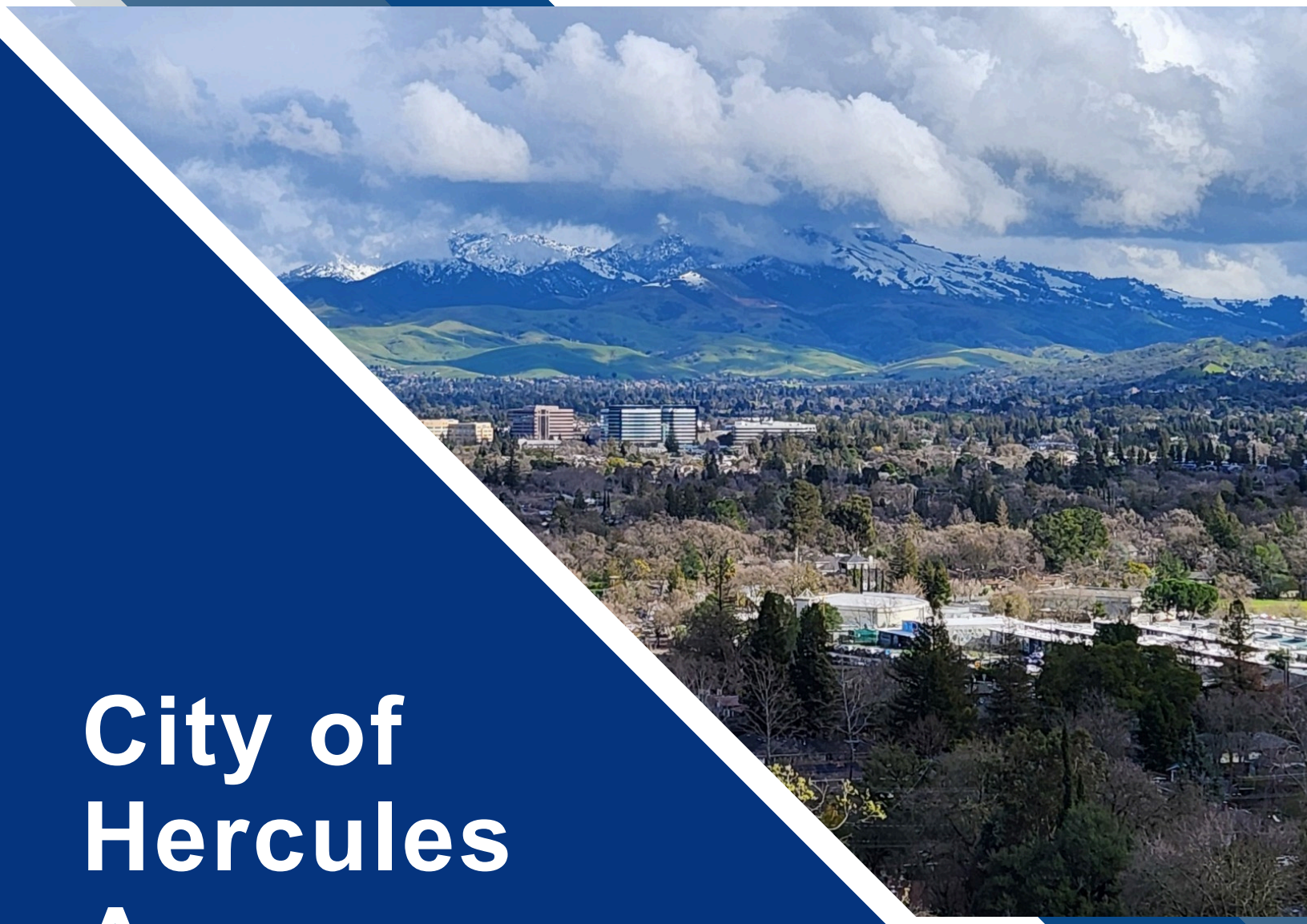
2024 Hazard Mitigation Plan

Contra Costa County, California



City of Hercules Annex

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1. INTRODUCTION

This Annex details the hazard mitigation elements specific to the City of Hercules, a participating jurisdiction to the 2024 Contra Costa County Hazard Mitigation Plan update. This Annex is not intended to be a standalone document but supplements the information contained in **Volume 1 (Planning Area-wide Elements)**. Therefore, all sections of **Volume 1 (Planning Area-wide Elements)** including the planning process, mitigation goals and objectives, hazard identification and risk assessment, mitigation strategy, and plan maintenance apply to and were met by the City of Hercules. This Annex provides additional information specific to the City, with a focus on providing additional details on the hazard risk assessment and mitigation strategy (i.e., mitigation actions) for this community.

2. LOCAL PLANNING TEAM

The City of Hercules Local Planning Team was comprised of the members listed on **Table 1**.

Table 1. City of Hercules Local Planning Team Members

Name	Title	Department
Seana Field	Senior Planner	City of Hercules Community Development Department
Joseph Vazquez	Chief of Police	City of Hercules Police Department

3. JURISDICTION PROFILE

The City of Hercules, incorporated in December 1900, is in western Contra Costa County, California. Situated along the coast of San Pablo Bay, about 10 miles north of Berkeley, California. The City has a predominantly suburban character dominated by two (2) story detached and attached homes, and one (1) story commercial building divided into various subdivisions along well landscaped roads. The waterfront, which has a planned rail/ferry station, is zoned for higher density transit oriented development with community retail. A few three (3) to five (5) story mixed-use developments have been constructed there since 2015. The portion of the City located inland of Interstate 80 (I-80), is mainly characterized by gently rolling hills along Refugio Valley Road. The City is primarily composed of subdivisions built between the 1970s and 1980s. The residential neighborhoods are known to the locals as “the Birds,” “the Trees and Flowers,” “the Gemstones”, “the Astronauts”, and “the Islands”, per the street naming conventions of each subdivision.

3.1. Population

The City of Hercules had a population of 25,920 as of July 1, 2022. Between 2010 and 2020, the population increased by approximately 8.1%; however, a slight population decrease of 0.4% occurred between 2020 and 2022. **Table 2** shows the City of Hercules’ population distribution between 2010 and 2022.[1]

Table 2. Population Estimates

Jurisdiction	2010	2020	2022	Population Change *(2010 – 2022)*
City of Hercules	24,060	26,016	25,920	7.7%

[1] United States Census Bureau. (2022). Quick Facts: City of Hercules. Retrieved from https://www.census.gov/quickfacts/fact/table/herculescitycalifornia/.

3.1.1. Underserved Population

The 2023 California State Hazard Mitigation Plan identifies the Centers for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI) as the most appropriate and authoritative dataset to identify areas where efforts can be prioritized to ensure equitable outcomes from mitigation planning and actions.

CDC's SVI combines 16 social factors, within four (4) themes (i.e., socioeconomic status, household characteristics, racial and ethnic minority status, and housing type and transportation), to identify areas of social vulnerability. **Table 3** outlines the SVI information for the City of Hercules.

Note: *ArcGIS mapping analysis was performed utilizing Census Tract data by overlaying Census Tracts with the City of Hercules planning area boundary. The information outlined in this section includes data from the Census Tracts that intersect the jurisdiction.*

Table 3. Social Vulnerability Index (2020)

Theme	Social Factors	Population	Percent
Socioeconomic Status	People below 150% poverty estimate	5,981	23.0%
	Unemployed *(Civilian 16 years old and older)*	1,490	5.7%
	Housing Cost Burden	4,029	15.5%
	No High School Diploma	3,300	12.7%
	No Health Insurance	2,198	8.5%
Household Characteristics	65 years old and older	9,346	36.0%
	17 years and younger	9,987	38.4%
	Civilian with a Disability	5,246	20.2%
	Single-Parent Household	1,091	4.2%
	English Language Proficiency	2,144	8.2%
Racial and Ethnic Minority Status	• Hispanic or Latino (of any race) • Black or African American • Asian • American Indian or Alaska Native • Native Hawaiian or Pacific Islander • Two or More Races • Other Races	22,328	85.8%
Housing Type and Transportation	Multi-Unit Structures	1,083	4.2%
	Mobile Homes	52	0.2%
	Crowding	650	2.5%
	No Vehicle	587	2.3%
	Group Quarters	167	0.6%

3.2. Brief History

The site of Hercules was first developed in 1881 as a manufacturing facility by the California Powder Works for the production of its patented dynamite formulation, Hercules powder. In 1882, the Hercules Powder Company was incorporated and assumed responsibility for the Hercules site. It was one of several explosive manufacturers that were active along the Pinole shoreline in the late 19th to mid-20th century. The small company town that grew up near the facility subsequently became known as "Hercules" and was incorporated at the end of 1900.

Between the 1890s and 1970s, the City of Hercules was a company town of several hundred people. 36 buildings from this era remain and were nominated to the National Register of Historic Places in 1980. By the 1940s, Hercules organized its own law enforcement department and longtime Hercules Powder Company employee William Darke was named sheriff, becoming its first officer. After World War II, the company began to diversify its production line and built an anhydrous ammonia plant, a base for fertilizer. Explosive manufacturing was discontinued in Hercules in 1964.

In 1974, the cessation of explosives production allowed hundreds of acres of protective “buffer” land (separated by large stands of eucalyptus trees) to be reused for other purposes. Real estate development companies began to develop the land and the City of Hercules began to transform into the bedroom community it is known as today.

3.3. Governing Body Format

The City of Hercules has a City Council/City Manager form of local municipal government. Policy making and legislative authority is vested in a five (5) member City Council. The City Council is elected at large on a nonpartisan basis and serves staggered four (4) year terms. In December of each year, the City Council conducts a reorganization of the Council at which time the Mayor and Vice Mayor are appointed for one (1) year terms. The City Manager is appointed by the City Council and is the Chief Executive Officer of the Municipal Corporation.

The City Council presides over and adopts the City’s annual budget and financial affairs; appoints commissions and committees; and hires and supervises the City Manager. City Council members are responsible for service to the citizens, businesses, and policies of the City. The City Manager advises the City Council, supervises personnel and all City departments; enforces ordinances and programs approved by City Council; and oversees day-to-day City government operations.

4. DEVELOPMENT TRENDS

California Law requires counties and cities to prepare and adopt a General Pan, a comprehensive long-range plan to guide community development. The General Plan must contain seven (7) state-mandated elements – land use, housing, circulation, safety, open space, conservation, and noise – and may contain additional elements as a jurisdiction sees fit. Additionally, the General Plan must comprise an integrated and internally consistent set of goals, policies, and implementation measures. The City of Hercules adopted its General Plan under this law and has updated various elements several times over the years, most recently the Circulation element in 2018 and the Safety Element in 2021.

The Bay Area is the fifth largest metropolitan area in the nation and has seen a steady increase in population since 1990, except for a dip during the Great Recession that began in 2008. Many cities in the region have experienced significant growth in jobs and population. While these trends have led to a corresponding increase in demand for housing across the region, the regional production of housing has not kept pace with job and population growth.

The City of Hercules, facing critical financial and growth challenges, chartered an innovative urban design based land use planning effort at the turn of the millennium. The resulting Plan for Central Hercules provides a vision and the regulatory path to create a much needed, pedestrian friendly, commercial Town Center. The open, inclusive planning effort changed the public conversation about growth, helped build community, and is delivering tangible financial benefits. The Hercules District Plan Initiative was a significant effort and accomplishment for a small California city. Other planning initiatives include the following:

- **Owl Ranch (formerly Skelly Residential):** Approved a 40 lot single family subdivision on an approximately 7.44-acre site, the former McLeod Ranch property.
- **Franklin Canyon Area:** An area of approximately 973 acres containing 646 acres within City limits and 327 acres outside City limits subject to Measure M passed by voters in 2004. The Area includes the Franklin Canyon Golf Course, Muir Heritage Land Trust open space/trail/grazing area and additional private properties outside City limits.
- **Hilltown (also known as Hill Crest):** Approved mixed-use residential development of up to 598 attached multi-family units and 4,200 square feet of neighborhood commercial uses on a former industrial site of 44 acres located on San Pablo Avenue near Victoria by the Bay.
- **The Hercules Hub:** Is set to become the first west coast facility combining three (3) modes of transit (bus, rail, and ferry) in one (1) location. Nearly two (2) decades in the making, the Hercules Hub aims to connect thousands of housing units with a new train stop along the Capitol Corridor, bicycle and pedestrian pathways, bus routes, carpool options, and future ferry service.
- **Sycamore Crossing:** Owned by the Lewis Group, this 12-acre mixed use property on the south side of Sycamore Avenue is approved to be developed with retail, hotel, and residential uses to complement and expand on the Aventine and Bayside projects.
- **Waterfront (also known as Hercules Bayfront):** Construction is underway for the 40-acre mixed use development, making it one of the west coast's largest transit oriented projects.

Table 4 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 4. Recent and Expected Development Trends

Criteria	Response
Has your jurisdiction annexed any land since the development of the previous Hazard Mitigation Plan?	No
If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A
Is your jurisdiction expected to annex any areas during the performance period of this Plan?	No
Has your jurisdiction had any major changes in development over the <u>past</u> five (5) years that have occurred in hazard prone areas?	No
If yes, please briefly describe.	N/A
Are any areas targeted for development or major redevelopment in the <u>next</u> five (5) years that will occur in hazard prone areas?	Yes

Criteria	Response
If yes, please briefly describe.	• **Franklin Canyon Area:** 162 acres redevelopment of the Franklin Canyon Golf Course into a RV Resort with 158 RV spaces, 22 campsites, a clubhouse, and outdoor amenities. • **Hilltown:** Mixed-use residential development of approximately 598 residential units, consisting of 198 condominiums/apartments and 400 townhomes/motor court units (5% set aside for moderate-income housing), and 4,200 square feet of neighborhood commercial on a 44-acre former industrial site. • **Bayfront:** The full build-out will include: 1,526 multi-family residences (5% set aside for low income (60% of median income) affordable housing); 93,000 square feet of retail; 35,000 square feet of office space; and, a Regional Intermodal Transportation Center, combining rail (Capitol Corridor), ferry (WETA), and bus (West CAT) transit services. • **Sycamore Crossing:** 120 multi-family residences; 105-room hotel; and 29,500 square feet of retail. Portions of these areas are in known hazard areas. Development will mitigate or avoid hazard areas.
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	• **Special Flood Hazard Areas:** 0 • **Landslide:** 0 *(Landslide vulnerability is described as "scattered small landslides" and slide locations are mapped in locations with primarily very low development. All development required to have a soils report and mitigate hazard.)* • **High Liquefaction Areas:** 0 • **Dam Failure Inundation Area:** 0 • **Wildfire Risk Areas:** 0

4.1. Changes in Priority

The overall hazard mitigation priorities have not significantly changed for the City of Hercules since the last Plan update. However, mitigation actions from the previous Plan were updated, and a more concerted effort on achieving equitable outcomes for all communities, including underserved communities and socially vulnerable populations, has been implemented.

5. CAPABILITY ASSESSMENT

Federal regulations require hazard mitigation plans to identify goals for reducing long-term vulnerabilities to the identified hazards in the planning area (Section 201.6(c)(3)(i)). A critical step in the development of specific hazard mitigation actions and projects is assessing existing authorities, policies, programs, and resources and capabilities to use or modify local tools to reduce losses and vulnerability from profiled hazards.

A capability assessment was conducted for the City of Hercules and participating jurisdictions' authorities, policies, programs, and resources. Goals and mitigation actions were developed using input from this assessment. Information regarding the City's implementation of and continued participation in the National Flood Insurance Program (NFIP) can be found in Section 8 of this Annex.
The Local Planning Team assessed the City's capabilities that can contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include the following categories:

- Planning and Regulatory Capabilities
- Administrative and Technical Capabilities
- Financial Capabilities
- Education and Outreach Capabilities

Additionally, ways to expand on and improve these existing policies and programs to integrate hazard mitigation into the day-to-day activities and programs of the City were considered.

5.1. Planning and Regulatory Capabilities

These include local ordinances, policies, and laws to manage growth and development (e.g., land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes, and zoning ordinances). The City of Hercules will adopt the approved 2024 Contra Costa County Hazard Mitigation Plan into the City's General Plan Safety Element for AB 2140 compliance. **Table 5** contains a list of legal and regulatory capabilities. The description section of each Planning and Regulatory Capability includes a paragraph on expansion, implementation, and improvement.

Table 5. Planning and Regulatory Capabilities

<table>
<tr><td colspan="4">City Code, Title 3: Public Safety
Includes: Disaster organization and response processes, Fire Code, Fire Zones, Explosives</td></tr>
<tr><td colspan="4">Title 3 provide for the preparation and carrying out of plans for the protection of people and property within the City in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions of this City with all other public agencies, corporations, organizations, and affected private people. Title 3 also provides information specific to urban and wildland fires, fire zones, and applicable codes.

Expansion, Implementation, and Improvement: The Public Safety Code will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses.</td></tr>
<tr><td>Lead Department</td><td>Rodeo–Hercules Fire Protection District</td><td>Hazards Addressed</td><td>Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire, Hazardous Materials Incident, Utility Interruptions, Active Shooter, Terrorism</td></tr>
<tr><td colspan="4">City Code, Title 5: Sanitation and Health
Includes: Water Systems Codes, Stormwater Management and Discharge Control, Sewers Inspection</td></tr>
<tr><td colspan="4">Title 5 addresses sanitation, sewers, and stormwater management. This section of the City Code also carries out the conditions in the City's National Pollutant Discharge Elimination System (NPDES) permit that require effective implementation of appropriate source control and site design measures and stormwater treatment measures.

Expansion, Implementation, and Improvement: The Sanitation and Health Code will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses. Mitigation actions in this Hazard Mitigation Plan can inform updates and revisions to the Code.</td></tr>
<tr><td>Lead Department</td><td>City of Hercules Public Works Department (Engineering Division)</td><td>Hazards Addressed</td><td>Climate Change, Flood, Sea Level Rise, Tsunami</td></tr>
</table>

City Code, Title 9: Building Regulations *Includes: Building Code, Electrical Code, Plumbing Code, Mechanical Code, Housing Code, House Moving, Grading, Community Preservation, Building Security Code, Historical Building Code, Residential Code*			
City Building Regulations (incorporates by reference and is based upon the 2022 California Building Code, 2022 California Residential Code, 2022 California Green Building Standards Code, and 2022 California Existing Building Code [all codified in California Code of Regulations, Title 24]); adopted November 17, 2022. Title 9 also addresses minimum standards for structural seismic resistance established primarily to reduce the risk of building damage, injury, and loss of life. **Expansion, Implementation, and Improvement:** The Building Regulations will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses. They will be updated to comply with the latest International and State building codes.			
Lead Department	City of Hercules Community Development Department	**Hazards Addressed**	Climate Change, Drought, Earthquake, Flood, Sea Level Rise, Severe Weather, Tsunami, Wildfire

City Code, Title 10: Land Use			
Title 10 provides land use regulations for the City. In coordination with Title 13, this section of the Code provides guidelines and regulations on zoning, subdivisions, and facility review. The Subdivision code addresses the development of groups of residences and commercial property. It describes requirements for transportation, water, and wastewater services. It sets limits on residential property density. The Planning Commission is designated as the Advisory Agency with respect to subdivisions. Title 10 also includes details and provisions for the City's Hazardous Waste Management Plan and flood damage prevention. **Expansion, Implementation, and Improvement:** Land Use within the City provides for adequate infrastructure to support residential area populations. The EOP and relevant plans/annexes should be updated to align with the Chapters on the Hazardous Waste Management Plan and Flood Damage Prevention.			
Lead Department	City of Hercules Community Development Department	**Hazards Addressed**	Climate Change, Drought, Earthquake, Flood, Sea Level Rise, Severe Weather, Tsunami, Wildfire

City Code, Title 13: Zoning

Includes: Subdivisions, Flood Damage Prevention, Hazardous Waste Management Plan

The purpose of Title 13 is to promote public health, safety, and welfare and general prosperity with the aim of preserving a wholesome, serviceable, and attractive community. More specifically, the purpose of the Zoning Ordinance is to:

A. Preserve and enhance the community's quality of life with well-balanced growth and development.
B. Enhance and create a community with a wide range of choices, services, and amenities.
C. Accommodate expansion of development into vacant or underdeveloped lands and lands subject to redevelopment.
D. Provide a set of regulations and procedures to review and process land use and development applications in an open, fair, and equitable manner.
E. Facilitate attractive, functional, and safe development within the City for a variety of uses, which may at times be combined on a site.
F. Minimize adverse environmental effects and fiscal consequences to the community.

Expansion, Implementation, and Improvement: Zoning Code may be used to address land use regulations that support mitigation actions such as development in wetlands and floodplains and preservation of open space.

Lead Department	City of Hercules Community Development Department	**Hazards Addressed**	Climate Change, Drought, Earthquake, Flood, Sea Level Rise, Severe Weather, Tsunami, Wildfire

California Fire Code and Local Amendments

The District adopted the 2022 California Fire Code (California Code of Regulations, Title 24, Part, 9 [based on the 2021 International Fire Code published by the International Code Council] The California Fire Code (CFC) contains regulations consistent with nationally recognized and accepted practices for safeguarding life and property from fire and explosion, dangerous conditions arising from the storage, handling, and use of hazardous materials and devices, and hazardous conditions in the use or occupancy of buildings or premises.

To ensure new construction and tenant improvements meet or exceed local standards to secure life safety related to building construction features and systems used to prevent ignition and fire spread as well as facilitate occupant escape.

Expansion, Implementation, and Improvement: The Fire Code must be modified and updated to reflect changes in development.

Lead Department	Rodeo–Hercules Fire Protection District	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

City General Plan

Includes: Land Use, Circulation, Housing, Open Space, Safety, Noise, Economic, Hazardous Waste, Growth

The City's General Plan is the community's vision about how it will grow and reflects the community's priorities and values while shaping the future. As the legal underpinning for land use decisions within the City, the General Plan consists of an introduction and nine (9) elements:

1. Land Use
2. Circulation
3. Housing
4. Open Space Conservation
5. Safety
6. Noise
7. Hazardous Waste Management Plan
8. Economic Development
9. Growth Management

The General Plan also includes an Environmental Impact Report, which is used to assess potential environmental impacts as a result of development or non-development. It is analogous to the Environmental Impact Assessments required by the 1969 national Environmental Policy Act.

Expansion, Implementation, and Improvement: This Hazard Mitigation Plan will be incorporated in the General Plan Safety Element. The opportunity to incorporate additional hazard mitigation and abatement measures will be contemplated for inclusion into the updated General Plan.

Lead Department	City of Hercules Community Development Department	**Hazards Addressed**	Climate Change, Drought, Earthquake, Flood, Sea Level Rise, Severe Weather, Tsunami, Wildfire

County Climate Action Plan

The Contra Costa County Climate Action Plan (CAP), adopted in December 2015, is the County's strategic approach to reduce greenhouse gas (GHG) emissions from sources throughout the unincorporated area. The CAP reflects the County's programs and actions to decrease energy use, improve energy efficiency, develop renewable energy, reduce vehicle miles traveled, increase multi-modal travel options, expand green infrastructure, reduce waste, and improve the efficiency of government operations. The City is in the process of developing its own CAP.

Expansion, Implementation, and Improvement: The City is in the process of considering development of a local CAP.

Lead Department	Contra Costa County Department of Conservation and Development, City of Hercules Community Development Department	**Hazards Addressed**	Climate Change, Drought, Flood, Sea Level Rise, Severe Weather, Wildfire

Contra Costa Hazardous Materials Plan / Hazardous Material Business Plan

Addresses the storage, use, and emergency planning for hazardous materials and extremely hazardous substances in the community and businesses.

Expansion, Implementation, and Improvement: This Hazard Mitigation Plan will support mitigation measures compatible with the County Hazardous Materials Plan to reduce potential hazardous materials releases.

Lead Department	Contra Costa Health Services, Hazardous Materials Program Office; Contra Costa County Fire Protection District	**Hazards Addressed**	Hazardous Materials Incidents

Emergency Operations Plan			
The Emergency Operations Plan (EOP) outlines how the City, its government, stakeholder agencies, community-based organizations (CBO), business community, and residents – coordinate their response to major emergencies and disasters. The EOP identifies operational strategies and plans for managing inherently complex and potentially catastrophic events. This Plan is regularly updated by staff and approved by the City Council. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential tool to update the City EOP. California Office of Emergency Services (Cal OES) requires that EOPs describe applicable hazards as part of the Plan. The latest Hazard Mitigation Plan hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability for inclusion in the description of EOP processes and procedures.			
Lead Department	City of Hercules Police Department	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire, Hazardous Materials Incidents, Utility Interruptions, Active Shooter Incidents, Terrorism
Capital Improvement Plan			
The Capital Improvement Plan (CIP) provides broad direction for development of City facilities and infrastructure. It describes a strategy to maintain adequate support for the City's communities and commerce. It addresses transportation, utilities, essential City facilities, and provides flexibility to respond to other projects or issues as they arise. **Expansion, Implementation, and Improvement:** The CIP should continue to utilize flexibility in the CIP to incorporate mitigation measures in planned projects and the project evaluation criteria which includes public health and safety, regulatory compliance, and grant funding requirements.			
Lead Department	City of Hercules Public Works Department (Engineering Division)	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
Continuity of Operations Plan			
The Plan is under development.			
Lead Department	City of Hercules Police Department	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire, Hazardous Materials Incidents, Utility Interruptions, Active Shooter Incidents, Terrorism

Stormwater Control Plan			
The Stormwater Control Plan (SCP) is responsible for ensuring that the City complies with its municipal stormwater NPDES permits. The NPDES Program is mandated by the Federal Clean Water Act and administered in California by the State Water Resources Control Board and the Regional Water Quality Control Boards on behalf of the U.S. Environmental Protection Agency. **Expansion, Implementation, and Improvement:** Mitigation actions in this Hazard Mitigation Plan can inform updates and revisions to the SCP. Watershed protection processes are a useful source of information for developing mitigation activities. This Hazard Mitigation Plan should be aligned with the SCP.			
Lead Department	City of Hercules Public Works Department	**Hazards Addressed**	Flood
Alameda and Contra Costa County Regional Wildfire Prevention Plan			
The Contra Costa Resource Conservation District (CCRCD) and the Alameda City Resource Conservation District (ACRCD) worked jointly with funding from the Coastal Conservancy to develop a Regional Priority Plan (RPP) for Contra Costa and Alameda counties. The goal of the RPP process was to identify regional natural resource concerns that could be exacerbated by catastrophic wildfire and develop projects or other methods to remedy those issues ahead of the next wildfire event. The planning process started in November 2020 and completed in September 2022. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan and Regional Wildfire Prevention Plan should be aligned where mitigation actions in this Hazard Mitigation Plan support the goals of the Regional Wildfire Prevention Plan. The wildfire analysis in this Hazard Mitigation Plan can inform updates and revisions to the Wildfire Prevention Plan.			
Lead Department	Rodeo-Hercules Fire Protection District with support from Contra Costa County Fire Protection District	**Hazards Addressed**	Wildfire
Contra Costa County Community Wildfire Protection Plan			
The Contra Costa County Wildfire Protection Plan (CWPP), updated in 2019, provides an analysis of wildfire hazards and risk in the wildland urban interface (WUI) in Contra Costa County. The Plan follows the standards for CWPPs established by the Federal Healthy Forest Restoration Act. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan and County Community Wildfire Protection Plan should be aligned where mitigation actions support the goals of the CWPP. The wildfire analysis in this Hazard Mitigation Plan can inform updates and revisions to the CWPP.			
Lead Department	Rodeo-Hercules Fire Protection District with support from Contra Costa County Fire Protection District	**Hazards Addressed**	Wildfire

5.2. Administrative and Technical Capabilities

The administrative and technical capabilities include community (i.e., public and private) staff and their skills and tools, which can be used for mitigation planning and implementation. This capability includes engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers. Small communities may rely on other government entities, such as counties or special districts, for resources. These capabilities may be used to support mitigation activities. **Table 6** lists administrative and technical capabilities.

Table 6. Administrative and Technical Capabilities

Planners, Engineers, Building Officials, and Code Enforcement	
The planners, engineers, building officials, and code enforcement personnel issue building permits, review plans for new construction and improvements; conduct plan checks; work with architects, engineers, designers, and building owners during pre-construction; inspect all phases of residential and commercial/industrial construction for compliance; enforce municipal code violations. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state of the art knowledge of new code and regulatory requirements.	
Department	City of Hercules Community Development Department
Planners, Engineers, Analysts, and General Staff	
The planners, engineers, analysts, and general staff plan future City land use; develop and implement the General Plan, land use regulations through zoning and subdivision codes, and environmental review of development; administer the Community Development Block Grant Program (CDBG), conduct Code Compliance Program with the Building Division; conduct conditional use permits, variances, land subdivision, California Environmental Quality Act (CEQA) review, public hearings, noise permits, and zoning information. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state-of-the-art knowledge of new code and regulatory requirements.	
Department	City of Hercules Community Development Department
Director, Assistant Director, Superintendent, Supervisor, Engineers, Analysts, General Staff	
Directors, assistant directors, superintendents, supervisors, engineers, analysts, and general staff oversee public and private improvements in the public right of way; develop and implement the Capital Improvement Program by providing staff support to the City relative to City streets, sanitary sewer, storm drains, water system facilities, traffic signals, park, and recreational facilities; maintain and upgrade public infrastructure; provide services related to traffic issues; monitors the street lighting system maintained by the City and PG&E; keeps and maintains record drawings of City owned infrastructure; conducts traffic committee meetings with the Police Department; and provides engineering support to other City departments and divisions within the Public Works Department. **Expansion and Improvement:** Provide opportunities for continued education to Public Works staff to maintain state of the art knowledge of new code and regulatory requirements.	
Department	City of Hercules Public Works Department
Police Department and Emergency Services	
The Police Department provides for the coordinated response and recovery from major emergencies and disasters; develop, administer and coordinate the emergency planning preparedness program in conformity with local, State, and Federal requirements; develop emergency management and hazard mitigation plans; provide training to City staff in emergency planning and preparedness; develop, maintain, and coordinate the City Emergency Operations Center (EOC); provide businesses and residents with emergency planning and preparedness material to help reduce the loss of life and property resulting from a disaster; coordinate with City, County, State, and Federal counterparts; prepare emergency management grants; coordinate the efforts of volunteer organizations. **Expansion and Improvement:** Provide training to EOC staff, and other key personnel to better prepare for potential hazards and take action to report them.	
Department	City of Hercules Police Department

Floodplain Administrator	
As a member of the NFIP, the Floodplain Administrator is responsible for collaborating with stakeholders to ensure the Floodplain Management Ordinance is followed within the City. The duties of the Floodplain Administrator are outlined in the Code of Ordinances, 8.35.050. **Expansion and Improvement:** Continue to manage the City's NFIP participation. Support the development of mitigation activities consistent with the best practices for floodplain management.	
Department	City of Hercules Public Works Department
Public Information Officer	
The Public Information Officer (PIO) provides public and media information regarding the City's disaster response, mitigation, and recovery efforts. **Expansion and Improvement:** Continue to use PIOs to promote awareness of this Hazard Mitigation Plan and activities associated with individual mitigation projects as they are implemented.	
Department	City of Hercules City Manager's Office
Information Technology and Geographic Information System	
Information technology (IT) and Geographic Information Systems (GIS) provide the technical resources and support necessary to operate all of the applications relating to the City's information resources; respond to the service needs to all departments based on Citywide priorities as established by the City Manager; responsible for the training and effective use of all City technology computer hardware, software, and peripherals; provide internal coordination of technology efforts Citywide including substantial interface with all technology vendors to assure cost-effective, secure, and reliable technologies compatible with the long-range needs of the City; provide high-quality spatial data to City departments. **Expansion and Improvement:** Consider acquiring GIS and provide training to City staff.	
Department	City of Hercules Information Technology Department
Risk Management	
Risk Management provides services to assist City departments in managing their risk of injury to employees, City property, and the public at large; purchase insurance for City departments and act in an advisory capacity with respect to workers' compensation, public liability, City property, and City contracts. **Expansion and Improvement:** Continue to have the Risk Manager provide input to support the analysis of potential losses due to hazards. Update this Hazard Mitigation Plan based on current insurance values.	
Department	City of Hercules Human Resources Department, City of Hercules City Clerk
County Flood Control and Water Conservation District	
The Contra Costa County Flood Control and Water Conservation District serves an advisory capacity to the Community Development Department and the Planning Commission relative to drainage and flood control problems.	
Department	Contra Costa County Flood Control and Water Conservation District

5.3. Financial Resources

Table 7 contains a list of financial capabilities available to the City. These financial resources may be used to support mitigation activities based on procedures for each resource.

Table 7. Financial Resources

General Fund	
The General Fund Program funds operations and specific projects. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the General Fund.	
Administrator	City of Hercules City Manager's Office; City of Hercules Finance Department
City Council Administered Special Funds	
Most special revenue funds were established to mitigate the impact of projects approved in certain areas of the City and most funds have been intended for uses that will benefit the quality of life for the communities in which the project is approved and special revenue funds originated. **Expansion and Improvement:** Focus Administered Special Funds on projects that provide mitigation to natural hazards.	
Administrator	City of Hercules City Council
National Pollutant Discharge Elimination System	
The National Pollutant Discharge Elimination System (NPDES) is a joint effort of the Planning, Engineering, and Public Works departments through the Contra Costa County Clean Water Program. Since 1993, the City has worked with Contra Costa County Flood Control and Water Conservation District, and 15 other cities within the County to meet federal mandates for minimizing pollutants in stormwater runoff. This revenue is used to fund its pro-rated share of the Clean Water Program's staffing, overhead costs, and local level activities necessary to comply with the joint Municipal Regional Permit (MRP) provisions. **Expansion and Improvement:** Where permissible, the NPDES Fund may be considered during the annual budgeting process for funding mitigation projects.	
Administrator	City of Hercules Public Works Department
Community Development Block Grant	
The Community Development Block Grant (CDBG) Program provides funding for eligible senior activities such as in-home care, art classes, counseling, and home-delivered meals. The United States Department of Housing and Urban Development (HUD) also provides Disaster Recovery Assistance in the form of flexible grants to help cities, counties, and states recover from Presidentially Declared Disasters, especially in low-income areas, subject to the availability of supplemental appropriations. **Expansion and Improvement:** Where applicable, CDBG should be used to fund mitigation projects that enhance the resiliency of low income and underserved communities.	
Administrator	United States Department of Housing and Urban Development, City of Hercules Community Development Department
Hazard Mitigation Grant Program	
The Hazard Mitigation Grant Program (HMPG) provides support for post-disaster mitigation plans and projects. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.	
Administrator	Federal Emergency Management Agency, City of Hercules Community Development Department

Building Resilient Infrastructure and Communities	
Building Resilient Infrastructure and Communities (BRIC) provides support for pre-disaster mitigation plans and projects. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.	
Administrator	Federal Emergency Management Agency, City of Hercules Community Development Department
Flood Mitigation Assistance Grant Program	
The Flood Mitigation Assistance (FMA) Grant Program mitigates structures and infrastructure with repetitive losses. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the California OES mitigation website to initiate applications for grant funding.	
Administrator	Federal Emergency Management Agency, City of Hercules Community Development Department

5.4. Education and Outreach Capabilities

Table 8 lists the City's financial and public outreach capabilities. These capabilities include fire safety programs, hazard awareness campaigns, public information, and communications offices. Education and outreach capabilities can be used to inform the public about current and potential mitigation activities.

Table 8. Education and Outreach Resources

City Emergency/Disaster Readiness Website *https://www.herculesca.gov/government/police/emergency-preparedness*	
The City's Police Department website has educational material on numerous programs, including making an emergency plan, stocking supplies, staying informed, and getting involved in community preparedness programs. **Expansion and Improvement:** Provide links to the City and County websites. Post material on social media accounts that provide a link to the appropriate FEMA website page.	
Lead Organization	City of Hercules Police Department
City Social Media Accounts ***Facebook:*** *https://www.facebook.com/cityofhercules/* ***X (formerly Twitter):*** *https://twitter.com/Hercules_PD/* ***Instagram:*** *https://www.instagram.com/hercules_pd/*	
The City uses its social media accounts to post information to collect input on updating this Hazard Mitigation Plan. These social media accounts can have links to other City webpages that provide details on mitigation projects and activities. They can also provide information and links to County, State and Federal emergency preparedness sites that provide information on individual and family preparedness. **Expansion and Improvement:** Develop a comprehensive program to utilize social media to reach out to communities in the City to provide information on mitigation activities. Conduct an annual survey to solicit input. Provide information and conduct the survey in English and Spanish.	
Lead Organization	City of Hercules City Manager's Office

County Public Safety and Emergency Information *https://www.contracosta.ca.gov/5435/Public-Safety-Emergency-Info*	
Provides resources and links for public safety and emergency information in Contra Costa County. **Expansion and Improvement:** Provide additional links to other organizations such as FEMA and PG&E.	
Lead Organization	Contra Costa County Office of Emergency Services
County Community Emergency Response Team Coalition	
The CERT Program is a 20-hour all risk, all hazard training offered by the County's Fire Department. This valuable course is designed to help you protect yourself, your family, your neighbors, and your neighborhood before, during, and after an emergency. **Expansion and Improvement:** Conduct coordinated training and exercises with all County CERTs to improve interoperability.	
Lead Organization	Contra Costa County Cities Citizen Corps
Community Warning System	
The Community Warning System (CWS) can alert residents and businesses within Contra Costa County that are impacted by or are in danger of being impacted by an emergency. The CWS message will include basic information about the incident and what specific protective actions (e.g., shelter in place, lockdown, evacuate, avoid the area) are necessary for life safety and health. **Expansion and Improvement:** Coordinate community evacuation drills using the CWS to implement the exercise. Conduct post exercise information fairs at evacuation collection points.	
Lead Organization	Contra Costa County Office of the Sheriff

6. HAZARD MITIGATION PLAN INTEGRATION

The information on hazards, risk, vulnerability, and mitigation contained in this Hazard Mitigation Plan is based on the best available data at the time of the Plan update. Plan integration consists of the incorporation of hazard mitigation into other relevant planning mechanisms (e.g., general planning and capital improvement planning). It includes the integration of natural hazard information and mitigation policies, principles, and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaborative hazard mitigation planning. This section describes the City's process for integrating information from this Hazard Mitigation Plan into other planning mechanisms.

6.1. Past Plan Integration

In the performance period since the adoption of the previous Hazard Mitigation Plan, City of Hercules made progress on integrating components of the hazard mitigation strategy (e.g., goals, objectives, and actions) into the planning initiatives listed in **Table 9**.

Table 9. Past Plan Integration

Planning Initiative	Description
Capital Improvement Plan	The Capital Improvement Plan should continue to utilize flexibility to incorporate mitigation measures in planned projects and the project evaluation criteria which includes public health and safety, regulatory compliance, and grant funding requirements.

Planning Initiative	Description
City General Plan	The Hazard Mitigation Plan is utilized to identify new information that was not available during the previous revision of the Safety Element, relating to hazards (i.e., flood and fire), and climate adaptation and resiliency strategies.
Emergency Operations Plan	This Hazard Mitigation Plan is currently used as an essential tool to update the City EOP.
County Climate Action Plan	The strategies and actions in the County Climate Action Plan (CAP) integrate with the Hazard Mitigation Plan. For example, where possible, CAP and Hazard Mitigation Plan update cycles should be coordinated to ensure plan alignment of climate mitigation efforts.

6.2. Potential Future Integration

As the Hazard Mitigation Plan is implemented, the City of Hercules will use information from the Plan as the best available science and data on hazards. The capability assessment presented in Section 5 of this Annex identifies codes, plans, and programs that provide opportunities for integration. The Citywide and local action plans developed for this Hazard Mitigation Plan are related to plan integration. The capability assessment identified plans and programs, listed in **Table 10**, that do not currently integrate goals and recommendations of this Plan but provide opportunities to do so in the future.

Table 10. Potential Future Integration

Planning Initiative	Description
City Code	Mitigation actions and the hazard risk assessment in this Hazard Mitigation Plan can inform updates and revisions to the City Code. The Public Safety (Title 3), Sanitation and Health (Title 5), and Land Use (Title 10) codes, and Building Regulations (Title 9) will be reviewed based on development trends in identified hazards and mitigation measures that can make them more effective at preventing losses. Additionally, mitigation can be integrated into future Zoning Code (Title 13) updates to inform appropriate use of property within the City. Portions of this Plan will be reviewed to consider any future improvements to the Code, if appropriate.
City General Plan	This Hazard Mitigation Plan will be incorporated in the General Plan Safety Element. The opportunity to incorporate additional hazard mitigation and abatement measures will be contemplated for inclusion into the updated General Plan. The Safety Element will be revised, and this Hazard Mitigation Plan will be utilized to identify new information that was not available during the previous revision of the Safety Element, relating to hazards (i.e., flood and fire), and climate adaptation and resiliency strategies.
City Climate Action Plan	The City is in the process of considering the development of a City Climate Action Plan (CAP). The City will integrate the CAP with this Hazard Mitigation Plan.
Emergency Operations Plan	This Hazard Mitigation Plan will remain an essential tool to update the City EOP. The latest Hazard Mitigation Plan hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability and for inclusion in the description of EOP processes and procedures.

Planning Initiative	Description
Sewer System Management Plan	Portions of this Hazard Mitigation Plan with the associated mapping will be considered for inclusion in the next Sewer System Management Plan update. The City conveys wastewater, but treatment is provided by the Hercules–Pinole Joint Powers Authority (JPA) Sanitary Wastewater treatment plant. The 2019 Sewer System Management Plan provides an inventory of the City's sewer infrastructure and response procedures for first responders, recovery, and cleanup in the case of overflow or backups.
Stormwater Control Plan	Mitigation actions in this Hazard Mitigation Plan can inform updates and revisions to the Stormwater Control Plan (SCP). On the other hand, watershed protection processes are a useful source of information for developing future mitigation actions. This Hazard Mitigation Plan should be aligned with the SCP.
Capital Improvement Plan	The City will continue to ensure consistency between this Hazard Mitigation Plan and future updates of the Capital Improvement Plan. The Hazard Mitigation Plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on results of the risk assessment.

The City's Local Planning Team will identify all relevant planning initiatives that are scheduled to be updated in the next year and during the annual update process of the Hazard Mitigation Plan. Additionally, opportunities to integrate key elements of the Hazard Mitigation Plan, specifically any relevant strategies, into the planning initiatives will be identified by the Local Planning Team. Mitigation actions were identified to promote plan integration in future revisions of this Plan.

7. SIGNIFICANT HAZARD PAST EVENTS

A complete risk assessment, including past incidents, for each identified hazard of concern can be found in **Volume 1 (Planning Area-wide Elements)** of this Plan. **Table 11** provides information on significant hazard events that uniquely impacted the City of Hercules.

Table 11. Significant Past Events

Date	Event Type	Description
2023	Landslide	A small slippage during rain events in Lupine Road (open space). No damage assessment estimates are available.
2011	Landslide	A landslide on Carson Street caused limited damage to three (3) residential structures. No damage assessment estimates are available.
2006	Landslide	A landslide on Carson Street caused limited damage to two (2) residential structures. No damage assessment estimates are available.
2000	Landslide	A landslide on Carson Street caused limited damage to two (2) residential structures. No damage assessment estimates are available.
1989	Earthquake	A few buildings in the City of Hercules experienced some structural damage as a result of the Loma Prieta Earthquake. Approximately $25 Million in damages were reported for Contra Costa County.
1983	Flooding	Refugio Creek flooded. No damage assessment estimates are available.

8. NATIONAL FLOOD INSURANCE PROGRAM

The City of Hercules is a member of the National Flood Insurance Program (NFIP) but has chosen to not participate in the NFIP's Community Rating System (CRS). The City's NFIP participation information is listed in **Table 12**.

Table 12. NFIP Participation Information

CID	Community Name	NFIP Participation Date	Current Effective FIRM Date	CRS Entry Date	CRS Current Effective Date	CRS Class
060434	City of Hercules	3/26/1976	3/21/2017	N/A	N/A	N/A

8.1. Floodplain Manager

As an NFIP participating jurisdiction, the City of Hercules has a designated Floodplain Manager that is charged with enforcing floodplain regulations, routinely monitoring the floodplains, and providing community assistance such as encouraging owners to maintain flood insurance. The City's Floodplain Manager information is listed in **Table 13**.

Table 13. Floodplain Manager

Jurisdiction	Department	Name	Title	Phone Number
City of Hercules	Public Works	Mike Roberts	Public Works Director	(510) 799-8200

8.2. Participation Activities

The City of Hercules NFIP participation activities over the last five (5) years include the following:

- Provides the following services – permit review, GIS, inspections, and engineering capability.
- The City educates private owners and other stakeholders about the importance of flood insurance through public outreach events, workshops, and/or seminars.
- Enforces local floodplain regulations and monitors compliance.
- Floodplain management regulations meet or exceed FEMA or State minimum requirements.

8.2.1. Substantial Damage

Substantial damage means damage of any origin sustained by a structure by which the cost of restoring the structure to its previously damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred. *(Municipal Code Title 10, Chapter 7)*

8.2.2. Substantial Improvement

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred *substantial damage*, regardless of the actual repair work performed. The term does not, however, include either:

- Any project for improvement of a structure to correct existing violations or state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.

- Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure. *(Municipal Code Title 10, Chapter 7)*

8.3. Repetitive Loss and Severe Repetitive Loss Properties

The Federal Emergency Management Agency (FEMA) defines a Repetitive Loss property as an NFIP insured structure with two (2) or more claims of more than $1,000 each within any rolling 10-year period, since 1978.[2]

A Severe Repetitive Loss property is defined by FEMA as any NFIP insured structure for which either of the following is true when at least two (2) of the claims are within 10 years of each other (claims made within 10 days will be counted as one (1) claim):[3]

- That has incurred flood related damage for which four (4) or more separate claims payments have been made, with the amount of each claim (including buildings and contents payments) exceeding $5,000, and with the cumulative amount of such claims exceeding $20,000.
- For which at least two (2) separate claims payments (building payments only) have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the building.

Repetitive loss records from the City of Hercules are listed in **Table 14**.

Table 14. Repetitive Loss Properties

Jurisdiction	Repetitive Loss Properties	Severe Repetitive Loss Properties	Mitigated Properties
City of Hercules	0	0	0

9. HAZARD VULNERABILITY AND IMPACT ASSESSMENT

Exposure and vulnerability to certain hazards affect the entire County and others are geographically defined. Although the entire County may be vulnerable to these hazards, their impacts may vary based on existing community conditions (e.g., underserved, or functional access needs populations may be more susceptible based on certain conditions, vulnerabilities, or needs).

The Local Planning Team identified ***unique vulnerabilities and impacts*** to the following natural hazards, based on the hazards profiled in **Volume 1 (Planning Area-wide Elements)**.

- Earthquake
- Landslide
- Wildfire

It was determined that the planning area did not have unique vulnerabilities and impacts to the following natural hazards; rather, its vulnerability and impacts are consistent with those experienced throughout the County.

[2] Federal Emergency Management Agency. (2020). Repetitive Loss Structure. Retrieved from https://www.fema.gov/node/405233.
[3] Federal Emergency Management Agency, National Flood Insurance Program. (2022). Flood Insurance Manual: Risk Rating 2.0: Equity in Action Edition. Retrieved from https://www.fema.gov/sites/default/files/documents/fema_nfip-flood-insurance-full-manual_102022.pdf.

- Climate Change
- Dam and Levee Failure
- Drought
- Flood *(riverine/creek, urban/flash flood)*
- Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*
- Sea Level Rise
- Tsunami

Note: Severe weather and flooding are profiled as the two (2) hazards. However, in an effort to have a more thorough risk assessment, the sub hazards (i.e., heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado, riverine/creek flooding, and urban/flash flooding) were ranked individually. The hazard risk assessment methodology can be found in **Appendix C** of this Annex.

Table 15 provides information on several key vulnerabilities and impacts for the City of Hercules and only addresses the hazards that are relevant and unique to the jurisdiction. A complete risk assessment for each identified hazard of concern is in **Volume 1 (Planning Area-wide Elements)** of this Plan. Hazard mapping can be found in **Appendix A** of this Annex.

Table 15. Hazard Vulnerability and Impact Assessment

Hazards	Vulnerabilities and Impacts
Climate Change	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to climate change; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Dam and Levee Failure	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to dam and levee failures; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Drought	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to droughts; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.

Hazards	Vulnerabilities and Impacts
Earthquake	There are 8,284 buildings in the planning area, with a total replacement value of $4.178 Billion. Since all structures in the planning area are susceptible to earthquake impacts to varying degrees, this represents the property exposure to seismic events. There are approximately 1,555 buildings on moderate to very high liquefiable soils in Hercules, or about 19% of the total building stock, on these soils. The following major roads in the planning area intersect moderate to very high liquefiable soils and thus are exposed to earthquakes: • Interstate 80 • State Highway 4 • John Muir Parkway In the event of an earthquake, the City's underserved population (e.g., low income households, households in poverty), will potentially have fewer resources to help with recovery activities (e.g., fewer financial resources, may not have insurance). Additionally, the underserved population may experience barriers to access post-disaster aid. Furthermore, the population with limited or no access to lifelines (e.g., transportation, modern communication) are less likely to receive emergency warnings or be able to evacuate in a timely manner.
Flood *(urban/flash flood, riverine/creek)*	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to floods; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Landslides	Numerous shallow landslides of various sizes are present in Hercules, particularly in the southeastern part of the City. The estimated population living in the "moderate landslides" risk area is 10,450, 8,885 in the "high landslide" risk area, and in 12 in the "very high landslide" risk area. The total population exposed to moderate, high, and very high landslide areas is 19,347. In the event of a landslide, the underserved population may have fewer financial resources to proactively protect their households and property or to rebuild after a landslide event.
Sea Level Rise	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to sea level rise; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to severe weather; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Tsunami	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to tsunamis; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Wildfire	The eastern portion of the City may be vulnerable to increased wildfire activity due to climate change and other factors. The City's population with pre-existing conditions (e.g., asthma, respiratory illnesses), the elderly, and children (under 10 years old) may experience health issues related to smoke from wildfires. Additionally, the ability to evacuate in the event of a wildfire is more challenging for the elderly, individuals with access and functional needs, and those without access to transportation (e.g., vehicle at home) and modern communication (e.g., emergency notifications may not be received in a timely manner).

Hazards	Vulnerabilities and Impacts
Active Shooter Incidents	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to active shooter incidents; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Cybersecurity Threats	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to cybersecurity threats; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Hazardous Materials Incidents	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to hazardous materials incidents; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Terrorism (Weapons of Mass Destruction)	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to terrorism; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Utility Interruptions	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to utility interruptions; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.

The City evaluated whether vulnerability and impact in hazard prone areas had increased, decreased, or remained the same for each natural hazard identified in this Hazard Mitigation Plan. Climate change, changes in population, infrastructure expansion, and economic shifts that can affect vulnerability were considered. For example, if planned development is in an identified hazard areas or is not built to the updated building codes, it may increase the community's vulnerability to future hazards and disasters. On the other hand, if development occurred with mitigation practices in place, the vulnerability may have remained the same or decreased. Additionally, shifting demographics (e.g., underserved population) were taken into consideration.

Table 16 outlines if climate change has increased or decreased the City's vulnerability (i.e., exposure) and impact to each natural hazard over the past five (5) years, and the effect of climate change in the future probability of occurrence and impacts from each natural hazard.

Table 16. Climate Change Current and Future Vulnerability and Impact

Hazard	Vulnerability and Impact
Current Vulnerability and Impact	
Climate Change	Increased
Dam and Levee Failure	Remained the Same
Drought	Remained the Same
Earthquake	Remained the Same
Flood *(urban/flash flood, riverine/creek)*	Remained the Same
Landslide	Remained the Same
Sea Level Rise	Remained the Same
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Remained the Same
Tsunami	Remained the Same

Hazard	Vulnerability and Impact
Wildfire	Remained the Same
Future Vulnerability and Impact	
Climate Change	Increase
Dam and Levee Failure	No Change is Anticipated
Drought	No Change is Anticipated
Earthquake	No Change is Anticipated
Flood *(urban/flash flood, riverine/creek)*	No Change is Anticipated
Landslide	No Change is Anticipated
Sea Level Rise	No Change is Anticipated
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	No Change is Anticipated
Tsunami	No Change is Anticipated
Wildfire	No Change is Anticipated

Table 17 outlines if changes in population within the City over the past five (5) years have increased or decreased the vulnerability (i.e., exposure) and impact to these natural hazards, and the anticipated effects changes in population may have on the future probability of occurrence and impacts from these natural hazards.

Table 17. Changes in Population Current and Future Vulnerability and Impact

Hazard	Vulnerability and Impact
Current Vulnerability and Impact	
Climate Change	Remained the Same
Dam and Levee Failure	Remained the Same
Drought	Remained the Same
Earthquake	Remained the Same
Flood *(urban/flash flood, riverine/creek)*	Remained the Same
Landslide	Remained the Same
Sea Level Rise	Remained the Same
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Remained the Same
Tsunami	Remained the Same
Wildfire	Remained the Same
Future Vulnerability and Impact	
Climate Change	No Change is Anticipated
Dam and Levee Failure	No Change is Anticipated
Drought	No Change is Anticipated

Hazard	Vulnerability and Impact
Earthquake	No Change is Anticipated
Flood *(urban/flash flood, riverine/creek)*	No Change is Anticipated
Landslide	No Change is Anticipated
Sea Level Rise	No Change is Anticipated
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	No Change is Anticipated
Tsunami	No Change is Anticipated
Wildfire	No Change is Anticipated

Table 18 outlines if development over the past five (5) years has increased or decreased the jurisdiction's vulnerability (i.e., exposure) and impact to these natural hazards, and the anticipated effects changes in development may have on the future probability of occurrence and impacts from these natural hazards.

Table 18. Changes in Development Current and Future Vulnerability and Impact

Hazard	Vulnerability and Impact
Current Vulnerability and Impact	
Climate Change	Remained the Same
Dam and Levee Failure	Remained the Same
Drought	Remained the Same
Earthquake	Remained the Same
Flood *(urban/flash flood, riverine/creek)*	Remained the Same
Landslide	Remained the Same
Sea Level Rise	Remained the Same
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Remained the Same
Tsunami	Remained the Same
Wildfire	Remained the Same
Future Vulnerability and Impact	
Climate Change	No Change is Anticipated
Dam and Levee Failure	No Change is Anticipated
Drought	No Change is Anticipated
Earthquake	No Change is Anticipated
Flood *(urban/flash flood, riverine/creek)*	No Change is Anticipated
Landslide	No Change is Anticipated
Sea Level Rise	No Change is Anticipated
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	No Change is Anticipated
Tsunami	No Change is Anticipated

Hazard	Vulnerability and Impact
Wildfire	No Change is Anticipated

The City does not anticipate future major assets may be exposed or vulnerable to any of the natural hazards identified in this Hazard Mitigation Plan. Any new assets (e.g., new construction in hazard prone areas) will be constructed to adhere to the latest building codes and standards, and mitigation to protect them from identified and anticipated hazards, especially those that are expected to increase due to climate change.

Refer to **Appendix C** and **Appendix D** of this Annex for the hazard risk assessment methodology and jurisdiction specific details, which includes the vulnerability and impacts to population and life safety, underserved/equity, property damage, future development, and climate change.

9.1. FEMA National Risk Index

In the National Risk Index (NRI), risk is defined as the potential for negative impacts as a result of a natural hazard. The Risk Index is based on three (3) components – a natural hazards component (Expected Annual Loss), a consequence enhancing component (Social Vulnerability), and a consequence reduction component (Community Resilience). Using these components, the composite and hazard type Risk Index values are calculated for each community (county and Census Tract). Risk Index values form an absolute basis for measuring Risk within the NRI and are used to generate Risk Index percentiles and ratings across communities.[4] **Table 19** illustrates the Risk Index rating and score for the City of Hercules.

Note: *ArcGIS mapping analysis was performed utilizing Census Tract data by overlaying Census Tracts with the City of Hercules planning area boundary. The information outlined in this section includes data from the Census Tracts that intersect the jurisdiction.*

Table 19. Risk Index Score (FEMA National Risk Index)

Jurisdiction	Rating	Score
City of Hercules	Very High	84.3
Risk Index scores are calculated using an equation that combines scores for Expected Annual Loss due to natural hazards, Social Vulnerability and Community Resilience (Expected Annual Loss x Social Vulnerability / Community Resilience = Risk Index).		

9.1.1. Expected Annual Loss

The FEMA NRI Expected Annual Loss (EAL), the natural hazards component of the NRI, represents the average economic loss in dollars resulting from natural hazards each year. It is calculated for each hazard type and quantifies loss for relevant consequence types – buildings, people, and agriculture. The EAL score and rating represent a community's relative level of expected losses each year when compared to all other communities at the same level. Since the score is associated to a community's risk; the higher EAL score results in a higher Risk Index score.[5] **Table 20** illustrates each hazard EAL for the City of Hercules.

[4] Federal Emergency Management Agency. (2023). Determining Risk. Retrieved from https://hazards.fema.gov/nri/determining-risk.
[5] Federal Emergency Management Agency. (2023). Expected Annual Loss. Retrieved from https://hazards.fema.gov/nri/expected-annual-loss.

Table 20. Expected Annual Loss *(FEMA National Risk Index)*

Hazard	Population Equivalence	Building Value	Agriculture Value	Total Expected Annual Loss	Expected Annual Loss Score	Rating
Coastal Flooding *(Sea Level Rise)*	$6	$830	n/a	$836	32.2	Relatively Low
Drought	n/a	n/a	$50	$50	15.6	Very Low
Earthquake	$563,541	$1.3 Million	n/a	$1.9 Million	95.9	Very High
Hail *(Severe Weather)*	$29	$101	$0	$130	19.4	Very Low
Heat Wave *(Severe Weather)*	$12,235	$2	$0	$12,237	57.5	Relatively Moderate
Landslide	$373	$2,960	n/a	$3,334	67.3	Relatively High
Riverine Flooding *(Flood)*	$18,183	$13,463	$3	$31,649	52.6	Relatively Moderate
Strong Winds *(Severe Weather)*	$60	$18	$0	$78	5.1	Very Low
Tornado *(Severe Weather)*	$1,138	$2,427	$0	$3,565	10.6	Very Low
Tsunami	$0	$14	n/a	$14	18.4	Very Low
Wildfire	$735	$42,614	$0	$43,349	61.0	Relatively High
Expected annual loss scores are calculated utilizing an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure x Annualized Frequency x Historic Loss Ratio).						

An EAL score and rating is calculated independently for each consequence type (i.e., buildings, population, and agriculture) for each county and Census Tract. The population EAL is measured in fatalities and injuries while the building and agriculture values are measured in dollars. However, for consistency in the unit of measurement, the population EAL was monetized into population equivalence using a value of statistical life (VSL) approach where each fatality or 10 injuries is treated as $11.6 Million of economic loss.

9.1.2. Social Vulnerability

Social vulnerability, the consequence enhancing risk component of the NRI, measures the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. The Social Vulnerability score and rating represent the relative level of a community's social vulnerability compared to all other communities at the same level. A higher Social Vulnerability score results in a higher Risk Index score.[6] **Table 21** illustrates the Social Vulnerability rating and score for the City of Hercules.

[6] Federal Emergency Management Agency. (2023). Social Vulnerability. Retrieved from https://hazards.fema.gov/nri/social-vulnerability.

Table 21. Social Vulnerability *(FEMA National Risk Index)*

Jurisdiction	Rating	Score
City of Hercules	Relatively Moderate	47.3
Social Vulnerability is measured using the Social Vulnerability Index (SoVI) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).		

9.1.3. Community Resilience

Community resilience, the consequence reduction risk component, measures the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. The Community Resilience score and rating represent the relative level of a community's resilience compared to all other communities at the same level. Since the score is inversely proportional to a community's risk; the higher Community Resilience score results in a lower Risk Index score.[7] **Table 22** illustrates the Community Resilience rating and score for the City of Hercules.

Table 22. Community Resilience *(FEMA National Risk Index)*

Jurisdiction	Rating	Score
City of Hercules	Relatively High	66.4
Community Resilience is measured using the Baseline Resilience Indicators for Communities (HVRI BRIC) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).		

9.1.4. Annualized Frequency

Annualized frequency is defined as the expected frequency or probability of a hazard occurrence per year. It is a natural hazard incidence factor for Expected Annual Loss, the natural hazards component of the National Risk Index. A higher annualized frequency value results in higher Expected Annual Loss and Risk Index scores. The annualized frequency is derived from either the number of recorded hazard occurrences each year over a given period or the modeled probability of a hazard occurrence each year (e.g., earthquake).[8] **Table 23** outlines the annualized frequency for each hazard, based on FEMA NRI data, for the City of Hercules.

Table 23. Hazard Annualized Frequency *(FEMA National Risk Index)*

Hazard	Period of Record	Events on Record	Annualized Frequency
Coastal Flooding *(Sea Level Rise)*	Various datasets	n/a	1.0 events per year
Drought	22 years	1,003	46.0 events per year
Earthquake	2021 dataset	n/a	0.011% chance per year
Hail *(Severe Weather)*	34 years	1	0.0 events per year
Heat Wave *(Severe Weather)*	16 years	27	1.9 events per year
Landslide	12 years	0	0.0 events per year

[7] Federal Emergency Management Agency. (2023). Community Resilience. Retrieved from https://hazards.fema.gov/nri/community-resilience.
[8] Federal Emergency Management Agency. (2023). Annualized Frequency. Retrieved from https://hazards.fema.gov/nri/annualized-frequency.

Hazard	Period of Record	Events on Record	Annualized Frequency
Riverine Flooding *(Flood)*	24 years	31	1.3 events per year
Strong Winds *(Severe Weather)*	34 years	2	0.0 events per year
Tornado *(Severe Weather)*	72 years	0	0.0 events per year
Tsunami	222 years	0	0.0 events per year
Wildfire	2021 dataset	n/a	0.0% events per year

10. HAZARD RISK RANKING

Table 24 presents the local hazard ranking for the City of Hercules of all hazards of concern listed in **Volume 1 (Planning Area-wide Elements)** of this Plan. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in **Volume 1 (Planning Area-wide Elements)** and **Appendix C** of this Annex, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy. For further details on how the probability, extent, vulnerability, and impact factors in **Table 24** were calculated, please refer to **Appendix D** of this Annex.

It is important to note that the sub hazards for severe weather hazards (i.e., heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, and tornado) and flood hazards (i.e., riverine/creek flooding and urban/flash flooding) were individually ranked in the hazard risk ranking; however, flood and severe weather are each considered as the main hazard throughout this Annex and **Volume 1 (Planning Area-wide Elements)**.

Table 24. Hazard Risk Ranking

Hazard Event	Probability Factor	Sum of Weighted Extent Factors	Sum of Weighted Vulnerability Factors	Sum of Weighted Impact Factors	Consequence Score	Total Risk Score *(Probability x Consequence)*
Earthquake	2	18	17	36	71	68
Landslide	3	9	9	22	40	59
Heavy Rainfall *(Severe Weather)*	3	9	14	15	38	56
Flood (Urban/Flash Flood)	2	15	12	29	56	55
Wildfire	2	12	12	31	55	54
Strong Winds/ Damaging Winds *(Severe Weather)*	3	9	11	16	36	54
Severe Thunderstorm *(Severe Weather)*	3	6	16	14	36	54
Utility Interruptions	3	9	7	18	34	51
Heat Wave/Extreme Heat	3	9	10	15	34	51
Drought	2	18	12	20	50	50

Hazard Event	Probability Factor	Sum of Weighted Extent Factors	Sum of Weighted Vulnerability Factors	Sum of Weighted Impact Factors	Consequence Score	Total Risk Score *(Probability x Consequence)*
Flood (Riverine/Creek)	2	12	7	29	48	48
Hazardous Materials Incidents	2	15	9	16	40	41
Climate Change	2	9	12	15	36	38
Sea Level Rise	2	12	6	17	35	37
Cybersecurity Threats	2	12	7	13	32	34
Active Shooter Incidents	2	9	5	15	29	32
Terrorism (Weapons of Mass Destruction)	1	18	11	27	56	31
Dam and Levee Failure	1	18	6	31	55	30
Tsunami	1	6	6	22	34	20
Tornado *(Severe Weather)*	1	6	6	14	26	16

Consequence: *Sum of all weighted factors.*
Extent: *Sum of the weighted Extent factors.*
Vulnerability: *Sum of the weighted Vulnerability factors.*
Impact: *Sum of the weighted Impact factors.*
Total Risk Score* *= Probability x Consequence*
** Normalized to 100*

Total Risk Score Legend

Classification	Probability Factor	Extent	Vulnerability	Impact	Consequence Score	Total Risk Score
Low (L)	1	0 – 6	0 – 6	0 – 12	0 – 24	0 – 24
Medium (M)	2	7 – 12	7 – 12	13 – 26	25 – 50	25 – 54
High (H)	3	13 – 18	13 – 18	27 – 39	51 – 75	55 and above

*The **legend**—specifically the assignment of low, medium, and high—provides an additional means to qualitatively assess the probability factor, sum of weighted factors, and the total risk scores for each hazard. The **Consequence Score** represents the sum of the Extent, Vulnerability, and Impact Factors. The **Total Risk Score** is a measure of Probability and Consequence.*

11. MITIGATION ACTIONS

This section includes the mitigation actions that were developed to address identified risks and vulnerabilities to hazards identified in this Plan. This Plan serves only to recommend mitigation measures based on the potential for risk reduction and available funding. Implementation of mitigation actions is dependent on risk reduction priorities, feasibility, and available funding. It is also dependent on the cooperation and support of the jurisdiction and/or department responsible for each action item.

The City of Hercules agreed upon **17** mitigation actions that apply to the jurisdiction's properties where they have jurisdictional responsibility and authority. One (1) mitigation action was deleted/no longer needed. A summary of the City's mitigation actions status is listed in **Table 25**.

Table 25. City of Hercules Mitigation Actions Summary

Status	Mitigation Action Total
Ongoing	9
In Progress/In Work	1
Not Started	6
Delayed/Deferred	1
New	0
TOTAL	**17**
Completed	0
Deleted/No Longer Needed	1

Mitigation Actions per Hazard			
Climate Change	9	Landslide	12
Dam and Levee Failure	5	Sea Level Rise	10
Drought	7	Severe Weather	16
Earthquake	10	Tsunami	8
Flood	12	Wildfire	12

These shared actions, some of which address all hazards, help to meet the following requirements:

- Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure?
- Does the Plan include one (1) or more action(s) per jurisdiction for each hazard identified within the risk assessment?

A detailed explanation of the Mitigation Strategy can be found in Chapter 5 of **Volume 1 (Planning Area-wide Elements)**.

Mitigation Action	Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.				
Action Number	H-1	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 7, 11, 12, 14, 15, 17	**Hazard(s) Mitigated**	Earthquake, Landslide, Severe Weather, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
Potential Funding Source	HMGP, BRIC, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Integrate the Hazard Mitigation Plan into other City plans, ordinances, and programs that dictate land use decisions in the community, including the General Plan and Zoning Ordinance.				
Action Number	H-2	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 3, 4, 5, 7, 11, 12, 14, 17, 18	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	Department Funds, Staff Funds	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Actively participate in the Hazard Mitigation Plan maintenance protocols outlined in Volume 1 of the Contra Costa County Hazard Mitigation Plan.				
Action Number	H-3	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 8,16	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP) through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements. These include: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.				
Action Number	H-4	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 5, 6, 9, 10, 11, 15	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Dredge Refugio Lake & Replace Aerator Fountains. The fountains aerate the water, reducing algae and dredging will restore the lake to its original depth, as part of the City's Stormwater Program.				
Action Number	H-5	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 10, 17	**Hazard(s) Mitigated**	Severe Weather	
Project Status		Delayed/Deferred	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	High	
Potential Funding Source	Other		If *Other*, you **must** identify a funding source.	Landscaping & Lighting Assessment District (LLAD) Zone 10	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of this Hazard Mitigation Plan.				
Action Number	H-6	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 6, 8, 18	**Hazard(s) Mitigated**	Earthquake, Landslide, Severe Weather, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Support Countywide initiatives identified in Volume 1 of the Contra Costa County Hazard Mitigation Plan.				
Action Number	H-7	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 ,18	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds*		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Explore participating in community readiness programs such as Firewise, Read Set Go, and StormReady.				
Action Number	H-8	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 6, 9, 17	**Hazard(s) Mitigated**	Flood, Sea Level Rise, Severe Weather, Wildfire	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds, HMGP, BRIC		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Partner with Rodeo-Hercules Fire Protection District to form a Community Emergency Response Team (CERT).				
Action Number	H-9	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 3, 6, 13, 16	**Hazard(s) Mitigated**	Drought, Earthquake, Flood, Landslide, Severe Weather, Tsunami, Wildfire	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Police Department (Emergency Management)		**Supporting Agency / Organization** *(If applicable)*	Rodeo-Hercules Fire Protection District	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds, Other		If *Other*, you **must** identify a funding source.	UASI	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Create an accessible online GIS portal to store and share multi-agency maps and data developed throughout the development of this Hazard Mitigation Plan.				
Action Number	H-10	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 5, 6	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Continue pursuing funding to Restore Chelsea Wetlands. The goal is to restore Chelsea Wetlands to its original tidal wetland state to reduce flooding and improve wildlife habitat.				
Action Number	H-11	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 17, 18	**Hazard(s) Mitigated**	Severe Weather	
Project Status		Deleted/No Longer Needed	If *Deleted/No Longer Needed*, provide reason.	Withdrawal of the project sponsor.	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	N/A		**Estimated Cost**	N/A	
Potential Funding Source	N/A		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	N/A	**Integration Ideas** *(Optional)*			

Mitigation Action	Consider developing a Climate Action Plan (CAP) to incorporate relevant research, and maps which might impact hazard planning and policy setting in the City of Hercules.				
Action Number	H-12	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 6, 12, 16, 17, 18	**Hazard(s) Mitigated**	Climate Change, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Wildfire	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Partner with the community, non-profits, Police Department, and the Fire Protection District to conduct community trainings on emergency preparedness, and response (e.g., evacuation routes and shelters).				
Action Number	H-13	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 3, 6, 16,	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Hercules Police Department (Emergency Management)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Review the Adapting to Rising Tides policy and program recommendations when updating the Housing Element and completing the next Capital Improvement Program.				
Action Number	H-14	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 5, 6, 8, 10, 11, 16	**Hazard(s) Mitigated**	Severe Weather	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Install Green Infrastructure where feasible throughout the City in order to promote climate resiliency through the reduction of urban heat, recharging the aquifer, and reducing runoff to the floodplain.				
Action Number	H-15	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 7, 10, 12, 13, 15, 17	**Hazard(s) Mitigated**	Climate Change, Flood, Sea Level Rise, Severe Weather	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Hercules Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
Potential Funding Source	Local Budgeted Funds, HMGP, BRIC		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Adopt and enforce updated building code provisions to reduce damage risk from natural hazards.				
Action Number	H-16	**Year Initiated / Anticipated Year of Initiation**	2018 or before	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 5 **Objectives:** 1, 7, 11,	**Hazard(s) Mitigated**	Climate Change, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Partner with the Contra Costa County Department of Conservation and Development, and surrounding municipalities on grant opportunities for climate resiliency efforts.				
Action Number	H-17	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 3, 4, 8, 10, 13, 15, 15, 17, 18	**Hazard(s) Mitigated**	Climate Change, Drought, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Hercules Community Development Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Require development proposed in landslide mapped area to provide a geotechnical analysis to ensure site is buildable; and any construction requirements.				
Action Number	H-18	**Year Initiated / Anticipated Year of Initiation**	2021	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 5, 6, 7, 11, 12,	**Hazard(s) Mitigated**	Landslide	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Low			
Lead Agency / Organization	City of Hercules Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

APPENDIX A. HAZARD MAPS

The following hazards were mapped for the City of Hercules – earthquakes, floods, landslides, sea level rise, tsunamis, and wildfires.

- **Figure 1** illustrates the liquefaction susceptibility, which helps assess potential damage from earthquakes in the City.
- **Figure 2** illustrates the City of Hercules Special Flood Hazard Area (SFHZ), including each Flood Zone, and the 500-year floodplain. Flood Insurance Rate Maps (FIRMs) show the flood zones, floodplain boundaries, and Base Floor Elevation (BFE) and are used for floodplain management, flood insurance ratings, and to determine flood insurance requirements. FIRMs show areas with a 1% chance of flooding each year, commonly known as the 100-year floodplains, and are illustrated as the SFHA.[9] The 500-year floodplains show areas with a 0.2% chance of flooding each year.
- **Figure 3** illustrates landslide susceptibility in the City. Landslide susceptibility maps describe the relative likelihood of future land sliding based solely on the intrinsic properties of a location or site. There are three (3) site factors that most determine susceptibility – prior failure, rock or soil strength, and steepness of slope.[10]
- **Figure 4** illustrates sea level rise for 2050 plus storm induced sea level rise through storm waves and surges.[11]
- **Figure 5** illustrates the California Tsunami Hazard Areas which represent areas within the City of Hercules that could be exposed to tsunami hazards during a tsunami event. Areas in yellow are advised to evacuate immediately after an earthquake that lasts for an extended period of time or if an official evacuation notification is received. Residents and visitors are advised to evacuate on foot to a green area.
- **Figure 6** illustrates that there are no California Fire Hazard Severity Zones (FHSZ) in the State Responsibility Area (SRA) within the City.

[9] Federal Emergency Management Agency. (2017). Flood Insurance Study: Contra Costa County, California and Incorporated Areas. Retrieved from https://www.contracosta.ca.gov/DocumentCenter/View/77626/Volumes-I-V?bidId=.
[10] California Department of Conservation. (n.d.). Landslides. Retrieved from https://www.conservation.ca.gov/cgs/landslides.
[11] City of Hercules. (2021). City of Hercules General Plan. Retrieved from https://www.herculesca.gov/government/planning/general-plan.

Figure 1. Liquefaction Susceptibility (Earthquake)

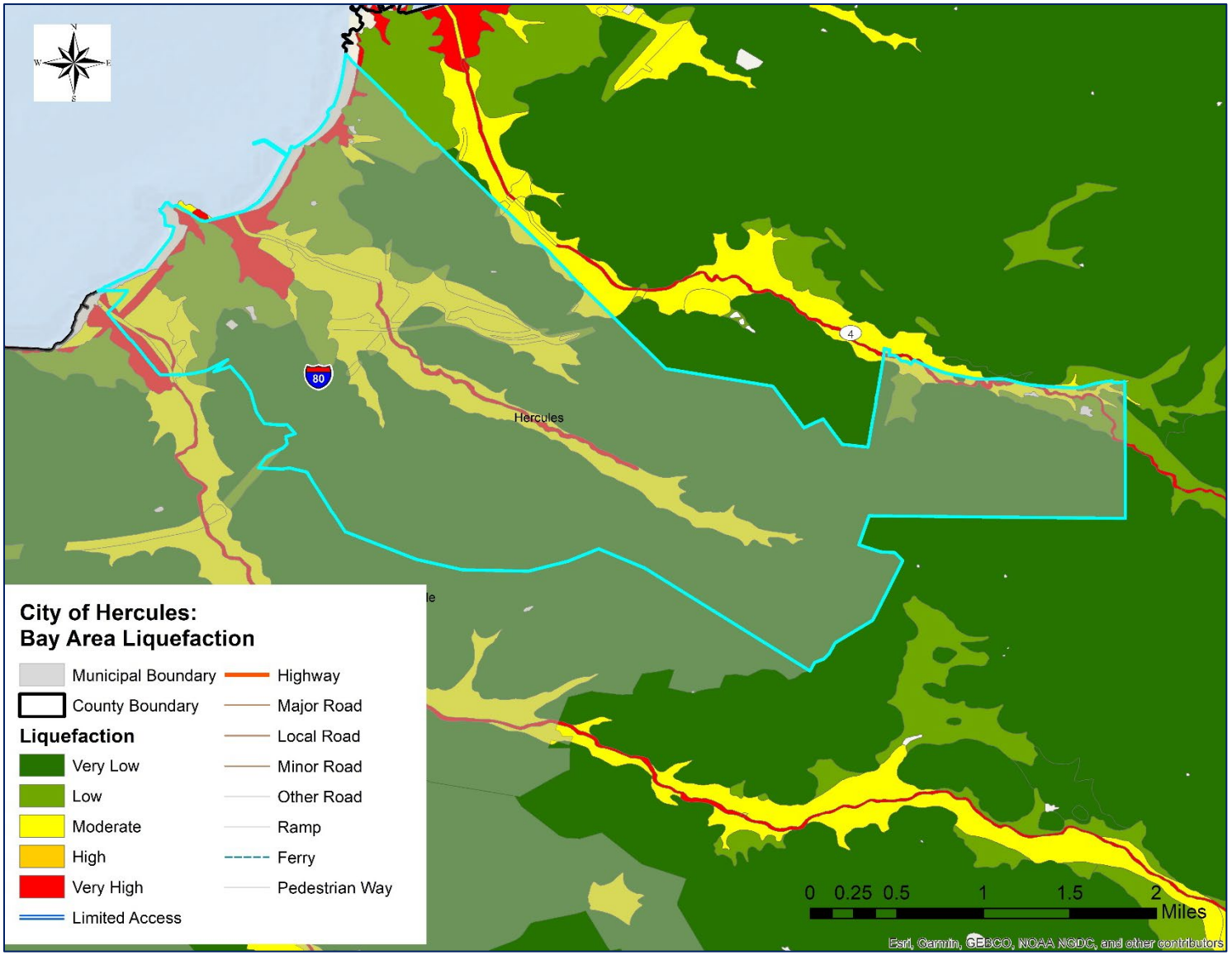


Figure 2. Special Flood Hazard Area

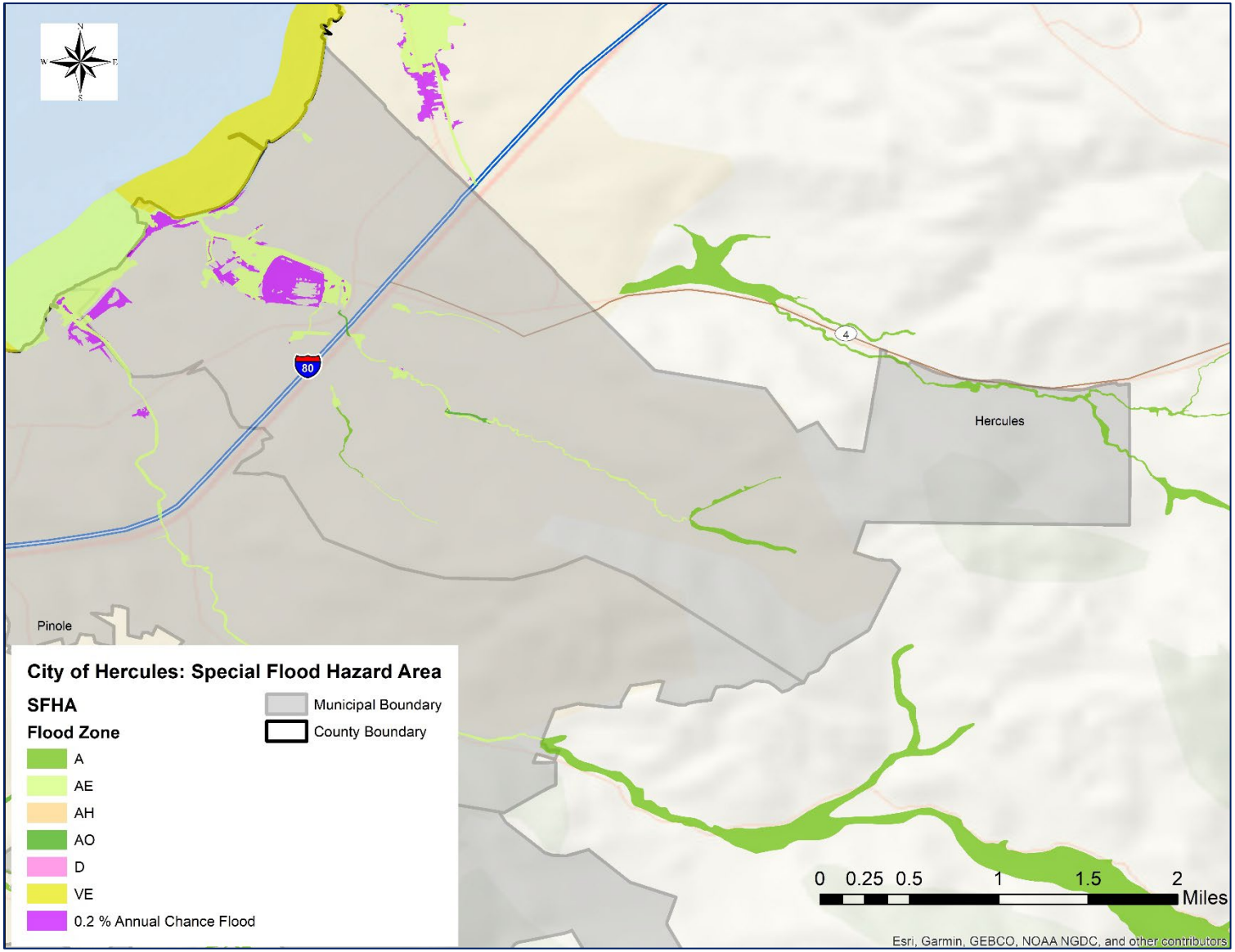


Figure 3. Landslide Susceptibility

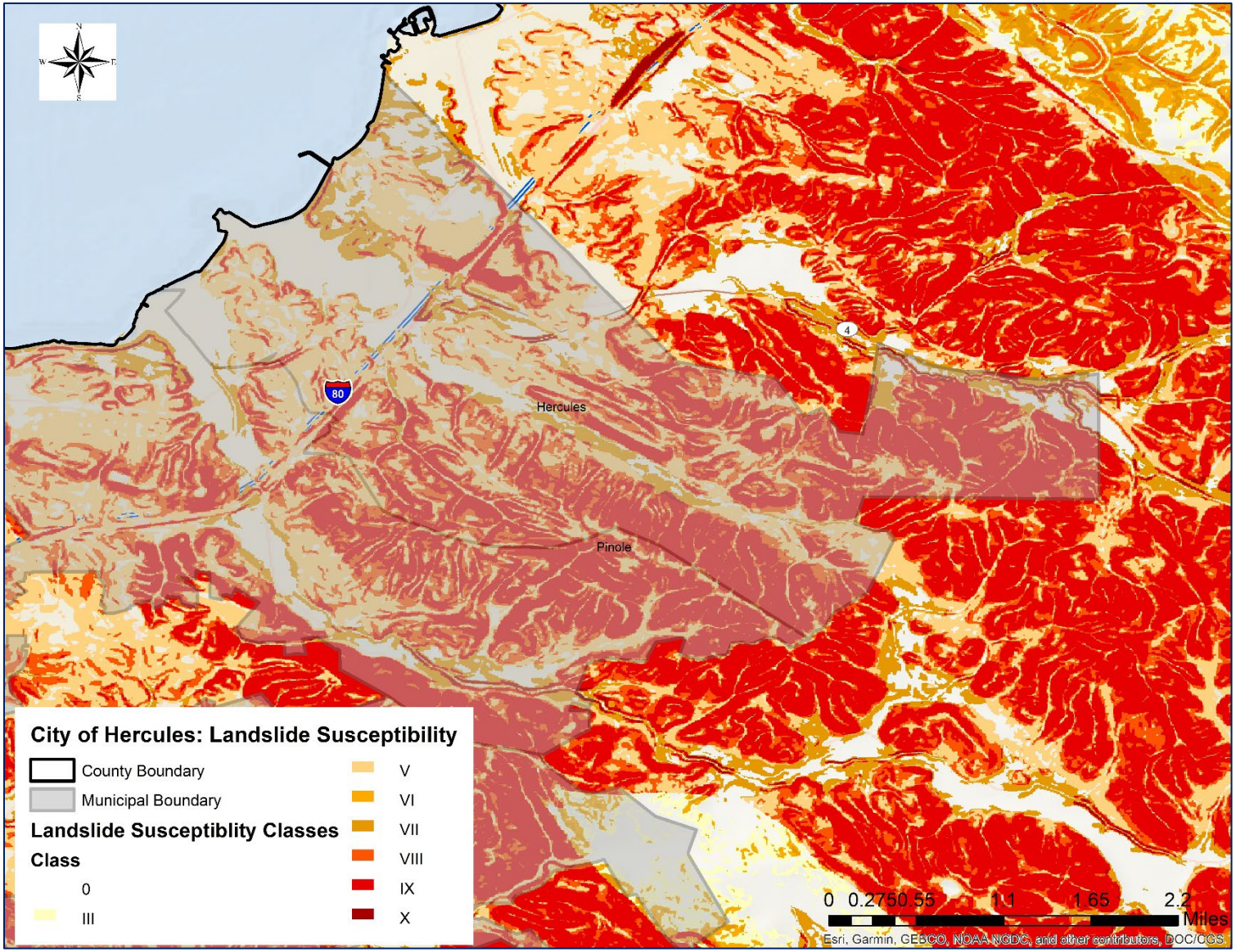


Figure 4. Sea Level Rise

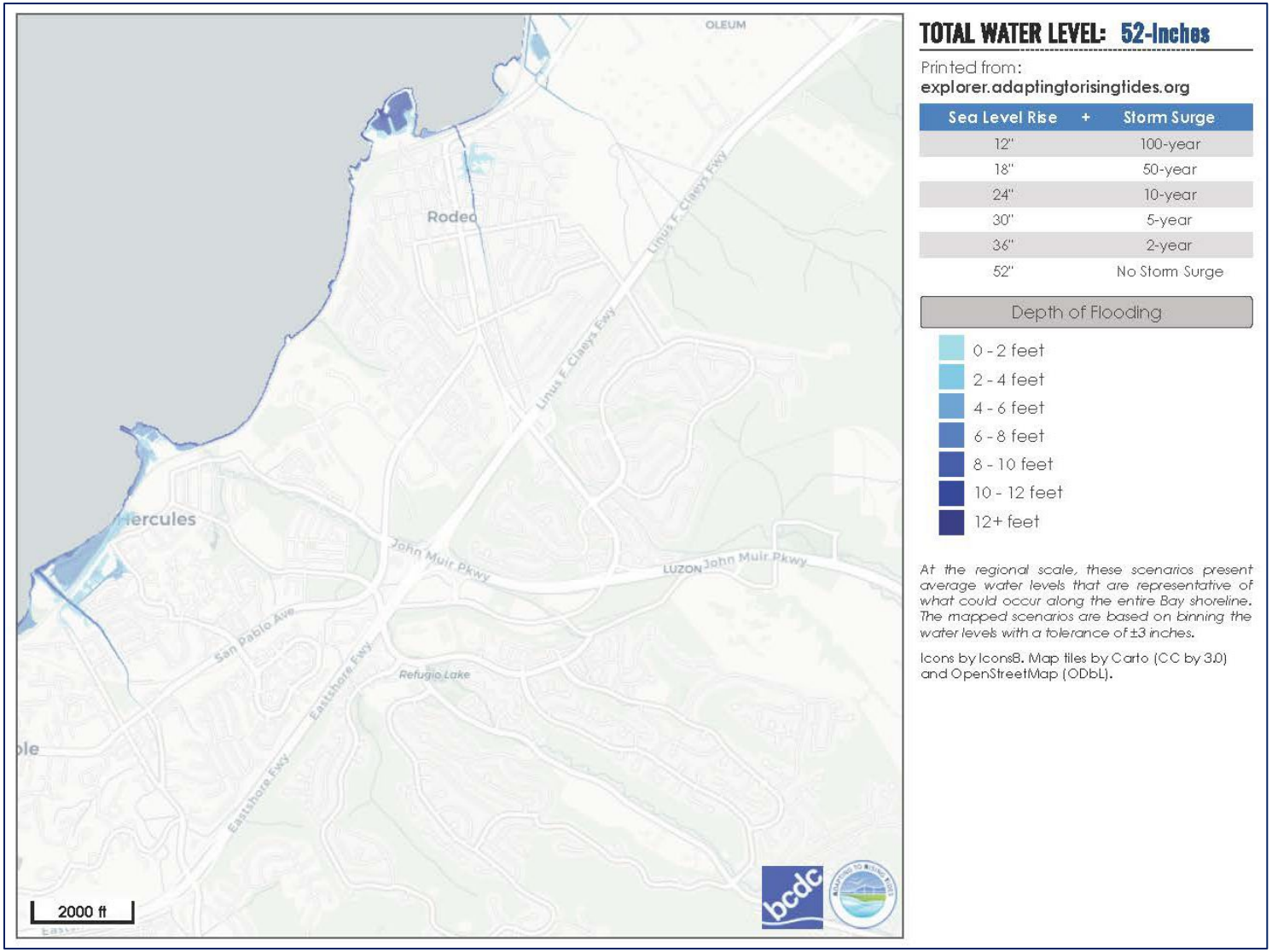


Figure 5. Tsunami Hazard Areas

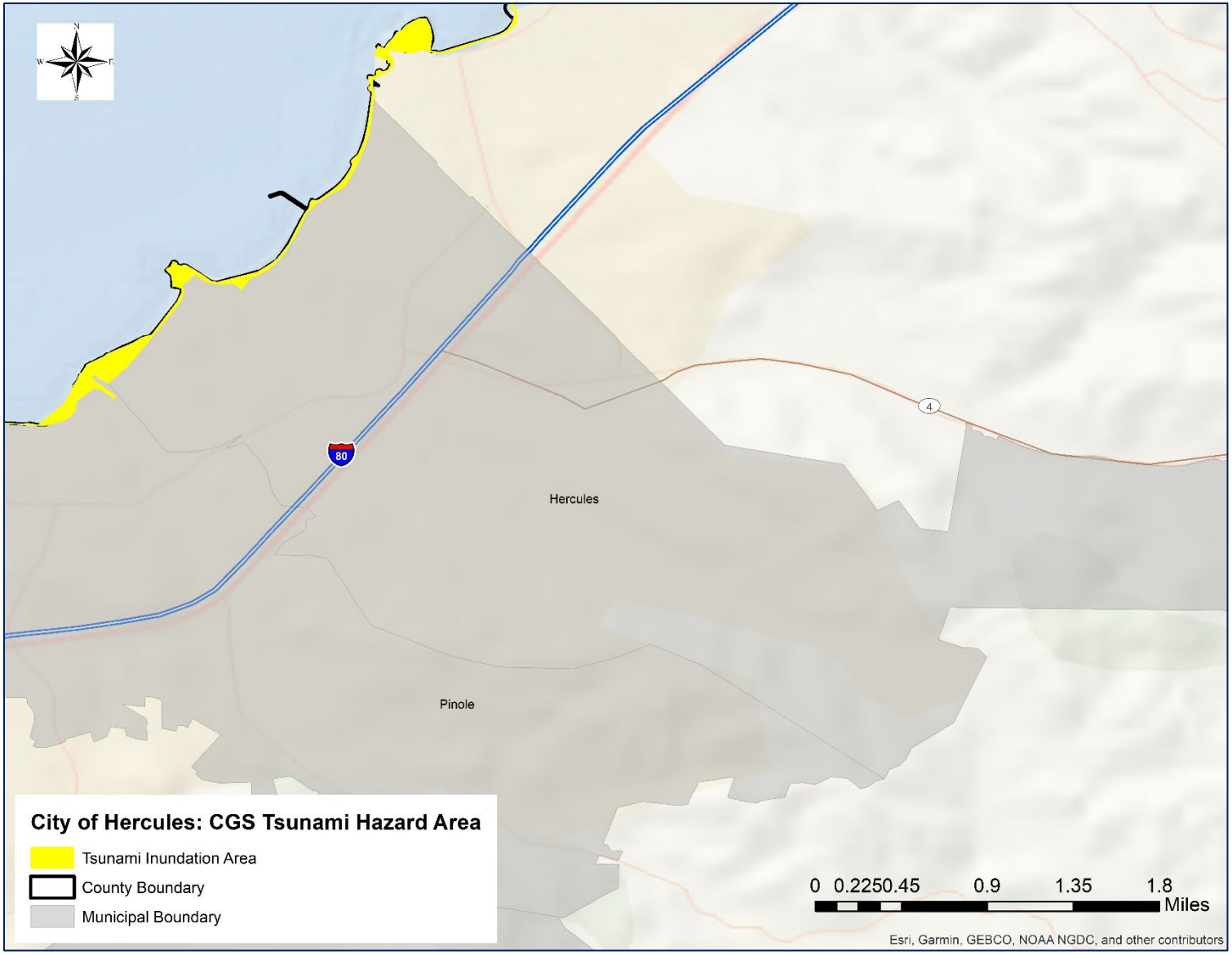
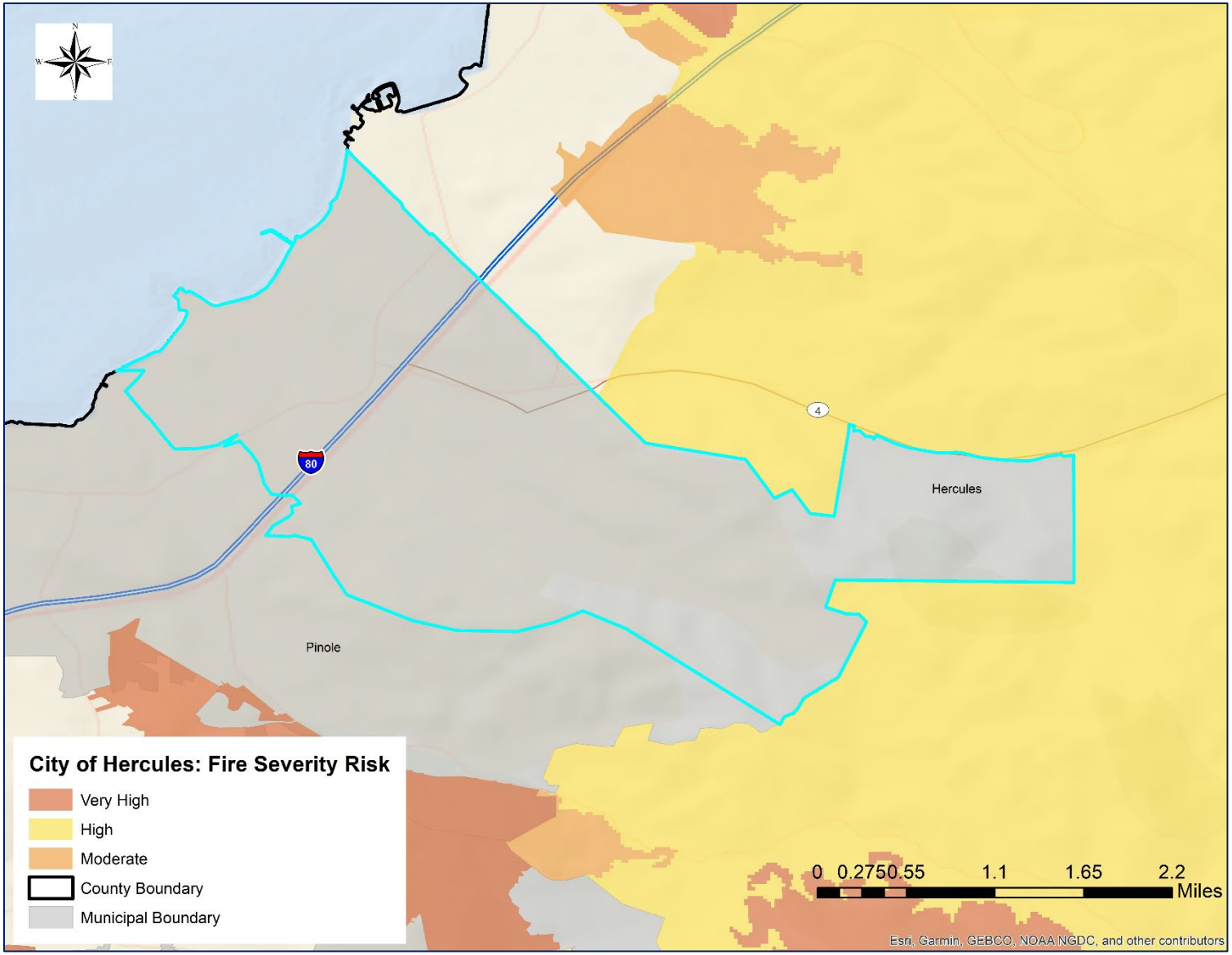


Figure 6. Fire Hazard Severity Zones



APPENDIX B. STAKEHOLDER AND PUBLIC ENGAGEMENT

The mitigation planning process promotes awareness of hazard risks and continues the conversation about the community's safety and resilience. A hazard mitigation plan generates additional community support when it accurately reflects the values and priorities of the community which will lead to successfully implementing the mitigation actions and projects identified in this Plan.

Federal regulations for mitigation plan approval require that stakeholders and the general public are given opportunities to be involved in the plan's development and update process. Input from community members can strengthen the content and outcomes of the hazard mitigation plan. Furthermore, the Plan must state continued public engagement as the Plan is carried out during its lifetime. A public outreach strategy outlines what the community intends to achieve throughout the outreach efforts. Additionally, it identifies who to involve in the process, and how and when to effectively engage the community. Contra Costa County and the City of Hercules worked together to ensure that the stakeholder and public engagement was meaningful and productive. Refer to **Volume 1 (Planning Area-wide Elements)** for further information on how stakeholders and the general public were given opportunities to be involved throughout the planning process. However, every plan participant employed a slightly tailored engagement strategy that suits the community's demographics, including the underserved population, and needs in addition to the lead jurisdiction's engagement strategy.

City of Hercules stakeholders and the public were given a number of opportunities to be involved throughout the planning process. Opportunities were provided via a public survey, in person and virtual public meetings, and public engagement activities to review the Plan draft (i.e., public comment period). The public meetings allowed the County to introduce the Plan update, identify additional hazards of concern that should be included, if any, and to provide input for the various mitigation measures intended to eliminate or reduce the negative impact to those hazards. Language translation assistance in Spanish was available in all public meetings. The public survey asked community representatives and members of the public to rate each of the hazards in terms of perceived risk. Furthermore, they were asked to rate "mitigation importance" for each of the identified hazards in the Plan. The information gathered from this survey was used to inform the hazard risk prioritization process, and to ensure the Plan adequately addressed the public's concerns and priorities. The survey was available in English, Spanish, Tagalog, Traditional Chinese, and Simplified Chinese. A total of 26 respondents that lived in the City and nine (9) that worked in the City participated in the survey. Please refer to **Volume 1 (Planning Area-wide Elements)** for further information and supporting documentation of the public meetings and public survey.

How Public Input was Incorporated into the Plan

Information and feedback gained through the public survey, public meetings, and public comment period provided valuable data to validate and confirm the risk assessment findings and potential mitigation strategies. Specifically, feedback from the public offered during the public meetings offered greater insights into the public's concerns regarding specific hazards and their impacts. The public also offered specific initiatives they felt would create greater resiliency for the City and its residents.

Survey results helped validate the hazards included in the Plan, the hazard ranking process, and areas where the County and jurisdictions could further improve outreach and education efforts. Open-ended responses, specifically regarding their experience with damages from past hazards, helped to validate hazard-specific impact data in *Chapter 4 (Hazard Identification and Risk Assessment)* of **Volume 1 (Planning Area-wide Elements)**. These, and related findings, helped the County and City Core Planning Teams determine meaningful mitigation projects.

After the public comment period ended, one (1) public feedback form was received for the City of Hercules Annex. The Local Planning Team reviewed and will implement mitigation and preparedness efforts moving forward, if deemed appropriate. However, in order to keep the Plan current after it is approved, the City will ensure that the public continues to be involved in the Plan and how it is carried out. Refer to Section B.2 of this Annex for further details on continued public engagement.

B.1. Public Comment Period

Once the draft Plan was completed, the public was given an opportunity to review and provide comments on the County Hazard Mitigation Plan, including the City of Hercules' Annex, prior to submitting the Plan to the State and FEMA. The countywide public comment period began on April 22, 2024, and went on through May 31, 2024. Prior to the public comment period, the Contra Costa County Core Planning Team conducted a strategy meeting with all plan participants (i.e., City of Hercules) that served as a brainstorming session and helped determine the public outreach goals and proper outreach methods for the public comment period. Subsequently, the City of Hercules Core Planning Team developed a public outreach strategy that meets the City's unique needs of the community to engage stakeholders and the public during the public comment period. The City ensured equitable outreach by targeting Contra Costa County's vulnerable communities, including the younger (under 18 years old) and elderly (over 65 years old) population, individuals with limited English proficiency, race and ethnicity minority population, individuals with limited access to a vehicle and low income, and those with access and functional needs.

The City of Hercules Local Planning Team coordinated with its stakeholders to ensure that the public had an opportunity to learn about the Plan, mitigation actions planned for their community, and ways to get involved in the planning process. Outreach to the Hercules community involved a combination of in person, printed, and digital media starting on April 23, 2024, through the end of the public comment period on May 31, 2024. To ensure equitable outreach a calendar was created to strategize and map all events.

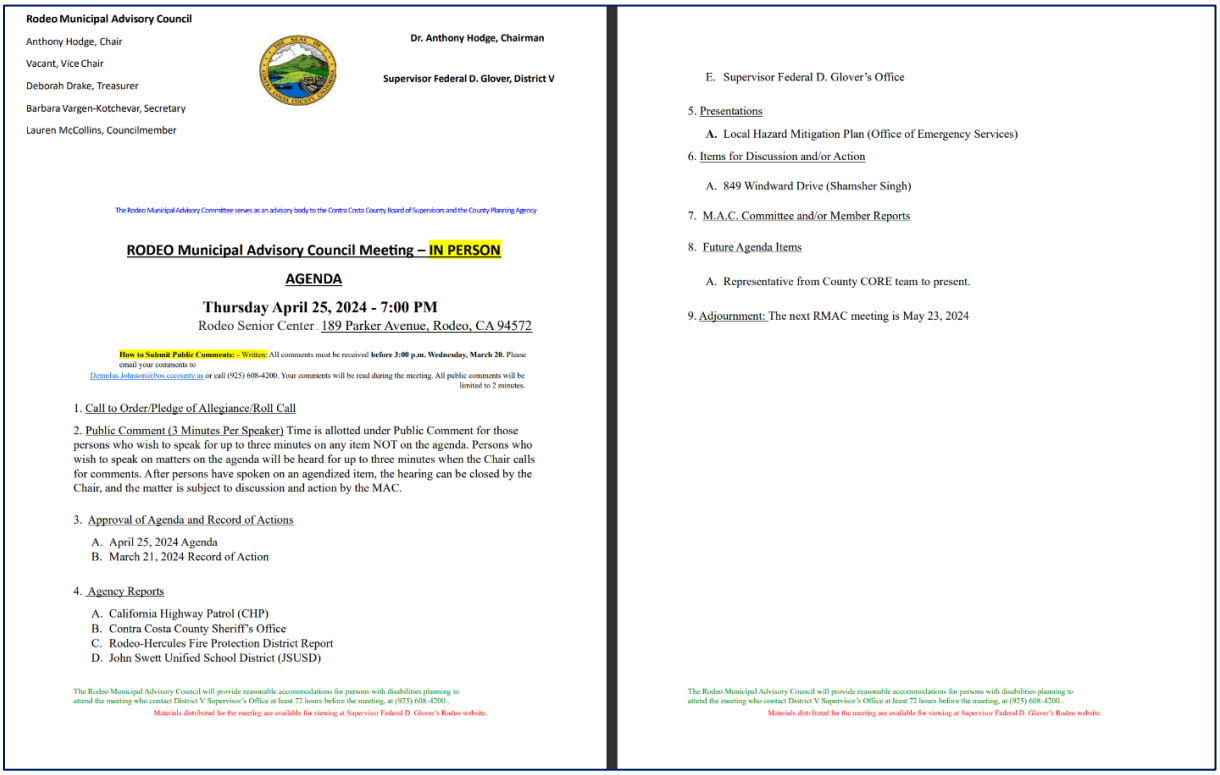
Public Comment Outreach Calendar

April 2024		
Date	**Thursday, April 25th**	**Tuesday, April 30th**
Event Name	Rodeo Municipal Advisory Council Meeting	Spring into Wellness Fair
Location	Rodeo Senior Center 189 Parker Avenue Rodeo, CA 94572	Hercules Senior Center 111 Civic Drive Hercules, CA 94547
Outreach Method	Presentation to Governing Body	Community Event
Outreach Purpose	Inform, Involve	Inform
Targeted Population	Citywide, Age (Elderly), Access and Functional Needs	Age (Elderly), Access and Functional Needs, Low Income, Limited Access to a Vehicle
Accommodations Provided	After Hours	In Person Outreach

May 2024		
Date	**Wednesday, May 8th**	**Wednesday, May 8th**
Event Name	Rodeo-Hercules Fire Protection District Board Meeting	Hercules Community Center Family Outreach
Location	Hercules City Hall 111 Civic Drive Hercules, CA 94547	2001 Refugio Valley Road Hercules, CA 94547
Outreach Method	Presentation to Governing Body	Community Event
Outreach Purpose	Inform, Involve	Inform
Targeted Population	Citywide, Age (Elderly), Access and Functional Needs	Age (Younger), Single-Parent Households, Low Income, Race and Ethnic Minority
Accommodations Provided	After Hours, Virtual Option	In Person Outreach, After Hours

April 25, 2024 – Rodeo Municipal Advisory Council Meeting (Partnership with Contra Costa County Office of Emergency Services and Rodeo-Hercules Fire Protection District)

The Rodeo Municipal Advisory Council (MAC) Meeting was held in person, after hours (7:00 PM) on a weekday. The MAC meetings are open to the general public. During this meeting, City staff conducted a presentation on the Contra Costa County Hazard Mitigation Plan, including the City's Annex, and provided options for the public to review and provide feedback on the Plan and Annex.



Rodeo Municipal Advisory Council

Anthony Hodge, Chair
Vacant, Vice Chair
Deborah Drake, Treasurer
Barbara Vargen-Kotchevar, Secretary
Lauren McCollins, Councilmember

Dr. Anthony Hodge, Chairman

Supervisor Federal D. Glover, District V

The Rodeo Municipal Advisory Committee serves as an advisory body to the Contra Costa County Board of Supervisors and the County Planning Agency

RODEO Municipal Advisory Council Meeting – IN PERSON

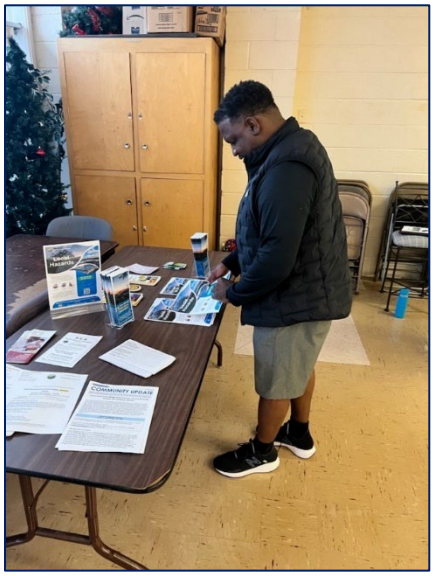
AGENDA

Thursday April 25, 2024 - 7:00 PM
Rodeo Senior Center . 189 Parker Avenue, Rodeo, CA 94572

How to Submit Public Comments: - Written: All comments must be received **before 3:00 p.m. Wednesday, March 20.** Please email your comments to Demelia.Johnson@bos.cccounty.us or call (925) 608-4200. Your comments will be read during the meeting. All public comments will be limited to 2 minutes.

1. Call to Order/Pledge of Allegiance/Roll Call
2. Public Comment (3 Minutes Per Speaker) Time is allotted under Public Comment for those persons who wish to speak for up to three minutes on any item NOT on the agenda. Persons who wish to speak on matters on the agenda will be heard for up to three minutes when the Chair calls for comments. After persons have spoken on an agendized item, the hearing can be closed by the Chair, and the matter is subject to discussion and action by the MAC.
3. Approval of Agenda and Record of Actions
   A. April 25, 2024 Agenda
   B. March 21, 2024 Record of Action
4. Agency Reports
   A. California Highway Patrol (CHP)
   B. Contra Costa County Sheriff's Office
   C. Rodeo-Hercules Fire Protection District Report
   D. John Swett Unified School District (JSUSD)
   E. Supervisor Federal D. Glover's Office
5. Presentations
   A. Local Hazard Mitigation Plan (Office of Emergency Services)
6. Items for Discussion and/or Action
   A. 849 Windward Drive (Shamsher Singh)
7. M.A.C. Committee and/or Member Reports
8. Future Agenda Items
   A. Representative from County CORE team to present.
9. Adjournment: The next RMAC meeting is May 23, 2024

The Rodeo Municipal Advisory Council will provide reasonable accommodations for persons with disabilities planning to attend the meeting who contact District V Supervisor's Office at least 72 hours before the meeting, at (925) 608-4200.
Materials distributed for the meeting are available for viewing at Supervisor Federal D. Glover's Rodeo website.

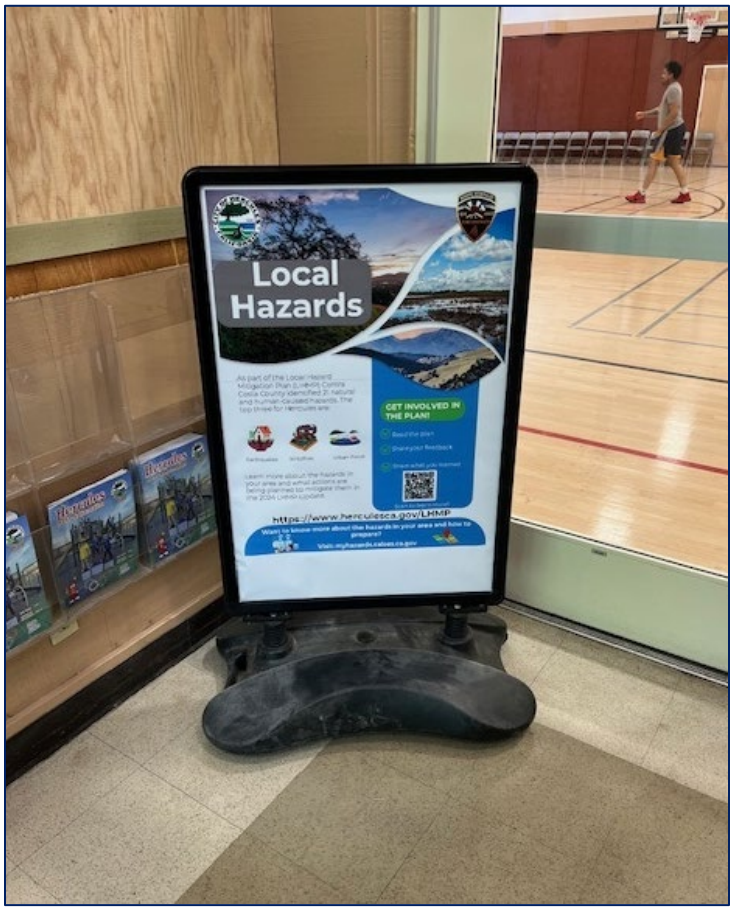


April 30, 2024 – Spring into Wellness Fair

The Spring into Wellness Fair had vendors talk and provide information about their programs. The City of Hercules Police Department and Rodeo-Hercules Fire Protection District (RHFPD) hosted a table to share information on the Contra Costa County Hazard Mitigation Plan, including the City's Annex, opportunities to review and provide feedback on the Plan, and the community's local hazards.

May 8, 2024 – Community Center Family Outreach

The City of Hercules shared information, including flyers and a poster, on the Contra Costa County Hazard Mitigation Plan, including the City's Annex, opportunities to review and provide feedback on the Plan, and the community's local hazards. Information was provided to families and coaches during basketball and swimming lessons.



May 8, 2024 – Rodeo-Hercules Fire Protection District Board Meeting (Partnership with Rodeo-Hercules Fire Protection District)

The Rodeo-Hercules Fire Protection District Board Meeting was held in person with a virtual option (Zoom), after hours (7:00 PM) on a weekday. The Board Meeting is open to the general public. During this meeting, the City and RHFPD presented the Contra Costa County Hazard Mitigation Plan, including the City's Annex, and advised the public on opportunities to be part of the planning process by reviewing and providing feedback on the Plan and Annex.

RODEO-HERCULES FIRE PROTECTION DISTRICT
1680 REFUGIO VALLEY ROAD, HERCULES, CALIFORNIA 94547
(510) 799-4561 FAX: (510) 799-0395

AMENDED REGULAR BOARD MEETING AGENDA
May 8, 2024

6:30 p.m. (Closed Session)
7:00 p.m. (Open Session)

MEETING LOCATION:
City of Hercules
111 Civic Drive
Hercules, CA 94547

To access meeting remotely:
Please click on the link below to join the webinar by Zoom:

https://us02web.zoom.us/j/81576914437?pwd=cTZBNG9MaTkwSnVHWEY0MnNKRWJtQT09

Or by phone: 1-669-900-9128
Webinar ID: 815 7691 4437
Passcode: 050445

The Rodeo Hercules Fire Protection District ("District"), in complying with the Americans with Disabilities Act ("ADA"), requests individuals who require special accommodations to access, attend, and/or participate in District Board meetings due to a disability, to please contact the District Chief's office at (510) 799-4561, at least one business day before the scheduled District Board meeting to ensure that the District may assist you.

1. CALL TO ORDER/ROLL CALL
2. PLEDGE OF ALLEGIANCE
3. ADJOURN TO CLOSED SESSION, DISTRICT COUNSEL, 10 MINUTES, 6:30 p.m. or as soon thereafter as possible.
   A. Closed Session Pursuant to Government Code §54957.6
      1. CONFERENCE WITH LABOR NEGOTIATORS
         Agency designated representatives: Gregory Ramirez, IEDA; Interim Chief Ramirez
         Employee organization: IAFF Local 1230
4. RECONVENE IN OPEN SESSION/CLOSED SESSION REPORT OUT, 7:00 p.m. or as soon thereafter as possible.
5. ANNOUNCEMENTS OF DISTRICT EVENTS
6. CONFIRMATION OF THE AGENDA

7. REVIEW OF CORRESPONDENCE TO THE BOARD

ATTACHMENT
1. Letter from Contra Costa County Fire Chiefs Supporting SB1159

8. PUBLIC COMMUNICATIONS ON ITEMS NOT ON THIS AGENDA

Public comment on any item of interest to the public that is within the Board's jurisdiction and not on this meeting's agenda will be heard. The Board may limit comments to no more than 3 minutes per speaker, subject to adjustment by the Chair.

9. CONSENT CALENDAR (ACTION)

All matters listed under the Consent Calendar are considered routine and non-controversial and can be enacted by one motion. There will be no separate discussion of these items unless requested by a member of the Board or a member of the public prior to the time the Board votes on the motion to adopt. BOARD, 3 MINUTES

A. APPROVAL OF MEETING MINUTES OF THE APRIL 10, 2024, REGULAR MEETING
B. RESOLUTION 2024-11: RESOLUTION DECLARING INTENTION TO CONTINUE TO LEVY FIRE SUPPRESSION ASSESSMENT AND SUPPLEMENTAL FIRE SUPPRESSION ASSESSMENT ON ALL PARCELS OF REAL PROPERTY FOR FISCAL YEAR 2024-2025
C. REVIEW OF TRANSMITTALS

ATTACHMENTS:
1. Staff Report
2. Resolution 2024-11

10. SPECIAL ORDER OF BUSINESS: DISTRICT STRATEGIC PLAN AND SUSTAINABILITY EFFORTS (INFORMATION) CHIEF RAMIREZ, 10 MIN.

11. WEED ABATEMENT PROGRAM (INFORMATION/POSSIBLE ACTION) GEORGE APPLE, 20 MIN.

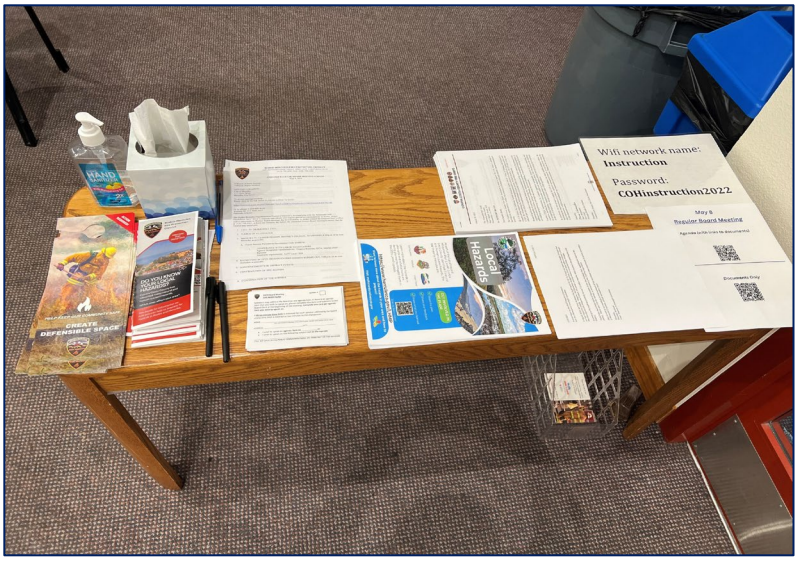
ATTACHMENTS:
1. Staff Report
2. Presentation
3. Supporting Weed Abatement Notice(s) and Documents
4. Resolution 2024-12

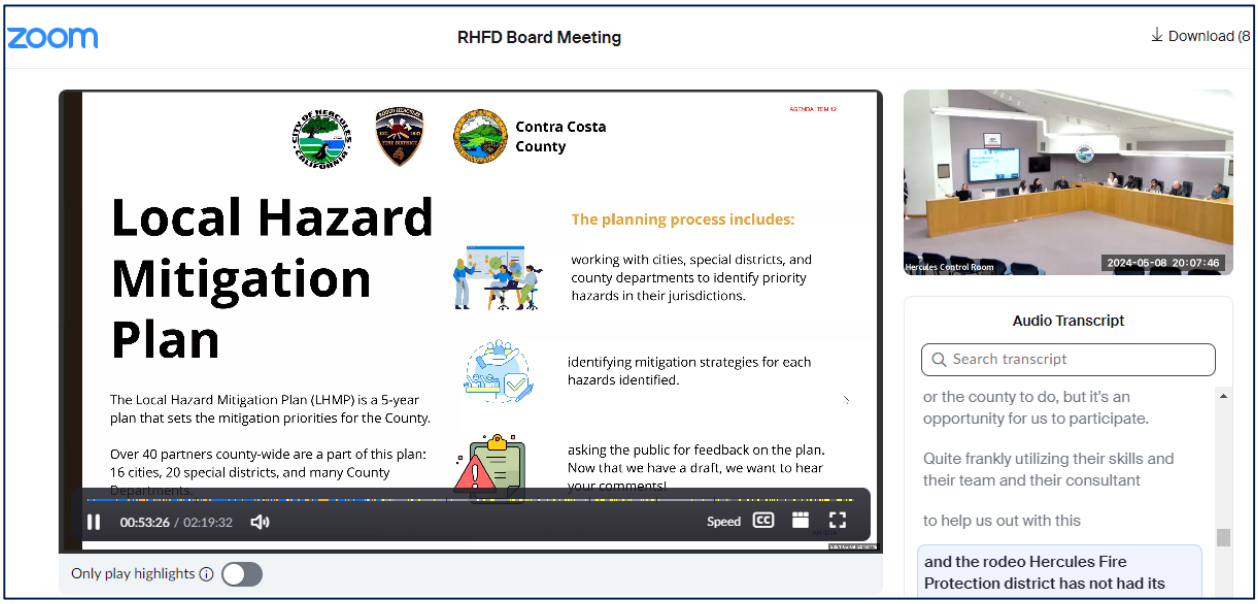
12. LOCAL HAZARD MITIGATION PLAN (PRESENTATION), 10 MINUTES

ATTACHMENTS:
1. Presentation
2. LHMP - RHFPD 2024

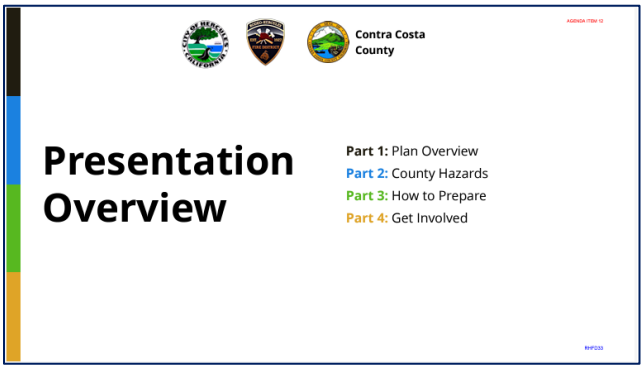
13. RECEIVE ANNUAL MEASURE O OVERSIGHT COMMITTEE REPORT FOR FY2022-2023 (INFORMATION), MAUREEN BRENNAN, 10 MIN.

ATTACHMENTS:




zoom
RHFD Board Meeting
Download (8
Contra Costa County
Local Hazard Mitigation Plan
The Local Hazard Mitigation Plan (LHMP) is a 5-year plan that sets the mitigation priorities for the County.
Over 40 partners county-wide are a part of this plan: 16 cities, 20 special districts, and many County Departments.
The planning process includes:
working with cities, special districts, and county departments to identify priority hazards in their jurisdictions.
identifying mitigation strategies for each hazards identified.
asking the public for feedback on the plan. Now that we have a draft, we want to hear your comments!
00:53:26 / 02:19:32
Speed
Only play highlights
Hercules Control Room
2024-05-08 20:07:46
Audio Transcript
Search transcript
or the county to do, but it's an opportunity for us to participate.
Quite frankly utilizing their skills and their team and their consultant
to help us out with this
and the rodeo Hercules Fire Protection district has not had its


Contra Costa County
Local Hazard Mitigation Plan
Presentation for RHFD Board of Directors - May 8, 2024


Contra Costa County
Presentation Overview
Part 1: Plan Overview
Part 2: County Hazards
Part 3: How to Prepare
Part 4: Get Involved

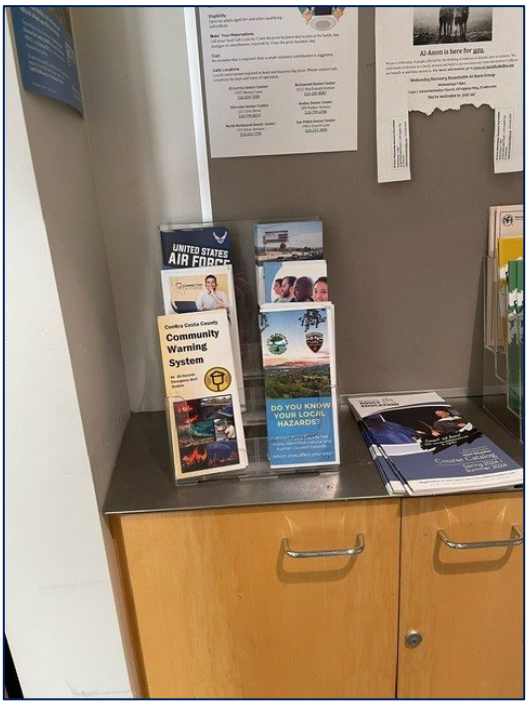
Printed Materials

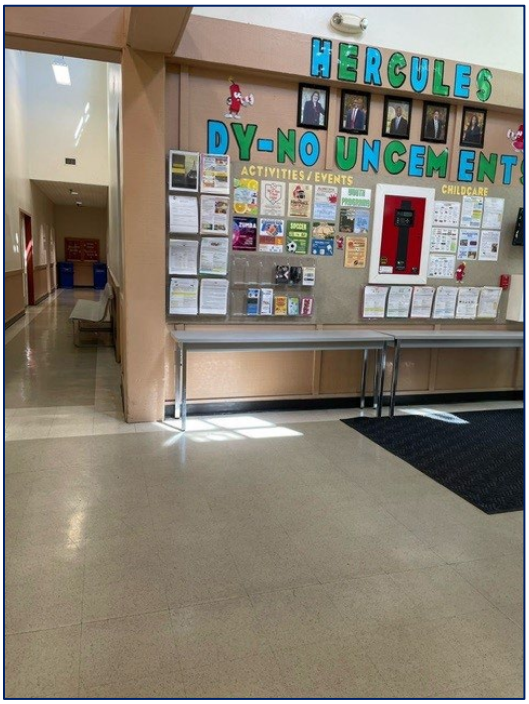
Two (2) different types of materials were created specifically for the public comment period and the City rebranded the materials with the City logo, as seen in the outreach pictures within this Appendix. The trifold (**Figure B-1**) contains information on the planning process, the top three (3) hazards in the County, ways to prepare, and ways to get involved in the planning process. A full-page flyer (**Figure B-2**) was created with information on the planning process, ways to get involved, and ways to prepare. Both the trifold and full-page flyer were distributed at public meetings and outreach events. Printed materials are especially helpful to communities with limited English proficiency as the materials include a visual component.

Figure B-1. Trifold

Figure B-2. Local Hazard Flyer

Throughout the public comment period, printed materials were placed inside the following City public buildings – City Hall lobby on April 29, 2024, Hercules Senior Center on April 30, 2024, Hercules Library on May 2, 2024, and Hercules Community Center on May 8, 2024.





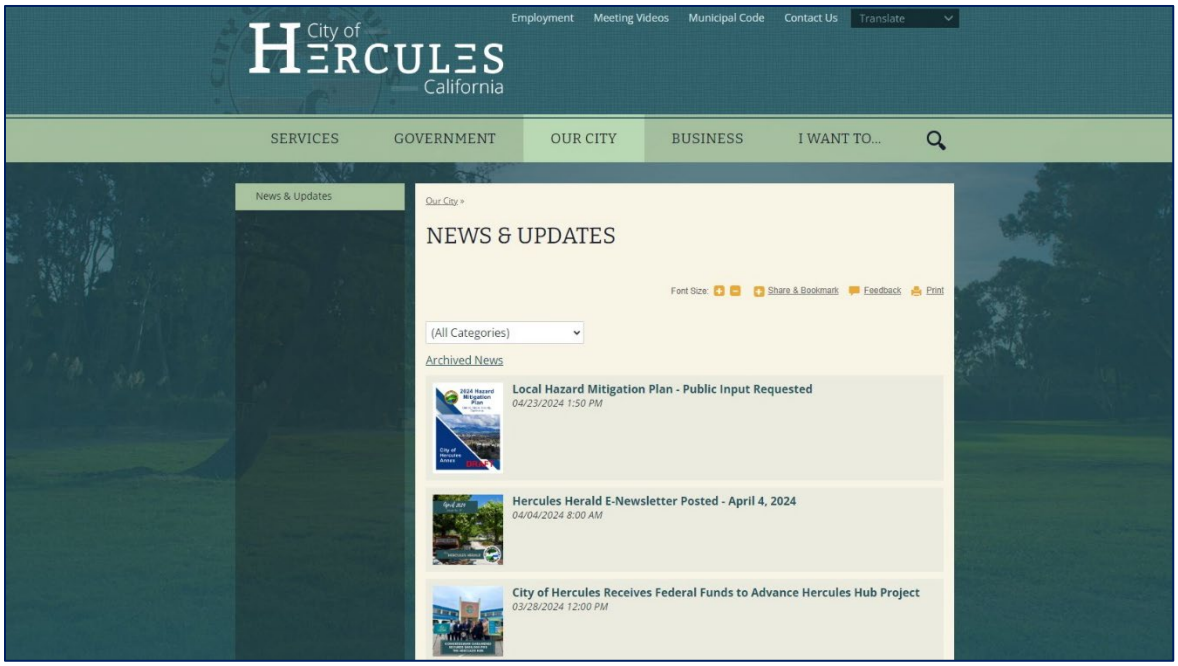
Additionally, an item about the Hazard Mitigation Plan was included in the Hercules Herald (i.e., City's Newsletter) on May 1, 2024. The monthly Newsletter provides residents with updates on recent or upcoming projects, programs, events, and initiatives.


LOCAL HAZARD MITIGATION PLAN
We'd Love to Get
YOUR FEEDBACK
To review the Plan and provide input visit www.herculesca.gov/LHMP
Submit your comments by May 31, 2024
Local Hazard Mitigation Plan
Open for Comment
Feedback Deadline: May 31
The City of Hercules, numerous Cities and Special Districts are partnering with Contra Costa County to prepare a Local Hazard Mitigation Plan. To view the Plan and provide input, please visit https://www.herculesca.gov/LHMP. The deadline for comment submission is May 31st.
More Info


City of HERCULES California
SERVICES
GOVERNMENT
OUR CITY
BUSINESS
I WANT TO...
Watch on YouTube
NEWS/UPDATES
MEETINGS/EVENTS
Hercules Herald E-Newsletter Posted - May 1, 2024
Hercules Herald E-Newsletter Posted - April 4, 2024
City of Hercules Receives Federal Funds to Advance Hercules Hub
Hercules Assumes Role of Housing Successor, Paving the
Hercules Herald E-Newsletter Posted - March 8, 2024
Hercules Adopts Parks and Recreation Facilities Master Plan
MORE NEWS

City Website

Announcements providing an opportunity to comment on the Contra Costa County Hazard Mitigation Plan and the City's Annex were posted under the News and Updates section of the City website starting on April 23, 2024. The website served as a central place which allowed all residents, stakeholders, and partners in the City of Hercules to review and provide feedback on the County's Hazard Mitigation Plan and the City's Annex, and thus promoted more public comment. Additionally, it allowed to connect with community members who are unable to attend in person meetings and events (e.g., individuals with limited access to a vehicle, younger population).



Social Media Posts

Public comment period announcements were disseminated through the City's Facebook page on May 15, 2024. Membership in the City's social media page exceeds 1,700 consisting of residents and local business owners.

Stakeholder Engagement

Due to the size of the Plan (the Base Plan and 40 annexes), some stakeholders would receive the same invitation a significant amount of times. For a more productive outreach and to avoid overwhelming stakeholders, Contra Costa County sent a single invitation to all the countywide stakeholders via e-mail. However, each plan participant was required to cross-reference the countywide list and identify the stakeholders that applied specifically to their jurisdiction. Not only did this help ensure that a comprehensive list was compiled as part of the stakeholder engagement, but it assisted each plan participant identify any additional stakeholders that may have not been on the list. **Table 26** outlines the stakeholders the City of Hercules identified and provided an opportunity to review and provide feedback on the draft Plan and Annex, via the countywide stakeholders e-mail.

Table 26. City of Hercules Specific Stakeholders List

Local and Regional Agencies	
Bay Area Air Quality Management District	Contra Costa County Health Services
Cal OES	Contra Costa County Office of Communication and Media
CalFire	Contra Costa County Office of Education
California Department of Parks and Recreation	Contra Costa County Office of Restorative Equity and Social Justice
California Department of Social Services	Contra Costa County Office of the Sheriff
California Department of Transportation (Caltrans)	Contra Costa County Probation
California Department of Water Resources	Contra Costa County Risk Management
California Highway Patrol	Contra Costa County Transportation Authority
California State Lands Commission	Contra Costa County Treasurer-Tax Collector
Capitol Corridor Joint Powers Authority	Contra Costa County Veteran Services Office
Central Delta Water Agency	Contra Costa County Volunteer Organizations Aiding in Disaster
Contra Costa County Administrator's Office	Contra Costa Water District
Contra Costa County Airport	Contra Costa Regional Medical Center
Contra Costa County Animal Services Department	Dublin San Ramon Services District
Contra Costa County Auditor – Controller	East Bay Municipal Utility District
Contra Costa County Clerk-Recorder	East Bay Regional Park District
Contra Costa County Counsel	Metropolitan Transportation Commission
Contra Costa County Department of Agriculture	National Oceanic and Atmospheric Association
Contra Costa County Department of Conservation and Development	National Weather Service
Contra Costa County Department of Information Technology	State Water Resources Control Board
Contra Costa County Department of Public Works	Tri Delta Transit
Contra Costa County District Attorney's Office	West Contra Costa Transit Authority

Local and Regional Agencies	
Contra Costa County Employment & Human Services Department	WestCAT
Agencies that have the Authority to Regulate Development	
Contra Costa County Department of Conservation Development	Contra Costa Local Agency Formation Commission
Neighboring Communities	
Alameda County	
Nonprofit Organizations	
American Red Cross	Futures Explored
California Autism Foundation	Independent Living Resources – Solano and Contra Costa Counties
California Resiliency Alliance	Inter-Tribal Council of California
Care Parent Network	La Familia Counseling
CARESTAR Foundation	Loaves and Fishes – Contra Costa County
CocoKids	Meals on Wheels
Community Awareness and Emergency Response	Monument Crisis Center
Concord Corps. – The Salvation Army	Regional Center of the East Bay
Contra Costa County Crisis Center - 211	Society of St. Vincent de Paul of Contra Costa County
Contra Costa County Crisis Center – Hope Solutions	United Way Bay Area
Interfaith Council of Contra Costa County	VistAbility
Down Syndrome Connection of the Bay Area	
Businesses, Academia, and Other Private Organizations	
AC Transit	John Muir Behavioral Health
Amtrak	Kaiser Permanente Hospital
BNSF Railway	Marathon Petroleum
California State University	Martinez Refinery Company/PBF Energy
Chevron Refinery	Milestone California-Based Investment Company
Contra Costa County Community College District	MV Transportation
Contra Costa Event Park – Contra Costa County Fair	Pacific Gas & Electric
Corteva	Philips 66 Rodeo Refinery
County Connection Transportation and Link Paratransit Services	Shell Oil Company
Delta View Post Acute Care Skilled Nursing Facility	Sutter Delta Medical Center
EcoServices	Tenet Health
Food Bank of Contra Costa and Solano	Valero Energy Corporation

Businesses, Academia, and Other Private Organizations	
Global Medical Response	Vituity

Refer to **Volume 1 (Planning Area-wide Elements)** for a full list of the countywide stakeholders.

Additionally, the City of Hercules identified the following stakeholders and provided an opportunity to review and provide feedback on the draft Plan – Chinese Association of Hercules, Fair Housing Advocates of Northern California, Moms4Housing, Eden Housing, Mid-Pen Housing, Burbank Housing, and Greenbelt Alliance. The aforementioned stakeholders provided an opportunity for racial and ethnic minorities, low income populations, individuals with a housing cost burden, and those living in multi-unit structures to review and provide feedback on the Plan.

Seana Field

From: Seana Field
Sent: Thursday, May 2, 2024 2:16 PM
To: Seana Field
Subject: Hercules Local Hazard Mitigation Plan - Ready to Review
Attachments: Hercules Local Hazard Mitigation Plan - Flyer.pdf

Good Afternoon,

The City of Hercules is working with Contra Costa County to update our Local Hazard Mitigation Plan. The plan is in draft form and ready for review and comment.

We would appreciate it if you could send this information out through your network, to provide the opportunity to comment to as many people as possible. A flyer with general Hazard preparedness information, as well as our local draft plan is attached to this email for your use.

Our plan can be viewed on the City website at https://www.herculesca.gov/LHMP.

The Rodeo-Hercules Fire Protection District also has a draft plan, available for review.

Please be aware the deadline to provide comments is **May 31st**.

Please let me know if you have any questions.

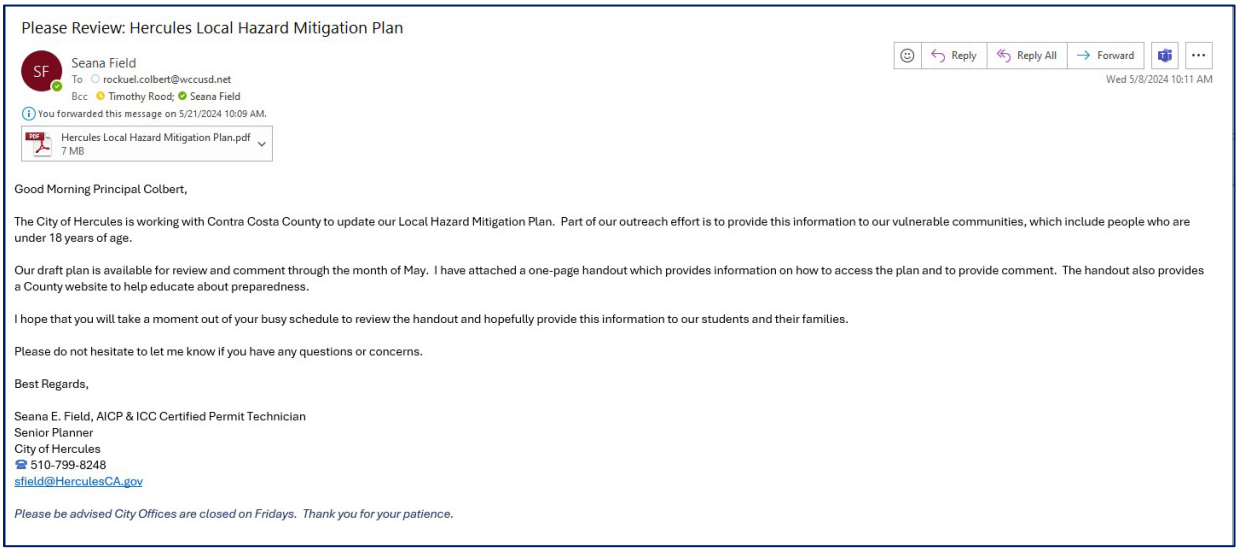
Thank you for your help!

Best Regards,

Seana E. Field, AICP & ICC Certified Permit Technician
Senior Planner
City of Hercules
☎ 510-799-8248
sfield@HerculesCA.gov

Please be advised City Offices are closed on Fridays. Thank you for your patience.

An opportunity to review and provide feedback on the Contra Costa County Hazard Mitigation Plan and the City's Annex was also provided to West Contra Costa Unified School District staff.



Please Review: Hercules Local Hazard Mitigation Plan

Seana Field
To rockuel.colbert@wccusd.net
Bcc Timothy Rood; Seana Field
You forwarded this message on 5/21/2024 10:09 AM.

Reply | Reply All | Forward
Wed 5/8/2024 10:11 AM

Hercules Local Hazard Mitigation Plan.pdf
7 MB

Good Morning Principal Colbert,

The City of Hercules is working with Contra Costa County to update our Local Hazard Mitigation Plan. Part of our outreach effort is to provide this information to our vulnerable communities, which include people who are under 18 years of age.

Our draft plan is available for review and comment through the month of May. I have attached a one-page handout which provides information on how to access the plan and to provide comment. The handout also provides a County website to help educate about preparedness.

I hope that you will take a moment out of your busy schedule to review the handout and hopefully provide this information to our students and their families.

Please do not hesitate to let me know if you have any questions or concerns.

Best Regards,

Seana E. Field, AICP & ICC Certified Permit Technician
Senior Planner
City of Hercules
☎ 510-799-8248
sfield@HerculesCA.gov

Please be advised City Offices are closed on Fridays. Thank you for your patience.

B.2. Continued Public Engagement

To ensure continued public engagement, Contra Costa County and the City of Hercules will ensure the Plan is available in the County's Hazard Mitigation Plan webpage after it has been approved to allow the public an opportunity to provide continual feedback and input. As future needs and concerns arise, or if the public would like to provide feedback regarding the latest version of the Plan and the City's Annex, the public is invited to use the comment form, which is provided on the website, to provide comments.

County Hazard Mitigation Webpage: contracosta.ca.gov/6415/Local-Hazard-Mitigation-Plan

Comment Form: survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP

The City of Hercules will continue to work with Contra Costa County and stakeholders to ensure that the public has an opportunity to learn about the Plan, mitigation actions planned for their communities, and ways to get involved. Hazard mitigation will be a part of the City's community outreach strategy to include, but not limited to, public meetings, community events, social media, and public surveys throughout the year. Furthermore, the City of Hercules will continue to ensure equitable outreach by working with other departments, non-profits, and agencies that work with underserved communities throughout the County.

APPENDIX C. HAZARD RISK ASSESSMENT METHODOLOGY

As part of the Contra Costa County Office of Emergency Services (OES), the risk assessment identifies the natural, human-caused, and technological hazards that have potential impacts on all or portions of the County. Hazard identification, historical occurrences, and risk modeling (where applicable and available for specific hazards) information was collected from multiple sources including, but not limited to:

- Environmental Systems Research Institute (Esri)
- Federal Emergency Management Agency (FEMA)
- National Centers for Environmental Information (NCEI)
- National Weather Services (NWS)
- United States Geological Survey (USGS)
- Local repositories

This information was analyzed to assess the risk and vulnerability of people, property, the environment, and the jurisdiction's essential operations from these hazards. Furthermore, a risk ranking was performed for the hazards of concern described in this Plan. The risk ranking is an important step in developing an action plan, as it allows jurisdictions to compare the risk factors from one hazard to another. That comparison provides critical information to use in selecting hazard mitigation actions and their priorities. This process is not only intended to help focus actions on the hazards with the highest ranking, but also to ensure that jurisdictions are aware of the hazards that ranked low yet still pose significant risk.

In order to provide an informed and comprehensive ranking of the hazards addressed in this Plan, a number of factors were considered: probability, extent, vulnerability, and impact. The sum of all the weighted factors for the extent, vulnerability, and impact categories was combined into a final consequence score. Probability multiplied by consequence resulted in a total risk score for each hazard.

Extent + Vulnerability + Impact = Consequence

Consequence x Probability = Total Risk Score

These results were determined by following a data driven quantitative assessment, reviewing, and ranking local knowledge from local subject matter experts, and developing other risk elements by the Core Planning Team based on the data collected. These elements were then aggregated to inform the analysis.

At the fundamental level, consequence is an assessment of the potential impact(s) if the hazard incident actually occurs. In this assessment, the consequence of an event (or the impact) will be interdependent on the following factors:

- Vulnerabilities (i.e., social, physical, and community conditions)
- Capabilities and capacities
- Mitigation

- Characteristics of the hazard event (i.e., magnitude, scale)

The frequency/probability of the hazard is not included in assessing the consequence because without the event, there is no consequence or impact.

C.1. Probability of Occurrence

The probability of occurrence of a hazard is indicated by a probability factor based on the likelihood of annual occurrence. Numerical probability factors were assigned as follows.

Table 27 outlines the probability of occurrence factors used in the risk assessment calculations for this Plan. A significant hazard event is defined as any hazard occurrence that directly or indirectly damages structures or infrastructure, impedes normal business operations, and/or is likely to cause serious or fatal injuries.

Table 27. Probability of Occurrence

Probability	Description	Probability Factor
High	Significant hazard event is likely to occur annually.	3
Medium	Significant hazard event is likely to occur within 25 years.	2
Low	Significant hazard event is likely to occur within 100 years.	1
Unlikely	There is little to no probability of significant occurrence, or the recurrence interval is greater than every 100 years.	0

The assessment of hazard frequency is generally based on past hazard events in the area and professional judgment of local subject matter experts.

C.2. Extent Factors

Extent was assessed in two (2) categories – extent/intensity potential and catastrophic probability of the hazard. Numerical extent factors were assigned as follows.

C.2.1. Extent/Intensity Factor

Extent is defined as the range of anticipated intensities of the identified hazards. This category is most commonly expressed using various scientific scales (e.g., Saffir-Simpson, Enhanced Fujita, Modified Mercalli). Extent/Intensity Factors are hazard-specific and are detailed in each hazard profile. **Table 28** outlines the extent/intensity factors used in the risk assessment calculations for this Plan.

Table 28. Extent/Intensity Factor

Probability	Description	Extent Factor
High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3
Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2
Low	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a low-intensity incident.	1
Unlikely	Historical and/or probabilistic models/studies for this hazard indicate the possibility of little to no intensity.	0

C.2.2. Catastrophic Factor

The probability that a hazard could be catastrophic. Catastrophes are defined as significant incidents that cause sudden and great harm or destruction. **Table 29** outlines the catastrophic factors used in the risk assessment calculations for this Plan.

Table 29. Catastrophic Factor

Probability	Description	Extent Factor
High	Catastrophic hazard event is likely to occur at least once in 10 years.	3
Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2
Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1
No Impact	Virtually no probability that this hazard could be catastrophic.	0

Each category was assigned a weighting factor to reflect its significance, consistent with this typically used for measuring the benefits of hazard mitigation actions – a weighting factor of three (3) was assigned for *Extent/Intensity* and its potential for *Catastrophe*.

C.3. Vulnerability Factors

Vulnerabilities were assessed in three (3) categories – population exposure, property exposure, and exposure based on changes in development. Numerical vulnerability factors were assigned as follows.

C.3.1. Population Exposure Factor

Population exposure values were assigned based on the percentage of the total population exposed to the hazard event. **Table 30** outlines the population exposure factors used in the risk assessment calculations for this Plan.

Table 30. Population Exposure Factor

Probability	Description	Vulnerability Factor
High	30% or more of the population is exposed to the hazard.	3
Medium	15% to 29% of the population is exposed to the hazard.	2
Low	14% or less of the population is exposed to the hazard.	1
No Vulnerability	None of the population is exposed to the hazard.	0

C.3.2. Property Exposure Factor

Property exposure values were assigned based on the percentage of the total property value exposed to the hazard event. **Table 31** outlines the property exposure factors used in the risk assessment calculations for this Plan.

Table 31. Property Exposure Factor

Probability	Description	Vulnerability Factor
High	25% or more of the total assessed property value is exposed to the hazard.	3
Medium	10% to 24% of the total assessed property value is exposed to a hazard.	2
Low	9% or less of the total assessed property value is exposed to a hazard.	1
No Vulnerability	None of the total assessed property value is exposed to a hazard.	0

C.3.3. Changes in Development

Changes in development in the past five (5) years have increased or decreased the community's vulnerability/exposure to the hazard. **Table 32** outlines the changes in development factors used in the risk assessment calculations for this Plan.

Table 32. Changes in Development Factor

Probability	Description	Vulnerability Factor
High	Changes in development have increased the vulnerability/exposure of the community to the hazard by 10% or more.	3
Medium	Changes in development have increased the vulnerability/exposure of the community to the hazard between 5% and 9%.	2
Low	Changes in development have increased the vulnerability/exposure of the community to the hazard by 4% or less.	1
No Vulnerability	Changes in development had no effect and/or have decreased the vulnerability/exposure of the community to the hazard.	0

Each category was assigned a weighting factor to reflect the significance, consistent with those typically used for measuring the benefits of hazard mitigation actions – a weighting factor of three (3) was assigned for *Population Exposure*, and a weighting factor of one (1) was assigned for *Property Exposed* and *Changes in Development*.

C.4. Impact Factors

Hazard impacts were assessed in eight (8) categories – population and life/safety, underserved/equity, property damages, economic, environmental, essential operations, future development, and climate change. Numerical impact factors were assigned as follows.

C.4.1. Population and Life Safety Factor

Population and life safety values were assigned based on the best available data (historical and probabilistic) for people vulnerable to the hazard event and whether the affected population is likely to experience adverse impacts from the hazard incident. **Table 33** outlines the population and life safety factors used in the risk assessment calculations for this Plan.

Table 33. Population and Life Safety Factor

Probability	Description	Impact Factor
High	Populations exposed to this hazard are likely to experience significant adverse impacts, such as fatalities and severe injuries.	3
Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2
Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1
No Impact	Populations exposed to this hazard are not likely to experience significant adverse impacts.	0

C.4.2. Underserved/Equity Factor

Underserved/equity values were assigned based on the best available data for underserved populations vulnerable to the hazard event and whether the affected population is likely to experience adverse/disproportionate impacts from the hazard incident resulting in greater disparity in equity. **Table 34** outlines the underserved/equity factors used in the risk assessment calculations for this Plan.

Table 34. Underserved/Equity Factor

Probability	Description	Impact Factor
High	Underserved populations exposed to the hazard are likely to experience significant adverse/disproportionate impacts, such as fatalities and severe injuries.	3
Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2
Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1
No Impact	Underserved populations exposed to the hazard are not likely to experience significant adverse/disproportionate impacts.	0

C.4.3. Property Damage Factor

Property damage values were assigned based on the expected total property damage incurred from a hazard incident. It is important to note that values represent estimates of the loss from a major incident based on historical data or probabilistic models/studies. **Table 35** outlines the property damage factors used in the risk assessment calculations for this Plan.

Table 35. Property Damage Factor

Probability	Description	Impact Factor
High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3
Medium	More than $500,000 but less than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction.	2

Probability	Description	Impact Factor
Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1
No Impact	Little to no property damage is expected from a single major hazard event.	0

C.4.4. Economic Factor

An estimation of the impact, expressed in terms of dollars, on the local economy is based on a loss of business revenue, crops, worker wages, and local tax revenues or on the impact on the local gross domestic product (GDP). **Table 36** outlines the economic factors used in the risk assessment calculations for this Plan.

Table 36. Economic Factor

Probability	Description	Impact Factor
High	Where the total economic impact is likely to be greater than $10 Million.	3
Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2
Low	Total economic impact is not likely to be greater than $100,000.	1
No Impact	Virtually no significant economic impact.	0

C.4.5. Environmental Factor

An estimate of the environmental impact from a major hazard event requiring outside resources and support; and/or repair, clean-up, restoration, and/or preservation work. **Table 37** outlines the environmental factors used in the risk assessment calculations for this Plan.

Table 37. Environmental Factor

Probability	Description	Impact Factor
High	Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.	3
Medium	Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work.	2
Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1
No Impact	No environmental impacts from a single major hazard event are likely.	0

C.4.6. Essential Operations Factors

The essential operations factor is the impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community after a single major hazard event. **Table 38** outlines the essential operations factors used in the risk assessment calculations for this Plan.

Table 38. Essential Operations Factor

Probability	Description	Impact Factor
High	Impact greater than 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	3
Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2
Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1
No Impact	No impact on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	0

C.4.7. Future Development Factor

The future development factor is the potential that future development will have on increasing or decreasing the impact/consequence of the hazard. **Table 39** outlines the future development factors used in the risk assessment calculations for this Plan.

Table 39. Future Development Factor

Probability	Description	Impact Factor
High	Future development trends will significantly increase the impact/consequence of this hazard.	3
Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2
Low	Future development trends will minimally increase impact/consequence of this hazard.	1
No Impact	Future development trends will not increase the impact/consequence of the hazard, and/or may even decrease the impact/consequence of this hazard.	0

C.4.8. Climate Change Factor

The potential that climate change will increase the risk of the hazard (i.e., type, location, and range of anticipated intensities of the hazard and impacts). **Table 40** outlines the climate change factors used in the risk assessment calculations for this Plan.

Table 40. Climate Change Factor

Probability	Description	Impact Factor
High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3
Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2
Low	Climate Change trends will minimally increase the risk of this hazard and its impacts.	1
No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0

Each category was assigned a weighting factor to reflect its significance, consistent with those typically used for measuring the benefits of hazard mitigation actions – a weighting factor of three (3) was assigned for *Population and Life Safety*, and *Underserved/Equity*, and a weighting factor of two (2) was assigned for *Property Damage*. A weighting factor of one (1) was assigned for *Economic*, *Environmental*, *Essential Operations, Future Development*, and *Climate Change*.

APPENDIX D. HAZARD RISK RANKING DETAILS

D.1. Probability of Occurrence

Hazard Event	Probability of Occurrence		Probability Factor	Weighted Factor
Climate Change	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Dam and Levee Failure	Low	Significant hazard event is likely to occur within 100 years.	1	N/A
Drought	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Earthquake	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Flood (Riverine/Creek)	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Flood (Urban/Flash Flood)	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Heat Wave/Extreme Heat *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Heavy Rainfall *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Landslide	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Sea Level Rise	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Severe Thunderstorm *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Strong Winds/ Damaging Winds *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Tornado *(Severe Weather)*	Low	Significant hazard event is likely to occur within 100 years.	1	N/A
Tsunami	Low	Significant hazard event is likely to occur within 100 years.	1	N/A
Wildfire	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Active Shooter Incidents	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Cybersecurity Threats	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Hazardous Materials Incidents	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A

Hazard Event	Probability of Occurrence		Probability Factor	Weighted Factor
Terrorism (Weapons of Mass Destruction)	Low	Significant hazard event is likely to occur within 100 years.	1	N/A
Utility Interruptions	High	Significant hazard event is likely to occur annually.	3	N/A

D.2. Extent Factors

Hazard Event	Extent Factor	Extent		Extent Factor	Weighted Factor
Climate Change	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Dam and Levee Failure	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Drought	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Earthquake	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Flood (Riverine/Creek)	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Flood (Urban/Flash Flood)	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6

Hazard Event	Extent Factor	Extent		Extent Factor	Weighted Factor
Heat Wave/Extreme Heat *(Severe Weather)*	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Heavy Rainfall *(Severe Weather)*	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Landslide	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Sea Level Rise	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Severe Thunderstorm *(Severe Weather)*	***Extent/Intensity***	Low	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a low-intensity incident.	1	3
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Strong Winds/ Damaging Winds *(Severe Weather)*	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Tornado *(Severe Weather)*	***Extent/Intensity***	Low	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a low-intensity incident.	1	3
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Tsunami	***Extent/Intensity***	Low	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a low-intensity incident.	1	3
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3

Hazard Event	Extent Factor	Extent		Extent Factor	Weighted Factor
Wildfire	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Active Shooter Incidents	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3
Cybersecurity Threats	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Hazardous Materials Incidents	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Terrorism (Weapons of Mass Destruction)	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Utility Interruptions	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Low	Catastrophic hazard event is likely to occur at least once in 51 or more years.	1	3

D.3. Vulnerability Factors

Hazard Event	Vulnerability Factor	Vulnerability		Vulnerability Factor	Weighted Factor
Climate Change	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2

Hazard Event	Vulnerability Factor	Vulnerability		Vulnerability Factor	Weighted Factor
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Dam and Levee Failure	***Population Exposure***	Low	14% or less of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Drought	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Earthquake	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	Property Exposure	High	25% of the total assessed property is exposed to the hazard.	3	6
	Changes in Development	Medium	The changes in development have increased the vulnerability of the community to the hazard between 5% and 9%.	2	2
Flood (Riverine/Creek)	***Population Exposure***	Low	14% or less of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Medium	The changes in development have increased the vulnerability of the community to the hazard between 5% and 9%.	2	2
Flood (Urban/Flash Flood)	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	Medium	10% to 24% of the total assessed property value is exposed to the hazard.	2	4
	Changes in Development	Medium	The changes in development have increased the vulnerability of the community to the hazard between 5% and 9%.	2	2
Heat Wave/Extreme Heat *(Severe Weather)*	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9

Hazard Event	Vulnerability Factor	Vulnerability		Vulnerability Factor	Weighted Factor
	Property Exposure	No Vulnerability	None of the total assessed property value is exposed to the hazard.	0	0
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Heavy Rainfall *(Severe Weather)*	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	Property Exposure	Medium	10 to 14% of the total assessed property is exposed to the hazard.	2	4
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Landslide	***Population Exposure***	Low	14% or less of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Sea Level Rise	***Population Exposure***	Low	14% or less of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Severe Thunderstorm *(Severe Weather)*	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	Property Exposure	High	25% of the total assessed property is exposed to the hazard.	3	6
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Strong Winds/ Damaging Winds *(Severe Weather)*	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	Medium	10% to 24% of the total assessed property value is exposed to the hazard.	2	4
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1

Hazard Event	Vulnerability Factor	Vulnerability		Vulnerability Factor	Weighted Factor
Tornado *(Severe Weather)*	***Population Exposure***	Low	15% to 29% of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	10% to 24% of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Tsunami	***Population Exposure***	Low	15% to 29% of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	10% to 24% of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Wildfire	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	Medium	10% to 24% of the total assessed property value is exposed to the hazard.	2	4
	Changes in Development	Medium	The changes in development have increased the vulnerability of the community to the hazard between 5% and 9%.	2	2
Active Shooter Incidents	***Population Exposure***	Low	14% or less of the population (including underserved population) is exposed to the hazard.	1	3
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2
	Changes in Development	No Vulnerability	Changes in development had no effect and/or decreased the vulnerability of the community to the hazard.	0	0
Cybersecurity Threats	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	No Vulnerability	None of the total assessed property value is exposed to the hazard.	0	0
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Hazardous Materials Incidents	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	Low	9% or less of the total assessed property value is exposed to the hazard.	1	2

Hazard Event	Vulnerability Factor	Vulnerability		Vulnerability Factor	Weighted Factor
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Terrorism (Weapons of Mass Destruction)	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	Medium	10% to 24% of the total assessed property value is exposed to the hazard.	2	4
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1
Utility Interruptions	***Population Exposure***	Medium	15% to 29% of the population (including underserved population) is exposed to the hazard.	2	6
	Property Exposure	No Vulnerability	None of the total assessed property value is exposed to the hazard.	0	0
	Changes in Development	Low	Changes in development have minimally increased the vulnerability of the community to the hazard by 4% or less.	1	1

D.4. Impact Factors

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
Climate Change	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Dam and Levee Failure	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	High	Where the total economic impact is likely to be greater than $10 Million.	3	3
	Environmental	High	Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.	3	3
	Essential Operations	High	Impact greater than 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	3	3
	Future Development	Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2	2
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2
Drought	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2	2
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Earthquake	***Population and Life Safety***	High	Populations exposed to this hazard are likely to experience significant adverse impacts, such as fatalities and severe injuries.	3	9
	Underserved/Equity	High	Underserved populations exposed to the hazard are likely to experience significant adverse/disproportionate impacts, such as fatalities and severe injuries.	3	9
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	High	Where the total economic impact is likely to be greater than $10 Million.	3	3
	Environmental	High	Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.	3	3
	Essential Operations	High	Impact greater than 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	3	3
	Future Development	High	Future development trends will significantly increase the impact/consequence of this hazard.	3	3

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Climate Change	No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0	0
Flood (Riverine/Creek)	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	Medium	Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work.	2	2
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2	2
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Flood (Urban/Flash Flood)	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Environmental	Medium	Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work.	2	2
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2	2
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Heat Wave/Extreme Heat *(Severe Weather)*	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	No Impact	Little to no property damage is expected from a single major hazard event.	0	0
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	No Impact	No environmental impacts from a single major hazard event are likely.	0	0
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Heavy Rainfall *(Severe Weather)*	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Landslide	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2
Sea Level Rise	***Population and Life Safety***	No Impact	Populations exposed to this hazard are not likely to experience significant adverse impacts.	0	0
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Medium	More than $500,000 but less than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction.	2	4
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	Medium	Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work.	2	2
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Medium	Future development trends will increase the impact/consequence of this hazard, but not significantly.	2	2
	Climate Change	High	Climate Change trends will significantly increase the risk of this hazard and its impacts.	3	3
Severe Thunderstorm *(Severe Weather)*	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2
Strong Winds/ Damaging Winds *(Severe Weather)*	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Medium	More than $500,000 but less than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction.	2	4
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2
Tornado *(Severe Weather)*	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	Low	Environmental impact from a single major hazard event is likely to be minimal, requiring little to no outside resources and support, and/or minimal repair, clean-up, restoration, or preservation work.	1	1
	Essential Operations	Low	Impact less than 24 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	1	1
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2
Tsunami	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	Medium	More than $500,000 but less than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction.	2	4
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	Low	Climate Change trends will minimally increase the risk of this hazard and its impacts.	1	1

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
Wildfire	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	Medium	More than $500,000 but less than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction.	2	4
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	High	Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.	3	3
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	Low	Climate Change trends will minimally increase the risk of this hazard and its impacts.	1	1
Active Shooter Incidents	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Low	Total economic impact is not likely to be greater than $100,000.	1	1
	Environmental	No Impact	No environmental impacts from a single major hazard event are likely.	0	0

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0	0
Cybersecurity Threats	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	No Impact	No environmental impacts from a single major hazard event are likely.	0	0
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0	0
Hazardous Materials Incidents	***Population and Life Safety***	Low	Populations exposed to this hazard are likely to experience minimal adverse impacts, such as ambulatory injuries.	1	3
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	Low	Less than $500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction.	1	2
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Environmental	High	Environmental impact from a single major hazard event is likely to be significant, requiring extensive outside resources and support; and/or repair, clean-up, restoration, and/or preservation work.	3	3
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0	0
Terrorism (Weapons of Mass Destruction)	***Population and Life Safety***	High	Populations exposed to this hazard are likely to experience significant adverse impacts, such as fatalities and severe injuries.	3	9
	Underserved/Equity	Low	Underserved populations exposed to the hazard are likely to experience minimal adverse/disproportionate impacts, such as ambulatory injuries.	1	3
	Property Damage	High	More than $5 Million in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction.	3	6
	Economic	High	Where the total economic impact is likely to be greater than $10 Million.	3	3
	Environmental	Medium	Environmental impact from a single major hazard event is likely to be localized, requiring some outside resources and support; and/or repair, clean-up, restoration, or preservation work.	2	2
	Essential Operations	High	Impact greater than 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	3	3
	Future Development	Low	Future development trends will minimally increase impact/consequence of this hazard.	1	1
	Climate Change	No Impact	Climate change trends will not increase the risk of the hazard and its impacts.	0	0
Utility Interruptions	***Population and Life Safety***	Medium	Populations exposed to this hazard are likely to experience some adverse impacts, such as injuries requiring acute medical care.	2	6

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	Underserved/Equity	Medium	Underserved populations exposed to the hazard are likely to experience some adverse/disproportionate impacts, such as injuries requiring acute medical care.	2	6
	Property Damage	No Impact	Little to no property damage is expected from a single major hazard event.	0	0
	Economic	Medium	Total economic impact is likely to be greater than $500,000, but less than or equal to $10 Million.	2	2
	Environmental	No Impact	No environmental impacts from a single major hazard event are likely.	0	0
	Essential Operations	Medium	Impact between 24 and 72 hours on the ability of the jurisdiction to meet the essential day-to-day operational demands and needs of the community from a single major hazard event.	2	2
	Future Development	No Impact	Future development trends will not increase the impact/consequence of the hazard, and/or may even decrease the impact/consequence of this hazard.	0	0
	Climate Change	Medium	Climate Change trends will increase the risk of this hazard and its impacts, but not significantly.	2	2

APPENDIX E. PLAN ADOPTION

[Placeholder for adoption documentation after State and FEMA Approval]