2024 Hazard Mitigation Plan

Contra Costa County, California

Contra Costa County Flood Control and Water Conservation District Annex

TABLE OF CONTENTS

1. INTRODUCTION

This Annex details the hazard mitigation elements specific to Contra Costa County Flood Control and Water Conservation District, 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 District. This Annex provides additional information specific to the District, 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 Contra Costa County Flood Control and Water Conservation District Local Planning Team was comprised of the members listed on **Table 1**.

Table 1. Contra Costa County Flood Control and Water Conservation District Local Planning Team Members

Name	Title	Department
Michelle Cordis	Senior Civil Engineer	Contra Costa County Flood Control and Water Conservation District

3. JURISDICTION PROFILE

The Contra Costa County Flood Control and Water Conservation District (the District) is a dependent special district which covers all of Contra Costa County, including its 19 incorporated cities, and owns property throughout the County for the purpose of constructing and maintaining regional flood control infrastructure. While the Flood Control District offers regional flood protection, it also provides technical information and education to cities and residents.

The flood control infrastructure includes 79 miles of flood control channels, 29 dams and detention basins, and 47 drop structures throughout the County. These facilities are on 4,189 parcels covering over 1,500 acres and provide the regional backbone of flood protection in Contra Costa County.

3.1. Population

The District currently serves the entire Contra Costa County population of approximately 1,156,966 residents as of July 1, 2022.[1]

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.

[1] United States Census Bureau. (2022). Quick Facts: Contra Costa County. Retrieved from https://www.census.gov/quickfacts/fact/table/contracostacountycalifornia/.

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 2** outlines the SVI information for the District.

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

Table 2. Social Vulnerability Index (2020)

Theme	Social Factors	Percent
Socioeconomic Status	People below 150% poverty estimate	13.4%
	Unemployed *(Civilian 16 years old and older)*	2.8%
	Housing Cost Burden	8.5%
	No High School Diploma	6.9%
	No Health Insurance	4.9%
Household Characteristics	65 years old and older	15.6%
	17 years and younger	22.3%
	Civilian with a Disability	11.0%
	Single-Parent Household	2.0%
	English Language Proficiency	5.6%
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	56.5%
Housing Type and Transportation	Multi-Unit Structures	4.6%
	Mobile Homes	0.6%
	Crowding	1.7%
	No Vehicle	1.8%
	Group Quarters	0.8%

3.2. Brief History

After World War II, the population in Contra Costa County increased dramatically. As a result, many homes and businesses were built in low lying areas susceptible to flooding. In 1951, due to prior widespread flooding, the Contra Costa County Flood Control and Water Conservation District was created, through the Contra Costa County Flood Control and Water Conservation District Act, to provide flood protection. The Flood Control District has completed many major flood control projects throughout the County in order to make it a better and safer place to live.

Presently, the District's mission has expanded to include stewardship of the environmental resources in the District owned creeks.

3.3. Governing Body Format

The County's five (5) member Board of Supervisors, which are elected to four (4) year terms, govern the District. Each Supervisor represents a specific area of the County. The Chief Engineer assumes responsibility for the adoption of this Plan by the County Board of Supervisors and the Deputy Chief Engineer will oversee its implementation.

The District's funding comes from a combination of ad-valorem taxes and fees paid by developers upon creation of impervious surfaces. The District has approximately 20 staff members and relies on other specialists from the Contra Costa County Public Works Department.

4. DEVELOPMENT TRENDS

The District's service area is broken up into three (3) distinct regions of the County – west, central, and east. The west and central portions of the County are nearing their full development potential. Although, service demands are expected to increase in these areas not because of added population, but primarily because of increased customer demands for more ecologically sensitive flood protection, including potential removal of concrete lining of channels and restoration of the resulting streams. Other factors expected to increase demands for District services include the effect of global climate change on low-lying areas, such as sea level rise, increased regulatory requirements on operation and maintenance of existing facilities, and new clean water requirements on trash and other pollutants.

The eastern portion of the District's service area includes the fast growing cities of Pittsburg, Antioch, Oakley, and Brentwood. Here, population growth means significantly increased runoff and customer demands for improved levels of protection as agricultural lands are converted to residential and commercial uses. Additionally, this eastern portion of the County has the same issues noted for central and west portions, as previously mentioned.

However, in the last five (5) years, the District has successfully implemented efforts to reduce vulnerability in flood and sea level rise prone areas. These include the construction of a levee set back and wetland restoration in Lower Walnut Creek which will make assets in the area more sea level rise resilient, and the Three Creeks Parkway project in the City of Brentwood which added a floodplain while restoring flood capacity in Marsh Creek.

4.1. Changes in Priority

The overall hazard mitigation priorities have not significantly changed for the District 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 District and participating jurisdictions' authorities, policies, programs, and resources. Goals and mitigation actions were developed using input from this assessment.

The Local Planning Team assessed the District'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 District 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 description section of each Planning and Regulatory Capability includes a paragraph on expansion, implementation, and improvement. **Table 3** 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 3. Planning and Regulatory Capabilities

Contra Costa County Flood Control and Water Conservation District Act			
The purpose of the Act was to create a flood control district to be called Contra Costa County Flood Control and Water Conservation District; to provide for the control and conservation of flood and storm waters, and the protection of watercourses, watersheds, harbors, public highways, life and property from damage or destruction from such waters; to prevent the waste of water or the diminution of the water supply in, or the exportation of water from said district, and to import water into said District and to obtain, retain, and reclaim drainage, storm, flood and other waters and to save and conserve all or any of such waters for beneficial use in said district; to authorize the incurring of indebtedness, the issuance and sale of bonds, and the levying and collection of taxes and assessments on property within said district and in the respective zones thereof; to provide for the government, management, and operation of said district and for the acquisition and construction of property and works to carry out the purposes of the district; to define the powers of said district and its officers. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential tool to for the Contra Costa County Flood Control and Water Conservation District to identify mitigation actions and potential funding sources to implement the mitigation actions within the Plan.			
Updated	1997	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

County Ordinance Code, Title 8: Zoning			
The Zoning Code addresses land use in precise detail. It sets standards for building and construction types and usage for all parcels in the County. **Expansion, Implementation, and Improvement:** Zoning Code must be modified and updated to reflect changes in development. Zoning Code may be used to address land use regulations that support mitigation actions such as development.			
Updated	2023	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

County Ordinance Code, Title 9: Subdivisions			
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. **Expansion, Implementation, and Improvement:** Subdivision Code should be modified and updated to support changes in land use development. Additionally, it should be implemented to require adequate infrastructure to support residential area populations.			
Updated	2023	**Hazards Addressed**	Climate Change, Drought

County Ordinance Code, Title 10: Public Works and Flood Control			
The purpose of this Division is to provide for managing public works, encroachments, stormwater, and discharge control in Contra Costa County, detailing the required regulations for flood control in new developments and procedures for the safe and lawful use of public right-of-way. It also addresses the intent to protect and enhance the water quality of the County's unincorporated area watercourses pursuant to and consistent with the Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.), the Federal Clean Water Act (33 U.S.C. Section 1251 et seq.) and applicable implementing regulations. **Expansion, Implementation, and Improvement:** The FEMA Flood Inundation Risk Maps (FIRMs) will be used in selecting mitigation items related to flooding. Development in the 100 and 500-year floodplains will be monitored and adhered to flood safe practices. As the FIRMs are updated, new mitigation activities will be considered.			
Updated	2023	**Hazards Addressed**	Flood

Flood Control Capital Improvement Program			
The Flood Control Capital Improvement Plan (CIP) is a programming document for the funding of capital flood control projects within the Contra Costa County Flood Control and Water Conservation District. The CIP is prepared in accordance with the District's Expenditure Policy and presented to the Board of Supervisors for approval. This CIP is intended to be updated often, and it provides a seven (7) year outlook on the District's capital activities in support of the regional, long-range development and related flood control plans. **Expansion, Implementation, and Improvement:** The CIP should include mitigation measures that will be funded by the County such as improvements to stormwater collection systems, flood control facility expansion, and strengthening of structures.			
Updated	November 2021	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

United States Army Corps of Engineers, Section 408 Program			
The US Army Corps of Engineers (USACE) Section 408 Program allows another party, such as a local government, company, or individual, to alter a USACE Civil Works project. Given the widespread locations of these projects, many embedded within communities, over time there may be a need to either alter or occupy these projects and their associated lands. Reasons for alterations could include improvements to the projects, relocation of part of the project, or installing utilities or other non-project features. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential supporting tool when participating in the USACE Section 408 Program.			
Updated	1899	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
California Environmental Quality Act			
The California Environmental Quality Act (CEQA) requires public agencies to "look before they leap" and consider the environmental consequences of their discretionary actions. CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential supporting tool when participating in the CEQA.			
Updated	2023	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
Flood Control District Expenditure Policy			
The Flood Control Expenditure Policy provides overall direction for fiscal programming and budgeting for the revenue the District receives and guides the development of the District's Flood Control CIP. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential supporting tool when incorporating plans of improvement for each of the Flood Control Zones (FCZ) and Drainage Areas (DA) established by the Board of Supervisors pursuant to the Contra Costa County Flood Control and Water Conservation District Act.			
Updated	2005	**Hazards Addressed**	Dam and Levee Failure, Flood

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 4** lists administrative and technical capabilities.

Table 4. Administrative and Technical Capabilities

Geographic Information System	
Geographic Information Systems (GIS) provide complex mapping and data management of the District facilities, land use and potential hazards. Supports visualization of complex data sets using geo-location and data correlation. **Expansion and Improvement:** Acquire and conduct training for GIS technicians on the latest versions of ArcGIS.	
Department	Contra Costa County Public Works Department (Information Technology Division)
District Engineers, Engineering Technicians, On-Call Consultants	
Engineers and engineering technicians design, inspect, provide technical support, grant writing, are familiar with District facilities, and can provide emergency support. Additionally, the County Engineer (Contra Costa County Public Works Department, serves as the Floodplain Manager and can also provide emergency support. **Expansion and Improvement:** Provide opportunities for continued education to engineering staff to maintain state of the art knowledge of new code and regulatory requirements, and an understanding of uniform regional guidelines on how to address sea level rise. Additionally, expand staffing capability to implement hazard mitigation projects by acquiring grant writers that can provide support in obtaining hazard mitigation grant funds.	
Department	Contra Costa County Flood Control and Water Conservation District, Contra Costa County Public Works Department

5.3. Financial Resources

Table 5 contains a list of financial capabilities available to the District. These financial resources may be used to support mitigation activities based on procedures for each resource.

Table 5. Financial Resources

Flood Control District General Fund	
The Flood Control District General Fund includes revenue from property tax to support District programs of general benefit. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the Flood Control General Fund.	
Administrator	Contra Costa County Flood Control and Water Conservation District
Flood Control Zone Funds	
The Flood Control Zones are watershed areas, where some zones collect a small portion of the Countywide 1% ad valorem property tax. Zone funds are primarily used for maintenance and can also be used to implement mitigation projects. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the Flood Control Zone Funds.	
Administrator	Contra Costa County Flood Control and Water Conservation District

Drainage Area Funds	
The Drainage Areas are sub-areas within Zones, which collect fees based on new impervious surface development, and fund planned new drainage facilities. Drainage Area Plans could be updated to include mitigation plans. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the Drainage Area Funds.	
Administrator	Contra Costa County Flood Control and Water Conservation District
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, Contra Costa County Flood Control and Water Conservation District
Building Resilient Infrastructure and Communities	
Building Resilient Infrastructure and Communities (BRIC) provides support for hazard mitigation projects, reducing the risks faced from disasters and natural hazards. **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, Contra Costa County Flood Control and Water Conservation District
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, Contra Costa County Flood Control and Water Conservation District

5.4. Education and Outreach Capabilities

Table 6 lists the District'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 6. Education and Outreach Resources

Emergency/Disaster Readiness Website *http://www.contracosta.ca.gov/5907/Flood-Preparedness/*	
The Contra Costa County Public Works 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 County website on all County websites. Post material on social media accounts that provide a link to the appropriate FEMA website page.	
Lead Organization	Contra Costa County Public Works Department

District Social Media Accounts ***Facebook:*** *www.facebook.com/cccflood* ***Instagram:*** *https://www.instagram.com/cccflood/*	
The District 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 County 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. Additionally, most of the Contra Costa County Public Works Department posts tag the District. **Expansion and Improvement:** Develop a comprehensive program to utilize social media to reach out to communities in the County to provide information on mitigation activities, and to educate residents about risk reduction (e.g., through promotion of "model" resilient properties). Conduct a survey to solicit input. Provide information and conduct the survey in English and Spanish.	
Lead Organization	Contra Costa County Flood Control and Water Conservation District
Website/Channel Safety *https://www.cccounty.us/creekandchannelsafety*	
The District uses the website to describe flood control channel safety awareness. Additionally, the program includes annual outreach to schools with information, special signage, presentation, coordination with the local Fire District. **Expansion and Improvement:** Provide links to the County website on all County websites. Post material on social media accounts that provide a link to the appropriate FEMA website page.	
Lead Organization	Contra Costa County Flood Control and Water Conservation District
District General Website *http://www.cccounty.us/floodcontrol*	
The District's main website includes information on the District's mission, standards, and information. **Expansion and Improvement:** Provide links and information on mitigation activities being conducted throughout the District.	
Lead Organization	Contra Costa County Flood Control and Water Conservation District
Website of Rain and Stream Gauges *www.ccflood.us*	
The District manages over 30 rain gauges and over 15 stream gauges, and collects data to publish online every 20 minutes. Residents can easily find the data via the Rain Map tool. **Expansion and Improvement:** Provide links and information on mitigation activities being conducted throughout the District.	
Lead Organization	Contra Costa County Flood Control and Water Conservation District

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 District'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, the District made progress on integrating components of the hazard mitigation strategy (e.g., goals, objectives, and actions) into the planning initiatives listed in **Table 7**.

Table 7. Past Plan Integration

Planning Initiative	Description
Flood Control Expenditure Policy	This Hazard Mitigation Plan, especially the dam and levee failure, and flood sections and actions are incorporated in the Flood Control Expenditure Policy. The Policy sets the following order of priorities – system preservation, public safety, and system expansion. This relates to the Hazard Mitigation Plan because it emphasizes repair and rehabilitation of existing facilities to ensure they remain able to reduce flood risk and minimize the risk of flood control facilities, including levee and dam failure.

6.2. Potential Future Integration

As the Hazard Mitigation Plan is implemented, the District 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 countywide 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 8**, that do not currently integrate goals and recommendations of this Plan but provide opportunities to do so in the future.

Table 8. Potential Future Integration

Planning Initiative	Description
Flood Control Capital Improvement Plan	The District will continue to ensure consistency between this Hazard Mitigation Plan and future updates of the Capital Improvement Plan (CIP). 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 CIP is a programming document for the funding of capital flood control projects within the District.

The District'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.

8. NATIONAL FLOOD INSURANCE PROGRAM

As a special district, the Contra Costa County Flood Control and Water Conservation District is not eligible to participate in FEMA's National Flood Insurance Program (NFIP). Further information on Contra Costa County's NFIP and CRS participation is available on **Volume 1 (Planning Area-wide Elements)** of this Plan.

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)**.

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

- Landslide
- 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 9 provides information on several key vulnerabilities and impacts for the District 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 9. Hazard Vulnerability and Impact Assessment

Hazards	Vulnerabilities and Impacts
Climate Change	Climate change may affect the District's flood control facilities ability to discharge at their outlets to the Bay due to intensification of extreme weather events, changes in precipitation patterns, and rising sea levels. Flood control facilities are designed for storm events less intense than those experienced in recent years; therefore, facilities may be damaged during intense storm events. Vulnerable populations, particularly low-income communities and the elderly, are disproportionately affected due to their limited resources and adaptive capacity. These groups often reside in areas more susceptible to flooding, such as coastal regions or low-lying urban neighborhoods. The impacts of climate change on flood control facilities can lead to more frequent and intense flooding events, resulting in property damage, and displacement.
Dam and Levee Failure	The District is responsible for maintaining the following State Division of Safety of Dams (DSOD) jurisdiction dams: • Pine Creek Dam (City of Walnut Creek) • Marsh Creek Dam (City of Brentwood) • Deer Creek Dam (City of Brentwood) • Dry Creek Dam (two (2) sections, City of Brentwood) • Upper Sand Creek Basin (City of Antioch) • Kubicek (Lower Pine Creek Basin) Basin (Unincorporated Walnut Creek) Additionally, the District has levees along Kellogg Creek, Walnut Creek, Grayson Creek, Wildcat Creek, and San Pablo Creek. Several levees throughout the District no longer meet FEMA certification for freeboard, and the District lacks the resources to conduct a study and potentially improve these levees for re-accreditation/certification. Vulnerable populations living downstream, including low-income communities, the elderly, and those with limited mobility, are at heightened risk during catastrophic failures. The impacts can be devastating, resulting in rapid flooding that can lead to loss of life, destruction of homes, and widespread damage to infrastructure (e.g., roads and bridges). These communities often lack the resources for effective recovery, facing long-term economic ramifications, including costs related to emergency response and recovery, which can further entrench social inequities.
Drought	During periods of drought, communities forget about flood control facilities and may not support increased funding for maintenance when requested and needed. Some flood control facilities are privately maintained and are not properly sustained during droughts. After years of drought, storms (e.g., December 31, 2022), fallen tree debris in private creeks clogged downstream locations. It became obvious where desilting and vegetation trimming had not occurred on private property in years. Communities dependent on agriculture, particularly those with limited financial resources, are especially vulnerable when droughts lead to weakened soil. This increases the risk of flash floods during heavy rainfall events, overwhelming flood control systems. The impacts can include significant property damage and health issues due to contaminated water supplies, disproportionately affecting low-income families and marginalized groups.

Hazards	Vulnerabilities and Impacts
Earthquake	Large flood control infrastructure (e.g., concrete channels, tunnels, pipes, drop structures, dams, and drainage system), is vulnerable to earthquakes. However, further studies are necessary to assess whether any structures are seismically unreinforced or at risk of collapse. Vulnerable populations, particularly those living in low-income housing or poorly constructed buildings, face increased risks of both earthquake damage and subsequent flooding if these critical flood control structures fail. The impacts can be severe, resulting in rapid inundation of populated areas, loss of life, and extensive property damage. Recovery efforts can be complicated by the needs of vulnerable populations, who may lack resources and support systems to aid in their recovery. Integrating seismic resilience into flood control infrastructure is essential to protect these at risk communities. Most district facilities are nearing 50 years old and will likely need rehabilitation, including a seismic vulnerability analysis which the District is beginning to undertake.
Flood *(urban/flash flood, riverine/creek)*	If District facilities are at full capacity, a backup of stormwater may cause localized flooding upstream, especially if there is a lack of maintenance in storm drain facilities that are maintained by others. In addition, creek bank erosion occurs in major storm events in unlined earthen channels throughout the County. The impacts of flooding can be profound, leading to extensive property damage, displacement of families, and contamination of drinking water supplies. Moreover, some flood control creek facilities have sewer treatment plants located adjacent that could also be affected during flooding events. There is a low community understanding of flood risks, and a general feeling that flood risks are lower than they actually are. Vulnerable populations, including the elderly, children, and individuals with disabilities, may encounter additional challenges during flooding events, further increasing their risk of injury or loss.
Landslide	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to landslides; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.

Hazards	Vulnerabilities and Impacts
Sea Level Rise	District facilities that outlet to the Bay include: • Wildcat and San Pablo Creeks (North Richmond, Unincorporated County) • Rheem Creek (Unincorporated San Pablo) • Pinole Creek (City of Pinole) • Rodeo Creek (Unincorporated County, Rode) • Walnut Creek (Unincorporated Martinez) • Marsh Creek (City of Oakley) Due to sea level rise, facility capacity could be reduced, and upstream flooding occur. Coastal communities are increasingly vulnerable to flooding due to sea level rise, which can overwhelm existing flood control measures. Low-income residents and marginalized groups in these areas are particularly at risk, as they may live in less protected, low-lying neighborhoods. The impacts of sea level rise can include loss of land, habitat destruction, and increased flooding, leading to the contamination of freshwater sources and loss of livelihoods. Economically, these communities may face declining property values and increased insurance costs, exacerbating existing inequalities. However, some sewer agency with facilities adjacent to the District's flood control facilities, are proposing plans to integrate and modify District channels to make them more compatible and resilient to sea level rise. The Contra Costa Sanitary District is raising the District's Walnut and Grayson Creek levees along their sewer treatment plant to a 500-year level of protection. The West County Wastewater District is planning to build a horizontal levee to protect their sewer treatment plant and tie into the District's Wildcat and San Pablo Creeks levees.
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Flood control infrastructure may be overwhelmed during heavy rainfall events that exceed the design capacity. The result may be localized flooding near flood control facilities, leading to localized flooding near these facilities. Areas prone to severe weather are particularly vulnerable, especially low-income communities nearby that lack emergency preparedness. Vulnerable populations, including the elderly and those with chronic health conditions, face heightened risks during severe weather, which can result in flooding. The consequences can be severe, causing injuries, loss of life, and significant disruptions to essential services. Economic impacts may include recovery and rebuilding costs, as well as lost business revenue during and after such events.
Tsunami	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to tsunamis; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.

Hazards	Vulnerabilities and Impacts
Wildfire	While wildfires are primarily associated with fire risk, their impact on flood control is significant, particularly in areas where vegetation loss increases runoff and erosion. Wildfires in the upper watersheds (e.g., Marsh Creek at the base of Mount Diablo) could leave areas filled with debris that will wash into the creeks during rain events, potentially creating blockages which cause flooding. Vulnerable populations living in or near wildfire prone areas, including low-income families and the elderly, are at heightened risk during subsequent flooding events. The impacts can be severe, with communities facing immediate threats from flooding, loss of property, and damage to infrastructure. Additionally, the economic costs associated with post-wildfire flooding can be substantial, further straining resources in affected areas.
Active Shooter Incidents	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to active shooter incidents; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.
Cybersecurity Threats	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to cybersecurity threats; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.
Hazardous Materials Incidents	Hazardous Materials incidents in areas adjacent to district facilities may adversely impact facilities and operations.
Terrorism (Weapons of Mass Destruction)	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to terrorism; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.
Utility Interruptions	The Local Planning Team determined that the District does not have unique vulnerabilities and impacts to utility interruptions; rather, the District's vulnerability and impacts are consistent with those experienced throughout the County.

The District 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 10 outlines if climate change has increased or decreased the District'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 10. Climate Change Current and Future Vulnerability and Impact

Hazard	Vulnerability and Impact
Current Vulnerability and Impact	
Climate Change	Increased
Dam and Levee Failure	Increased
Drought	Decreased

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

Table 11 outlines if changes in population within the District 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 11. 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	Increased
Drought	Remained the Same
Earthquake	Remained the Same
Flood *(urban/flash flood, riverine/creek)*	Increased
Landslide	Remained the Same
Sea Level Rise	Increased
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Increased

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

Table 12 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 12. 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)*	Increased
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)*	Increased
Tsunami	Remained the Same
Wildfire	Remained the Same
Future Vulnerability and Impact	
Climate Change	No Change is Anticipated
Dam and Levee Failure	Increase
Drought	No Change is Anticipated

Hazard	Vulnerability and Impact
Earthquake	No Change is Anticipated
Flood *(urban/flash flood, riverine/creek)*	Increase
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)*	Increase
Tsunami	No Change is Anticipated
Wildfire	No Change is Anticipated

See Section 4 of this Annex for anticipated future major assets that may be exposed or vulnerable to any of the natural hazards identified in this Hazard Mitigation Plan, especially in low-lying areas vulnerable to sea level rise. 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.[2] **Table 13** illustrates the Risk Index rating and score for the District's planning area boundary.

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

Table 13. Risk Index Score (FEMA National Risk Index)

Jurisdiction	Rating	Score
Contra Costa County Flood Control and Water Conservation District	Very High	99.6
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).		

[2] Federal Emergency Management Agency. (2023). Determining Risk. Retrieved from https://hazards.fema.gov/nri/determining-risk.

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.[3] **Table 14** illustrates each hazard EAL for the District's planning area boundary.

Table 14. 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)*	$79.2 Billion	$2.1 Billion	N/A	$81.3 Billion	56.8	Relatively Moderate
Drought	n/a	n/a	$10.8 Million	$10.8 Million	99.4	Very High
Earthquake	$156.4 Million	$410.1 Million	n/a	$566.5 Million	99.8	Very High
Hail *(Severe Weather)*	$10,280	$42,961	$1,290	$54,531	40.1	Relatively Low
Heat Wave *(Severe Weather)*	$2.6 Million	$485	$18,780	$2.6 Million	96.1	Very High
Landslide	$25,121	$207,224	n/a	$232,345	94.6	Very High
Riverine Flooding *(Flood)*	$4.0 Million	$4.1 Million	$291,636	$8.4 Million	96.3	Very High
Strong Winds *(Severe Weather)*	$14,927	$5,591	$76	$20,594	9.4	Very Low
Tornado *(Severe Weather)*	$361,249	$930,045	$213	$1.3 Million	58.8	Relatively Moderate
Tsunami	$2,012	$38,659	N/A	$40,671	82.0	Very High
Wildfire	$161,110	$5.7 Million	$0	$5.8 Million	96.7	Very 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.

[3] Federal Emergency Management Agency. (2023). Expected Annual Loss. Retrieved from https://hazards.fema.gov/nri/expected-annual-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.[4] **Table 15** illustrates the Social Vulnerability rating and score for the District's planning area boundary.

Table 15. Social Vulnerability *(FEMA National Risk Index)*

Jurisdiction	Rating	Score
Contra Costa County Flood Control and Water Conservation District	Relatively Moderate	47.4
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.[5] **Table 16** illustrates the Community Resilience rating and score for the District's planning area boundary.

Table 16. Community Resilience *(FEMA National Risk Index)*

Jurisdiction	Rating	Score
Contra Costa County Flood Control and Water Conservation District	Relatively High	75.0
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).[6] **Table 17** outlines the annualized frequency for each hazard, based on FEMA NRI data, for the District's planning area boundary.

[4] Federal Emergency Management Agency. (2023). Social Vulnerability. Retrieved from https://hazards.fema.gov/nri/social-vulnerability.
[5] Federal Emergency Management Agency. (2023). Community Resilience. Retrieved from https://hazards.fema.gov/nri/community-resilience.
[6] Federal Emergency Management Agency. (2023). Annualized Frequency. Retrieved from https://hazards.fema.gov/nri/annualized-frequency.

Table 17. 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	1.5 events per year
Drought	22 years	1,386	52.0 events per year
Earthquake	2021 dataset	n/a	0.970% chance per year
Hail *(Severe Weather)*	34 years	2	0.0 events per year
Heat Wave *(Severe Weather)*	16 years	27	1.8 events per year
Landslide	12 years	12	0.0 events per year
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	5	0.1 events per year
Tsunami	222 years	5	0.0 events per year
Wildfire	2021 dataset	n/a	0.306% events per year

10. HAZARD RISK RANKING

Table 18 presents the local hazard ranking for the District 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 18** 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 18. 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)*
Heavy Rainfall *(Severe Weather)*	3	15	16	20	51	72
Flood (Urban/Flash Flood)	2	15	17	33	65	63
Earthquake	2	15	17	31	63	61
Landslide	3	9	9	22	40	59

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	15	11	33	59	58
Drought	2	18	14	24	56	55
Severe Thunderstorm *(Severe Weather)*	3	6	16	15	37	55
Strong Winds/ Damaging Winds *(Severe Weather)*	3	9	11	16	36	54
Wildfire	2	12	12	28	52	52
Utility Interruptions	3	9	7	18	34	51
Heat Wave/Extreme Heat	3	9	10	15	34	51
Hazardous Materials Incidents	2	15	9	16	40	41
Sea Level Rise	2	12	6	21	39	41
Climate Change	2	9	12	15	36	38
Cybersecurity Threats	2	12	7	13	32	34
Terrorism (Weapons of Mass Destruction)	1	18	11	27	56	31
Active Shooter Incidents	2	9	5	14	28	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 Contra Costa County Flood Control and Water Conservation District agreed upon **30** mitigation actions that apply to the jurisdiction's properties where they have jurisdictional responsibility and authority. Four (4) mitigation actions have been completed. A summary of the District's mitigation actions status is listed in **Table 19**.

Table 19. Contra Costa County Flood Control and Water Conservation District Mitigation Actions Summary

Status	Mitigation Action Total
Ongoing	5
In Progress/In Work	15
Not Started	7
Delayed/Deferred	2
New	1
TOTAL	**30**
Completed	4
Deleted/No Longer Needed	0

Mitigation Actions per Hazard			
Climate Change	5	Landslide	10
Dam and Levee Failure	15	Sea Level Rise	5
Drought	5	Severe Weather	11
Earthquake	12	Tsunami	5
Flood	30	Wildfire	5

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	CCCFCWD-1	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**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	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**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	Actively participate in the Hazard Mitigation Plan maintenance protocols outlined in Volume 1 of the Contra Costa County Hazard Mitigation Plan.				
Action Number	CCCFCWD-2	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 6, 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)*		Low			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Analyze and improve, as needed, spillway structures located in Division of Safety of Dams (DSOD) regulated dams to ensure continued safe passage of releases (e.g., Marsh Creek Reservoir Emergency Spillway armoring at downstream toe).				
Action Number	CCCFCWCD-3	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Earthquake, Flood, Severe Weather	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	High	
Potential Funding Source	Local Budgeted Funds, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Improve bank erosion at various sites such as, but not limited to, Green Valley Creek, Grayson Creek , San Ramon Creek, Pinole Creek, and Rodeo Creek.				
Action Number	CCCFCWCD-4	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Earthquake, Flood, Landslide, Severe Weather	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Upsize detention basins such as, but not limited to, Upper Sand Creek Basin, Lower Sand Creek Basin, Deer Creek Dam, and Oakley/Trembath Dam.				
Action Number	CCCFCWCD-5	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated** *(Select all that apply)*	Dam and Levee Failure, Flood, Severe Weather	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Widen creeks and channels, and elevate and rehabilitate levees in, but not limited to, Green Valley Creek, Pinole Creek, Rodeo Creek, Rheem Creek, Marsh Creek, Walnut Creek, and Grayson Creek.				
Action Number	CCCFCWCD-6	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Flood, Severe Weather	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Remove sediment from channels and detention basins to include, but not limited to, Kubicek Basin, Walnut Creek, Grayson Creek, Wildcat Creek, Rodeo Creek, San Pablo Creek, Pine Creek, Marsh Creek, and San Ramon Creek.				
Action Number	CCCFCWCD-7	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct seismic assessment of flood control facilities and structures throughout the County to include, but not limited to dams, channels, structures on Marsh Creek, Dry Creek, Deer Creek, Pine Creek, Walnut Creek, Grayson Creek, and Lafayette Creek.				
Action Number	CCCFCWCD-8	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Earthquake, Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds, HMGP		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Seismic rehabilitation and retrofitting of existing dams throughout the County to include, but not limited to, Pine Creek Dam, Marsh Creek Dam, Deer Creek Dam, Dry Creek Dam, Upper Sand Creek Basin, and Kubicek Basin.				
Action Number	CCCFCWCD-9	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Earthquake, Flood	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Acquire floodplain easements over privately held parcels at various sites throughout the District to include, but not limited to, Trembath basin floodplain on East Antioch Creek, floodplains on Marsh Creek, and Pacheco Creek.				
Action Number	CCCFCWCD-10	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 5, 10	**Hazard(s) Mitigated** *(Select all that apply)*	Dam and Levee Failure, Flood, Landslide	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct habitat improvements at various sites to include, but not limited to, Wildcat Creek, Walnut Creek, Lafayette Creek, East Antioch Creek, Sand Creek, and Marsh Creek.				
Action Number	CCCFCWCD-11	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Creek channel improvements at various sites to include, but not limited to, Green Valley Creek, Marsh Creek, Walnut Creek, and Grayson Creek.				
Action Number	CCCFCWCD-12	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA, Other		If *Other*, you **must** identify a funding source.	United States Environmental Protection Agency Funds	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct silt surveys in creeks and sediment basins at various locations to include, but not limited to, Grayson Creek, Walnut Creek, San Pablo Creek, Rheem Creek, Wildcat Creek, Pinole Creek, and Rodeo Creek.				
Action Number	CCCFCWCD-13	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct condition assessment of flood control facilities and structures in various locations throughout the County to include, but not limited to, Shadow Creek, West Alamo Creek, Canyon Lakes Creek, Rossmoor Creek, Bogue Creek, Rassier Creek, San Pablo Creek, Rheem Creek, Wildcat Creek, and Rodeo Creek.				
Action Number	CCCFCWCD-14	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Earthquake, Flood, Landslide	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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	Conduct functional assessment of flood control facilities at various sites throughout the County to include, but not limited to, Upper Sand Creek Basin, Marsh Creek Dam, Drop Structures, Walnut Creek, Grayson Creek, and Marsh Creek.				
Action Number	CCCFCWCD-15	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct a geotechnical investigation of flood control facilities and structures at various locations throughout the County to include, but not limited to, Walnut Creek and San Ramon Creek drop structures, Marsh Creek Reservoir, and Kubicek Basin.				
Action Number	CCCFCWCD-16	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Earthquake, Flood, Landslide	
Project Status		In Progress/In Work	If *Deleted/No Longer `Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct reservoir capacity and habitat restoration at Marsh Creek Dam.				
Action Number	CCCFCWCD-17	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, Other		If *Other*, you **must** identify a funding source.	State Delta Conservancy Fund	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Retrofit the North Richmond Stormwater Pump Station.				
Action Number	CCCFCWCD-18	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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	Conduct capacity improvements to the DA46 Grayson and Murderer's Creek local drainage (Subregional).				
Action Number	CCCFCWCD-19	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		Delayed/Deferred	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Rehabilitation of the Grayson Creek Levee at the Central Contra Costa Sanitary District Treatment Plant.				
Action Number	CCCFCWCD-20	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	Central Contra Costa Sanitary District	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Medium	
Potential Funding Source	Local Budgeted Funds, HMGP, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	Districts General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Rehabilitation of the Grayson Creek Channel fence.				
Action Number	CCCFCWCD-21	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Conduct restoration of lower Walnut Creek.				
Action Number	CCCFCWCD-22	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Dam and Levee Failure, Flood	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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	Conduct a sustainable capacity improvement at Rodeo Creek.				
Action Number	CCCFCWCD-23	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Earthquake, Flood, Landslide	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Install a bypass pipe along Tice Creek to reduce risk of flooding along Tice Valley Boulevard, Meadow Road, and Lancaster Road in Walnut Creek.				
Action Number	CCCFCWCD-24	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Rehabilitation of the Walnut Creek Levee at Buchanan Field Airport.				
Action Number	CCCFCWCD-25	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 10, 13	**Hazard(s) Mitigated**	Earthquake, Flood, Landslide	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time), Airport Funds	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Replacement of the DA 33A Concord Boulevard culvert.				
Action Number	CCCFCWCD-26	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District, City of Concord 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, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Improvements to the DA 48B Line A storm drainage at Port Chicago Highway.				
Action Number	CCCFCWCD-27	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, HMGP, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Improvements to west Antioch Creek from L Street through 10th Street.				
Action Number	CCCFCWCD-28	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District, City of Antioch Public Works Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	N/A		**Estimated Cost** *(Select one)*	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	Improvements to west Antioch Creek at Highway 4.				
Action Number	CCCFCWCD-29	**Year Initiated / Anticipated Year of Initiation**	2027	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated** *(Select all that apply)*	Flood	
Project Status *(Select one)*		Delayed/Deferred	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District, City of Antioch 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, FMA		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Restore flood capacity of Marsh Creek.				
Action Number	CCCFCWCD-30	**Year Initiated / Anticipated Year of Initiation**	2018	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 4, 5 **Objectives:** 1, 10	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration *(Select one)*	Short Term		**Estimated Cost** *(Select one)*	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.	District General Fund (Staff Time), Airport Funds	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Support Countywide initiatives identified in Volume 1 of the Contra Costa County Hazard Mitigation Plan.				
Action Number	CCCFCWCD-31	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
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	Contra Costa County Flood Control and Water Conservation District		**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.	District General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Work with the Contra Costa County Conservation and Development Department to integrate the Contra Costa County Hazard Mitigation Plan into the Safety Element of the County General Plan.				
Action Number	CCCFCWCD-32	**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	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	Contra Costa County Conservation and Development Department	
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.	District General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Wildcat Creek Fish Passage and Community Engagement Project. The primary goal of the overall project is to replace a failed fish passage facility constructed in the mid-1990s by the Army Corps of Engineers, the most downstream of the three significant barriers to Central California Coast Steelhead migration in Lower Wildcat Creek.				
Action Number	CCCFCWCD-34	**Year Initiated / Anticipated Year of Initiation**	2023	**Prioritization Score**	40/40
Goal(s) / Objective(s) Addressed		**Goal:** 1, 3	**Hazard(s) Mitigated**	Flood	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**Supporting Agency / Organization** *(If applicable)*	John Muir Chapter of Trout Unlimited (UT)	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Medium	
Potential Funding Source	Other, Local Budgeted Funds		If *Other*, you **must** identify a funding source.	Department of Water Resources Fund	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Where reasonable, provide populated areas with flood level warning system, install stream gauges and connect with the Contra Costa County Flood Control and Water Conservation District hydrologic data collection system, determine flood stage for warning, and establish notification procedures.				
Action Number	CCCFCWCD-33	**Year Initiated / Anticipated Year of Initiation**	2025	**Prioritization Score**	40/40
Goal(s) / Objective(s) Addressed		**Goal:** 1, 3	**Hazard(s) Mitigated** *(Select all that apply)*	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		New	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	Contra Costa County Flood Control and Water Conservation District		**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, Other		If *Other*, you **must** identify a funding source.	State Fault Evaluation Reports Fund	
			Please provide further detail on Potential Funding Source.	District General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

APPENDIX A. HAZARD MAPS

The following hazards were mapped for the Contra Costa County Flood Control and Water Conservation District – earthquakes, floods, landslides, sea level rise, tsunamis, and wildfires.

- **Figure 1** illustrates the liquefaction susceptibility, which helps assess potential damage from earthquakes within the District's service area.
- **Figure 2** illustrates the District's service area within the 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.[7] The 500-year floodplains show areas with a 0.2% chance of flooding each year.
- **Figure 3** illustrates landslide susceptibility within the District's service area. 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.[8]
- **Figure 4** illustrates sea level rise projections of one (1) foot within the District's service area.
- **Figure 5** illustrates the California Tsunami Hazard Areas which represent areas within the District's service area 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 the California Fire Hazard Severity Zones (FHSZ) in the State Responsibility Area (SRA) within the District's service area.

[7] 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=.
[8] California Department of Conservation. (n.d.). Landslides. Retrieved from https://www.conservation.ca.gov/cgs/landslides.

Figure 1. Liquefaction Susceptibility (Earthquake)

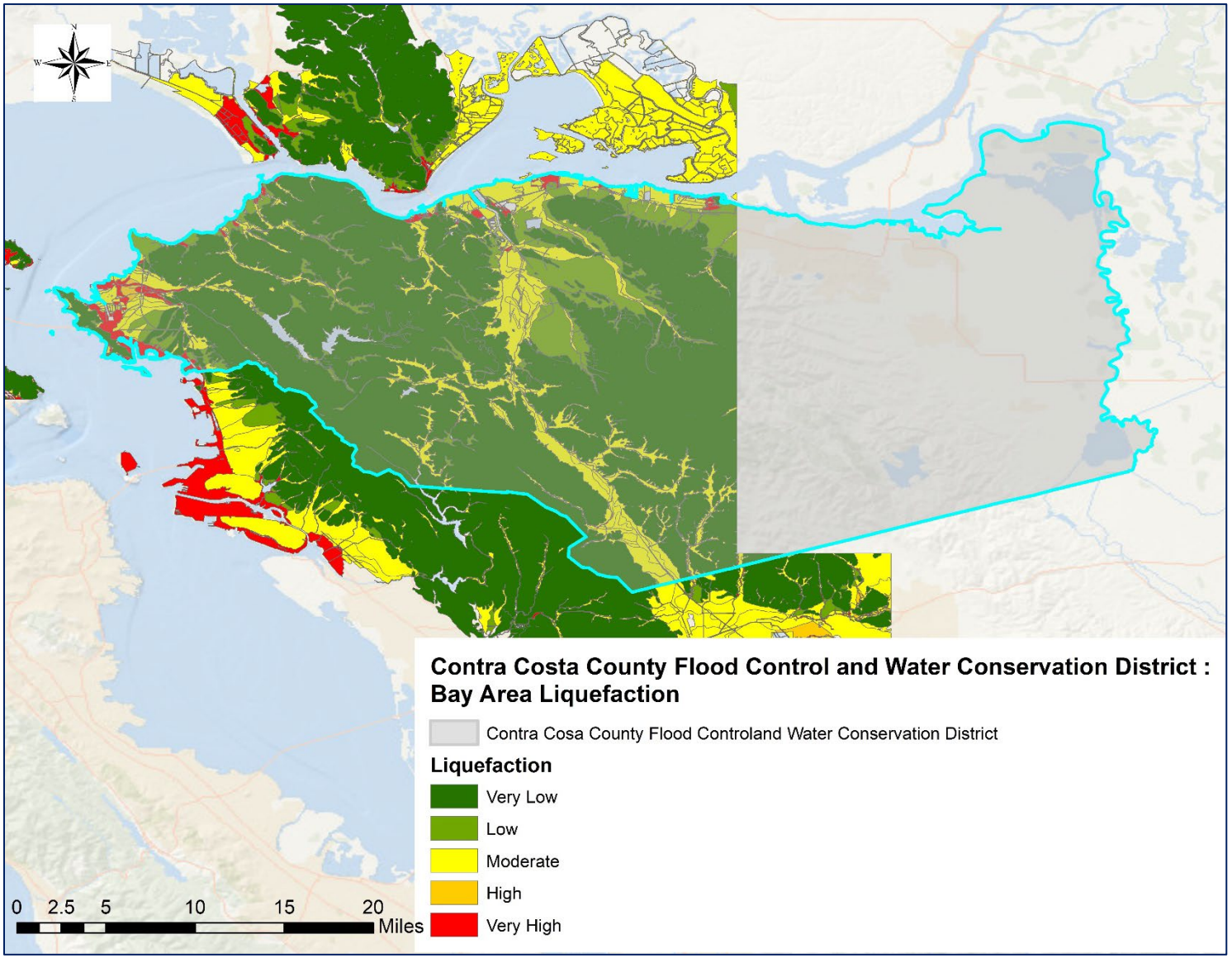


Figure 2. Special Flood Hazard Area

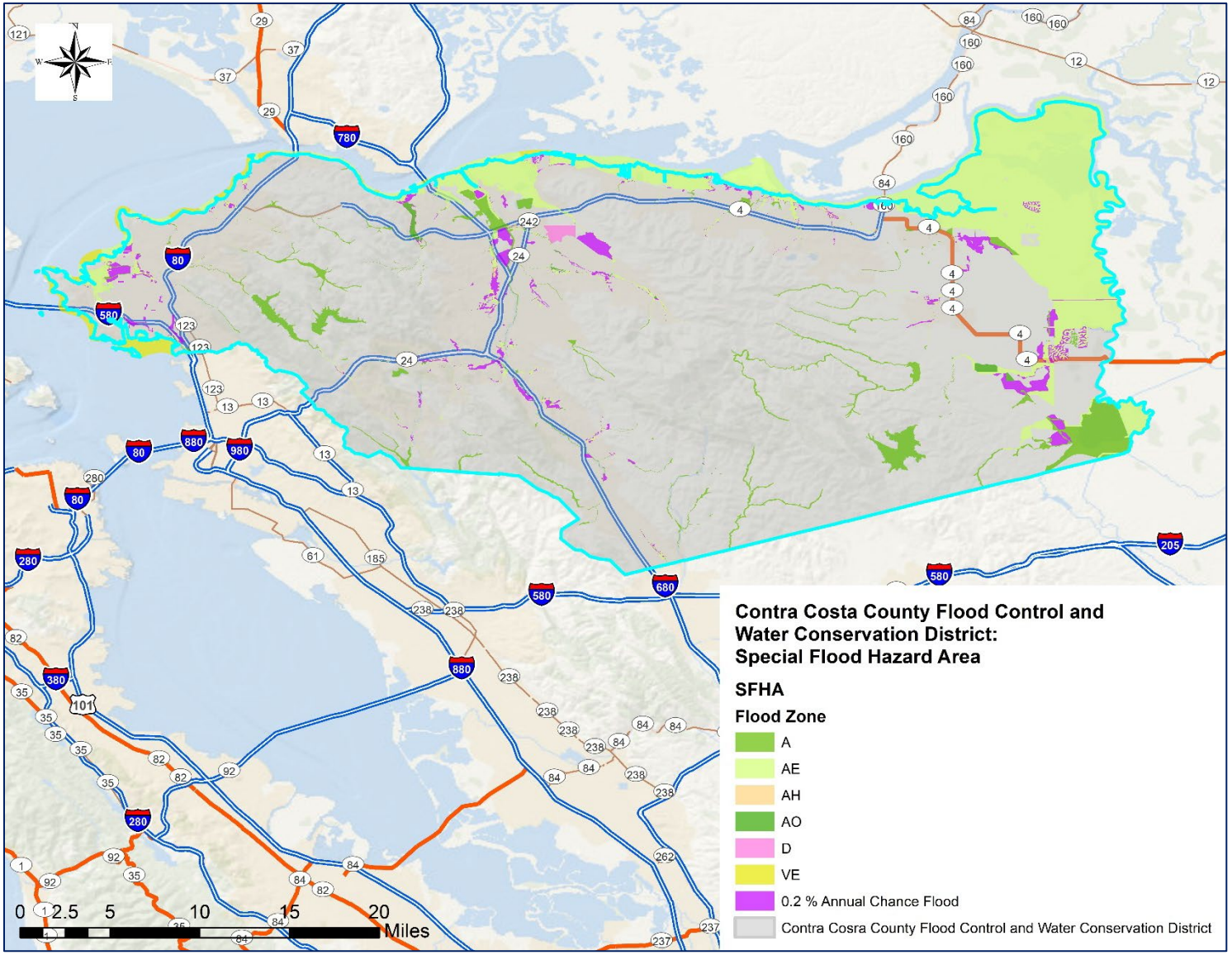


Figure 3. Landslide Susceptibility

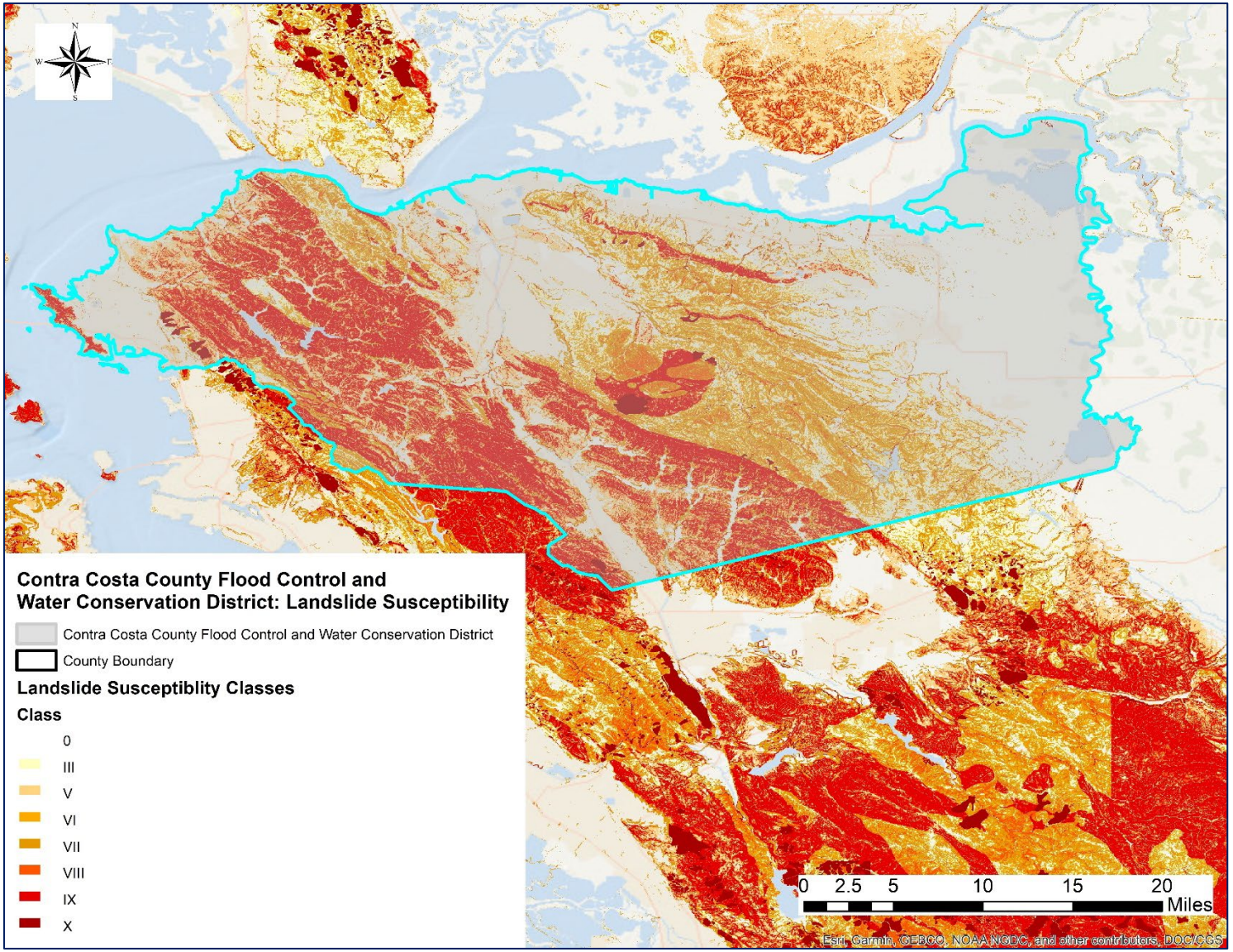


Figure 4. Sea Level Rise (1 Foot)

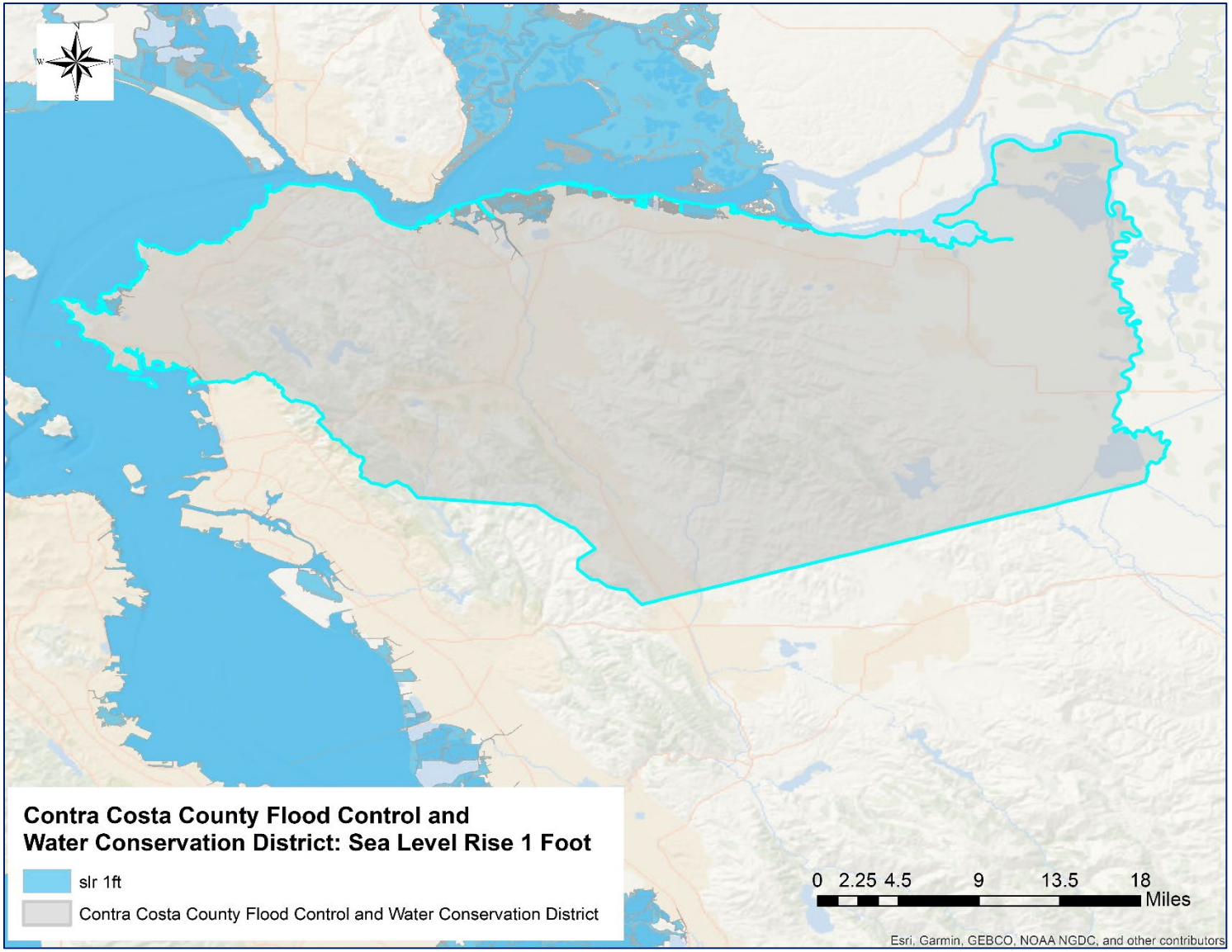


Figure 5. Tsunami Hazard Areas

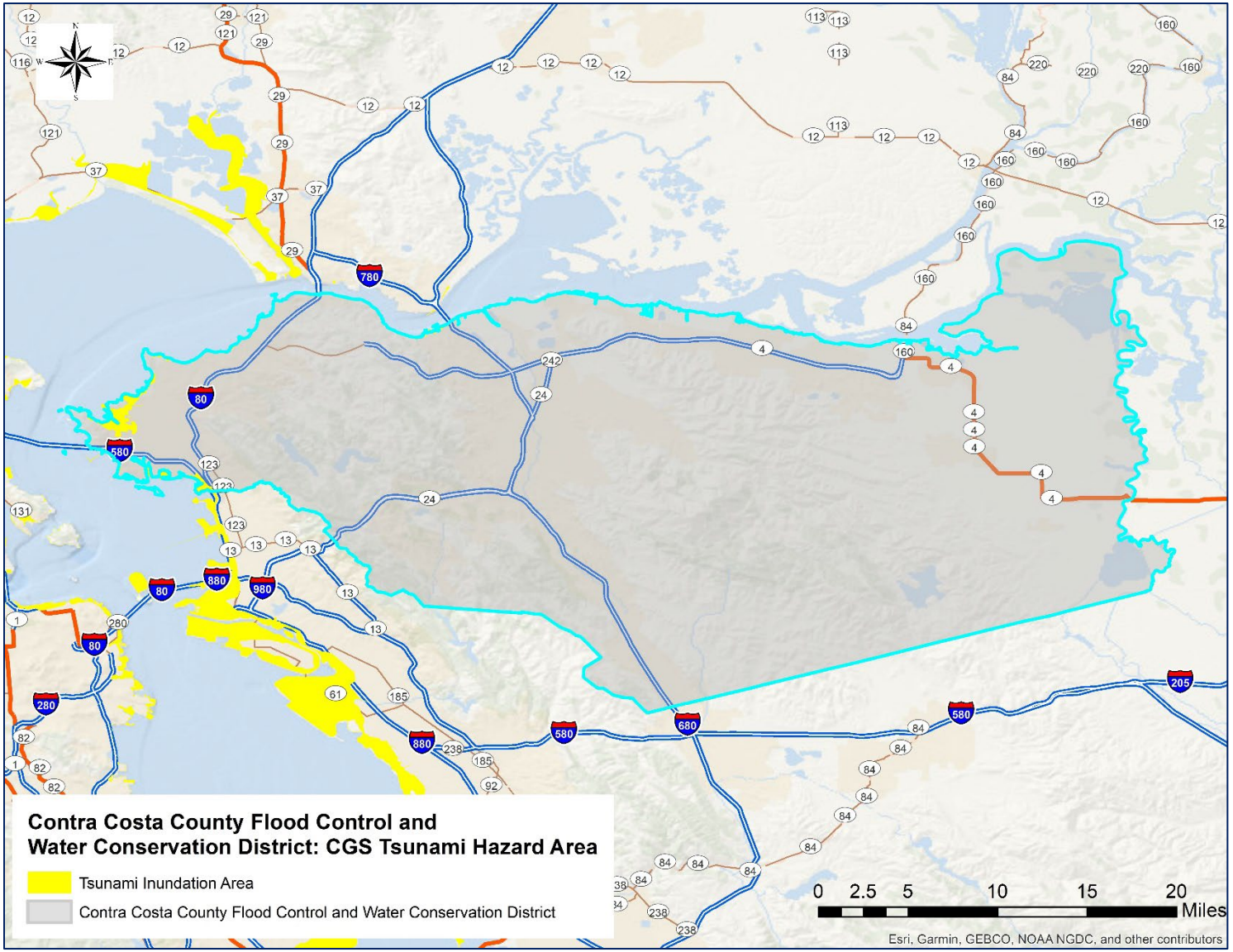
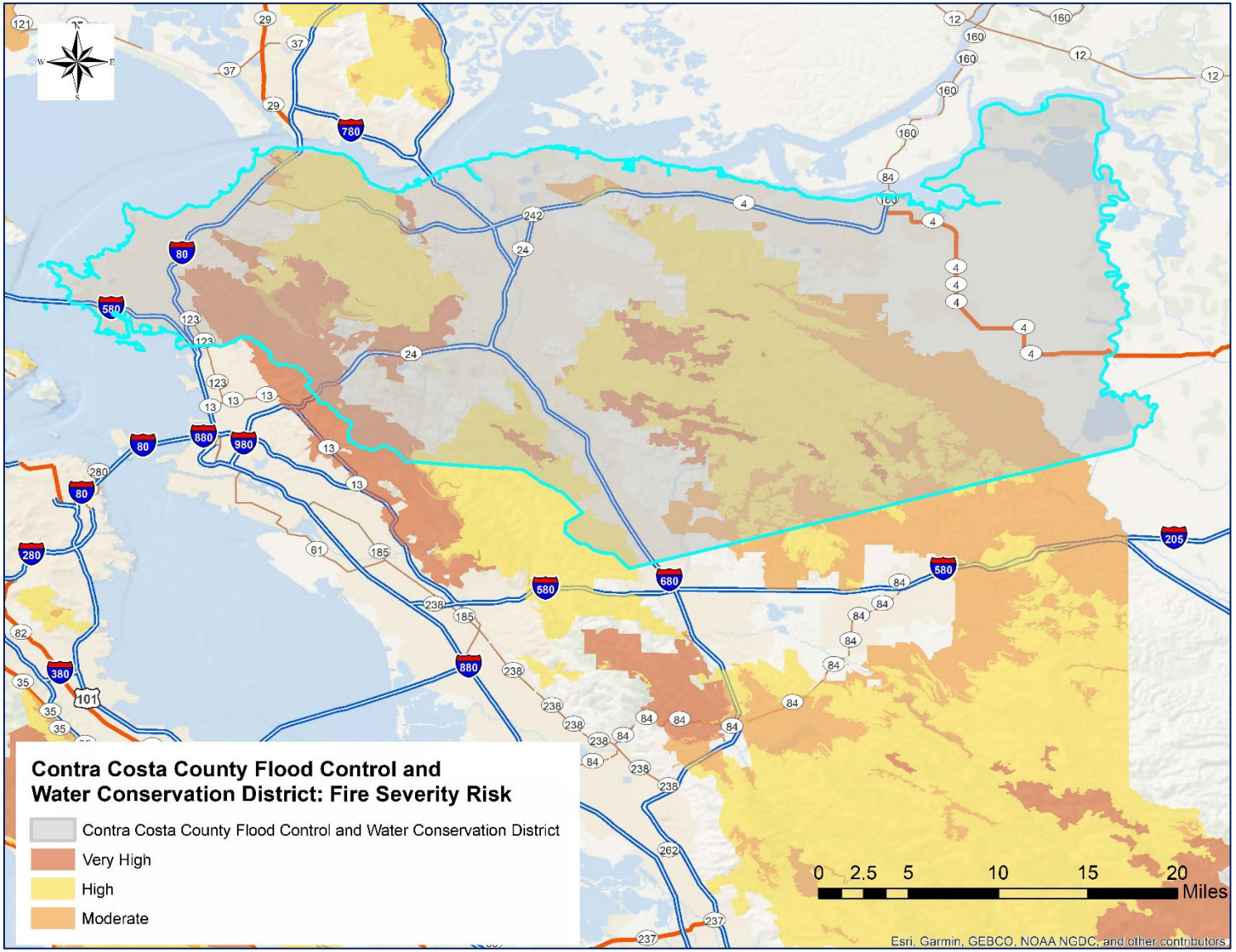


Figure 6. Fire Hazard Severity Zones



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 District 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.

The District 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 1,850 respondents that lived throughout the County 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 District 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 District Core Planning Teams determine meaningful mitigation projects.

After the public comment period ended, no public feedback was received for the District's Annex. However, in order to keep the Plan current after it is approved, the District 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 District's 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., the District) that served as brainstorming session and helped determine the public outreach goals and proper outreach methods for the public comment period. Subsequently, the District Core Planning Team developed a public outreach strategy that meets the District's unique needs of the community to engage stakeholders and the public during the public comment period. The District 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, and those with access and functional needs.

The District's 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.

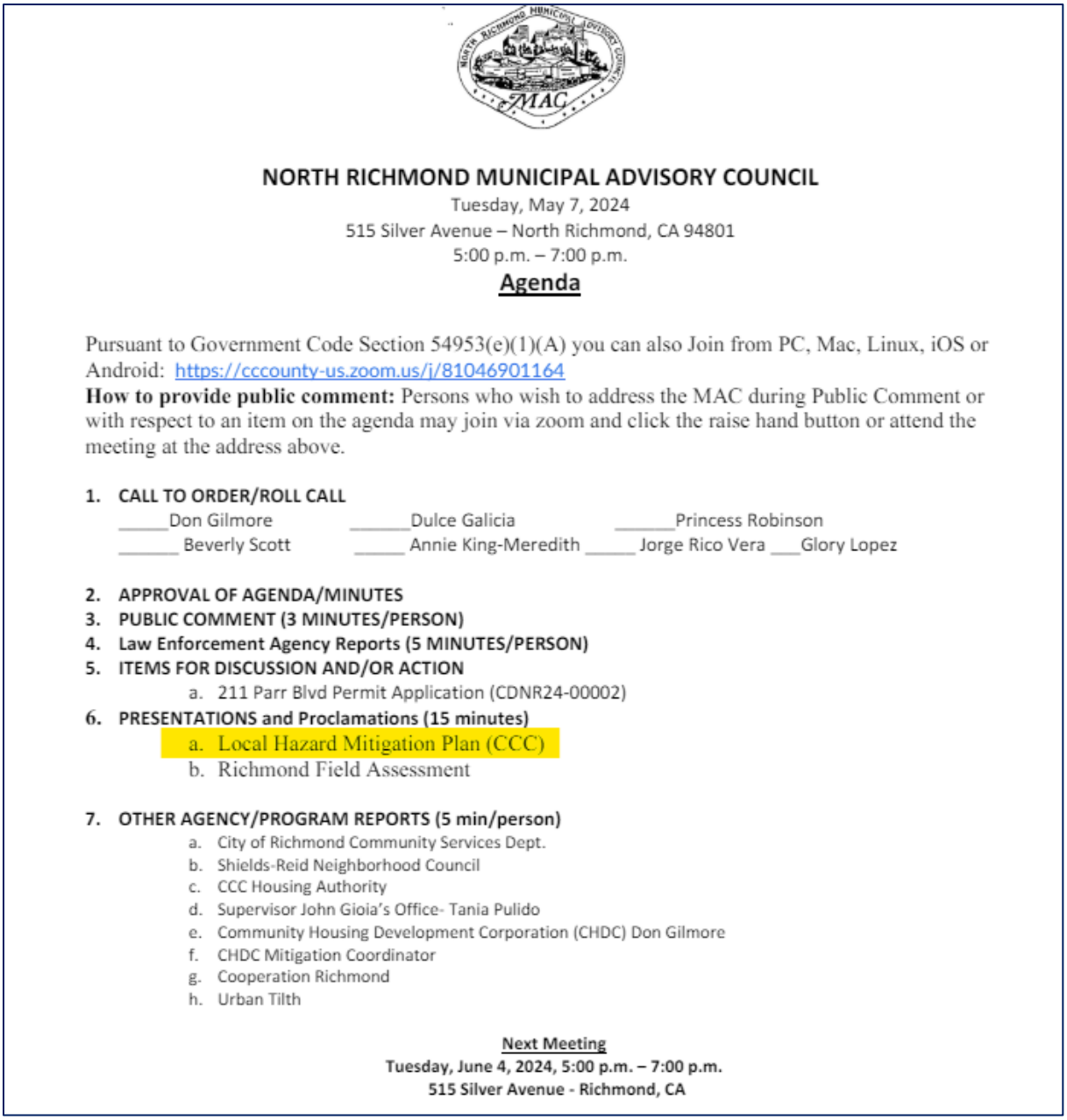
Public Comment Outreach Calendar

May 2024		
Date	**Tuesday, May 7th**	**Tuesday, May 7th**
Event Name	North Richmond Municipal Advisory Council	Alamo Municipal Advisory Council
Location	North Richmond Senior Center 515 Silver Avenue North Richmond, CA 94801	Alamo Women's Club 1401 Danville Boulevard Alamo, CA 94507
Outreach Method	Presentation to Governing Body	Presentation to Governing Body
Outreach Purpose	Inform, Involve	Inform, Involve
Targeted Population	Countywide (High Poverty, Age, Limited English Proficiency)	Countywide (Age, Access and Functional Needs)
Accommodations Provided	After Hours, Spanish Speaker Available	After Hours
Date	**Wednesday, May 8th**	**Thursday, May 16th**
Event Name	Pacheco Municipal Advisory Council	Flood Control Staff Meeting
Location	Pacheco Community Center 5800 Pacheco Boulevard Pacheco, CA 94553	Conference Room G Microsoft Teams
Outreach Method	Presentation to Governing Body	N/A
Outreach Purpose	Inform, Involve	Inform, Involve
Targeted Population	Countywide (Age, Access and Functional Needs)	District Employees
Accommodations Provided	After Hours, Recording, Virtual Option, Spanish Speaker Available	Virtual Option

May 2024		
Date	**Sunday, May 19th**	**Tuesday, May 28th** **Wednesday, May 29th**
Event Name	Joybound Around Town	State of the Estuary Conference
Location	Broadway Plaza 1275 Broadway Plaza Walnut Creek, CA 94596	Oakland Scottish Rite Center 1547 Lakeside Drive Oakland, CA 94612
Outreach Method	Community Events	N/A
Outreach Purpose	Inform	Inform
Targeted Population	Countywide (Age, Access and Functional Needs)	Neighboring Communities
Accommodations Provided	Weekend Event	Hard copy of Annex was made available
Date	**Wednesday, May 29th**	**Thursday, May 30th**
Event Name	Oakley Senior Center Weekly Luncheon	Oakley Senior Citizens Club Vendor Fair and Food Pantry
Location	Oakley Senior Center 215 2nd Street Oakley, CA 94561	Oakley, CA
Outreach Method	Community Events	Community Events
Outreach Purpose	Inform	Inform
Targeted Population	Age, Access and Functional Needs	Age, Access and Functional Needs, Low-income
Accommodations Provided	In Person Outreach	In Person Outreach

May 7, 2024 – North Richmond Municipal Advisory Council Meeting (Partnership with Contra Costa County Office of Emergency Services)

The North Richmond Municipal Advisory Council (MAC) Meeting was held in person with virtual option, after hours (5:00 PM) on a weekday. The MAC meetings are open to the general public. Michele Mancuso from the District and Contra Costa County Office of Emergency Services (OES) virtually conducted a presentation on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and gave options to provide feedback on the Plan. The District facilities in Wildcat and San Pablo Creeks pass through North Richmond before reaching the San Francisco Bay.



NORTH RICHMOND MUNICIPAL ADVISORY COUNCIL

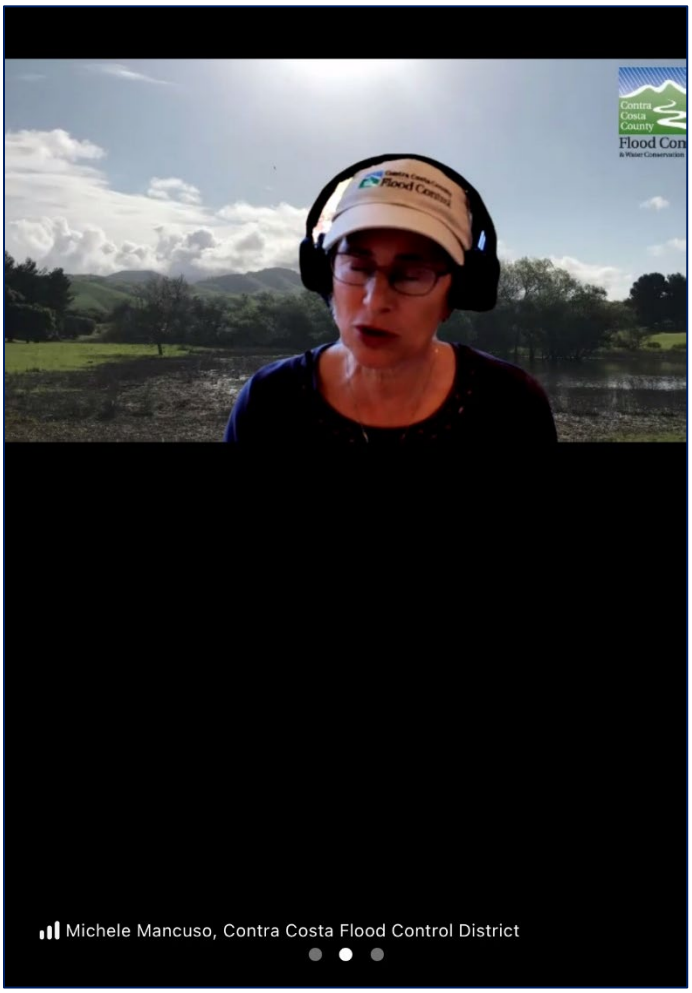
Tuesday, May 7, 2024
515 Silver Avenue – North Richmond, CA 94801
5:00 p.m. – 7:00 p.m.

Agenda

Pursuant to Government Code Section 54953(e)(1)(A) you can also Join from PC, Mac, Linux, iOS or Android: https://cccounty-us.zoom.us/j/81046901164
How to provide public comment: Persons who wish to address the MAC during Public Comment or with respect to an item on the agenda may join via zoom and click the raise hand button or attend the meeting at the address above.

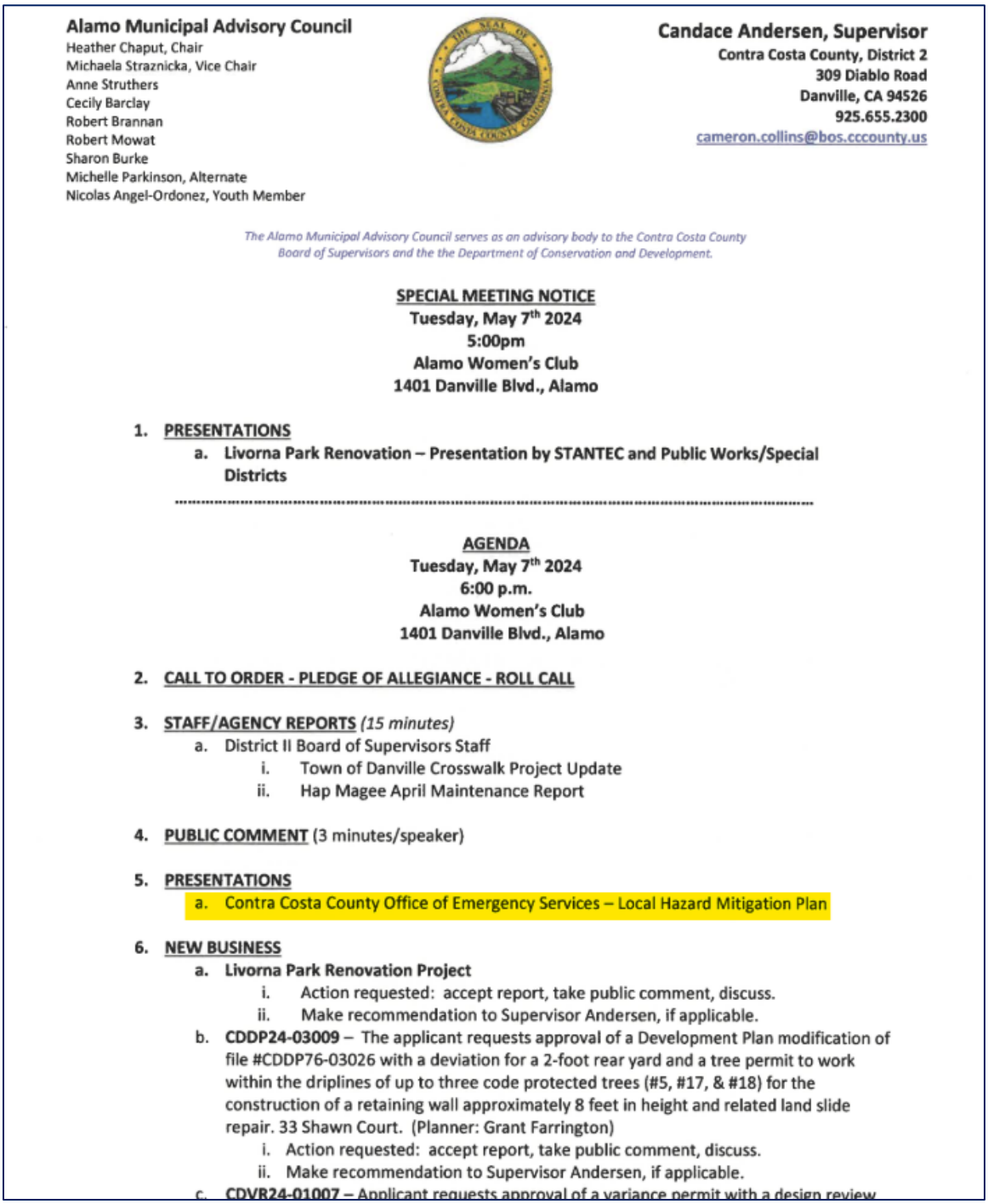
1. **CALL TO ORDER/ROLL CALL**
   _____Don Gilmore _____Dulce Galicia _____Princess Robinson
   _____ Beverly Scott _____ Annie King-Meredith _____ Jorge Rico Vera ___Glory Lopez
2. **APPROVAL OF AGENDA/MINUTES**
3. **PUBLIC COMMENT (3 MINUTES/PERSON)**
4. **Law Enforcement Agency Reports (5 MINUTES/PERSON)**
5. **ITEMS FOR DISCUSSION AND/OR ACTION**
   a. 211 Parr Blvd Permit Application (CDNR24-00002)
6. **PRESENTATIONS and Proclamations (15 minutes)**
   a. Local Hazard Mitigation Plan (CCC)
   b. Richmond Field Assessment
7. **OTHER AGENCY/PROGRAM REPORTS (5 min/person)**
   a. City of Richmond Community Services Dept.
   b. Shields-Reid Neighborhood Council
   c. CCC Housing Authority
   d. Supervisor John Gioia's Office- Tania Pulido
   e. Community Housing Development Corporation (CHDC) Don Gilmore
   f. CHDC Mitigation Coordinator
   g. Cooperation Richmond
   h. Urban Tilth

Next Meeting
Tuesday, June 4, 2024, 5:00 p.m. – 7:00 p.m.
515 Silver Avenue - Richmond, CA


Contra Costa County
Flood Con
Michele Mancuso, Contra Costa Flood Control District

May 7, 2024 – Alamo Municipal Advisory Council Meeting (Partnership with Contra Costa County Office of Emergency Services)

The Alamo Municipal Advisory Council (MAC) Meeting was held in person, after hours (6:00 PM) on a weekday. The MAC meetings are open to the general public. Michelle Cordis from the District and Contra Costa County OES attended in person and conducted a presentation on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and gave options to provide feedback on the Plan. The District facilities in San Ramon Creek and other basins pass through the Alamo area.



Alamo Municipal Advisory Council
Heather Chaput, Chair
Michaela Straznicka, Vice Chair
Anne Struthers
Cecily Barclay
Robert Brannan
Robert Mowat
Sharon Burke
Michelle Parkinson, Alternate
Nicolas Angel-Ordonez, Youth Member

Candace Andersen, Supervisor
Contra Costa County, District 2
309 Diablo Road
Danville, CA 94526
925.655.2300
cameron.collins@bos.cccounty.us

The Alamo Municipal Advisory Council serves as an advisory body to the Contra Costa County Board of Supervisors and the the Department of Conservation and Development.

SPECIAL MEETING NOTICE
Tuesday, May 7th 2024
5:00pm
Alamo Women's Club
1401 Danville Blvd., Alamo

1. **PRESENTATIONS**
   a. **Livorna Park Renovation – Presentation by STANTEC and Public Works/Special Districts**

AGENDA
Tuesday, May 7th 2024
6:00 p.m.
Alamo Women's Club
1401 Danville Blvd., Alamo

2. **CALL TO ORDER - PLEDGE OF ALLEGIANCE - ROLL CALL**

3. **STAFF/AGENCY REPORTS** *(15 minutes)*
   a. District II Board of Supervisors Staff
      i. Town of Danville Crosswalk Project Update
      ii. Hap Magee April Maintenance Report

4. **PUBLIC COMMENT** (3 minutes/speaker)

5. **PRESENTATIONS**
   a. Contra Costa County Office of Emergency Services – Local Hazard Mitigation Plan

6. **NEW BUSINESS**
   a. **Livorna Park Renovation Project**
      i. Action requested: accept report, take public comment, discuss.
      ii. Make recommendation to Supervisor Andersen, if applicable.
   b. **CDDP24-03009** – The applicant requests approval of a Development Plan modification of file #CDDP76-03026 with a deviation for a 2-foot rear yard and a tree permit to work within the driplines of up to three code protected trees (#5, #17, & #18) for the construction of a retaining wall approximately 8 feet in height and related land slide repair. 33 Shawn Court. (Planner: Grant Farrington)
      i. Action requested: accept report, take public comment, discuss.
      ii. Make recommendation to Supervisor Andersen, if applicable.
   c. **CDVR24-01007** – Applicant requests approval of a variance permit with a design review


Local Hazard
Mitigation
Plan
DANVILLE BOULEVARD


DANVILLE BOULEVARD

May 8, 2024 – Pacheco Municipal Advisory Council Meeting

The Pacheco Municipal Advisory Council (MAC) Meeting was held in person, after hours (6:30 PM) on a weekday. The MAC meetings are open to the general public. Tim Jensen from the District attended and provided information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan. The District facilities in Grayson Creek pass through the Pacheco area.

Pacheco Municipal Advisory Council

Shawn Garcia, Chair
David Joslin, Vice Chair
Nam Trinh, Secretary
Vince Robb, Councilmember
Wayne Pope, Councilmember
Warren Ritter, Alternate

Shawn Garcia, Chair

Office of
Supervisor Federal D. Glover
1025 Escobar Street
Martinez, CA 94553
(925) 608-4200

The Pacheco Municipal Advisory Committee serves as an advisory body to the Contra Costa County Board of Supervisors and the County Planning Agencies.

How to Submit Public Comments: All comments must be received by 5:00 p.m. the day before the meeting, which is Tuesday, May 7, 2023. Email your comments to Demnlus.Johnson@bos.cccounty.us. Comments will be read during the meeting.

A G E N D A – May 8, 2024 – 6:30 p.m. (IN-PERSON)

Pacheco Community Center- Conference Room - 5800 Pacheco Blvd, Pacheco, CA 94553

1. Call to Order/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 agenda 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

4. Agency Reports
   a. California Highway Patrol
   b. Sheriff's Department
   c. Pacheco Town Council
   d. Supervisor Federal D. Glover's Office

5. Presentations:
   a Local Hazard Mitigation Plan (Office of Emergency Services)

6. Consent Items: *All matters listed under Consent Items are considered by the MAC to be routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a member of the MAC or a member of the public prior to the time the MAC votes on the motion to adopt.*
   a. Approval of the Record of Action (Minutes) for the April 10, 2024, meeting.


Contra Costa County
Flood Control

May 16, 2024 – Flood Control Division Staff Meeting

During the May 16th Flood Control Division Staff Meeting, Tim Jensen, Michele Mancuso, and Michelle Cordis related their experiences with presenting at previous MAC meetings. The presentation slides were reviewed, and Staff was provided with the necessary information to conduct their own presentations, which included details of District-related hazards and underserved population. Additional public outreach opportunities were discussed during this Meeting.

Happy Spring – Bike to Wherever!

FLOOD CONTROL DIVISION
STAFF MEETING

May 16, 2024
1:30 p.m. to 3:00 p.m.
Conference Room G & Teams

Meeting Organizer: Sara
Meeting Providers: Larry, Mark, Catherine

AGENDA

1. Welcome
   Sara — 5 min

2. Happy Birthday!
   Beth – 5/9
   Angelo – 5/13

3. Happy Work-A-Versary to
   Sara – 6 months! 5/20
   Anesia – 5 years! 6/18
   Catherine – 25 years! 6/1

4. Division Reports
   a. Tim: News from our new Director of Public Works & Review of the Deputy/Division Head Meeting — 5 min
   b. Report-Backs (brief): — 15 min
      DSOD inspections (Thao, Alexander, Larry)
      Day at the Capitol (Michelle C., Tim)
      Local Haz. Mitigation Plan Outreach (Michele, Michelle, Tim)

Break: Getting to Know: Michele Mancuso — 10 min

   c. Michael: Safety Committee Update — 10 min

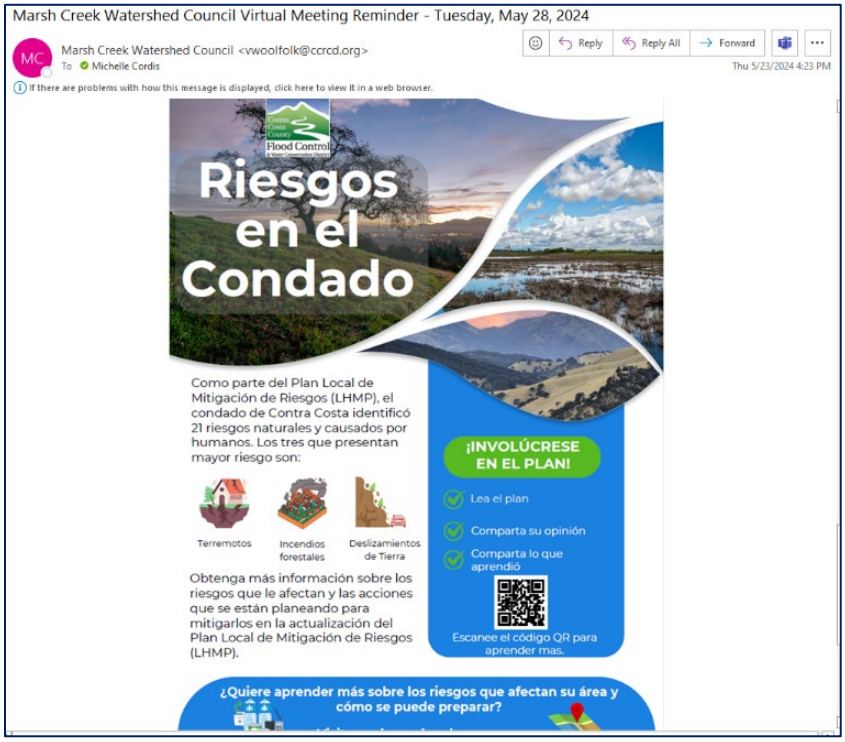
5. Engagement
   Communication Conversation! (Guest: Isabel R.) — 20 min
      How do you like to be appreciated?

May 19, 2024 – Joybound Around Town (Partnership with the City of Walnut Creek)

A table was set up at the Joybound Around Town Pet Festival at Broadway Plaza in Walnut Creek. The event took place on a Sunday. The City of Walnut Creek and Michelle Cordis with the District were available to provide information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan. As a regional event, individuals from outside of the Walnut Creek area stopped by the booth. The Walnut Creek Watershed is the largest watershed in the County and the District facilities in Walnut Creek and San Ramon Creek pass through the Walnut Creek area.

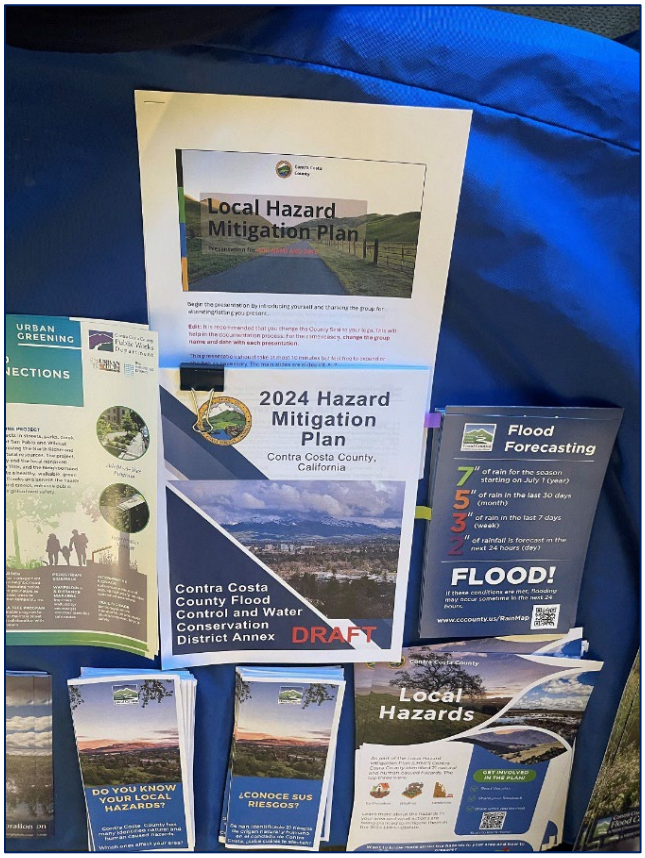
May 23, 2024 – Marsh Creek Watershed Council Meeting

The local hazard flyer was included in the Marsh Creek Watershed Council Virtual Meeting reminder e-mail, in English and Spanish, to solicit review and feedback from the Council members. The Marsh Creek Watershed is the second largest watershed in the County.



May 28 and 29, 2024 – State of the Estuary Conference

Tim Jensen, Michele Mancuso, and Jennifer Joel attended the State of the Estuary Conference, a regional conference on watershed and San Fransisco Bay health. The District had a table in which the Staff was able to provide information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan. The Conference took place in the Scottish Rite Center in Oakland, California which provided an opportunity for neighboring jurisdictions to learn about the Plan and provide feedback.



May 29, 2024 – Oakley Senior Center Weekly Luncheon

Michael Burger gave a presentation during the Oakley Senior Center weekly luncheon. Information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan were provided. District Staff remained onsite after the presentation to answer additional questions and further discuss mitigation and the Plan with the residents. District facilities in Marsh Creek pass through Oakley.

May 30, 2024 – Oakley Senior Citizens Club Vendor Fair and Food Pantry

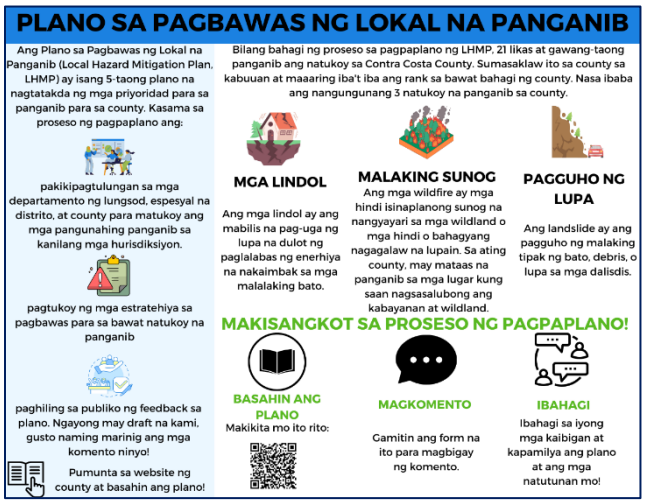
Angelo Torres and Thao Nguyen attended the Oakley Senior Citizens Vendor Fair in person and provided information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan. The Vendor Fair was also part of a food pantry attended by underserved population including senior citizens and low-income residents within the City of Oakley. However, some attendees lived beyond the Oakley area. District facilities in Marsh Creek pass through Oakley.

Printed Materials

Two (2) different types of materials were created specifically for the public comment period and the District rebranded the materials with the District's 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. Printed materials were distributed in the County's five (5) top languages – English, Spanish, Tagalog, and Traditional and Simplified Chinese. Materials were distributed at public meetings and outreach events. Having the materials available in multiple languages allowed more of the community to receive information about the Hazard Mitigation Plan, ways to comment, and how to prepare for disasters. Printed materials are especially helpful to communities with Limited English Proficiency as the materials include a visual component.

Figure B-1. Trifold (English, Spanish, Tagalog, Traditional Chinese, and Simplified Chinese)


DEPENDE SA KUNG SAAN KA NAKATIRA, MAAARING MAG-IBA-IBA ANG IYONG MGA PANGANIB.
SURIIN ANG IYO GAMIT ANG 3 HAKBANG NA ITO
Hakbang 1: Sa kahit anong device na may internet access, bisitahin ang myhazards.caloes.ca.gov o i-scan ang QR Code sa itaas.
Hakbang 2: I-type ang address ng trabaho o tirahan mo. Magandang ideya na suriin ang mga panganib sa parehong lugar.
Hakbang 3: Pag-aralan at paghandaan ang mga panganib sa iyong lugar.
Available lang ang website na ito sa English.
MAGHANDA PARA SA MGA SAKUNA
Iimpake ang inyong emergency kit at panatilihin ito sa lugar na madaling makuha. Dapat may kit ang bawat miyembro ng inyong pamilya at alagang hayop.
Gumawa ng emergency plan kasama ang lahat sa inyong pamilya.
Gawin ang nasa plano at tingnan ang inyong emergency kit kahit man lang dalawang beses kada taon.
Isaalang-alang na kumuha ng insurance na pantangi para sa panganib. Higit pang impormasyon: insurance.ca.gov
Mag-sign up para makatanggap ng mga alertong pang-emergency sa: CWSAlerts.com
PARA MATUTO PA, BISITAHIN ANG:
Ready
ready.gov
contracosta.ca.gov
ALAM MO BA ANG MGA PANGANIB SA INYONG LUGAR?
Maraming natukoy na likas at gawang-taong panganib ang Contra Costa County.
Alin dito ang nakakaapekto sa inyong lugar?


PLANO SA PAGBAWAS NG LOKAL NA PANGANIB
Ang Plano sa Pagbawas ng Lokal na Panganib (Local Hazard Mitigation Plan, LHMP) ay isang 5-taong plano na nagtatakda ng mga priyoridad para sa panganib para sa county. Kasama sa proseso ng pagpaplano ang:
pakikipagtulungan sa mga departamento ng lungsod, espesyal na distrito, at county para matukoy ang mga pangunahing panganib sa kanilang mga hurisdiksiyon.
pagtukoy ng mga estratehiya sa pagbawas para sa bawat natukoy na panganib
paghiling sa publiko ng feedback sa plano. Ngayong may draft na kami, gusto naming marinig ang mga komento ninyo!
Pumunta sa website ng county at basahin ang plano!
Bilang bahagi ng proseso sa pagpaplano ng LHMP, 21 likas at gawang-taong panganib ang natukoy sa Contra Costa County. Sumasaklaw ito sa county sa kabuuan at maaaring iba't iba ang rank sa bawat bahagi ng county. Nasa ibaba ang nangungunang 3 natukoy na panganib sa county.
MGA LINDOL
Ang mga lindol ay ang mabilis na pag-uga ng lupa na dulot ng paglalabas ng enerhiya na nakaimbak sa mga malalaking bato.
MALAKING SUNOG
Ang mga wildfire ay mga hindi isinaplanong sunog na nangyayari sa mga wildland o mga hindi o bahagyang nagagalaw na lupain. Sa ating county, may mataas na panganib sa mga lugar kung saan nagsasalubong ang kabayanan at wildland.
PAGGUHO NG LUPA
Ang landslide ay ang pagguho ng malaking tipak ng bato, debris, o lupa sa mga dalisdis.
MAKISANGKOT SA PROSESO NG PAGPAPLANO!
BASAHIN ANG PLANO
Makikita mo ito rito:
MAGKOMENTO
Gamitin ang form na ito para magbigay ng komento.
IBAHAGI
Ibahagi sa iyong mga kaibigan at kapamilya ang plano at ang mga natutunan mo!


您居住的地方不同，面臨的災害可能會有所不同。
透過 3 個簡單步驟查看您面臨的災害
步驟 1：在任何可以上網的裝置上，瀏覽 myhazards.caloes.ca.gov 或掃描上方 QR 代碼。
步驟 2：輸入您的工作或家庭地址。查看這兩個地區的災害是個好主意。
步驟 3：瞭解您所在地區的災害，並做好準備。
本網站只提供英文版。
為災難做好準備
準備您的應急包，放在方便取用的地方。您的每個家庭成員和寵物都應該有一個應急包。
與所有家庭成員共同制定應急計畫。
練習實施您的計畫，每年至少檢查兩次應急包。
考慮購買特定災害的保險。更多資訊：insurance.ca.gov
前往以下網站進行註冊，以接收緊急警報：CWSAlerts.com
想要瞭解更多資訊，請瀏覽：
Ready
ready.gov
contracosta.ca.gov
您是否瞭解當地的災害？
Contra Costa 郡有許多已確定的自然和人為災害。
哪些會影響您所在的地區？


當地減災計畫
當地減災計畫 (LHMP) 是一項5年計畫，針對該縣設定減災優先順序。規劃流程包括：
與城市特區和縣部門合作，確定其管轄範圍內的首要災害
確定針對每種已確定災害的減災策略
徵求公眾對該計畫的回饋意見。我們已制定了草案，現在想聽聽您的意見！
前往該縣網站閱讀該計畫！
作為 LHMP 規劃流程的一部分，Contra Costa 郡確定了 21 個自然和人為災害。這些災害涉及整個郡，並且可能在全郡內的排名有所不同。以下是該郡確定的前 3 大災害。
地震
地震是由儲存在岩石中的能量釋放引起地球的快速震動。
野火
野火是指發生在荒地的意外火災。在我郡，城市/荒地交界處發生野火的風險很高。
山崩
山崩是一堆岩石、碎片或泥土沿著斜坡向下滾動。
參與規劃流程！
閱讀該計畫
您可以在此處找到該計畫：
意見
使用此表留下意見
分享
與您的朋友和家人分享該計畫和所瞭解的內容！

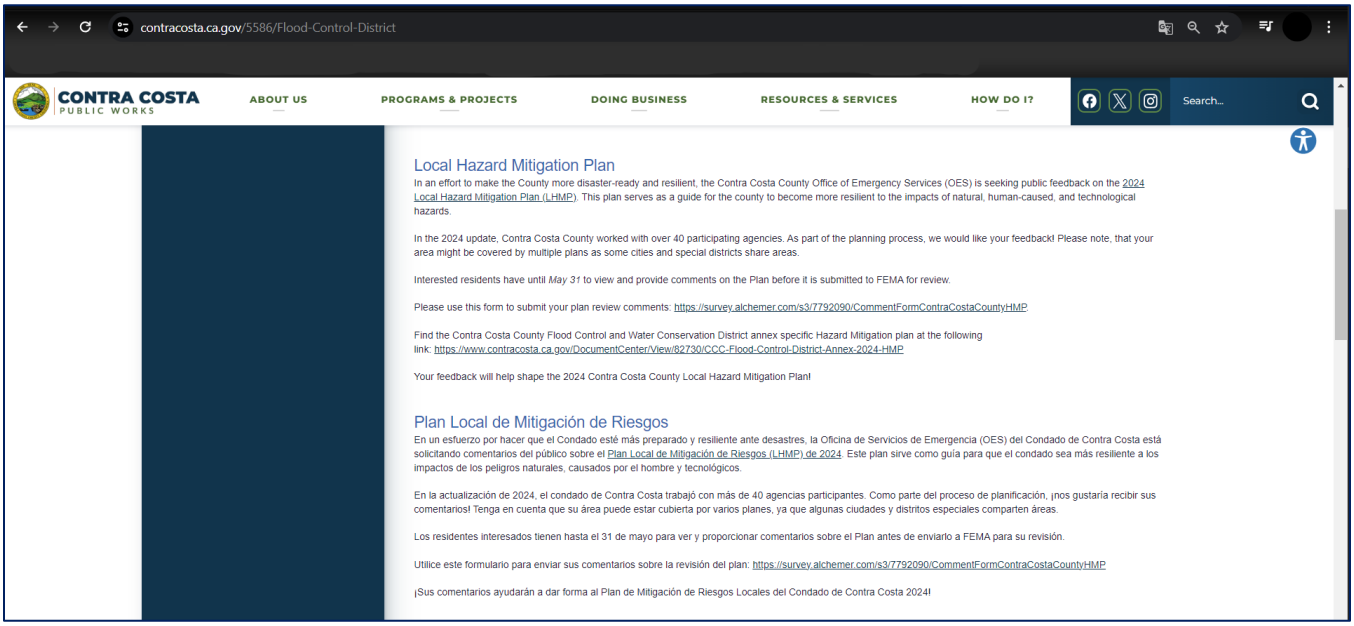

您居住的地方不同，您面临的灾害可能会有所不同。
通过 3 个简单步骤查看您面临的灾害
步骤 1：任何可以上网的设备上，访问 myhazards.caloes.ca.gov 或扫描上方二维码。
步骤 2：输入您的工作或家庭地址。查看这两个地区的灾害是个好主意。
步骤 3：了解您所在地区的灾害，并做好准备。
本网站只提供英文版。
为灾难做好准备
将您的应急包打包，放在方便取用的地方。您的每个家庭成员和宠物都应该有一个应急包。
与所有家庭成员共同制定应急计划。
练习实施您的计划，每年至少检查两次应急包。
考虑购买特定灾害的保险。更多信息：insurance.ca.gov
访问以下网站进行注册，以接收紧急警报：CWSAlerts.com
想要了解更多信息，请浏览：
Ready
ready.gov
contracosta.ca.gov
您是否了解当地的灾害？
Contra Costa 县有许多已确定的自然和人为灾害。
哪些会影响您所在的地区？


当地减灾计划
当地减灾计划 (LHMP) 是一项 5 年计划，针对该县设定减灾优先级。规划流程包括：
与城市、特区和县部门合作，确定其管辖范围内的首要灾害。
确定针对每种已确定灾害的减灾策略
征求公众对该计划的反馈意见。既然我们制定了草案，我们想听听您的意见！
前往该县网站阅读该计划！
作为 LHMP 规划流程的一部分，Contra Costa 县确定了 21 个自然和人为灾害。这些灾害涉及整个县，并且可能在全县内的排名有所不同。以下是该县确定的前 3 大灾害。
地震
地震是由储存在岩石中的能量释放引起地球的快速震动。
野火
野火是指发生在荒地的意外火灾。在我县，城市/荒地交界处发生野火的风险很高。
山体滑坡
山体滑坡是一堆岩石、碎片或泥土沿着斜坡向下滚动。
参与规划流程！
阅读该计划
您可以在此处找到该计划：
意见
使用此表留下意见
共享
与您的朋友和家人共享该计划和所了解的内容！

Figure B-2. Local Hazard Flyer (English, Spanish, Tagalog, Traditional Chinese, and Simplified Chinese)

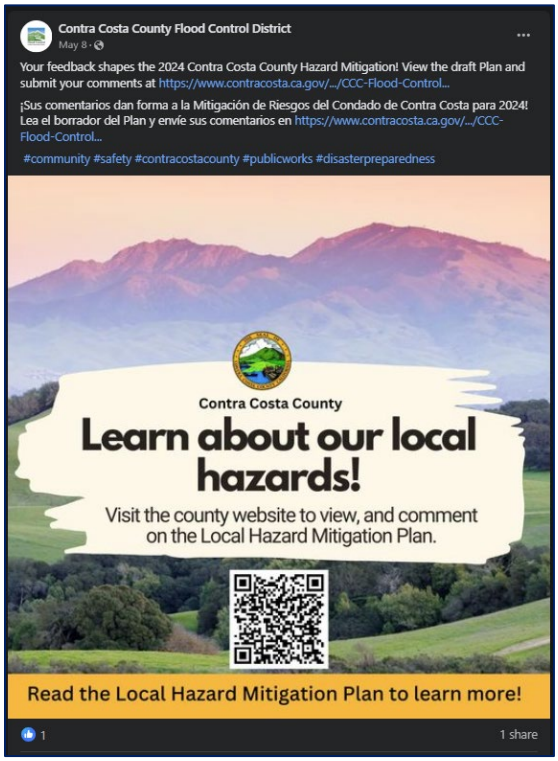
District Website

Information on the Contra Costa County Hazard Mitigation Plan and District Annex was posted to the District's website in English and Spanish. The website served as a central place which allowed all residents, stakeholders, and partners in the County to view the Contra Costa County Hazard Mitigation Plan , including the District's Annex, and thus promoted more public comment.



Social Media Posts

Social media posts were disseminated via Facebook and Instagram throughout the public comment period in the County's top languages – English, Spanish, Tagalog, and Traditional and Simplified Chinese. Social media posts were disseminated on April 29, 2024, May 3, 2024, May 8, 2024, May 15, 2024, May 22, 2024, and May 29, 2024.

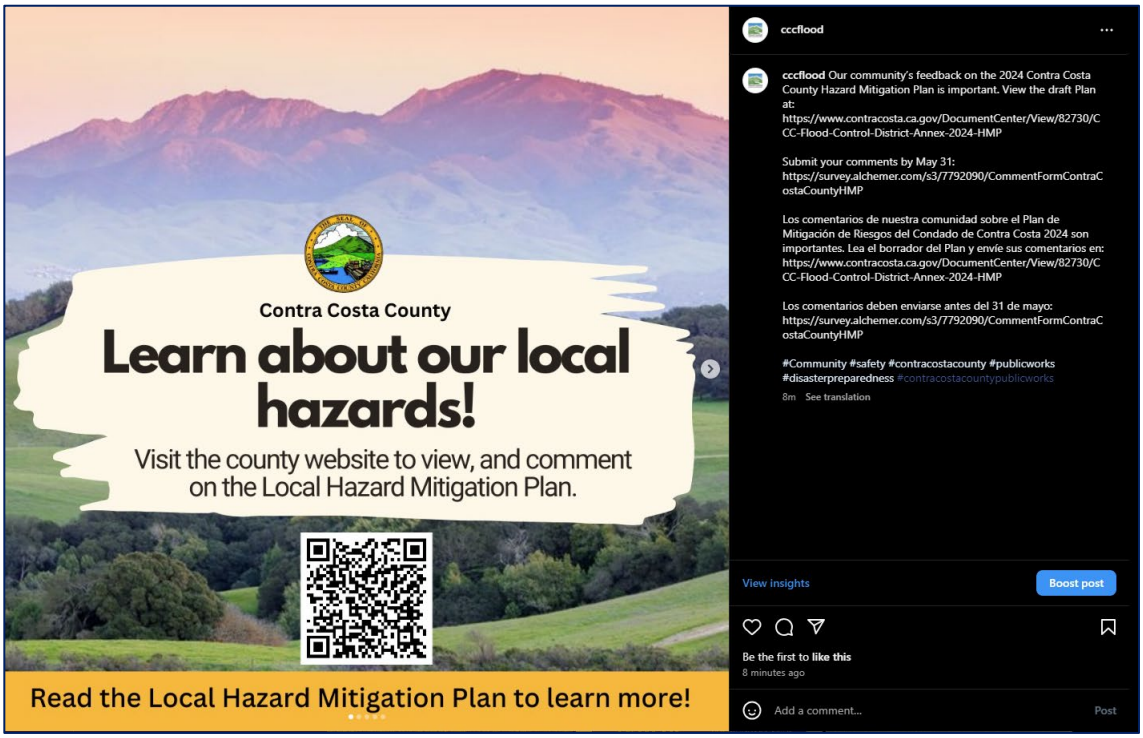



Contra Costa County
Learn about our local hazards!
Visit the county website to view, and comment on the Local Hazard Mitigation Plan.
Read the Local Hazard Mitigation Plan to learn more!
cccflood
cccflood Your feedback shapes the 2024 Contra Costa County Hazard Mitigation! View the draft Plan and submit your comments at https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP
¡Sus comentarios dan forma a la Mitigación de Riesgos del Condado de Contra Costa para 2024! Lea el borrador del Plan y envíe sus comentarios en https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP
#community #safety #contracostacounty #publicworks #disasterpreparedness
1w See translation
View insights
Boost post
Liked by ccleanwater and 3 others
7 days ago
Add a comment...
Post

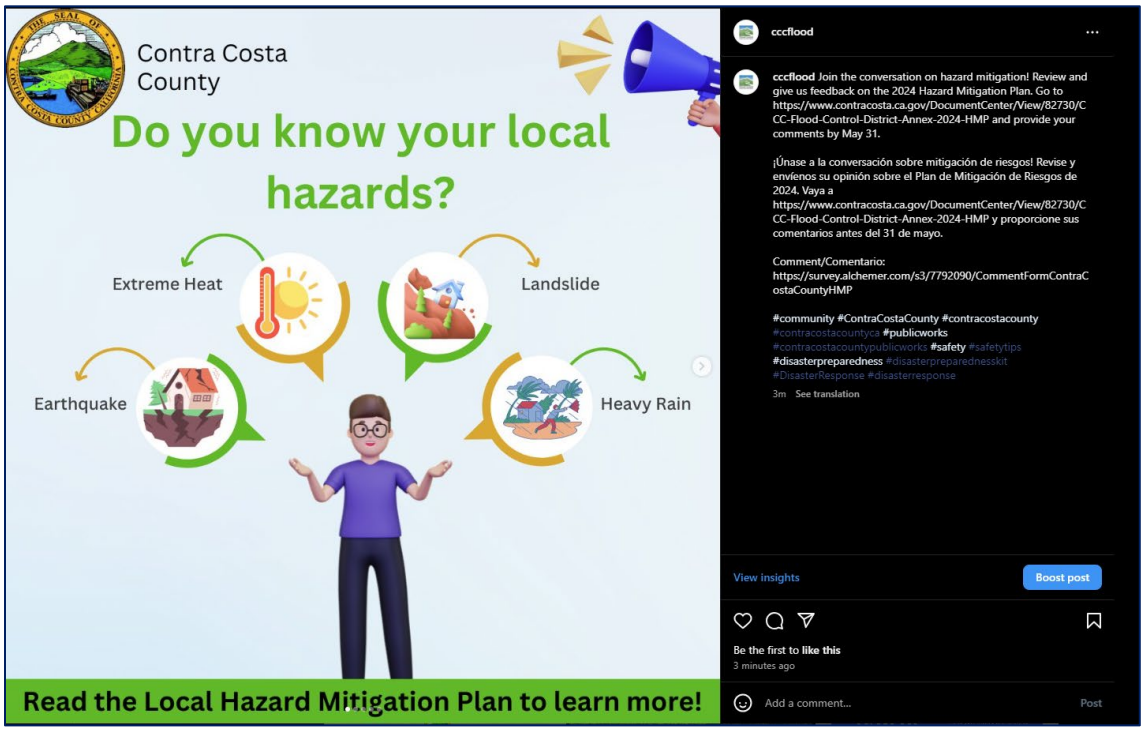

Contra Costa County Flood Control District
May 15
Join the conversation on hazard mitigation! Review and give us feedback on the 2024 Flood Control District Hazard Mitigation Plan. Go to https://www.contracosta.ca.gov/.../CCC-Flood-Control... and provide your comments by May 31: https://survey.alchemer.com/.../CommentFormContraCostaCou....
¡Únase a la conversación sobre mitigación de riesgos! Revise y envíenos su opinión sobre el Plan de Mitigación de Riesgos de 2024. Vaya a https://www.contracosta.ca.gov/.../CCC-Flood-Control... y proporcione sus comentarios antes del 31 de mayo: https://survey.alchemer.com/.../CommentFormContraCostaCou....
#community #safety #contracostacounty #publicworks #disasterpreparedness
Contra Costa County
What's a hazard?
A hazard is something that is potentially dangerous or harmful.
Extreme Heat
Landslide
Earthquake
Heavy Rain
Learn which hazards impact you!
Contra Costa County
¿Que es un riesgo?
Un riesgo es algo que es potencialmente peligroso o dañino.
Extreme Heat
Landslide
Earthquake
Heavy Rain
Aprenda qué riesgos podrían afectarlo.
Contra Costa County Flood Control District
Government Organization
Send message
Like
Comment
Share


Contra Costa County
What's a hazard?
A hazard is something that is potentially dangerous or harmful.
Extreme Heat
Landslide
Earthquake
Heavy Rain
Learn which hazards impact you!
cccflood
cccflood Join the conversation on hazard mitigation! Review and give us feedback on the 2024 Flood Control District Hazard Mitigation Plan. Go to https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP and provide your comments by May 31: https://survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP.
¡Únase a la conversación sobre mitigación de riesgos! Revise y envíenos su opinión sobre el Plan de Mitigación de Riesgos de 2024. Vaya a https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP y proporcione sus comentarios antes del 31 de mayo: https://survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP.
54s See translation
View insights
Boost post
Be the first to like this
54 seconds ago
Add a comment...
Post


Contra Costa County Flood Control District
May 22 at 1:41 PM
Our community's feedback on the 2024 Contra Costa County Hazard Mitigation Plan is important. View the draft Plan at: https://www.contracosta.ca.gov/.../CCC-Flood-Control...
Submit your comments by May 31:
https://survey.alchemer.com/.../CommentFormContraCostaCou...
Los comentarios de nuestra comunidad sobre el Plan de Mitigación de Riesgos del Condado de Contra Costa 2024 son importantes. Lea el borrador del Plan y envíe sus comentarios en:
https://www.contracosta.ca.gov/.../CCC-Flood-Control...
Los comentarios deben enviarse antes del 31 de mayo:
https://survey.alchemer.com/.../CommentFormContraCostaCou...
#Community #safety #contracostacounty #publicworks #disasterpreparedness #contracostacountypublicworks
Contra Costa County
Learn about our local hazards!
Visit the county website to view, and comment on the Local Hazard Mitigation Plan.
Read the Local Hazard Mitigation Plan to learn more!
Contra Costa County
加入关于减灾的对话!
查看 2024 年减灾计划并向我们提供反馈。
前往该县网站阅读该计划!
Contra Costa County
Matuto tungkol sa mga panganib sa inyong lugar!
Contra Costa County
瞭解我們當地的災害!
Condado de Contra Costa
¿Conoce sus riesgos?
1


Contra Costa County
Learn about our local hazards!
Visit the county website to view, and comment on the Local Hazard Mitigation Plan.
Read the Local Hazard Mitigation Plan to learn more!
cccflood
cccflood Our community's feedback on the 2024 Contra Costa County Hazard Mitigation Plan is important. View the draft Plan at: https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP
Submit your comments by May 31: https://survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP
Los comentarios de nuestra comunidad sobre el Plan de Mitigación de Riesgos del Condado de Contra Costa 2024 son importantes. Lea el borrador del Plan y envíe sus comentarios en: https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP
Los comentarios deben enviarse antes del 31 de mayo: https://survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP
#Community #safety #contracostacounty #publicworks #disasterpreparedness #contracostacountypublicworks
8m See translation
View insights
Boost post
Be the first to like this
8 minutes ago
Add a comment...
Post


Contra Costa County Flood Control District
May 29 at 6:18PM
Join the conversation on hazard mitigation! Review and give us feedback on the 2024 Hazard Mitigation Plan. Go to https://www.contracosta.ca.gov/.../CCC-Flood-Control... and provide your comments by May 31.
¡Únase a la conversación sobre mitigación de riesgos! Revise y envíenos su opinión sobre el Plan de Mitigación de Riesgos de 2024. Vaya a https://www.contracosta.ca.gov/.../CCC-Flood-Control... y proporcione sus comentarios antes del 31 de mayo.
Comment/Comentario: https://survey.alchemer.com/.../CommentFormContraCostaCou...
#community #ContraCostaCounty #contracostacounty #contracostacountyca #publicworks #contracostacountypublicworks #safety #safetytips #disasterpreparedness #disasterpreparednesskit #DisasterResponse #disasterresponse
Contra Costa County
Do you know your local hazards?
Extreme Heat
Landslide
Earthquake
Heavy Rain
Read the Local Hazard Mitigation Plan to learn more!
Condado de Contra Costa
¿Qué riesgos le afectan?
Calor Extremo
Deslizamientos de Tierra
Terremotos
Lluvias Fuertes
¡Lea el plan de mitigación de riesgos para aprender más!
Alam mo ba ang mga panganib sa inyong lugar?
您是否了解当地的灾害?
您是否瞭解當地的災害?
Like
Comment
Share


Contra Costa County
Do you know your local hazards?
Extreme Heat
Landslide
Earthquake
Heavy Rain
Read the Local Hazard Mitigation Plan to learn more!
cccflood
cccflood Join the conversation on hazard mitigation! Review and give us feedback on the 2024 Hazard Mitigation Plan. Go to https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP and provide your comments by May 31.
¡Únase a la conversación sobre mitigación de riesgos! Revise y envíenos su opinión sobre el Plan de Mitigación de Riesgos de 2024. Vaya a https://www.contracosta.ca.gov/DocumentCenter/View/82730/CCC-Flood-Control-District-Annex-2024-HMP y proporcione sus comentarios antes del 31 de mayo.
Comment/Comentario: https://survey.alchemer.com/s3/7792090/CommentFormContraCostaCountyHMP
#community #ContraCostaCounty #contracostacounty #contracostacountyca #publicworks #contracostacountypublicworks #safety #safetytips #disasterpreparedness #disasterpreparednesskit #DisasterResponse #disasterresponse
3m See translation
View insights
Boost post
Be the first to like this
3 minutes ago
Add a comment...
Post

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 20** outlines the stakeholders the District identified and provided an opportunity to review and provide feedback on the draft Plan and Annex, via the countywide stakeholders e-mail.

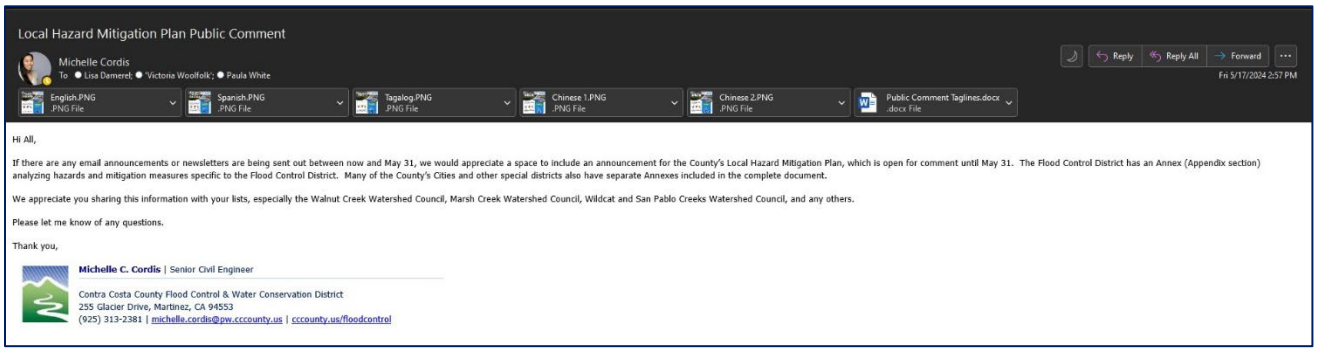
Table 20. Contra Costa County Flood Control and Water Conservation District Specific Stakeholders List

Local and Regional Agencies	
Cal OES	Contra Costa County Department of Public Works
CalFire	Contra Costa County District Attorney's Office
California Department of Parks and Recreation	Contra Costa County Health Services
California Department of Transportation (Caltrans)	Contra Costa County Office of the Sheriff
California Department of Water Resources	Contra Costa County Risk Management
California Highway Patrol	Contra Costa County Transportation Authority
Central Delta Water Agency	Contra Costa County Treasurer-Tax Collector
Contra Costa County Administrator's Office	Contra Costa County Water District
Contra Costa County Airport	East Bay Municipal Utility District
Contra Costa County Administrator's Office	East Bay Regional Park District
Contra Costa County Airport	Golden Gate, Bridge, Highway and Transportation District
Contra Costa County Auditor – Controller	Military Ocean Terminal Concord
Contra Costa County Clerk-Recorder	National Oceanic and Atmospheric Association
Contra Costa County Counsel	National Weather Service
Contra Costa County Department of Conservation and Development	State Water Resources Control Board
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	Reclamation District No. 2059 (Bradford Island)
City of Antioch	Byron-Bethany Irrigation District
City of Concord	Crockett Community Services District
City of Pittsburg	Crockett-Carquinez Fire Department
Sacramento County	Moraga-Orinda Fire District
San Joaquin County	Reclamation District No. 800 (Byron Tract)
Bouldin Island Reclamation District	
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
Carlton Senior Living	Meals on Wheels
CocoKids	Monument Crisis Center
Community Awareness and Emergency Response	Regional Center of the East Bay
Concord Corps. – The Salvation Army	Richmond Community Foundation
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	
BNSF Railway	Pacific Gas & Electric
Marathon Petroleum	

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

Additionally, an e-mail was sent to stakeholders requesting that newsletters for local stakeholder organizations include the local hazard flyers, information on the Contra Costa County Hazard Mitigation Plan, including the District's Annex, and options to provide feedback on the Plan. The District determined that watershed councils (Contra Costa Resource Conservation District, Walnut Creek Watershed Council, Marsh Creek Watershed Council, Wildcat & San Pablo Creeks Watershed Council, and The Watershed Project) are the best way to connect to local watershed champions.



Local Hazard Mitigation Plan Public Comment

Michelle Cordis
To: Lisa Dameret; Victoria Woolfolk; Paula White

Reply | Reply All | Forward

Fri 5/17/2024 2:57 PM

English.PNG .PNG File | Spanish.PNG .PNG File | Tagalog.PNG .PNG File | Chinese 1.PNG .PNG File | Chinese 2.PNG .PNG File | Public Comment Taglines.docx .docx File

Hi All,

If there are any email announcements or newsletters are being sent out between now and May 31, we would appreciate a space to include an announcement for the County's Local Hazard Mitigation Plan, which is open for comment until May 31. The Flood Control District has an Annex (Appendix section) analyzing hazards and mitigation measures specific to the Flood Control District. Many of the County's Cities and other special districts also have separate Annexes included in the complete document.

We appreciate you sharing this information with your lists, especially the Walnut Creek Watershed Council, Marsh Creek Watershed Council, Wildcat and San Pablo Creeks Watershed Council, and any others.

Please let me know of any questions.

Thank you,

Michelle C. Cordis | Senior Civil Engineer

Contra Costa County Flood Control & Water Conservation District
255 Glacier Drive, Martinez, CA 94553
(925) 313-2381 | michelle.cordis@pw.cccounty.us | cccounty.us/floodcontrol

B.2. Continued Public Engagement

To ensure continued public engagement, Contra Costa County and the District 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 District'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 District 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 District's community outreach strategy to include, but not limited to, public meetings, community events, social media, and public surveys throughout the year. Furthermore, the Contra Costa County Flood Control and Water Conservation District 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 21 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 21. 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 22** outlines the extent/intensity factors used in the risk assessment calculations for this Plan.

Table 22. 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 23** outlines the catastrophic factors used in the risk assessment calculations for this Plan.

Table 23. 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 24** outlines the population exposure factors used in the risk assessment calculations for this Plan.

Table 24. 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 25** outlines the property exposure factors used in the risk assessment calculations for this Plan.

Table 25. 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 26** outlines the changes in development factors used in the risk assessment calculations for this Plan.

Table 26. 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 27** outlines the population and life safety factors used in the risk assessment calculations for this Plan.

Table 27. 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 28** outlines the underserved/equity factors used in the risk assessment calculations for this Plan.

Table 28. 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 29** outlines the property damage factors used in the risk assessment calculations for this Plan.

Table 29. 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 30** outlines the economic factors used in the risk assessment calculations for this Plan.

Table 30. 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 31** outlines the environmental factors used in the risk assessment calculations for this Plan.

Table 31. 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 32** outlines the essential operations factors used in the risk assessment calculations for this Plan.

Table 32. 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 33** outlines the future development factors used in the risk assessment calculations for this Plan.

Table 33. 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 34** outlines the climate change factors used in the risk assessment calculations for this Plan.

Table 34. 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	High	Significant hazard event is likely to occur annually.	3	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***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Flood (Riverine/Creek)	***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
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***	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
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	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
Drought	***Population Exposure***	High	30% or more of the population (including underserved population) is exposed to the hazard.	3	9
	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
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	15% to 29% of the population (including underserved population) is exposed to the hazard.	1	3
	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 (Urban/Flash Flood)	***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
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	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
Landslide	***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
Sea Level Rise	***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
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***	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

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	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
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	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	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

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***	High	Populations exposed to this hazard are likely to experience significant adverse impacts, such as fatalities and severe injuries.	3	9
	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	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	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***	High	Populations exposed to this hazard are likely to experience significant adverse impacts, such as fatalities and severe injuries.	3	9
	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	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	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***	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

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	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	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***	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	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
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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	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
	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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	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
	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	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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	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
Wildfire	***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	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	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
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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	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
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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
	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	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

Hazard Event	Impact Factor	Impact		Impact Factor	Weighted Factor
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
	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]