



City of Manhattan Beach

2024 Local Hazard Mitigation Plan

Vulnerability and Impacts Assessment

Hazard of Prime Concern

The purpose of the Vulnerability and Impact Survey is to determine the most vulnerable assets to the community in Manhattan Beach (e.g., people, systems, structures, activities, and natural, historic, and cultural resources) and determine the potential impacts of natural hazards on those assets.

The information captured in the assessment will be used to inform the development of the 2024 City of Manhattan Beach Local Hazard Mitigation Plan.

These questions may require research and additional discussions within your business/agency/organization/department. Please take your time in completing this important questionnaire. Response sections highlighted in green include answers collected during Committee Meeting #2 on December 12, 2023.

*Per FEMA regulations hazard mitigation will focus on natural hazards only. Manmade or technical hazards will not be considered.

Question 1

Please **highlight** the community lifelines or valued assets that you represent:

- Public Safety and Security
- Communications
- Health and Medical
- Education
- Transportation
- Energy
- Water Systems
- Food, Hydration, Shelter
- Social Services/Socially Vulnerable
- Business Community
- Policy Makers
- Government Agencies
- Other (Please Specify)

Question 2

Do you anticipate any growth or changes to the development in your community (e.g., population, economy, infrastructure)? If so, please describe:

Hazard-Specific Questions

The following section includes a list of natural hazards that may impact your community. Each hazard will have a set of questions related to its impact on vulnerable community assets. For each question below, please type your answer on the right-hand side of the table.

1: All Hazards

Includes: The following information is applicable to all hazards of prime concern.

Question		Response
1A	What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.	

<p>1B</p>	<p>Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts on these populations.</p>	<ol style="list-style-type: none"> 1. Young Children and Individuals with Access and Functional Needs (AFN): This group includes young children and those with various access and functional needs, emphasizing the importance of tailored support and resources. 2. Vulnerable Infrastructure: Religious institutions are identified as vulnerable infrastructure, given their role in serving individuals with AFN, providing food, and conducting house visits. 3. Pre-School and Day-Care Facilities: Young students in both public and private pre-schools, as well as children in day-care facilities, are recognized as needing special attention in preparedness plans. 4. School Staff and Students with Special Needs: This includes staff and students with mobility, social, emotional, or medical needs, particularly those who are deaf or hard of hearing, highlighting the need for specific support strategies. 5. Educational Campaigns: Emphasizing the need for educational campaigns focused on socially vulnerable populations to enhance preparedness efforts. 6. Unhoused Individuals: Recognizing the specific needs of unhoused individuals in preparedness and mitigation plans. 7. Additional Preparedness Efforts: <ol style="list-style-type: none"> a. Implementing extra transportation services. b. Establishing clear protocols for parent releases. c. Enhancing communication with educational jurisdictions
<p>1C</p>	<p>Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) 	<ol style="list-style-type: none"> 1. Emergency Services Buildings: All emergency services buildings are classified as critical infrastructure. It's essential to document and assess the risks these buildings face in relation to the primary hazards of concern. 2. Vulnerable Infrastructure: Religious institutions are identified as vulnerable infrastructure due to their role in serving individuals with access and functional needs (AFN), providing food, and conducting house visits.

	<ul style="list-style-type: none"> • Are any of these buildings a community lifeline? (See list in Question # 1) • Are they commercial, industrial, or residential property? 	
<p>1D</p>	<p>Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)</p>	<ol style="list-style-type: none"> 1. Grocery Stores: Essential for providing food and water, making them a key focus in preparedness planning. 2. Electrical Systems: These are vulnerable, especially considering the increasing use of electric vehicles. Ensuring the functionality and connectivity of electric vehicle charging stations is critical. 3. Map Your Neighborhood Program: This vital system used by Manhattan Beach focuses on the risks specific to individuals with Access and Functional Needs (AFN) and those in socially vulnerable populations. 4. Health Care Systems: The absence of health care facilities within or near Manhattan Beach presents a challenge for emergency health care access. 5. Water Supply: Ensuring the availability and safety of drinking water is crucial. 6. Preparedness Efforts Beyond Mitigation: <ol style="list-style-type: none"> a. Developing methods for residents and visitors to access cash during emergencies. b. Ensuring fuel availability for emergency vehicles during crises. c. Conducting educational campaigns on emergency preparedness, including what residents and businesses should have ready. d. Assessing fuel capacity for emergency generators and planning for fuel replenishment. e. Planning for visitor evacuation and support systems.

		<p>f. Engaging in discussions with Chevron and the City of El Segundo regarding hazards associated with the nearby refinery and its proximity to Manhattan Beach.</p> <p>g. Implementing additional transportation measures, managing parent releases, and enhancing communication with educational institutions.</p>
1E	Do you know of any natural, historic, and/or cultural resources within the hazard area?	
1F	Do you know of any day-to-day community activities that may be threatened by this hazard?	
1G	Mitigation Action Suggestions	From General Safety Plan, Policy CS-1.3: Public water distribution and supply facilities have adequate capacity and reliability to supply both every day and emergency fire-fighting needs.

2: Coastal Hazards

Includes: Tsunami, Daily Tides, King Tides, El Niño, and Beach and Coastal Erosion.

Question		Response
2A	What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.	
2B	Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts on these populations.	<p>From the Sea Level Rise Vulnerability Assessment: homeless individuals, elderly, children, visitors, and seasonal residents low-income families, unemployed/underemployed, renters, low-income homeowner and renter housing burden, single parent household, linguistically isolated households, disabled individuals, and uninsured individuals.</p>

<p>2C</p>	<p>Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) • Are any of these buildings a community lifeline? (See list in Question # 1) • Are they commercial, industrial, or residential property? 	<ol style="list-style-type: none"> 1. Tsunami Risk to Schools: Schools, being vital infrastructure, are identified as at risk in the event of a tsunami. 2. Evacuation Roadways: There is a potential impact on roads used for evacuating residents and visitors. 3. Storm drain system 4. Food stand and beach rental building at El Porto Beach. 5. South Bay Cities' main sewer trunk line 6. Beach dunes due to erosion and wash out
<p>2D</p>	<p>Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)</p>	<ol style="list-style-type: none"> 1. Communication systems, along with servers, are vital for critical communications and need to ensure reliable backup systems.
<p>2E</p>	<p>Do you know of any natural, historic, and/or cultural resources within the hazard area?</p>	<ol style="list-style-type: none"> 2. The Manhattan Beach Pier is an historical structure that has been impacted by storms in the past. 3. The beach.
<p>2F</p>	<p>Do you know of any day-to-day community activities that may be threatened by this hazard?</p>	<ol style="list-style-type: none"> 4. Tourism and the loss of sporting tournaments could affect the economy. The beach would be an economic impact.
<p>2G</p>	<p>Mitigation Action Suggestions</p>	<p>From General Plan, Policy CS-1.6: Protect critical facilities located within areas subject to flooding. Any critical infrastructure located at the coast?</p> <p>Derived from Sea Level Rise Vulnerability Assessment:</p> <ul style="list-style-type: none"> • Dune Restoration- The goal of this dune restoration project would be to increase the resiliency of the beach through the restoration of sandy beach and foredune habitat, implement nature-based protection measures against sea level rise and coastal storms, and increase engagement of the community through enhanced beach experiences. • Provide backup generators to supply power to two water injection wells

located between Valley Drive and North Ardmore Avenue. The WCBBP is operated by the West Basin Municipal Water District. The intention behind this project would be to ensure power supply is maintained during a time of failure to ensure adequate water continues to stave off coast water infiltration into the groundwater table.

- Building or retrofitting a building to become a tsunami vertical structure. Potentially a school or government building that could be retrofitted with a flat accessible roof to provide safe haven during a tsunami.
- Public education on tsunami warning system/ evacuation routes.
- Lifeguard tower retrofit.

From Jurisdictional Questionnaire:

- Design and construction of stormwater projects to reduce/minimize flooding.
- Sand Dune Park Erosion

3: Drought

Question	Response
<p>3A What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.</p>	
<p>3B Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts on these populations.</p>	
<p>3C Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) • Are any of these buildings a community lifeline? (See list in Question #1) <p>Are they commercial, industrial, or residential property?</p>	<p>1. Water tower north side of MB would serve as an emergency water supply</p>
<p>3D Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)</p>	
<p>3E Do you know of any natural, historic, and/or cultural resources within the hazard area?</p>	

3F	Do you know of any day-to-day community activities that may be threatened by this hazard?	
3G	Mitigation Action Suggestions	

4: Geological Hazards

Includes: Earthquakes and landslides.

Question	Response
4A What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.	
4B Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts on these populations.	<ol style="list-style-type: none"> 1. Those that might be bed ridden or not able to find haven in their home are especially at risk. 2. Young children and disabled members.
4C Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below: <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) • Are any of these buildings a community lifeline? (See list in Question #1) Are they commercial, industrial, or residential property? 	<ol style="list-style-type: none"> 1. Earthquake Risk for Schools: Schools, identified as critical infrastructure, are at risk in the event of an earthquake. 2. Economic Impact of Downtown Business Infrastructure: The robust business infrastructure in the downtown area is crucial, and its loss could have significant economic repercussions. 3. Eventaplex as Shelter: The Eventaplex is designated as a shelter location. 4. Emergency Water Supply: The water tower on the north side of Manhattan Beach is earmarked as a source of emergency water supply. 5. Impact on Evacuation Roads: Roads used for evacuating residents and visitors might be affected during earthquake events. 6. Underground Petroleum Infrastructure: It's important to identify the locations of

		<p>underground petroleum infrastructure and explore mitigation strategies.</p> <p>7. Impact of Seismic Activity – Many of our recreational buildings are decades old with foundations that may not have been designed to withstand seismic forces. Youth and older adults are some of the most frequent users of our facilities. Building renovations are needed.</p>
4D	Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)	<p>1. Communication systems and servers are essential for critical communications. Ensuring the availability of backup systems is vital.</p>
4E	Do you know of any natural, historic, and/or cultural resources within the hazard area?	<p>1. The Manhattan Beach Pier is a historical structure.</p> <p>2. The historic house near Polliwog park is not earthquake resistant.</p>
4F	Do you know of any day-to-day community activities that may be threatened by this hazard?	<p>1. Cultural Arts Center</p>
4G	Mitigation Action Suggestions	<p>1. Sepulveda Bridge seismic retrofit.</p> <p>2. From General Safety Plan, Policy CS-1.4: Minimize the potential damage to structures and loss of life that may result from an earthquake.</p> <p>3. Sand Dune Park Erosion</p> <p>4. Seismic retrofit buildings</p> <p><i>Follow-Up Question: Any critical infrastructure needing seismic retrofit?</i></p>

5: Inland Flooding

Question	Response
<p>5A What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.</p>	<p>Preparedness:</p> <ul style="list-style-type: none"> • Polliwog Park is a natural retention basin, so it's important to monitor flooding and make sure pumps are always working properly to minimize impacts on community members and nearby infrastructure.
<p>5B Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts to these populations.</p>	<ol style="list-style-type: none"> 1. Those that might be bed ridden or not able to find haven in their home are especially at risk.
<p>5C Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) • Are any of these buildings a community lifeline? (See list in Question #1) Are they commercial, industrial, or residential property? 	<ol style="list-style-type: none"> 1. Polliwog Park Flooding and Nearby Assets: <ol style="list-style-type: none"> a. Cultural Arts Center: A valuable community asset housing important art pieces. b. Manhattan Beach Middle School: Recognized as critical infrastructure. 2. Evacuation Roads: There is a potential risk to roads used for evacuating residents and visitors during flooding events. 3. Downtown Business Infrastructure: The robust business infrastructure in downtown is crucial, and its loss could lead to significant economic impacts.
<p>5D Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)</p>	<ol style="list-style-type: none"> 1. Communication systems, along with servers, are vital for critical communications and need to have backup systems.
<p>5E Do you know of any natural, historic, and/or cultural resources within the hazard area?</p>	<ol style="list-style-type: none"> 1. Manhattan Beach Historical Society is an asset that has value to the community. It houses Manhattan Beach specific historical artifacts. It is also located in the catch basin of Polliwog Park.

5F	Do you know of any day-to-day community activities that may be threatened by this hazard?	1. Cultural Arts Center
5G	Mitigation Action Suggestions	<ol style="list-style-type: none"> 1. Design and construction of stormwater projects to reduce/minimize flooding (follow-up with where/specific asset name?). 2. From General Plan, Policy CS-1.6: Protect critical facilities located within areas subject to flooding. 3. Sand Dune Park Erosion

6: Severe Weather

Includes: High winds, extreme heat, and severe rainstorms.

Question	Response
<p>6A What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.</p>	
<p>6B Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts to these populations.</p>	<ol style="list-style-type: none"> 1. Preparedness effort outside of mitigation: <ol style="list-style-type: none"> a. Establishing additional "cool zones" specifically for older adults to use during heat waves. 2. Severe Weather/Storms at Beach – Although LA County owns the beach in Manhattan Beach, the City regularly offers programming and special events on the sand and near the Pier with thousands of people in attendance. Developing better long-term plans for protecting people and developed infrastructure in the case of severe storms, particularly through the use of natural systems, seems prudent as the frequency and intensity of natural disasters increase.
<p>6C Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? (FEMA defines critical infrastructure as assets, systems, networks, and functions that are vital to the United States.) • Are any of these buildings a community lifeline? (See list in Question #1) <p>Are they commercial, industrial, or residential property?</p>	<ol style="list-style-type: none"> 1. Strong downtown business infrastructure that if lost would have an economic impact.

6D	Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)	1. Communication systems, along with servers, are vital for critical communications and need to have backup systems.
6E	Do you know of any natural, historic, and/or cultural resources within the hazard area?	
6F	Do you know of any day-to-day community activities that may be threatened by this hazard?	
6G	Mitigation Action Suggestions	Sand Dune Park Erosion

7: Wildfire

Question		Response
7A	What neighborhood(s) do you feel are most at risk? Describe the potential impacts of this hazard on the neighborhood(s)/population.	
7B	Do you feel there are any socially vulnerable populations in the hazard area? If so, please provide some of the impacts to these populations.	
7C	<p>Do you know any buildings that may be threatened or have experienced loss in the past due to this hazard? Please provide further information below:</p> <ul style="list-style-type: none"> • The building name and address. • Are any of these buildings' critical infrastructure? • Are any of these buildings a community lifeline? (See list in Question #1) <p>Are they commercial, industrial, or residential property?</p>	
7D	Do you know of any critical systems within the hazard area(s) that could be impacted? (e.g. utilities, 911 repeater)	<ol style="list-style-type: none"> 1. Communication systems, along with servers, are vital for critical communications and need to have backup systems.
7E	Do you know of any natural, historic, and/or cultural resources within the hazard area?	
7F	Do you know of any day-to-day community activities that may be threatened by this hazard?	

7G	Mitigation Action Suggestions	
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Mitigation Project 1

Question		Response
1A	Describe the project:	
1B	<p>What are the natural hazard(s) associated with this project?</p> <ul style="list-style-type: none"> • Coastal Hazards (Tsunami, Daily Tides, King Tides, El Nino, Beach and Coastal Erosion) • Drought • Geological Hazards (Earthquake, Landslide) • Inland Flooding • Severe Weather (High Winds, Extreme Heat, Severe Rainstorms) • Wildfire 	
1C	Is this project addressing a critical infrastructure? (i.e. Fuel refineries, Telecommunications networks, Sewer systems, Water treatment plants, Hospitals and healthcare facilities, Schools, Government buildings, Fire stations, etc.)	
1D	How would people be impacted if this project was lost or damaged as a result of a natural hazard? Include the impacts on socially vulnerable populations.	
1E	What community lifeline(s) are tied to this project or vulnerability? (See Question #1 for list)	
1F	Describe the essential systems tied to this project that could be impacted. (Computer and Information, Social and Economic, Educational, Environmental, Financial, Communications, etc.)	

1G	If a natural disaster were to occur, describe the impacts to natural, historic, or cultural resources associated with this project.	
1H	Is this project associated with activities that have value to the community?	
1I	<p>If this project is tied to a building or structure, please provide the following information:</p> <ul style="list-style-type: none"> • Name • Structure Type (Residential, Commercial, Industrial, Public, Government, Utilities, Educational, Healthcare, Historic/Cultural Sites, Agricultural, Recreational, or Emergency Services) • Location • Age • Content • Building Cost Value (Refer to insurance policy) • Backup power/generator capabilities 	
1J	If this is an infrastructure related project, is it new or existing?	
1K	How much time would this project take to complete?	
1L	Who would be the responsible party or organization to lead this project?	
1M	<p>Please identify the potential funding streams for this project. Choose one or more possible funding options:</p> <p>Examples for potential funding options:</p> <ul style="list-style-type: none"> • Hazard Mitigation Grant Program (HMGP) • Building Resilient Infrastructure and Communities (BRIC) • Local Funding • Community Block Development Grant • Inflation Reduction Act Grants • Other options that may be available to your community. 	

Mitigation Project 2

Question	Response
2A Describe the project:	
2B What are the natural hazard(s) associated with this project? <ul style="list-style-type: none"> • Coastal Hazards (Tsunami, Daily Tides, King Tides, El Nino, Beach and Coastal Erosion) • Drought • Geological Hazards (Earthquake, Landslide) • Inland Flooding • Severe Weather (High Winds, Extreme Heat, Severe Rainstorms) • Wildfire 	
2C Is this project addressing a critical infrastructure? (i.e. Fuel refineries, Telecommunications networks, Sewer systems, Water treatment plants, Hospitals and healthcare facilities, Schools, Government buildings, Fire stations, etc.)	
2D How would people be impacted if this project was lost or damaged as a result of a natural hazard? Include the impacts on socially vulnerable populations.	
2E What community lifeline(s) are tied to this project or vulnerability? (See Question #1 for list)	
2F Describe the essential systems tied to this project that could be impacted. (Computer and Information, Social and Economic, Educational, Environmental, Financial, Communications, etc.)	
2G If a natural disaster were to occur, describe the impacts to natural, historic, or cultural resources associated with this project.	
2H Is this project associated with activities that have value to the community?	

2I	<p>If this project is tied to a building or structure, please provide the following information:</p> <ul style="list-style-type: none"> • Name • Structure Type (Residential, Commercial, Industrial, Public, Government, Utilities, Educational, Healthcare, Historic/Cultural Sites, Agricultural, Recreational, or Emergency Services) • Location • Age • Content • Building Cost Value (Refer to insurance policy) • Backup power/generator capabilities 	
2J	<p>If this is an infrastructure related project, is it new or existing?</p>	
2K	<p>How much time would this project take to complete?</p>	
2L	<p>Who would be the responsible party or organization to lead this project?</p>	
2M	<p>Please identify the potential funding streams for this project. Choose one or more possible funding options:</p> <p>Examples for potential funding options:</p> <ul style="list-style-type: none"> • Hazard Mitigation Grant Program (HMGP) • Building Resilient Infrastructure and Communities (BRIC) • Local Funding • Community Block Development Grant • Inflation Reduction Act Grants • Other options that may be available to your community. 	

Mitigation Project 3

Question		Response
3A	Describe the project:	
3B	<p>What are the natural hazard(s) associated with this project?</p> <ul style="list-style-type: none"> • Coastal Hazards (Tsunami, Daily Tides, King Tides, El Nino, Beach and Coastal Erosion) • Drought • Geological Hazards (Earthquake, Landslide) • Inland Flooding • Severe Weather (High Winds, Extreme Heat, Severe Rainstorms) • Wildfire 	
3C	Is this project addressing a critical infrastructure? (i.e. Fuel refineries, Telecommunications networks, Sewer systems, Water treatment plants, Hospitals and healthcare facilities, Schools, Government buildings, Fire stations, etc.)	
3D	How would people be impacted if this project was lost or damaged as a result of a natural hazard? Include the impacts on socially vulnerable populations.	
3E	What community lifeline(s) are tied to this project or vulnerability? (See Question #1 for list)	
3F	Describe the essential systems tied to this project that could be impacted. (Computer and Information, Social and Economic, Educational, Environmental, Financial, Communications, etc.)	
3G	If a natural disaster were to occur, describe the impacts to natural, historic, or cultural resources associated with this project.	
3H	Is this project associated with activities that have value to the community?	
3I	<p>If this project is tied to a building or structure, please provide the following information:</p> <ul style="list-style-type: none"> • Name • Structure Type (Residential, Commercial, Industrial, Public, 	

	<p>Government, Utilities, Educational, Healthcare, Historic/Cultural Sites, Agricultural, Recreational, or Emergency Services)</p> <ul style="list-style-type: none"> • Location • Age • Content • Building Cost Value (Refer to insurance policy) • Backup power/generator capabilities 	
3J	If this is an infrastructure related project, is it new or existing?	
3K	How much time would this project take to complete?	
3L	Who would be the responsible party or organization to lead this project?	

3M	<p>Please identify the potential funding streams for this project. Choose one or more possible funding options:</p> <p>Examples for potential funding options:</p> <ul style="list-style-type: none">• Hazard Mitigation Grant Program (HMGP)• Building Resilient Infrastructure and Communities (BRIC)• Local Funding• Community Block Development Grant• Inflation Reduction Act Grants• Other options that may be available to your community	
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