

**Hazard Mitigation Annex  
City of Imperial Beach  
2023**

# 1. SECTION ONE: Determine the Planning Area and Resources

## PLANNING AREA: CITY OF IMPERIAL BEACH

The City of Imperial Beach (Imperial Beach) reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPGs were supplied with exposure/loss estimates for Imperial Beach summarized in the table below. See Section 4 for additional details.

# 2. SECTION TWO: Build the Planning Team

The planning period includes planning participant meetings from 2018-2022, as detailed throughout this plan, to determine updated priorities.

## 2.1 PLANNING PARTICIPANTS

- John French, Fire Chief – Fire-Rescue Department/Public Safety
- Joann Gitmed, Finance Director – Finance Department
- Chris Helmer, Environmental and Natural Resources Director – Environmental & Natural Resources Department
- Shayne Wagner, Building Official – Community Development
- Megan Openshaw, Senior Planer – Community Development
- Kara Ghiloni – Customer Service Department – Fire-Rescue Department/Public Safety

## 2.2 PLANNING PROCESS

The City of Imperial Beach hazard mitigation plan is administered by the Imperial Beach Fire-Rescue Department. The fire-rescue department engaged the Community Development Department as a primary partner in the process.

- The previous hazard mitigation plan from 2018 was thoroughly reviewed and updated
- The primary team maintained regular communication with San Diego County OES to ensure timelines and understanding.
- The primary team held regular meetings.
- City of Imperial Beach subject matter experts were included as needed to update and revise the plan
  - Environmental Services, Engineering, Planning, Public Works, Transportation, Fire, Sheriff's, Finance, and Marine Safety
- The Fire Chief and Customer Service Specialist completed changes to plan based on feedback from subject matter experts and input from San Diego County OES and FEMA
- Follow-up of action items was accomplished through phone and email communication.

## 2.3 CAPABILITIES ASSESSMENT

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of this jurisdictional mitigation plan identifies administrative, technical, legal, and fiscal capabilities. This section includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Imperial Beach's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

## 2.4 EXISTING INSTITUTIONS, PLANS, POLICIES AND ORDINANCES

The following is a summary of existing departments in Imperial Beach and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Imperial Beach, as shown in Table 5.10-2, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners, and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

- **City of Imperial Beach Public Safety Department**

The Public Safety Department is comprised of three program areas. The major program areas are fire safety services, marine safety services and building inspections for fire compliance

The Public Safety Department is responsible for planning, organizing, and directing the City's fire prevention, fire suppression and medical emergency services, disaster preparedness plans, animal control services. The City Manager functions as City liaison with the County Sheriff's Department; administers the City law enforcement contract; and performs related works as required.

- **City of Imperial Beach Community Development Department**

The Community Development Department is responsible for the City's planning program, and ensures compliance with applicable federal and state regulations, including the California Environmental Quality Act (CEQA).

The Department is responsible for reviewing the City's current development activities. The Department administers the City's zoning ordinance, sub-division ordinance, and local coastal plan, and processes all amendments to these documents. The Department is also responsible for guiding the long-term planning for the growth and economic development of the community.

The Community Development Director is appointed by the City Manager. The Community Development Director is responsible for planning, directing, and coordinating the activities of the

Community Development Department. The Community Development Department implements State law and City policies regarding General Plan, zoning, and environmental review, and redevelopment activities and establishes procedures related to planning, code, and parking enforcement, and building inspection functions. The Department serves as staff to the Planning Commission and City committees; serves as liaison with regional governments on planning issues: and performs related duties as required.

This Department consists of three divisions – Planning Division, Building Inspection Division, and the Code Compliance Division.

- **City of Imperial Beach Public Works Department**

The Public Works mission is to provide the Public with a safe family environment with which to work and play. To provide citizens and the public with the most professional and cost efficient services possible. To offer vision and continuous improvement to make our City safe, clean and beautiful. To provide a clean graffiti free environment for our community. To create an environment that is aesthetic, usable, safe, positively memorable for residents and visitors alike.

- **City of Imperial Beach Sheriff's Department**

Since 1983, the Imperial Beach Sheriff Department has provided contract law enforcement services to the City of Imperial Beach. Patrol deputies respond to calls for service 24 hours a day. Each patrol deputy is assigned to a geographical "beat" area which enables the deputies to become familiar with the residents in their "beat" and with problems in the area. The "beat" system is a cornerstone of the community- oriented policing concept requiring the interaction of neighborhood residents with law enforcement. Patrol deputies also participate in the community, while on duty, attending Neighborhood Watch meetings and making presentations to youth groups, service groups and schools. Traffic deputies handle vehicle code enforcement, traffic collision investigations and traffic control within the City of Imperial Beach. Detectives investigate cases involving theft, physical assaults (excluding homicides), sexual assaults, vandalism, burglaries, annoying phone calls and other crimes. Specialized investigative units such as homicide, bomb/arson, financial crimes, domestic violence, child abuse and narcotics handle specific crimes for the entire Sheriff's jurisdiction, including the Imperial Beach Sheriff Department.

**Table 1**  
**City of Imperial Beach: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Planning, Planning Director
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building, Building Official
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Planning, Planning Director
D. Floodplain manager	N	USDA
E. Surveyors	N	County, Land Use
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Public Safety, Planning, Fire Chief
G. Personnel skilled in GIS and/or HAZUS	Y	Community Development
H. Scientists familiar with the hazards of the community	N	UCSD, SDSU, USD
I. Emergency manager	Y	Public Safety, Fire Chief
J. Grant writers	Y	Public Safety, Planning, Contract Grant Writers

The legal and regulatory capabilities of Imperial Beach are shown in the table below, which presents the existing ordinances and codes that affect the physical or built environment of Imperial Beach. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 2**  
**City of Imperial Beach: Legal and Regulatory Capability**

<b>Regulatory Tools (ordinances, codes, plans)</b>	<b>Local Authority (Y/N)</b>	<b>Does State Prohibit (Y/N)</b>
Building code	Y	N
Zoning ordinance	Y	N
Subdivision ordinance or regulations	Y	N
Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
Site plan review requirements	Y	N
General or comprehensive	Y	N
A capital improvements plan	Y	N
An economic development plan	Y	N
An emergency response plan	Y	N
A post-disaster recovery plan	N	N
A post-disaster recovery ordinance	N	N
Real estate disclosure requirements	N	N

## 2.5 FISCAL RESOURCES

The table below shows specific financial and budgetary tools available to Imperial Beach such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard prone areas.

**Table 3**  
**City of Imperial Beach: Fiscal Capability**

<b>Financial Resources</b>	<b>Accessible or Eligible to Use (Yes/No)</b>
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	Y-Built into building fees
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	Y

### **3. SECTION THREE: Create an Outreach Strategy**

See the *San Diego County Multi-Jurisdictional Hazard Mitigation Plan's* Section Three for details about the county-wide outreach strategy.

# 4. SECTION FOUR: Review Community Capabilities

## MITIGATION CAPABILITIES

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities and must be included in a hazard mitigation plan by the planning team. The planning team also may identify additional types of capabilities relevant to mitigation planning.

Outlined below are the capabilities that support the mitigation planning process and reduce the overall impact of hazards. This section is from the Multijurisdictional Hazard Mitigation Plan: City of Imperial Beach Supporting Documentation, section 4 (pgs.7-11).

This also includes information about the City of Imperial Beach’s participation in the National Flood Insurance Program (NFIP).

### 4.1. CAPABILITY ASSESSMENT

The primary types of capabilities for reducing long-term vulnerability through mitigation planning are:

- Planning and regulatory
- Administrative and technical
- Financial
- Education and outreach

#### 4.1.1. Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place:

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	No	
Capital Improvements Plan	Yes	



Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	No	
Transportation Plan	Yes	
Stormwater Management Plan	Yes	
Community Wildfire Protection Plan	No	
M. Real estate disclosure requirements	No	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes	The City has been in the process of updating the City's Local Coastal Program/General Plan. The revised document has policy language to address
This jurisdiction can expand and enhance these capabilities by continuing to remain briefed on General Plan and Capital Improvement Plan updates.		

TABLE 3: FEMA LOCAL MITIGATION PLANNING HANDBOOK WORKSHEET 4.1 DATA.

#### 4.1.2. Administrative and Technical

Administrative and technical capabilities include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher-level government that can provide technical assistance, indicate so in your comments:

Administration	Yes/No	Describe capability Is coordination effective?
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Planning Division

Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Building Division and Building Official
Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Yes	Planning Division
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Tree trimming schedule
Mutual aid agreements	No	
<b>Staff</b>	<b>Yes/No FT/PT1</b>	<b>Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation?  Is coordination between agencies and staff effective?</b>
Chief Building Official	Yes FT	Building Official is Cal OES Certified. Building inspector(s) will be attending training before the end of 2022 to become certified.
Floodplain Administrator	Yes FT	Building Official is also Floodplain Administrator. Not currently certified as an FPA but will obtain certification in the near future.  Coordinate with FEMA staff on a regular basis for clarification and general information.
Emergency Manager	Yes FT	Public Safety Department, Fire Marshall and
Surveyors	Yes FT	City contracts with third-party, NV5
Staff with education or expertise to assess the community's vulnerability to hazards	Yes FT	Public Safety Department
Community Planner	No	
Scientists familiar with the hazards of the community	Yes	

Civil Engineer	FT	City contracts with third-party, NV5
Personnel skilled in GIS and/or HAZUS	FT	The City employs a full-time GIS Administrator
Grant writers	Yes FT/PT	City staff regularly apply for grants and employs the City Engineer, Kimley-Horn to apply for Capital Improvements project grants.
Other	N/A	
This jurisdiction can expand and enhance these capabilities by continuing to research and apply for local, state, and federal grants to fund staff and resources to further mitigate hazards.		

TABLE 4: FEMA LOCAL MITIGATION PLANNING HANDBOOK WORKSHEET 4.1 DATA CONTINUED.

### 4.1.3. Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation:

Funding Resource	Access/ Eligibility (Yes/No)	Has the funding resource been used in past and for what type of activities?  Could the resource be used to fund future mitigation actions?
Community Development Block Grants (CDBG)	Yes	The City utilizes CDBG funds to update sidewalks to meet ADA standards/requirements.
Capital improvements project funding	Yes	The City seeks and obtains grants for capital improvement projects.
Authority to levy taxes for specific purposes	Yes	Only with taxpayer approval
Fees for water, sewer, gas, or electric service	Yes	
Impact fees for homebuyers or developers for new developments/homes	Yes	Residential Construction Tax for new dwellings, bedroom additions, hotel/motel rooms.  Sewer impact fee for new single-family residences, multifamily units, and commercial developments.  Trans-net fee (RTCIP) for new dwelling units.  Public improvements for projects with a valuation exceeding \$50,000
Incur debt through general obligation bonds	Yes	City has ability to issue GO bonds, with voter approval, but chooses to operate on a Pay-Go basis

Incur debt through special tax and revenue bonds	Yes	City has ability to issue Special Tax and Revenue Bonds, with voter approval if appropriate, but chooses to operate on a Pay-Go basis
Incur debt through private activity bonds	No	
Repeat line	N/A	

**How can these capabilities be expanded and improved to reduce risk?**

Each financial capability can be expanded and improved to reduce risk and mitigate hazards. For example, the City’s Capital Improvement Plan (CIP) can be updated to include hazard mitigation strategies and reduce risk by ensuring that investments and improvements include infrastructure such as improved wastewater systems, upgraded seismic retrofits, and construction that withstands coastal flooding and erosion.

Another example, the Transit Occupancy Tax (TOT), has increased to 14% effective January 2023. This will provide approximately \$400,000 annually to the City of Imperial Beach. Potential use of funds from TOT could be allocated for safety measures and hazard mitigation as approved by City Council.

TABLE 5: FEMA LOCAL MITIGATION PLANNING HANDBOOK WORKSHEET 4.1 DATA CONTINUED.

#### 4.1.4. Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information:

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc.	Yes	Community Emergency Response Team (C.E.R.T.)
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	Storm Ready and Tsunami Ready Programs
Natural disaster or safety related school programs	Yes	Great California Shakeout in local community and Fire Prevention Education in local schools each October
StormReady certification	Yes	
Firewise Communities certification	No	

Public-private partnership initiatives addressing disaster-related issues	Yes	
Other	Yes	Ongoing training for city employees on disaster preparedness, required ICS 100, 200 courses
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<p>Hazard mitigation education can be expanded through the City’s website, social media pages, ongoing community events, and regularly scheduled public forums. This will reduce risk by disseminating pertinent information on a consistent basis.</p> <p>Hazard mitigation education and training for city staff will ensure that staff are prepared in event of disaster and can effectively activate a city Emergency Operations Center (EOC) and city-wide operations continue.</p>		

*TABLE 6: FEMA LOCAL MITIGATION PLANNING HANDBOOK WORKSHEET 4.1 DATA CONTINUED.*

#### *4.1.5. National Flood Insurance Program (NFIP)*

**The City of Imperial Beach is a participant in the National Flood Insurance Program (NFIP) since June 1, 1978.** This city is a community that develops capabilities for conducting flood mitigation activities.

**According to the 2022 FEMA Repetitive Loss Summary Report, the City of Imperial Beach has 4 Repetitive Loss residential properties, and no Severe Repetitive Loss properties. Currently there is no additional data on the repetitive loss properties.**

Additional information about the City of Imperial Beach’s participation in NFIP and our capabilities is included in the Multijurisdictional Hazard Mitigation Plan: City of Imperial Beach Supporting Documentation, section 4 (pgs.7-11).

## 5. SECTION FIVE: Conduct a Risk Assessment

### 5.1 POTENTIAL HAZARD EXPOSURE AND LOSS ESTIMATES

The City of Imperial Beach reviewed a set of jurisdictional-level hazard maps and data provided by the County of San Diego, including detailed critical facility information and localized potential hazard exposure/loss estimates related to residential, commercial, and critical asset/facilities to identify the top hazards threatening their city. Potential hazard exposure/loss estimates are summarized in the table below:

*TABLE 7 OF SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN CITY OF IMPERIAL BEACH*

Hazard Type	Residential			Commercial		Critical Facilities	
	Exposed Population	Number of Residential Buildings	Potential Exposure Loss for Residential Buildings	Number of Commercial Buildings	Potential Exposure Loss for Commercial Buildings	Number of Critical Facilities	Potential Exposure for Critical Facilities
Coastal Storm	1,570	50	19,430,000	1	302,350	0	0
<b>Sea Level Rise</b>							
Coastal Flooding	2,629	51	19,818,600	11	3,325,850	0	0
Mean Higher High Water	0	0	0	1	302,350	0	0
Dam Failure	4,341	795	308,937,000	24	7,256,400	0	0
<b>Earthquake (Loss)</b>							
(Annualized Loss - Includes shaking, liquefaction, and landslide components)	1,458	198	124,829,923	148	60,409,530	8	38,048,000
100 Year	0	0	0	0	0	0	0
500 Year	0	0	0	0	0	0	0
<b>Floods (Loss)</b>							
100 Year	2,702	55	21,373,000	1	302,350	0	0
500 Year	2,702	55	21,373,000	3	907,050	0	0

Rain-Induced Landslide							
High Risk	0	0	0	0	0	0	0
Moderate Risk	0	0	0	0	0	0	0
Tsunami	8,019	2,068	803,624,800	94	28,420,900	0	0
Wildfire/Structure Fire							
High Fire Hazard	0	6	2,331,000	0	0	0	0
Very High Fire Hazard	0	0	0	0	0	0	0

## 5.2 HAZARD VULNERABILITY, PROFILES, AND LOCATIONS

After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Imperial Beach LPG as their top four. A brief rationale for including each of these is included.

- **Earthquake:** Most significant as it affects the entire community and region.
- **Coastal Storms/Erosion/Tsunami:** More frequent, but historically quite localized.
- **Dam Failure:** Possible, but low potential.
- **Other Human Caused Hazards:** No significant targets

The table below gives a brief description of remaining, omitted hazards and the reasons for their exclusion:

Hazard	Description	Reason for Exclusion
Avalanche	A mass of snow moving down a slope. There are two basic elements to a slide; a steep, snow-covered slope and a trigger.	Snowfall in County mountains not significant; poses very minor threat compared to other hazards.
Expansive soils	Expansive soils shrink when dry and swell when wet. This movement can exert enough pressure to crack sidewalks, driveways, basement floors, pipelines and even foundations.	Presents a minor threat to limited portions of the County.
Hailstorm	Can occur during thunderstorms that bring heavy rains, strong winds, hail, lightning, and tornadoes.	Occurs during severe thunderstorms; most likely to occur in the central and southern states; no historical record of this hazard in the region.

Hazard	Description	Reason for Exclusion
Land subsidence	Occurs when large amounts of ground water have been withdrawn from certain types of rocks, such as fine-grained sediments. The rock compacts because the water is partly responsible for holding the ground up. When the water is withdrawn, the rocks fall in on themselves.	Soils in the County are mostly granitic. Presents a minor threat to limited parts of the county. No historical record of this hazard in the region.
Tornado	A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm (or sometimes because of a hurricane) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris.	Less than one tornado event occurs in the entire State of California in any given year; poses very minor threat compared to other hazards. No historical record of this hazard in the region.
Volcano	A volcano is a mountain that is built up by an accumulation of lava, ash flows, and airborne ash and dust. When pressure from gases and the molten rock within the volcano becomes strong enough to cause an explosion, eruptions occur.	No active volcanoes in San Diego County. No historical record of this hazard in the region.
Windstorm	A storm with winds that have reached a constant speed of 74 miles per hour or more.	Maximum sustained wind speed recorded in the region is less than 60 miles per hour and would not be expected to cause major damage or injury.
Wildland Fire	A wildfire, forest fire, bushfire, wildland fire or rural fire is an unplanned, uncontrolled, and unpredictable fire in an area of combustible vegetation starting in rural and urban areas.	There is no documented history of wildland fires in the City of Imperial Beach.

### 5.2.1. Vulnerability To Specific Hazards

An estimate of the vulnerability of the City to each identified priority hazard, in addition to the estimate of likelihood of future occurrence, is provided in each of the hazard-specific sections that follow.

Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized by the City into the following classifications:

- Extremely Low—The occurrence and potential cost of damage to life and property is very minimal to



nonexistent.

- Low—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- Medium—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- High—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- Extremely High—Very widespread with catastrophic impact.

Depending on the hazard and availability of data for analysis, this hazard specific vulnerability assessment also includes information on values at risk, populations at risk, critical facilities and infrastructure, and future development.

## **Earthquake**

**Likelihood of Future Occurrence** – Likely: 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years

**Vulnerability** – Medium

### ***Hazard Profile and Problem Description***

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction.

### ***Location and Extent***

Virtually any land bordering the Pacific Ocean is subject to those effects of the movements of the earth's crust known as earthquakes. Even though Southern California is known for its earthquakes, actual losses to life and property have been small. In fact, these losses have been much less than other areas of the world, which routinely suffer from tornadoes, epidemics, hurricanes, or earthquakes. It is generally agreed, however, that the potential for severe earthquake damage does exist, and that local authorities should provide some measure of security against that potential. The purpose of the Safety Element is, therefore, to set forth policies and programs which will help protect life and property from preventable damage due to seismic activity.

Available data indicate there are three major regional zones of faulting within the San Diego region: (1) the San Jacinto FaultZone, located in the eastern part of the county, is considered to be a major active

branch of the San Andreas fault system, the maximum probable earthquake from this fault is between 7.5 and 7.8 on the Richter scale; (2) the Elsinore fault zone paralleling the San Jacinto fault zone is the largest known active fault in the county of San Diego. It is approximately 135 miles long. The area of most probable activity is between Lake Elsinore and Vallecito Valley, a distance of about 60 miles.

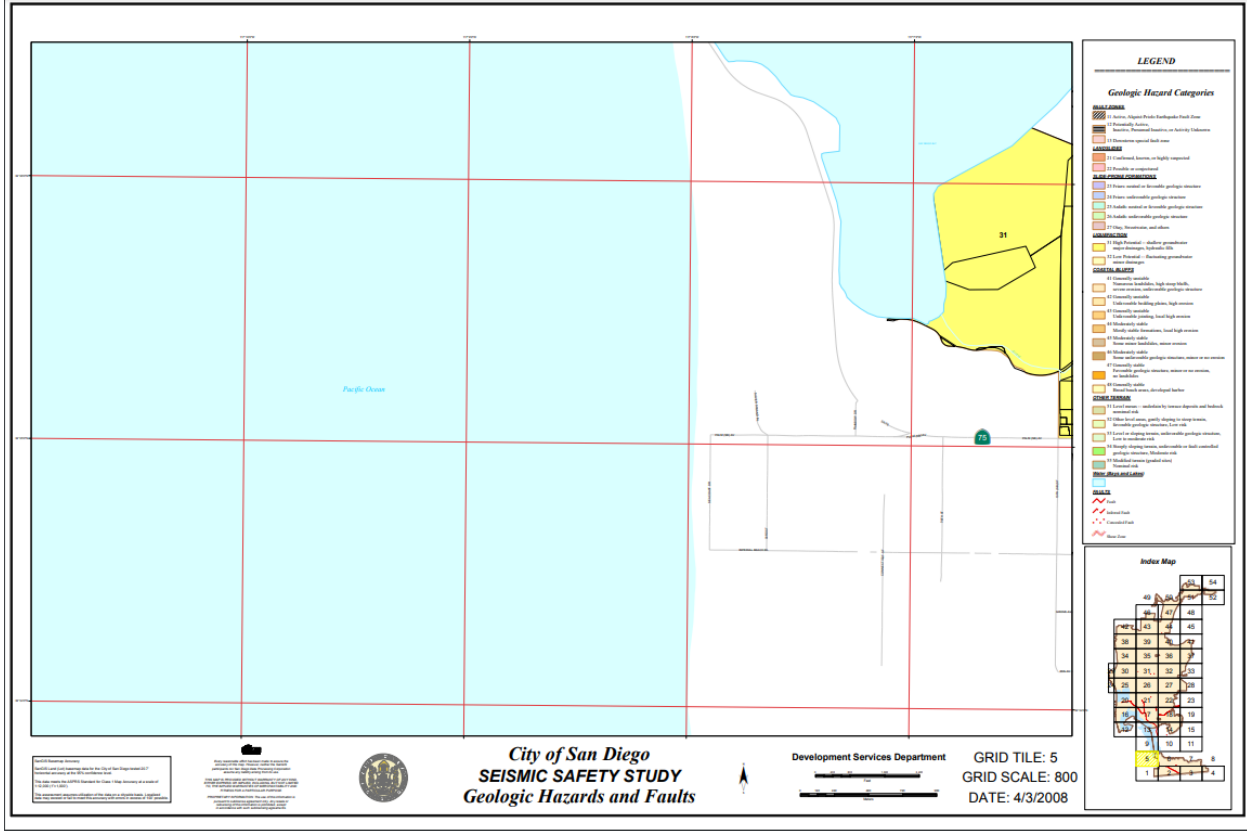
The maximum probable earthquake magnitude from this fault is 7.6; and (3) the Rose Canyon fault zone, paralleling the Pacific coastline, is considered to be the possible southeasterly extension of the Newport-Inglewood fault zone, which was the source of the 1933 Long Beach earthquake. The Sweetwater and La Nacion Faults are located 4 to 6 miles inland from and parallel to the Rose Canyon fault and San Diego Bay. Presumably, they are related to the fault system which created the depression now occupied by San Diego Bay and Mission Bay.

These two faults do not appear to have been active in recent time. The La Nacion is the closest fault to Imperial Beach, being located about two miles east of the City. The San Diego region has historically been seismically quiet (less than 4.0 on the Richter scale) although at least 23-recorded epicenters of 2.0 to 3.0 have been recorded since 1948. Historic records in the San Diego region date back 200 years. Of that period, the last 40 years represent accurate technical data. The Elsinore and San Jacinto faults have exhibited enough activity to warrant making statements on their respective degree of activity as follows:

For the Elsinore fault: one in 60 years at 7.3 magnitude; one in 100 years at a magnitude of 7.6 (maximum credible); and For the San Jacinto fault: one in 90 years at 7.3; and one in 100 years at 7.8 magnitude (maximum credible, McEven and Pinckey).

Recent research also suggests that the Rose Canyon Fault has considerable destructive potential and is capable of producing a magnitude 6.9 earthquake. Its proximity to Imperial Beach would mean an earthquake could dramatically impact Imperial Beach and could trigger a near-shore tsunami. Estimates suggest that the fault produces one substantial earthquake every 700 years with the most recent one occurring in 1862 that may have measured around 6.0.

## San Diego Seismic Safety / Earthquake Map – City of Imperial Beach



## Rose Canyon Fault Zone – San Diego County



## Coastal Storms/Erosion/Tsunami/Sea Level Rise

**Likelihood of Future Occurrence** – Likely: 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years

**Vulnerability** – Medium

### ***Hazard Profile and Problem Description***

## Coastal Storms/Erosion/Tsunami's

**Likelihood of Future Occurrence** – Likely: 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years

**Vulnerability** – Medium

### **Hazard Profile and Problem Description**

Coastal storms happen when different meteorological conditions converge. Coastal storms are organized systems that have unique characteristics, but each type can turn deadly due to their hazardous consequences — sustained destructive winds, heavy rainfall, storm surge, coastal flooding, and erosion.

Under existing conditions portions of the City's storm water and wastewater systems are vulnerable to tidal inundation, flooding, and erosion. Additionally, all existing beach accesses and oceanfront property are in existing coastal erosion and coastal flood hazard zones associated with a 100-year storm event.

Surface run-off, a condition intensified by development as a result of soil compaction and an increase in the amount of impervious surfaces, is presently handled by the street system and a small storm drain system. Most of the captured run-off is deposited directly into the San Diego Bay, Pacific Ocean or the Tijuana Estuary.

A tsunami is a sea wave generated by a submarine earthquake, landslide or volcanic action. While the possibility of a major tsunami from either of the latter two events is considered to be extremely remote for Imperial Beach, a tsunami caused by a submarine earthquake is considered possible. Submarine earthquakes are common around the edges of the Pacific Ocean, as well as other areas. Therefore, all of the Pacific Coastal areas are subject to this potential hazard to a greater or lesser degree.

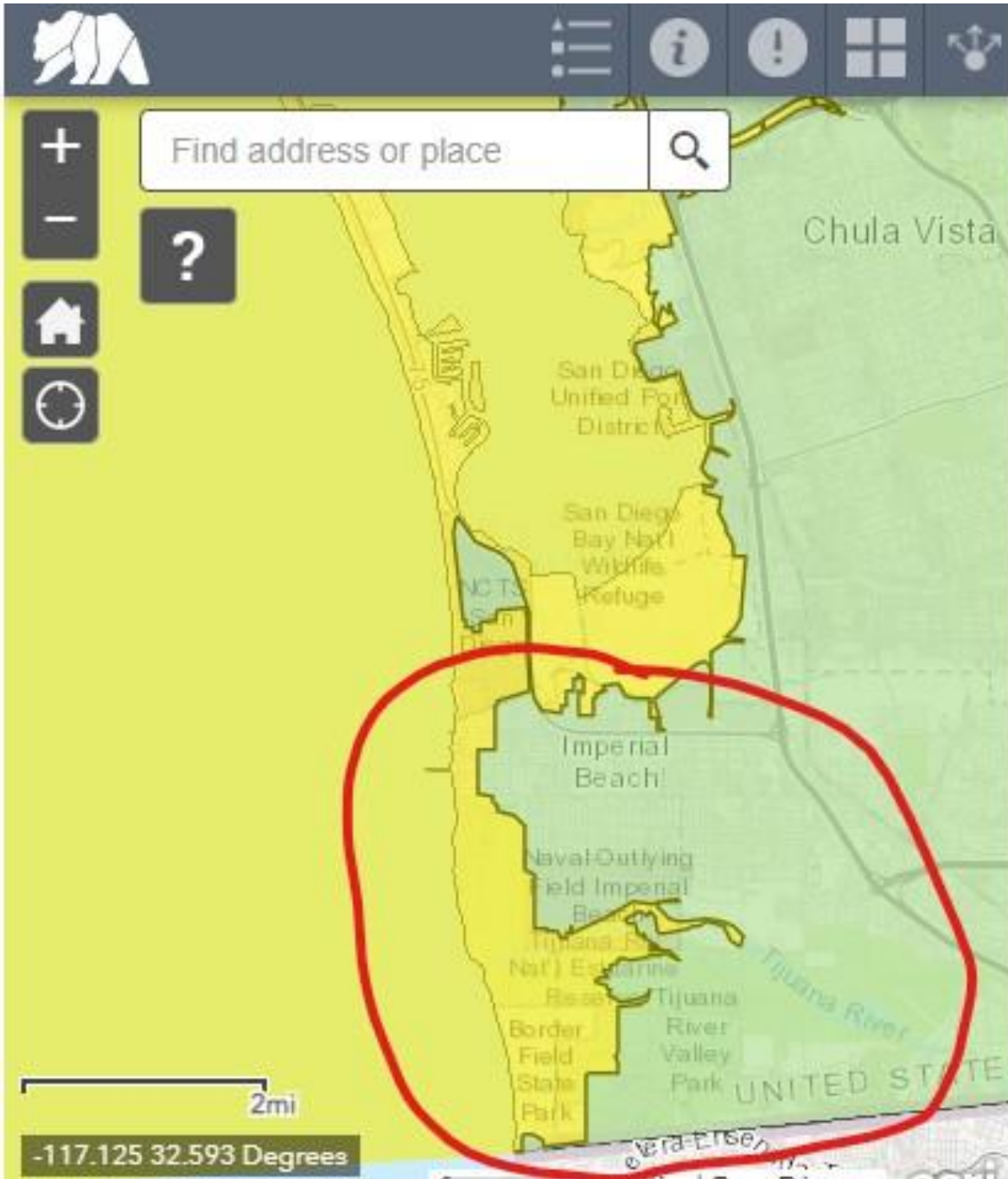
Tsunamis travel across the ocean as powerful, long, but low waves; perhaps 50 miles long and only one or two feet high. Traveling at almost 500 mph in the Pacific, such a wave in the open causes no problems; and, in fact, the slope of the wave front may be imperceptible to a ship at sea. However, as the tsunami waves approach the coastline, they are affected by shallow bottom topography and the configuration of the coastline, which transform the waves into very high, potentially devastating waves. Even if large waves do not occur, strong currents (as high as 40 feet per second) can cause extensive damage. Near-source tsunamis can occur from earthquakes that are generally less than 200 kilometers away and of 6.5 magnitude or greater. The waves from these tsunamis are likely to be extremely powerful and can impact the shore in 3 – 15 minutes. Faults such as Rose Canyon could trigger such an event. Even though most of Imperial Beach lies within the category of low-lying shoreline, it is not possible to predict the likelihood or magnitude of a major tsunami.

***Location and Extent***

The risk of flooding due to surface run-off and coastal flooding is increasing due to sea level rise and climate change. Key findings from the Imperial Beach Sea Level Rise Assessment Study (SLR Study, 2016) include:

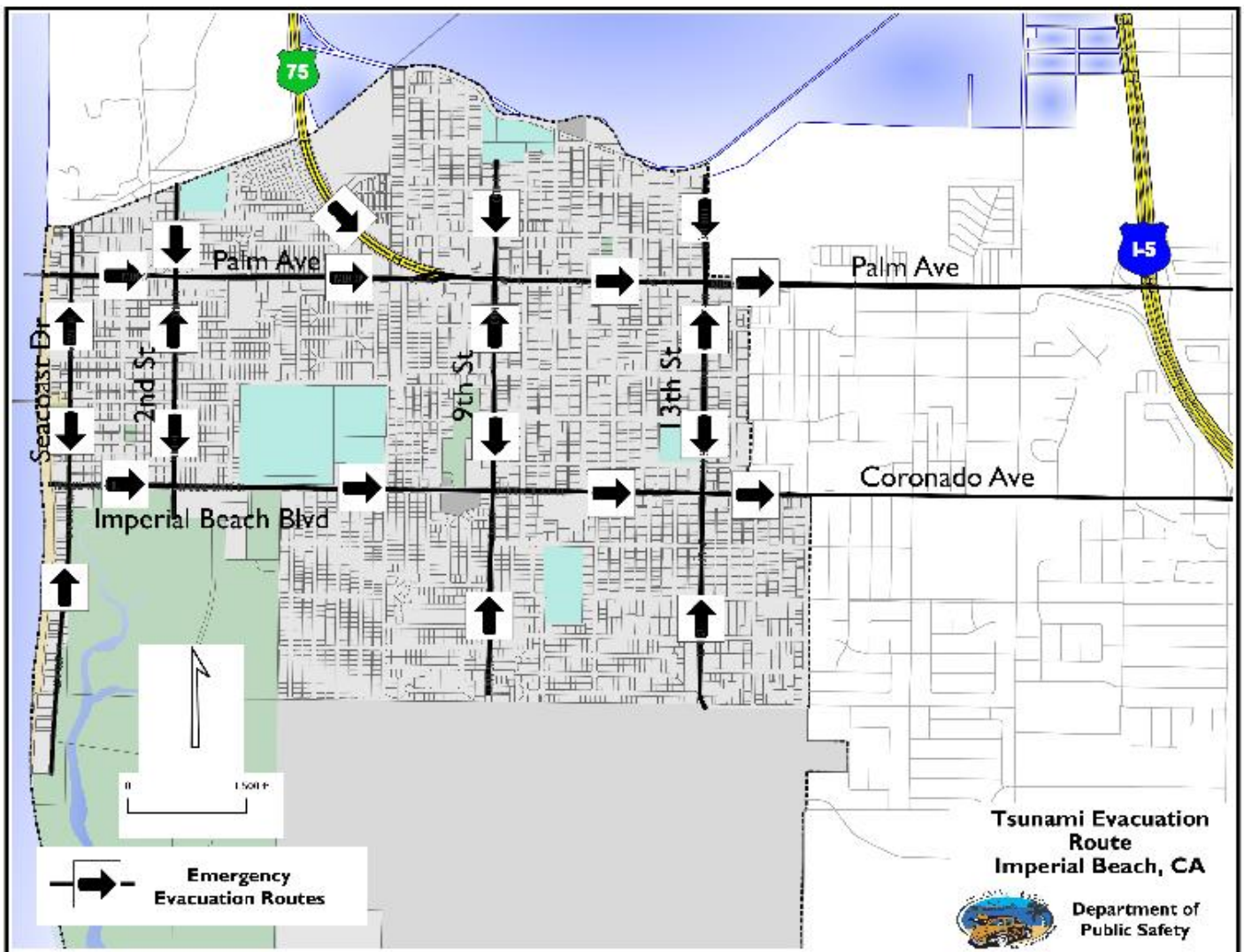
- Tidal inundation already impacts many of the key storm water outlets that drain into the Bay and Estuary particularly during high tides.
- Nearly 800 feet of wastewater pipe is currently exposed to existing erosion hazards.
- Five wastewater pump stations are currently vulnerable to coastal flooding. Presently, 1.7 miles of roads are potentially subject to coastal erosion from a 100-year wave erosion event.
- All of the beach accesses and oceanfront properties are in existing coastal erosion and coastal flood hazard and tsunami hazard zones associated with a 100-year wave event.

Tsunami Inundation Map – San Diego County – Imperial Beach, CA – Updated 2022





## Tsunami Evacuation Map – Imperial Beach, CA



### Dam Failure

**Likelihood of Future Occurrence** – Unlikely: Less than 1 percent probability of occurrence in the next year or a recurrence interval of greater than every 100 years.

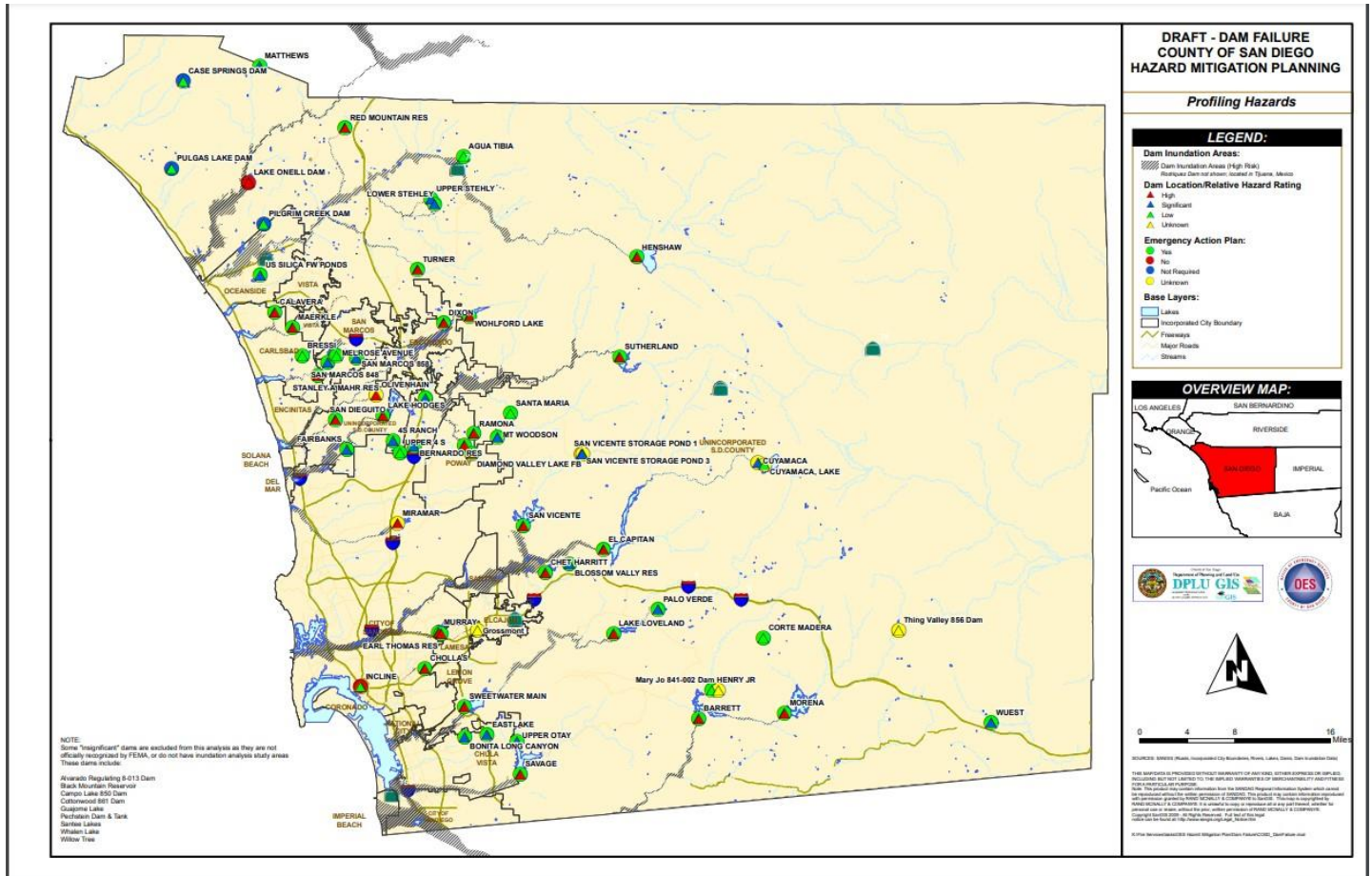
**Vulnerability** – Medium

#### ***Hazard Profile and Description***

Dam failures can result in severe flood events. When a dam fails, a large quantity of water is suddenly released with a great potential to cause human casualties, economic loss, lifeline disruption, and environmental damage. A dam failure is usually the result of age, poor design, or structural damage caused by a major event such as an earthquake or flood. While dam failures are not common, nationally, the most common reasons for dam failures are:

- Piping: Internal erosion caused by embankment leakage, foundation leakage and deterioration of pertinent structures appended to the dam.
- Erosion: Inadequate spillway capacity causing overtopping of the dam, flow erosion, and inadequate slope protection.
- Structural Failure: Caused by an earthquake, slope instability or faulty construction

### Map of Dam Failure Extent– San Diego County, CA





## Human-Caused Hazards

**Likelihood of Future Occurrence** – Unlikely : Less than 1 percent probability of occurrence in the next year or a recurrence interval of greater than every 100 years.

**Vulnerability** – Extremely Low

### ***Hazard Profile and Description***

Human-Caused Hazards are events that are caused by humans and occur in or close to human settlements. The events leading up to a human-caused hazard may be the result of deliberate or negligent human actions, but their impact can be equally as devastating. These types of hazards could include terrorism, active shooters, chemical and hazmat events, health threats, and radio logical and nuclear events.

Should a catastrophic manmade hazard type event occur, this would likely impact the entire community of Imperial Beach. The full impact would be predicated on the type of hazard that occurred. The impact would likely extend towards the local miliary bases that are located within city limits and in the neighboring city of Coronado. The miliary base located within Imperial Beach is the Naval Outlying Landing Field Imperial Beach (NOLF IB). It is locally referred to as Ream Field and is a U.S. Government Naval installation that is a part of Naval Base Coronado. Activities on the installation include naval operational handling of overflow helicopter squadrons traffic from adjacent North Island installations. The southeastern portion of the base is part of the Tijuana River National Estuarine Research Reserve (TRNERR).

## **6. SECTION SIX: Develop a Mitigation Strategy**

### **6.1 HAZARD MITIGATION GOALS, OBJECTIVES, AND ACTIONS**

Listed below are Imperial Beach’s specific hazard mitigation goals, objectives, and related potential actions. For each goal, one or more objectives have been identified that provide strategies to attain the goal. Where appropriate, the City has identified a range of specific actions to achieve the objective and goal. The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives, and actions as they related to the plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Public Works, Planning, and Marine Safety provided input to the Imperial Beach LPG.

Once developed, City staff will submit the plan to Cal OES and FEMA for approval. Once it is approved

by FEMA the plan will be taken to the City Council for adoption.

The draft plan was posted on the Office of Emergency Services Website to present these preliminary goals, objectives, and actions to citizens and to receive public input. Specific questions were asked, and the public was requested to provide comments and suggestions regarding the draft plan and the proposed mitigation actions. An email address was provided for the public to send comments and suggestions to. This email address was checked daily for public input. The following sections present the hazard-related goals, objectives and actions as prepared by Imperial Beach’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

### 6.1.1. Goals

The City of Imperial Beach has developed the following 9 Goals for their Hazard Mitigation Plan and actions for their city (See Attachment A for Goal 9).

- Goal 1. Promote disaster-resistant future development.
- Goal 2. Increase public understanding and support for effective hazard mitigation.
- Goal 3. Build and support local capacity and commitment to become less vulnerable to hazards.
- Goal 4. Enhance hazard mitigation coordination and communication with Federal, State and County governments. By reducing the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to the below listed additional goals.
- Goal 5. Dam Failure
- Goal 6. Earthquakes
- Goal 7. Coastal flooding, erosion, tsunami, and sea-level rise
- Goal 8. Floods
- Goal 9. Human-Caused Hazards

### 6.1.2. Objectives and Actions

The City of Imperial Beach developed the following broad list of objectives and actions to assist in the implementation of each of their 9 identified goals. The City of Imperial Beach developed objectives to assist in achieving their hazard mitigation goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 1.1.5

<b>Goal 1: Promote disaster resistant future development</b>	<b>Applies to New Existing, or Both</b>
<i>Objective A1: Facilitate the development or updating of general plans and zoning ordinances to limit development in hazard areas.</i>	
Action 1.A.1 Update General Plan every 10 years.	Both
Action 1.A.2 Attract and retain qualified, professional, and experienced staff.	Both

Action 1.A.3 Continue to identify high hazard areas	Both
Action 1.A.4 Continue to include hazard area maps.	Both
<i>Objective 1.B: Facilitate the adoption of building codes that protect existing assets and restrict new development in hazard areas.</i>	
Action 1.B.1 Continue to review Codes every 3 years.	Both
Action 1.B.2 Establish emergency review procedures for codes.	Both
<i>Objective 1.C: Facilitate consistent enforcement of general plans, zoning ordinances, and building codes.</i>	
Action 1.C.1 Continue to staff enforcement personnel to a level to ensure compliance.	Both
Action 1.C.2 Develop Enforcement Group to ensure coordination and standardization of permits for all departments.	Both
<i>Objective 1.D: Limit future development in hazardous areas.</i>	
Action 1.D.1 Development should be in harmony with existing topography.	Both
Action 1.D.2 Development patterns should respect environmental characteristics.	Both
Action 1.D.3 Clustering should be encouraged.	Both
Action 1.D.4 Development should be limited in areas of known geologic hazards.	Both
<i>Objective 1.E: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.</i>	
Action 1.E.1 Continue to develop Geographic Information Systems (GIS) capabilities to identify hazards.	Both
Action 1.E.2 Continue to use the developed data sets to test hazard scenarios and mitigation	Both
Action 1.E.3 Continue to utilize the Internet as a communication tool, as well as an educational tool.	Both
<i>Objective 1.F: Increase public understanding, support and demand for hazard mitigation for new developments.</i>	
Action 1.F.1 Continue to gain public acceptance for avoidance policies in high hazard areas.	Both
Action 1.F.2 Continue to publicize and adopt the appropriate hazard mitigation measures.	Both
Action 1.F.3 Continue to help create demand for hazard resistant construction and site planning.	Both

<b>Goal 2: Increase public understanding and support for effective hazard mitigations</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.</i>	
Action 2.A.1 Continue to publicize and encourage the adoption of appropriate hazard mitigation actions.	Both
Action 2.A.2 Continue to provide information to the public about disaster preparedness on the City website, Newsletter, Citywide mail outs, Prevention Program and in conjunction with Special Events.	Both
Action 2.A.3 Continue to heighten public awareness of hazards by using the City Public Information Officer.	Both
Action 2.A.4 Continue to gain public acceptance for avoidance policies in high hazard areas	Both
Action 2.A.5 Continue to identify hazard specific issues and needs	Both
Action 2.A.6 Continue to help create demand for hazard resistant construction and site planning	Both
Action 2.A.7 Maintain Cert program for the City	Both
<i>Objective 2.B: Promote partnerships between the state, counties, local and tribal governments to identify, prioritize, and implement mitigation actions.</i>	
Action 2.B.1 Develop, maintain, and improve lasting partnerships.	Both
Action 2.B.2 Maintain the auto aid agreement with Navy Ream Field.	Both
Action 2.B.3 Support the County Fire Safe Council.	Both
Action 2.B.4 Promote cooperative Vegetation Management Programs that incorporate hazard mitigation.	Both
<i>Objective 2.C: Promote hazard mitigation in the business community.</i>	
Action 2.C.1 Continue to increase awareness and knowledge of hazard mitigation principles and practices.	Both
Action 2.C.2 Continue to encourage businesses to develop and implement hazard mitigation actions.	Both
Action 2.C.3 Continue to identify hazard-specific issues and needs.	Both
<i>Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented citywide.</i>	
Action 2.D.1 Use the City Website, Newsletter, etc. to publicize mitigation actions.	Both
Action 2.D.2 Continue to establish budget and identify funding sources for mitigation outreach.	Both

<i>Objective 2.E: Provide education on hazardous conditions.</i>	
Action 2.E.1 Continue to support public and private sector symposiums.	Both
Action 2.E.2 Continue to coordinate production of brochures, informational packets and other handouts.	Both
Action 2.E.3 Continue to develop partnerships with the media on hazard mitigation.	Both

<b>Goal 3: Build and support local capacity and commitment to become less vulnerable to hazards.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among local officials and staff.</i>	
Action 3.A.1 Continue to use Media, City Publicist and Public Safety demonstrations to increase the number of news releases.	Both
Action 3.A.2 Continue to conduct meetings with key elected officials to determine local issues and concerns.	Both
Action 3.A.3 Continue to demonstrate the importance of pre-disaster mitigation planning to the City Council and other public officials.	Both
Action 3.A.4 Continue to use staff orientation, ICS and EOC training, policy and procedures to increase awareness.	Both
<i>Objective 3.B: Develop hazard mitigation plan and provide technical assistance to implement plan.</i>	
Action 3.B.1 Continue to coordinate the development of a multi-jurisdictional plan.	Both
Action 3.B.2 Form City Working Group to update and monitor the City's portion of the plan.	Both
<i>Objective 3.C: Limit growth and development in hazardous areas.</i>	
Action 3.C.1 Continue to update GIS mapping to identify hazardous areas.	Both
Action 3.C.2 Continue to enforce trespassing regulations in high-risk areas.	Both
Action 3.C.3 Continue to update General Plan and zoning regulations to reflect hazardous areas.	Both
Action 3.C.4 Continue to support transfer of development rights in hazard prone areas	Both

<i>Objective 3.D: Continue upgrade City EOC.</i>	
Action 3.D.1 Maintain the planning group to determine needs.	Both
Action 3.D.2 Continue to seek grant funding for upgrades.	Both
Action 3.D.3 Continue to conduct EOC training for all city staff	Both
Action 3.D.4 Upgrade EOC technology for mobile and onsite capabilities	Both
Action 3.D.5 Upgrade and improve infrastructure to include backup power to all existing city facilities, i.e., generators for all city facilities/buildings	Both

<b>Goal 4: Enhance hazard mitigation coordination and communication with Federal, State and County governments.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 4.A: Establish and maintain closer working relationships with Federal, State and County agencies.</i>	
Action 4.A.1 Continue to encourage and assist in development of multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.	Both
Action 4.A.2 Continue to maintain working relationships with agencies providing resources and expertise in hazard mitigation.	Both
Action 4.A.3 Continue to continuously demonstrate the importance of pre-disaster mitigation planning to the City Council and other public officials.	Both
Action 4.A.4 Continue to use staff orientation, ICS and EOC training, policy, and procedures to increase awareness.	Both
<i>Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities.</i>	
Action 4.B.1 Continue to establish and maintain lasting partnerships including HIRT JPA.	Both
Action 4.B.2 Continue to streamline policies to eliminate conflicts and duplication of effort.	Both
<i>Objective 4.C: Improve the City's capability and efficiency at administering pre- and post-disaster mitigation.</i>	
Action 4.C.1 Maintain consistency with the State in administering recovery programs.	Both

Action 4.C.2 Continue to improve coordination with the County OES in dealing with local issues.	Both
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<b>Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to <u>dam failure</u>.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 5.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to dam failure</i>	
Action 5.A.1 Update inundation maps every 10 years.	Both
<i>Objective 5.B: Protect existing assets with the highest relative vulnerability to the effects of a dam failure.</i>	
Action 5.B.1 Identify hazard-prone structures.	Both
Action 5.B.2 Construct barriers around structures.	Both
Action 5.B.3 Encourage structural retrofitting.	New
Action 5.B.4 Encourage participation in National Flood Insurance.	Both
<i>Objective 5.C: Coordinate with and support existing efforts to mitigate dam failure (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).</i>	
Action 5.C.1 Revise development ordinances to mitigate effects of development on wetland areas.	Both
Action 5.C.2 Incorporate and maintain valuable wetlands in open space preservation programs.	Both
Action 5.C.3 Review and revise, if necessary, sediment and erosion control regulations.	Both
<i>Objective 5.D: Protect floodplains from inappropriate development.</i>	
Action 5.D.1 Strengthen existing development regulations to discourage land uses and activities that create hazards.	Both
Action 5.D.2 Plan and zone for open space, recreational, agricultural, or other low intensity uses within floodway fringes.	Both

<b>Goal 6: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>earthquakes</u>.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 6.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to earthquakes.</i>	
Action 6.A.1 Update, adopt Building Codes to reflect current earthquake standards.	Both
Action 6.A.2 Participate in community awareness meetings.	Both
Action 6.A.3 Develop and distribute printed publications to the communities concerning hazards.	Both
<i>Objective 6.B: Protect existing assets with the highest relative vulnerability to the effects of earthquakes.</i>	
Action 6.B.1 Identify hazard-prone structures through GIS modeling.	Both
Action 6.B.2 Build critical facilities that function after a major earthquake.	Both
<i>Objective 6.C: Coordinate with and support existing efforts to mitigate earthquake hazards</i>	
Action 6.C.1 Identify projects for pre-disaster mitigation funding.	Both
<i>Objective 6.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from earthquakes.</i>	
Action 6.D.1 Assess Citywide infrastructure regarding earthquake risk.	Both
Action 6.D.2 Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.	Both

<b>Goal 7: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to <u>coastal storms/erosion/tsunami</u>.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 7.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to coastal flooding, erosion, tsunami, and sea level rise</i>	
Action 7.A.1 Participate in community awareness meetings	Both



Action 7.A.2 Develop and distribute printed publications to the community concerning hazards.	Both
Action 7.A.3 Clear identification of impacts from future sea level rise	Both
Action 7.A.4 Continue to explore strategies and opportunities for sand replenishment	
Action 7.A.5 Coordinate with Cities of Coronado, Chula Vista, National City, San Diego, the Port of San Diego, and all regional, state, or federal agencies for coastal resiliency planning and project implementation.	
<i>Objective 7.B: Protect existing assets with the highest relative vulnerability to the effects of coastal storms/erosion.</i>	
Action 7.B.1 Retrofit structures to strengthen resistance to damage.	Both
Action 7.B.2 Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.	Both
<i>Objective 7.C: Coordinate with and support existing efforts to mitigate severe coastal storms/erosion.</i>	
Action 7.C.1 Continue to review and update plans that would include coordination with cities, special districts, and County departments.	Both
Action 7.C.2 Continue to develop and publish information sources for the public.	Both
<i>Objective 7.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from coastal storms/erosion.</i>	
Action 7.D.1 Identify hazard-prone structures through GIS modeling	Both

<b>Goal 8: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to noncoastal floods.</b>	<b>Applies to New Existing, or Both</b>
<i>Objective 8.A: Develop a comprehensive approach to reducing the possibility of damage and losses due to floods.</i>	
Action 8.A.1 Continue to review and revise existing flood control standards, zoning and building requirements.	Both
Action 8.A.2 Continue to identify flood-prone areas by using GIS.	Both

Action 8.A.3 Increase the capacity of storm drains, particularly in areas with known ponding during rain events.	
Action 8.A.4 Use permeable surfaces, landscaped swales, and green infrastructure to the extent feasible to reduce peak stormwater flows	
Action 8.A.5 Conduct frequent cleanings of storm drain system, especially before, during, and after storm events.	
<i>Objective 8.B: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.</i>	
Action 8.B.1 Continue to assure adequate funding to restore damaged facilities to 100-year flood design.	New
Action 8.B.2 Continue to update storm water system plans and improve storm water facilities in high-risk areas.	Both
Action 8.B.3 Continue to ensure adequate evacuation time in case of major hazard event.	Both
<i>Objective 8.C: Coordinate with and support existing efforts to mitigate floods (e.g., US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources).</i>	
Action 8.C.1 Develop a flood control strategy that ensures coordination with Federal, State and local agencies.	Both
Action 8.C.2 Improve hazard warning and response planning	
<i>Objective 8.D: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from flooding.</i>	
Action 8.D1 Continue to encourage the public to prepare and maintain a 3-day preparedness kit for home and work.	Both
Action 8.D.2 Continue to increase participation and improve compliance with the National Flood Insurance Program (NFIP). Periodically review the City's compliance with NFIP regulations, as resources become available.	Both

## 6.2 PRIORITIZATION AND IMPLEMENTATION OF ACTION ITEMS

Once the comprehensive list of jurisdictional goals, objectives, and action items listed above was developed, the proposed mitigation actions were prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLEE criteria (including cost-benefit review)

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. Implementation consists of identifying who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the action will be completed.

Mitigation actions are aligned with the top natural or human-caused hazards. Structure or wildland fires are omitted due to there being no significant history for the City of Imperial Beach. Actions are aligned with objectives and corresponding actions listed above in Section 6.1. Using FEMA's recommended Mitigation Ideas document, each mitigation action was summarized into four types including: Local Planning and Regulations, Structure and Infrastructure Projects, Natural Systems Protections, and Education and Awareness Programs.

For more information on potential funding sources and grants for mitigation actions, please see the County of San Diego Multi-jurisdictional Hazard Mitigation Base Plan, Section 6.2.

Jurisdiction:	City of Imperial Beach
Hazard Addressed:	Coastal Storms/Erosion/Tsunami
Mitigation Action/Project Title:	Conduct retrofitting for vulnerable critical facilities/infrastructure and public facilities most at risk to coastal storms/erosion/tsunami.
Background/Issue:	Under existing conditions portions of the City’s storm water and wastewater systems are vulnerable to tidal inundation, flooding, and erosion. Additionally, all existing beach accesses and oceanfront property are in existing coastal erosion and coastal flood hazard zones associated with a 100-year storm event.
Ideas for Integration:	<p><b>Local Planning and Regulations</b></p> <ul style="list-style-type: none"> <li>• Action 8.A.1 Continue to review and revise existing flood control standards, zoning and building requirements.</li> <li>• Action 8.A.2 Continue to identify flood-prone areas by using GIS.</li> <li>• Action 8.C.1 Develop a flood control strategy that ensures coordination with Federal, State and local agencies.</li> <li>• Action 7.A.3 Clear identification of impacts from future sea level rise</li> </ul> <p><b>Structure and Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Action 8.B.1 Continue to assure adequate funding to restore damaged facilities to 100-year flood design.</li> <li>• Action 8.B.2 Continue to update storm water system plans and improve storm water facilities in high-risk areas.</li> </ul> <p><b>Natural Systems Protection</b></p> <ul style="list-style-type: none"> <li>• Action 7.A.4 Continue to explore strategies and opportunities for sand replenishment</li> </ul> <p><b>Education and Awareness</b></p> <ul style="list-style-type: none"> <li>• Action 8.D1 Continue to encourage the public to prepare and maintain a 3-day preparedness kit for home and work.</li> <li>• Action 8.D.2 Continue to increase participation and improve compliance with the National Flood Insurance Program (NFIP). Periodically review the City’s compliance with NFIP regulations, as resources become available.</li> </ul>
Responsible Agency:	City of Imperial Beach (Community Development, Public Works, Fire-Rescue, and Marine Safety)
Partners:	US Army Corps of Engineers, US Bureau of Reclamation, California Department of Water Resources, Coastal Commission, Port of San Diego, San Diego County Office of Emergency Services
Potential Funding:	General Fund, Grants
Cost Estimate:	Undetermined. Varies, dependent upon cost at time of implementation and/or response
Benefits: (Losses Avoided)	<ul style="list-style-type: none"> <li>• Reduced risk of property damage and public facilities</li> <li>• Reduced risk and damage to coast/beaches</li> <li>• Increased awareness across community regarding safety and preparedness</li> </ul>
Timeline:	2023-2027 – Ongoing
Priority:	High

Worksheet Completed by:	John French, Fire Chief, City of Imperial Beach Fire-Rescue
Jurisdiction:	City of Imperial Beach
Hazard Addressed:	Dam Failure
Mitigation Action/Project Title:	Update maps of potential dam failure inundation area. The City will coordinate with the USACE and the California's Division of Safety of Dams on updating Emergency Action Plans for jurisdictional dams. Part of this effort will include updating maps of dam inundation areas.
Background/Issue:	A dam failure while unlikely is usually the result of age, poor design, or structural damage caused by a major event such as an earthquake or flood.
Ideas for Integration:	<p><b>Local Planning and Regulations</b></p> <ul style="list-style-type: none"> <li>• Action 5.A.1 Update inundation maps every 10 years.</li> <li>• Action 5.C.3 Review and revise, if necessary, sediment and erosion control regulations.</li> <li>• Action 5.D.1 Strengthen existing development regulations to discourage land uses and activities that create hazards.</li> <li>• Action 5.D.2 Plan and zone for open space, recreational, agricultural, or other low intensity uses within floodway fringes.</li> </ul> <p><b>Structure and Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Action 5.B.1 Identify hazard-prone structures.</li> <li>• Action 5.B.2 Construct barriers around structures.</li> <li>• Action 5.B.3 Encourage structural retrofitting.</li> </ul> <p><b>Natural Systems Protection</b></p> <ul style="list-style-type: none"> <li>• Action 5.C.2 Incorporate and maintain valuable wetlands in open space preservation programs.</li> <li>• Action 5.C.1 Revise development ordinances to mitigate effects of development on wetland areas.</li> </ul>
Responsible Agency:	City of Imperial Beach
Partners:	San Diego County Office of Emergency Services State of California Office of Emergency Services
Potential Funding:	General Fund, Grants
Cost Estimate:	Undetermined. Varies, dependent upon cost at time of implementation and/or response
Benefits: (Losses Avoided)	<ul style="list-style-type: none"> <li>• Reduced risk of property damage and public facilities</li> <li>• Decreased infrastructure losses</li> <li>• Increased awareness across community regarding safety and preparedness</li> </ul>
Timeline:	2023-2027 – Ongoing
Priority:	Low as Dam Failure is unlikely
Worksheet Completed by:	John French, Fire Chief, City of Imperial Beach Fire-Rescue

Jurisdiction:	City of Imperial Beach
Hazard Addressed:	Earthquake
Mitigation Action/Project Title:	Conduct seismic retrofitting for critical facilities/infrastructure and public facilities most at risk to earthquakes.
Background/Issue:	Earthquakes continue to be an ongoing threat and potential hazard for the San Diego region. Research suggests that the Rose Canyon Fault can produce a magnitude 6.9 earthquake. Its proximity to Imperial Beach would mean an earthquake could dramatically impact Imperial Beach and could trigger a near-shore tsunami. Estimates suggest that the fault produces one substantial earthquake every 700 years with the most recent one occurring in 1862 that may have measured around 6.0.
Ideas for Integration:	<p><b>Local Planning and Regulations</b></p> <ul style="list-style-type: none"> <li>Action 6.A.1 Update, adopt Building Codes to reflect current earthquake standards.</li> </ul> <p><b>Structure and Infrastructure</b></p> <ul style="list-style-type: none"> <li>Action 6.B.1 Identify hazard-prone structures through GIS modeling.</li> <li>Action 6.B.2 Build critical facilities that function after a major earthquake.</li> <li>Action 6.D.1 Assess Citywide infrastructure regarding earthquake risk.</li> </ul> <p><b>Education and Awareness</b></p> <ul style="list-style-type: none"> <li>Continue and promote city-wide participation in Great California Shakeout preparation event</li> <li>Action 6.D.2 Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.</li> </ul>
Responsible Agency:	City of Imperial Beach (Community Development, Public Works, and Public Safety)
Partners:	County of San Diego of Emergency Services State of California Office of Emergency Services
Potential Funding:	General Fund, Grants
Cost Estimate:	Undetermined. Varies, dependent upon cost at time of implementation and/or response
Benefits: (Losses Avoided)	<ul style="list-style-type: none"> <li>Decrease infrastructure losses</li> <li>Increase awareness across community regarding safety and preparedness</li> <li>Protection for city-wide systems so operations continue in the event of an earthquake</li> <li>City departments are prepared and response ready in case of earthquake</li> </ul>
Timeline:	2023-2027 – Ongoing
Priority:	High
Worksheet Completed by:	John French, Fire Chief, City of Imperial Beach Fire-Rescue

Jurisdiction:	City of Imperial Beach
Hazard Addressed:	Human-Caused Hazards
Mitigation Action/Project Title:	Due to the recent rise of national cyber security threats and public sector exposure, develop a training program to educate all City staff about cyber security risks and solutions for reporting and remediating threats.
Background/Issue:	Human-caused hazards are events that are caused by humans and occur in or close to human settlements. The events leading up to a man-made hazard may be the result of deliberate or negligent human actions. Types of hazards could include terrorism / cyber terrorism, active shooters, chemical and hazmat events, health threats, and radiological and nuclear events.
Ideas for Integration:	<p><b>Local Planning and Regulations</b></p> <ul style="list-style-type: none"> <li>Action 9.A.1 Continue to develop and maintain comprehensive pre-incident and recovery plans</li> </ul> <p><b>Structure and Infrastructure</b></p> <ul style="list-style-type: none"> <li>Action 9.B.1 Implement Closed Circuit Television (CCTV) security systems with recording capabilities.</li> <li>Action 9.B.2 Key critical facilities should control all on-site parking with ID checks and access control systems.</li> <li>Action 9.B.3 Design site circulation to minimize vehicle speeds and eliminate direct approaches to structures.</li> <li>Action 9.H.1 Continue to use and install security solutions such as firewalls and antivirus software across City networks that identify and monitor all cybersecurity threats</li> </ul> <p><b>Education and Awareness</b></p> <ul style="list-style-type: none"> <li>Action 9.C.1 Continue to maintain updated Site Emergency Response Plans (SERPs).</li> <li>Action 9.C.2 Continue to conduct training and exercises for all employees.</li> <li>Action 9.C.3 Develop and maintain a Business Continuity Plan for each City department.</li> <li>Action 9.D.2 Continue to develop and maintain public education &amp; outreach programs.</li> <li>Action 9.E.1 Continue efforts to encourage the public to prepare and maintain a 3-day preparedness kit for home and work.</li> <li>Action 9.H.2 Continue to train and educate all city staff on cybersecurity risks and offer solutions for reporting and remediating threats</li> </ul>
Responsible Agency:	City of Imperial Beach – Information Technology Department and Fire-Rescue Department
Partners:	San Diego County Sheriff Department and San Diego County Office of Emergency Services
Potential Funding:	General Fund, Grants
Cost Estimate:	Undetermined. Varies, dependent upon cost at time of implementation and/or response
Benefits: (Losses Avoided)	<ul style="list-style-type: none"> <li>Decrease loss to Infrastructure and technology systems</li> <li>Protection of city-wide systems so operations continue in the event of an emergency</li> </ul>

	<ul style="list-style-type: none"> <li>City departments are prepared and response ready in case of manmade hazard</li> </ul>
Timeline:	2023-2027 – Ongoing
Priority:	High
Worksheet Completed by:	John French, Fire Chief, City of Imperial Beach Fire-Rescue

The City of Imperial Beach will continue to prioritize additional local mitigation efforts. These priorities are focused on addressing hazards as a whole while reflecting progress in local mitigation efforts as well as changes in development. The top 8 prioritized actions as well as an implementation strategy for each are:

**Priority Action #1:** Conduct multi-functional ICS and EOC training and exercises for all employees to enhance hazard mitigation

**Coordinating Individual/Organization:** Fire-Rescue, County of San Diego Office of Emergency Services

**Potential Funding Source:** General Fund, SHSP, UASI, other Grants

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards

**Priority Action #2:** Upgrade EOC technology and facilities both onsite and mobile

**Coordinating Individual/Organization:** Public Safety, Information Technology (IT)

**Potential Funding Source:** General Fund, SHSP, UASI, other Grants

**Implementation Timeline:** 2023-2027

**Hazard Mitigated:** All Hazards

**Priority Action #3:** Provide information on disaster preparedness to the public via the City website, Newsletter, Citywide mailings, Prevention Program in conjunction with Special Events.

**Coordinating Individual/Organization:** Fire-Rescue,

**Potential Funding Source:** General Fund, SHSP, UASI, other Grants

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards

**Priority Action #4:** Maintain CERT program for the City.

**Coordinating Individual/Organization:** Fire-Rescue

**Potential Funding Source:** General Fund, SHSP, UASI, other Grants

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards

**Priority Action #5:** Improve hazard warning and response planning.

**Coordinating Individual/Organization:** Fire-Rescue, Public Works, Community Development

**Potential Funding Source:** General Fund, SHSP, UASI, other Grants

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards



**Priority Action #6:** Maintain established City Working Group to update and monitor the (hazard mitigation) plan.

**Coordinating Individual/Organization:** Fire-Rescue, Public Works, Community Development, Environmental Services

**Potential Funding Source:** General Fund

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards

**Priority Action #7:** Continue to prioritize cybersecurity to mitigate risks across all City networks

**Coordinating Individual/Organization:** Information Technology (IT)

**Potential Funding Source:** General Fund, UASI, SHSP

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** Manmade Hazards

**Priority Action # 8:** Upgrade and improve infrastructure to include backup power to all existing city facilities, i.e., generators for all city facilities/buildings

**Coordinating Individual/Organization:** Fire-Rescue, Public Works

**Potential Funding Source:** General Fund, Grants.

**Implementation Timeline:** 2023 –2027

**Hazard Mitigated:** All Hazards

## 6.3 PLAN IMPLEMENTATION, INTEGRATION, AND MAINTENANCE

Another important implementation mechanism that is highly effective and low-cost is the incorporation of the hazard mitigation plan recommendations and their underlying principles into other jurisdictional plans and mechanisms.

Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development.

The mitigation plan can be considered as the hub of a wheel with spokes radiating out to other related planning mechanisms that will build from the information and recommendations contained herein.

Properly implemented, the MJHMP should serve as one of the foundational documents of the jurisdictions' emergency management programs, since everything emergency management does should relate back in one way or another to the hazards the jurisdiction faces.

Implementation through existing plans and/or programs is recommended wherever possible. Based on this Plan's capability assessment and progress made on mitigation actions, the City of Imperial Beach continues to implement policies and programs to reduce losses to life and property from natural and human-caused hazards.

The Local Planning Team will be responsible for plan evaluation, monitoring, integrating the data, goals and objectives, and other elements of this Plan into other plans, as appropriate.

Moving forward, the City will use the mitigation action table in the previous section to track the progress on the implementation of each project.

### *6.3.1 Incorporation Into Existing Planning Mechanisms*

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs, and policies.

The City's Public Works Department may use the hazard information when implementing street, and solid waste division projects. The Environmental Services Department may utilize the hazard information when implementing water, wastewater reclamation, and environmental projects that are part of the City's Capital Improvement Program.

Similarly, the City's Community Development Department may utilize the hazard information when completing the comprehensive update to the City's Local General Use Plan.

The natural hazard information can directly inform the City's Vulnerability Assessment underway that looks at the potential impacts from flooding, extreme temperature, drought, and severe weather hazards, including how climate change may increase the threat and how the City can build long-term resiliency. The City's Community Development Department can also use the hazard information when reviewing a site plan or other types of development applications. The City will also incorporate this MJHMP into the Safety Element of their General Plan, as recommended by AB 2140 and as part of the current and comprehensive General Plan and Local Coastal Program Land Use Plan.

The City of Imperial Beach planning team will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts in leadership meetings and as needed in city council meetings.

# 7. SECTION SEVEN: Keep the Plan Current

## MONITORING, EVALUATION, AND UPDATING THE PLAN

The City planning participants listed in Section 2 will follow the procedures to monitor, evaluate, review, and update this plan in accordance with San Diego County. The city will continue to involve the public in mitigation. The Fire Chief will be responsible for representing the City in the County, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

Existing Plans	Responsible Agency	Role of Planning Team	2022 Status
City of Imperial Beach General Plan / Local Coastal Program Land Use Plan	City of Imperial Beach	Hazard Mitigation Planning Team will ongoingly update plan based on any changes	Plan is still current; no initiative to update
Emergency Operations Plan	City Imperial Beach and County of San Diego	Hazard Mitigation Planning Team will ongoingly update plan based on any changes  This will happen in direct conjunction with the County of San Diego as changes are made in the larger County EOP.	Plan is still current; updating as other changes

### 7.1 MITIGATION ACTION PROGRESS

The following Priority Actions from the 2018 plan are all considered ongoing and were incorporated and/or consolidated into this updated plan’s Goals, Objectives, and Actions:

Priority Action #1: Conduct training and exercises for all employees.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going.

Priority Action #2: Update dam inundation maps.

Coordinating Individual/Organization: Public Works

Potential Funding Source: General Fund

Implementation Timeline: On-going

Priority Action #3: Provide information to the public on the City website, Newsletter, Citywide mail outs, Prevention Program and in conjunction with Special Events.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: On-going

Priority Action #4: Encourage the public to prepare and maintain a 3-day preparedness kit for home and work.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: On-going

Priority Action #5: Maintain CERT program for the City.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants

Implementation Timeline: On-going.

Priority Action #6: Coordinate the development of a multi-jurisdictional plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going.

Priority Action #7: Encourage and assist in development of multi-jurisdictional/ multi-functional training and exercises to enhance hazard mitigation.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going

Priority Action #8: Improve hazard warning and response planning.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going

Priority Action #9: Maintain established City Working Group to update and monitor the (hazard mitigation) plan.

Coordinating Individual/Organization: Public Safety

Potential Funding Source: General Fund, Grants.

Implementation Timeline: On-going

## **7.2 DEVELOPMENT, PAST INTEGRATION, AND STATUS OF PREVIOUS PLAN**

**There are no major changes in development in hazard prone area since the last plan was implemented in 2018.** The City of Imperial Beach's General Plan Coastal Land Use Plan has continued to integrate the MJHMP in all aspects of the general plan. The latest update to the General Plan was in 2019.

The previous plan was completed in 2018 and submitted to the County of San Diego. The MJHMP was adopted by Imperial Beach City Council on April 4, 2018. The plan remains in effect until the revised 2023 MJHMP is approved by the State of California and FEMA.