

CITY OF MANHATTAN BEACH LOCAL HAZARDS MITIGATION PLAN



Draft Date: April 2018



LETTER OF PROMULGATION

TO: Officials, Employees, and Residents of the City of Manhattan Beach

Preservation of life and property is an inherent responsibility of local, State, and Federal government. The City of Manhattan Beach developed this Local Hazards Mitigation Plan to address actions that can be taken to mitigate the impact of hazards and disasters on the City of Manhattan Beach.

While no plan can guarantee prevention of death and destruction, well-developed plans carried out by knowledgeable and well-trained personnel can minimize losses. The Manhattan Beach Local Hazards Mitigation Plan addresses the major natural hazards that fall within the scope of responsibility for the City. The Local Hazards Mitigation Plan meets all requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390, Section 322); The Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, April 2013 (Public Law 93-288, as amended, 42 U.S.C. 5121 et. seq., Section 409); and 44 C.F.R, Section 201. The Manhattan Beach City Council gives its full support to the 2018 Local Hazards Mitigation Plan, and urges all residents, City employees, and community members, individually and collectively, to share in our commitment to responsible preparedness and effective response to disasters.

This letter promulgates the Local Hazards Mitigation Plan, which becomes effective upon approval by the Manhattan Beach City Council.

Signed: _____

Date: _____



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Acronyms

CONSTANT	Constant & Associates
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
City	City of Manhattan Beach
CPRI	Critical Priority Risk Index
DMA 2000	Disaster Mitigation Act of 2000
DMAC	Disaster Management Area Coordinator
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HMGP	Hazard Mitigation Grant Program
LHMP	Local Hazards Mitigation Plan
NFIP	National Flood Insurance Program
NRC	National Response Center
OES	Governor's Office of Emergency Services

City of Manhattan Beach
Local Hazards Mitigation Plan



PDM	Pre-Disaster Mitigation
PGA	Peak ground acceleration
HMPT	Hazard Mitigation Planning Team
SFHA	Special Flood Hazard Area
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
State	State of California
UBC	Uniform Building Code
USC	United States Code
USGS	United States Geological Survey



ACKNOWLEDGEMENTS

City of Manhattan Beach Hazards Mitigation Planning Team

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Jan Buike	Parks & Recreation
George Butts	Community Emergency Response Team (CERT)
Frank Chiella	Fire Department
Scott Combs	Police Department
Leilani Emnace	Information Technology
Gwen Eng	Finance Department
Scott Hafdell	Fire Department
Andy Harrod	Police Department
Ron McFarland	Community Development
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Stakeholder Plan Reviewers

Local Residents
Businesses
Non-Profits



EXECUTIVE SUMMARY

Across the United States, natural hazards have led to increased levels of injury, property damage, interruption of business and government services, and even death. The impact of disasters on families and individuals can be immense, and damages to businesses can result in economic consequences. The time, money, and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems.

In 2000, Congress passed the Disaster Mitigation Act (Public Law 106-390) to reinforce the importance of mitigation planning and emphasize planning for disasters before they occur. As such, local communities must have an approved mitigation plan in place prior to receiving both pre-disaster mitigation and post-disaster funds. These plans must demonstrate that proposed mitigation measures are based on a sound planning process that accounts for the risks to and the capabilities of the individual communities.

Applying this knowledge, the City of Manhattan Beach, California has prepared a Local Hazards Mitigation Plan that will guide Manhattan Beach toward greater disaster resistance in full accord with the character and needs of the community and federal requirements. The potential hazards identified and assessed in this version of the Local Hazards Mitigation Plan include: Tsunami, Earthquake, Landslide, Flood, Climate Change, Drought, and Adverse Weather. These hazards may expose the City of Manhattan Beach to the financial and emotional costs of recovering after natural disasters. The inevitability of 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 hazard events. Identifying the risks posed by hazards and developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and communities.

This Local Hazards Mitigation Plan has been prepared to meet Federal Emergency Management Agency's (FEMA) requirements of the Disaster Mitigation Act 2000 and the Interim Final Rule, thus making it eligible for funding and technical assistance from State and Federal hazard mitigation programs. Following each major disaster declaration, the City is required to review and update the mitigation strategy. Additionally, in compliance with FEMA regulations, this Local Hazards Mitigation Plan must be reviewed, revised if appropriate, and resubmitted for approval within the next five years so that the City continues to be eligible for various hazard mitigation grant-funding sources.

The 2018 Local Hazards Mitigation Plan (LHMP) is intended to be used by the City in order to assist in outlining projects and setting priorities in order to lessen the impact of natural hazard incidents on the community members, residents, and businesses in Manhattan Beach. The LHMP includes a community profile, hazards profile, risk assessment, and hazard mitigation strategy to outline the importance of hazard mitigation and ways in which Manhattan Beach can increase resiliency in the face of a variety of hazards.

The LHMP is to be used to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from 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 in creating a more sustainable community.

The LHMP provides a list of activities that may assist the City of Manhattan Beach in reducing risk and preventing loss from future hazard events. The action items address multi-hazard issues,



City of Manhattan Beach

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as well as activities for Earthquake, Flood, Landslide, Tsunami, Climate Change, and Adverse Weather.

The City of Manhattan Beach is committed to the safety and security of the community, and has developed this LHMP to emphasize that commitment, and lessen the impact of disasters on the City.



SECTION 1 INTRODUCTION

This section provides an overview of the City's LHMP. This includes a review of the background, authority, and purpose of the LHMP and a description of the document.

1.1 Introduction

The City of Manhattan Beach has prepared the 2018 Local Hazards Mitigation Plan in order to assess the natural risks to the City. This plan represents Manhattan Beach's commitment to create a safer, more resilient community by taking actions to reduce risk and by committing resources to lessen the effects of hazards on the people and property of Manhattan Beach.

1.2 Background

The DMA 2000, also referred to as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. On October 30, 2000, the President signed the bill into law, creating Public Law 106-390. The purposes of the DMA 2000 are to amend the Stafford Act, establish a national program for pre-disaster mitigation, and streamline administration of disaster relief.

The Manhattan Beach LHMP meets the requirements of the DMA 2000, which calls for all communities to prepare hazard mitigation plans. By preparing this LHMP, the City is eligible to receive Federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. More importantly, this LHMP starts an ongoing process to evaluate the risks different types of hazards pose to the City, and to engage the City and the community in dialogue to identify the steps that are most important in reducing these risks. This constant focus on planning for disasters will make the City, including its residents, property, infrastructure, and the environment, much safer.

The local hazards mitigation planning requirements encourage organizations at all levels, local residents, businesses, and the non-profit sector, to participate in the mitigation planning and implementation process. This broad public participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the entire community.

States are required to coordinate with local governments in the formation of hazard mitigation strategies, and the local strategies combined with initiatives at the state level form the basis for the State Mitigation Plan. The information contained in LHMPs help states identify technical assistance needs and prioritize project funding. Furthermore, as communities prepare their plans, states can continually improve the level of detail and comprehensiveness of statewide risk assessments.

For FEMA's Pre-Disaster Mitigation (PDM) grant program and Hazard Mitigation Grant Program (HMGP), a local jurisdiction must have an approved LHMP to be eligible for PDM and HMGP funding for Presidentially declared disasters after November 1, 2004. Plans approved at any time after November 1, 2004 will allow communities to be eligible to receive PDM and HMGP project grants.

Adoption by the local governing body demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in the LHMP. Adoption legitimizes the LHMP and authorizes responsible agencies to execute their responsibilities. Following adoption by the City Council, the plan was reviewed by the Governor's Office of Emergency Services (OES) and approved by FEMA. The resolution adopting this LHMP is included in Appendix F.



1.3 Authority

The DMA 2000 was passed by Congress to emphasize the need for mitigation planning to reduce vulnerability to natural and human-caused hazards. The DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code [USC] 5121 et seq.) by repealing the act's previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322).

To implement the DMA 2000 planning requirements, FEMA published an Interim Final Rule in the Federal Register on October 21, 2007 (FEMA 2002a). This rule (44 Code of Federal Regulations [CFR] Part 201) established the mitigation planning requirements for states, tribes, and local communities. The planning requirements are described in detail in Section 2 and identified in their appropriate sections throughout the Plan. In addition, a crosswalk documenting compliance with 44 CFR is included as Appendix A.

The requirements for the adoption of an LHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Prerequisites

Adoption by the Local Governing Body

Requirement §201.6(c)(5): [The Local Hazards Mitigation Plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g. City Council, County Commissioner, Tribal Council).

Source: FEMA, March 2013.

The City of Manhattan Beach LHMP meets the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000. This includes meeting the requirement that the LHMP be adopted by the City of Manhattan Beach (the City).

This LHMP has been prepared by the City's Hazard Mitigation Planning Team (Planning Team) and adopted by the City Council via resolution, which is presented in Appendix F.

1.4 Plan Organization

The remainder of this LHMP consists of the following sections.

Planning Process

The Planning Process section identifies Planning Team members, Constant & Associates (the Consultant), and the key stakeholders within the community and surrounding region. In addition, this section documents public outreach activities and the review and incorporation of relevant plans, reports, and other appropriate information.

Community Description

Community Description provides a general history and background of the community and historical trends for population, demographic and economic conditions that have shaped the area. Trends in land use and development are also discussed.



Risk Assessment

The Risk Assessment section describes the process through which the Planning Team identified and compiled relevant data on all potential natural hazards that threaten the City and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the City and how these events impacted residents and their property.

The descriptions of natural hazards that could affect the City are based on historical occurrences and best available data from agencies such as FEMA, the United States Geological Survey (USGS), the California Geologic Survey, and the National Weather Service. Detailed hazard profiles include information on the frequency, magnitude, location, extent, history, and impact of each hazard as well as probabilities for future hazard events.

Capability Assessment

Although not required by the DMA 2000, Section 5 (Vulnerability Assessment) provides an overview of the City's resources in the following areas for addressing hazard mitigation activities:

- Legal and regulatory: Existing ordinances, plans and codes that affect the physical or built environment in a community.
- Administrative and technical: The staff, personnel, and department resources available to expedite the actions identified in the mitigation strategy.
- Fiscal: The financial resources to implement the mitigation strategy.

Community Capabilities

- This section identifies potentially vulnerable assets such as people, housing units, critical facilities, infrastructure, and commercial facilities. These data were compiled by assessing the potential impacts from each hazard using GIS. The resulting information identifies the full range of hazards that the City could face and potential social impacts, damages, and economic losses.

Mitigation Strategy

As the Mitigation Strategy section describes, the Planning Team developed a list of mitigation goals, objectives, and actions based upon the findings of the risk assessment and the capability assessment. Based upon these goals and objectives, the Planning Team, supported by the Consultant, reviewed and prioritized a comprehensive range of appropriate mitigation actions to address the risks facing the community. Such measures include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities.

Plan Implementation & Maintenance

The Plan Maintenance section describes the Planning Team's formal plan maintenance process to ensure that the LHMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the LHMP; implementation through existing planning mechanisms; and continued public involvement.

Change in the Planning Process & Mitigation Actions

This section contains plan updates and mitigation changes since the 2008 LHMP.



Appendices

The appendices include a variety of documents that supplement the LHMP, to include:

- FEMA Local Mitigation Plan Review Tool Crosswalk
- References
- Planning Meeting Documentation
- Community Engagement Documentation
- Plan Maintenance Documentation
- Plan Adoption Resolution



SECTION 2 PLANNING PROCESS

2.1 Planning Process

This section provides an overview of the planning process; identifies Planning Team members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used in the development of this LHMP. The City's Fire Department Battalion Chief Scott Hafdell, who is in charge of emergency management planning for the City of Manhattan Beach, will be in charge of monitoring, evaluating, and updating the plan on an annual basis and after emergencies that activate mitigation strategies.

The requirements for the planning process, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process

Requirement §201.6(b): An open public involvement process is essential to the development of an effective plan.

Documentation of the Planning Process

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

Requirement §201.6(b)(1): An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

Requirement §201.6(b)(2): An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process; and

Requirement §201.6(b)(3): Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Source: FEMA, March 2013.

2.2 Overview of Planning Process

The City hired Constant and Associates, Inc. (CONSTANT) to assist with the development of this LHMP. The first step in the planning process was to establish a Planning Team composed of existing City agencies. Battalion Chief Scott Hafdell served as the primary point of contact for the City and the public.

Several existing plans and resources were consulted for the development of this plan, including resources developed by the Disaster Management Area Coordinators (DMAC) of Los Angeles County, the 2008 Manhattan Beach Hazard Mitigation Plan, the 2014 Los Angeles County Hazard Mitigation Plan, the 2013 Santa Monica Hazard Mitigation Plan, the 2014 San Francisco Hazard Mitigation Plan, and the 2015 City of Atascadero Hazard Mitigation Plan. The City acknowledges and appreciates the efforts of emergency managers and planners in these jurisdictions.



Once the Planning Team was formed, the following 5-step planning process took place during the 5-month period from July 28, 2015 to January 2017.

- Organize resources: The Planning Team identified resources, including City staff, agencies, and local community members, which could provide technical expertise and historical information needed in the development of the LHMP.
- Access capabilities: The Planning Team reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.
- Vulnerability Assessment: The Planning Team identified the hazards specific to the City, and CONSTANT developed the risk assessment for the seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
- Mitigation Strategy: After reviewing the current risks posed by each hazard, the Planning Team worked with the Consultant to develop a comprehensive range of potential mitigation goals, objectives, and actions. Subsequently, the Planning Team identified and prioritized the actions to be implemented.
- Monitor progress: The Planning Team developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the community.
-

2.3 Review of 2008 City of Manhattan Beach Local Hazard Mitigation Plan Process

The Planning Team, CONSTANT, and Battalion Chief Scott Hafdell reviewed and analyzed the status of the Goals, Objectives and Potential Actions of the 2008 LHMP during the Planning Team Meeting of Tuesday, June 23, 2015 (Appendix C). The results of the analysis were used to determine and prioritize the 2018 Plan Mitigation Goals, Objectives and Potential Action.

At the same Planning Team Meeting, Battalion Chief Scott Hafdell shared with the group Hazard Mitigation priorities of the City of Manhattan Beach. The Hazard Mitigation Priorities remained relatively unchanged from the previous Plan.

2.4 Hazard Mitigation Planning Team

This LHMP was developed over several months in 2015-2017 with contributions from City officials, emergency management professionals, and community input under the direction of the Planning Team.

Several groups and personnel contributed to the development of this LHMP. The Planning Team members are listed in Table 2-1. The Planning Team meetings are described below. Meeting documentation is provided in Appendix C. The City of Manhattan Beach would like to thank the following members of the Hazard Mitigation Planning Team for their important contributions to developing this plan:

City of Manhattan Beach
Local Hazards Mitigation Plan



Table 2-1 City of Manhattan Beach Hazard Mitigation Planning Team

Name	Agency/Organization	Position/Title
Idris Al-Oboudi	City of Manhattan Beach-Parks & Recreation	Recreation Manager
Jan Buike	City of Manhattan Beach-Parks & Recreation	Older Adult Program Supervisor
George Butts	Manhattan Beach CERT Association	President
Crystal Chambers	Constant & Associates	Analyst
Frank Chiella	City of Manhattan Beach-Fire Department	Battalion Chief-Operations Division
Scott Combs	City of Manhattan Beach-Police Department	Sergeant
Leilani Emnace	City of Manhattan Beach-Information Technology	Information Systems Manager
Gwen Eng	City of Manhattan Beach-Finance Department	Purchasing Manager
Scott Hafdell	City of Manhattan Beach-Fire Department	Fire Captain
Andy Harrod	City of Manhattan Beach-Police Department	Sergeant
Ron McFarland	City of Manhattan Beach-Community Development	Principal Inspector, Commercial and Lead Inspection Supervisor
Janna Payne	City of Manhattan Beach-Human Resources	Risk Management/Human Resources Consultant
Tatyana Peltekova	City of Manhattan Beach-Management Services	Senior Deputy Clerk
Jeffrey Robinson	Area G DMAC	Executive Director
Raul Saenz	City of Manhattan Beach-Public Works	Utilities Manager
Bonnie Shrewsbury	City of Manhattan Beach-GIS	GIS Analyst
Robbie Spears	Constant & Associates	Analyst
Ashley Slight	Constant & Associates	Analyst
Jim Sims	Constant & Associates	Consultant
Liza Tamura	City of Manhattan Beach-Management Services	City Clerk
Christine Tomikawa	City of Manhattan Beach-Risk Manager	Risk/HR manager



2.5 Planning Team Meetings

Project Kick-Off Meeting: June 23, 2015

During the kick-off meeting, the Consultant discussed the objectives, project management and execution strategies to launch the project. Also discussed were the approach, project stakeholders, and the importance of community involvement in the planning process. Current reference material such as the City Emergency Operations Center (EOC) Manual, Earthquake Annex, and Adverse Weather documents were assigned to be delivered by the Planning Team to the Consultant as a result of the kick-off meeting. Meeting documentation is provided in Appendix C.

Informational Interview Meeting: July 28, 2015

During the second meeting, the Consultant briefed the Planning Team on the progress made to date, including the update to the Threat analysis, addition of stakeholders, and review of the City EOC Manual, Earthquake Annex, and Adverse Weather documents. As a result of this meeting, the Consultant reached out to City subject matter experts (SMEs) for section specific information and scheduled to send the Planning Team a draft of the mitigation plan to be reviewed at the next meeting. Meeting documentation is provided in Appendix C.

Informational Interview Meeting: October 9, 2015

During the third meeting, the Consultant discussed the importance of involving the public in the planning process and reviewed the Critical Priority Risk Index (CPRI) in depth. The Planning Team was asked to identify groups within the community that the mitigation plan could be presented to. The Planning Team identified various groups including the neighborhood CERT, Downtown Business Owners Association, and the Manhattan Beach Bunch Lunch Group. The Consultant began scheduling the first public meeting on November 12, 2015. As a result of this meeting, an electronic copy of the draft mitigation plan was sent to the Planning Team. The Planning Team was requested to make comments and return them to the Consultant by October 16, 2015. Meeting documentation is provided in Appendix C.

2.6 Public Participation

The City of Manhattan Beach encouraged public participation and input in the LHMP by posting its activities on www.citymb.info and encouraging public feedback of the documents posted online. Public participation also included three meetings; CERT, Downtown Business Owners Association, and the Manhattan Beach Bunch Lunch Group. During the three meetings, the LHMP was presented to the groups. As part of the presentation, the groups were given an overview of the plan, explained the importance of the document, and encouraged to review the plan and provide feedback and distribute the plan within the community.

Community Emergency Response Team Presentation: November 12, 2015

During the Informational Interview with Battalion Chief Scott Hafdel on October 9, 2015, it was determined that the City's CERT would be a crucial component of the public to provide feedback to the mitigation plan. The presentation of the LHMP was provided during a monthly CERT meeting that the City holds with the members of the CERT community. The Consultant and Chief Hafdel provided an overview of the mitigation plan, stated the importance of the group's involvement, and asked the group to review the plan at their leisure and provide feedback and comments based upon their review. As a result of the presentation, the Consultant sent the group an electronic copy of the



plan and asked for their comments. Meeting documentation is provided in Appendix D.

Manhattan Beach Bunch Lunch Presentation: December 8, 2015

During the Informational Interview with Chief Hafdell on October 9, 2015, it was determined that the City's Bunch Lunch group would be a crucial component of the public to provide feedback to the mitigation plan because the group is composed of long time Manhattan Beach residents. The presentation of the LHMP was provided during a monthly Bunch Lunch meeting that the City holds with the long-time members of community. The presentation was given by the Consultant and provided an overview of the mitigation plan, stated the importance of the group's involvement, and asked the group to review the plan at their leisure and provide feedback and comments based upon their review. As a result of the presentation, the group was asked if anyone in the group wanted to review a copy of the mitigations plan, at which point the group did not volunteer. Meeting documentation is provided in Appendix D.

Manhattan Beach Downtown Business Owners Association Presentation: January 14, 2015

During the Informational Interview with Chief Hafdell on October 9, 2015, it was determined that the Manhattan Beach Downtown Business Owners Association would be a crucial component of the public to provide feedback to the mitigation plan because the group is composed of long time Manhattan Beach business owners. The presentation of the LHMP was provided during a monthly business owners association meeting that the City holds with the long-time business owners in the community. The presentation was given by the Consultant who provided an overview of the mitigation plan, stated the importance of the group's involvement, and asked the group to review the plan at their leisure and provide feedback and comments based upon their review. As a result of the presentation, the group was asked if anyone wanted to review the plan to email the Consultant and an electronic copy would be sent for their convenience. The Consultant did not receive any inquiries to review the plan. Meeting documentation is provided in Appendix D.

The following are comments gathered during the Public Participation phase of plan development. Images of the original documents can be found in Appendix D.

Public Participation Comments

- I noticed on page 32 in Table 6.1, next to hazard type "Coastal Erosion" and "Coastal Storm" that these hazards are NOT to be profiled, and the explanation given is the "City is located along the Coast."
- I thought the Mitigation Plan was generally really good.
- Thanks for sharing with MBCERT. Very interesting and comprehensive.
- I think that the attached EOP & LHMP Docs are well on their way to enhance our Emergency preparedness, response and recovery plans.
- I do have concerns with our current EOC storage areas that need to be staged more productively.
- I do have concerns with: A. Staff Training Systems standards and measures, B. School District Preparedness, C. Tech such as radios communication over all etc., D. Tech & software that can assist with EOC operations, E. Dedicated Full time EOC Coordinator ... etc. etc. etc. etc. issues that have been addressed but not resolved as far as I know.

Copies of the Plan will be kept at the Community Development Office and Library. The existence and location of these copies will be publicized in the quarterly City newsletter, which reaches every



resident and employee in the City. The plan also includes the address and the phone number of the Community Development Department, which is responsible for keeping track of public comments on the Plan.

Manhattan Beach Community Development
1400 Highland Avenue.
Manhattan Beach, CA 90266
310-802-5504

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.

Integrating public participation during the development of the LHMP 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.

2.7 Neighboring Communities/Jurisdictions Involvement

The City of Manhattan Beach has developed an Emergency Preparedness Committee composed of key representatives from fire, law enforcement, GIS, and other key staff to help the City better prepare for emergencies. The Committee was identified as a crucial participant in the planning process of the mitigation plan. The Consultant and Chief Hafdell presented the plan to the Committee on November 12, 2015 to demonstrate the importance of developing a LHMP and provide the team with an overview of the plan. At the conclusion of the presentation, the Committee was asked to review and provide comments on the draft mitigation plan. A copy of the plan was sent electronically to each member of the Emergency Preparedness Committee to review and provide comments. Below are the comments received by the Committee. Meeting documentation is provided in Appendix D.

Regional Coordination and Planning Participation Comments

Manhattan Beach Community Emergency Preparedness Team Feedback

- While the text on Pg. 55 says, "Map 6-1 illustrates the local urban flooding areas," the map on Pg. 53 is actually a map of Coastal Flooding.
- Also, the map on Pg. 53 does not show Manhattan Beach. It cuts off at the southerly border of the city.
- Pg. 55 says, "Map 6-2 illustrates the local coastal flooding areas...", but the actual map on Pg. 57 does not show that.
- Map 6-2 appears awkwardly amongst the text and has no "Map 6-2" beneath it to signify which map it is.

Disaster Management Area G Coordinator Feedback

- Section 7-1, add another column to show where funding will come from for each item...also some formatting issues with the boxes.
- How were neighboring jurisdictions involved in the process?

Additionally, the City sent an email requesting participation in the planning of the Manhattan Beach LHMP. The following communities/jurisdictions were invited:



- Hermosa Beach Fire Department, Chief
- Hermosa Beach Police Department, Lieutenant
- Los Angeles County Fire Department, Deputy Chief
- Los Angeles County Fire Department, Life Guard Division, Chief

The City e-mailed or provided advice and a DRAFT copy of the LHMP requesting comments on the DRAFT LHMP to the following entities:

- Surrounding Jurisdictions: City of Hermosa Beach, Disaster Services Coordinator; City of El Segundo, Fire Chief; City of Torrance, Fire Chief.
- Los Angeles County Office of Emergency Management -Disaster Management Area G Coordinator
- CERT, the plan was emailed out by the CERT coordinator and we do not have a list of their entire roster. Appendix D: pages 95-99 provide a sign in sheet of the CERT members who subsequently attending our community meeting.
- Downtown Business Owners Association (DBOA) the plan was emailed out by the President of the DBOA and we do not have a list of their entire roster. Appendix D: page 100 provides a sign in sheet of the members of this organization who are “owners” of their corresponding businesses.
- Manhattan Beach Police Department, Lieutenant

They were allowed two weeks to provide comments on the draft. A copy of the thank you letter to all the attendees can be found in Appendix D.

2.8 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Consultant and the Planning Team reviewed and incorporated information from existing plans, studies, report, and technical reports into the LHMP. A synopsis of the sources follows.

- 2016 Manhattan Beach Emergency Operations Plan: This plan outlines mitigation activities and response procedures that were used throughout the mitigation strategy.
- 2008 Manhattan Beach Local Hazard Mitigation Plan: This plan was used as the foundation for the 2018 LHMP. Information in regard to the background of the City, community description, and hazard profiles were used and updated as part of the new plan.
- 2015 Manhattan Beach General Plan Safety Element.

A complete list of the courses consulted is provided in Appendix B.



SECTION 3 COMMUNITY DESCRIPTION

This section describes the history, location, and geography of the City as well as its government, demographic information, and current land use and development trends.

3.1 History, Location, and Geography

The City of Manhattan Beach is a small but bustling beach town along the Pacific coast with a population of 35,881 residents, per the 2014 Census. Located in southwestern Los Angeles County, and encompassing 3.88 square miles, City elevations range from sea level to 245 feet above sea level. The City includes hills and flat areas, and is nestled between the Pacific Ocean, Hermosa Beach, Redondo Beach, Hawthorne, and El Segundo. Figure 3-1 shows the general location of the city within the state of California and the County of Los Angeles. Figure 3-2 shows the general boundaries of the City of Manhattan Beach.

In 1863, a Scottish immigrant, Sir Robert Burnett, purchased Rancho Sausal Redondo and Rancho Aguaje de la Centinela from Avila's heirs for \$33,000. Ten years later in 1873, Burnett leased the ranch to a Canadian, Daniel Freeman. Burnett returned to Scotland. Freeman moved his wife and three children onto the ranch and started growing various crops. On May 4, 1885 Freeman bought the ranch from Burnett for \$140,000.

George H. Peck owned a lot of the land that became part of the north section of Manhattan Beach. A coin flip decided the town's name. Around 1902, the beach suburb was named "Manhattan" after developer Stewart Merrill's home, the New York City borough of Manhattan. "Beach" was appended to the city's name in 1927 at the behest of the postmaster. (Source: Grenier, Judson, Capsule History of Manhattan Beach, 1912-1975).

The land in Manhattan Beach was formerly sand dunes. During the 1920s and 1930s, builders leveled uneven sandy sites and some excess sand was sold and shipped to Waikiki, Hawaii, to convert their reef and rock beach into a sandy beach. The sand was also used to build the Los Angeles Coliseum and portions of the Pacific Coast Highway.

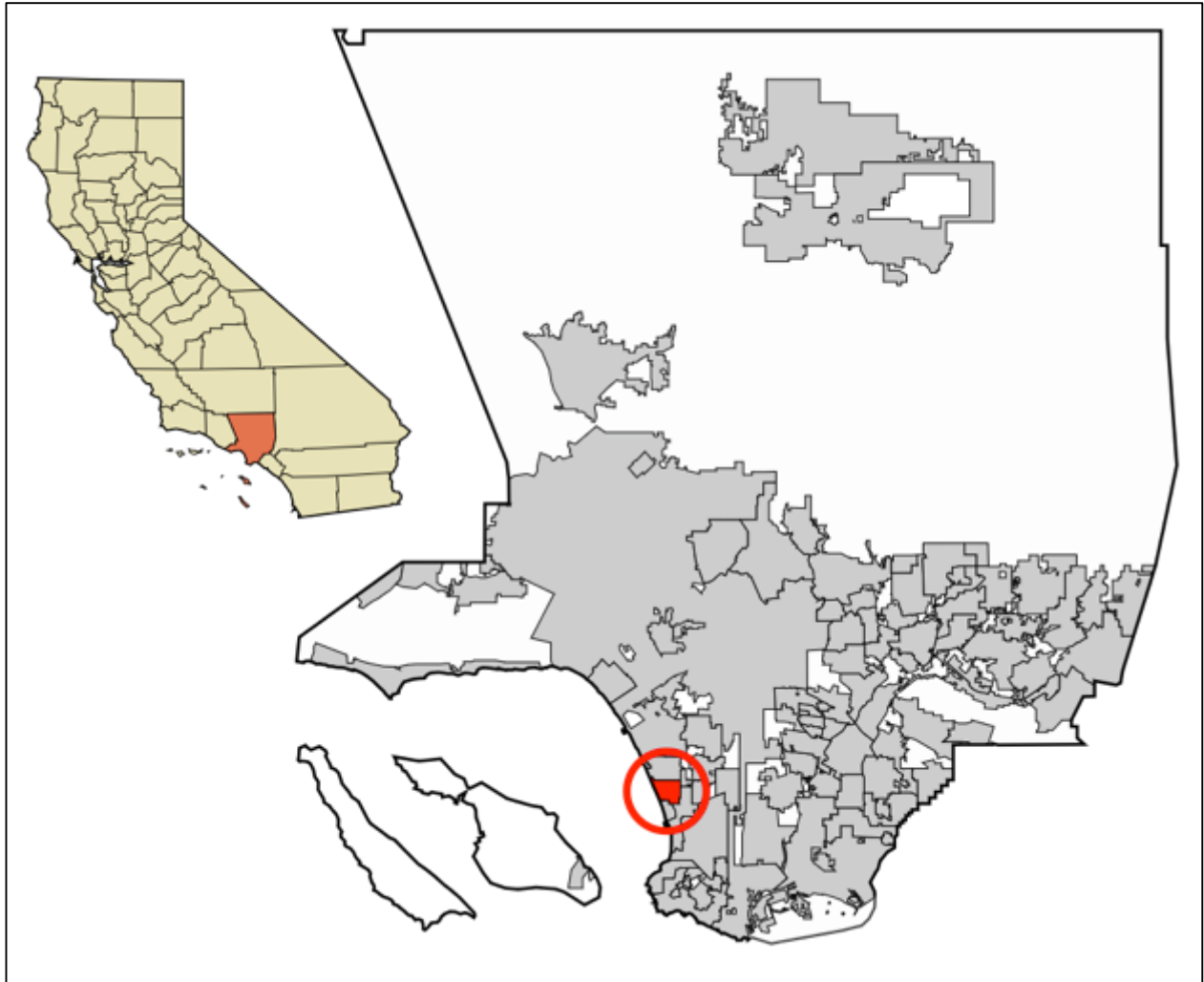
Temperatures in the City of Manhattan Beach vary from around 49 degrees in the winter months to 75 degrees in the summer months. However, the temperatures can vary over a wide range, particularly when the Santa Ana winds blow, bringing higher temperatures, very low humidity, and strong winds. (Source: CityTownInfo.com).

Rainfall in the region averages 13.1 inches per year. But the term "average" means very little in Los Angeles County 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. (Los Angeles County).

Furthermore, actual rainfall in the Southern California region tends to fall in large amounts during sporadic and often heavy storms rather than consistently over storms at somewhat regular intervals. As 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.



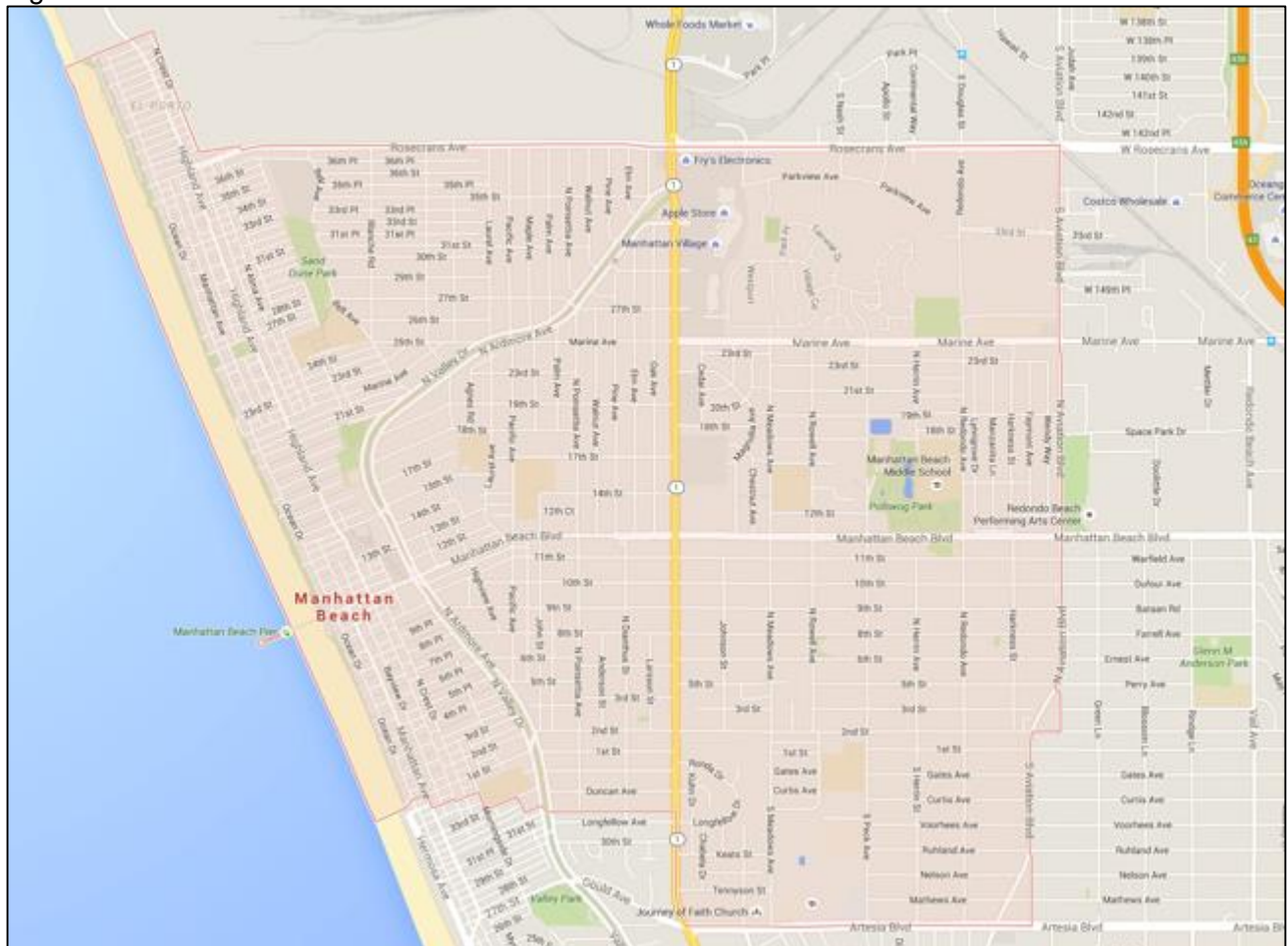
Figure 3-1 General Location of Manhattan Beach within the state of California and the County of Los Angeles



City of Manhattan Beach Local Hazards Mitigation Plan



Figure 3-2 General boundaries of Manhattan Beach





3.2 Government

The City of Manhattan Beach is governed by a five-member City Council. City Council members are elected every four years. The office of the Mayor of Manhattan Beach rotates every nine months among the members of the City Council, so that each City Council member serves one term as Mayor. A City Manager is appointed by the City Council. An elected City Treasurer serves a four-year term.

The Beach Cities Health District provides health and wellness services to the residents of Hermosa Beach, Manhattan Beach, and Redondo Beach. The voters of the three beach cities elect the five-member Board of Directors to 4-year terms. One of 78 California Health Districts, it was created in 1955 as South Bay Hospital and took on its current name in 1993.

3.3 Demographics

The 2014 United States Census reported that Manhattan Beach had a population of 35,881. The population density was 8,914.7 people per square mile (3,442.0/km²). The racial makeup of Manhattan Beach was 29,686 (84.5%) White (79.3% Non-Hispanic White), 290 (0.8%) Black or African American (U.S. Census), 59 (0.2%) Native American, 3,023 (8.6%) Asian, 49 (0.1%) Pacific Islander, 409 (1.2%) from other races, and 1,619 (4.6%) from two or more races. Hispanic or Latino of any race was 2,440 persons (6.9%). The Census reported that 35,107 people (99.9% of the population) lived in households, 28 (0.1%) lived in non-institutionalized group quarters, and 0 (0%) were institutionalized.

There were 14,038 households, out of which 4,735 (33.7%) had children under the age of 18 living in them, 7,583 (54.0%) were opposite-sex married couples living together, 892 (6.4%) had a female householder with no husband present, 438 (3.1%) had a male householder with no wife present. There were 695 (5.0%) unmarried opposite-sex partnerships, and 85 (0.6%) same-sex married couples or partnerships. 3,627 households (25.8%) were made up of individuals and 1,078 (7.7%) had someone living alone who was 65 years of age or older. The average household size was 2.50. There were 8,913 families (63.5% of all households); the average family size was 3.10.

The population was spread out with 8,725 people (24.8%) under the age of 18, 1,740 people (5.0%) aged 18 to 24, 9,532 people (27.1%) aged 25 to 44, 10,681 people (30.4%) aged 45 to 64, and 4,457 people (12.7%) who were 65 years of age or older. The median age was 40.9 years. For every 100 females there were 100.4 males. For every 100 females age 18 and over, there were 99.2 males. There were 14,929 housing units at an average density of 3,787.9 per square mile (1,462.5/km²), of which 9,420 (67.1%) were owner-occupied, and 4,618 (32.9%) were occupied by renters. The homeowner vacancy rate was 0.8%; the rental vacancy rate was 5.3%. 25,587 people (72.8% of the population) lived in owner-occupied housing units and 9,520 people (27.1%) lived in rental housing units.

3.4 Land Use and Development Trends

Since its beginnings as a city in 1912, Manhattan Beach has attracted many to the sandy shoreline, the temperate climate and small-town character is a jewel of Southern California. Maintaining the features that define the city requires forward thinking and planning, with particular emphasis on the City's neighborhoods, business districts, parks, schools, and streets. The Manhattan Beach General Plan identifies the community's vision for the collective future of the community. State of California statutes establish requirements and minimum content of a General Plan (Government Code Section 65350 to 65590). With incorporation of Manhattan Beach in 1912, the city's first planning commission was formed in 1923. Since that time a Local Planning Commission has

City of Manhattan Beach
Local Hazards Mitigation Plan



developed and adopted the City's General Plan. The City Council adopted the City's General Plan on December 2, 2003 (Resolution No. 5872) and subsequently, in 2007, a new zoning ordinance. The last major section adopted was the Housing Element of the General plan, adopted by the City Council on January 16, 2014 and certified and implemented on February 4, 2014. The City's land distribution is highlighted in Table 3-1.

Table 3-1 Land Use Distribution – 2002

Use	Net Acres	% of Total
Residential	1,406	69.7%
Commercial	207	10.3%
Industrial	73	3.6%
Parks and Open Space ^a	146	7.3%
Public Facilities	142	7.0%
Other Uses ^b	43	2.1%
Total	2,017	100%

^a Parks and Open Space do not include parking areas, such as the parking lots adjacent to the Manhattan Beach Pier.

^b Other Uses include parking lots, faith-based organizations, and vacant lots identified during the 2002 land use survey.

Manhattan Beach is a city of distinct and unique neighborhoods. The community recognizes: the Sand Section, Downtown, North End/El Porto, the Tree Section, the Hill Section, Manhattan Village and Mall, and Eastside (Figure 3-3). Approximately 70% of the land area within the City was developed for residential use.



Figure 3-3 Neighborhood Map – Manhattan Beach General Plan





SECTION 4 RISK ASSESSMENT

This section identifies and profiles the hazards that could affect Manhattan Beach, assesses the risk of such hazards, describes the City's vulnerability, and estimates potential losses from hazards. Each of these tasks is described in detail below.

In compliance with DMA 2000, the requirements for the risk assessment are described below.

DMA 2000 Requirements: Risk Assessment - Overall

Requirement §201.6(c) (2): The plan shall include risk assessment that provides the factual basis for activities proposed in the table strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

Source: FEMA, March 2013.

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 is 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, 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 within the City. 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 that provide services to the City and includes a map of these facilities. 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 population trends and transportation patterns.



4.1 Risk Assessment Methodology

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.

The requirement for hazard identification, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Identifying Hazards

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Source: FEMA, March 2013.

The Planning Team considered a range of natural hazards facing the region including earthquakes, flooding, landslide, tsunami, climate change, drought, and adverse weather. The attached Table 4-2 Ranking Your Hazards was used by the Team to prioritize the natural hazards with the highest probability of impacting the City of Manhattan Beach. The Team agreed that any hazard receiving a Team score higher than “3” using the Critical Priority index (Table 5-5) would be included in the LHMP. Utilizing the ranking technique, the Team identified: earthquake, flood, landslide, and tsunami as the most prominent hazards facing the City.

The geographic extent of each of the identified hazards has been identified by the City of Manhattan Beach utilizing the maps contained in the City’s General Plan, City’s Emergency Operations Plan, and the County’s Hazard Mitigation Plan. The vulnerabilities posed by these hazards are depicted in Table 4-2 below.



Table 4-2 Ranking Your Hazards

Hazard Type	Should it be profiled		Explanation	Hazard Profile	Historical Occurrence	Declared Disaster	Casualties	Damage	Potential Source
	Yes	No							
Adverse Weather	X		Adverse weather could include drought, freeze, hail, wind, dense fog, and thunderstorms.	Adverse weather has not had an impact on the City.	N/A	N/A	N/A	N/A	N/A
Climate Change	X		The City's temperature has slowly increased in the last 20 years.	Climate change has impacted the City's drought problem. As a result, the city has had to reduce water consumption.	2015	N/A	N/A	N/A	N/A
Coastal Storm	X		Coastal storm includes strong winds, rain, flooding, thunder, and lightning. City is located along the coast.	Coastal Storms have caused no damage.	N/A	N/A	N/A	N/A	N/A
Drought	X		Droughts have impacts on the environment, agriculture, health, economy, and social fabric of the community.	The City imposed waste restrictions to limit water consumption.	2015	N/A	N/A	N/A	N/A
Earthquake (Seismic)	X		City has experienced recent and historic earthquakes. The City is in the proximity of the San Andreas fault and lies above the Compton Thrust Fault.	Major Faults in the area cause the City to be vulnerable to earthquakes.	1994	Yes	0	200k	Area Faults
Flood	X		History of flooding is associated with heavy rainfall.	The City is exposed to riverine flooding as a result to heavy rain.	1997	No	0	100k	Rains
Landslide	X		City is vulnerable to slope instability, especially after prolonged rainfalls.	Heavy rains would cause slope instability in various areas of the City.	N/A	N/A	N/A	N/A	Rains Wild land-fires
Tsunami	X		City has not experienced significant Tsunami activity but there is potential for impact.	The City is located along the coast and it is located along the Pacific Rim of Fire.	N/A	N/A	N/A	N/A	N/A
Windstorm	X		Winds up to 75 mph have on occasion impacted the City.	Windstorms impact the health and safety of the community as a result of flying debris.	2014	N/A	N/A	10k	Winds



4.2 Hazards Profile

The specific hazards selected by the Planning Team for profiling have been examined in a methodical manner based on the following factors:

- Nature
- History
- Location
- Extent
- Probability of Future Events
- Cascading effects

The hazards profiled for Manhattan Beach are presented in Section 4.2.1 in the order of the most probable.

4.2.1 Earthquake

4.2.1.1 Nature

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, just after a few seconds, can cause massive damage and extensive casualties. The most common effect of earthquakes is ground motion, the vibration or shaking of the ground during an earthquake.

Earthquakes are a long-recognized hazard throughout California. Southern California's best-known fault, the San Andreas Fault, is a 400-mile long fault line running from the Mexican border to west of San Francisco. The San Andreas Fault is capable of producing earthquakes with a magnitude of 8 or greater on the Richter scale. Numerous other fault lines have been identified in Southern California that could also have a significant impact on Manhattan Beach. These faults include Newport-Inglewood, Whittier, Chatsworth, Hollywood, Los Alamitos, and Palos Verdes. Beyond the known faults, there are potentially other "blind" faults that exist, unidentified at this time, in Southern California.

4.2.1.2 History

The Los Angeles Basin has a history of powerful and relatively frequent earthquakes, dating back to the 8.0+ San Andreas earthquake of 1857 which did substantial damage to the relatively few buildings that existed at the time. Paleo seismological 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 years. Other lesser faults have also caused very damaging earthquakes since 1857. Notable earthquakes include the Long Beach Earthquake of 1933, the San Fernando Earthquake of 1971, the 1987 Whittier Earthquake and the 1994 Northridge Earthquake.

To date, the City has retrofitted 100% of its public facilities. Given the retrofitting program, the number of buildings at risk has been decreased significantly. Even though the critical facilities may be better off, that does not change the fact that people live in un-reinforced masonry buildings vulnerable to damage from earthquakes. The California Seismic Safety Commission makes annual reports on the progress of the retrofitting of un-reinforced masonry buildings.

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.

4.2.1.3 Location, Extent, and Probability of Future Events

Manhattan Beach, like most of the Los Angeles Basin, lies over one or more known earthquake faults, and potentially many more unknown faults, particularly the so-called lateral or blind thrust faults. Although no surface faults are known to pass through Manhattan Beach, the City does lie above the Compton Thrust Fault. This type of fault does not rupture all the way up to the surface, so there is no evidence of it on the ground. It is "buried" under the uppermost layers of rock in the crust. In addition, several regional potentially active faults nearby can produce enough shaking to significantly damage structures and cause loss of life.

The probability for the City of Manhattan Beach – Likely.

Based on the frequency of earthquakes in the area, the number of faults in the general proximity, length of the faults, and last major rupture and projected magnitude of the earthquake, it is likely that the City may experience an earthquake.

4.2.1.4 Cascading Effects

Earthquakes can cause many cascading effects such as fires, flooding, hazardous material spills, utility disruptions, land subsidence, and transportation emergencies. Below are the cascading effects that may result from an earthquake.

- **Effects on people and housing:** In any earthquake, the primary consideration is saving lives. Time and effort must also be dedicated to providing for mental health by reuniting families, providing shelter to displaced persons, and restoring basic needs and services. Major efforts will be required to remove debris, clear roadways, demolish unsafe structures, reestablish public services and utilities, and provide continuing care and temporary housing for affected citizens.
- **Effects on commercial and industrial structures:** After any earthquake, individuals are likely to lose wages due to the inability of business to function because of damaged goods and/or facilities. With business losses, the City will lose revenue. Economic recovery from even a minor earthquake will be critical to the communities involved.
- **Effects on infrastructure:** The damage caused can lead to the paralysis of the local infrastructure: police, fire, medical, and governmental services. There will also be disruption of utilities and roads. Fires frequently follow because of damaged gas lines.

The impact of an earthquake will vary widely based on the magnitude of the earthquake and the location of the epicenter. In addition to major ground shaking, the earthquake may injure or have fatal consequences for community members, cause broken or buckled roadways, result in widespread power outages, and may disrupt many other utilities and City services. The secondary impacts of a major earthquake could significantly impact a wide variety of locations and services throughout Manhattan Beach.



Table 4-3 Magnitude and Intensity of Maximum Credible Earthquake (MCE) for Faults Potentially Impacting Manhattan Beach

Regional Fault Name	Distance to Manhattan Beach (Miles)	Magnitude of MCE	Intensity Range of MCE ⁽¹⁾	Last Major Rupture
Compton Thrust Fault ⁽²⁾	0.0	6.8	VIII-IX	N/A
Palos Verdes Fault	2.0 offshore 4.0 onshore	7.1	X-XII	Holocene ⁽³⁾ , offshore
Newport-Inglewood Fault	4.5	6.9	VIII-IX	March 10, 1933, 6.4M – Long Beach Earthquake
Santa Monica Fault	11.0	6.6	VIII-IX	Late Quaternary ⁽⁴⁾
Malibu Coast Fault	15.0	6.7	VIII-IX	Holocene, in part; otherwise Late Quaternary
San Andreas	47.0	7.1-7.8	X-XII	January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)

Notes: Per the California Office of Emergency Services (CalOES) MyHazards mapping tool, Manhattan Beach is at risk for high ground shaking. Manhattan Beach is outside of the earthquake-induced landslide hazard zone, and outside of the liquefaction seismic hazard zone.

(1) Intensity in Manhattan Beach will vary greatly depending on where the epicenter of the earthquake is located. The closer the epicenter is to Manhattan Beach, the higher the intensity scale.

(2) A specific kind of reverse fault in which the dip of the fault is less than 45 degrees over much if not all of its length. It is characterized not so much by vertical displacement, but by horizontal compression.

(3) Holocene: The most recent geologic era; from about 10,000 years ago to the present.

(4) Quaternary: Late Quaternary refers to the time between 700,000 years ago and the present day.

(Source: Manhattan Beach Emergency Operations Plan)

(Source: United States Geological Survey (USGS) National Earthquake Information Center, http://neic.usgs.gov/neis/general/handouts/mag_vs_int.html, October 2002)

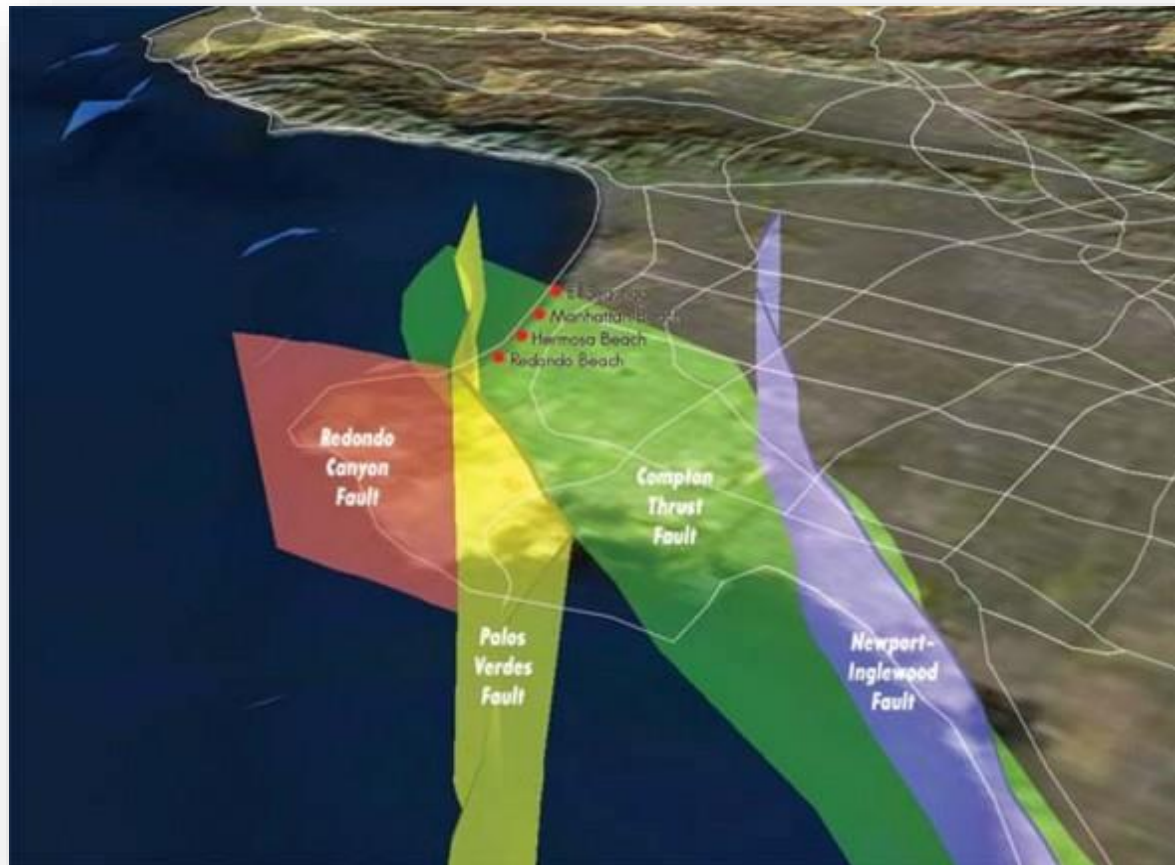


Table 4-4 Richter Magnitude and Mercalli Intensity Scale

Descriptor	Richter Scale	Moment Magnitude Intensity	Description
Very Minor	1.0 - 3.0	I	I. Not felt except by a very few under especially favorable conditions.
Minor	3.0 - 3.9	II - III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
Light	4.0 - 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. Some awakened at night. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
Moderate	5.0 - 5.9	VI - VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few cases of fallen plaster. Damage slight. VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
Strong	6.0 - 6.9	VIII - IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
Major Great	7.0 - 7.9 8.0 and higher	X - XII	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

(Source: Southern California Earthquake Data Center, <http://www.scecdc.scec.org/>)

Figure 4-1 Manhattan Beach Fault Map



4.2.2 Flood

National Flood Insurance Program (NFIP) Continued Participation and Compliance

The City of Manhattan Beach is a participant in the NFIP. The City Council adopted Ordinance No. 2087 in order to maintain the City's community eligibility for the NFIP. The City's continued participation in the NFIP will ensure that our residents have access to federally backed flood insurance coverage at generally lower rates than those available from private insurance agents.

4.2.2.1 Nature

Flooding is the accumulation of water where there usually is none or the overflow of excess water from a stream, river, lake, reservoir, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods.

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from



floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.
- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are reversed.

The City of Manhattan Beach has a high concentration of impermeable surfaces that either collect water or concentrate the flow of water in unnatural channels. Storm drains may back up with vegetative debris causing additional, localized flooding.

Low lying coastal communities of Southern California have one other source of flooding: coastal flooding. This occurs most often during storms that bring higher than normal tides. Storms, the time of year, and the tidal cycle can sometimes work to bring much higher than normal tides which cause flooding in low lying coastal areas. Map 4-1 illustrates the local coastal flooding areas in the City of Manhattan Beach.

4.2.2.2 History

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. In addition to posing a hazard to structures, floods can disrupt automobile traffic, including emergency vehicles, and shut down local and regional transit systems.

In the last 125 years, the average annual rainfall in the region is 13.1 inches. But the term “average” means very little because there is a fluctuation rate in the coastal rains as high as 30% in forty-five out of every one hundred years, which is coupled with a highly seasonal rainfall pattern with only 15% falling during the hottest six months of the year.

Historically, flooding in the City has been the result of heavy rainstorms with specific damages occurring along the coastal areas and low-lying parts of the City. One of the earliest recorded natural hazards to damage the City was in approximately 1913 which damaged the City pier and other structures near the ocean.

No portions of Manhattan Beach lie within any federally designated flood zone. Under average rainstorms, the City’s infrastructure normally prevents flooding. Localized small-scale flooding represents the only concern. Historically, localized flooding during heavier storms has resulted in some property damage. For example, the Southern California area received some of the heaviest rain on record in 2004-05. This heavy rain produced flooding around the Polliwog Park neighborhood. The lake at Polliwog Park, which acts as a natural detention basin, overflowed due to extensive rain causing some flooding within a one block radius around the park.



4.2.2.3 Location, Extent, and Probability of Future Events

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as stream-of-flow gages, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year.

Factors contributing to the frequency and severity of flooding include the following:

- Rainfall intensity and duration.
- Antecedent moisture conditions.
- Watershed conditions, including steepness of terrain, soil types, amount and type of vegetation, and density of development.
- The existence of attenuating features in the watershed, including natural features such as swamps and lakes and human-built features, such as levees and flood control channels.
- Velocity of flow.
- Availability of sediment for transport, and the erodibility of the bed and banks of the watercourse.

As a region, the majority of buildable portions of Manhattan Beach are developed. This leaves very little open land to absorb rainfall. The lack of open ground forces water to remain on the surface and rapidly accumulate. If it were not for flood control systems including concrete lined river and stream beds, flooding would be a much more common occurrence. In-fill building is becoming a much more common practice in many areas. Developers tear down an older home which typically covers up to 40% of the lot size and replacing it with three or four town homes or apartments which may cover 90-95% of the lot.

Another potential source of flooding is "asphalt creep." The street space between the curbs of a street is a part of the flood control system. Water leaves property and accumulates in the streets, where it is directed towards the underground portion of the flood control system. The carrying capacity of the street is determined by the width of the street and the height of the curbs along the street. Often, when streets are being resurfaced, a one to two-inch layer of asphalt is laid down over the existing asphalt. This added layer of asphalt subtracts from the rated capacity of the street to carry water. Thus, the original engineered capacity of the entire storm drain system is marginally reduced over time. Subsequent re-paving of the street will further reduce the engineered capacity even more.

Urban flooding is the biggest flooding threat to the City. In addition, any low-lying areas have a potential for ponding. The flooding of developed areas may occur when the amount of water generated from rainfall and runoff exceeds a storm water system's capability to remove it. Manhattan Beach joined the NFIP on May 15, 2015. To date, there have been no NFIP claims.

As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization of a watershed changes the hydrologic systems of the basin. Heavy rainfall collects and flows faster on impervious concrete and asphalt surfaces. The water moves from the clouds, to the ground, and into streams at a much faster rate in urban areas. Adding these elements to the hydrological systems can result in floodwaters that rise very rapidly and peak with violent force.

4.2.2.4 Cascading Events

[illegible]

- **Effects on people and housing:** Direct impacts of flooding can include injuries and loss of life, damage to property and health hazards from ruptured sewage lines and damaged septic systems. Secondary impacts include the cost and commitment to resources for flood fighting services, cleanup operations, and the repair or replacement of damaged structures.
- **Effects on commercial and industrial structures:** Floods also result in economic losses through closure of businesses and government facilities; disrupt communications. Flood events impact businesses by damaging property and by interrupting business. Flood events can cut off customer access to a business as well as close a business for repairs. A quick



response to the needs of businesses affected by flood events can help a community maintain economic vitality in the face of flood damage. Responses to business damages can include funding to assist owners in elevating or relocating flood-prone business structures.

- **Effects on infrastructure:** Flooding can cause damage to roads, communication facilities and other infrastructure.

Publicly owned facilities are a key component of daily life for all citizens of the county. Damage to public water and sewer systems, transportation networks, flood control facilities, emergency facilities, and offices can hinder the ability of the government to deliver services. Government can take action to reduce risk to public infrastructure from flood events, as well as craft public policy that reduces risk to private property from flood events.

During natural hazard events, or any type of emergency or disaster, dependable road connections are critical for providing emergency services. Road systems in the City of Manhattan Beach are maintained by multiple jurisdictions. Federal, state, county, and city governments all have a stake in protecting roads from flood damage. Road networks often traverse floodplain and floodway areas. Transportation agencies responsible for road maintenance are typically aware of roads at risk from flooding.

Flood-related environmental quality problems could potentially include bacteria, toxins, and pollution. These conditions would need to be addressed during the response and recovery phases of disaster management.

4.2.3 Landslide

4.2.3.1 Nature

Landslides occur when masses of rock, earth, or debris move down a slope, including rock falls, deep failure of slopes, and shallow debris flows. The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials (over steepening). This may be produced either by natural processes or by man's activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which slopes may be naturally over steeped. Other ways include excessive rainfall or irrigation on a cliff or slope. Another type of soil failure is slope wash, the erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion. Surface runoff and velocity is greatly increased in urban and suburban areas due to the presence of roads, parking lots, and buildings, which have zero filtration capacities and provide generally smooth surfaces that do not slow down runoff.

Landslides can be broken down into two categories: (1) rapidly moving and (2) slow moving. Rapidly moving landslides present the greatest risk to human life, and people living in or traveling through areas prone to rapidly moving landslides are at increased risk of serious injury. Slow moving landslides can cause significant property damage but are less likely to result in serious human injuries.

4.2.3.2 History

The General Plan identifies the north end of Sand Dune Park as being the only area in the City that may be prone to landslides due to unstable soils. Although there are no records of past landslide events causing major property damage, it is recommended that the City continue to map and monitor landslide and debris flow areas to prevent or mitigate against future loss.



4.2.3.3 Location, Extent, and Possibility of Future Events

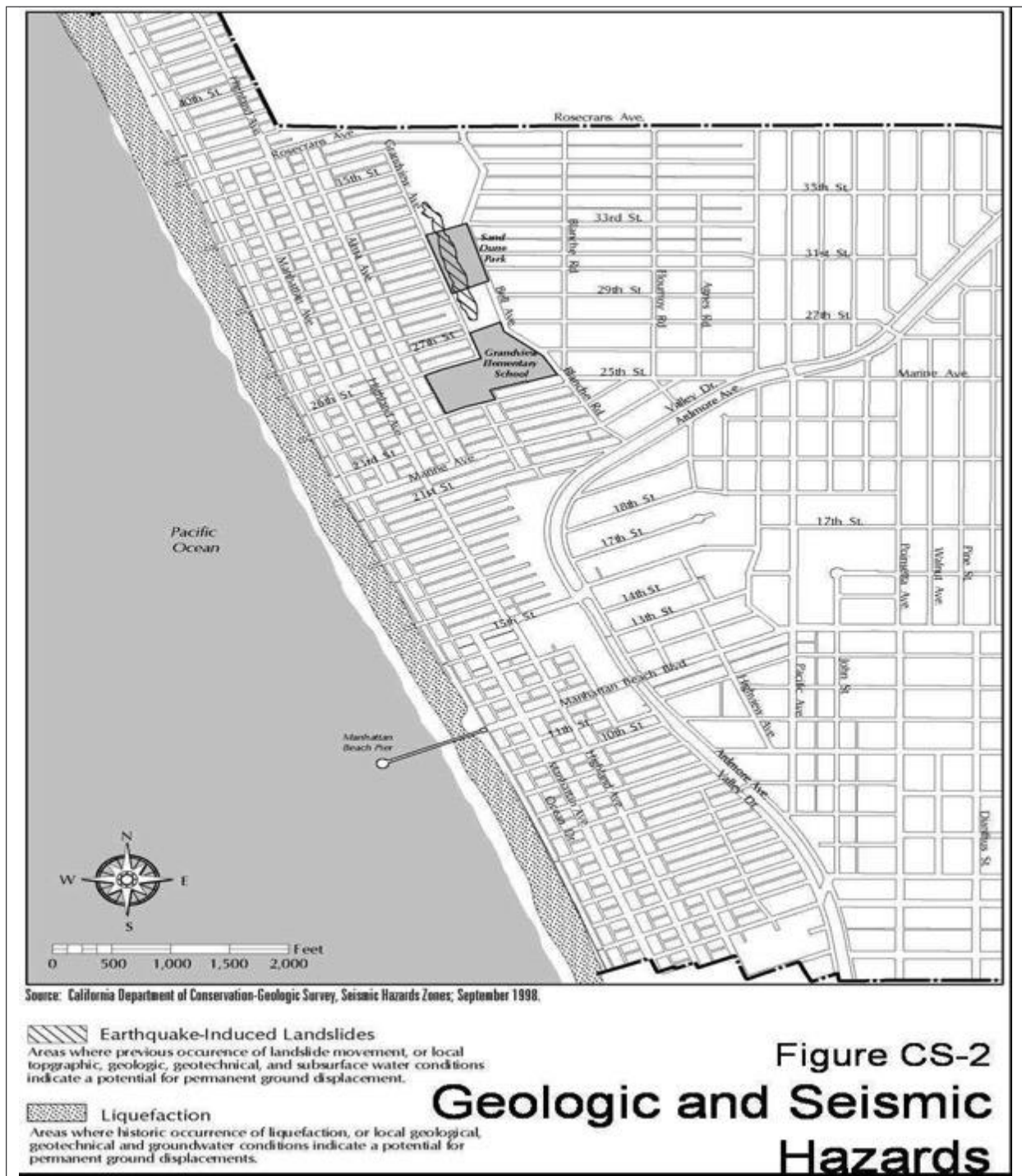
The City has only one area with land movement potential: Sand Dune Park. Historically, Manhattan Beach has had several sand dunes as typical throughout the coastal area, the sand dune at this park is the last remaining natural sand dune in the City. This sand dune, which is exceptionally high, has been converted for public recreational use.

4.2.3.4 Cascading Effects

Landslides, a cascading effect of adverse weather, also produced similar results in developed regions.

- **Effects on people and housing:** Though landslides are not a primary cause of concern, if one should occur at Sand Dune Park, it may result in property damage, injury or death, or unstable terrain.
- **Effects on commercial and industrial structures:** Landslides can result in damage to property and cause buildings to become unsafe either due to stress or collapse during sudden or gradual slope movement. There will be no commercial or industrial structure damage as a result of a land slide at Sand Dune Park.
- **Effects on infrastructure:** A landslide in Sand Dune Park can affect communication lines and residential structures.

Figure 4-2 Landslide Areas in the City of Manhattan Beach



(Source: Manhattan Beach General Plan)



4.2.4 Tsunami

4.2.4.1 Nature

A tsunami is a series of sea waves most commonly caused by an earthquake beneath the sea floor or generated by submarine volcanic eruptions or an underwater landslide. As the waves enter shallow water, they may rise rapidly and inundate coastal areas with the potential of endangering lives and creating significant property damage. The first wave is often not the largest, and waves may continue arriving for a number of hours.

Types of Tsunamis:

- **Distant Tsunami:** A far field or teletsunami (distant) is one that may be generated by a very large earthquake in remote areas of the Pacific Ocean, such as the Cascadia Subduction Zone near Eureka which is considered by experts as the most threatening. Since distant tsunamis, such as from Cascadia, may take several hours to reach the Southern California coast following the event, they allow time for warnings to be issued to give coastal residents time to evacuate.
- **Local Tsunami:** A near field or near shore tsunami (local) is one that can hit the coast within minutes following an offshore geological event. This type of locally generated tsunami is possible at many points along the Southern California coast and provides little time for warning the population and less time for evacuation. Studies have identified the Palos Verdes, Santa Cruz Island and Santa Rosa Island faults as active and potentially tsunami-genic.

4.2.4.2 History

History has shown that the probability of a tsunami in Manhattan Beach is an extremely low threat. However, if a tsunami were to occur, the consequences would be significant. The impact could cause extreme loss of life, destroy hundreds of high-priced homes, and greatly affect the City's coastal businesses and economic vitality, including tourism. Even if all community members and visitors were safely evacuated, the damage to property in this densely populated, high-property value area would still be tremendous.

"Since 1812, the California coast has had 14 tsunamis with wave heights higher than three feet; six of these were destructive. The worst tsunami resulted from the 1964 Alaskan Earthquake and caused 12 deaths and at least \$17 million in damages in Northern California." In Los Angeles County, the last tsunami occurred from the 7.5 2012 Haida Gwaii earthquake that occurred in Canada. The affects were minimal, with water run up of 0.08 meters.

(Source: http://education.sdsc.edu/optiputer/htmlLinks/california_tsunami.html)

"Tsunami events affecting the United States and its territories have been responsible for approximately 470 fatalities and hundreds of millions of dollars in property and infrastructure damage."

"Since 1770, more than 46 remote-source generated and 18 local tsunamis have been observed along the west coast". (FEMA Multi-Hazard Risk Assessment, 1988). The tsunami threat to the City of Manhattan Beach is considered low, although recent studies indicate a possibility that an off-shore landslide could generate a tsunami that could threaten the coastal areas. Although the risk is considered low, the impacts would be high to the City's coastal areas. There are no critical or essential



facilities located in the portion of the City most vulnerable to tsunamis. However, the El Segundo Power Plant and Chevron Refinery are located immediately adjacent to Manhattan Beach's northern boundary. The vulnerability of these facilities to threats associated with tsunami is not known.

Table 4-5 Tsunami Events in California 1930-2016

Date	Location	Maximum Run-up*(m)	Earthquake Magnitude
08/31/1930	Redondo Beach	6.10	5.2
08/31/1930	Santa Monica	6.10	5.2
08/31/1930	Venice	6.10	5.2
03/11/1933	La Jolla	0.10	6.3
03/11/1933	Long Beach	0.10	6.3
08/21/1934	Newport Beach	12.00	Unknown
02/09/1941	San Diego	Unknown	6.6
10/18/1989	Monterey	0.40	7.1
10/18/1989	Moss Landing	1.00	7.1
10/18/1989	Santa Cruz	0.10	7.1
04/25/1992	Arena Cove	0.10	7.1
04/25/1992	Monterey	0.10	7.1
09/01/1994	Crescent City	0.14	7.1
03/11/2011	Los Angeles	0.49	8.3
10/28/2012	Los Angeles	0.08	7.5

(Source: Worldwide Tsunami Database www.ngdc.noaa.gov)

4.2.4.3 Location, Extent, and Probability of Future Events

Since 1930, seven tsunamis have reached Manhattan Beach. However, no damage resulted from the small run-up. Probability based tsunami inundation maps and products that can be used for site evaluation, land-use planning, and building design and construction. The primary tsunami threat to the City of Manhattan Beach is from distant source earthquakes originating in subduction zones elsewhere in the Pacific basin, particularly from Alaska and Aleutian Subduction Zone. The probability for future events is likely given the number of faults and projected future earthquakes. Figure 4-3 demonstrates the potential tsunami inundation area that can affect Manhattan Beach.

4.2.4.4 Cascading Effects

Though the chances of adverse damage resulting from a tsunami are low, given the information above, if a large tsunami were to occur, it may result in a cascading effect in developed regions.

- **Effects on people and housing:** Tsunamis may result in property damage and injury or death. Residence along the inundation zone may lose access to their damaged homes, and roads located along the strand may be damaged. Additionally, utilities such as electricity, water, and sewer system may be affected.
- **Effects on commercial and industrial structures:** Businesses may be closed temporarily

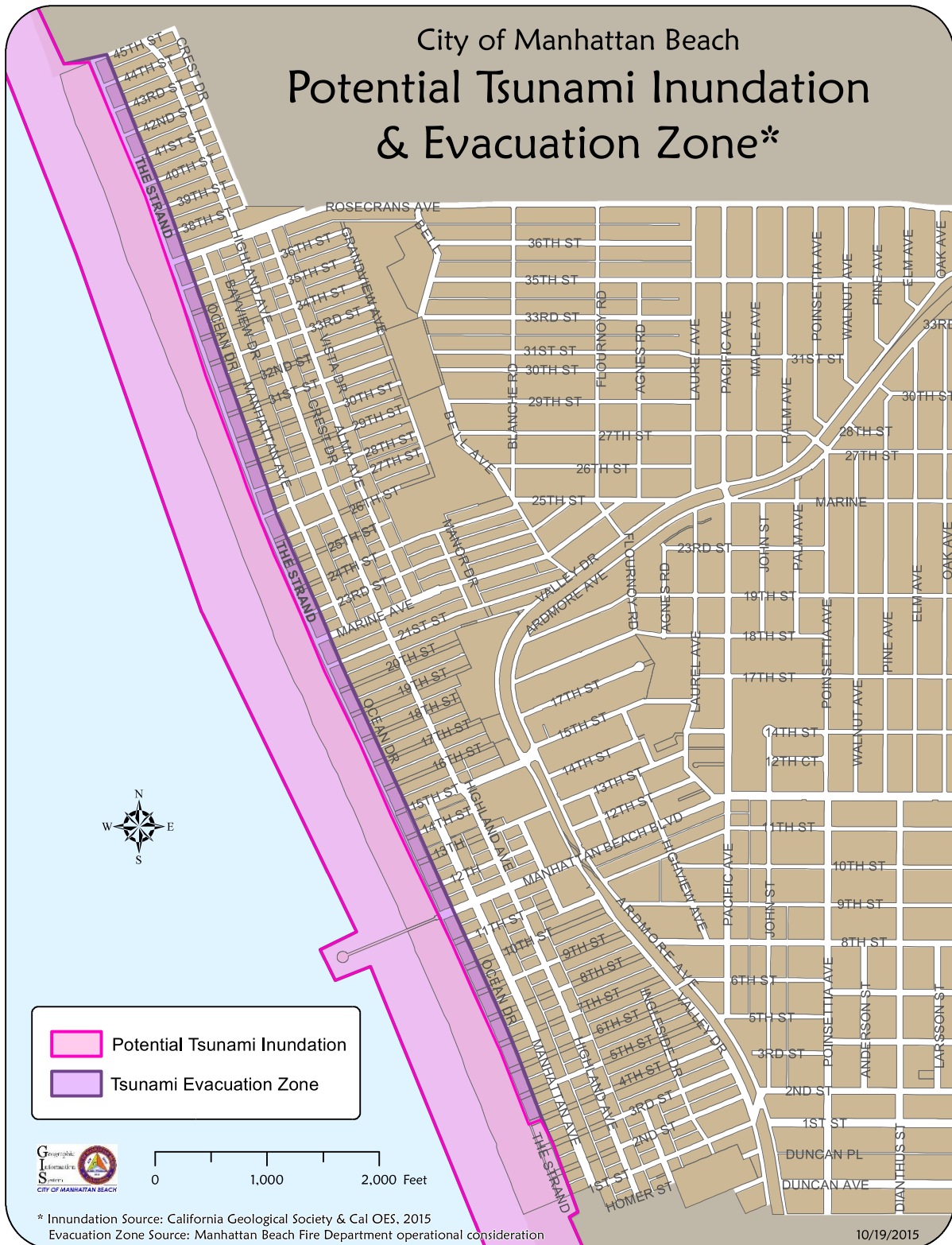


due to damages on property, water blocking business access, and debris in areas requiring public access.

- **Effects on infrastructure:** The damage caused can lead to the paralysis of the local infrastructure: police, fire, medical, and governmental services. There will also be a disruption of utilities on the road. Faulty electrical equipment may present fire hazards.
- **Effects on agriculture:** Effects on agriculture may be minimal since most of the affected area is a sandy beach. Flooding can have deleterious effects on soil and the ability to reinvigorate the agricultural activities impacted once the flood waters recede.



Figure 4-3 Potential Tsunami Inundation Area





4.2.5 Climate Change

4.2.5.1 Nature

An increasingly important factor affecting all four disaster management functions is climate change caused by global warming. Climate change reflects new uncertainties and factors shaping and conditioning hazard mitigation planning. It is addressed in this chapter as a factor intensifying impacts of many natural hazards described in Section 4.2.

Climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources.²⁷ The state has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing. Extreme weather events, such as heat waves, wildfires, droughts, and floods, are likely to be some of the earliest climate impacts experienced.²⁸

Manhattan Beach is recognizing the dangers associated with climate change and is committing to reduce municipal greenhouse gases (GHG) emissions to at least 7% below 1990 levels by 2012. The City took the first step towards meeting this goal by conducting a GHG emissions inventory to determine its municipal carbon footprint. In November 2007, the City published a comprehensive assessment of its environmental programs, including the GHG emissions inventory, in the Green Report. This publication identified the City's baseline emissions, as well as quantified the GHG emissions reduction goal the City is striving towards. Over the years, the City has made excellent progress on the actions outlined in the Agreement.

Manhattan Beach Municipal Greenhouse Gas Inventory

The City has seen some emissions reductions based upon the environmental practices it has already implemented: an approximate 6% decrease in its GHG emissions from 2005 to 2007. However, there may be an estimated 2.5% increase in emissions between 2007 and 2009. (Once the data is finalized for the City's 2016 energy consumption, staff will be able to verify the current emissions levels). While the initial results were promising, in order to meet the goals outlined in the U.S. Mayors Agreement, the City will need to reduce municipal GHG emissions by approximately 17.5% of its estimated 2009 emissions (which is the equivalent of removing 177 passenger vehicles off the road annually).

Environmental Task Force

The City's 19-member Environmental Task Force had its first meeting on October 15, 2008, and divided into four subcommittees to tackle priority environmental issues identified by City Council: the Development of a Climate Action Plan, Water Conservation and Storm Water Management Issues,

²⁷ California Natural Resources Agency. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. p. 15.

²⁸ Ibid

Waste Reduction and Recycling, and Sustainable ("Green") Design. Since the first meeting of the Task Force the subcommittees have made significant progress on environmental policies in the City, and on increasing the community's eco-awareness. In 2009, due to the success of the Task Force, the City was selected as a finalist for the U.S. Conference of Mayors Climate Protection Awards for its efforts in engaging the public in environmental issues.



To assist with developing the Climate Action Plan, the Task Force reviewed the City's Green Report to understand the sources of municipal emissions and has worked with City staff to study other cities' climate and sustainability plans, green purchasing policies, and sustainable building programs. The Task Force identified measures that will help the City reduce its carbon footprint and presented the recommended measures to City Council on March 16, 2010. These measures were unanimously approved by City Council and are now included in the draft Climate Action Plan for the City of Manhattan Beach.

4.2.5.2 Cascading Effects

With climate change affecting the entire globe, the implications for any given city, including Manhattan Beach are expansive. Below are the cascading effects climate change may have on Manhattan Beach.

- **Effects on people and housing:** Expected effects will include sea level rise, changes in the range and distribution of plants and animals (pests), longer and hotter dry fire seasons, and change in rainfall patterns/intensities (flooding). Public health impacts can also be expected. Extreme periods of heat or cold, storms, and smoke from fire will have impacts on climate sensitive diseases and respiratory illnesses.
- **Effects on commercial and industrial structures:** The effects of climate change may directly affect businesses. Severe weather, flooding, and its cascading effects can result in the closure of businesses and loss of revenue.
- **Effects on infrastructure:** The results of climate change can mirror the same effects to infrastructure as flooding.

4.2.6. Drought

4.2.6.1 Nature

A drought, or an extreme dry period, is an extended timeframe where water availability falls below the statistical requirements for a region. Droughts are not a purely physical phenomenon, but rather interplay between the natural water availability and human demands for water supply. The precise definition of drought is made complex owing to political considerations, but there are generally three types of conditions that are referred to as drought:

- **Meteorological drought:** A prolonged period with less than average precipitation.
- **Agricultural drought:** An insufficient moisture for average crop or range production. This condition can arise, even in times of average precipitation, owing to soil conditions or agricultural techniques.
- **Hydrologic drought:** Water reserves available in sources such as aquifers, lakes, and reservoirs drop below the statistical average. This condition can arise, even in times of average (or above average) precipitation, when increased usage of water diminishes the reserves. When the word "drought" is used by the general public, the most often intended definition is meteorological drought. However, when the word is used by urban planners, it is more frequently in the sense of hydrologic drought.

4.2.6.2 History

The effects on climate change are relatively new, it is a hazard that has the potential to cause long



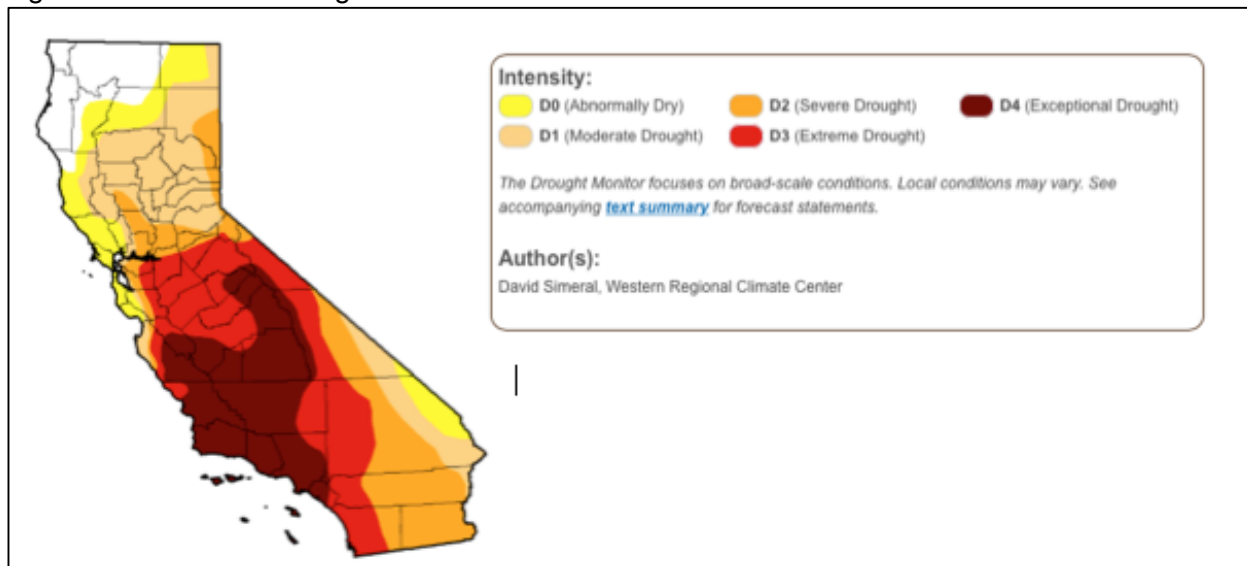
term consequences. Periods of drought can have significant environmental, agricultural, health, economic, and social consequences. Drought can also reduce water quality, because lower water flows reduce dilution of pollutants and increase contamination of remaining water sources. Wildfires are typically larger and more severe in periods of drought due to lower fuel moisture content.

4.2.6.3 Cascading Events

Drought is a serious threat to property and life. This may result in an increased fire season threat as the damaged vegetation dries out and increases normal fuel loading.

- **Effects on agriculture:** Drought conditions can endanger plants and trees and induce many detrimental effects to agriculture production.
- **Effects on people and housing:** Potential increases in the cost of water will have an economic impact on people. As a direct impact of the drought, a possible reduction in property values may occur.
- **Effects on commercial and industrial structures:** Area businesses may have to curtail water use in their businesses, causing a loss in tax revenue.
- **Effects on infrastructure:** Drought conditions may cost the city millions of dollars in lost tourist revenue, additional costs to enforce water rationing, and lost revenue due to a possible loss in property value.

Figure 4-4 California Drought Monitor



4.2.7 Adverse Weather

Adverse weather could include: freeze, hail, high wind, dense fog, tornados, and thunderstorm. The hazards identified below only include those that have the potential to effect Manhattan Beach.

Hail Storms: Hail is precipitation in the form of balls or irregular lumps, always produced by convective clouds and nearly always cumulonimbus. They can vary from pea size all the way up to that of a grapefruit in rare circumstances. Hailstones generally form in thunderstorms between currents of rising air called the updrafts and the current of air descending toward the ground, called the downdraft. Large hailstones indicate strong updrafts in the thunderstorm. The larger the hail, the stronger the updraft needed to hold it aloft in the storm.



Wind Storms: Resulting from air movement from areas of high pressure to those of low air pressure, wind storms can occur at any time of the year and can vary in strength and duration.

Dense Fog: The National Weather Service issues dense fog advisories when appropriate and suggests slowing down on the road, using headlights at all times, and leaving plenty of distance from other vehicles. Dense fog advisories are issued when fog limits visibility to below a quarter of a mile for two hours or more.

Thunderstorm: A thunderstorm, also known as an electrical storm, a lightning storm, thundershower, or simply a storm is a form of weather characterized by the presence of lightning and its acoustic effect on the earth's atmosphere known as thunder. Thunderstorms are usually accompanied by strong winds, heavy rain, and sometimes snow, sleet, hail, or no precipitation at all. Those which cause hail to fall are known as hailstorms.

4.3 Asset Inventory

This section describes the third step in the risk assessment process, which is the identification of assets that may be affected by hazard events. Assets identified for the risk assessment include population, buildings, critical facilities, and infrastructure that may be affected by hazard events. The assets identified are discussed in detail below and provide a complete list of assets and insurance or replacement values where applicable.

4.3.1 Population and Building Inventory

Population data was obtained directly from the City of Manhattan Beach webpage. The 2010 Census indicated Manhattan Beach had a total population of 35,135. This represents an increase of 3.65% from the 2000 population of 33,852. According to Battalion Chief Scott Hafdell, the current population is estimated at 35,881.

Building inventory data was provided by the city of Manhattan Beach Geographic Information Systems Department. The values represented in Table 4-7 and 4-8 was calculated given the approximate values of the structures and the cost of replacement. A total of 14,063 residential buildings were considered in this analysis, including single-family dwellings, multi-family dwellings, and nursing homes. A total of 816 nonresidential buildings were also analyzed, including industry, retail trade, personal and repair services, professional and technical services, banks, medical offices, religious centers, entertainment and recreational facilities, and parking facilities. This data is the city's most current analysis of its structures. This data will continue to be updated in future revisions of this LHMP.

Table 4-6 Estimated Population, Building Inventory, and Replacement Cost

	Population	Buildings			
		Residential		Nonresidential	
Year	Number	Number	Value (\$)	Number	Value (\$)
2016	35,881	14,063	4.5 B	816	713 M





Table 4-7 Potential Hazard Vulnerability Assessment – Population and Public-Sector Building

		Population	Buildings			
			Residential		Nonresidential	
Hazard	Methodology Description	Number	Number	Value (\$)	Number	Value (\$)
Earthquakes	High	35K	14k	4.5B	816	714M
	Moderate	15K	14k	2B	816	300M
Floods	100-year flood zone	0	0	0	0	0
	500-year flood zone	0	0	0	0	0
Tsunami	High	5K	300	180M	0	0
	Moderate	3K	180	100M	0	0
Total		50K	28K	6.5B	1632	1B

Fields labeled as “0” will not be affected by any of the hazards listed.

4.3.2 Critical Facilities and Infrastructure

A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities and infrastructure within the City are listed in Table 4-8 below and Figure 4-9 below. They include the following:

- City Hall
- Fire Station 1 (note that Fire Station 1 and the Police Station is the same facility)
- Fire Station 2
- Police Station

Table 4-8 Critical Facilities

Category	Facility	Number	Value (\$)
City Hall	City Hall	1	40 M
Police and Fire Stations	Fire Station 1/Police Station	1	45 M
	Fire Station 2	1	8 M
Public Works	Public Works Building	1	14 M
Total		4	107 M

Similar to critical facilities, critical infrastructure includes infrastructure that is essential to preserving the quality of life and safety in the City. Potential hazard vulnerability to Critical Infrastructures

City of Manhattan Beach
Local Hazards Mitigation Plan



identified within the City are shown in Table 4-9 below. Critical infrastructure includes all roads within Manhattan Beach.

Table 4-9 Infrastructure

Category	Facility	Number	Value (\$)
Infrastructure	Roads	120 miles	63 M
Total		120 Miles	63 M



Figure 4-4 Critical Facilities and Infrastructure



SECTION
5

VULNERABILITY ASSESSMENT

The fourth step of the risk assessment and its primary intent is the vulnerability assessment. This section includes an overview of the vulnerability assessment, methodology, data limitations, and exposure analysis. The intention of the vulnerability assessment is to help Manhattan Beach understand the greatest risk it faces. The vulnerability assessment defines at-risk populations, buildings, critical facilities, and other assets, and is based on the best available data and the significance of the hazard



5.1 Overview of a Vulnerability Assessment

The requirements for a risk assessment, as stipulated in the DMA 2000 and its implementing regulations, are described below.

A summary of the community's vulnerability to each hazard that addresses the impact of each hazard on the community.

DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Overview

Requirement §201.6(c) (2) (ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c) (2) (i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Source: FEMA, March 2013.

An identification of the types and number of existing vulnerable buildings, infrastructure, and critical facilities, if possible, the types and number of vulnerable future development.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Identifying Structures

Requirement §201.6(c) (2) (ii) (A): The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

Source: FEMA, March 2013.

Estimate of potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Estimating Potential Losses

Requirement §201.6(c) (2) (ii) (B): An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c) (2) (i) (A) of this section and a description of the methodology used to prepare the estimate.

Source: FEMA, March 2013.

5.1.1 Methodology

The methodology used to prepare the dollar estimates for vulnerability is described below. Potential dollar losses are summarized in Table 5-1 and 5-2.

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. This analysis is a simplified assessment of the potential effects of the hazards on values at risk without consideration of probability or level of damage.



Using GIS, the building footprints of critical facilities were compared to locations where hazards are likely to occur. If any portion of the critical facility fell within a hazard area, it was counted as impacted. Using census block level information, a spatial proportion was used to determine the percentage of the population and residential and nonresidential structures located where hazards are likely to occur. Census blocks that are completely within the boundary of the hazard area were determined to be vulnerable and were totaled by count. A spatial proportion was also used to determine the amount of linear assets, such as highways and pipelines, within a hazard area. The exposure analysis for linear assets was measured in miles.

These values were obtained from the City. Hazards that would not impact critical facilities or infrastructure are not identified as part of the vulnerability assessment. For each physical asset located within a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). Finally, the aggregate exposure, in terms of replacement value or insurance coverage, for each category of structure or facility was calculated. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared.

5.1.2 Data Limitation

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities and infrastructure to hazard. It was beyond the scope of this LHMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts may be addressed with future updates of the LHMP.



5.1.3 Exposure Analysis

The results of the exposure analysis are summarized in Section 4.2 Hazard Profile.

Table 5-1 Potential Hazard Vulnerability Assessment – Critical Facilities

		City Hall		Police and Fire Stations		PW and WW Facilities	
Hazard	Methodology Description	#	Value (\$)	#	Value (\$)	#	Value (\$)
Earthquakes	High	1	40M	2	53M	1	15M
	Moderate	1	20M	2	25M	1	7M
Adverse Weather	High	1	5M	2	3M	1	3M
	Moderate	1	2M	2	2M	1	1M
Total		2	67M	4	83M	2	26M

Table 5-2 Potential Hazard Vulnerability Assessment – Critical Infrastructure

		Highways		City Arterials	
Hazard	Methodology Description	Miles	Value (\$)	Miles	Value (\$)
Earthquakes	High	120	63 M	25	13 M
	Moderate	120	30 M	25	6 M
Total		240	96 M	50	19 M

Fields labeled as “0” will not be affected by any of the hazards listed.



5.2 Areas of Interest and Special Events

Facilities critical to government response and recovery activities (i.e. life, safety, and property and environmental protection) include: local government 911 centers, local government emergency operations centers, schools (hosting shelters), local police and fire stations, local public works facilities, local communications centers, hospitals, bridges and major roads, and shelters. Also, facilities that, if damaged, could cause serious secondary impacts may also be considered "critical". A hazardous materials facility is one example of this type of critical facility.

Essential facilities are those facilities that are vital to the continued delivery of key City services or that may significantly impact the City's ability to recover from the disaster. These facilities may include: buildings such as jails, law enforcement center, public services building, community corrections center, courthouses, and juvenile services buildings or other public facilities such as schools. The following Table 5-3 illustrates the critical and essential facilities providing services to the City of Manhattan Beach. Note that secondary impacts associated with earthquake hazards have been included on a site-by-site basis.

Table 5-3 City of Manhattan Beach Critical and Critical Infrastructure Vulnerable to Hazards

EQ	FLD	LND	TSU	RET	Facility	Address
X				X	City Hall	1400 Highland Avenue
X				X	Public Works Yard	3621 Bell Avenue
X				X	Library (LA County)	1320 Highland Avenue
X				X	Creative Arts Center	1560 Manhattan Beach Boulevard
X				X	Joslyn Community Center	1601 Valley Drive
X				X	National Guard Armory (Federal)	3601 Bell Avenue
X				X	Water Tower	Rowell Avenue/ 6th Street
X				X	Fire Station 1/Police Station	420 15th Street
X				X	Fire Station 2	1400 Manhattan Beach Boulevard

(X = site's risk rating is "possible, likely, or highly likely")

(Key: EQ = Earthquake, FLD = Flood, LND = Landslide, TSU = Tsunami, RET = Retrofitted)



5.3 Calculated Priority Risk Index

The Calculated Priority Risk Index (CPRI) is a FEMA-recommended ranking method that allows disparate hazard categories to be compared (Table 5-4). CPRI is obtained by assigning values to risk categories:

- Probability (45%)
- Magnitude/Severity (30%)
- Warning Time (15%)
- Duration (10%)
-

For each of the risk categories, there are four varying degrees of risk from which to choose: 1, 2, 3, or 4. Zero (0) is the value used when an option is not assigned.

Table 5-4 Calculated Priority Risk Index

CPRI Category	Degree of Risk			Assigned Weighting Factor
Probability	Unlikely	Extremely rare, with no documented history of occurrences or events. Annual probability of less than 1 in 1,000 years (<0.1%).	1	45%
	Possible	Rare occurrences. Annual probability of between 1 in 100 years and 1 in 1,000 years (0.1%-1%).	2	
	Likely	Occasional occurrences, with at least 2 or more documented historic events. Annual probability of between 1 in 10 years and 1 in 100 years (1%-10%).	3	
	Highly Likely	Frequent events, with a well-documented history of occurrence. Annual probability of greater than 1 every year (>10%).	4	
Magnitude / Severity	Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). Injuries or illnesses are treatable with first aid and there are no deaths. Negligible loss of quality of life. Shutdown of critical public facilities for less than 24 hours.	1	30%
	Limited	Slight property damage (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure).	2	



CPRI Category	Degree of Risk			Assigned Weighting Factor
		Injuries or illnesses do not result in permanent disability, and there are no deaths. Moderate loss of quality of life. Shutdown of critical public facilities for more than 1 day and less than 1 week.		
		Moderate property damage (greater than 25% and less than 50% of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and at least 1 death. Shutdown of critical public facilities for more than 1 week and less than 1 month.	3	
		Severe property damage (greater than 50% of critical and non-critical facilities and infrastructure). Injuries and illnesses result in permanent disability and multiple deaths. Shutdown of critical public facilities for more than 1 month.	4	
	Critical			
Warning Time	More than 24 hours	Population will receive greater than 24 hours of warning.	1	15%
	12–24 hours	Population will receive 12–24 hours of warning.	2	
	6–12 hours	Population will receive 6–12 hours of warning.	3	
	Less than 6 hours	Population will receive less than 6 hours of warning.	4	
Duration	Less than 6 hours	Disaster event will last less than 6 hours.	1	10%
	Less than 24 hours	Disaster event will last 6–24 hours.	2	
	Less than 1 week	Disaster event will last between 24 hours and 1 week.	3	
	More than 1 week	Disaster event will last more than 1 week	4	



5.4 City of Manhattan Beach Hazard Score

Table 5-5 City of Manhattan Beach Hazard Score

Hazard	Probability		Magnitude/Severity		Warning Time		Duration		Total
	Score	Weight (45%)	Score	Weight (30%)	Score	Weight (15%)	Score	Weight (10%)	Weighted Total
Earthquake	3	1.35	4	1.2	4	0.6	1	0.1	3.25
Flooding	3	1.35	3	0.9	3	0.45	3	0.3	3.00
Landslide	3	1.35	2	0.6	4	0.6	1	0.1	2.65
Tsunami	2	0.90	3	0.9	4	0.6	1	0.1	2.50
Windstorm	1	0.20	2	0.6	2	0.3	2	0.2	1.30
Drought	1	0.20	2	0.6	2	0.3	4	0.4	1.50
Other Hazard: Terrorism	1	0.20	2	0.6	4	0.6	1	0.1	1.50
Other Hazard: Hazardous Materials	1	0.20	2	0.6	4	0.6	1	0.1	1.50
Other Hazard: Urban Fire	1	0.20	2	0.6	4	0.6	1	0.1	1.50
CPRI Total	16	5.95	22	6.6	31	4.65	15	1.5	18.7



SECTION 6 CAPABILITIES ASSESSMENT

6.1 Capabilities Assessment Overview

The reason for conducting a capability assessment is to identify the City's capability to successfully implement mitigation activities. Understanding internal and external processes, resources, and skills, forms the basis of implementing a successful LHMP. Understanding the strengths

In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and ongoing mitigation activities

DMA 2000 Recommendations: Capability Assessment

Capability Assessment

Requirement §201.6(c) (3): The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on an improve these existing policies and programs.

Source: FEMA, March 2013.

6.2 Legal and Regulatory Capabilities

The City currently supports hazard mitigation through its regulations, plans, and programs. The Manhattan Beach Municipal Code outlines hazard mitigation-related ordinances in ten of its fourteen titles. Additionally, pursuant to State planning laws, the General Plan includes a safety element with policies and programs to protect the community from risks associated with seismic, geologic, flood, and fire hazards. Other planning documents, including Emergency Response Plan and the Fire Department Master Plan, establish official City policy for response to emergencies in hazard-prone areas. In addition to policies and regulations, the City participates in several hazard mitigation programs including the National Flood Insurance Program (NFIP).

The following table, Table 6-1, summarizes the City's hazard mitigation legal and regulatory capabilities.



Table 6-1 Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans	General Plan Safety Element	Establishes policies, programs, goals and objectives to protect the community from risks associated with seismic, geologic, flood, and fire hazards.
	Emergency Operations Plan	Establishes the City's response organization, responsibilities, functions, and interactions required to mitigate the effects of hazards affecting the City. Hazards identified in this plan include earthquakes, hazardous material, storm/flood, fire, and civil disturbance/terrorism. The plan was completed in May 2016.
Programs	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. Manhattan Beach joined the NFIP on May 15, 2015. To date, there have been no NFIP claims.
	Climate Action Plan	The City Council recognized the dangers associated with climate change and took action by passing and adopting a Climate Action Plan in January of 2007.
	Going Green	This report documents the City's environmentally friendly practices and identifies other best management practices that the City can consider adopting to enhance our environmental programs.
	Water Conservation/SoCal Water Smart Program	The City is actively urging its residents to conserve water and to enroll in the Metropolitan Water District rebate program.
	Storm Preparedness	The City hosts various meetings to educate residents how the City is preparing for storms.
	Fire Safe Clean-Up and Chipping Program	Provides free green waste chipping services to residents in Manhattan Beach, thereby reducing the fuel load in and around properties. This service is funded by Manhattan Beach.



Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Ordinances and Policies (Municipal Code)	Chapter 3.16.010 Fire Prevention	Enforces the California Fire Code 2016 and the Urban Wildland Interface Code 2009, regulating and mitigating the risk to life and property from fire, including hazardous materials and wildland fire exposures.
	Chapter 4.04.010 Air Pollution	Controls open burning of natural waste from shrubbery and trees grown on property within the City to reduce the amount of available fuel that can be burned during wildland fires.
	Chapter 5.48, Section 240 Residential Land Maintenance	Requires property owners to maintain property around structures, including firebreaks, trees adjacent to structures, and screens over the outlets of chimneys, and to mow dry noxious weeds located within certain distances from structures, property lines, and edges of roadways.
	Chapter 9.78.040 Basis for Establishing the Area of Special Flood Hazard	Addresses NFIP requirements, including methods and provisions for protecting structures against flood damage at the time of initial construction; controlling the alterations of natural floodplains and filling, grading, dredging, and other development that may increase flood damage; and preventing or regulating the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards in other areas.
Ordinances and Policies (Municipal Code)	Chapter 9.01.110 General Structural Design Provisions	Requires minimum standards for structural seismic resistance established primarily to reduce the risk of life loss or injury. Also requires site-specific stability studies for hillside development.
	Chapter 11.20.120 Soil/Geology Report	Identifies areas where geologic and soil conditions could present new developments and their users with potential hazards to life and property.
	Chapter 9.78 Flood Plain Management	Identifies areas where terrain characteristics would present new developments and their users with potential hazards to life and property from potential inundation by a 100-year frequency flood or other known flood hazards. These standards are also intended to minimize the effects of development on drainage ways and watercourses.



Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
	Chapter 5.48.060 Construction	Establishes standards for grading and excavation activities to minimize hazards to life and property; protect against erosion, the sedimentation of water courses, and the inundation of low lying areas; and protect the safety, use and stability of public rights-of-way and drainage channels.



6.3 Administrative and Technical Capabilities

The administrative and technical capability assessment identifies the staff and personnel resources available within the City to engage in mitigation planning and carry out mitigation projects. The City government consists of ten departments: Finance, Information Services, Human Resources, Management Services, City Attorney, Parks & Recreation, Community Development, Fire Department, Police Department, and Public Works. The City may increase its technical resources by drawing upon County staff. Table 6-2 includes a list of Administrative and Technical resources for hazard mitigation and their respective departments.

Table 6-2 Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department
Planner(s) or engineer(s) with knowledge of land development and land management practices	Community Development
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Engineering
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Engineering
Floodplain manager	Community Development
Personnel skilled in GIS and/or HAZUS-MH	Information Services
Emergency Services	Fire Department
Finance (grant writers, purchasing)	Finance
Public Information Officers	Management Services

6.4 Financial Capabilities

The fiscal capability assessment lists the specific financial and budgetary tools that are available to the City for hazard mitigation activities. These capabilities, which are listed in Table 6-3, include both local and Federal entitlements.

Table 6-3 Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Development Impact Fee	Can be used for both on-site and off-site capital improvements, including seismic hazard repair and maintenance, drainage, and critical facilities.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Incur debt through special tax and revenue bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.



Financial Resources	Effect on Hazard Mitigation
Incur debt through private activity bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
FEMA HMPG and PDM grants	HMGP grant funding is available to local communities after a Presidentially declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.

6.5 Previous and On-Going Mitigation Activities

Much of Manhattan Beach's mitigation efforts during the past five years have been focused on preparing the City for earthquakes, tsunamis, draughts, and windstorms.

Since the 2008 LHMP, the city has taken the following steps to strengthen the community's resilience:

- Retrofitted essential city buildings with automated fire sprinkler systems to limit damage from fires caused by earthquakes and other natural hazards
- Evaluated hazard warning systems to ensure effectiveness and efficiency
- Provided emergency preparedness information to city residents
- Implemented and coordinate existing local, state and federal disaster preparedness resources and emergency mobilization/evacuation plan to assure their continued adequacy and effectiveness.
- Reinforced masonry buildings have been retrofitted in accordance with Uniform Building Code standards
- Initiated a tsunami awareness program, provided education to those who would be directly affected or working within areas of Manhattan Beach at risk of tsunami inundation
- Developed tsunami warning plan to establish improved communications between local agencies
- Strengthen emergency services preparedness and response by coordinating emergency services with natural hazard mitigation programs and enhancing public education on a regional scale
- Continue participation in local mutual aid agreements for emergency response with other jurisdictions
- Identify and require analysis and modification of structures that may fall into categories that are vulnerable to damage from earthquakes
- Installation of warning signs to warn the public of possible



SECTION 7 MITIGATION STRATEGY

7.1 Mitigation Strategy

The LHMP goals describe the overall direction that City of Manhattan Beach can take to work toward mitigating risk from hazards. The goals are stepping-stones between the broad direction of the mission statement and the specific recommendations outlined in the action items.

Overarching LHMP goals include the protection of life and property, enhancing public awareness of the risks associated with known hazards, protecting natural systems, encouraging partnerships across the community, strengthening emergency services, and encouraging public participation in the hazard mitigation and disaster preparedness.

The requirements for local hazard mitigation goals, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy – Local Hazard Mitigation Goals

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

Source: FEMA, March 2013.

7.2 Overview of Mitigation Strategy and Goals

Mitigation goals are guidelines that represent what the community wants to accomplish through the LHMP. Goals are broad statements that represent a long term, community-wide vision. The Planning Team reviewed example goals and objectives and determined which goals best met the City's objectives for mitigation. Using the General Plan as a guideline, the Planning Team and the consultant developed five goals with associated objectives to reduce or avoid long-term vulnerabilities to the identified hazards. The goals also align with the hazards in the LHMP and input provided by stakeholders and the public.

7.3 Hazard Mitigation Goals

Table 7-1 Hazard Mitigation Goals

Hazard Mitigation Goals	
Goal 1	Protect life, property, and reduce injuries from natural hazards.
Goal 2	Improve public understanding, support, and need for hazard mitigation measures.
Goal 3	Balance natural resource management and land use planning with natural hazard mitigation to protect life, property, and environment.
Goal 4	Strengthen partnerships and collaboration to implement hazard mitigation activities.
Goal 5	Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures

7.4 Hazard Mitigation Actions

The requirements for identifying and analyzing mitigation actions, as stipulated in the DMA 2000 and its implementing regulations, are described below.



DMA 2000 Requirements: Mitigation Strategy – Identification and Analysis of Mitigation Actions

Requirement §201.6(c) (3) (ii): [The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008 must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirement, as appropriate.

Source: FEMA, March 2013.

In addition to developing goals and objectives, the Planning Team created a list of potential mitigation actions. Mitigation actions are activities, measures, or projects that help achieve the goals and objectives of a mitigation plan. Mitigation actions are usually grouped into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. These mitigation actions were created to target the most likely hazards facing the City to ensure that limited resources were used to mitigate the largest threats. The action items below are a combination of continuing items identified from the previous LHMP while also adding new actions. In creating the mitigation actions for this plan, the City focused on the creation of items that were multi-hazard to improve overall impact.

Additionally, the Planning Team identified how the action will be implemented and administered, including which departments or agencies would be responsible, existing and potential funding sources, and time frame. The final action plan is outlined by prioritization in Table 7.2 below.

Table 7-2 Action Plan Matrix

Action Item	Funding Source	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships & Implementation	Emergency Services
MH-1 Identify and pursue funding opportunities to develop and implement local hazard mitigation activities.	GF	Fire, Public Works	Ongoing annually	X				X
MH-2 Assess the vulnerability of critical facilities subject to damage during a natural disaster.	GF	Fire, Public Works	Ongoing	X				X



Action Item	Funding Source	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships & Implementation	Emergency Services
MH-3 Continue monthly meetings with the City Emergency Preparedness Committee.	GF	Essential Departments	Ongoing Monthly	X				X
MH-4 Strengthen emergency services preparedness and response by coordinating emergency services with natural hazard mitigation programs and enhancing public education on a regional scale.	GF	Fire, Police	Ongoing	X	X		X	X
MH-5 Develop, enhance and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses, and schools.	GF	Fire, Police, Public Works	Ongoing	X	X			
MH-6 Evaluate current hazard warning systems to ensure effectiveness, and efficiently increase coordination between local jurisdictions and emergency service providers.	GF	Fire, Police	February 2017	X			X	X
MH-7 Monitor regional and state sources on the subject of rising sea levels and global warming. Develop action items as needed to mitigate this hazard.	GF	Public Works, Fire	Ongoing	X	X		X	
MH-8 Develop a continuity of operations plan that includes back up storage of vital records, such as plans and back up procedures to continue	GF	Fire	December 2018	X				X



Action Item	Funding Source	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships & Implementation	Emergency Services
to operate essential functions.								
MH-9 • Encourage all new development (including rehabilitation, renovation, and redevelopment) to incorporate “Green” building activities, increase tree plantings, use fire-resistant materials, and include projects to mitigate sea level rise and flooding. Activities may include the use of low impact development standards, energy efficient features, or active and passive solar heating and water pumping systems.	GF	Building & Safety	February 2019	X	X			
EQ-1 Identify and require analysis and modification, as needed, of structures that may fall into categories that are vulnerable to damage from earthquakes, such as pre-cast concrete, soft-story structures, and non-ductile concrete frame buildings.	GF	Building & Safety	Completed January 2017	X	X		X	
EQ-2 Continue to adopt new building codes and design standards that reflect new seismic requirements.	GF	Building & Safety	Ongoing	X	X		X	X
EQ-3 Continually maintain, monitor, and update all relevant geologic and seismic related ordinances, regulations, and codes, to maximize awareness and planning for emergency response efforts.	GF	Building & Safety	Ongoing	X	X		X	X



Action Item	Funding Source	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships & Implementation	Emergency Services
EQ-4 • Conduct a backup power resources assessment(generators) of critical infrastructure such as fire, police, city hall, public works yard, community center complex and EOC and upgrade resources as necessary.	GF or BG	Public Works	March 2019					X
FLD-1 Continue working with Los Angeles County to increase storm drain capacity and efficiency.	GF or BG	Public Works	Ongoing	X		X	X	X
FLD-2 Continue to pursue previous and identify new capital improvement projects related to improvement, maintenance for water related infrastructure.	GF or BG	GF or BG	Ongoing	X		X		
FLD-3 • Enhance community understanding of sea level rise and the potential impacts it will have on the City.	GF or BG	GF or BG	April 2019	X	X			
LND-1 Consider installation of signs warning the public of landslide danger in the vicinity of Sand Dune Park.	GF or BG	Public Works	2018	X	X			X
LND-2 Erosion control maintenance at Sand Dune Park.	GF	Public Works	Ongoing	X				



Action Item	Funding Source	Coordinating Organization	Timeline	Plan Goals Addressed				
				Protect Life and Property	Public Awareness	Natural Systems	Partnerships & Implementation	Emergency Services
TSU-1 Initiate a tsunami awareness program. Provide education to those specifically living or working within the areas of Manhattan Beach at risk of tsunami inundation. Publish tsunami information and post on the City's website for general dissemination.	GF	Fire, Police	December 2017	X	X			X
TSU-2 Consider Installation of signs along the coast directing people away from the ocean to flee a tsunami.	GF	Public Works	June 2017	X	X			X
TSU-3 Continue evaluating and updating the Tsunami Warning Plan to establish improved communications with local agencies and universities.	GF	Fire, Police	Plan developed, updates ongoing.	X	X		X	
TSU-4 •Identify, map, and visibly designate large structures capable of withstanding tsunami flood height and forces as tsunami shelters	GF	Public Works	February 2020	X				

(Key: MH= Multihazard, EQ = Earthquake, Fld = Flood, Lnd = Landslide, Tsu = Tsunami;
Funding Source: GF= General Fund, BG= Bond or Grants)

7.5 Mitigation Action Plan

As listed above, the Planning Team identified 22 mitigation actions that will assist the City in mitigating the impact of natural hazards.

The Planning Team reviewed the following questions to help identify the actions that would best help the City fulfill its mitigation goals and objectives, thereby reducing or avoiding long-term vulnerabilities to the identified hazards.

- Does the action mitigate assets identified as vulnerable in the LHMP's Risk Assessment?



- Is the action economically feasible?
- Are proper laws, ordinances, and resolutions in place to implement the action?
- Is there enough political and public support to implement the actions, as identified in the LHMP's Capability Assessment?
- The Planning Team prioritized the actions based on the ranking system of high, medium, and low priority. The following considerations for this ranking process included:
 - Risk
 - Benefits versus cost
 - Ease on implementation
 - Multi-objective actions
 - Time

The DMA 2000 requires the evaluation, selection, and prioritization of potential mitigation actions, as described below.

DMA 2000 Requirements: Mitigation Strategy - Implementation of Mitigation Actions

Requirement: §201.6(c) (3) (iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c) (3) (ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Source: FEMA, March 2013.

Based on the criteria, Manhattan Beach, prioritized mitigation projects and included them in the action plan matrix in Table 7-2. The mitigation action plan developed by the Planning Team includes the action items that the City intends to implement during the next five years, assuming funding and staff availability. The action plan includes implementing department, an estimate of the timeline for implementation, and potential funding source.

Prioritization

To assist with implementing the Mitigation Action Plan, the Planning Team used the following ranking process to provide a method to prioritize the projects for the Action Plan. Designations of high, medium, and low priority have been assigned to each action item using the following criteria:

Does the action:	<ul style="list-style-type: none"> • Solve the problem? • Address vulnerability assessment? • Reduce the exposure or vulnerability to the highest priority hazard? • Address multiple hazards? • Offer benefits that equal or exceed costs? Implement a goal, policy, or project identified in the General Plan or Capital Improvement Plan?
Can the action:	<ul style="list-style-type: none"> • Be implemented with existing funds? • Be implemented by existing state or federal grant programs? • Be completed within the five-year life cycle of the LHMP?



Will the action:	<ul style="list-style-type: none"> • Be implemented with currently available technologies? • Be accepted by the community? • Be supported by community leaders? • Adversely affect segments of the population or neighborhoods? • Require a change in local ordinances or zoning laws? • Result in positive or neutral impact on the environment? • Comply with all local, state, and federal environmental laws and regulations?
Is there:	<ul style="list-style-type: none"> • Sufficient staffing to undertake the project? • Existing authority to undertake the project?

Benefit-Cost Analysis

Conducting benefit/cost analysis for a mitigation activity can assist the City in determining whether a project is worth undertaking now, in order to avoid disaster related damages later. Cost-effectiveness analysis evaluates how to best spend a given amount of money to achieve a specific goal.

Funding

The funds required to implement the mitigation action plan will come from a variety of sources including: Federal Hazard Mitigation Grants, general fund, and others. Some projects are (or will be) included in capital improvement budgets, while some, especially ongoing projects, are included in department operating budgets.

Implementation

Mitigation projects were designed to be implemented within the next five years. Several action items are currently ongoing and will continue throughout until complete.



SECTION 8 PLAN IMPLEMENTATION & MAINTENANCE

This section provides direction on processes for implementing the LHMP and keeping it current, relevant, and useful over its five-year life. It addresses integrating the LHMP into other planning processes such as the strategic plan and the yearly budget, and ongoing outreach to the public.

8.1 Implementation

While the planning process is important in creating the LHMP, the real value is in developing an actionable document that leads to reduce risk. To this end, Manhattan Beach, and other partners will endeavor to accomplish the mitigation actions based upon priority and available resources.

8.2 Plan Adoption

The City Council will adopt the City of Manhattan Beach Local Hazards Mitigation Plan. Following adoption, the Emergency Preparedness Committee will take responsibility for plan implementation. Chief Hafdell (or designee) will serve as a convener to facilitate the Hazard Mitigation Advisory Committee meetings and will assign tasks.

Manhattan Beach addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Plans, and City Building and Safety Codes. The LHMP provides a series of recommendations - many of which are closely related to the goals and objectives of existing planning programs. Just as with the previous LHMP update, the Emergency Preparedness Committee will ensure integration of the mitigation strategy in these plans by conducting a review of these regulatory tools to assess the integration of the mitigation strategy. In turn, the Committee will work with pertinent divisions and departments to increase awareness of the LHMP and provide assistance in integrating the mitigation strategy (including the Action Plan) into relevant planning mechanisms, programs, and procedures.

The majority of the goals and action items in the Mitigation Plan may be achieved through activities recommended in the City's Capital Improvement Plans (CIP). The Public Works department develops the CIP and reviews it on an annual basis. Upon annual review of the CIP, the Emergency Preparedness Committee will identify areas that the Natural Hazards Mitigation Plan action items are consistent with CIP goals and integrate them where appropriate.

Another key point of collaboration for integration will be the Manhattan Beach Building & Safety Division. This division is responsible for adhering to the State of California's Building & Safety Codes and local amendments. The Emergency Preparedness Committee will work with the division, and other agencies at the state, level to review, ensure Building & Safety Codes that are adequate to mitigate projected damage by identified natural hazards. This will ensure that life-safety criteria are met for new construction. Finally, the Emergency Preparedness Committee will recommend that this plan be integrated into the City General Plan during the next schedule revision.

Mitigation efforts listed in the action plan will take place continuously until the threat is no longer present. The recommendations listed above in Section 8.2 will be incorporated into the process of existing planning mechanisms at the City level and completed by June of 2017. The meetings of the Emergency Preparedness Committee will provide an opportunity for Committee members to report back on the progress made on the integration of mitigation planning elements into City planning documents and procedures.



8.3 Keeping the Plan Current

This section of this document details the formal process that will ensure that the City of Manhattan Beach LHMP 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 Manhattan Beach intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as the City General Plan, Capital Improvement Plans, and Building and Safety Codes.

The requirement for monitoring, evaluating, and updating the LHMP, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan

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

Source: FEMA, March 2013.

The 2018 City of Manhattan Beach LHMP will be evaluated, to determine the effectiveness of programs, and updated, to reflect changes in land development or programs that affect mitigation priorities, on an annual basis.

The City of Manhattan Beach Fire Department-Emergency Preparedness Division will be responsible for monitoring and evaluating the progress of the mitigation strategies in the LHMP. The Chief of this division is the primary contact for the evaluation process and future updates. They, or their designee, will be responsible for contacting the Emergency Preparedness Committee members and organizing the annual review and update process.

During the evaluation, The Emergency Preparedness Committee will convene to receive reports from each department (coordination organization) responsible for action items in the LHMP. The departments will report on the status of their projects, implementation successes and difficulties, the outcomes of coordination efforts, and necessary strategy revisions. Additionally, the Emergency Preparedness Committee will review the goals and action items to validate their continued relevance to City conditions and compliance with any changes in State and Federal policy. They will also review the Risk Assessment portion of the LHMP to determine if available data indicates any necessary updates or modifications.

Based on the findings of the annual evaluation, The Emergency Preparedness Committee will organize an update of the LHMP. Identified revisions will be integrated by the Committee, or a designee. When complete, the Committee will notify all holders of the City Plan that the changes have been made.

In addition to the annual review, the Emergency Preparedness Committee will update the LHMP every five years. To ensure that this occurs, in the fourth year following adoption of the LHMP, the Committee will undertake: a thorough analysis and update the city's risk of natural hazards; creation of a new annual review (as described above), an analysis of all four annual evaluation reports; a detailed review and revision of the mitigation strategy; preparation a new action plan with prioritized



actions, responsible parties, and resources; and creation of a new draft LHMP. The Committee will submit this new plan to the State Hazard Mitigation Officer, and the Federal Emergency Management Agency, for review and approval. Once approved, the plan will be presented to the City Council for adoption.

8.4 Implementation Through Existing Planning Mechanisms

The requirement for implementation through existing planning mechanisms, as stipulated in the DMA 2000 and its implementation regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Incorporation into Existing Planning Mechanisms

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

Source: FEMA, March 2013

After the adoption of the LHMP, the Planning Team will ensure that the LHMP, in particular the Action Plan, is incorporated into existing planning mechanisms. The Planning Team will achieve this by undertaking the following activities.

- Conduct a review of the regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in Section 5.
- Work with pertinent departments to increase awareness of the LHMP and provide assistance in integrating the mitigation strategy (including the action plan) into relevant planning.
-

8.5 Continued Public Involvement

The requirement for continued public involvement, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Continued Public Involvement

Requirement §201.6(c) (4) (iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Source: FEMA, March 2013.

Through the plan maintenance process, the public will continue to be involved in all aspects of evaluation, updates, and implementation of the mitigation plan. Copies of the LHMP will be made available to the general public through the City's webpage and hard copies will be available at the Fire station 1. The Planning Team will continue to identify avenues to raise community awareness about the LHMP and City hazards through continued presentations of the plan. Comments received on the mitigation plan from the public will be addressed and implemented as appropriate.



SECTION 9 CHANGES IN PLANNING PROCESS AND MITIGATION ACTIONS

9.1 Changes in Development

DMA 2000 Recommendations: Plan Update to Reflect Development Changes

Requirement §201.6(d) (3): A local jurisdiction must review and revise its plan to reflect changes in development.

Source: FEMA, March 2013.

The revised LHMP is a more comprehensive and actionable plan. While the 2008 plan provided regional hazards analysis, it did not specify the locations and building-specific hazards of the City's infrastructure. The Planning Team reviewed and approved the general outline of the new LHMP. The City has been fully developed for some time, since the 2008 plan there has been no major new or changes to existing developments. Following the review, the Planning Team met to analyze and agree on the elements of the LHMP, approve the draft mitigation activities and priorities, and recommend forwarding the draft to the City Council, Cal OES, and FEMA for review. Significant changes to this LHMP included the identification and in-depth analysis of the City's specific hazards and the potential impact of them to the City.

9.2 Progress in Local Mitigation Efforts

Since the 2008 LHMP, the city has taken the following steps to strengthen the community's resilience:

- Retrofitted essential city buildings with automated fire sprinkler systems to limit damage from fires caused by earthquakes and other natural hazards.
- Evaluated hazard warning systems to ensure effectiveness and efficiency.
- Provided emergency preparedness information to city residents.
- Implemented and coordinated existing local, state, and federal disaster preparedness resources and emergency mobilization/evacuation plan to assure their continued adequacy and effectiveness.
- Reinforced masonry buildings have been retrofitted in accordance with Uniform Building Code standards.
- Initiated a tsunami awareness program, provided education to those who would be directly affected or working within areas of Manhattan Beach at risk of tsunami inundation.
- Developed tsunami warning plan to establish improved communications between local agencies.
- Strengthen emergency services preparedness and response by coordinating emergency services with natural hazard mitigation programs and enhancing public education on a regional scale.
- Continue participation in local mutual aid agreements for emergency response with other jurisdictions.
- Identify and require analysis and modification of structures that may fall into categories that are vulnerable to damage from earthquakes.



9.3 Reflect Changes in Priorities

Since the 2008 LHMP, the City's priorities have not changed. Earthquakes and tsunamis continue to be a high priority. This iteration of the LHMP includes climate change, drought, and adverse weather.



Appendix A: FEMA Local Mitigation Plan Review Tool Crosswalk

The Local Mitigation Plan Review Tool demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6, and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community. This section was completed by the City to ensure the HMP met the requirements of 44 CFR §201.6.

The Local Mitigation Plan Review Tool demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-Jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).
- The FEMA Mitigation Planner must reference this Local Mitigation Plan Review Guide when completing the Local Mitigation Plan Review Tool.

Jurisdiction: City of Manhattan Beach	Title of Plan: Local Hazards Mitigation Plan	Date of Plan: November 2016
Local Point of Contact: Scott Hafdell	Address: 400 15 th St. Manhattan Beach, CA 90266	
Title: Battalion Chief		
Agency: Fire Department		
Phone Number: 310-802-5204	E-Mail: shafdell@citymb.info	
State Reviewer:	Title:	Date:



Local Mitigation Plan Review Tool A- 1

FEMA Reviewer:	Title:	Date:
Date Received in FEMA Region (insert #)		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

Section 1: Regulation Checklist

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.) where applicable. Requirements for each Element and sub-element are described in detail in this Plan Review Guide in Section 4, Regulation Checklist.

1. Regulation Checklist		Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
Element A. Planning Process				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))		Section 2 Page 13-15	X	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))		Section 2.7 Page 18-19	X	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))		Section 2.6 Page 16-18	X	



A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section 2.8 Page 19	X	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Page 17-18	X	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 8.3 Page 68-69	X	
Element A: Required Revisions			

Local Mitigation Plan Review Tool A - 2

1. Regulation Checklist		Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
Element B. Hazard Identification and Risk Assessment				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))		Section 4.2 Page 29-47	X	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))		Section 4 Page 29-45	X	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))		Section 4 Page 29-47	X	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))		Section 4.2.2 Page 33	X	



Element B: Required Revisions

Element C. Mitigation Strategy

C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 6.2 Page 57-59	X	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 4.2.2 Page 33	X	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section 7.3 Page 62	X	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section 7.4 Page 62-65	X	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section 7.5 Page 65-66	X	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section 8.4 Page 69-70	X	



Element C: Required Revisions

Local Mitigation Plan Review Tool A-3

1. Regulation Checklist		Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
Element D. Plan Review, Evaluation, and Implementation (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))		Section 9.1 Page 71	X	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))		Section 9.2 Page 71	X	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))		Section 9.3 Page 71	X	
Element D: Required Revisions				
Element E. Plan Adoption				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))				X
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))		N/A		



Element E: Required Revisions			
Element F. Additional State Requirements (Optional for State Reviewers only; not to be completed by FEMA)			
F1.			
F2.			
Element F: Required Revisions			



Appendix B: References

During the planning process, the Consultant and Planning Team reviewed and used all relevant information found in existing plans, studies, graphs, and best practices found in other mitigation plans to aid in the development of this LHMP. Below are the utilized.

- 2016 Manhattan Beach Emergency Operations Plan: This plan outlines mitigation activities and response procedures that were used throughout the mitigation strategy.
- 2008 Manhattan Beach Local Hazard Mitigation Plan: This plan was used as the foundation for the 2016 LHMP. Information in regard to the background of the City, community description, and hazard profiles were used and updated as part of the new plan.
- 2015 Manhattan Beach General Plan Safety Element
- 2015 City of Atascadero Hazard Mitigation Plan
- 2014 Los Angeles County Local Hazard Mitigation Plan: This plan, prepared by the County, was used to ensure that the City's LHMP was consistent with the County's Plan.
- 2013 Santa Monica Hazard Mitigation Plan
- 2014 San Francisco Hazard Mitigation Plan
- 2013 State of California Multi-Hazard Mitigation Plan: This plan, prepared by the State Office of Emergency Services, was used to ensure that the City's LHMP was consistent with the State's Plan.

The following FEMA guides were also referenced to ensure development of the plan met and exceeded current guidelines.

- 2013 FEMA Local Hazards Mitigation Plan Review Guide



Appendix C: Planning Meetings Documentation

The following documents detail the planning process. The LHMP was revised in conjunction with the city's Emergency Operations Plan (EOP). The planning process consisted of the following meetings:

- Project Kick-off Meeting: June 23, 2015
- Informational Interview: July 28, 2015
- Informational Interview: October 9, 2016

City of Manhattan Beach
Local Hazards Mitigation Plan



Project Kick-off Meeting: June 23, 2015

City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off

The seal of the City of Manhattan Beach, California, featuring a circular design with a yellow triangle and a blue circle in the center, surrounded by the text "CITY OF MANHATTAN BEACH" and "CALIFORNIA".

AGENDA

Tuesday, June 23, 2015
9:00 AM- 10:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Welcome & Admin

- Introductions
- Administration

Meeting Purpose

- Confirm Project Scope and Final Deliverables
- Refine Draft Project Management Plan
- Begin launch of initial deliverables

Review of Resources

- Project History
- Emergency Operations Plan
- Local Hazard Mitigation Plan
- General Plan
- Other Resources Available

Project Management

- Draft Project Management Plan
- Project Approach
- Final Deliverables
- Project Stakeholders
- Project Schedule
- Community Involvement
- Communications

Action Items & Next Steps

The logo for Constant & Associates, Inc., featuring a stylized "c&a" in a circle.

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City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off

MEETING MINUTES

Tuesday, June 23, 2015
9:00 AM- 10:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

***The next meeting is scheduled for Thursday, August 20 at the
Manhattan Beach Fire Department, 400 15th Street.***

Table 1: Action Items

#	Event/Deliverable	Date Due	Responsible Party
1.	Develop and distribute meeting minutes, and send Outlook invitation for the next meeting	Monday, June 29, 2015	Crystal Chambers
2.	Send the current EOC Manual as a reference document	Thursday, July 2, 2015	Scott Hatfield
3.	Send the current draft Earthquake Annex as a reference document	Thursday, July 2, 2015	Frank Chiella
4.	Send any adverse weather resources that could be referenced for Annex development	Thursday, July 2, 2015	Jeffrey Robinson
5.	Begin initial information interviews and development of revised EOP and LHMP	Monday, July 6, 2015	C&A Team
6.	Develop and distribute EOP and LHMP outlines for approval	Wednesday, July 8, 2015	Crystal Chambers
7.	Submit first drafts of the EOP and LHMP to the Planning Committee	Thursday, August 6, 2015	Crystal Chambers



City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off



Discussion Summary

I. Welcome & Administration

- a. Chief Hafdel and Jim Sims welcomed the group to the Project Kick-Off Meeting for revising Manhattan Beach's Emergency Operations Plan (EOP) and Local Hazards Mitigation Plan (LHMP)
- b. Everyone in attendance introduced themselves and a little about their background
- c. Materials on hand included the agenda, Draft Project Management Plan (PMP), and copies of the current EOP, LHMP, and Tsunami Operations document

II. Meeting Purpose

- a. The purpose of this meeting was to confirm project scope and final deliverables, refine the Draft PMP, identify project management and execution strategies, and begin the launch of the initial deliverables

III. Review of Resources

- a. Resources currently available to help guide and inform this project include the 2009 EOP, the 2008 LHMP, the City's 2003 General Plan, and the Tsunami Operations document.
- b. In developing and revising the LHMP and EOP, other documents that will be referenced include, but are not limited to, the Emergency Operations Center (EOC) Manual, the Los Angeles County LHMP, State and Federal Guidelines, and the Los Angeles County / California Office of Emergency Services (Cal OES) tsunami playbooks currently being developed

IV. Project Management

- a. Draft Project Management Plan
 - i. The Planning Committee reviewed the current Draft PMP, including project scope, project stakeholders, and project management tools.
- b. Project Approach & Final Deliverables
 - i. The final deliverables will be a revised EOP and a revised LHMP, with approval from all relevant entities
 - ii. As the developed EOP and LHMP will be large documents, the C&A Team will strive to give specific sections to Planning Committee members to review, rather than request a complete review of the documents in their entirety every time
 - iii. The C&A Team will strive for a two-week review periods for personnel who need to review large documents in their entirety
 - iv. The current Tsunami Operations document will be revised and added to the EOP as a Hazard-Specific Annex. Chief Chiella also has an earthquake document that will be incorporated as a second Hazard-Specific Annex, and a Severe Weather Annex will also be developed in conjunction with current Area G resources
 - v. The City Council is very interested in climate change and what steps need to be taken. The C&A Team will ensure that climate change is appropriately addressed in the LHMP
 - vi. For all official meetings, meeting minutes will be developed. Additionally C&A will submit monthly written progress reports to Chief Hafdel to track progress
- c. Project Stakeholders
 - i. In addition to those in attendance, several additional Planning Committee members were also identified and will be invited to participate in future meetings
 - ii. The group agreed that having all Planning Committee members in one place at



Constant & Associates, Inc.



City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off



one time will be unlikely. In respect of everyone's time and expertise, numerous one on one meetings, conversations, and informational interviews will be conducted with Planning Committee members and others with subject matter expertise relevant to this project in the City

d. Project Schedule

- i. In reviewing potential risks to the project, the project timeline was discussed. Before documents are submitted to the City Council, they must go through a legal review and then a staff report must be developed. As such, documents must be approved by the Planning Committee and sent for legal review at least two months before the target City Council meeting. Based upon this discussion, the target timeline was shifted for a target City Council presentation date of Tuesday, January 19, 2015

e. Community Involvement

- i. Several groups will be brought in to participate in the public review of the documents, including the Downtown Business Association, the Manhattan Beach Unified School District, Neighborhood Watch, CERT, and the Residence Association
- ii. Community members are very involved, and these documents will likely spark a lot of conversation
- iii. Additionally the CERT groups in Manhattan Beach are very active and involved

f. Communications

- i. Communications will primarily be conducted via email and occasional in-person interviews. Large documents that require discussion will be posted to Basecamp, and Planning Committee members given access if necessary
- ii. Future meetings will include an Outlook invitation

V. Action Items & Next Steps

- a. Please see Table 1: Action Items



Constant Associates, Inc.

City of Manhattan Beach Local Hazards Mitigation Plan



City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off

Table 2: Planning Committee Members

Name	Agency/ Organization	Telephone	Email
Idris Al-Oboudi	Parks & Recreation	310-802-5404	ialoboudi@citymb.info
Jan Burke	Parks & Recreation	310-802-5447	jbourke@citymb.info
George Butts	CERT		george@taxequipment.com
Crystal Chambers	Constant & Associates	(424) 320-2583	crystal@constantassociates.com
Frank Chiella	Fire Department	310-802-5203	fchiella@citymb.info
Scott Combs	Police Department		scombs@citymb.info
Lailani Emnace	Information Services		lemnace@citymb.info
Gwen Eng	Finance Department	310-802-5567	geng@citymb.info
Scott Hafdel	Fire Department	(310) 802-5203	shafdel@citymb.info
Andy Harrod	Police Department		aharrod@citymb.info
Ron McFarland	Building & Safety	310-802-5528	rmcfarland@citymb.info
Janna Payne	Human Resources		jpayne@citymb.info
Tatyana Peltekova	Management Services	310-802-5057	tpeltekova@citymb.info
Jeffrey Robinson	Area G DMAC	310-316-0055	jrobinson@areag-laco.org
Raul Saenz	Public Works	310-802-5315	rsaenz@citymb.info
Bonnie Shrewsbury	GIS	310-802-5360	bshrewsbury@citymb.info
Robbie Spears	Constant & Associates	(424) 320-2584	robbie@constantassociates.com
Ashley Slight	Constant & Associates	(424) 320-2585	ashley@constantassociates.com
Jim Sims	Constant & Associates	(424) 320-2586	jim@constantassociates.com
Liza Tamura	Management Services	310-802-5056	ltamura@citymb.info
Christine Tomikawa	Risk Manager	310-802-5256	ctomikawa@citymb.info

City of Manhattan Beach
Local Hazards Mitigation Plan



City of Manhattan Beach
EOP & LHMP Revisions
Project Kick - Off

Table 3: Tentative Schedule

#	Meetings/Deliverables	Due Date	Participants
1.	External Kick – Off Meeting	Tuesday, June 23, 2015	Planning Committee C&A
2.	Approve PMP and Plan Development Matrix, and make C&A Team assignments	Wednesday, July 8, 2015	C&A
3.	Conduct Initial Informational Interviews and revise the Outline accordingly	July - August	C&A
4.	Submit revised Outline for final approval	Thursday, July 30, 2015	Manhattan Beach PM C&A
5.	Submit first draft of the EOP and LHMP to Planning Committee	Thursday, August 6, 2015	Planning Committee C&A
6.	Planning Committee Meeting and document review	Thursday, August 20, 2015	Planning Committee C&A
7.	Incorporate revisions	Thursday, September 3, 2015	C&A
8.	Submit midterm draft of the EOP and LHMP to the Planning Committee	Thursday, October 1, 2015	Planning Committee C&A
9.	Planning Committee Meeting and document review	Thursday, October 15, 2015	Planning Committee C&A
10.	Incorporate revisions	Thursday, October 22, 2015	C&A
11.	Present final draft of the EOP and LHMP to the Planning Committee, and gain approval	Thursday, November 5, 2015	Planning Committee C&A
12.	Submit final EOP and LHMP for legal review and staff report	Wednesday, November 11, 2015	C&A
13.	Present final EOP and LHMP to City Council for approval	Tuesday, January 19, 2016	Manhattan Beach PM C&A



City of Manhattan Beach
Local Hazards Mitigation Plan

City of Manhattan Beach
EOP & LHMMP Revisions
Sign-In Sheet



EOP & LHMMP Revisions
Kick - Off Meeting

SIGN-IN SHEET

Tuesday, June 23, 2015
8:00 AM - 10:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90265

Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Crystal Chambers	Constant & Associates	crystal@constantassociates.com	424-320-2583	
2.	Scott Haldell	Fire Department	shaldell@cymbd.info	310-802-5204	
3.	Jim Sims	Constant & Associates	jim@constantassociates.com	424-320-2586	
4.	Robbie Spears	Constant & Associates	robbie@constantassociates.com	424-320-2584	
5.	Jo Burke	MBBBS PRAE	JBurke@mbbbs.com	310-802-5447	
6.	Guo Eng	Finance	ge@citywb.info	340-802-5567	



City of Manhattan Beach
EOP & LHM Revisions
Sign-in Sheet




#	Name	Agency/ Organization	Email	Telephone	Signature
7.	Tatiana R. Peltanova	Management Services	tpeltanova@citymb.info	(310) 802-5057	
8.	Frank Chiella	Fire	chiella@citymb.info	310 802-5203	
9.	Bonnie Shurewsbury	GIS	bshurewsbury@citymb.info	310 802-5360	
10.	J. Scott Harrell	Fire	sharrell@citymb.info	310-802-5203	
11.	Jeffrey Robinson	ACIA	jrobinson@acia-ny.org	310-316-0055	
12.					
13.					
14.					

City of Manhattan Beach
Local Hazards Mitigation Plan



Informational Interview: July 28, 2015

City of Manhattan Beach
EOP & LHMP Revisions
Informational Interview

**AGENDA**

Tuesday, July 28, 2015
9:00 AM- 10:00 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266


Welcome

- Introductions
- Administration

Information Gathering

- Administrative
- Threat Analysis
- Emergency Organization
- Signed Concurrence
- Roles & Responsibilities
- Hazard Mitigation

Action Items

Constant & Associates, Inc.

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City of Manhattan Beach
EOP & LHM Revisions
Sign-In Sheet



EOP & LHM Revisions Informational Interview

SIGN-IN SHEET

Tuesday, July 28, 2015
9:00 AM – 10:00 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Crystal Chambers	Constant & Associates	crystal@constantassociates.com	424-320-2583	
2.	Frank Chiella	Fire Department	lchiella@citymb.info	310-802-5203	
3.	Scott Hatdel	Fire Department	shatdel@citymb.info	310-802-5204	
4.	Jim Sims	Constant & Associates	jim@constantassociates.com	424-320-2586	
5.					
6.					

City of Manhattan Beach
Local Hazards Mitigation Plan



Informational Interview: October 9, 2015

City of Manhattan Beach
EOP & LHMP Revisions
Informational Interview



AGENDA

Friday, October 9, 2015
10:00 AM- 11:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Welcome

- Introductions
- Administration

Purpose of the Meeting

- Define Community Involvement Process for LHMP
- Review Project Status
- Gather Additional Information

Define Community Involvement Process for LHMP

- Review regulatory guidelines for Community Outreach Strategy
- Determine community outreach objectives and schedule (short-term and long-term)
- Identify stakeholder groups (local and neighboring jurisdictions)
- Define outreach methods
- What will the public comment period be.

Information Gathering

- Recovery Plans
- Continuity of Government Plan
- Critical Priority Index
- Alternate EOC Location
- Department Assignments: Primary and Secondary?
- Other participating Private Sector or NGO Participants

Action Items





City of Manhattan Beach
EOP & LHMP Revisions
Sign-In Sheet



EOP & LHMP Revisions Informational Interview

SIGN-IN SHEET

Friday, October 9, 2015
9:00 AM - 10:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Frank Chiella	Fire Department	kchiella@citymb.info	310-802-5203	
2.	Scott Haidell	Fire Department	shaidell@citymb.info	310-802-5204	
3.	Jim Sims	Constant & Associates	jim@constantassociates.com	424-320-2586	
4.	Shannon Marquez	Constant & Associates	Shannon@constantassociates.com	424-320-2588	
5.	Francisco Soto	Constant & Associates	Francisco@constantassociates.com	424-320-2696	
6.					
7.					



Appendix D: Community Engagement Documentation

The following documents detail the public involvement process in the development of the LHMP. Residents of Manhattan Beach were given various opportunities to review and provide feedback. The planning process consisted of the following meetings:

- Community Emergency Response Team Presentation: November 12, 2015
- Manhattan Beach Bunch Lunch Presentation: December 8, 2015
- Manhattan Beach Downtown Business Owners Association Presentation: January 14, 2016



Community Emergency Response Team Presentation: November 12, 2015

City of Manhattan Beach
EOP & LHMP Presentation
Sign-in Sheet

EOP & LHMP PUBLIC MEETING PRESENTATION

SIGN-IN SHEET

Thursday, November 12, 2015
10:30 AM - 11:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Shannon Marquez	Constant & Associates	shannon@constantassociates.com	424-320-2583	
2.	Scott Haidell	Fire Department	shaidell@citymb.info	310-802-6204	
3.	Francisco Soto	Constant & Associates	francisco@constantassociates.com	424-320-2696	
4.	Frank Chaille	CERT	Frank.chaille@yahoo.com	310-391-9915	
5.	Mindy Balyostky	CERT	mbalyostky@gmail.com	(310) 308-5190	
6.	Gary Stahlke	CERT	garystahlke@gmail.com	310 516 2009	
7.	Marilyn Scott	CERT	Marilynscott@me.com	213 444-7345	

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City of Manhattan Beach
EOP & LHM Presentation
Sign-In Sheet



#	Name	Agency/ Organization	Email	Telephone	Signature
8.	Arthur Heintz	CERT	artheintz@gmail.com	310-753-4343	
9.	Christina Erickson	CERT	erickson415@gmail.com		
10.	Stuart Erickson	CERT	1certtraining@gmail.com		
11.	Bob Heintz	CERT	bobheintznet.com	310-753-4343	
12.					
13.					
14.					
15.					
16.					
17.					



City of Manhattan Beach Local Hazards Mitigation Plan

Manhattan Beach Bunch Lunch Presentation: December 8, 2015

City of Manhattan Beach
EOP & LHMP Presentation
Sign-In Sheet

EOP & LHMP PUBLIC MEETING PRESENTATION

SIGN-IN SHEET

Tuesday, December 8, 2015
12:00 AM - 12:30 AM
Manhattan Beach Fire Department
400 15th Street
Manhattan Beach, CA 90266

Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Shannon Marquez	Constant & Associates	shannon@constantassociates.com	424-320-2583	
2.	Mike Boyd Scott Mitchell	Fire Department	mboyd@citymb.info smitchell@citymb.info	310-802-5204	
3.	Francisco Soto	Constant & Associates	francisco@constantassociates.com	424-320-2696	
4.	Caroline Meyer				
5.	Cherene Diaper				
6.	Maxine Brown				
7.	Pat Bluck				

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City of Manhattan Beach
EOP & LHMP Presentation
Sign-In Sheet

#	Name	Agency/ Organization	Email	Telephone	Signature
8.	<i>Ed Haddad</i>				
9.	<i>Megan Haddad</i>				
10.	<i>Shirley Parker</i>				
11.	<i>Walter Parker</i>				
12.	<i>Victor Maykowsky</i>				
13.	<i>Brandon Chernik</i>				
14.	<i>Julie Chernick</i>				
15.	<i>Frank, Christie</i>				
16.	<i>Gina Cohen</i>				
17.	<i>Dawn Daughman</i>				
18.	<i>Rye Fyfe</i>				
19.	<i>Betty Erickson</i>				

Constrom & Associates, Inc.



City of Manhattan Beach
EOP & LHMP Presentation
Sign-In Sheet



#	Name	Agency/ Organization	Email	Telephone	Signature
20.	Stevens				
21.	Stevens				
22.	Stevens				
23.	Stevens				
24.	Stevens				
25.	Stevens				
26.	Stevens				
27.	Stevens				
28.	Stevens				
29.	Stevens				
30.	Stevens				
31.	Stevens				




City of Manhattan Beach
EOP & LHMP Presentation
Sign-in Sheet



#	Name	Agency/ Organization	Email	Telephone	Signature
32	Bob Jay				
33	Thom Jay				
34	Clay				
35	Clay				
36	Paula J. Menden				
37	Thom				
38	Al Rothblatt				
39	Paula J. Menden				
40	Joe				
41	Joe				
42	Paula J. Menden				






City of Manhattan Beach
EOP & LHM Presentation
Sign-In Sheet

#	Name	Agency/ Organization	Email	Telephone	Signature
43.	<i>Billie Ireland</i>				
44.	<i>Quincy Adams</i>				
45.	<i>Paul Shada</i>				
46.					
47.					
48.					
49.					
50.					
51.					
52.					
53.					

5



C&O
Constant Associates, Inc.

Manhattan Beach Downtown Business Owners Association Presentation: January 14, 2016

The following sign-in sheet was provided by the Business Owners Association President.



City of Manhattan Beach
Local Hazards Mitigation Plan

Signatures were not collected. Instead, roll call was taken during the meeting.

**DBPA Board Meeting
January 14, 2016**

NAME		BUSINESS	EMAIL
Kris D'Errico	excused	Bella Beach/Bella Beach Kids	
Mike Simms	X	Simms Group restaurants	
Les Silverman	X	LOOK! Optometry	
Linda McLoughlin Figel	X	{pages} a bookstore	
Chandra Shaw	X	Trilogy Spa	
Michael Zisilis	absent		
Maureen McBride	excused		
Kevin Barry	X	Simms Group partner	
Tiffany Mesko	X	Manhattan Denim	
Jason Shanks	X	Nikau Kai Waterman Shop	
Kyle King	X	Shorewood Realtors	
Ted Brown		Manhattan Yacht Club	
Loita Wang		Guru's Gate Yoga	
David Levin		Past President/resident	
Sarah Johnson		Shark's Cove Restaurant	
Ted Faturros		City MB Asst. Planner	
Tony Olmos		City MB Dir. Pub. Works	
Manny Serrano		Plaza Bank	
Jessica Vincent		City MB Parks & Rec Manager	
Laura Missioreck		The Graphic Element	
Suzanne Sharer		S.Bay Automation/Neptunian's	
Noelle Parks		Noelle Interiors	
Karen Domerchie		City MB, Senior Analyst	
Kierston Allen		Dealer.com	
Dawn Eyre-Martin		Roundhouse Aquarium	
David Iacocar		MB City Councilman	



The following images are screen shots of the public participation process.

Local Hazard Mitigation Plan

Francisco Soto
Wednesday, December 9, 2015 at 8:44 AM
To: frank.chiella@yahoo.com; mbalgrosky@gmail.com; garydstabile@gmail.com; and [5 more](#)
Cc: Scott Hafdel; Shannon Marquez; Jim Sims
 [ManBeach_LHMP Draft_v14SM.pdf \(10 MB\)](#) [Preview](#)

Good Morning,

First, let me take this opportunity to thank all of you, as members of the Manhattan Beach CERT for taking the time to review the Local Hazard Mitigation Plan (LHMP) on Monday. It has been a pleasure for us at Constant & Associates to be a part of this work within your community. It is crucial that all members of the community have an opportunity to add their voice to the process in order to ensure a deep pool of knowledge and to build a consensus for the final plan.

I have attached a PDF version of the LHMP, please review the following plan and provide your comments and edits no later than Wednesday, December 16th.

Feel free to contact me if you have any questions.

Thank you

Francisco Soto
Constant & Associates
Emergency Management and Security Consulting
Phone: (424) 320-2696
C&A Office: (800) 745-3057
Fax: (424) 320-2581
Francisco@ConstantAssociates.com

Constant & Associates, Inc.
EMERGENCY MANAGEMENT & SECURITY CONSULTING



Re: Local Hazard Mitigation Plan



Mindy Balgrosky

Tuesday, December 15, 2015 at 10:21 AM

To: Francisco Soto

Cc: George Butts; Frank Chiella; Scott Hafdel

Action Items

Manage Apps...

Francisco,

Thanks for sharing this with MBCERT. Very interesting and comprehensive.

Mindy Balgrosky
Secretary/Treasurer
MBCERT

On Dec 9, 2015, at 8:44 AM, Francisco Soto wrote:

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<ManBeach_LHMP Draft_v14SM.pdf>





Robert Heintz

Tuesday, December 15, 2015 at 7:27 PM

To: Francisco Soto

← You replied to this message on 12/15/15, 7:37 PM.

Show Reply

Francisco,

I thought the Mitigation plan was generally good and only had one specific item for feedback.

I noticed on page 32 in Table 6.1, next to hazard type "Coastal Erosion" and "Coastal Storm" that these hazards are NOT to be profiled, and the explanation given is the "City is not located along the Coast".

There certainly have been examples in the past of damage due to high waves or coastal storms. Is there a reason the draft does not address these hazards, or is this an error?

Best Regards,

Bob

--

Bob Heintz

bob@heintznet.com

Mobile: +1-310-753-4343

On Dec 9, 2015, at 8:44 AM, Francisco Soto <Francisco@constantassociates.com> wrote:

Good Morning,

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Feel free to contact me if you have any questions.

Thank you



Appendix E: Plan Maintenance Documentation

Record all corrections and updates made to this plan on this page. All changes made should be transmitted to and approved by the City's acting Emergency Services Coordinator. The Emergency Services Coordinator will maintain the official copy of the LHMP.

Table E-1 Record of Revisions

Date	Section	Pages	Changes Made	Name and Title

City of Manhattan Beach
Local Hazards Mitigation Plan



Appendix F: Plan Adoption Resolution

CITY OF MANHATTAN BEACH

CALIFORNIA

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF MANHATTAN BEACH ADOPTING THE

Local Hazard Mitigation Plan, April 2018

WHEREAS the City of Manhattan Beach recognizes the threat that natural hazards pose to people and property within City of Manhattan Beach; and

WHEREAS the City of Manhattan Beach has prepared a multi-hazard mitigation plan, hereby known as Local Hazard Mitigation Plan, April 2018 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Local Hazard Mitigation Plan, April 2018 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Manhattan Beach from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Manhattan Beach demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Local Hazard Mitigation Plan, April 2018.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF MANHATTAN BEACH, CALIFORNIA, THAT:

Section 1. In accordance with (local rule for adopting resolutions), the City of Manhattan Beach City Council adopts the Local Hazard Mitigation Plan, April 2018.

ADOPTED by a vote of ____ in favor and ____ against, and ____ abstaining, this ____ day of _____, _____.

By: _____

(print name)

ATTEST:

By: _____

(print name)

APPROVED AS TO FORM:

By: _____

City of Manhattan Beach
Local Hazards Mitigation Plan

(print name)

