical area in which the effects of the hazard are experienced.
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
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, tsunami, 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 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.
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, dry docks, piers and regional dams.
Intensity	A measure of the effects of a hazard event at a particular place.
Landslide	Downward movement of a slope and materials under the force of gravity.
Lateral Spreads	Develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies in a seismic event. The phenomenon that occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength.
Liquefaction	Results when the soil supporting structures liquefies. This can cause structures to tip and topple.
Lowest Floor	Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure.
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.
National Flood Insurance Program (NFIP)	Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations in 44 CFR §60.3.

National Geodetic Vertical Datum of 1929 (NGVD)	Datum established in 1929 and used in the NFIP as a basis for measuring flood, ground, and structural elevations, previously referred to as Sea Level Datum or Mean Sea Level. The Base Flood Elevations shown on most of the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency are referenced to NGVD.
National Weather Service (NWS)	Prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.
Nor'easter	An extra-tropical cyclone producing gale-force winds and precipitation in the form of heavy snow or rain.
Outflow	Follows water inundation creating strong currents that rip at structures and pound them with debris, and erode beaches and coastal structures.
Planimetric	Describes maps that indicate only man-made features like buildings.
Planning	The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.
Probability	A statistical measure of the likelihood that a hazard event will occur.
Recurrence Interval	The time between hazard events of similar size in a given location. It is based on the probability that the given event will be equaled or exceeded in any given year.
Repetitive Loss Property	A property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least \$1000 each have been paid within any 10-year period since 1978.
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.
Richter Scale	A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935.
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.
Riverine	Of or produced by a river.
Scale	A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the earth's surface.

Scarp	A steep slope.
Scour	Removal of soil or fill material by the flow of flood waters. The term is frequently used to describe storm-induced, localized conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence.
Seismicity	Describes the likelihood of an area being subject to earthquakes.
Special Flood Hazard Area (SFHA)	An area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year (100-year floodplain); represented on Flood Insurance Rate Maps by darkly shaded areas with zone designations that include the letter A or V.
Stafford Act	The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.
State Hazard Mitigation Officer (SHMO)	The representative of state government who is the primary point of contact with FEMA, other state and Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.
Storm Surge	Rise in the water surface above normal water level on the open coast due to the action of wind stress and atmospheric pressure on the water surface.
Structure	Something constructed. (See also Building)
Substantial Damage	Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or exceeds 50 percent of the market value of the structure before the damage.
Super Typhoon	A typhoon with maximum sustained winds of 150 mph or more.
Surface Faulting	The differential movement of two sides of a fracture – in other words, the location where the ground breaks apart. The length, width, and displacement of the ground characterize surface faults.
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.
Tropical Cyclone	A generic term for a cyclonic, low-pressure system over tropical or subtropical waters.
Tropical Depression	A tropical cyclone with maximum sustained winds of less than 39 mph.
Tropical Storm	A tropical cyclone with maximum sustained winds greater than 39 mph and less than 74 mph.
Tsunami	Great sea wave produced by submarine earth movement or volcanic eruption.
Typhoon	A special category of tropical cyclone peculiar to the western North Pacific Basin, frequently affecting areas in the vicinity of Guam and the North Mariana Islands. Typhoons whose maximum sustained winds attain or exceed 150 mph are called super typhoons.
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.
Water Displacement	When a large mass of earth on the ocean bottom sinks or uplifts, the column of water directly above it is displaced, forming the tsunami wave. The rate of displacement, motion of the ocean floor at the epicenter, the amount of displacement of the rupture zone, and the depth of water above the rupture zone all contribute to the intensity of the tsunami.
Wave Run-up	The height that the wave extends up to on steep shorelines, measured above a reference level (the normal height of the sea, corrected to the state of the tide at the time of wave arrival).
Wildfire	An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.